

RABAT/SALE MC

Latitude = 34.05 N

Longitude = 6.77 W

Period of Record = 1967 to 1996

WMO No. 601350

Elevation = 246 feet

Average Pressure = 29.75 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	103	72	67	9.0	NW
0.4% Occurrence	90	71	81	9.5	NNW
1.0% Occurrence	86	70	86	8.5	NNW
2.0% Occurrence	82	70	93	8.2	NW
Mean Daily Range	15	-	-	-	-
97.5% Occurrence	46	45	42	5.4	S
99.0% Occurrence	43	42	37	5.4	S
99.6% Occurrence	41	40	34	5.2	S
Median of Extreme Lows	36	35	27	5.4	E
	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	77	86	125	8.7	NW
0.4% Occurrence	75	82	117	8.4	W
1.0% Occurrence	74	81	114	8.3	W
2.0% Occurrence	72	78	107	7.8	W
	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	134	82	0.88	8.0	NW
0.4% Occurrence	125	80	0.83	8.3	W
1.0% Occurrence	118	77	0.78	7.6	W
2.0% Occurrence	111	75	0.74	6.8	W
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		24	271	157	1501

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
9	N/A	N/A	1.8 + 0.3
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 (#)
65.5	N/A	N/A	0

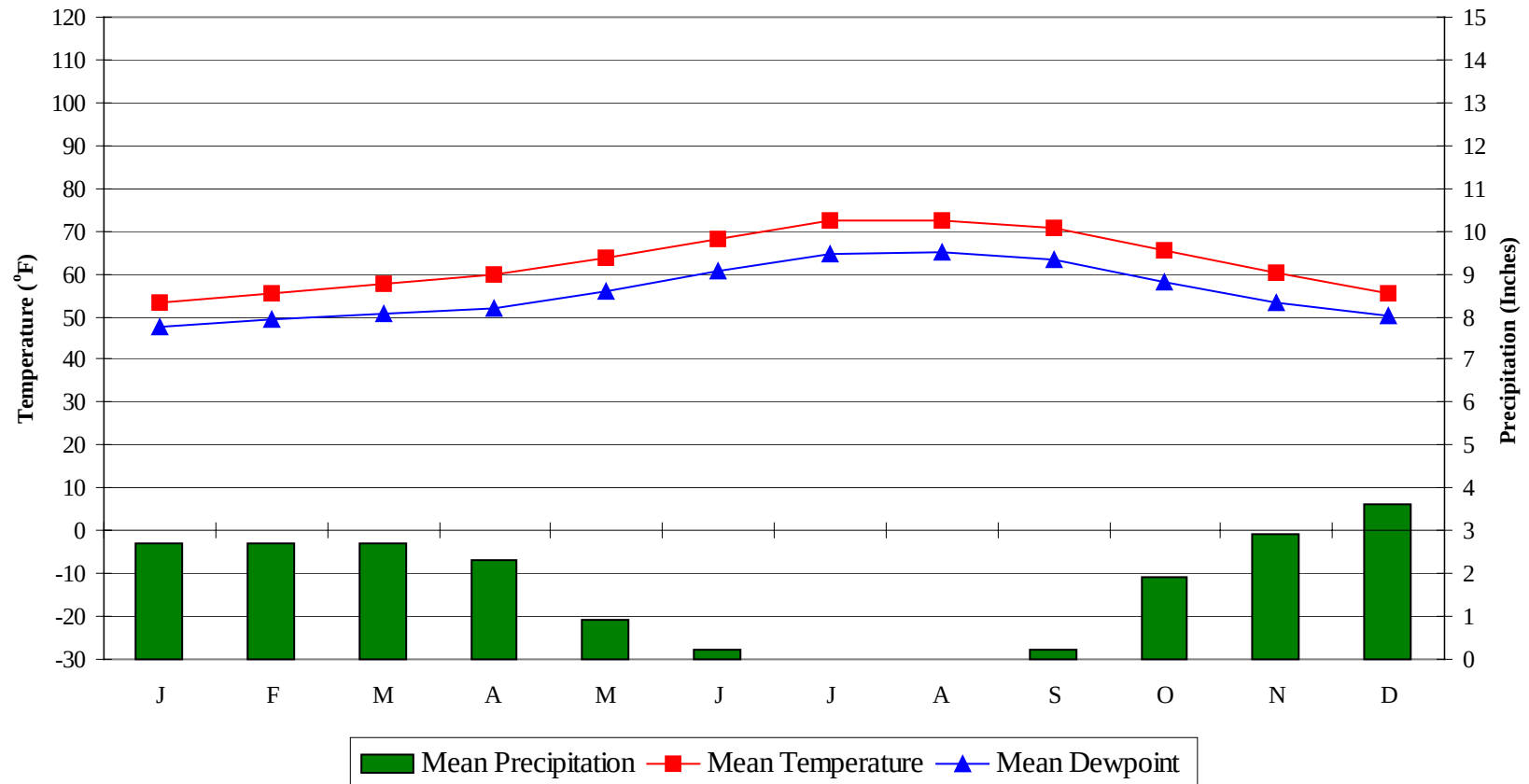
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.

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MC

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Average Annual Climate

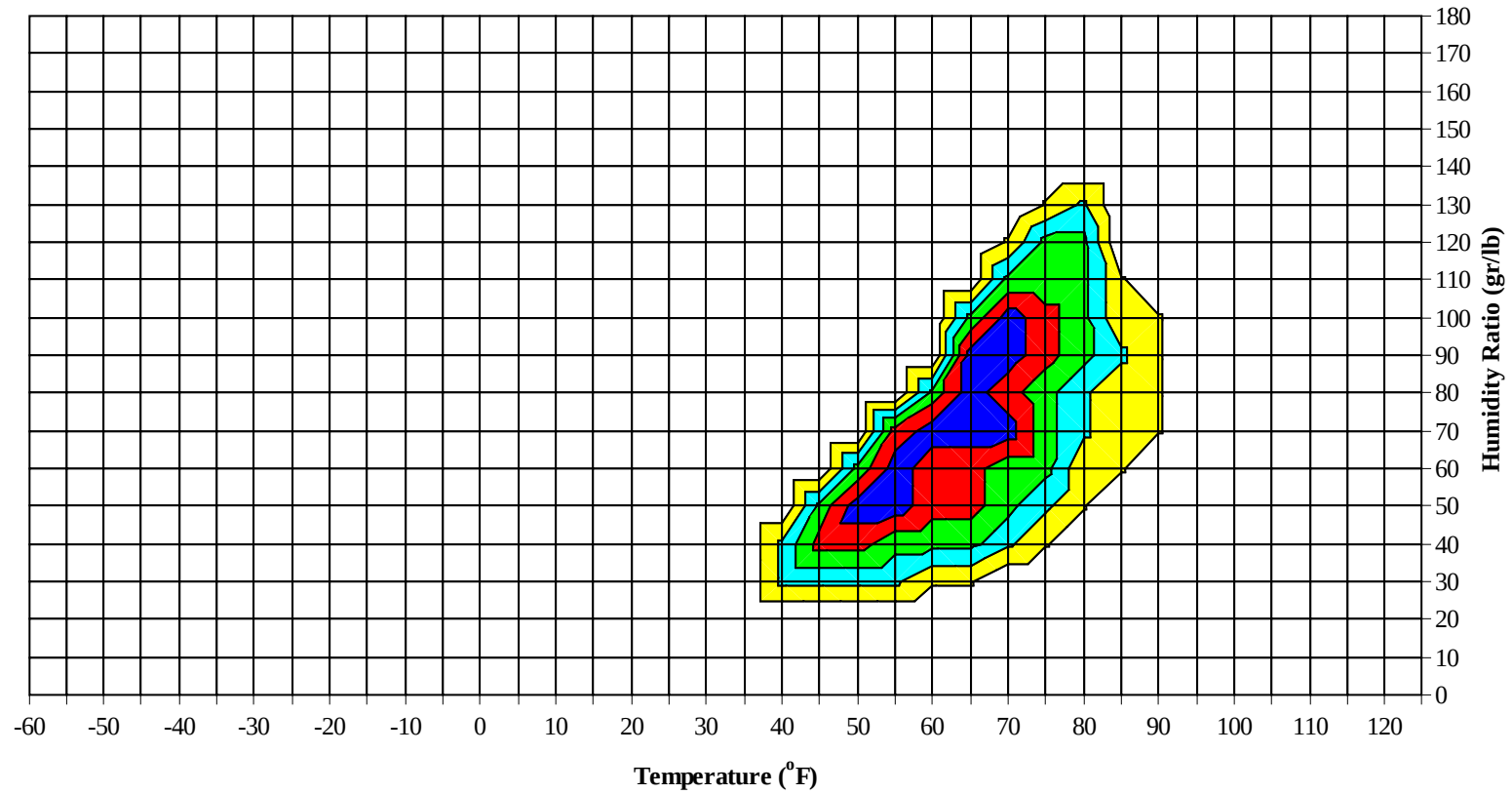


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Long Term Psychrometric Summary

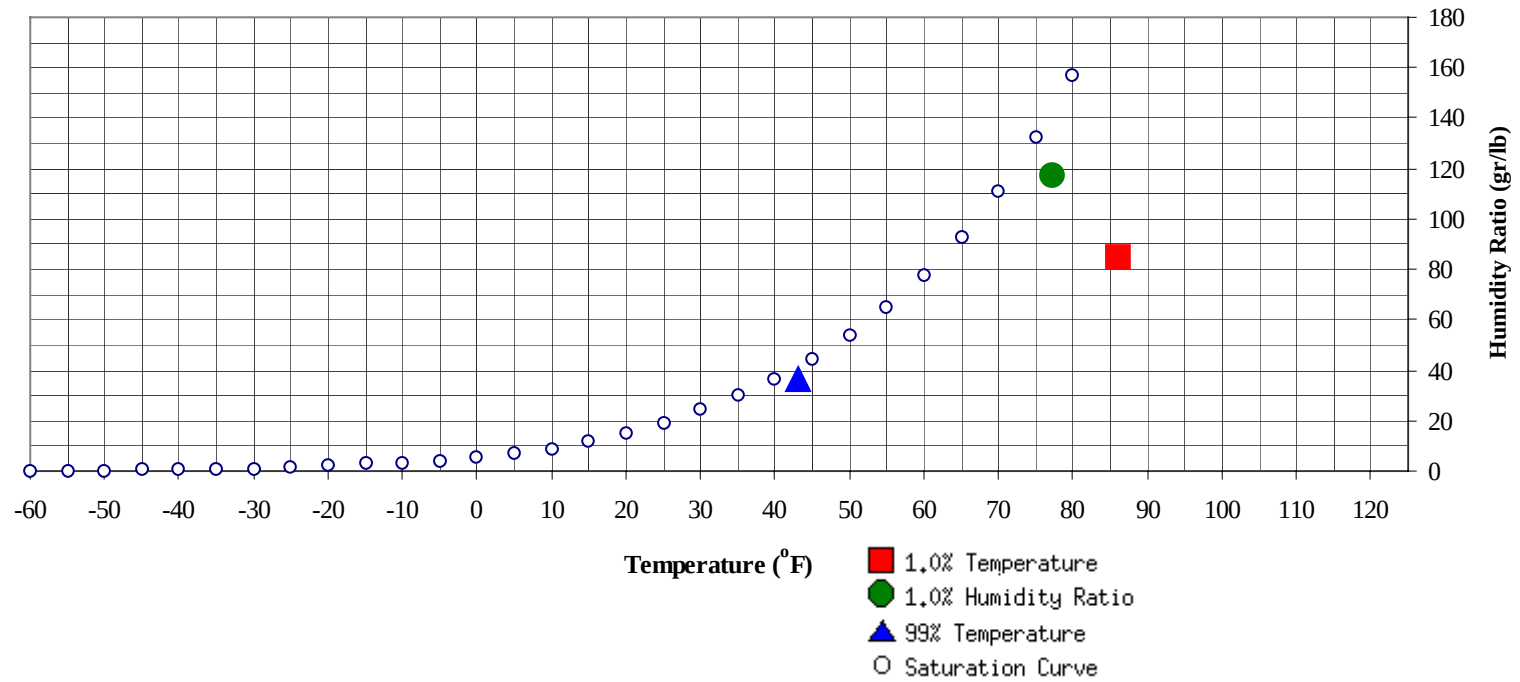


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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Psychrometric Summary of Peak Design Values



	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)	1.0% Humidity Ratio	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
99% Dry Bulb	43	36.8	16.0		117.6	77.3	73.3	71.6	37.0

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	86	84.6	69.6	33.9

RABAT/SALE MC

WMO No. 601350

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

Period of Record = 1967 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															
95 / 99															
90 / 94															
85 / 89							0		0	60.0		0		0	63.0
80 / 84							0		0	63.3		1	0	1	64.7
75 / 79												3	0	3	63.2
70 / 74		1	0	1	59.6		4	0	4	60.9		9	2	11	62.1
65 / 69	0	5	1	6	59.7	0	10	3	13	58.8	0	19	6	25	60.6
60 / 64	1	14	3	18	58.0	0	20	5	25	58.4	1	37	12	50	59.4
55 / 59	5	85	22	112	55.9	6	80	35	121	56.7	8	102	59	170	56.9
50 / 54	32	82	78	191	53.2	39	69	83	191	53.6	67	60	97	225	53.9
45 / 49	68	40	80	188	49.9	91	33	70	193	50.2	107	15	57	179	50.5
40 / 44	87	18	57	163	45.5	74	8	27	109	45.8	58	2	14	74	45.8
35 / 39	45	4	6	55	41.1	14	0	2	15	41.1	6		1	7	41.0
30 / 34	8	0	1	9	36.8	1	0		1	36.9	0		0	0	38.1
	1		0	1	32.6	0	0		0	34.0	0			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.

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

Period of Record = 1967 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		0		0	62.5		0	0	0	68.3		0	0	0	69.9
90 / 94		1		1	65.2		2	0	2	68.1		1	1	2	70.7
85 / 89		1	0	1	63.6		3	1	4	65.7		3	1	4	69.8
80 / 84	0	4	1	5	62.6	0	5	3	8	65.5	0	10	5	15	69.1
75 / 79	0	9	3	12	61.4	1	11	5	17	65.3	2	47	12	60	68.1
70 / 74	1	27	8	36	61.0	3	77	18	97	63.5	15	137	72	225	65.1
65 / 69	2	61	20	84	59.9	10	96	59	165	61.0	70	38	91	199	63.4
60 / 64	21	101	84	205	57.3	80	49	113	243	58.8	105	5	50	160	60.6
55 / 59	87	32	84	202	54.3	105	5	43	153	55.2	43		8	51	56.3
50 / 54	94	5	35	134	50.7	45	0	7	52	51.6	4		0	4	52.2
45 / 49	34	0	5	39	46.1	3		0	3	46.4					
40 / 44	1			1	41.6	0			0	42.0					
35 / 39															
30 / 34															

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RABAT/SALE MC

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

Period of Record = 1967 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		0	0	0	69.7		0	0	0	77.7		0		0	72.0
100 / 104		2	0	2	72.2		1	0	1	73.9		1		1	70.2
95 / 99	0	2	1	3	72.7		3	1	4	72.9		2	0	2	71.1
90 / 94	0	5	3	8	72.2	1	5	2	8	71.7		4	1	5	70.4
85 / 89	1	9	5	15	71.9	0	7	4	11	72.0	0	6	2	8	71.0
80 / 84	2	34	14	50	72.1	2	36	11	49	71.9	1	20	8	29	70.0
75 / 79	7	121	48	176	69.7	7	142	57	206	69.9	4	117	33	154	69.1
70 / 74	73	72	116	261	67.2	81	53	125	259	67.9	46	77	108	232	67.1
65 / 69	90	4	48	142	64.8	87	2	37	126	65.2	73	11	51	136	64.8
60 / 64	65	0	13	78	61.4	62		10	72	61.7	80	2	31	113	61.3
55 / 59	10		0	10	57.5	8		1	9	57.0	33		6	39	56.5
50 / 54	0			0							2		0	2	51.6
45 / 49															
40 / 44															
35 / 39															
30 / 34															

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

Period of Record = 1967 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															
100 / 104															
95 / 99		0		0	67.5		0		0	63.0					
90 / 94		1	0	1	69.0		1		1	62.1					
85 / 89	0	3	0	3	66.9		2	0	2	61.1		0		0	64.0
80 / 84	0	9	2	11	65.8		4	0	4	62.0		0		0	63.2
75 / 79	1	37	7	45	65.9	0	13	2	15	61.9		2	0	2	62.0
70 / 74	7	114	43	165	64.5	2	42	8	52	62.0		8	1	9	60.7
65 / 69	29	55	70	154	62.8	7	65	26	99	60.8	0	34	5	39	59.7
60 / 64	90	26	84	200	60.2	42	73	75	190	58.5	19	98	46	162	57.3
55 / 59	91	3	37	131	55.8	76	32	80	188	54.8	55	67	84	206	54.1
50 / 54	28	0	5	33	51.3	81	7	41	129	50.9	83	30	77	191	50.4
45 / 49	2		0	2	46.3	30	0	8	38	46.0	70	9	31	110	45.7
40 / 44						2			2	41.4	17	1	3	21	41.0
35 / 39						0			0	38.0	4		0	4	36.4
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.

MC

WMO No. 601350

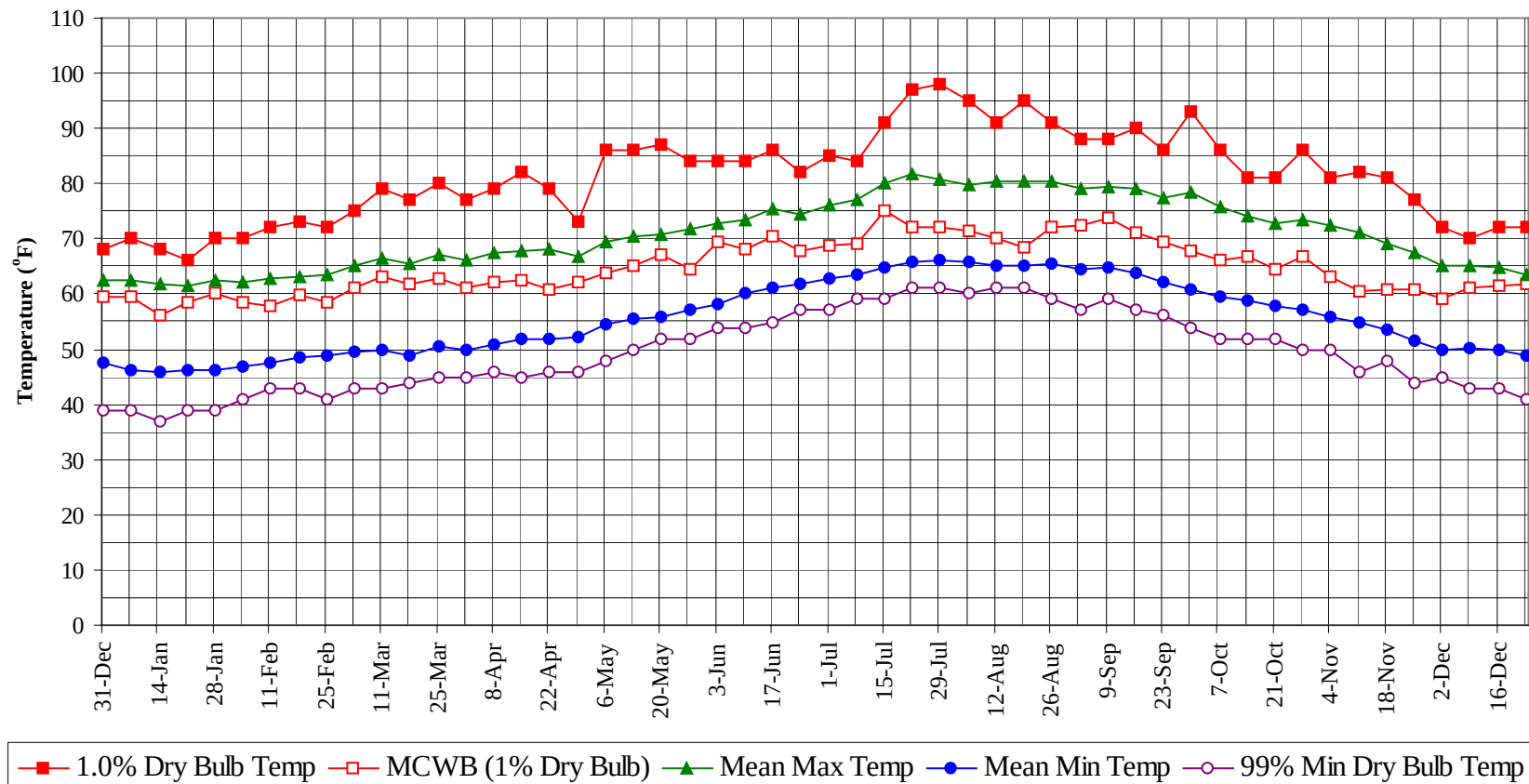
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1967 to 1996

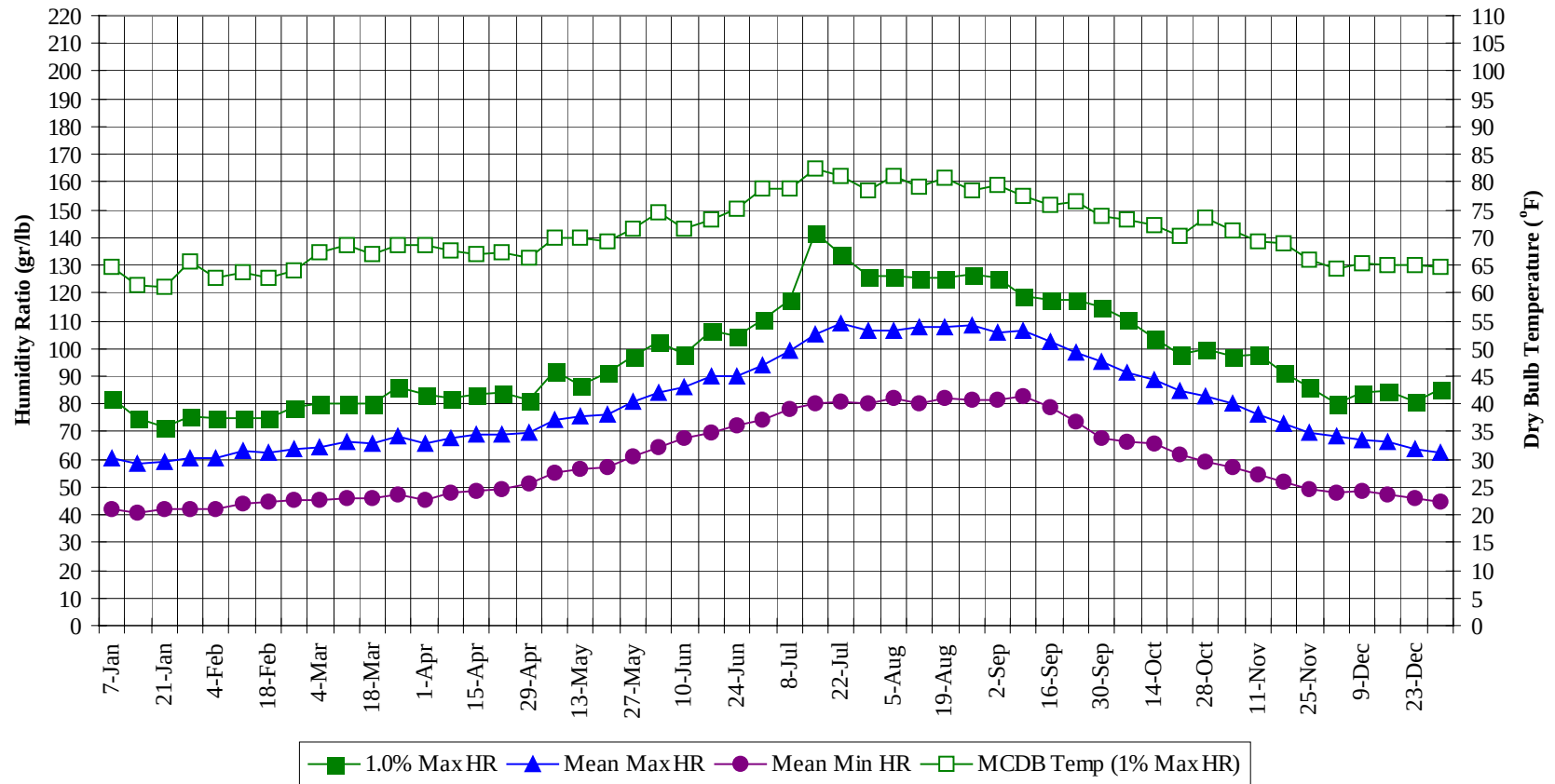
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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



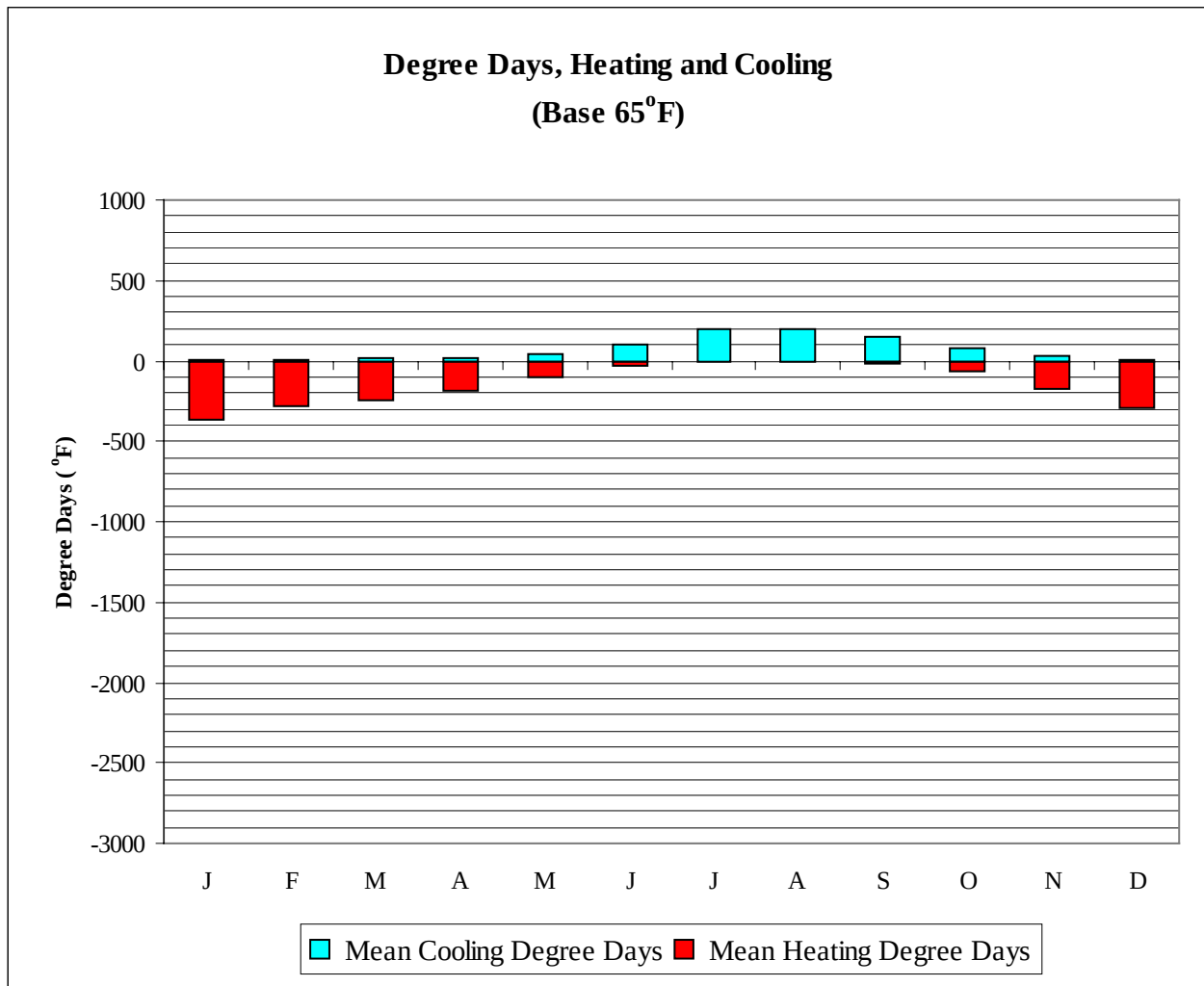
RABAT/SALE**MC****WMO No. 601350****Long Term Dry Bulb Temperature and Humidity Summary**

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	70.0	59.6	62.5	46.1	39.0	81.9	64.7	60.6	42.0
14-Jan	68.0	56.1	61.8	46.0	37.0	74.9	61.5	58.4	40.4
21-Jan	66.0	58.6	61.4	46.3	39.0	71.4	61.2	59.0	42.2
28-Jan	70.0	60.1	62.6	46.3	39.0	75.6	65.6	60.7	42.0
4-Feb	70.0	58.5	62.3	47.0	41.0	74.9	62.7	60.3	42.2
11-Feb	72.0	57.9	62.8	47.7	43.0	74.9	63.6	62.8	44.0
18-Feb	73.0	59.8	63.1	48.6	43.0	74.9	62.8	62.6	44.7
25-Feb	72.0	58.3	63.4	48.7	41.0	79.1	64.1	63.5	45.2
4-Mar	75.0	61.3	65.0	49.4	43.0	79.8	67.4	64.4	45.3
11-Mar	79.0	63.1	66.4	49.7	43.0	79.8	68.6	66.5	46.3
18-Mar	77.0	61.8	65.6	48.9	44.0	79.8	67.0	65.7	45.9
25-Mar	80.0	62.8	67.2	50.6	45.0	86.1	68.8	68.2	47.1
1-Apr	77.0	61.3	66.3	49.8	45.0	83.3	68.7	65.4	45.4
8-Apr	79.0	62.1	67.3	51.0	46.0	81.9	67.6	67.5	47.6
15-Apr	82.0	62.4	67.8	51.8	45.0	83.3	67.0	68.8	48.8
22-Apr	79.0	60.8	68.2	52.0	46.0	84.0	67.2	69.1	49.6
29-Apr	73.0	62.2	67.0	52.3	46.0	81.2	66.5	69.3	51.1
6-May	86.0	63.7	69.6	54.6	48.0	91.7	69.8	74.5	55.1
13-May	86.0	65.2	70.5	55.4	50.0	86.8	69.9	75.6	56.7
20-May	87.0	67.0	70.7	55.8	52.0	91.0	69.4	76.2	57.1
27-May	84.0	64.6	71.8	57.2	52.0	97.3	71.6	80.8	60.9
3-Jun	84.0	69.4	72.7	58.2	54.0	102.2	74.7	83.8	64.1
10-Jun	84.0	68.3	73.5	60.0	54.0	98.0	71.5	86.3	67.4
17-Jun	86.0	70.3	75.6	61.2	55.0	106.4	73.1	89.8	69.5
24-Jun	82.0	67.7	74.6	61.9	57.0	104.3	75.1	89.9	72.1
1-Jul	85.0	68.8	76.1	62.8	57.0	110.6	78.9	94.0	74.3
8-Jul	84.0	69.1	77.1	63.4	59.0	117.6	78.8	99.3	77.9
15-Jul	91.0	75.1	80.1	64.7	59.0	142.1	82.4	105.2	80.0
22-Jul	97.0	72.1	81.8	65.9	61.0	133.7	81.2	109.1	80.7
29-Jul	98.0	72.0	80.8	66.2	61.0	126.0	78.6	106.4	80.0
5-Aug	95.0	71.5	79.7	65.7	60.0	126.0	81.0	106.7	82.0
12-Aug	91.0	70.3	80.5	65.3	61.0	125.3	79.2	107.5	80.3
19-Aug	95.0	68.6	80.3	65.2	61.0	125.3	80.7	108.0	82.1
26-Aug	91.0	72.1	80.3	65.3	59.0	126.7	78.5	108.4	81.7
2-Sep	88.0	72.3	79.0	64.6	57.0	125.3	79.4	105.8	81.4
9-Sep	88.0	73.8	79.3	64.8	59.0	119.0	77.6	106.6	82.8
16-Sep	90.0	71.1	79.1	63.8	57.0	117.6	75.9	102.3	79.0
23-Sep	86.0	69.6	77.4	62.3	56.0	117.6	76.5	98.5	73.8
30-Sep	93.0	67.7	78.4	60.9	54.0	114.8	74.0	95.3	67.9
7-Oct	86.0	66.0	75.6	59.4	52.0	110.6	73.3	91.5	66.5
14-Oct	81.0	66.7	74.0	58.9	52.0	103.6	72.4	88.3	65.4
21-Oct	81.0	64.5	72.9	57.7	52.0	98.0	70.2	84.7	61.9
28-Oct	86.0	66.7	73.3	57.3	50.0	100.1	73.4	82.9	59.2
4-Nov	81.0	63.1	72.4	55.8	50.0	97.3	71.2	80.3	57.1
11-Nov	82.0	60.3	71.2	54.8	46.0	98.0	69.4	76.4	54.5
18-Nov	81.0	60.9	69.2	53.5	48.0	91.0	69.0	73.2	51.9
25-Nov	77.0	60.9	67.5	51.4	44.0	86.1	66.0	69.5	49.2
2-Dec	72.0	59.3	65.3	50.0	45.0	79.8	64.3	68.1	48.2
9-Dec	70.0	61.3	65.0	50.2	43.0	84.0	65.3	67.1	48.6
16-Dec	72.0	61.6	64.7	49.8	43.0	84.7	65.2	66.2	47.1
23-Dec	72.0	61.9	63.3	49.0	41.0	80.5	65.1	63.9	45.9
31-Dec	68.0	59.4	62.6	47.5	39.0	85.4	64.8	62.6	44.4

RABAT/SALE

MC

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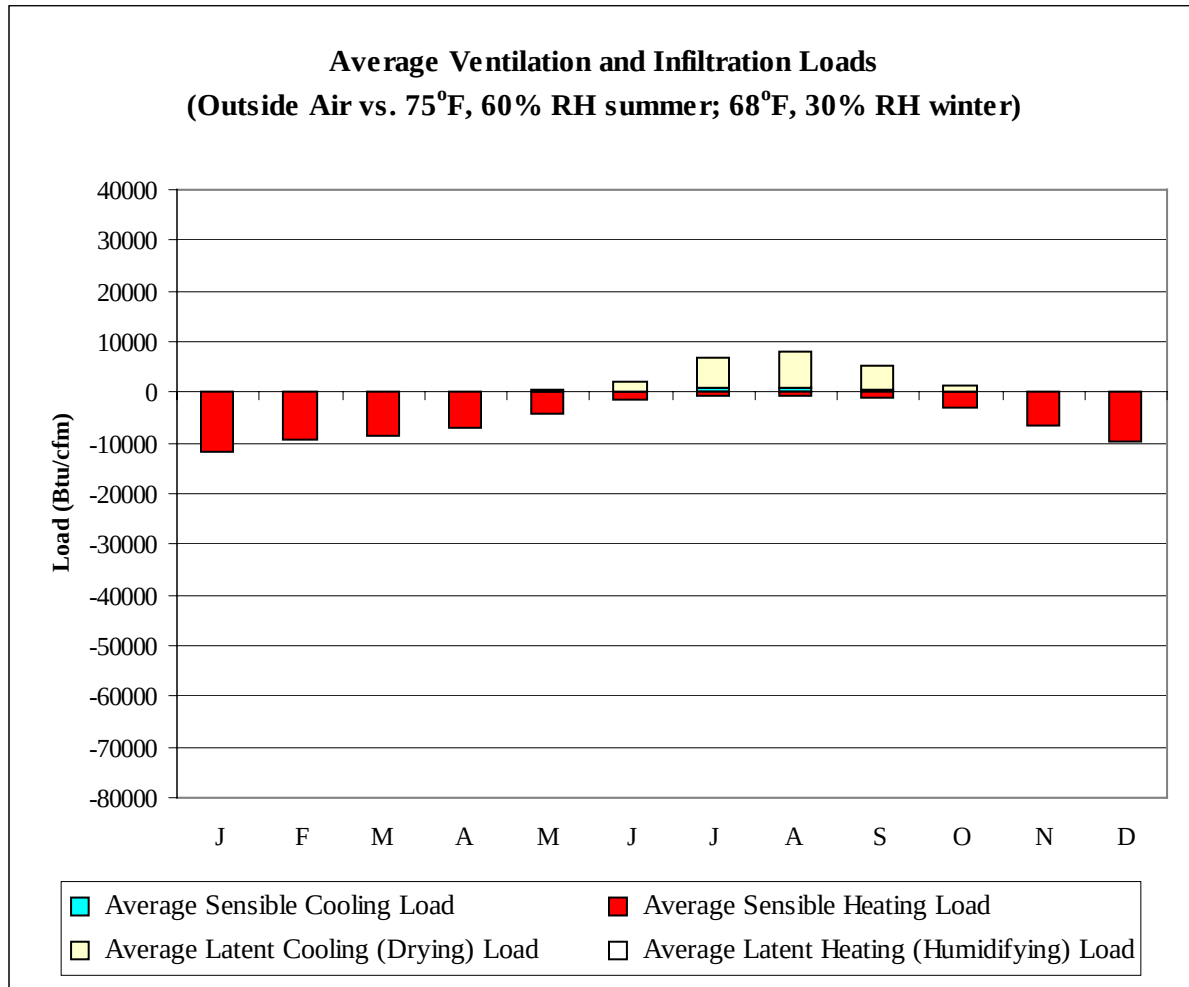


	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	2	361
FEB	5	279
MAR	14	243
APR	19	184
MAY	45	96
JUN	100	26
JUL	197	8
AUG	203	7
SEP	154	19
OCT	72	70
NOV	25	173
DEC	4	289
ANN	841	1755

RABAT/SALE

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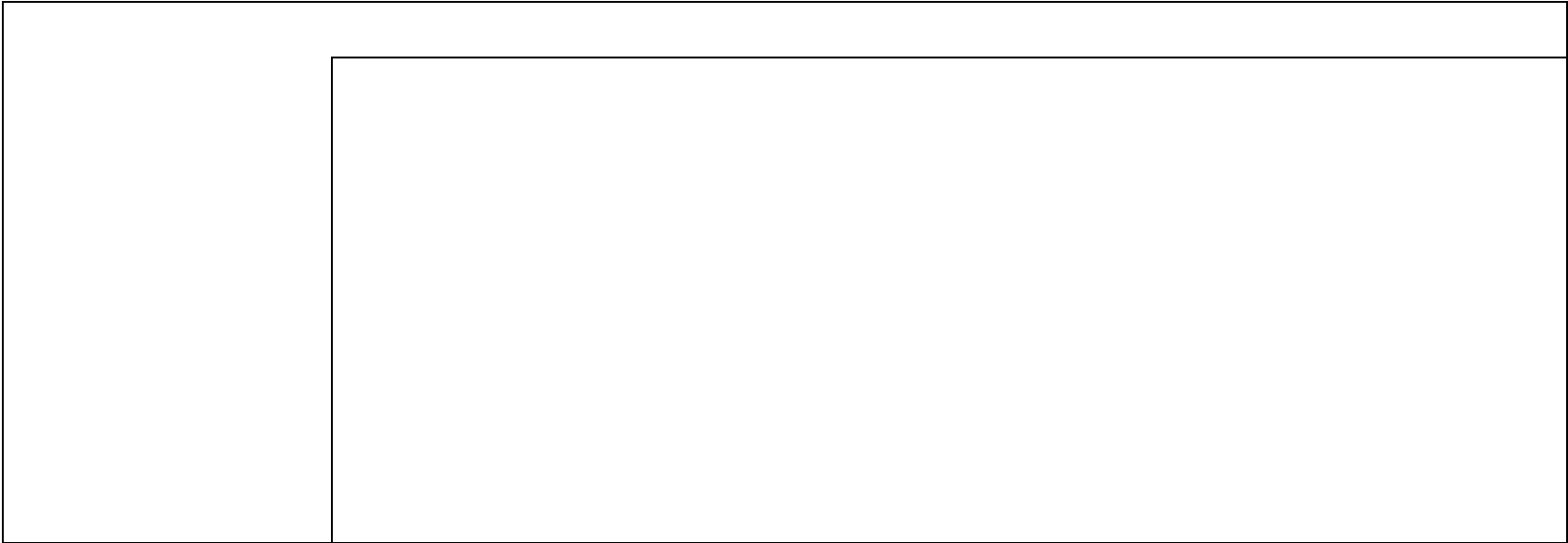
WMO No. 601350



	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	1	-11696	12	-36
FEB	7	-9325	4	-8
MAR	44	-8496	38	-14
APR	74	-6793	41	-6
MAY	178	-4191	357	0
JUN	248	-1572	1966	0
JUL	1084	-546	5939	0
AUG	1072	-505	6875	0
SEP	663	-1055	4539	0
OCT	193	-3138	1259	-2
NOV	72	-6392	219	-13
DEC	4	-9781	41	-21
ANN	3640	-63490	21290	-100

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

No Solar Radiation
Data Available

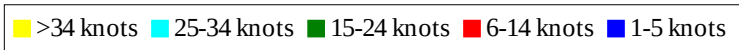
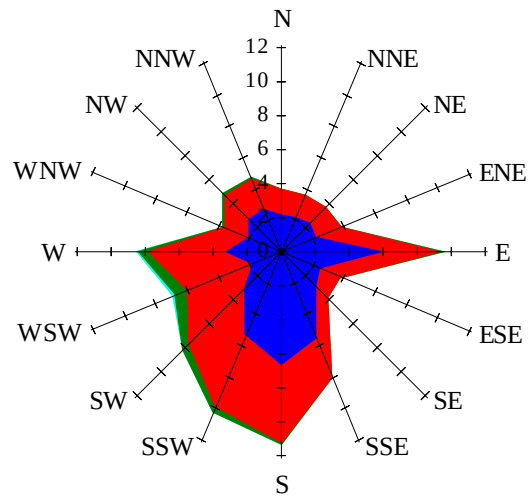


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

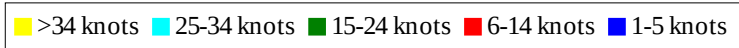
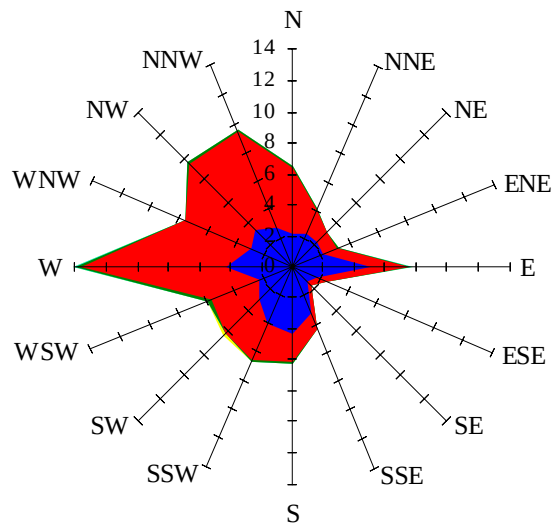
Labels of Percent Frequency on North Axis



Percent Calm = 3.17

Wind Summary - March, April, and May

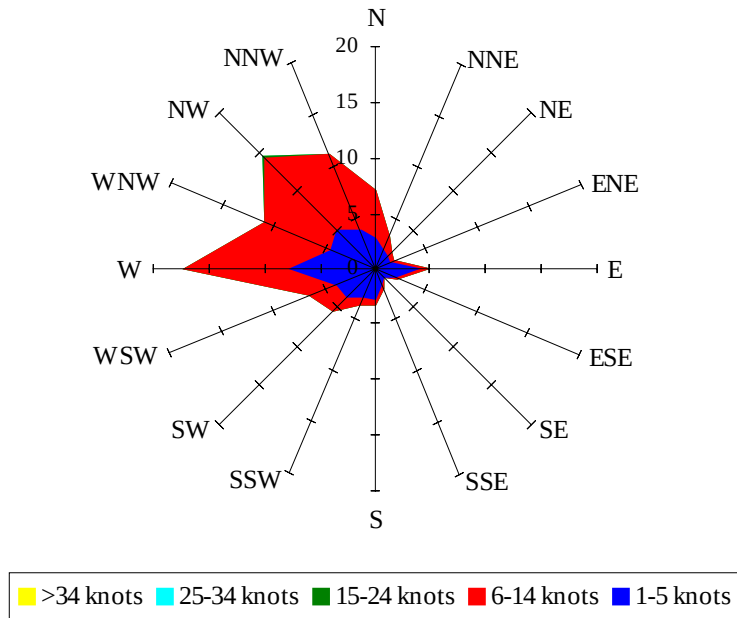
Labels of Percent Frequency on North Axis



Percent Calm = 2.89

Wind Summary - June, July, and August

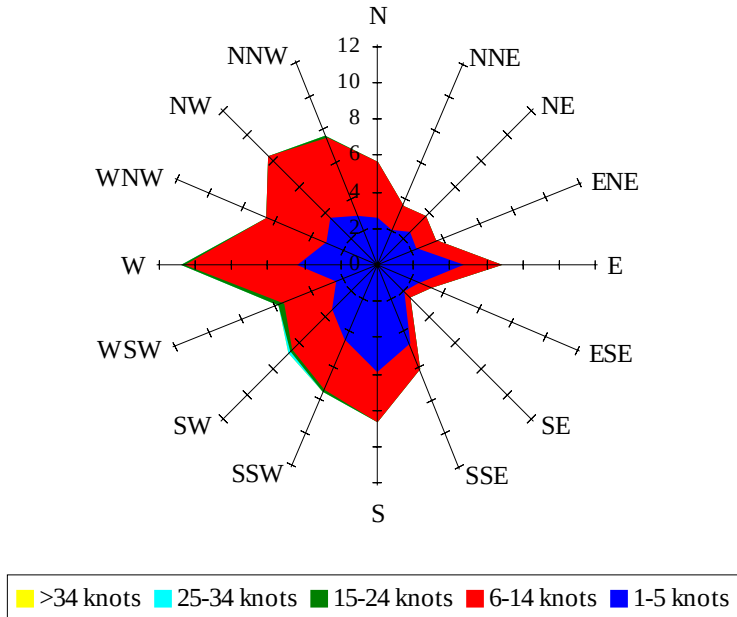
Labels of Percent Frequency on North Axis



Percent Calm = 3.99

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 3.91