

CAPE HATTERAS NC

Latitude = 35.27 N

Longitude = 75.55 W

Period of Record = 1973 to 1996

WMO No. 723040

Elevation = 10 feet

Average Pressure = 30.02 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	92	80	133	9.5	SW
0.4% Occurrence	88	78	130	10.5	SW
1.0% Occurrence	87	78	129	10.7	SW
2.0% Occurrence	85	77	125	10.6	SW
Mean Daily Range	13	-	-	-	-
97.5% Occurrence	33	30	19	10.7	N
99.0% Occurrence	28	25	15	9.4	N
99.6% Occurrence	25	23	13	10.1	N
Median of Extreme Lows	21	19	10	10.7	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	82	87	151	11.7	SW
0.4% Occurrence	80	85	143	11.2	SW
1.0% Occurrence	79	84	139	10.8	SW
2.0% Occurrence	78	83	135	10.6	SW
	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	159	83	1.05	7.3	E
0.4% Occurrence	150	84	1.00	10.9	SW
1.0% Occurrence	146	83	0.97	10.8	SW
2.0% Occurrence	140	82	0.94	10.6	SW
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		1	1049	1631	3038

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
8	4.1	140	5.8 + 1.0
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	5	17

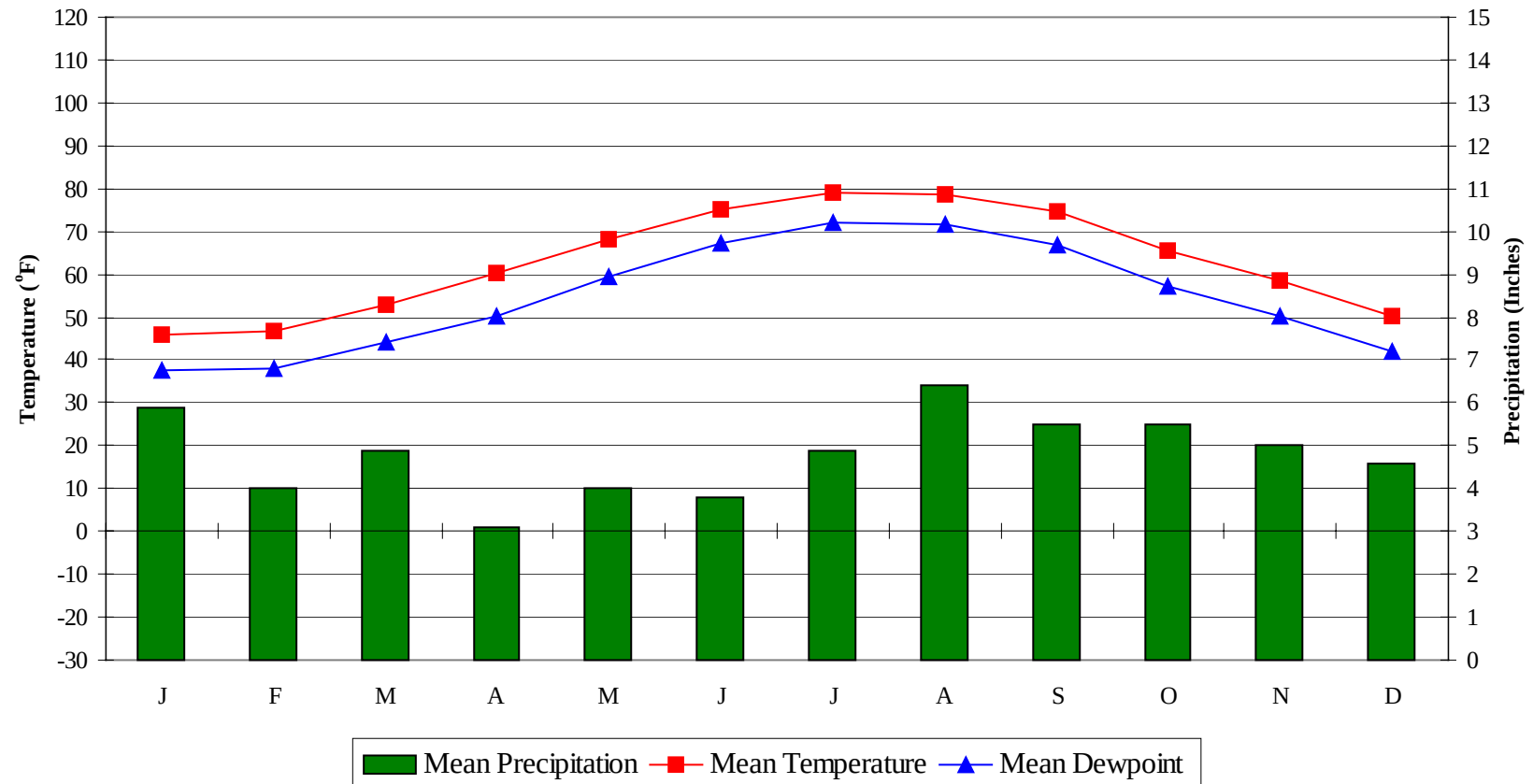
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.

CAPE HATTERAS

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Average Annual Climate

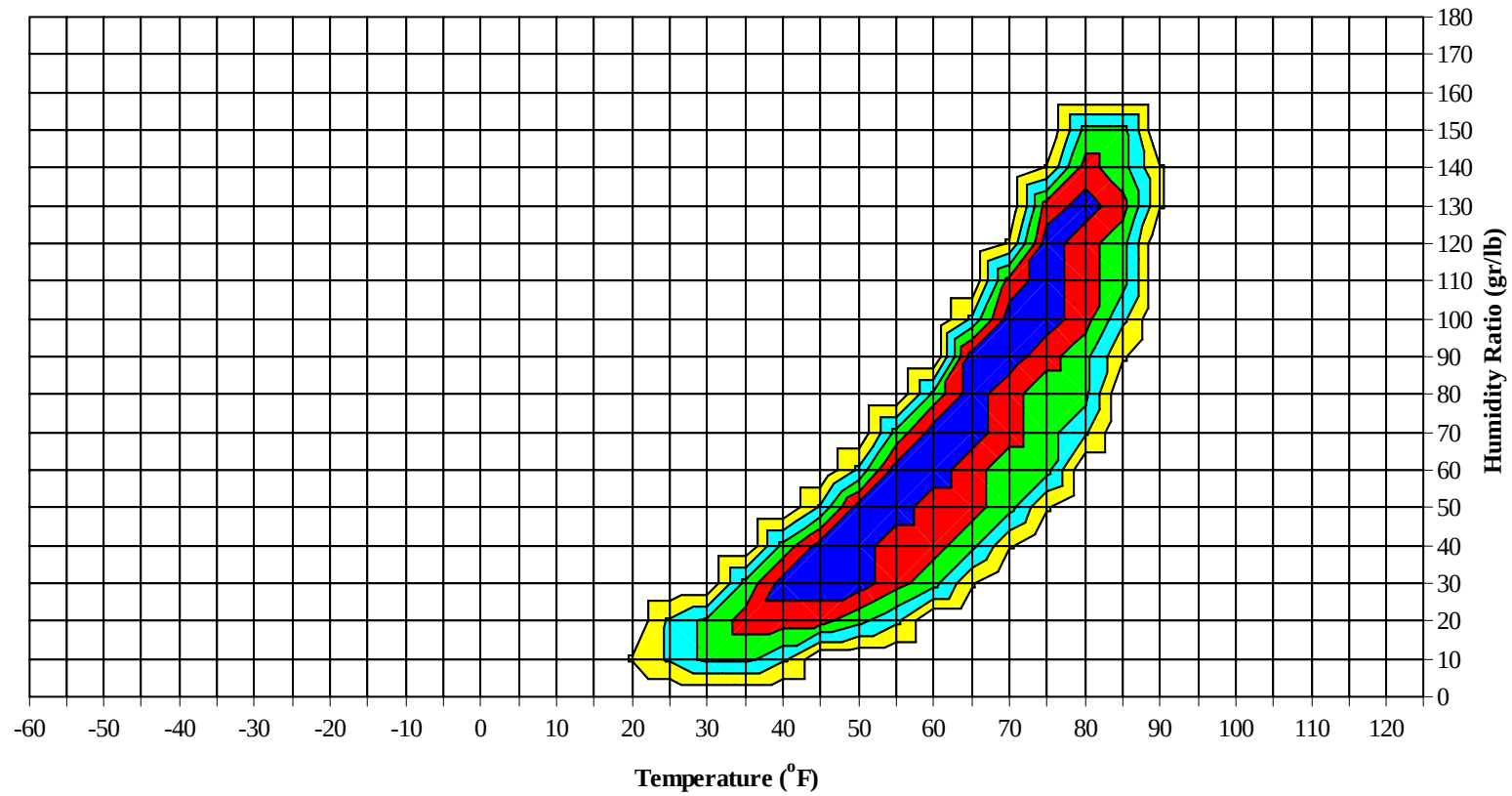


CAPE HATTERAS

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Long Term Psychrometric Summary



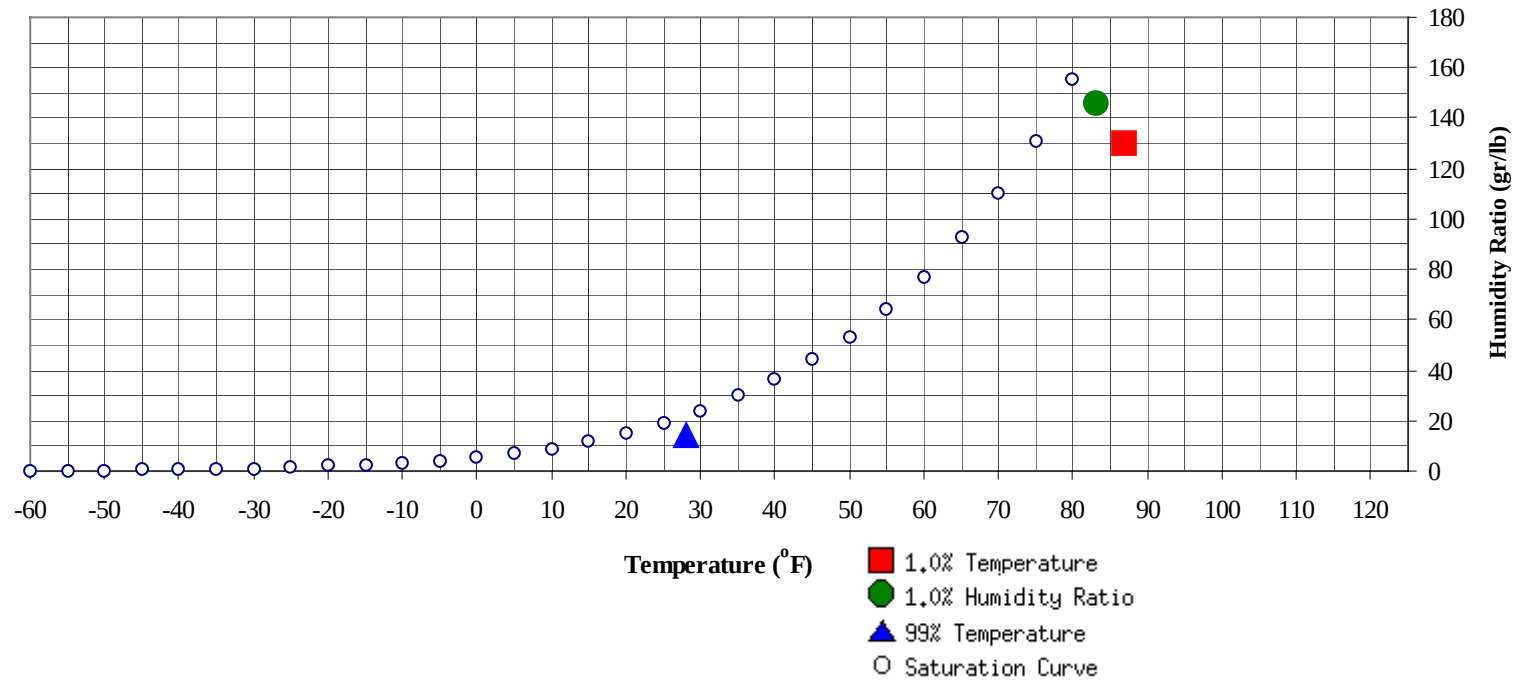
- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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Psychrometric Summary of Peak Design Values



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)
	28	14.6	9.0		145.6	83	79.3	78.1	42.8

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	87	130.1	78.1	41.3

CAPE HATTERAS NC

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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		
95 / 99															
90 / 94															
85 / 89															
80 / 84			0	0	57.0										
75 / 79		0	0	0	63.3		0		0	69.0		3		3	67.2
70 / 74	0	3	0	3	65.3	0	6	0	6	64.6	1	21	3	25	64.0
65 / 69	7	15	7	29	62.7	5	18	7	30	61.3	14	37	21	72	61.6
60 / 64	18	23	20	61	58.6	19	24	24	67	57.8	33	40	39	112	57.6
55 / 59	20	27	25	72	53.5	21	29	24	74	52.6	36	42	41	119	52.5
50 / 54	29	47	34	110	48.2	24	35	29	88	47.9	42	44	45	130	47.5
45 / 49	43	49	46	139	43.4	35	41	38	114	43.3	49	40	43	131	42.9
40 / 44	41	35	41	118	38.6	42	34	41	117	38.6	42	16	36	93	38.6
35 / 39	33	25	32	90	33.7	30	24	29	83	33.4	19	6	14	39	33.9
30 / 34	30	16	24	70	28.8	28	12	22	62	28.8	8	1	5	14	29.7
25 / 29	17	5	13	35	24.4	14	3	9	26	24.7	4	0	2	6	25.9
20 / 24	6	3	3	12	19.6	4	0	1	5	20.9	0		0	0	22.5
15 / 19	2	1	1	4	15.2	0			0	17.0					
10 / 14	0	0	0	0	9.9										
5 / 9	0	0		0	6.3										

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 = 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		
95 / 99												0		0	77.0
90 / 94												2		2	77.7
85 / 89		0		0	70.0		3	0	3	73.7	0	25	1	26	76.7
80 / 84		4	0	4	67.8	1	27	2	30	71.8	11	109	26	146	73.8
75 / 79	0	23	2	25	66.6	10	80	22	112	69.1	76	64	94	234	71.8
70 / 74	8	55	17	80	64.0	59	64	77	199	66.6	90	30	78	198	68.3
65 / 69	43	50	56	149	61.4	73	42	64	178	62.5	39	9	30	78	63.6
60 / 64	54	43	53	150	56.8	51	23	44	118	57.8	16	2	9	27	59.4
55 / 59	48	35	47	130	51.8	33	9	28	70	53.7	5	0	2	7	55.8
50 / 54	43	24	35	102	47.1	14	1	9	24	50.1	2		0	2	52.2
45 / 49	25	7	20	52	43.2	5		2	7	46.2	0		0	0	47.6
40 / 44	11	1	8	20	39.3	2		0	2	42.3					
35 / 39	6	0	2	8	35.8										
30 / 34	1		0	1	31.9										
25 / 29	0			0	27.5										
20 / 24															
15 / 19															
10 / 14															
5 / 9															

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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		
95 / 99		0		0	79.5										
90 / 94	0	7	0	7	79.8		4		4	79.7		1		1	78.5
85 / 89	2	93	8	103	78.0	1	86	6	93	77.6	0	29	1	30	76.5
80 / 84	51	111	89	251	75.9	42	107	75	223	75.7	11	88	22	121	74.2
75 / 79	126	32	111	269	73.9	119	41	108	267	73.6	75	78	88	241	72.0
70 / 74	51	5	32	88	69.7	65	10	51	126	69.8	93	34	81	208	68.1
65 / 69	13	0	6	19	64.6	17	1	7	25	65.2	41	10	34	84	62.6
60 / 64	4		2	6	60.8	4		1	5	61.1	13	1	10	24	58.8
55 / 59	1		0	1	56.5	1			1	57.9	4		3	7	55.9
50 / 54											2		1	3	51.1
45 / 49											1		0	1	46.7
40 / 44															
35 / 39															
30 / 34															
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															

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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		
95 / 99															
90 / 94															
85 / 89		2		2	75.8										
80 / 84	1	14	1	16	72.7										
75 / 79	10	49	15	74	69.8	0	16	0	16	68.8		1		1	69.0
70 / 74	40	65	47	153	66.8	17	39	23	79	66.9	4	10	4	18	66.5
65 / 69	63	60	67	190	62.4	34	47	39	120	62.9	13	23	16	52	62.7
60 / 64	60	39	55	154	57.0	44	45	43	132	57.9	22	30	28	81	58.0
55 / 59	40	14	39	93	52.3	44	41	47	132	52.7	24	42	31	98	52.9
50 / 54	19	3	15	37	48.4	38	31	39	108	47.1	41	51	44	136	48.1
45 / 49	9	1	6	16	44.7	32	14	26	72	42.6	52	46	46	144	43.2
40 / 44	4		3	7	41.2	17	6	14	37	38.6	39	22	37	98	38.6
35 / 39	1		1	2	37.0	9	1	7	17	35.0	25	14	23	63	33.5
30 / 34	0		0	0	33.8	3	0	2	5	31.0	18	6	13	37	29.1
25 / 29						1		0	1	27.3	8	1	4	13	25.4
20 / 24											1	1	1	3	20.5
15 / 19											0	0	0	0	13.2
10 / 14											0	0	0	0	10.4
5 / 9															

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 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		
95 / 99	0			0	78.7
90 / 94	0	13	0	13	79.4
85 / 89	3	234	16	253	77.5
80 / 84	114	457	211	783	74.9
75 / 79	414	389	437	1240	72.1
70 / 74	430	342	411	1183	67.5
65 / 69	362	312	354	1028	62.5
60 / 64	339	267	329	936	57.7
55 / 59	281	239	286	806	52.7
50 / 54	254	235	253	742	47.8
45 / 49	251	197	228	676	43.2
40 / 44	198	114	182	493	38.7
35 / 39	124	71	107	301	33.7
30 / 34	89	36	67	192	29.0
25 / 29	45	10	29	84	24.8
20 / 24	12	4	6	22	20.1
15 / 19	2	1	1	4	14.7
10 / 14	1	0	1	2	10.1
5 / 9	0	0		0	6.3

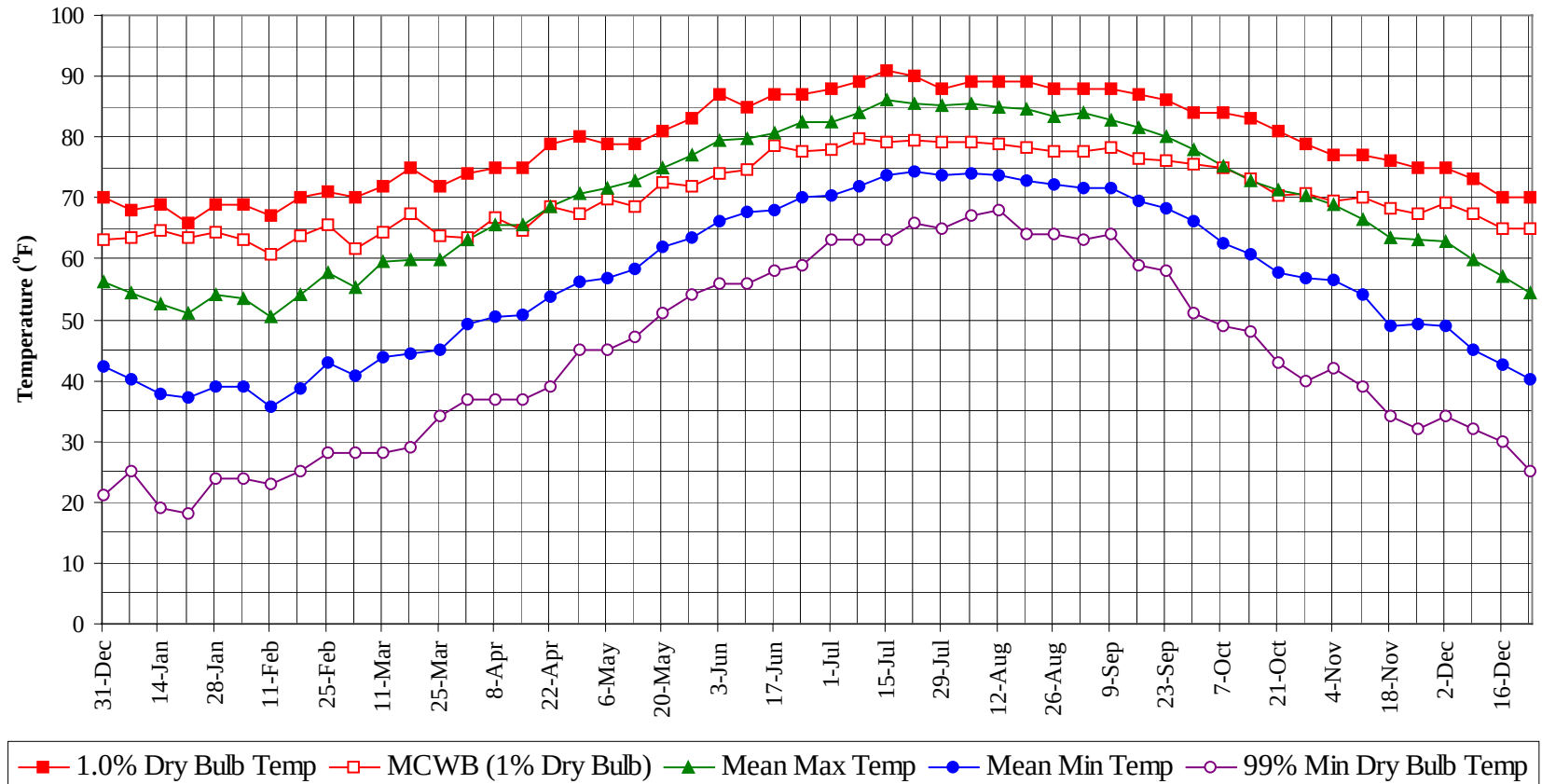
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

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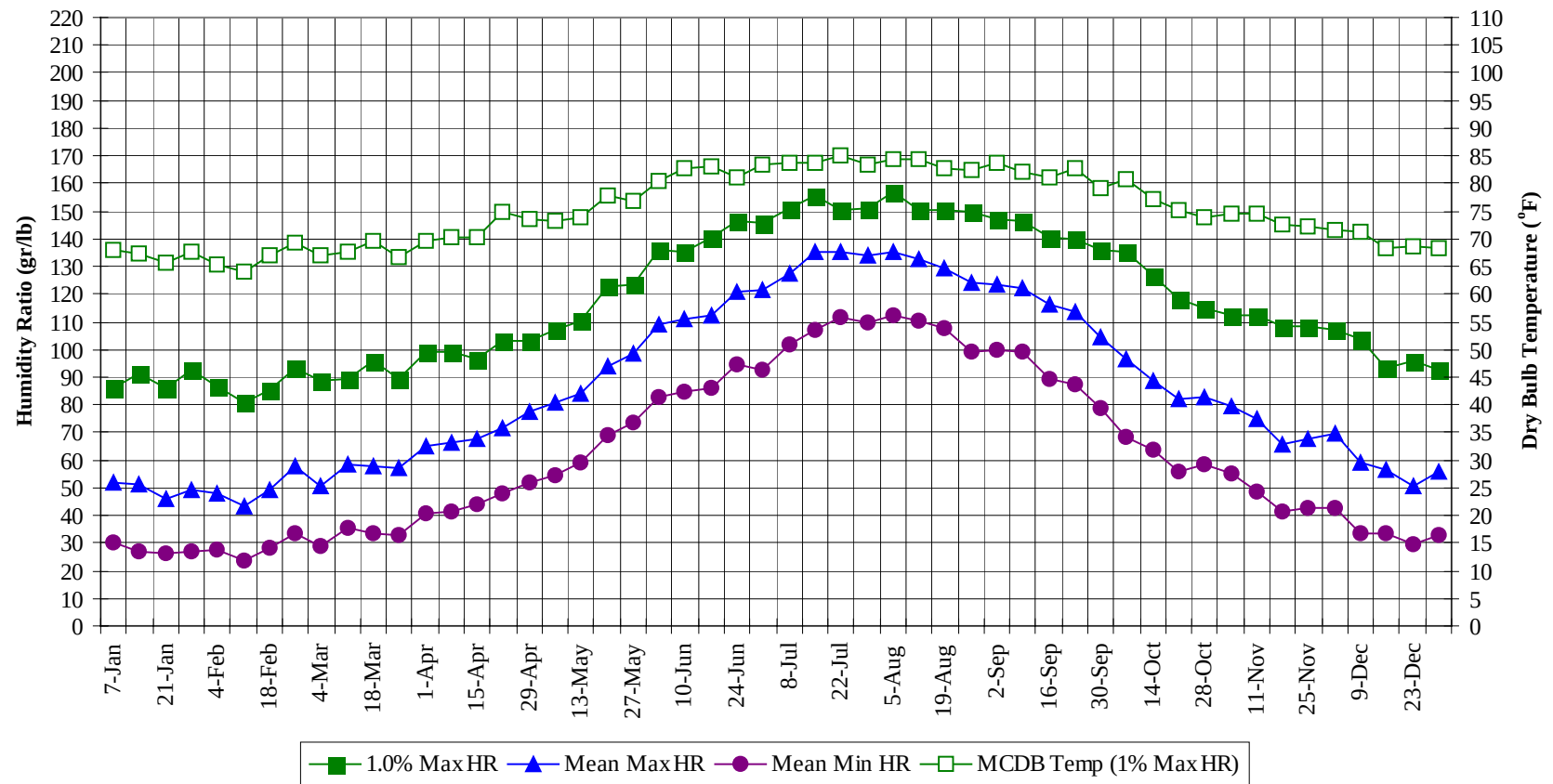
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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



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WMO No. 723040

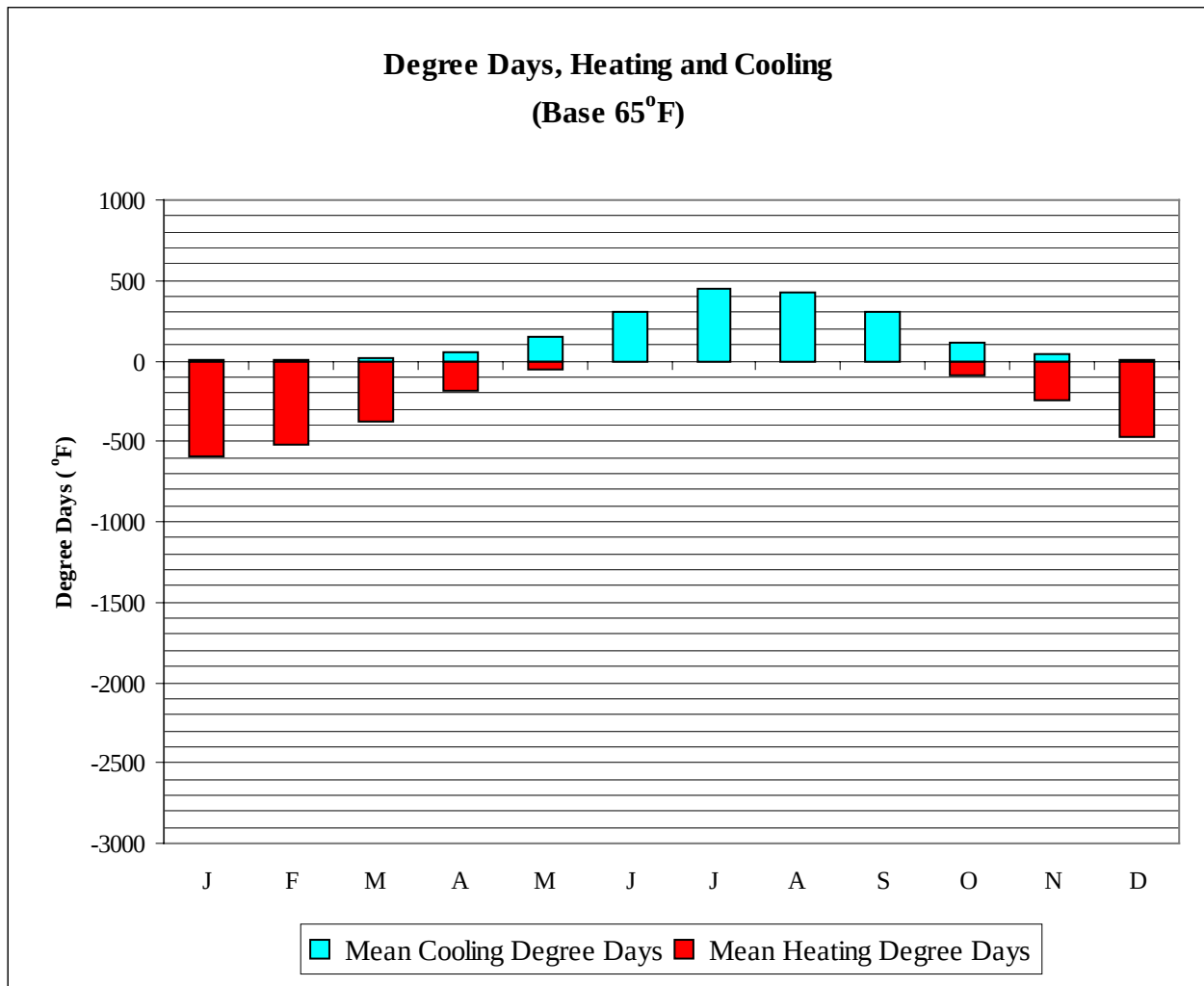
Long Term Dry Bulb Temperature and Humidity Summary

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	68.0	63.5	54.3	40.3	25.0	86.1	68.0	52.2	30.1
14-Jan	69.0	64.6	52.6	37.8	19.0	91.0	67.2	51.2	26.9
21-Jan	66.0	63.3	51.1	37.1	18.0	86.1	65.8	46.1	26.3
28-Jan	69.0	64.2	54.0	39.0	24.0	92.4	67.6	49.2	27.2
4-Feb	69.0	63.0	53.6	39.0	24.0	86.8	65.3	47.9	27.8
11-Feb	67.0	60.7	50.4	35.6	23.0	80.5	64.0	43.5	23.8
18-Feb	70.0	63.7	54.2	38.8	25.0	85.4	66.9	49.2	28.0
25-Feb	71.0	65.5	57.8	42.9	28.0	93.1	69.4	57.5	33.3
4-Mar	70.0	61.7	55.3	40.9	28.0	88.9	67.1	50.7	29.1
11-Mar	72.0	64.5	59.4	44.0	28.0	89.6	67.8	58.6	35.5
18-Mar	75.0	67.4	59.9	44.3	29.0	95.9	69.7	57.9	33.8
25-Mar	72.0	63.9	59.8	45.1	34.0	89.6	66.6	56.9	32.9
1-Apr	74.0	63.5	63.2	49.3	37.0	99.4	69.6	64.7	40.9
8-Apr	75.0	66.7	65.6	50.5	37.0	99.4	70.2	66.6	41.1
15-Apr	75.0	64.7	65.7	50.7	37.0	96.6	70.1	68.0	44.1
22-Apr	79.0	68.5	68.5	53.9	39.0	102.9	74.9	71.5	48.1
29-Apr	80.0	67.4	70.6	56.1	45.0	102.9	73.5	77.6	51.6
6-May	79.0	69.8	71.6	56.7	45.0	107.1	73.4	81.0	54.8
13-May	79.0	68.7	72.9	58.3	47.0	110.6	73.8	84.1	59.0
20-May	81.0	72.6	75.0	61.8	51.0	122.5	77.9	93.7	68.8
27-May	83.0	72.0	76.9	63.3	54.0	123.2	76.8	98.6	73.6
3-Jun	87.0	74.1	79.6	66.3	56.0	135.8	80.4	108.8	82.9
10-Jun	85.0	74.7	79.8	67.6	56.0	135.1	82.9	111.3	84.4
17-Jun	87.0	78.7	80.8	67.9	58.0	140.7	83.2	112.5	86.2
24-Jun	87.0	77.5	82.4	70.1	59.0	146.3	81.2	120.7	94.5
1-Jul	88.0	77.8	82.6	70.4	63.0	145.6	83.4	121.4	92.7
8-Jul	89.0	79.6	84.1	71.9	63.0	151.2	83.7	127.4	101.8
15-Jul	91.0	79.1	86.1	73.8	63.0	155.4	83.6	135.4	107.1
22-Jul	90.0	79.5	85.5	74.2	66.0	150.5	85.0	135.3	111.4
29-Jul	88.0	79.1	85.2	73.8	65.0	151.2	83.5	134.1	110.0
5-Aug	89.0	79.2	85.4	74.1	67.0	156.8	84.5	135.4	112.0
12-Aug	89.0	78.8	85.0	73.7	68.0	150.5	84.4	132.8	110.3
19-Aug	89.0	78.3	84.5	72.8	64.0	150.5	82.8	129.6	107.6
26-Aug	88.0	77.5	83.4	72.1	64.0	149.8	82.4	124.2	99.3
2-Sep	88.0	77.8	84.1	71.7	63.0	147.0	83.7	123.6	99.8
9-Sep	88.0	78.1	82.8	71.7	64.0	146.3	82.0	122.2	99.0
16-Sep	87.0	76.3	81.7	69.5	59.0	140.7	81.1	116.3	89.4
23-Sep	86.0	76.2	80.2	68.2	58.0	140.0	82.8	113.6	87.4
30-Sep	84.0	75.6	77.9	66.1	51.0	135.8	79.1	104.4	79.1
7-Oct	84.0	75.0	75.3	62.5	49.0	135.1	80.7	96.4	68.4
14-Oct	83.0	73.2	72.9	60.7	48.0	126.7	77.3	88.7	63.8
21-Oct	81.0	70.5	71.4	57.6	43.0	118.3	75.3	82.3	55.8
28-Oct	79.0	70.7	70.4	56.8	40.0	114.8	74.0	83.0	58.3
4-Nov	77.0	69.5	68.9	56.4	42.0	112.0	74.4	79.6	55.4
11-Nov	77.0	70.1	66.5	53.9	39.0	112.0	74.6	74.7	48.4
18-Nov	76.0	68.4	63.5	48.9	34.0	108.5	72.4	65.7	41.6
25-Nov	75.0	67.5	63.1	49.1	32.0	108.5	72.3	67.6	42.5
2-Dec	75.0	69.2	62.8	48.8	34.0	107.1	71.6	69.5	42.8
9-Dec	73.0	67.5	59.7	44.9	32.0	103.6	71.2	59.1	33.8
16-Dec	70.0	65.0	57.0	42.6	30.0	93.1	68.5	56.8	33.6
23-Dec	70.0	64.9	54.3	40.3	25.0	95.9	68.8	50.6	29.3
31-Dec	70.0	63.2	56.1	42.3	21.0	92.4	68.2	56.0	33.0

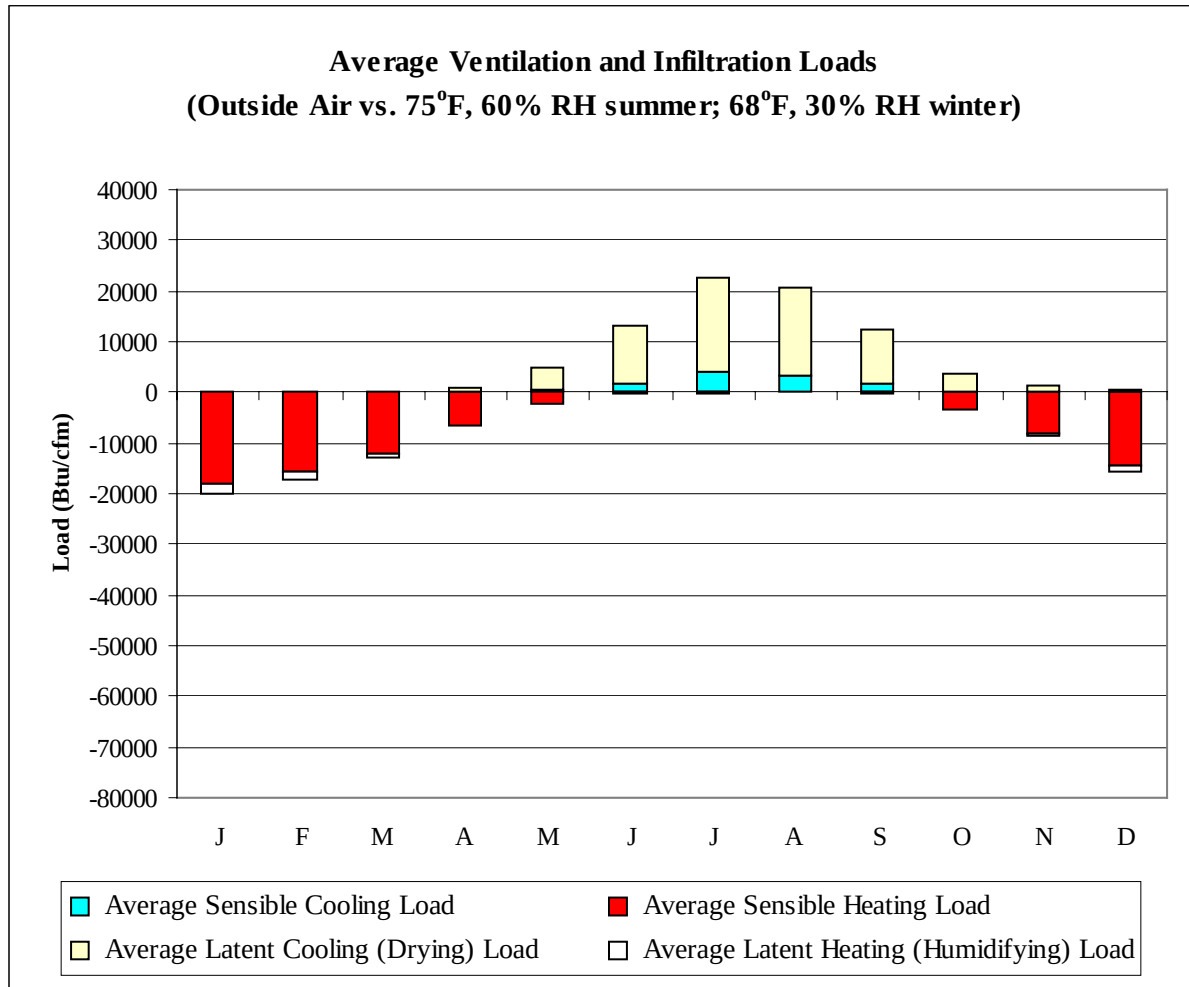
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WMO No. 723040



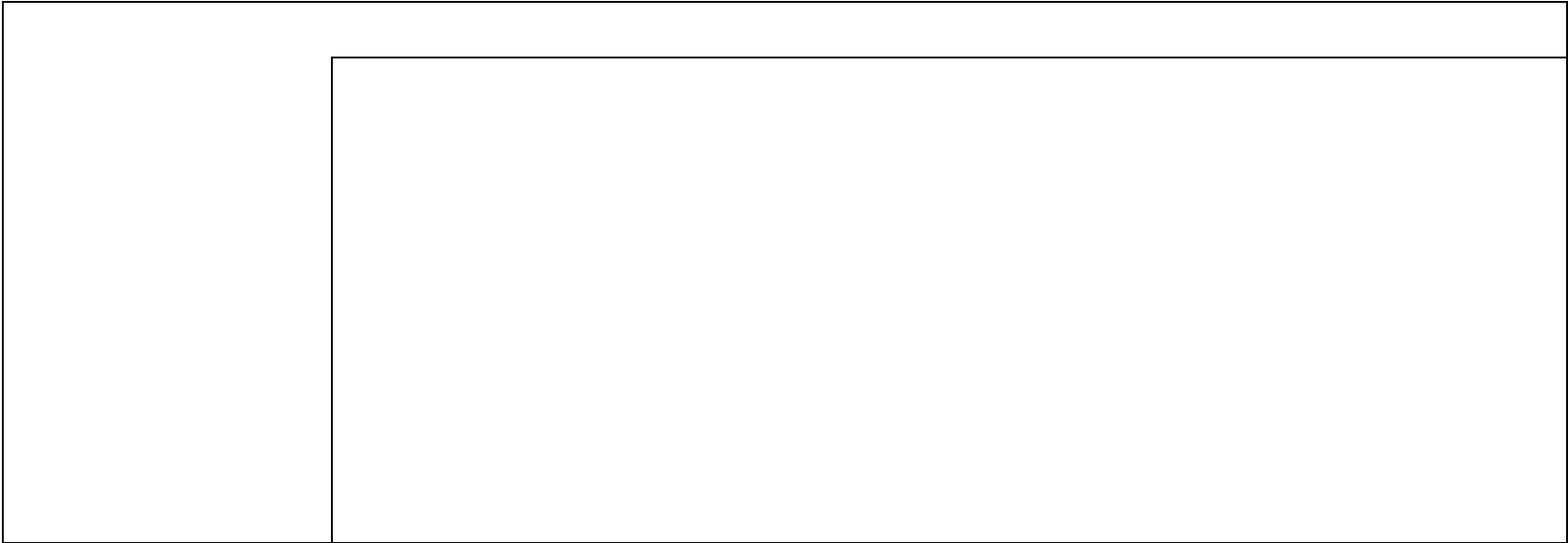
	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	2	598
FEB	3	520
MAR	12	377
APR	48	183
MAY	149	54
JUN	309	6
JUL	444	1
AUG	420	1
SEP	302	6
OCT	108	85
NOV	36	242
DEC	8	471
ANN	1841	2544



	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	-17861	132	-2137
FEB	0	-15606	97	-1794
MAR	3	-11942	304	-866
APR	60	-6453	806	-246
MAY	417	-2322	4376	-6
JUN	1821	-332	11462	0
JUL	3929	-66	18730	0
AUG	3414	-59	17439	0
SEP	1697	-341	10795	0
OCT	259	-3428	3346	-34
NOV	21	-8065	1434	-377
DEC	1	-14461	360	-1273
ANN	11623	-80936	69281	-6733

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

No Solar Radiation
Data Available

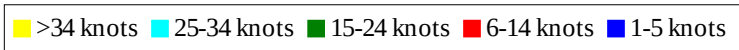
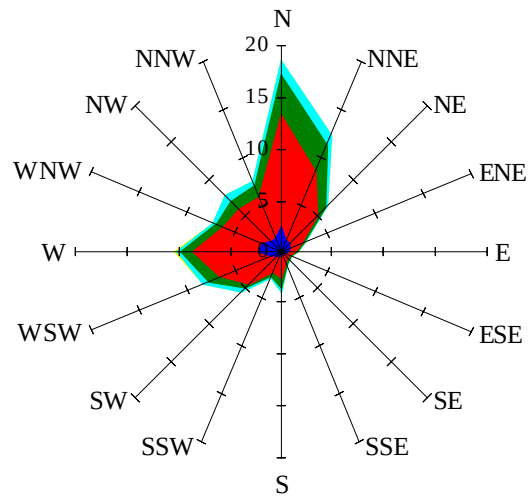


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

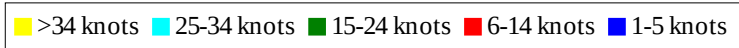
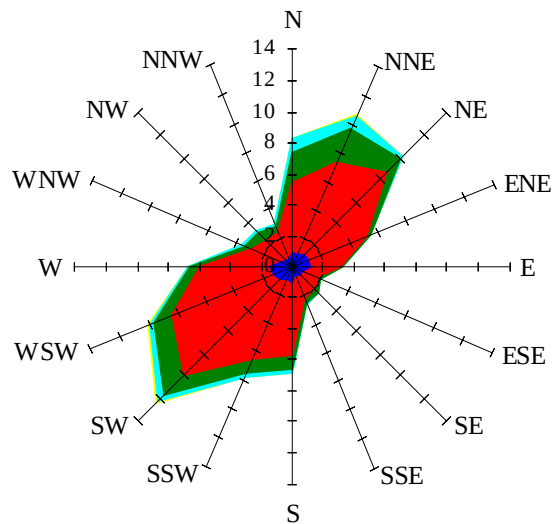
Labels of Percent Frequency on North Axis



Percent Calm = 2.56

Wind Summary - March, April, and May

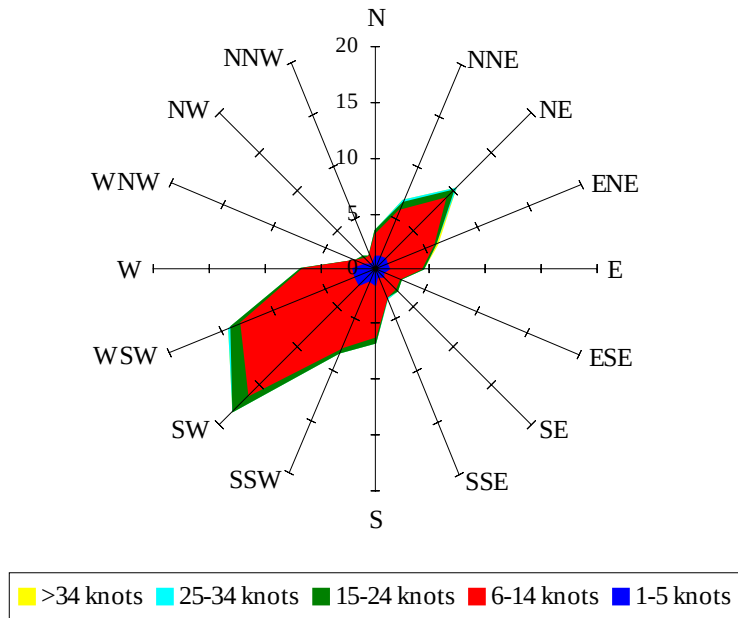
Labels of Percent Frequency on North Axis



Percent Calm = 2.38

Wind Summary - June, July, and August

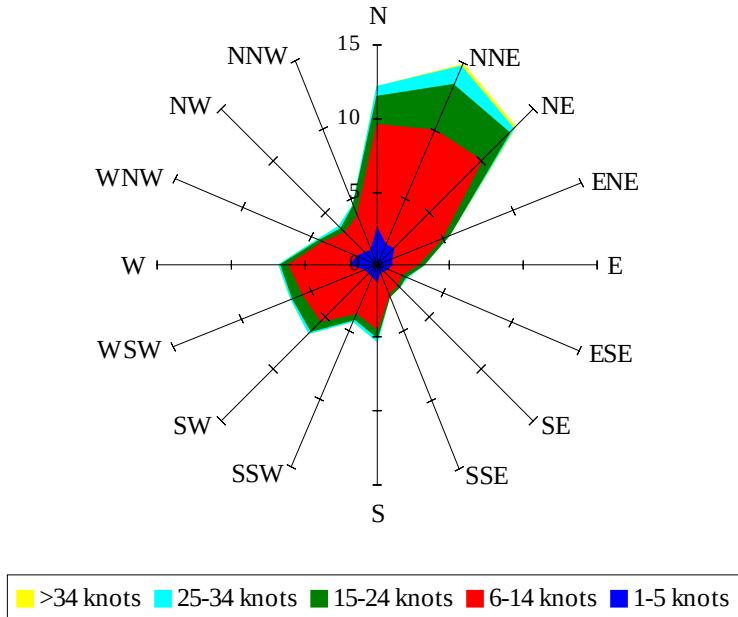
Labels of Percent Frequency on North Axis



Percent Calm = 3.11

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 3.48