

MIAMI/KENDALL-TAMIA FL

Latitude = 25.65 N

WMO No. 722029

Longitude = 80.43 W

Elevation = 10 feet

Period of Record = 1976 to 1995

Average Pressure = 30.00 inches Hg

Design Criteria Data

	Design Value	Mean Coincident (Average) Values			
		Wet Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Dry Bulb Temperature (T)	(°F)				
Median of Extreme Highs	95	78	119	10.0	ESE
0.4% Occurrence	92	78	121	11.1	ESE
1.0% Occurrence	91	78	121	11.2	ESE
2.0% Occurrence	90	77	121	11.1	ESE
Mean Daily Range	16	-	-	-	-
97.5% Occurrence	54	51	50	7.8	N
99.0% Occurrence	49	46	41	7.1	N
99.6% Occurrence	45	42	34	7.5	N
Median of Extreme Lows	42	39	29	7.8	N
	Design Value	Mean Coincident (Average) Values			
		Dry Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Wet Bulb Temperature (T_{wb})	(°F)				
Median of Extreme Highs	85	89	173	8.7	E
0.4% Occurrence	80	88	136	10.1	ESE
1.0% Occurrence	79	87	133	9.6	ESE
2.0% Occurrence	79	87	133	9.6	ESE
	Design Value	Mean Coincident (Average) Values			
		Dry Bulb Temperature (°F)	Vapor Pressure (in. Hg)	Wind Speed (mph)	Prevailing Direction (NSEW)
Humidity Ratio (HR)	(gr/lb)				
Median of Extreme Highs	177	88	1.18	7.1	SSW
0.4% Occurrence	146	83	0.97	8.2	S
1.0% Occurrence	141	83	0.94	7.5	E
2.0% Occurrence	140	83	0.94	7.4	E
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		28	2769	3725	6173

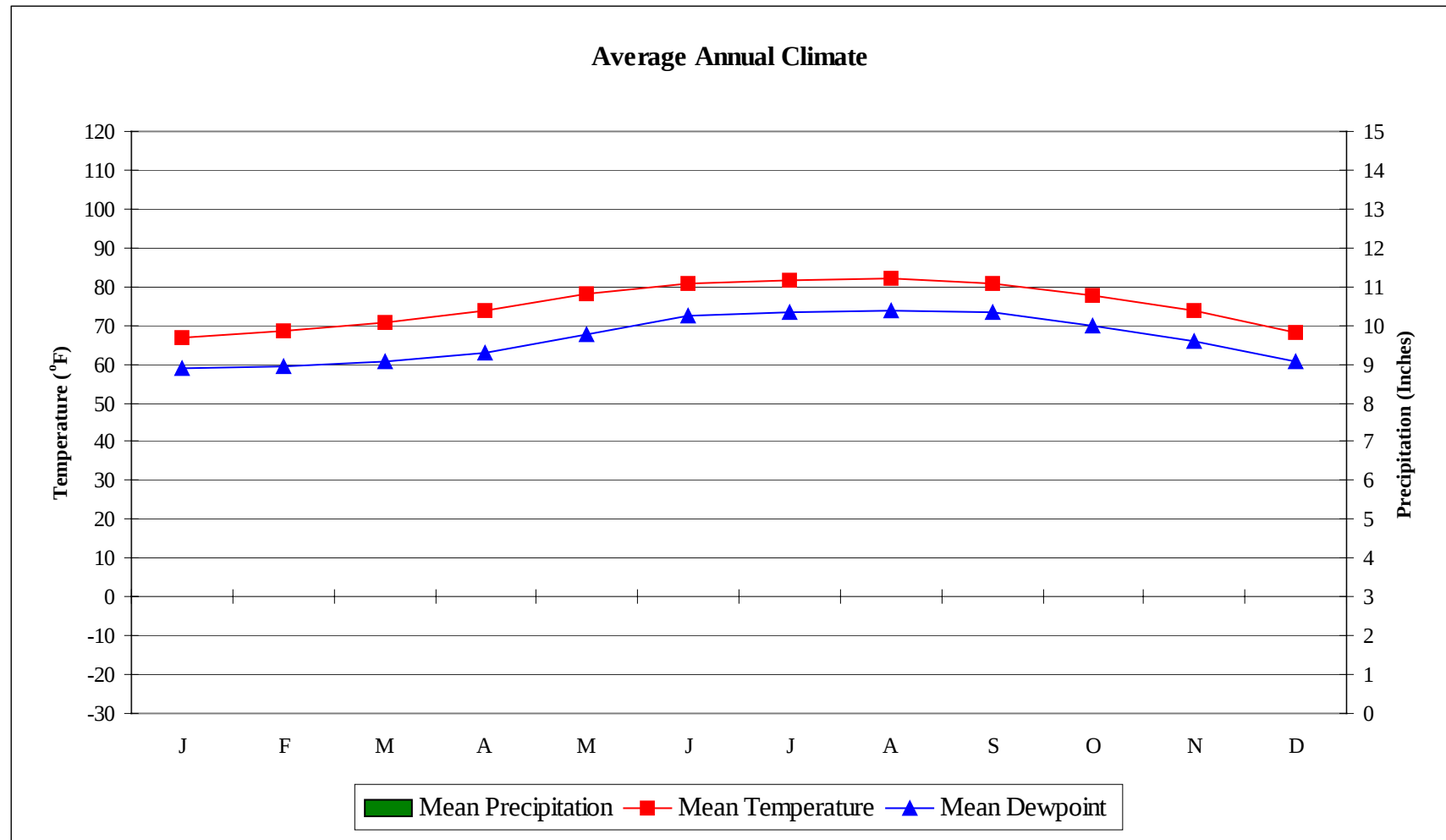
Other Site Data

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	5.0	150	12.0 + 2.7
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 (#)
77.7	0	0	0

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

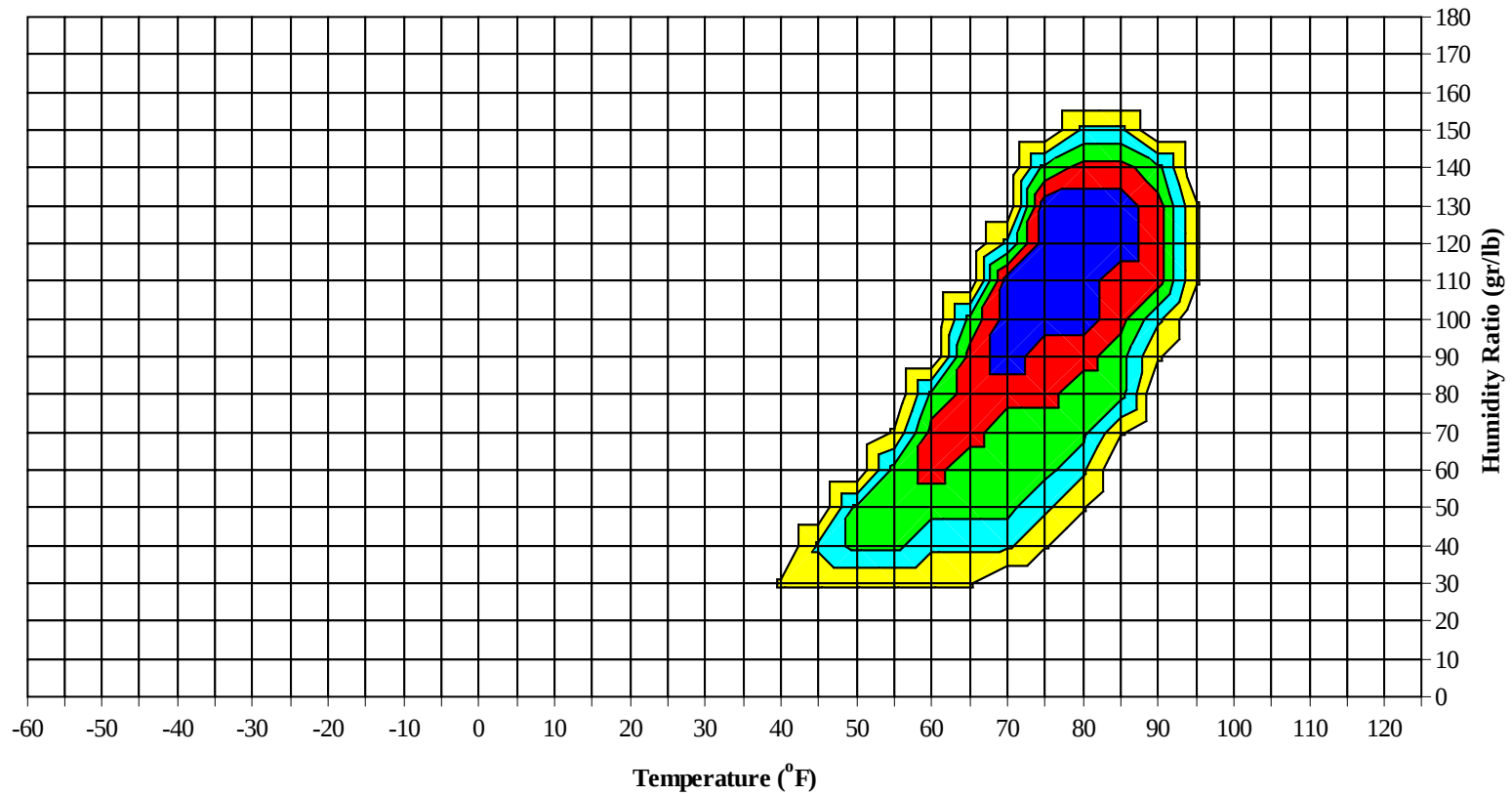
MIAMI/KENDALL-TAMIA FL

WMO No. 722029



No Precipitation Data Available

Long Term Psychrometric Summary

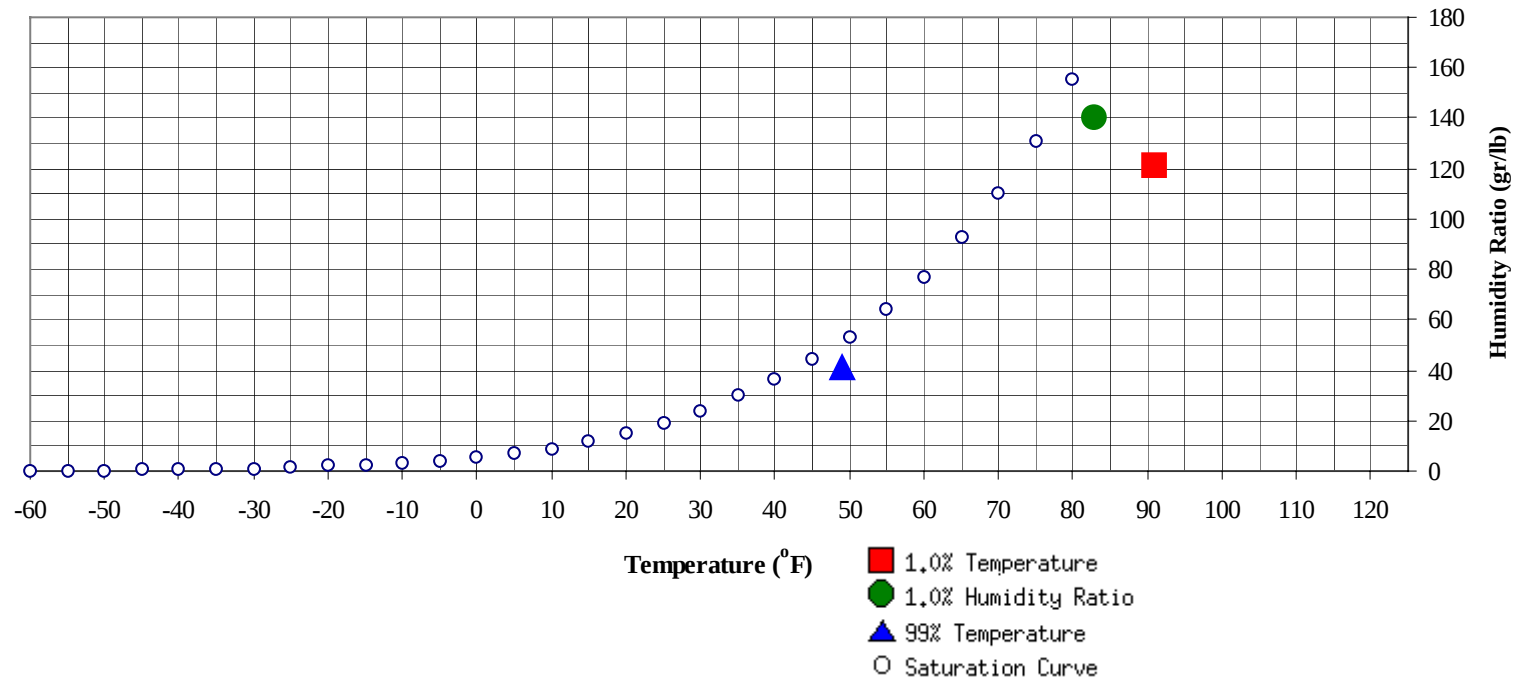


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

MIAMI/KENDALL-TAMIA FL

WMO No. 722029

Psychrometric Summary of Peak Design Values



	(°F)	MCHR	Enthalpy	1.0% Humidity Ratio	(gr/lb)	MCDB	MCWB	MC Dewpt	Enthalpy
		(gr/lb)	(btu/lb)			(°F)	(°F)	(°F)	(btu/lb)
99% Dry Bulb	49	41.2	18.1	Ratio	140.7	82.8	78.5	77	41.9

1.0% Dry Bulb	(°F)	MCHR	MCWB	Enthalpy
		(gr/lb)	(°F)	(btu/lb)
91	121.4	77.8	40.9	

MIAMI/KENDALL-TAMIA FL

WMO No. 722029

Dry-Bulb Temperature Hours For An Average Year (Sheet 1 of 5)

Period of Record = 1976 to 1995

Temperature Range (°F)	January					February					March				
	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00		
95 / 99															
90 / 94															
85 / 89		2		2	72.8		6	0	6	72.3		17	1	18	73.0
80 / 84		41	3	44	71.7	0	49	7	56	71.2	0	70	14	84	70.5
75 / 79	2	78	28	108	68.9	3	68	31	102	68.5	17	85	57	159	68.3
70 / 74	52	53	75	179	67.2	46	49	74	168	66.3	68	44	83	195	66.6
65 / 69	57	33	59	148	63.1	62	27	54	144	63.1	67	17	53	137	63.1
60 / 64	46	24	42	111	58.4	44	15	28	87	58.5	45	10	22	77	58.6
55 / 59	44	11	25	80	54.1	32	7	17	56	54.0	29	4	13	46	53.5
50 / 54	26	5	11	42	49.3	22	3	9	34	48.9	14	1	3	18	49.5
45 / 49	17	1	4	22	44.9	11	1	2	14	44.3	6	0	2	8	44.3
40 / 44	4	1	1	6	40.3	4	0	1	5	38.5	2		0	2	40.0
35 / 39	1	0	0	1	35.1	1			1	35.3	0			0	36.7
30 / 34	1	0	0	1	29.3	0			0	33.0					
25 / 29	0			0	29.0										

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.

MIAMI/KENDALL-TAMIA FL

WMO No. 722029

Dry-Bulb Temperature Hours For An Average Year (Sheet 2 of 5)

Period of Record = 1976 to 1995

Temperature Range (°F)	April					May					June				
	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00		
95 / 99						0			0	76.2		1		1	77.8
90 / 94		3	0	3	75.4	16	1	17	75.3		0	40	3	43	77.6
85 / 89		40	5	45	72.2	0	96	15	112	73.7	2	121	28	151	76.5
80 / 84	2	94	24	120	70.5	16	101	61	178	72.3	46	51	89	186	75.7
75 / 79	31	70	75	176	68.9	86	27	111	224	71.6	130	21	96	247	74.2
70 / 74	79	23	82	184	67.0	94	6	49	148	69.1	59	7	22	88	71.7
65 / 69	63	7	33	103	63.5	42	1	10	53	65.0	2	0	1	3	63.5
60 / 64	38	3	13	54	59.3	9		1	10	59.7	1		0	1	59.8
55 / 59	20	1	6	27	54.7	2		0	2	55.2					
50 / 54	6	0	1	7	49.6	0			0	51.2					
45 / 49	2			2	46.2										
40 / 44															
35 / 39															
30 / 34															
25 / 29															

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MIAMI/KENDALL-TAMIA FL

WMO No. 722029

Dry-Bulb Temperature Hours For An Average Year (Sheet 3 of 5)

Period of Record = 1976 to 1995

Temperature Range (°F)	July					August					September				
	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00		
95 / 99		1	0	1	77.8		1		1	77.2		0		0	80.0
90 / 94	0	70	6	76	77.9	0	77	5	82	78.1	0	37	1	38	78.0
85 / 89	6	121	43	171	77.4	4	117	42	162	77.7	2	129	26	157	77.2
80 / 84	59	37	100	196	76.4	55	34	105	194	76.7	44	52	105	201	76.2
75 / 79	143	15	85	243	74.6	160	16	87	264	74.9	152	19	93	265	74.6
70 / 74	40	3	14	57	72.0	29	3	9	41	72.3	42	3	14	59	72.2
65 / 69		0		0	68.0			0	0	69.0	0			0	68.5
60 / 64															
55 / 59															
50 / 54															
45 / 49															
40 / 44															
35 / 39															
30 / 34															
25 / 29															

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MIAMI/KENDALL-TAMIA FL

WMO No. 722029

Dry-Bulb Temperature Hours For An Average Year (Sheet 4 of 5)

Period of Record = 1976 to 1995

Temperature Range (°F)	October					November					December				
	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00		
95 / 99		0		0	78.0										
90 / 94		7		7	77.5										
85 / 89	1	92	7	100	76.0		24	0	24	74.7		3		3	74.6
80 / 84	12	106	56	174	74.0	1	104	15	120	73.0	0	49	3	52	71.7
75 / 79	93	34	121	249	73.2	45	70	95	210	71.4	7	87	35	129	69.4
70 / 74	98	8	55	162	69.9	85	27	76	188	68.8	48	51	87	186	67.3
65 / 69	37	1	7	45	65.1	55	11	38	104	64.1	78	26	59	163	63.8
60 / 64	5	0	1	6	59.3	33	4	11	49	59.1	51	17	32	100	58.9
55 / 59	1	0	0	1	54.4	15	1	4	20	53.6	27	9	17	53	53.8
50 / 54	1		0	1	49.1	5	0	1	6	49.7	20	4	9	33	49.0
45 / 49						1		0	1	47.4	10	1	3	14	43.6
40 / 44											4	1	2	7	39.1
35 / 39											1	0	1	2	33.8
30 / 34											2	0	0	2	29.9
25 / 29											0			0	28.0

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.

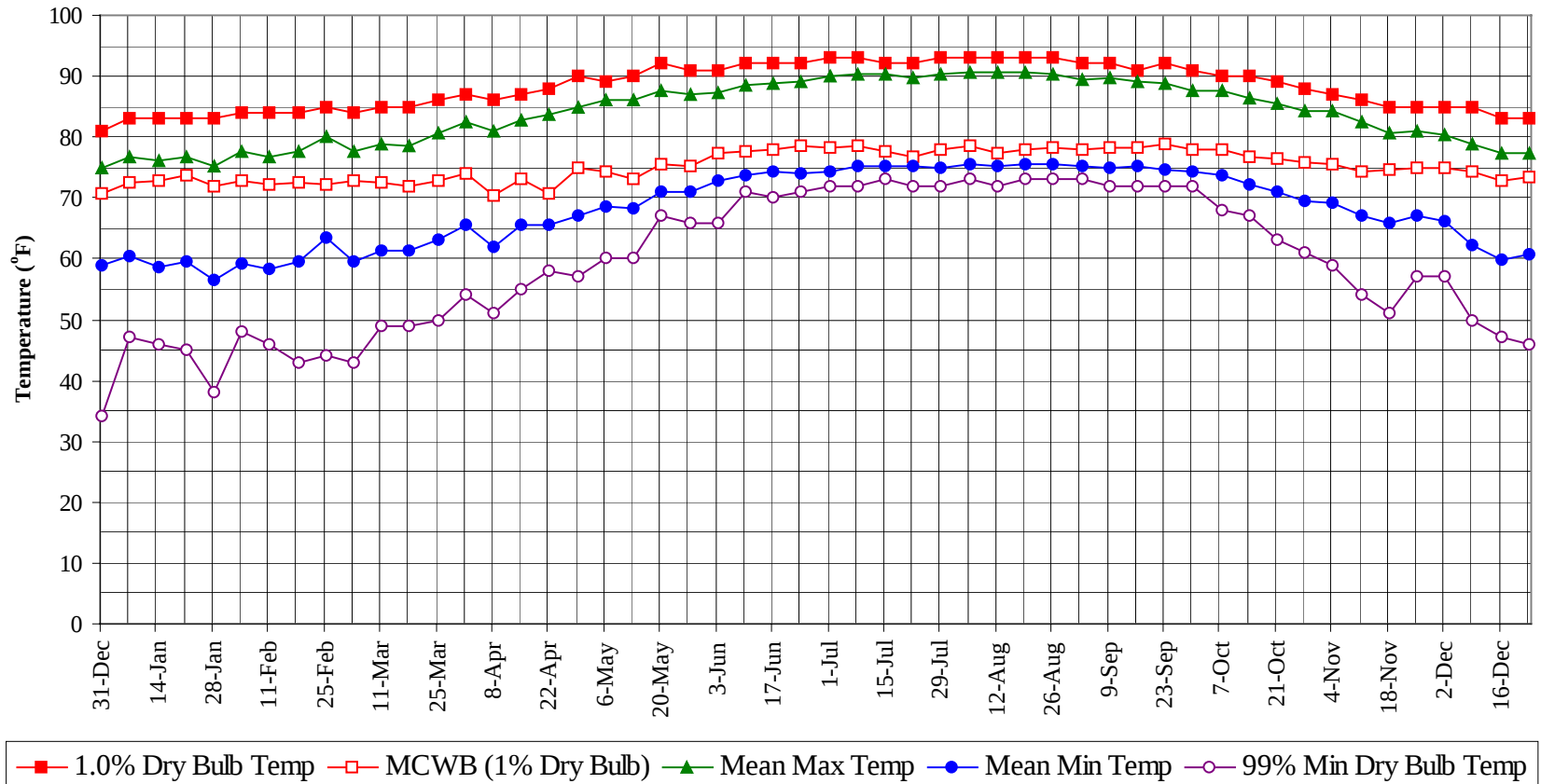
WMO No. 722029

Period of Record = 1976 to 1995

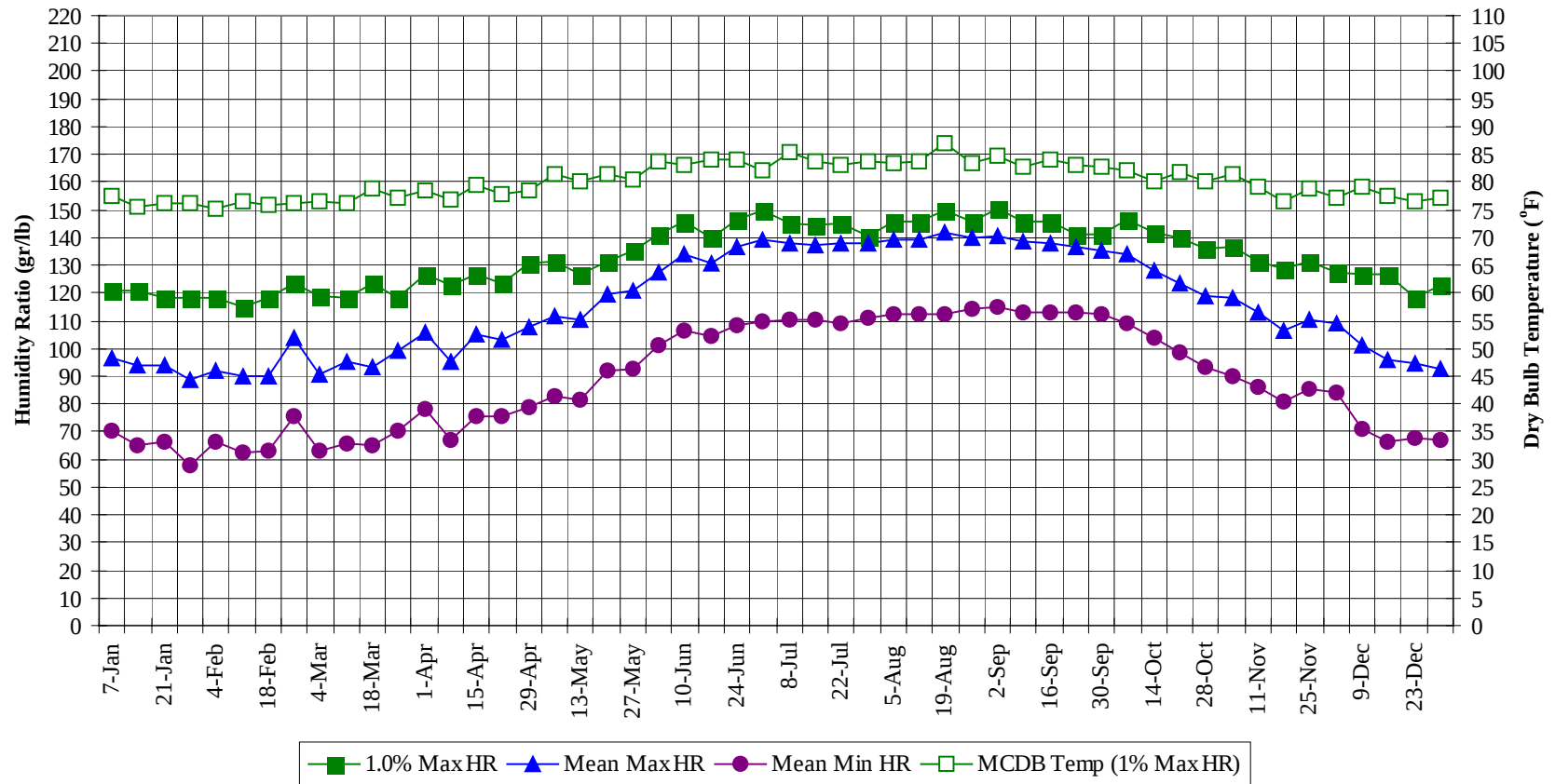
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Annual Summary of Temperatures

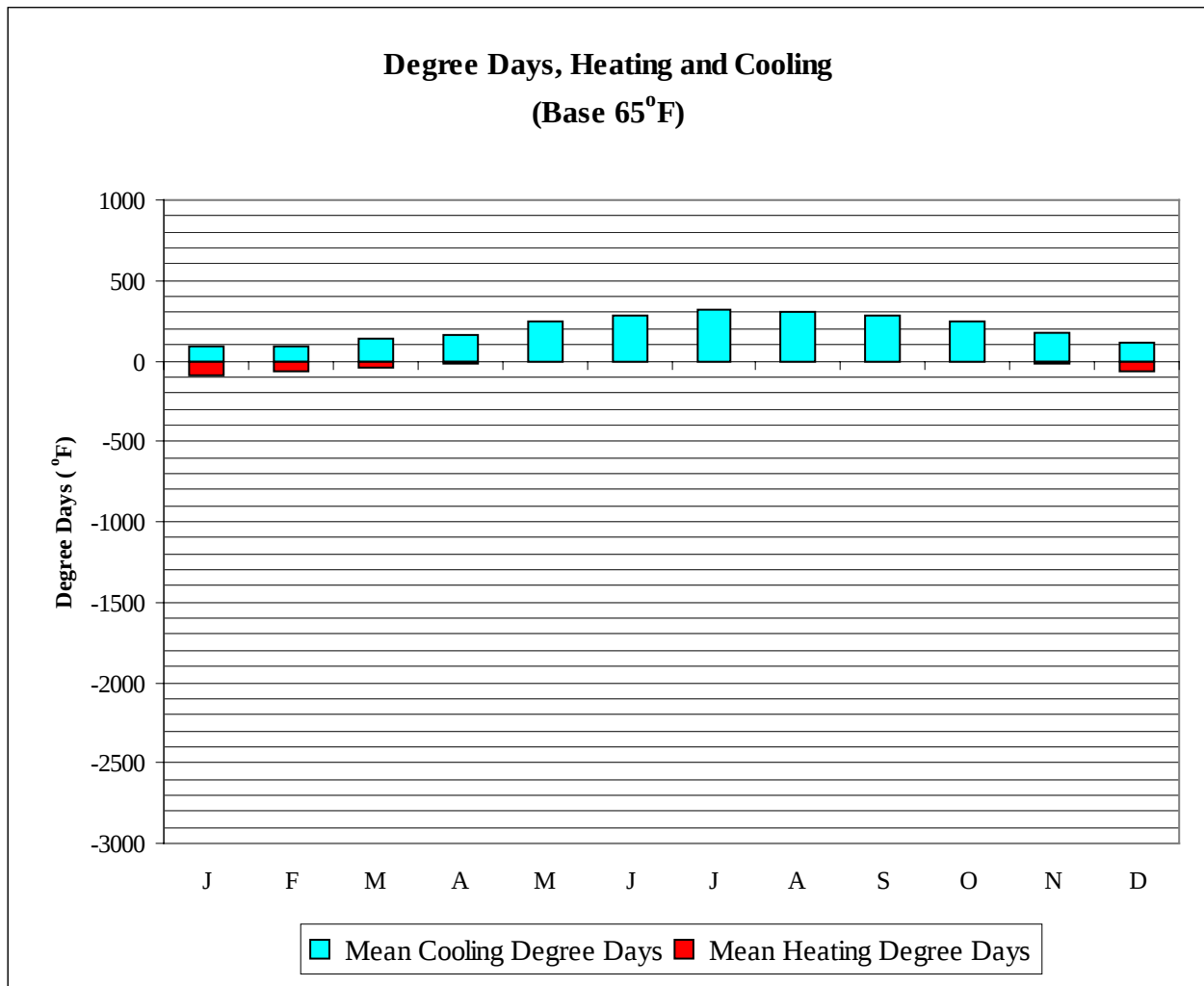


Long Term Humidity and Dry Bulb Temperature Summary

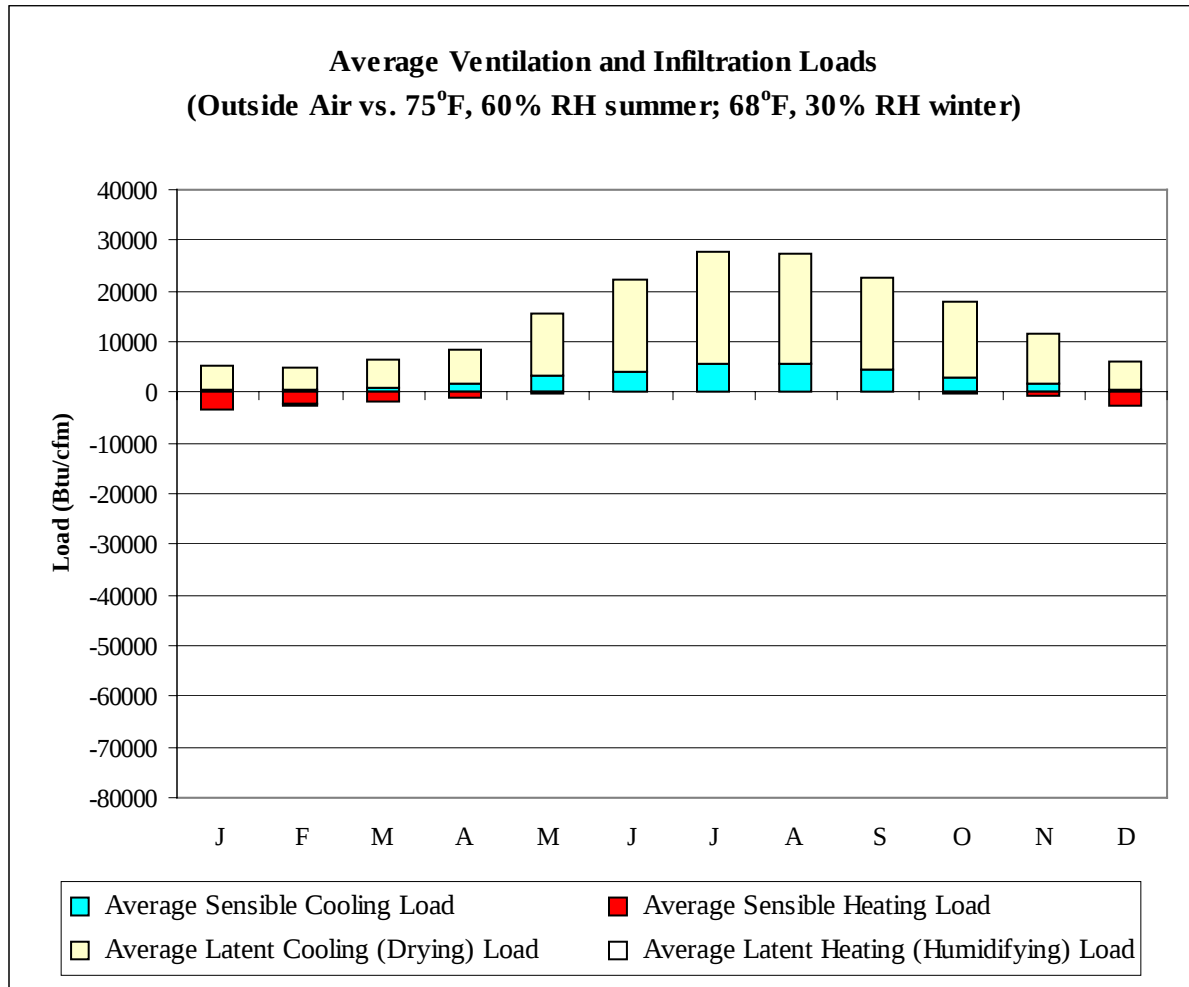


MIAMI/KENDALL-TAMIA FL
WMO No. 722029
Long Term Dry Bulb Temperature and Humidity Summary

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	83.0	72.4	76.9	60.3	47.0	121.1	77.4	96.5	70.1
14-Jan	83.0	72.9	76.2	58.7	46.0	121.1	75.7	93.8	64.8
21-Jan	83.0	73.6	76.8	59.6	45.0	118.3	76.2	94.1	66.2
28-Jan	83.0	71.8	75.2	56.5	38.0	118.3	76.1	88.8	57.9
4-Feb	84.0	72.7	77.7	59.3	48.0	118.3	75.1	91.8	66.3
11-Feb	84.0	72.1	76.7	58.3	46.0	114.8	76.4	89.9	62.1
18-Feb	84.0	72.6	77.7	59.4	43.0	118.3	75.9	90.1	63.1
25-Feb	85.0	72.3	80.2	63.4	44.0	123.2	76.3	103.6	75.8
4-Mar	84.0	72.8	77.7	59.5	43.0	119.0	76.4	90.9	63.0
11-Mar	85.0	72.4	78.8	61.2	49.0	118.3	76.0	95.4	65.8
18-Mar	85.0	71.8	78.6	61.4	49.0	123.2	78.8	93.3	64.8
25-Mar	86.0	72.9	80.6	63.1	50.0	118.3	77.2	99.1	70.2
1-Apr	87.0	74.1	82.5	65.7	54.0	126.7	78.4	105.7	78.3
8-Apr	86.0	70.4	80.9	62.1	51.0	122.5	76.9	95.2	66.7
15-Apr	87.0	73.0	82.9	65.6	55.0	126.7	79.5	104.9	75.3
22-Apr	88.0	70.7	83.6	65.6	58.0	123.2	78.0	103.1	75.8
29-Apr	90.0	74.9	84.9	67.0	57.0	130.9	78.5	107.7	78.8
6-May	89.0	74.4	86.0	68.5	60.0	131.6	81.3	111.9	82.9
13-May	90.0	73.1	86.1	68.4	60.0	126.7	80.1	110.5	81.6
20-May	92.0	75.5	87.7	71.1	67.0	131.6	81.6	119.2	92.2
27-May	91.0	75.3	86.9	71.1	66.0	135.1	80.5	120.6	92.5
3-Jun	91.0	77.3	87.3	72.9	66.0	141.4	83.6	127.6	101.2
10-Jun	92.0	77.7	88.5	73.8	71.0	145.6	82.9	134.3	106.6
17-Jun	92.0	77.8	88.7	74.2	70.0	140.0	84.2	130.7	104.7
24-Jun	92.0	78.4	89.2	74.0	71.0	146.3	84.1	136.5	108.4
1-Jul	93.0	78.2	89.9	74.4	72.0	149.8	82.0	139.4	109.8
8-Jul	93.0	78.4	90.3	75.2	72.0	144.9	85.3	137.9	110.6
15-Jul	92.0	77.6	90.2	75.1	73.0	144.2	83.8	137.6	110.2
22-Jul	92.0	76.8	89.9	75.1	72.0	144.9	83.2	138.1	109.2
29-Jul	93.0	78.0	90.3	75.1	72.0	140.7	83.8	137.8	111.3
5-Aug	93.0	78.6	90.6	75.6	73.0	145.6	83.5	139.5	112.2
12-Aug	93.0	77.4	90.8	75.2	72.0	145.6	83.6	139.1	112.2
19-Aug	93.0	77.9	90.6	75.4	73.0	149.8	87.0	141.7	112.5
26-Aug	93.0	78.2	90.4	75.6	73.0	145.6	83.6	139.7	114.5
2-Sep	92.0	77.8	89.4	75.4	73.0	150.5	84.7	140.8	114.7
9-Sep	92.0	78.1	89.7	74.9	72.0	145.6	82.6	138.3	113.2
16-Sep	91.0	78.4	89.1	75.3	72.0	145.6	84.2	138.0	113.2
23-Sep	92.0	78.9	88.9	74.6	72.0	141.4	83.0	136.6	112.8
30-Sep	91.0	77.8	87.5	74.4	72.0	141.4	82.7	135.2	112.2
7-Oct	90.0	77.9	87.5	73.7	68.0	146.3	82.2	133.9	108.9
14-Oct	90.0	76.6	86.3	72.1	67.0	142.1	80.0	127.8	103.7
21-Oct	89.0	76.4	85.6	71.0	63.0	140.0	81.9	123.3	98.7
28-Oct	88.0	76.0	84.4	69.6	61.0	135.8	80.2	118.8	93.6
4-Nov	87.0	75.6	84.3	69.1	59.0	136.5	81.6	118.3	90.2
11-Nov	86.0	74.5	82.4	67.0	54.0	131.6	79.3	112.8	86.3
18-Nov	85.0	74.7	80.8	65.8	51.0	128.8	76.7	106.3	81.0
25-Nov	85.0	74.8	80.9	67.0	57.0	131.6	78.8	110.2	85.5
2-Dec	85.0	74.9	80.5	66.2	57.0	127.4	77.1	109.1	84.2
9-Dec	85.0	74.3	78.7	62.3	50.0	126.7	79.1	101.0	71.1
16-Dec	83.0	72.7	77.5	59.9	47.0	126.7	77.5	95.8	66.5
23-Dec	83.0	73.4	77.2	60.8	46.0	118.3	76.5	94.3	67.8
31-Dec	81.0	70.8	74.8	58.8	34.0	122.5	77.2	92.3	66.7



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	89	86
FEB	94	62
MAR	132	40
APR	167	19
MAY	244	2
JUN	281	0
JUL	313	0
AUG	310	0
SEP	287	0
OCT	249	1
NOV	179	15
DEC	111	66
ANN	2457	291



	Average Sensible Cooling Load	Average Sensible Heating Load	Average Latent Cooling Load	Average Latent Heating Load
	(Btu/cfm)	(Btu/cfm)	(Btu/cfm)	(Btu/cfm)
JAN	516	-3250	4675	-55
FEB	656	-2409	4211	-55
MAR	1079	-1678	5399	-36
APR	1806	-886	6448	-4
MAY	3481	-138	12065	0
JUN	4238	-12	18092	0
JUL	5568	0	22222	0
AUG	5538	0	21936	0
SEP	4366	0	18122	0
OCT	3013	-92	14717	0
NOV	1545	-724	10145	-1
DEC	627	-2572	5427	-67
ANN	32433	-11761	143459	-218

Average Annual Solar Radiation – Nearest Available Site

(Source: National Renewable Energy Laboratory, Golden CO, 1995)

City: MIAMI
 State: FL
 WBAN No: 12839
 Lat(N): 25.8
 Long(W): 80.27
 Elev(ft): 7

Stn Type: Primary
 SHADING GEOMETRY IN DIMENSIONLESS UNITS
 Window: 1
 Overhang: 1.395
 Vert Gap: 0.2

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	1120	1340	1630	1900	1890	1770	1850	1770	1550	1380	1160	1040	1530
	Std Dev	70	94	106	129	130	111	138	89	107	88	76	76	48
	Minimum	990	1150	1410	1610	1610	1560	1500	1550	1300	1230	1010	900	1430
	Maximum	1270	1480	1820	2110	2180	1980	2100	1900	1780	1580	1280	1160	1620
	Diffuse	460	540	680	780	890	950	960	920	810	660	520	440	720
Clear Day	Global	1460	1750	2100	2380	2490	2510	2460	2340	2100	1780	1480	1350	2020
NORTH	Global	300	350	420	480	580	630	610	520	440	390	320	290	440
	Diffuse	300	350	410	470	510	540	540	500	440	390	320	290	420
Clear Day	Global	260	310	370	450	610	730	670	500	400	340	280	250	430
EAST	Global	690	800	940	1030	1020	960	990	960	880	810	710	650	870
	Diffuse	370	430	520	600	630	630	650	630	570	490	400	360	520
Clear Day	Global	930	1070	1210	1310	1310	1290	1260	1240	1170	1050	920	860	1130
SOUTH	Global	1320	1250	1080	810	590	520	550	680	860	1100	1240	1310	940
	Diffuse	490	520	560	550	520	510	520	550	570	570	520	480	530
Clear Day	Global	1990	1820	1440	930	600	500	540	770	1200	1620	1870	1960	1270
WEST	Global	670	780	920	1030	970	860	910	900	800	770	670	630	820
	Diffuse	380	430	530	590	620	610	630	610	550	490	400	360	520
Clear Day	Global	930	1070	1210	1310	1310	1290	1260	1240	1170	1050	920	860	1130

Average Annual Solar Heat and Illumination – Nearest Available Site

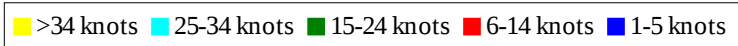
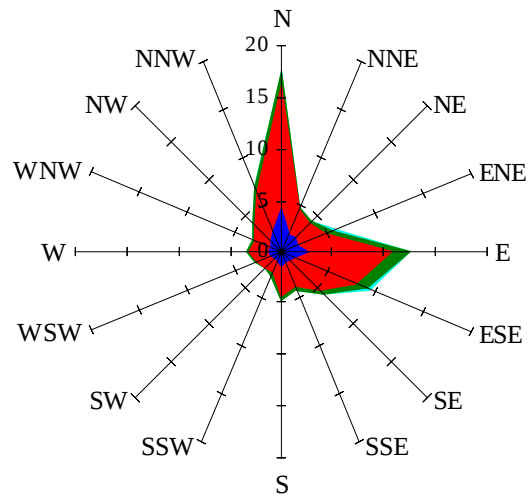
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

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	780	950	1170	1390	1370	1280	1340	1280	1120	990	810	720	1100
NORTH	Unshaded	210	240	290	330	370	400	400	350	310	270	220	200	300
	Shaded	150	170	210	240	250	250	260	240	210	190	160	140	200
EAST	Unshaded	480	570	670	740	720	680	700	680	620	570	490	450	610
	Shaded	270	300	350	380	370	340	360	350	320	300	260	250	320
SOUTH	Unshaded	960	870	690	480	370	350	370	420	540	750	900	960	640
	Shaded	270	220	250	260	250	240	250	250	230	240	290	290	250
WEST	Unshaded	470	550	650	730	680	600	640	630	560	540	470	430	580
	Shaded	260	300	340	380	350	310	330	320	290	290	250	240	310

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	39	79	94	80	39	32	74	101	99	71
	M.Cloudy	28	60	71	59	28	24	58	74	69	45
NORTH	M.Clear	11	16	17	17	11	23	23	19	19	24
	M.Cloudy	11	18	19	18	11	16	21	19	19	19
EAST	M.Clear	70	64	18	17	11	55	69	40	19	18
	M.Cloudy	39	46	19	18	11	32	51	32	19	16
SOUTH	M.Clear	28	55	66	55	28	11	18	23	22	18
	M.Cloudy	18	41	49	40	18	10	18	22	21	16
WEST	M.Clear	11	16	18	64	70	11	18	19	47	73
	M.Cloudy	11	18	19	45	37	10	18	19	34	39
M.Clear	(% hrs)	48	35	32	37	43	36	23	21	20	21
		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	21	67	93	92	57	23	58	69	51	14
	M.Cloudy	17	53	72	67	40	16	42	50	37	10
NORTH	M.Clear	8	17	20	19	16	8	13	15	13	6
	M.Cloudy	7	17	20	20	15	7	14	16	13	5
EAST	M.Clear	43	70	39	19	16	50	49	15	13	6
	M.Cloudy	25	50	33	20	15	23	32	16	13	5
SOUTH	M.Clear	12	40	56	55	33	39	75	85	68	27
	M.Cloudy	9	31	44	40	23	19	46	52	39	12
WEST	M.Clear	8	17	20	51	70	8	13	20	54	38
	M.Cloudy	7	17	20	38	41	7	14	19	32	16
M.Clear	(% hrs)	37	22	16	16	20	50	43	37	41	46

Wind Summary - December, January, and February

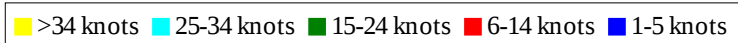
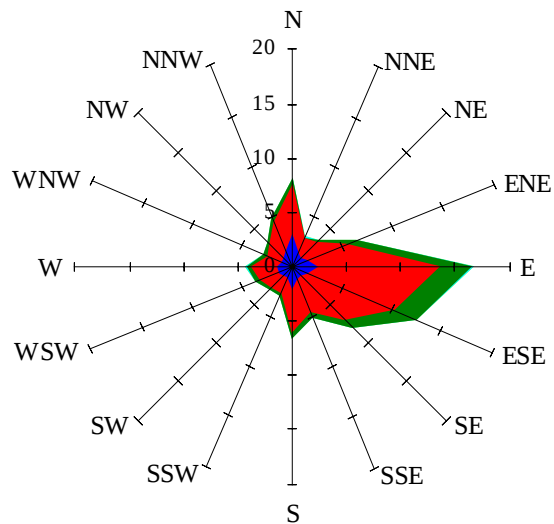
Labels of Percent Frequency on North Axis



Percent Calm = 7.82

Wind Summary - March, April, and May

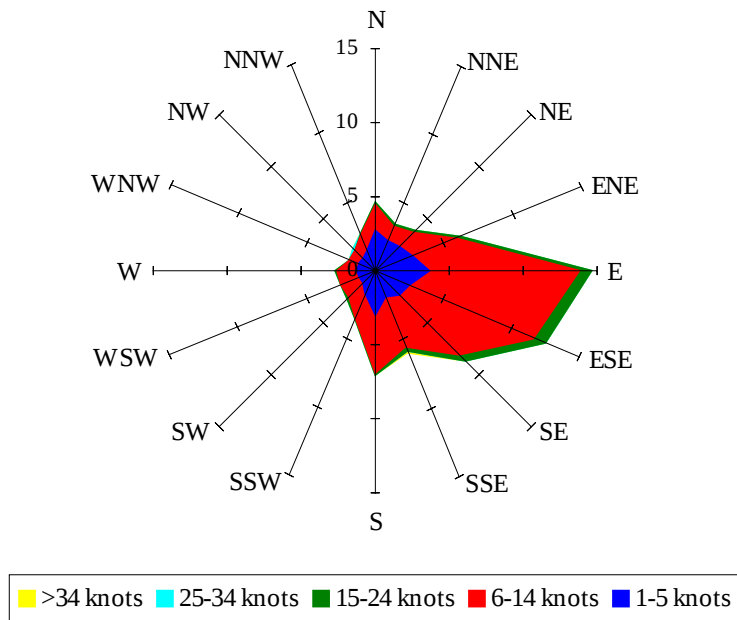
Labels of Percent Frequency on North Axis



Percent Calm = 7.64

Wind Summary - June, July, and August

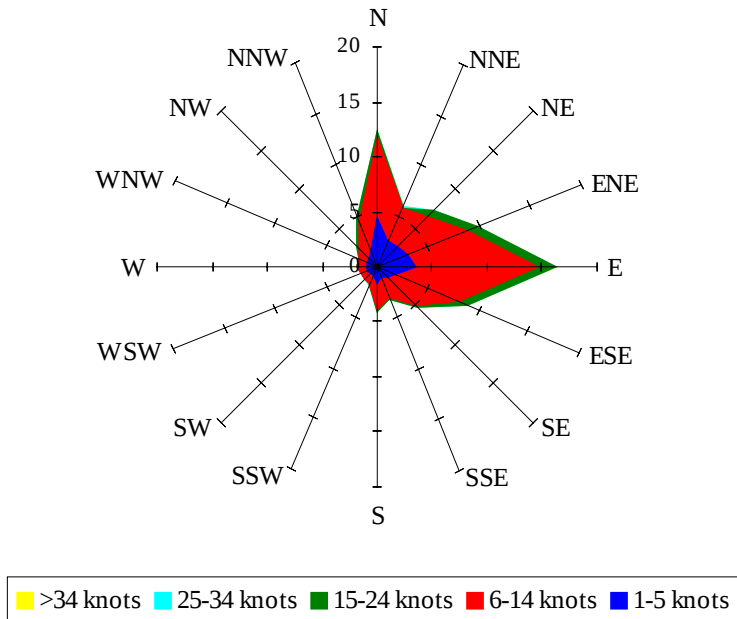
Labels of Percent Frequency on North Axis



Percent Calm = 15.76

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 11.70