

ASUNCION/SILVIO PETTIROSSI PY

Latitude = 25.20 S

WMO No. 862180

Longitude = 57.63 W

Elevation = 331 feet

Period of Record = 1973 to 1996

Average Pressure = 29.57 inches Hg

Design Criteria Data

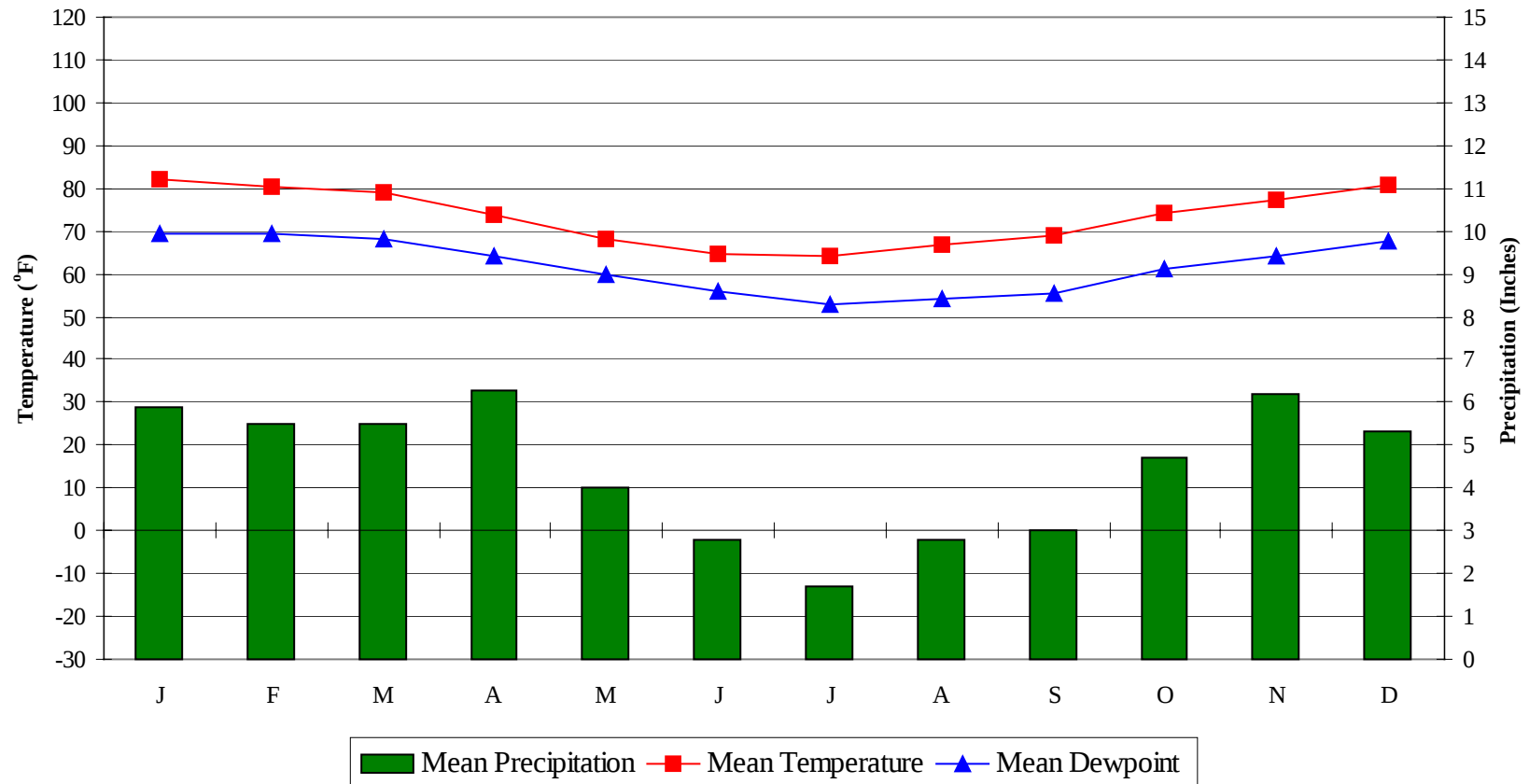
	Design Value	Mean Coincident (Average) Values			
		Wet Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Dry Bulb Temperature (T)	(°F)				
Median of Extreme Highs	100	75	92	12.8	N
0.4% Occurrence	97	75	99	12.5	N
1.0% Occurrence	95	75	103	11.1	N
2.0% Occurrence	94	75	104	10.5	N
Mean Daily Range	17	-	-	-	-
97.5% Occurrence	50	47	43	5.7	S
99.0% Occurrence	45	43	38	4.5	S
99.6% Occurrence	41	39	32	2.4	S
Median of Extreme Lows	36	36	29	1.8	S
	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	83	92	151	9.1	N
0.4% Occurrence	80	90	136	8.3	N
1.0% Occurrence	79	89	131	8.1	N
2.0% Occurrence	78	88	128	7.8	N
	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	162	88	1.06	9.5	N
0.4% Occurrence	144	85	0.94	5.8	N
1.0% Occurrence	135	83	0.88	6.0	N
2.0% Occurrence	134	83	0.88	5.9	N
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		285	2426	2100	4473

Other Site Data

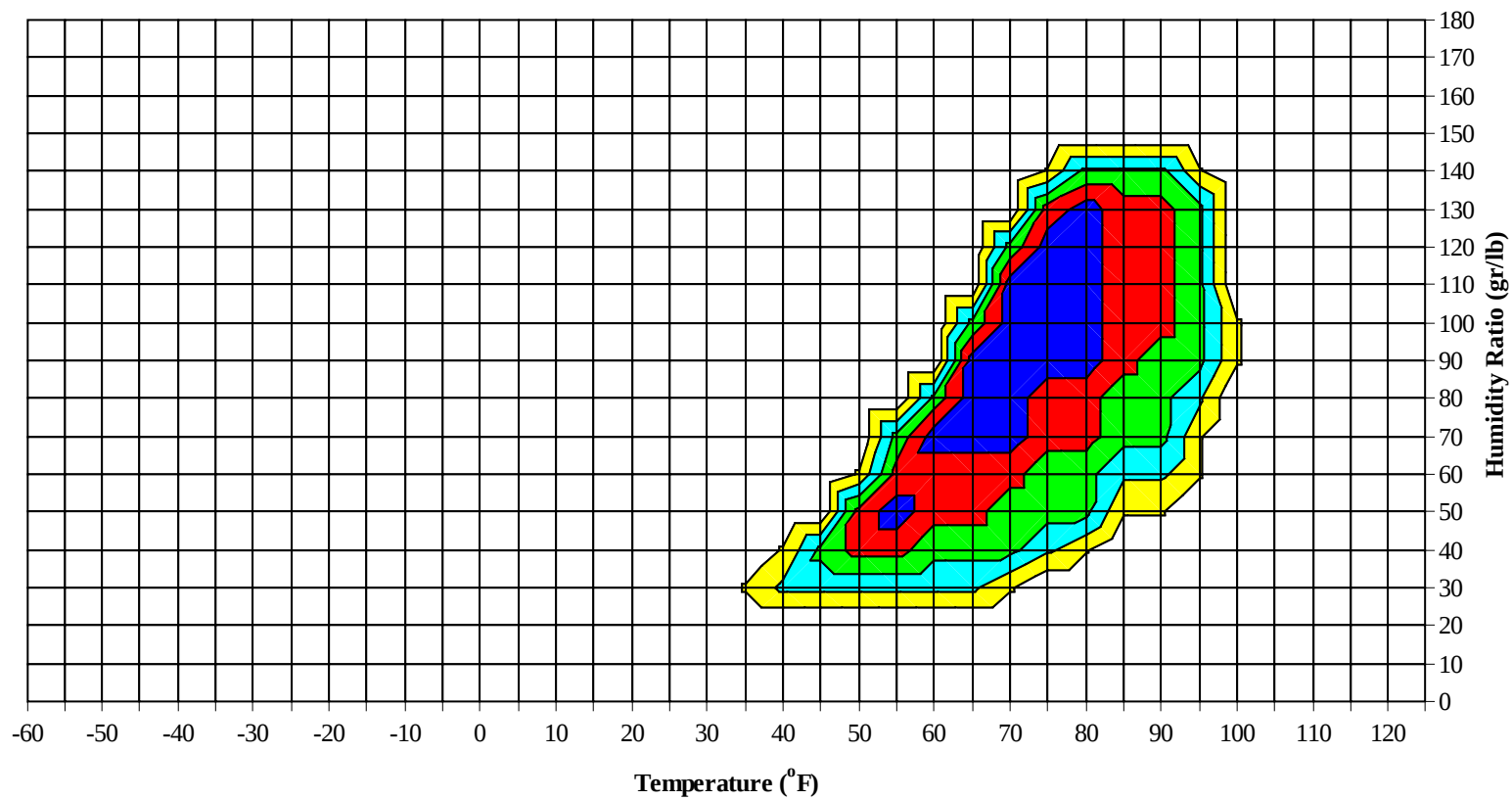
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
10	N/A	N/A	5.6 + 2.7
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
75.9	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

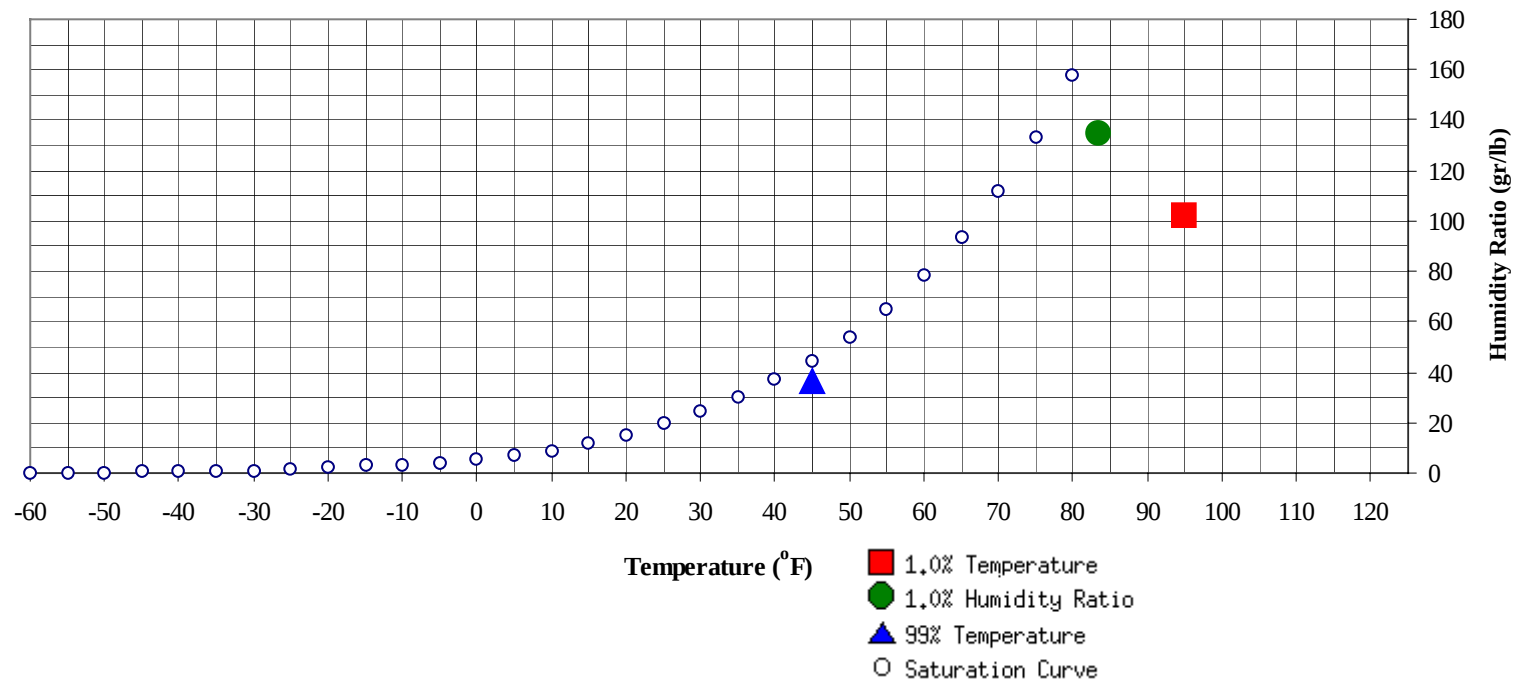


Long Term Psychrometric Summary



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

Psychrometric Summary of Peak Design Values



99% Dry Bulb	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)	1.0% Humidity Ratio	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
	45	36.4	16.4		135.1	83.4	77.4	75.2	41.2

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	95	102.4	75.4	38.9

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

Period of Record = 1973 to 1996

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		
105 / 109															
100 / 104		3	0	3	74.6		1	0	1	76.1		2	0	2	75.6
95 / 99	0	29	8	37	75.8		19	5	24	76.2	0	17	3	20	75.9
90 / 94	0	80	29	109	75.5		60	20	80	76.1	0	54	14	68	75.7
85 / 89	5	59	38	102	75.1	1	53	29	84	75.0	1	54	27	82	74.6
80 / 84	49	47	70	166	74.1	30	55	60	146	73.9	23	62	61	146	73.4
75 / 79	112	21	72	205	72.5	93	24	71	188	72.4	80	34	77	190	71.8
70 / 74	68	9	26	102	69.2	75	10	32	116	69.1	92	19	49	161	68.7
65 / 69	8	1	3	12	63.9	16	2	5	23	64.9	31	4	11	46	64.6
60 / 64	5	0	1	6	59.6	8	0	1	9	59.7	15	2	6	23	60.0
55 / 59	0		0	0	54.9	1		0	1	56.3	4	0	1	5	55.1
50 / 54			0	0	48.0						1		0	1	51.4
45 / 49											0			0	45.0
40 / 44															
35 / 39															
30 / 34															

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 (Sheet 2 of 5)

Period of Record = 1973 to 1996

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		
105 / 109															
100 / 104															
95 / 99		2		2	77.1										
90 / 94		26	3	29	75.5		4	0	4	74.3					
85 / 89	0	35	10	44	74.6	0	17	2	19	74.0		4	0	4	71.1
80 / 84	7	51	37	95	72.7	0	43	18	61	71.7		36	4	40	69.8
75 / 79	48	49	56	154	70.4	24	49	39	113	69.4	6	47	33	85	68.0
70 / 74	71	45	62	178	67.5	51	51	54	157	66.4	39	40	51	130	65.3
65 / 69	44	21	34	99	64.0	41	37	40	118	63.2	45	25	32	102	62.4
60 / 64	35	9	26	69	59.4	51	32	47	130	59.1	45	38	37	121	58.7
55 / 59	24	2	10	36	54.8	34	10	29	73	54.1	35	34	38	107	53.4
50 / 54	9	0	3	12	50.4	30	4	15	49	49.5	25	14	28	67	49.1
45 / 49	2		0	2	46.6	13	0	4	17	45.1	26	2	13	41	44.6
40 / 44						2		1	3	41.2	11	0	3	14	40.7
35 / 39						0			0	37.6	7		1	8	37.0
30 / 34															

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 (Sheet 3 of 5)

Period of Record = 1973 to 1996

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		
105 / 109															
100 / 104													1	1	69.5
95 / 99							2		2	68.4		6	0	6	72.2
90 / 94		3	0	3	71.0		11	1	12	70.3		14	5	19	71.6
85 / 89		13	2	15	70.0		19	6	25	69.5	0	21	12	33	69.9
80 / 84	0	33	15	47	68.4	1	36	22	59	67.7	9	33	22	64	68.1
75 / 79	13	39	35	88	66.1	19	38	35	91	65.4	24	40	35	99	65.3
70 / 74	38	39	36	112	63.4	39	40	39	117	62.9	37	41	41	119	63.4
65 / 69	33	26	26	86	60.4	32	26	31	89	60.9	34	32	35	101	61.3
60 / 64	38	38	40	115	57.6	46	38	44	128	57.7	52	31	48	131	58.1
55 / 59	42	31	42	115	53.3	47	26	40	113	53.5	42	16	29	88	53.1
50 / 54	36	21	28	84	48.6	34	10	22	67	48.9	30	4	12	46	48.6
45 / 49	22	6	18	46	43.7	22	2	8	32	44.3	10	0	2	12	44.1
40 / 44	14	0	6	20	39.9	4	0	1	5	40.1	2	0	0	2	39.7
35 / 39	10		1	11	36.4	2		0	2	35.3	0			0	38.3
30 / 34	1			1	33.3	1			1	32.8					

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

Period of Record = 1973 to 1996

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		
105 / 109												0		0	71.0
100 / 104							2	0	2	74.5		2	0	2	73.5
95 / 99	0	14	1	15	74.7		15	2	17	74.6		22	5	27	74.9
90 / 94	0	27	10	37	73.7	0	44	13	57	73.8	0	68	23	91	75.1
85 / 89	1	30	18	49	71.9	3	43	23	69	72.4	4	55	34	94	74.1
80 / 84	20	51	37	107	70.0	25	57	47	129	71.0	39	57	66	162	73.1
75 / 79	42	54	46	142	67.8	58	44	62	164	69.6	89	28	75	192	71.6
70 / 74	59	45	64	169	65.7	77	27	60	163	67.1	87	14	39	141	68.6
65 / 69	48	18	37	102	63.0	40	8	20	68	63.3	21	2	5	28	64.4
60 / 64	47	9	27	82	58.6	26	2	10	38	59.2	7	0	0	7	60.0
55 / 59	23	1	8	32	53.6	9	0	2	11	54.6	1	0	0	1	55.5
50 / 54	7		1	8	49.6	2		0	2	49.9					
45 / 49	1			1	45.5	0			0	47.0					
40 / 44															
35 / 39															
30 / 34															

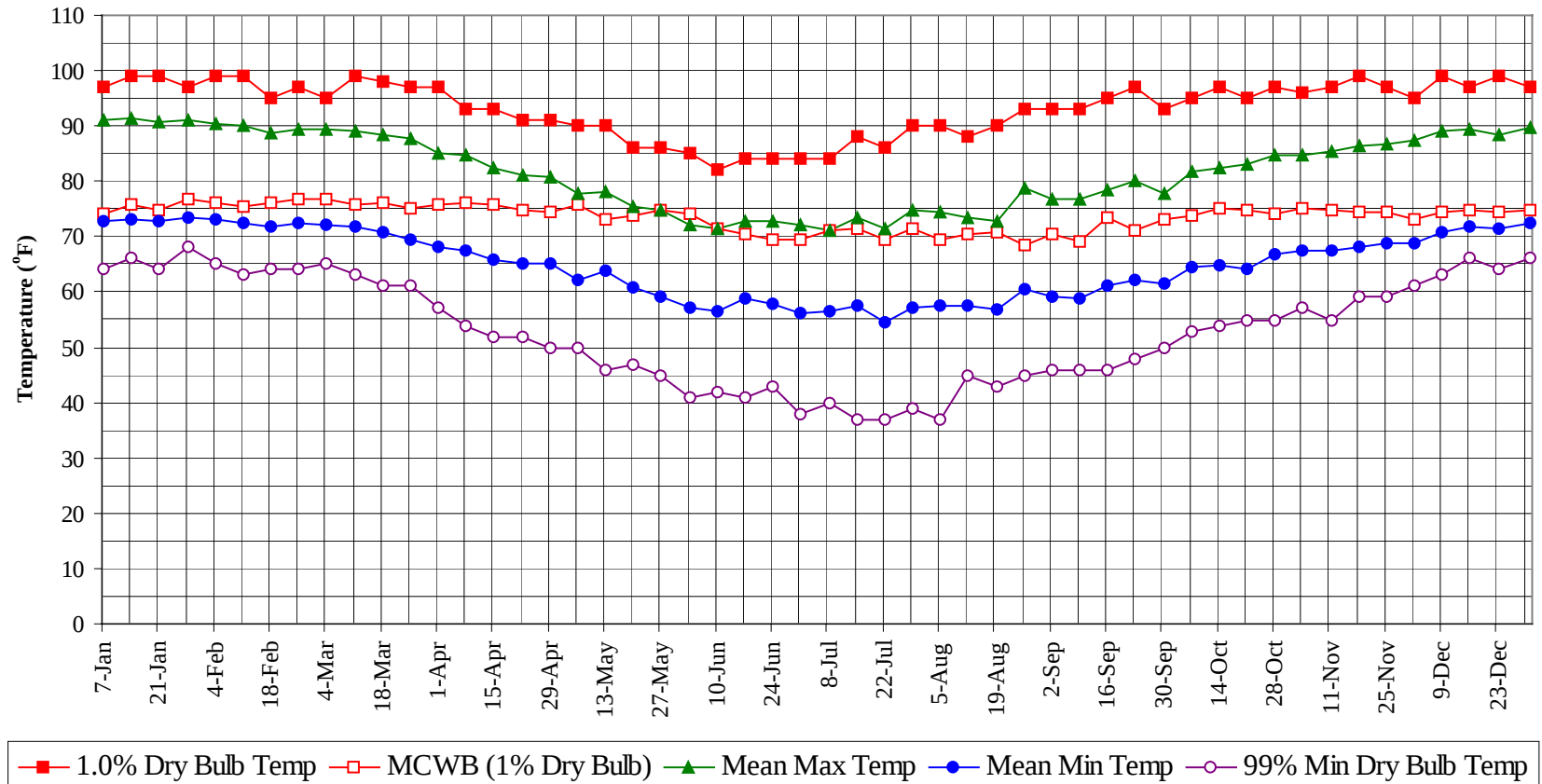
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

ASUNCION/SILVIO PETTIROSSI PY WMO No. 862180
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)
Period of Record = 1973 to 1996

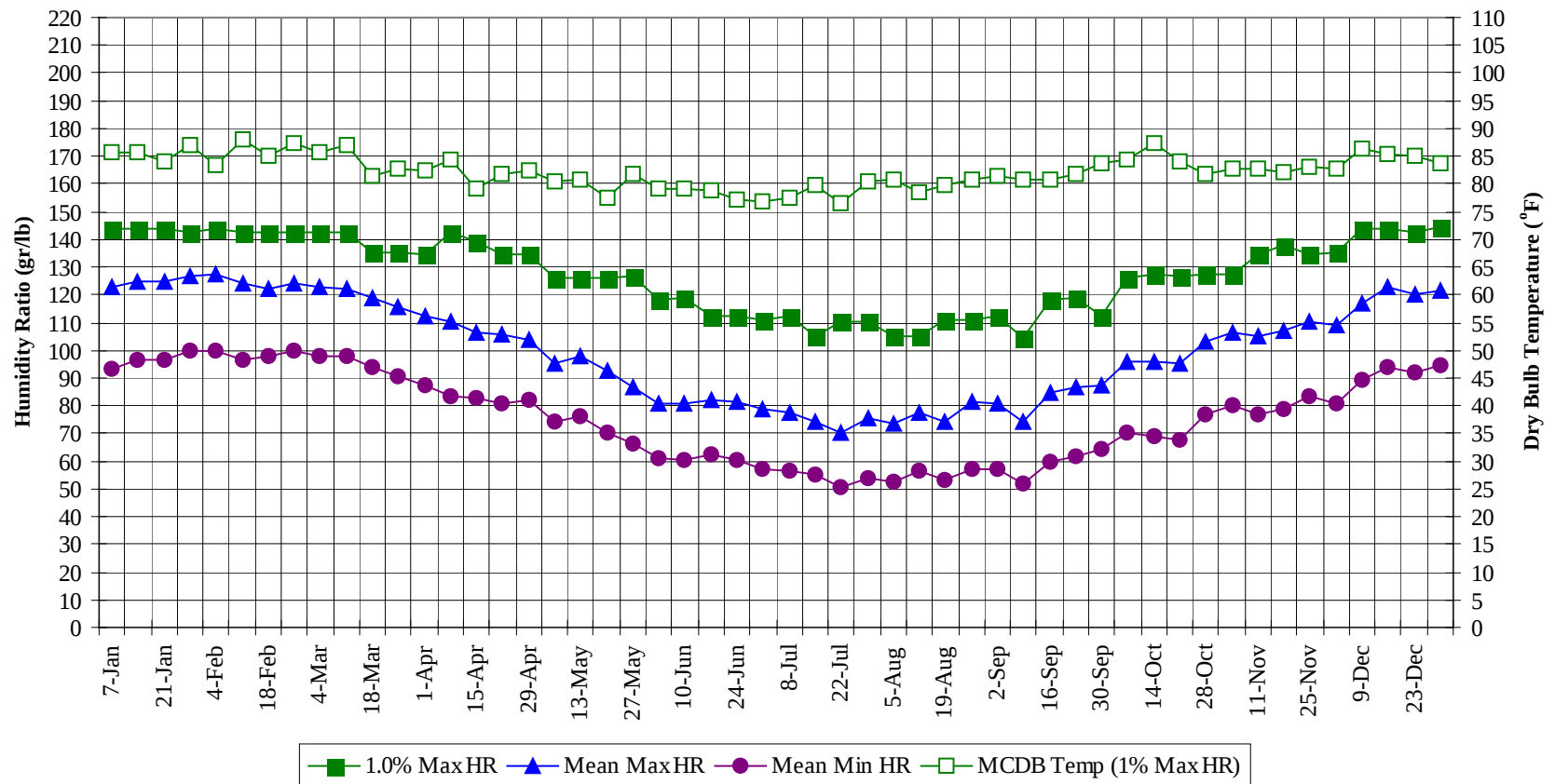
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
105 / 109		0		0	71.0
100 / 104		10	1	11	74.4
95 / 99	0	127	25	152	75.3
90 / 94	0	393	118	511	74.9
85 / 89	18	404	197	620	73.6
80 / 84	206	560	457	1223	72.0
75 / 79	620	464	633	1717	69.9
70 / 74	737	376	553	1666	66.5
65 / 69	391	200	279	870	62.6
60 / 64	373	200	289	861	58.5
55 / 59	257	122	200	579	53.6
50 / 54	170	52	109	331	49.0
45 / 49	94	10	46	150	44.3
40 / 44	32	1	11	44	40.3
35 / 39	19		3	22	36.5
30 / 34	2			2	33.1

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

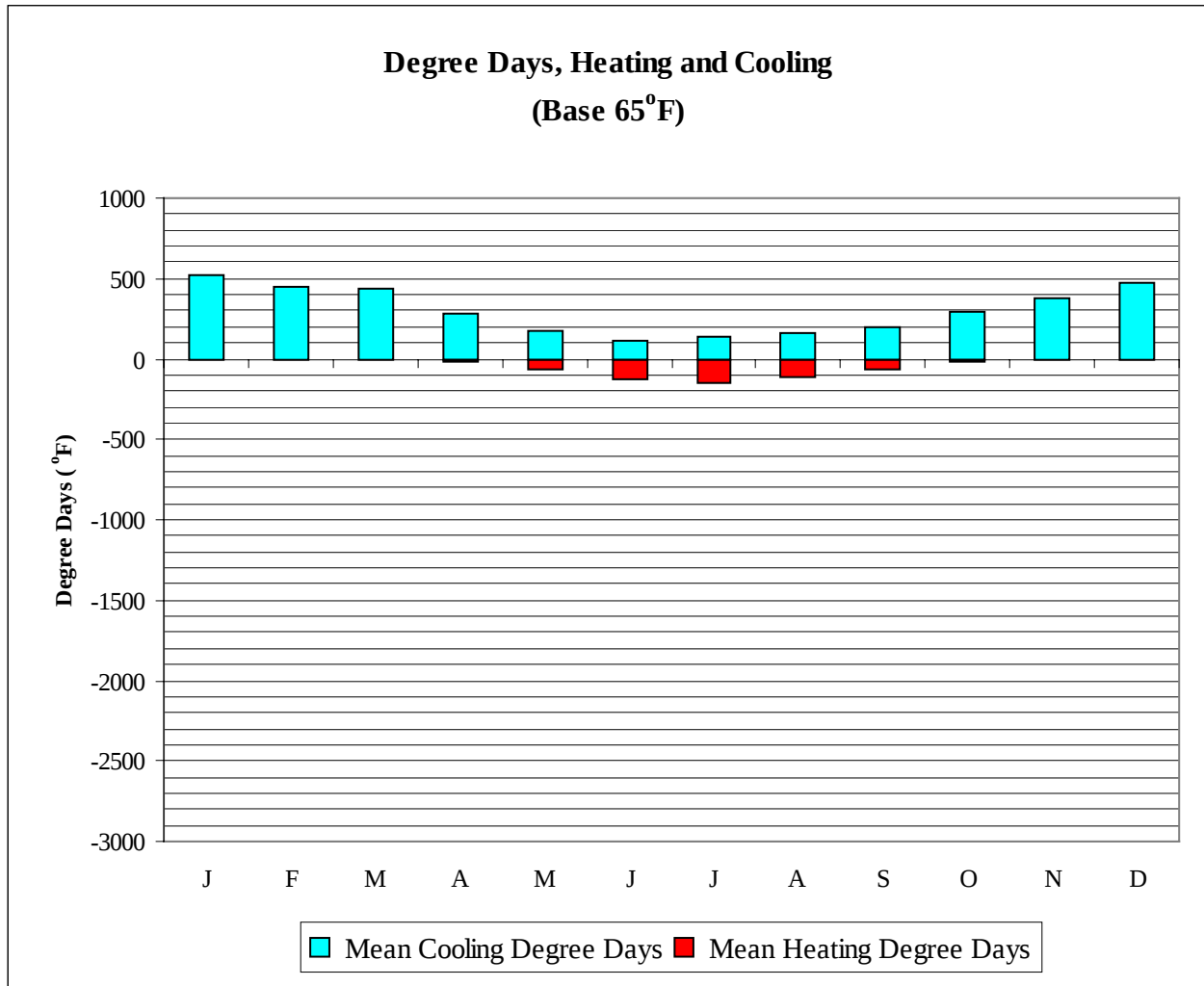


ASUNCION/SILVIO PETTIROSSI PY

WMO No. 862180

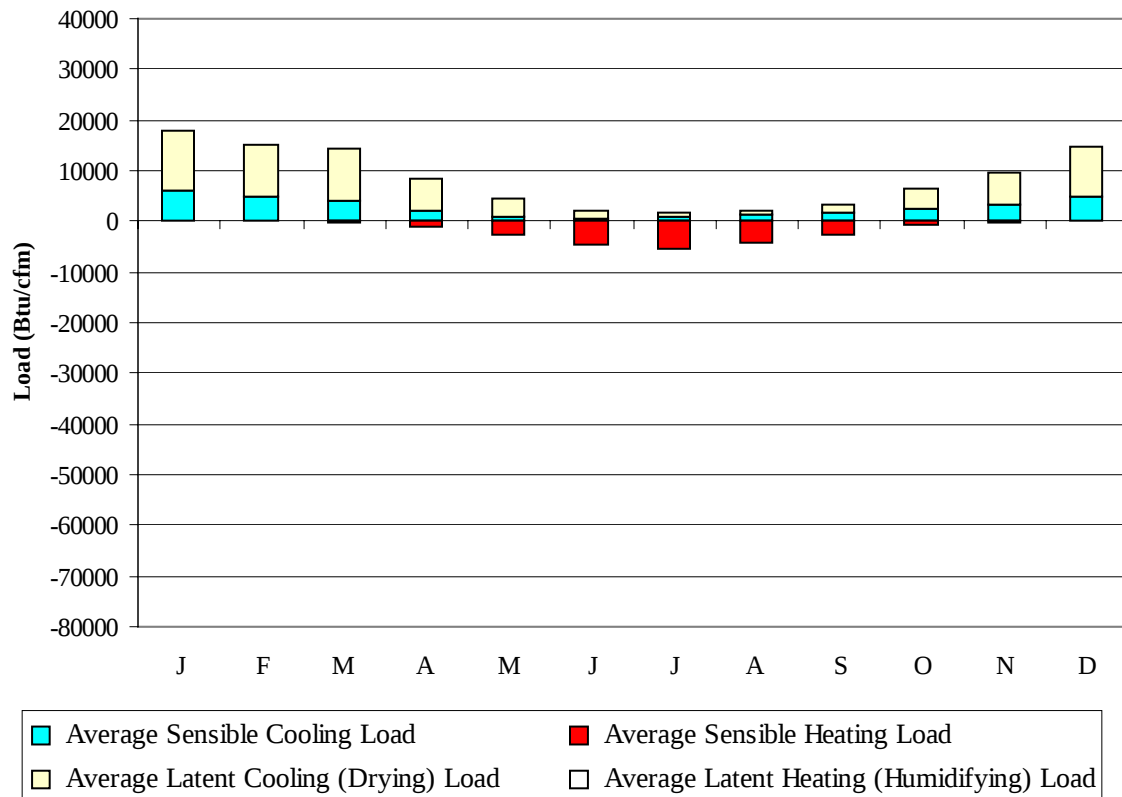
Long Term Dry Bulb Temperature and Humidity Summary

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	97.0	74.0	91.1	72.7	64.0	143.5	85.6	122.8	93.1
14-Jan	99.0	75.9	91.4	73.1	66.0	143.5	85.8	124.9	96.5
21-Jan	99.0	74.7	90.8	72.9	64.0	143.5	84.1	124.5	96.5
28-Jan	97.0	76.6	91.2	73.3	68.0	142.8	87.0	127.0	100.1
4-Feb	99.0	76.0	90.4	73.2	65.0	143.5	83.6	127.5	100.0
11-Feb	99.0	75.4	89.9	72.3	63.0	142.8	88.0	124.0	96.7
18-Feb	95.0	76.2	88.9	71.8	64.0	142.8	85.1	122.2	97.8
25-Feb	97.0	76.6	89.3	72.4	64.0	142.8	87.3	124.1	99.8
4-Mar	95.0	76.7	89.3	72.0	65.0	142.8	85.8	123.0	97.9
11-Mar	99.0	75.9	89.2	71.7	63.0	142.8	87.1	122.4	97.7
18-Mar	98.0	76.0	88.4	70.9	61.0	135.1	81.3	119.0	93.9
25-Mar	97.0	75.1	87.6	69.4	61.0	135.1	82.9	115.9	90.6
1-Apr	97.0	75.8	85.2	68.2	57.0	134.4	82.3	112.6	87.5
8-Apr	93.0	76.1	84.8	67.3	54.0	142.8	84.3	110.4	83.4
15-Apr	93.0	75.9	82.3	65.8	52.0	139.3	79.0	106.6	82.6
22-Apr	91.0	74.8	81.2	65.2	52.0	134.4	81.8	105.6	80.5
29-Apr	91.0	74.3	80.6	65.3	50.0	134.4	82.3	103.5	82.0
6-May	90.0	75.6	77.8	62.0	50.0	126.0	80.5	95.5	74.0
13-May	90.0	73.2	78.0	63.7	46.0	126.0	80.6	97.9	76.4
20-May	86.0	73.8	75.5	60.7	47.0	126.0	77.6	92.7	70.1
27-May	86.0	74.8	74.9	59.3	45.0	126.7	81.9	87.0	66.1
3-Jun	85.0	74.2	72.1	57.2	41.0	118.3	79.2	81.0	61.1
10-Jun	82.0	71.5	71.5	56.6	42.0	119.0	79.0	80.5	60.2
17-Jun	84.0	70.6	72.8	58.8	41.0	112.0	78.9	82.3	62.4
24-Jun	84.0	69.4	72.7	58.0	43.0	112.0	77.2	81.2	60.7
1-Jul	84.0	69.6	72.2	56.1	38.0	111.3	76.7	78.8	56.9
8-Jul	84.0	71.0	71.2	56.3	40.0	112.0	77.4	77.4	56.7
15-Jul	88.0	71.4	73.3	57.6	37.0	105.0	79.9	74.4	54.8
22-Jul	86.0	69.5	71.4	54.5	37.0	110.6	76.6	70.3	50.9
29-Jul	90.0	71.5	74.7	57.0	39.0	110.6	80.3	75.4	54.0
5-Aug	90.0	69.4	74.4	57.3	37.0	105.0	80.8	73.5	52.7
12-Aug	88.0	70.6	73.5	57.3	45.0	105.0	78.4	77.4	56.2
19-Aug	90.0	70.7	72.8	56.9	43.0	111.3	79.8	74.0	53.4
26-Aug	93.0	68.5	78.7	60.5	45.0	111.3	80.6	81.3	57.4
2-Sep	93.0	70.5	76.7	59.1	46.0	112.0	81.3	80.8	57.3
9-Sep	93.0	69.3	76.6	58.7	46.0	104.3	80.8	74.2	51.6
16-Sep	95.0	73.5	78.4	61.1	46.0	118.3	80.9	84.7	60.1
23-Sep	97.0	71.2	80.1	62.2	48.0	119.0	81.7	86.4	61.4
30-Sep	93.0	73.2	77.9	61.6	50.0	112.0	83.8	87.6	64.5
7-Oct	95.0	73.8	81.8	64.4	53.0	126.0	84.5	95.8	70.3
14-Oct	97.0	75.0	82.3	64.7	54.0	127.4	87.5	95.9	69.0
21-Oct	95.0	74.7	82.9	64.0	55.0	126.7	84.1	95.0	68.0
28-Oct	97.0	74.0	84.8	66.9	55.0	127.4	81.7	103.2	76.5
4-Nov	96.0	75.0	84.9	67.6	57.0	127.4	82.6	106.7	80.4
11-Nov	97.0	74.6	85.3	67.3	55.0	134.4	82.9	105.3	77.0
18-Nov	99.0	74.5	86.6	68.2	59.0	137.9	82.1	107.3	78.8
25-Nov	97.0	74.4	86.9	68.9	59.0	134.4	82.9	110.6	83.6
2-Dec	95.0	73.1	87.5	68.8	61.0	135.1	82.8	108.8	80.9
9-Dec	99.0	74.5	89.0	70.7	63.0	143.5	86.4	116.8	89.3
16-Dec	97.0	74.9	89.3	71.8	66.0	143.5	85.5	122.5	93.9
23-Dec	99.0	74.5	88.5	71.4	64.0	142.8	85.1	120.1	91.8
31-Dec	97.0	74.7	89.8	72.5	66.0	144.2	83.6	121.8	94.8



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	524	0
FEB	444	1
MAR	434	3
APR	282	21
MAY	172	70
JUN	117	128
JUL	136	152
AUG	167	110
SEP	196	68
OCT	297	17
NOV	376	6
DEC	476	1
ANN	3621	577

Average Ventilation and Infiltration Loads
(Outside Air vs. 75°F, 60% RH summer; 68°F, 30% RH winter)



	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	5948	-35	11866	0
FEB	4722	-60	10280	0
MAR	4266	-200	9929	0
APR	2123	-978	6492	-1
MAY	931	-2811	3543	-4
JUN	456	-4575	1605	-33
JUL	730	-5274	1008	-67
AUG	1166	-4039	1060	-45
SEP	1537	-2756	1629	-26
OCT	2496	-853	4066	-1
NOV	3479	-359	6283	-1
DEC	4987	-56	9935	-1
ANN	32841	-21996	67696	-179

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

No Solar Radiation
Data Available

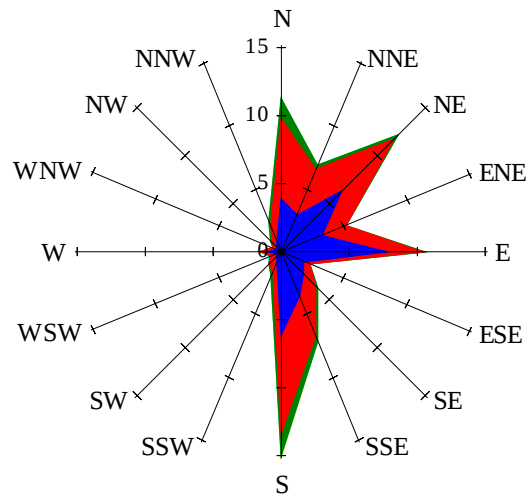


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

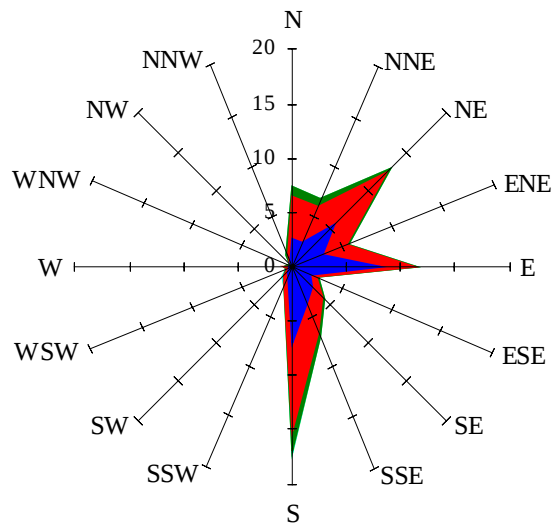
Labels of Percent Frequency on North Axis



Percent Calm = 17.63

Wind Summary - March, April, and May

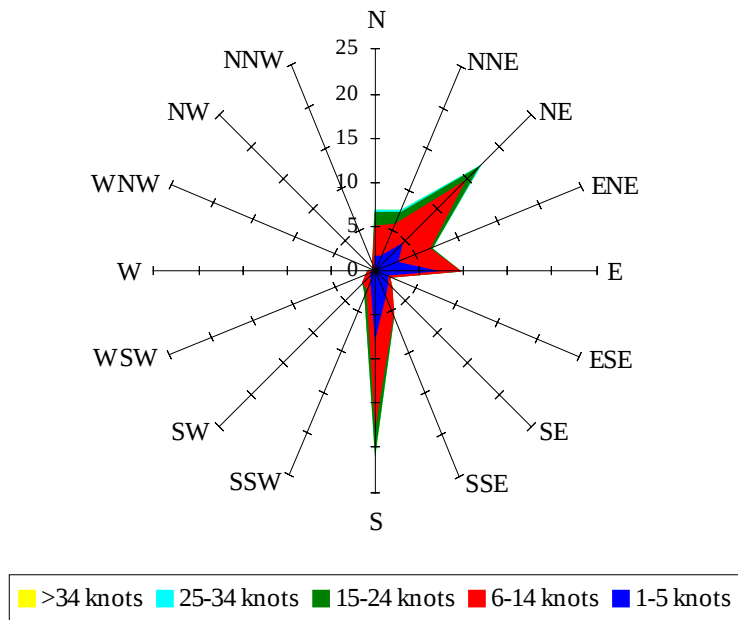
Labels of Percent Frequency on North Axis



Percent Calm = 19.16

Wind Summary - June, July, and August

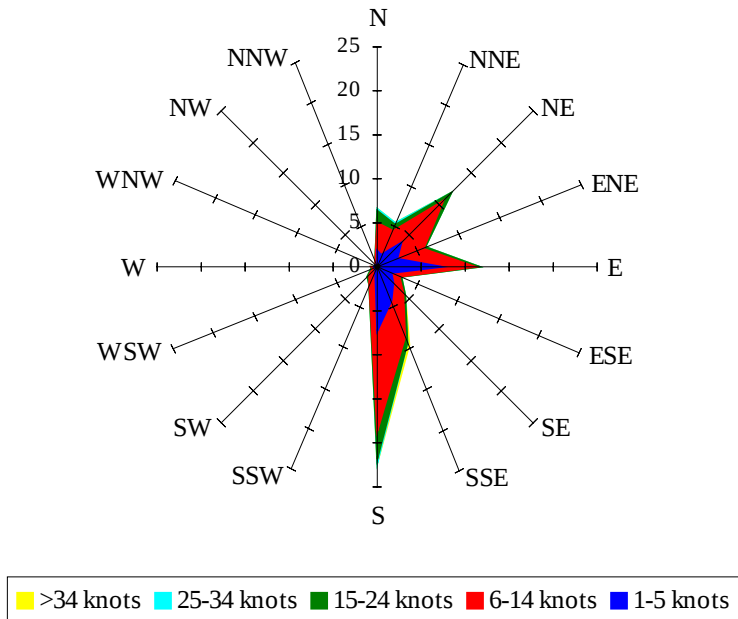
Labels of Percent Frequency on North Axis



Percent Calm = 15.02

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 12.59