

ILIAMNA AK

Latitude = 59.75 N

Longitude = 154.90 W

Period of Record = 1973 to 1996

WMO No. 703400

Elevation = 161 feet

Average Pressure = 29.58 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	75	59	51	11.4	SSW
0.4% Occurrence	70	57	50	10.5	S
1.0% Occurrence	67	56	49	10.1	S
2.0% Occurrence	64	55	49	9.7	S
Mean Daily Range	11	-	-	-	-
97.5% Occurrence	-8	-9	2	9.7	N
99.0% Occurrence	-15	-16	1	9.7	N
99.6% Occurrence	-20	-20	1	10.2	N
Median of Extreme Lows	-22	-22	1	10.1	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	62	71	66	9.3	S
0.4% Occurrence	59	67	60	10.1	S
1.0% Occurrence	57	65	56	9.3	S
2.0% Occurrence	55	61	53	8.9	S
	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	72	67	0.49	9.7	SW
0.4% Occurrence	63	61	0.42	8.5	WSW
1.0% Occurrence	60	60	0.41	8.2	WSW
2.0% Occurrence	57	59	0.39	8.4	E
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		0	1	0	0

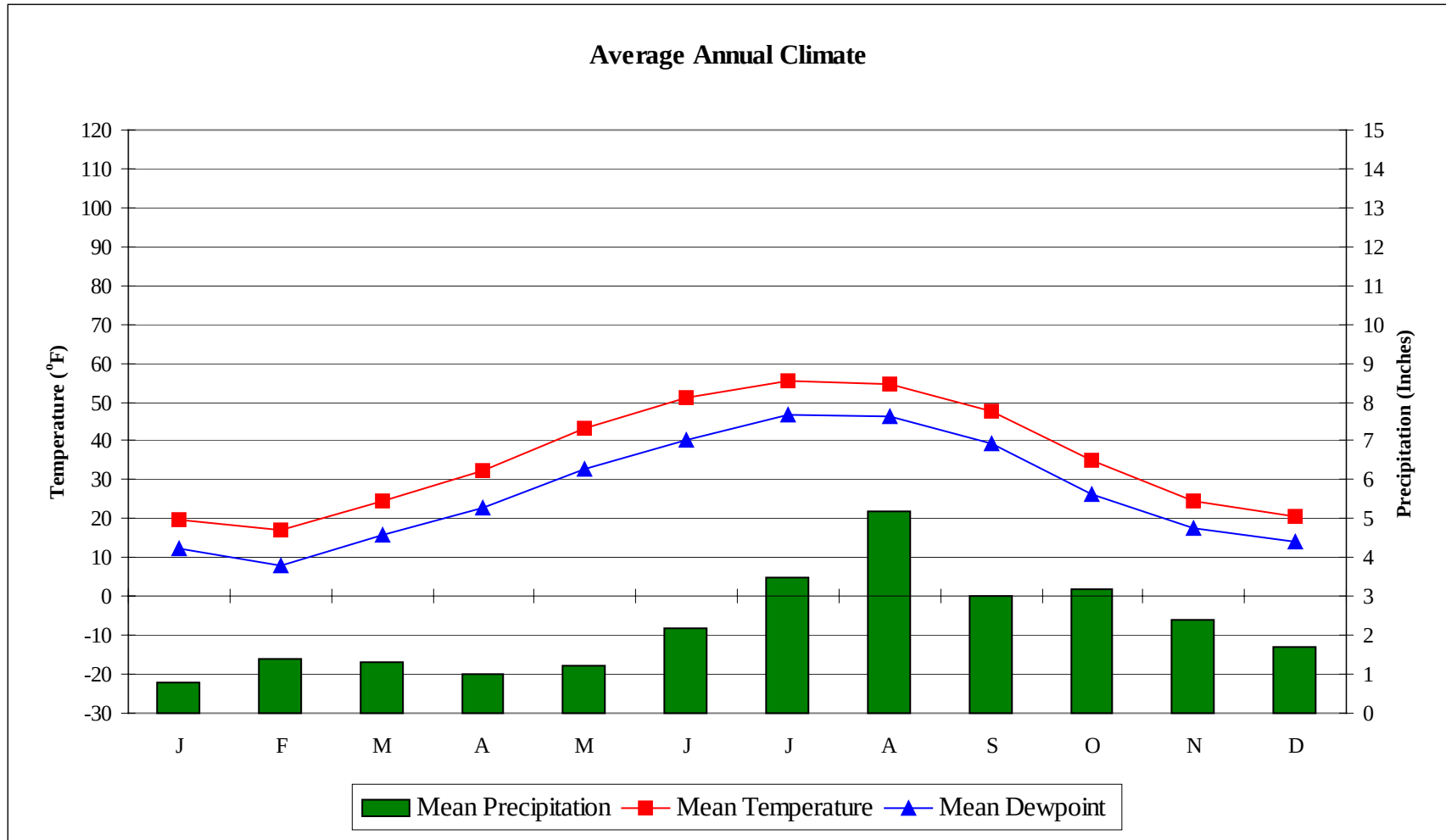
Other Site Data

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
4	0.6	120	0.0 + 0.0
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 (#)
38.3	N/A	N/A	63

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

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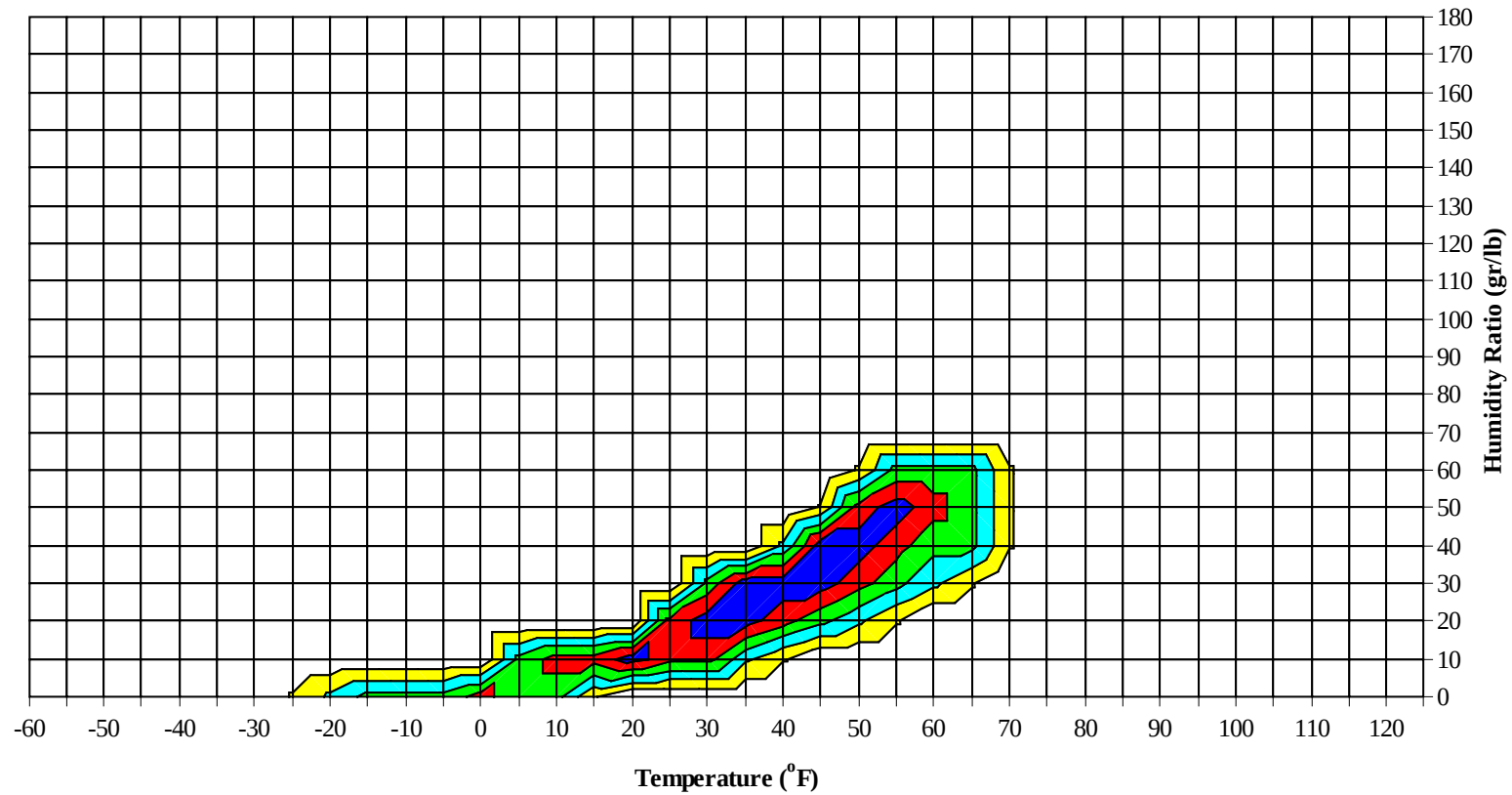
WMO No. 703400



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WMO No. 703400

Long Term Psychrometric Summary

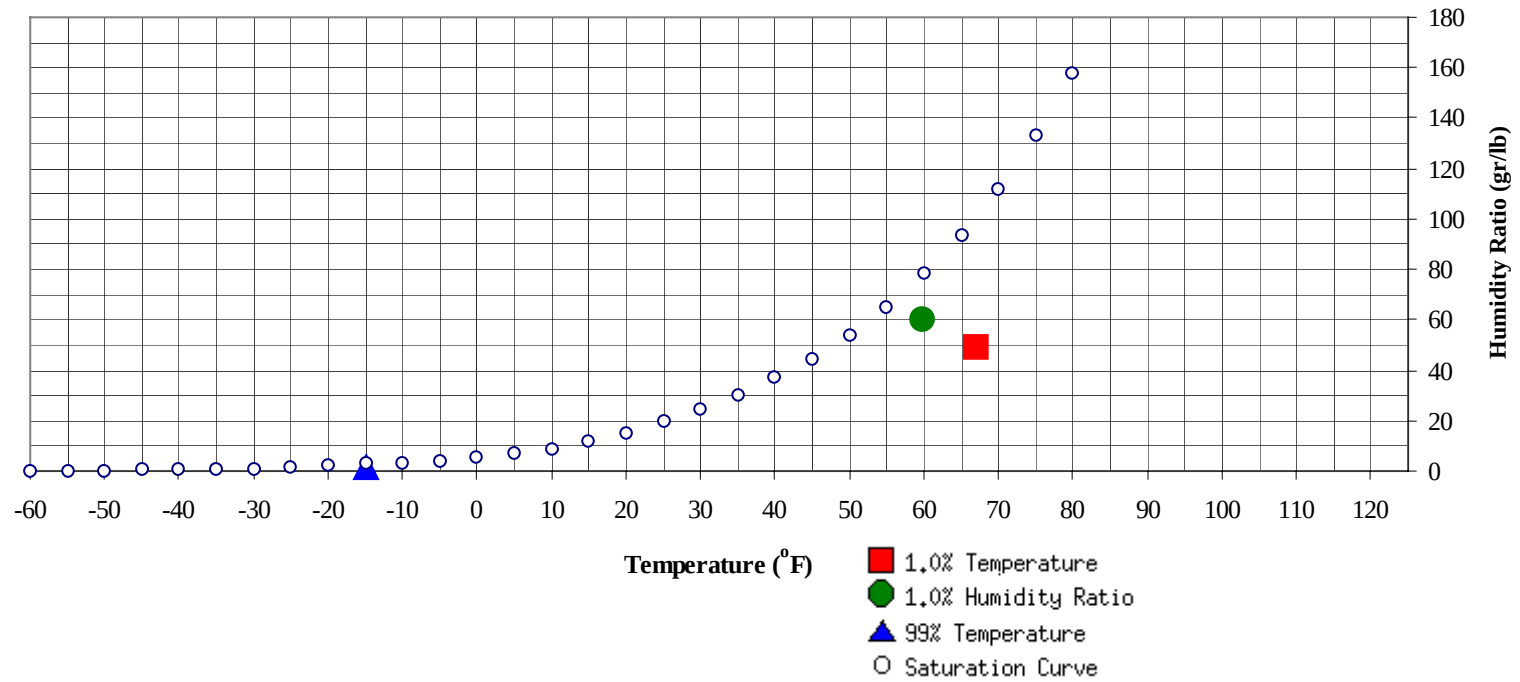


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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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	-15	1.2	-3.4		60.2	59.7	55.8	53	23.7

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	67	49.5	56.1	23.8

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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		
80 / 84															
75 / 79															
70 / 74															
65 / 69															
60 / 64															
55 / 59															
50 / 54															
45 / 49		0	0	0	38.5	0	1	1	2	38.0	0	1	0	1	38.3
40 / 44	6	10	6	22	36.5	2	8	3	14	36.6	2	18	7	28	35.5
35 / 39	52	48	51	151	33.7	33	42	39	114	33.5	30	58	52	140	33.1
30 / 34	46	44	51	140	30.3	40	31	36	106	30.4	56	49	61	166	29.7
25 / 29	27	26	25	79	25.4	18	19	22	59	24.8	35	33	36	104	24.9
20 / 24	22	20	19	62	20.6	16	17	19	52	20.0	31	22	27	79	20.0
15 / 19	20	19	19	58	15.4	16	14	17	47	15.2	23	21	20	63	15.1
10 / 14	14	14	17	45	11.0	17	15	16	47	10.4	22	17	19	58	10.3
5 / 9	13	13	14	39	6.0	14	14	15	43	5.6	18	12	11	42	5.8
0 / 4	11	12	13	35	0.9	13	17	15	45	0.5	17	8	8	33	0.7
-5 / -1	6	7	8	21	-3.4	11	12	8	31	-3.6	6	4	3	13	-3.5
-10 / -6	8	8	6	22	-7.9	14	15	15	44	-7.8	5	3	3	11	-7.5
-15 / -11	8	11	7	27	-12.7	13	11	13	37	-12.7	2	2	1	5	-12.3
-20 / -16	6	8	7	22	-17.4	13	6	6	25	-17.2	1	0		1	-16.2
-25 / -21	6	5	3	14	-21.7	4	2	1	6	-21.5	0	0		0	-21.8
-30 / -26	2	3	1	6	-26.7	0	0		0	-25.7	0			0	-25.0
-35 / -31	0	0	0	0	-31.8										
-40 / -36	0	1	0	1	-36.2										
-45 / -41	0	0	0	0	-41.6										

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.

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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		
80 / 84															
75 / 79												1	1	2	57.0
70 / 74							1	1	2	52.7		3	3	6	55.9
65 / 69							3	3	6	51.6		11	8	19	53.6
60 / 64						0	6	5	11	48.8	1	25	20	47	51.5
55 / 59		0	0	0	42.8	0	18	13	30	46.5	4	60	41	106	49.1
50 / 54		5	3	8	41.9	4	48	33	85	43.8	37	86	73	196	46.6
45 / 49	0	23	13	36	39.4	19	81	58	159	41.3	108	46	68	222	43.8
40 / 44	3	56	35	95	36.7	81	62	78	221	38.4	80	8	23	111	40.3
35 / 39	55	70	73	197	33.6	87	23	43	153	34.7	10	0	1	11	36.4
30 / 34	84	39	59	181	29.8	47	6	13	65	30.5	0	0		0	32.0
25 / 29	39	19	26	84	24.7	9	0	1	10	25.5					
20 / 24	19	10	13	42	19.8	1			1	20.5					
15 / 19	15	8	7	30	14.9	0			0	16.5					
10 / 14	11	5	5	22	10.2										
5 / 9	7	3	4	14	5.6										
0 / 4	4	1	2	7	0.6										
-5 / -1	1	1	0	2	-3.6										
-10 / -6	2	0	0	2	-7.7										
-15 / -11	0		0	0	-10.3										
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															
-45 / -41															

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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		
80 / 84		0	0	0	61.3										
75 / 79		2	1	3	60.9		0	1	1	61.6					
70 / 74		6	6	12	58.6		4	4	9	58.6					
65 / 69	0	27	21	48	56.4	0	20	15	35	56.9		1	1	2	55.0
60 / 64	2	57	43	102	54.2	2	49	30	81	54.5	0	8	5	13	52.5
55 / 59	36	85	72	194	51.8	34	94	84	212	51.9	7	41	25	72	50.3
50 / 54	125	61	82	268	49.0	127	68	93	288	49.2	47	87	77	211	47.3
45 / 49	77	10	21	108	45.5	69	12	19	100	45.2	82	63	78	223	43.7
40 / 44	8	0	1	9	41.8	13	1	2	16	39.7	54	25	34	113	39.2
35 / 39	0			0	38.0	2	0	0	2	33.8	28	11	15	54	34.3
30 / 34											18	3	5	27	29.6
25 / 29											3	1	0	4	24.1
20 / 24											1	0	0	1	19.7
15 / 19											0			0	17.3
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															
-45 / -41															

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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		
80 / 84															
75 / 79															
70 / 74															
65 / 69															
60 / 64															
55 / 59		2	1	3	46.1										
50 / 54	5	9	5	19	45.1		0	0	0	42.7					
45 / 49	22	41	29	92	42.1	4	5	3	12	41.7	0	1	0	1	38.7
40 / 44	46	56	59	161	38.6	16	22	18	56	38.1	7	12	9	28	36.7
35 / 39	47	47	51	145	34.1	40	40	44	124	34.1	41	50	47	138	33.9
30 / 34	48	38	44	129	29.3	35	38	39	111	30.3	49	42	47	139	30.3
25 / 29	38	26	26	89	24.3	27	27	28	83	25.2	26	25	26	77	25.4
20 / 24	20	13	15	49	19.8	25	27	24	76	20.2	20	22	21	63	20.7
15 / 19	13	7	10	30	15.3	30	27	27	84	15.6	16	17	19	51	15.9
10 / 14	7	4	3	14	10.4	27	22	21	71	10.9	14	15	14	44	10.8
5 / 9	3	2	3	9	6.0	19	15	15	48	6.1	16	18	17	51	6.0
0 / 4	1	1	1	3	1.7	10	10	12	32	1.0	19	17	17	54	1.0
-5 / -1	0	0		0	-2.2	5	3	5	13	-3.2	11	11	10	32	-3.0
-10 / -6						4	2	2	7	-7.2	13	9	9	32	-7.4
-15 / -11						0	1	1	2	-11.9	7	4	5	17	-12.6
-20 / -16						0	0	0	0	-16.0	4	3	3	10	-17.1
-25 / -21											2	1	2	5	-21.2
-30 / -26											1	1	0	2	-27.6
-35 / -31											0			0	-30.0
-40 / -36															
-45 / -41															

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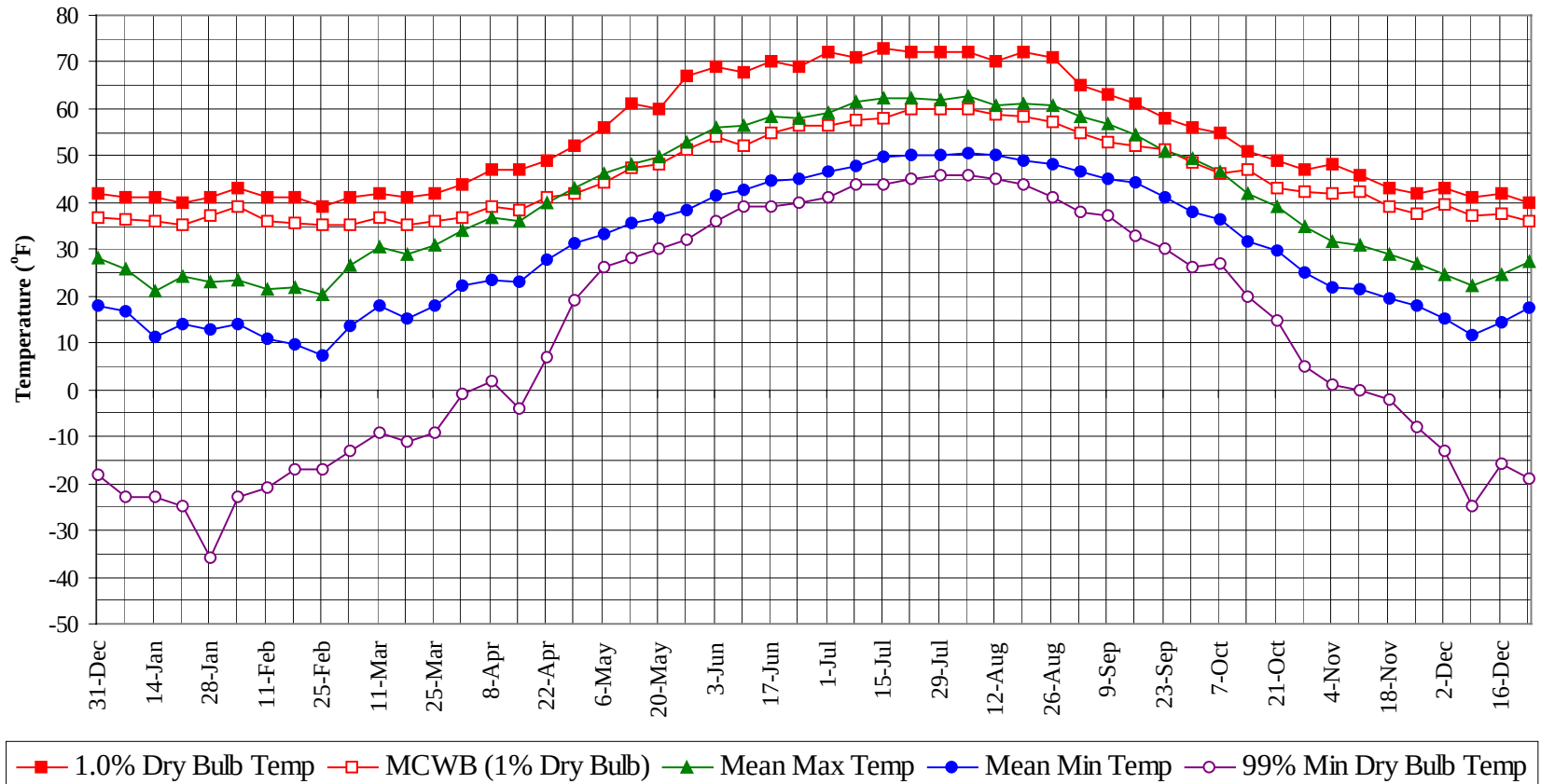
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

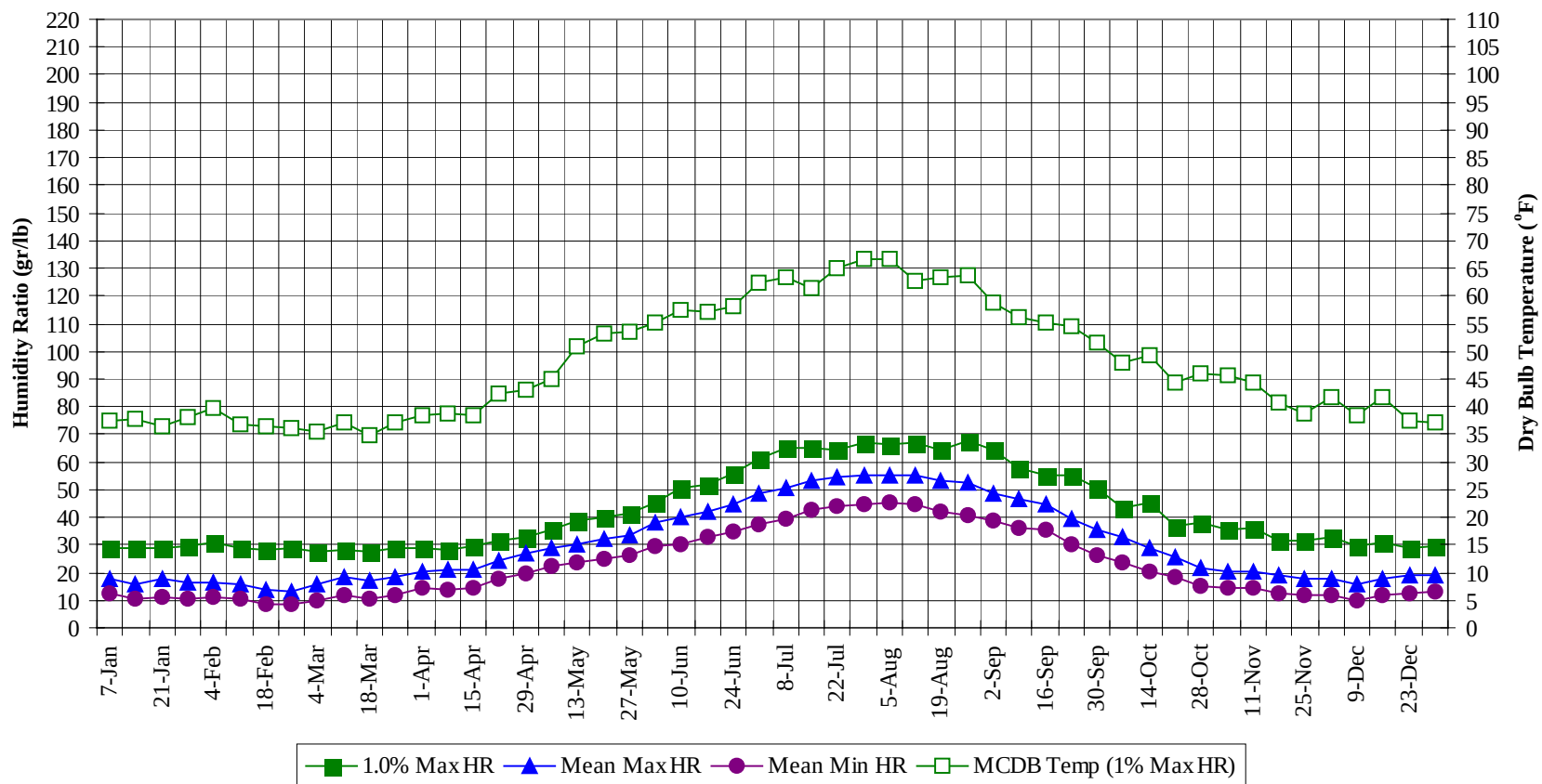
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
80 / 84		0	0	0	61.3
75 / 79		3	3	6	60.1
70 / 74		14	15	28	57.8
65 / 69	0	60	49	109	55.8
60 / 64	7	146	104	257	53.5
55 / 59	88	298	240	625	50.9
50 / 54	362	360	369	1092	47.7
45 / 49	398	280	289	967	43.3
40 / 44	327	278	272	877	38.4
35 / 39	421	390	413	1223	33.9
30 / 34	414	292	352	1058	30.0
25 / 29	214	178	190	582	24.9
20 / 24	149	133	137	419	20.2
15 / 19	127	114	119	360	15.4
10 / 14	107	94	95	297	10.6
5 / 9	85	78	80	244	5.9
0 / 4	72	68	68	207	0.8
-5 / -1	38	38	36	112	-3.3
-10 / -6	44	37	37	119	-7.7
-15 / -11	30	28	27	85	-12.6
-20 / -16	23	19	16	57	-17.2
-25 / -21	11	8	6	25	-21.6
-30 / -26	3	3	2	9	-26.8
-35 / -31	0	0	0	0	-31.7
-40 / -36	0	1	0	1	-36.2
-45 / -41	0	0	0	0	-41.6

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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary

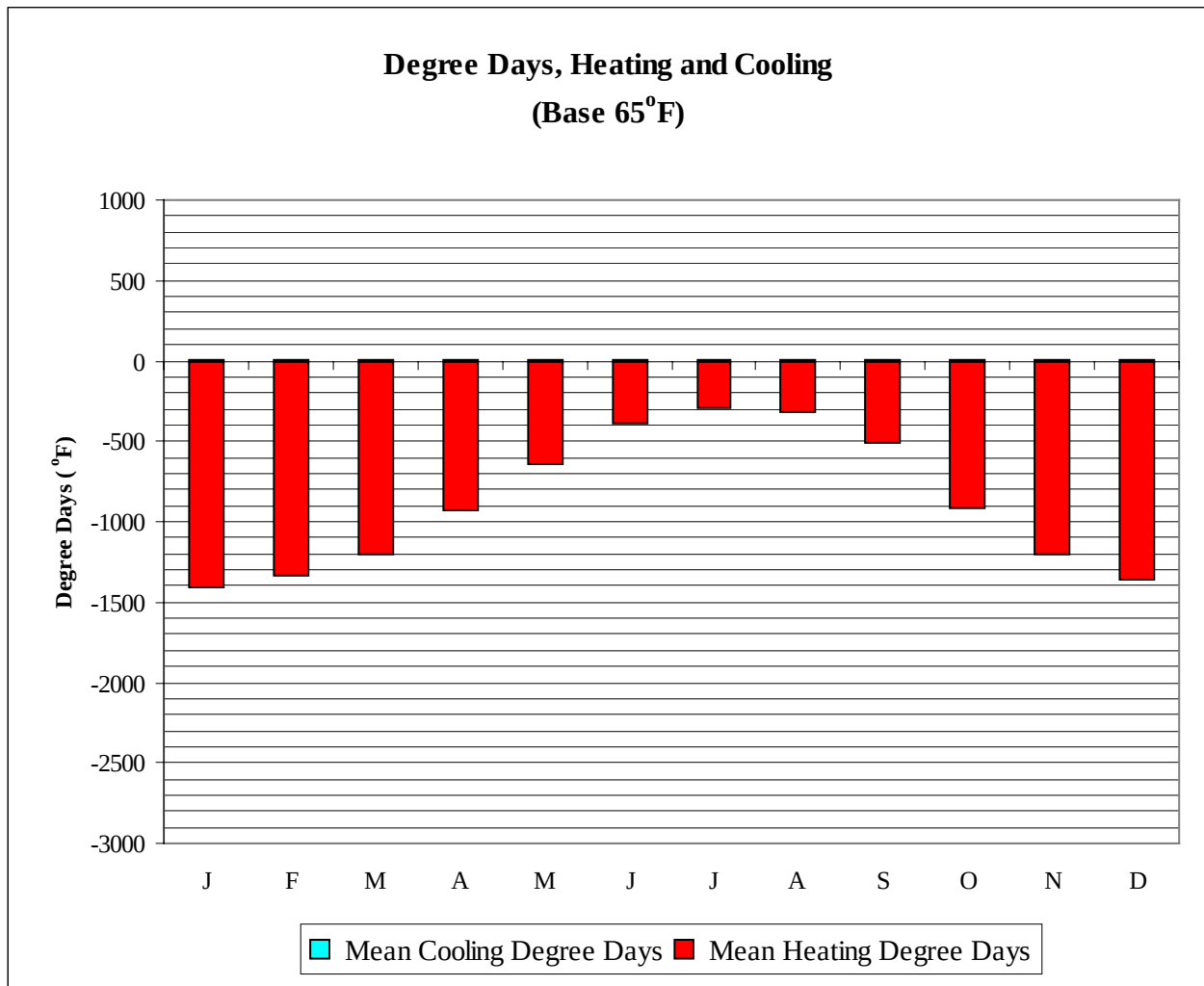


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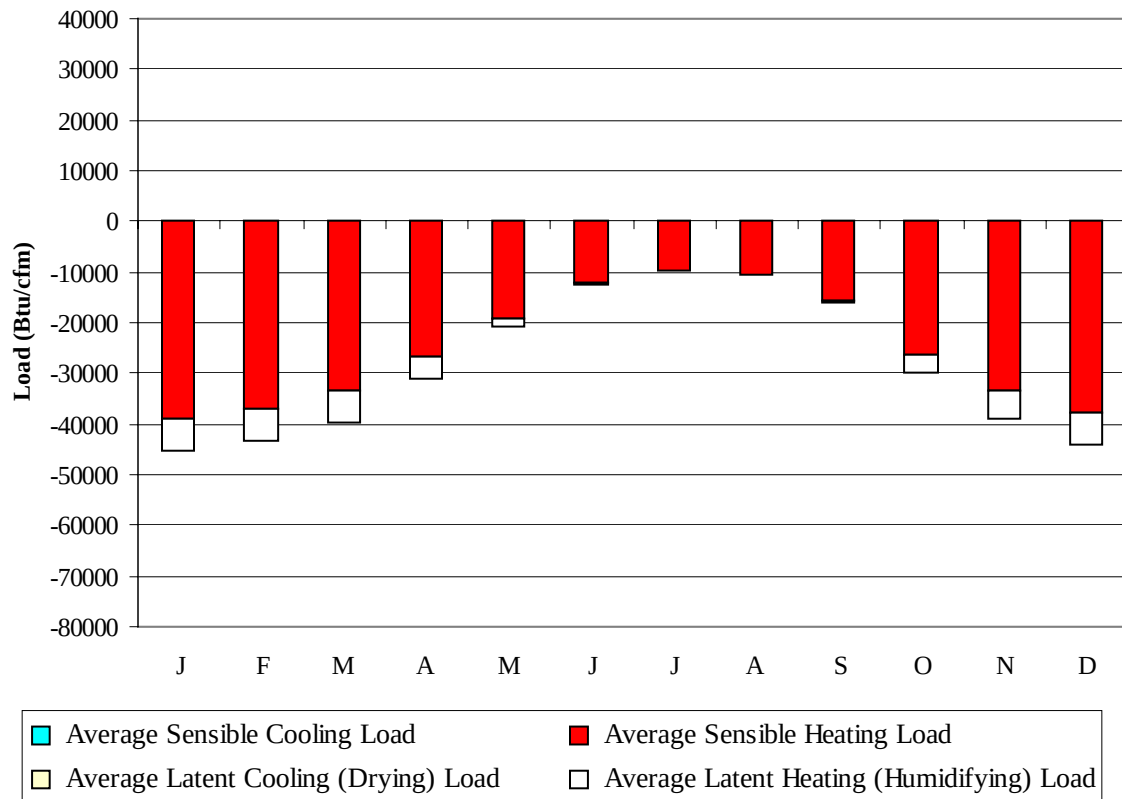
Long Term Dry Bulb Temperature and Humidity Summary

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	41.0	36.6	25.8	16.9	-23.0	28.7	37.5	17.9	12.4
14-Jan	41.0	36.0	21.1	11.2	-23.0	28.7	37.8	15.8	10.3
21-Jan	40.0	35.3	24.1	14.2	-25.0	28.7	36.6	18.0	11.4
28-Jan	41.0	37.2	23.1	12.7	-36.0	29.4	38.2	16.3	10.7
4-Feb	43.0	39.0	23.6	14.0	-23.0	30.8	39.7	16.4	11.4
11-Feb	41.0	36.0	21.6	10.8	-21.0	28.7	36.8	15.5	10.6
18-Feb	41.0	35.4	21.8	9.8	-17.0	28.0	36.5	13.9	8.9
25-Feb	39.0	35.4	20.4	7.5	-17.0	28.7	36.0	13.4	8.3
4-Mar	41.0	35.2	26.7	13.6	-13.0	27.3	35.5	15.9	9.9
11-Mar	42.0	36.6	30.5	18.0	-9.0	28.0	37.1	18.1	11.5
18-Mar	41.0	35.2	28.9	15.2	-11.0	27.3	34.7	17.2	10.5
25-Mar	42.0	35.8	30.9	17.9	-9.0	28.7	37.2	18.3	12.0
1-Apr	44.0	36.9	34.1	22.2	-1.0	28.7	38.4	20.3	14.2
8-Apr	47.0	39.1	36.6	23.5	2.0	28.0	38.7	20.7	14.1
15-Apr	47.0	38.5	35.9	23.2	-4.0	29.4	38.5	21.2	14.6
22-Apr	49.0	41.2	39.9	27.9	7.0	31.5	42.4	24.0	17.9
29-Apr	52.0	41.8	43.2	31.1	19.0	32.9	43.0	26.7	19.8
6-May	56.0	44.4	46.3	33.3	26.0	35.7	44.9	28.8	22.1
13-May	61.0	47.4	48.4	35.5	28.0	38.5	50.8	30.4	23.6
20-May	60.0	48.3	49.9	37.0	30.0	39.9	53.2	32.0	24.8
27-May	67.0	51.3	52.8	38.5	32.0	41.3	53.5	33.7	26.0
3-Jun	69.0	54.0	56.2	41.5	36.0	45.5	55.2	38.2	29.3
10-Jun	68.0	52.0	56.4	42.9	39.0	50.4	57.4	39.8	30.5
17-Jun	70.0	54.8	58.5	44.5	39.0	51.8	57.1	42.4	33.0
24-Jun	69.0	56.3	58.1	45.1	40.0	56.0	58.0	44.9	35.1
1-Jul	72.0	56.5	59.3	46.5	41.0	60.9	62.4	48.4	37.4
8-Jul	71.0	57.7	61.6	47.9	44.0	65.1	63.5	50.4	39.7
15-Jul	73.0	58.1	62.5	49.9	44.0	65.1	61.5	52.9	42.5
22-Jul	72.0	59.9	62.3	50.0	45.0	64.4	65.1	54.3	44.0
29-Jul	72.0	60.1	62.0	50.2	46.0	67.2	66.8	55.1	44.9
5-Aug	72.0	59.9	62.7	50.5	46.0	66.5	66.7	55.5	45.1
12-Aug	70.0	58.6	60.8	50.3	45.0	67.2	62.8	55.0	44.9
19-Aug	72.0	58.6	61.0	49.2	44.0	64.4	63.3	53.0	42.2
26-Aug	71.0	57.1	60.7	48.2	41.0	67.9	63.5	52.5	41.0
2-Sep	65.0	54.9	58.4	46.7	38.0	64.4	58.9	48.8	38.8
9-Sep	63.0	52.9	56.9	45.1	37.0	58.1	56.0	46.7	36.1
16-Sep	61.0	52.1	54.4	44.4	33.0	55.3	55.3	44.7	35.4
23-Sep	58.0	51.2	51.0	41.3	30.0	55.3	54.4	39.5	30.3
30-Sep	56.0	48.4	49.3	38.1	26.0	50.4	51.7	35.3	26.4
7-Oct	55.0	46.1	46.4	36.4	27.0	43.4	48.0	32.9	24.0
14-Oct	51.0	46.8	41.7	31.8	20.0	45.5	49.3	28.6	20.7
21-Oct	49.0	43.0	39.3	29.8	15.0	37.1	44.3	25.6	18.1
28-Oct	47.0	42.2	34.7	25.0	5.0	37.8	46.1	21.9	15.3
4-Nov	48.0	42.1	31.7	22.0	1.0	35.7	45.5	20.4	14.5
11-Nov	46.0	42.2	30.7	21.5	0.0	36.4	44.4	20.4	14.2
18-Nov	43.0	39.3	28.9	19.5	-2.0	31.5	40.8	18.8	12.5
25-Nov	42.0	37.7	27.1	17.8	-8.0	31.5	38.8	17.7	11.9
2-Dec	43.0	39.5	24.6	15.4	-13.0	32.9	41.6	17.5	11.6
9-Dec	41.0	37.1	22.1	11.6	-25.0	29.4	38.4	16.0	10.0
16-Dec	42.0	37.7	24.5	14.3	-16.0	30.8	41.8	17.5	11.5
23-Dec	40.0	36.1	27.3	17.5	-19.0	28.7	37.5	19.2	12.7
31-Dec	42.0	36.8	28.1	18.1	-18.0	29.4	37.1	19.3	13.0



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1405
FEB	0	1341
MAR	0	1202
APR	0	934
MAY	1	645
JUN	3	389
JUL	7	289
AUG	4	313
SEP	0	510
OCT	0	922
NOV	0	1206
DEC	0	1357
ANN	14	10513

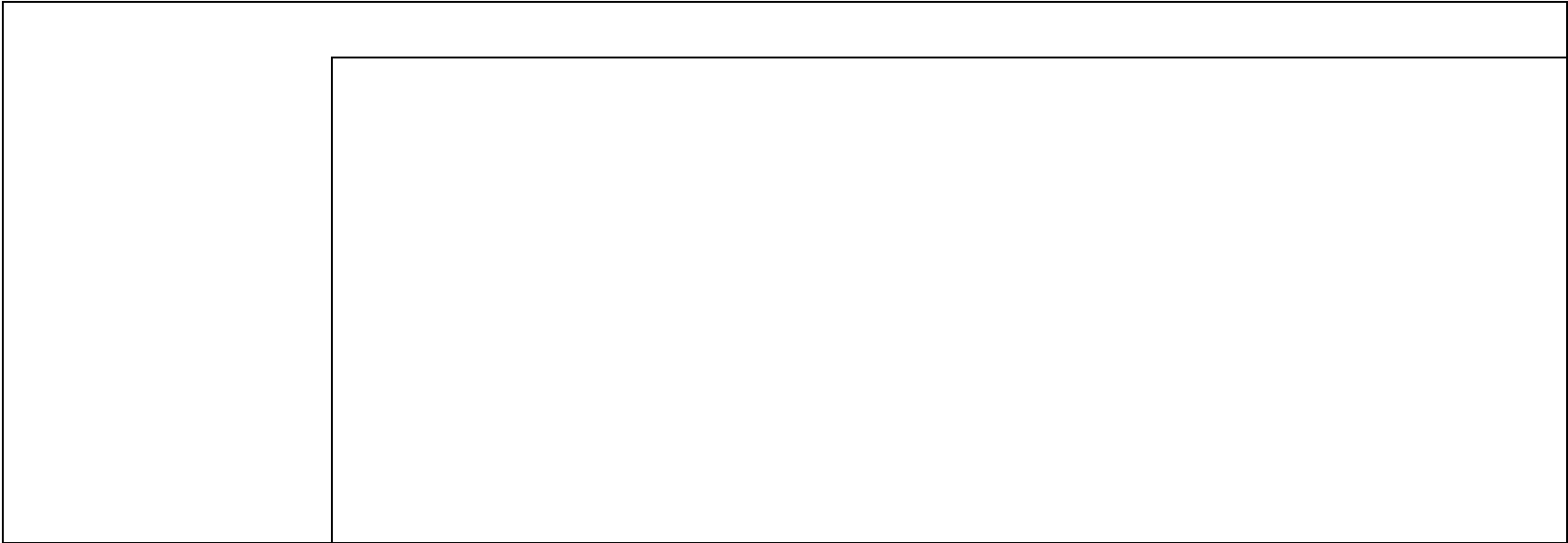
Average Ventilation and Infiltration Loads
(Outside Air vs. 75°F, 60% RH summer; 68°F, 30% RH winter)



	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	0	-38795	0	-6350
FEB	0	-36908	0	-6454
MAR	0	-33496	0	-6229
APR	0	-26521	0	-4393
MAY	0	-19083	0	-1643
JUN	1	-12233	0	-160
JUL	6	-9748	3	-2
AUG	1	-10432	1	-66
SEP	0	-15536	0	-654
OCT	0	-26306	0	-3564
NOV	0	-33580	0	-5420
DEC	0	-37571	0	-6367
ANN	8	-300209	4	-41302

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

No Solar Radiation
Data Available

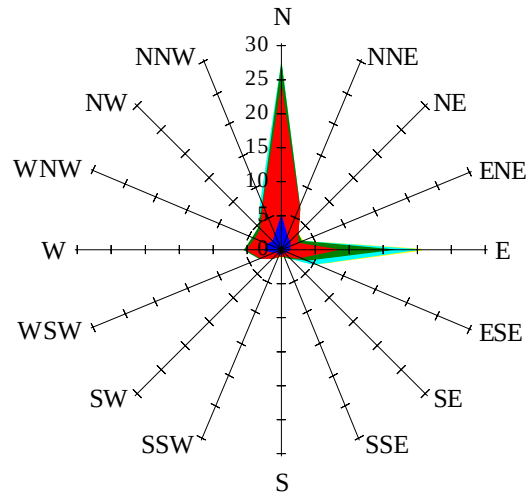


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

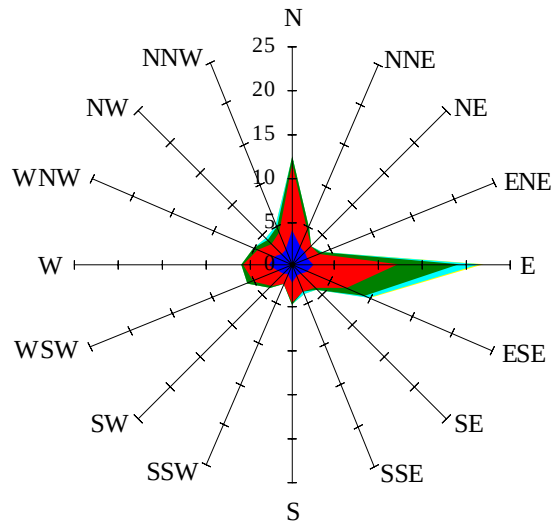
Labels of Percent Frequency on North Axis



Percent Calm = 2.56

Wind Summary - March, April, and May

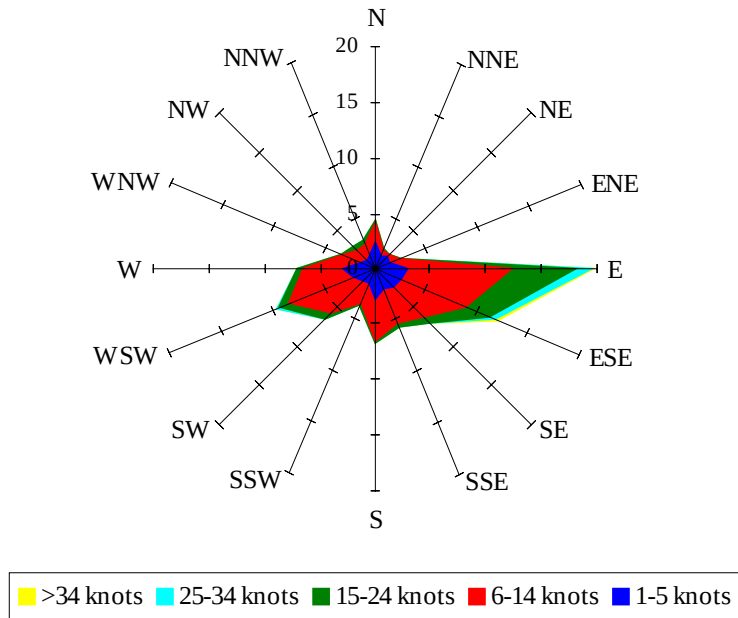
Labels of Percent Frequency on North Axis



Percent Calm = 3.18

Wind Summary - June, July, and August

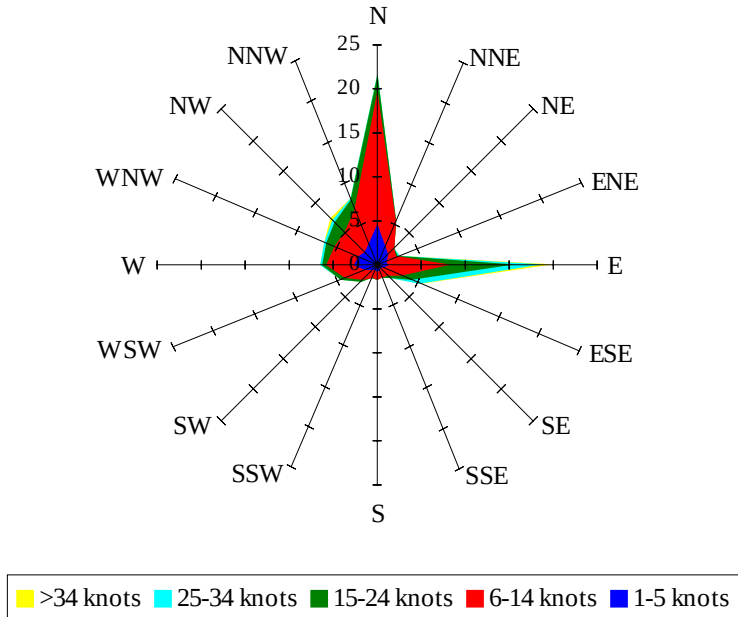
Labels of Percent Frequency on North Axis



Percent Calm = 3.18

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 2.02