

ASHIYA JP	
Latitude = 33.88 N	WMO No. 478030
Longitude = 130.65 E	Elevation = 108 feet
Period of Record = 1973 to 1996	Average Pressure = 29.83 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	79	123	13.2	ESE
0.4% Occurrence	91	79	130	11.7	E
1.0% Occurrence	88	78	132	10.9	ESE
2.0% Occurrence	86	78	130	10.1	N
Mean Daily Range	13	-	-	-	-
97.5% Occurrence	34	31	22	9.8	S
99.0% Occurrence	32	30	21	9.4	S
99.6% Occurrence	28	26	17	10.0	S
Median of Extreme Lows	27	26	17	10.0	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	82	88	152	10.1	N
0.4% Occurrence	80	87	142	9.8	N
1.0% Occurrence	79	85	139	8.7	S
2.0% Occurrence	79	85	139	8.7	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	161	85	1.06	8.5	S
0.4% Occurrence	151	85	0.99	8.1	S
1.0% Occurrence	143	83	0.94	7.7	S
2.0% Occurrence	142	83	0.94	7.2	S
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		14	819	1406	2418

Other Site Data

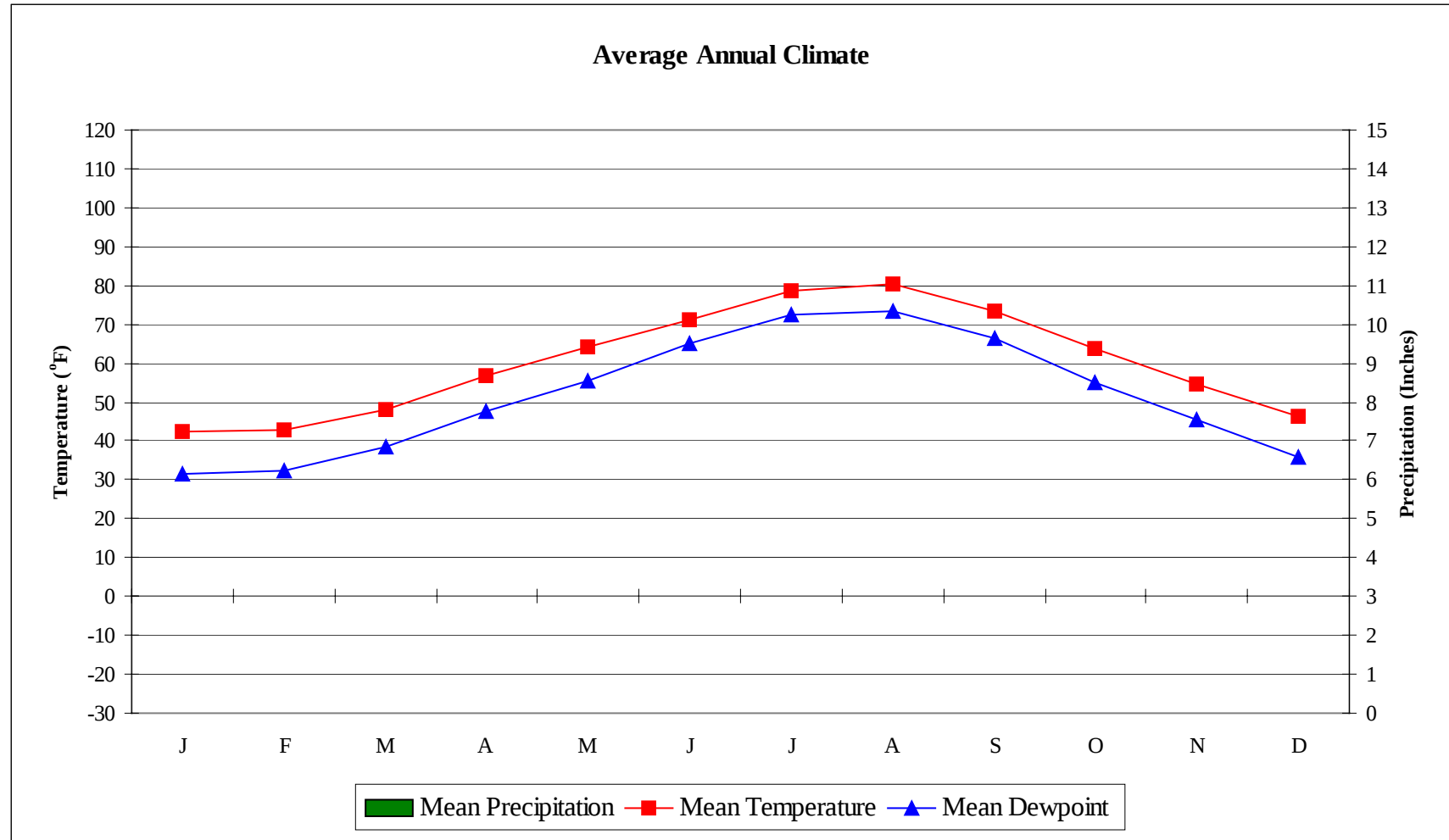
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
8	N/A	N/A	5.2 + 0.8
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
62.7	N/A	N/A	12

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

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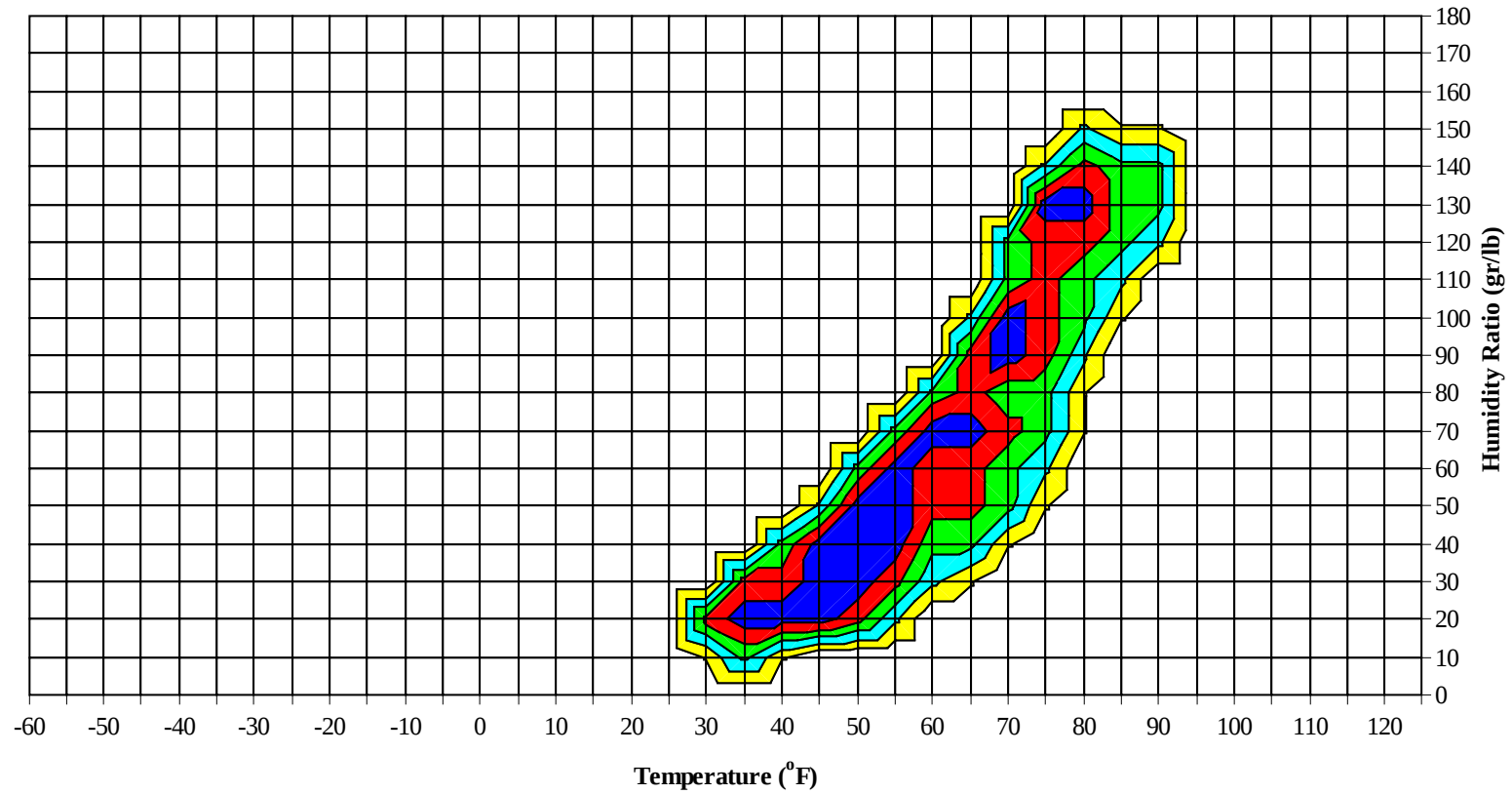
No Precipitation Data Available

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Long Term Psychrometric Summary



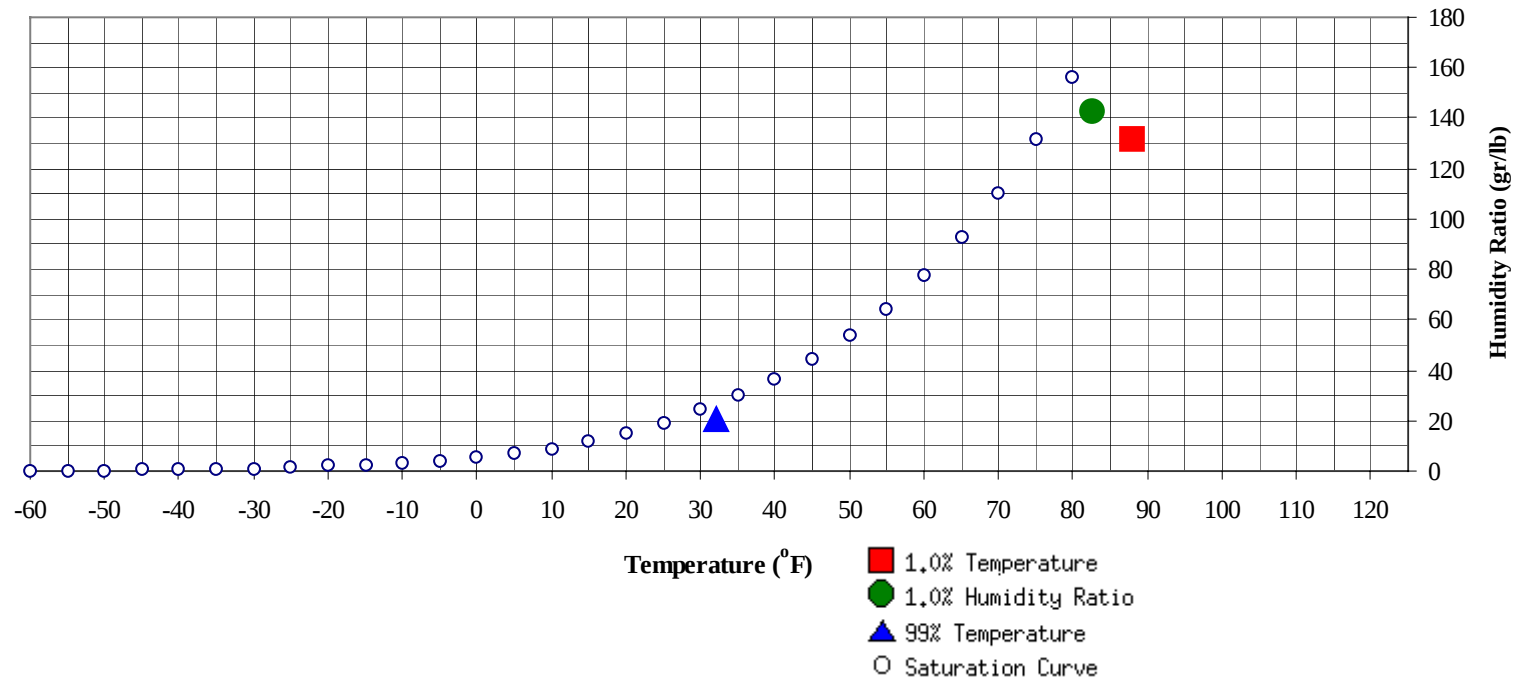
- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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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)
	32	20.7	10.9		142.8	82.7	78.5	77	42.2

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	88	131.7	78.3	41.8

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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		
95 / 99															
90 / 94															
85 / 89															
80 / 84												0		0	71.0
75 / 79												0		0	69.5
70 / 74							0	0	0	59.0	0	1	0	1	61.9
65 / 69						0	1	0	1	57.9	0	3	1	4	58.6
60 / 64	0	2	0	2	54.9	1	3	2	6	56.4	3	15	5	23	55.0
55 / 59	3	14	6	23	51.4	3	14	7	24	51.4	10	56	31	97	51.2
50 / 54	16	49	30	95	46.5	17	50	29	96	46.5	50	92	83	224	47.1
45 / 49	45	75	60	180	41.2	37	71	63	172	41.3	67	59	78	204	42.0
40 / 44	49	53	60	162	36.9	39	37	48	124	37.5	47	15	29	91	38.4
35 / 39	70	45	68	183	33.4	69	37	54	160	33.4	53	7	18	78	35.1
30 / 34	52	11	23	86	30.1	45	10	19	74	30.0	16	1	3	20	31.0
25 / 29	12	0	2	14	26.3	12	1	3	16	25.7	1	0	0	1	26.4
20 / 24	0			0	23.0	0			0	20.7					

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															
90 / 94												1	0	1	78.1
85 / 89							1		1	70.3		7	1	8	75.4
80 / 84		1	0	1	67.1		7	1	8	68.2	2	30	11	43	72.7
75 / 79	0	5	1	6	62.2	1	33	8	42	65.4	21	73	41	135	70.9
70 / 74	2	20	6	28	60.9	9	67	36	112	63.6	71	101	104	275	67.8
65 / 69	4	27	13	44	59.0	25	65	55	145	61.7	75	24	58	157	64.8
60 / 64	23	73	51	147	57.0	93	63	95	251	58.9	57	5	23	85	60.9
55 / 59	64	79	87	230	52.7	77	12	43	132	54.5	13		2	15	55.9
50 / 54	76	29	57	162	48.1	35	1	8	44	50.3	1		0	1	50.7
45 / 49	43	6	18	67	43.6	7		1	8	45.7					
40 / 44	17	1	4	22	39.8	1			1	40.8					
35 / 39	10	0	2	12	36.2	0			0	38.0					
30 / 34	1			1	32.0										
25 / 29															
20 / 24															

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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		1	0	1	78.0		2		2	79.1		0		0	76.9
90 / 94		28	3	31	78.8		41	6	47	78.6		4	0	4	77.8
85 / 89	1	57	18	76	78.3	1	65	21	87	78.0		14	2	16	76.9
80 / 84	33	74	82	189	76.6	41	91	102	234	76.3	5	55	21	81	74.5
75 / 79	122	57	85	265	74.2	145	44	104	292	74.3	44	99	81	224	71.4
70 / 74	72	29	51	152	70.2	57	5	15	77	70.6	85	55	90	230	67.7
65 / 69	16	3	8	27	66.1	4		0	4	66.3	48	12	30	90	64.4
60 / 64	3		0	3	62.9	0			0	62.8	44	2	14	60	61.2
55 / 59											12	0	1	13	56.7
50 / 54											1		0	1	52.0
45 / 49											0			0	47.0
40 / 44															
35 / 39															
30 / 34															
25 / 29															
20 / 24															

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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															
80 / 84		3	0	3	71.5										
75 / 79	1	29	5	35	67.6		2		2	63.8					
70 / 74	15	93	47	155	64.2	0	12	1	13	62.9		0		0	61.2
65 / 69	32	58	58	148	61.3	4	29	9	42	60.4		2	0	2	58.2
60 / 64	68	48	75	190	57.9	23	70	47	141	56.5	1	15	4	20	55.0
55 / 59	70	15	42	126	54.1	47	62	65	175	51.8	10	47	22	79	51.1
50 / 54	45	3	17	65	50.3	60	40	59	159	47.6	31	68	50	150	46.2
45 / 49	15	0	4	19	45.8	60	22	41	123	43.1	63	66	80	210	41.6
40 / 44	2		0	2	41.5	26	3	13	42	39.9	52	29	47	128	38.0
35 / 39	0		0	0	38.0	17	0	4	21	36.7	66	19	38	123	34.6
30 / 34						2		0	2	31.8	23	2	6	31	30.9
25 / 29											2	0	0	2	27.0
20 / 24															

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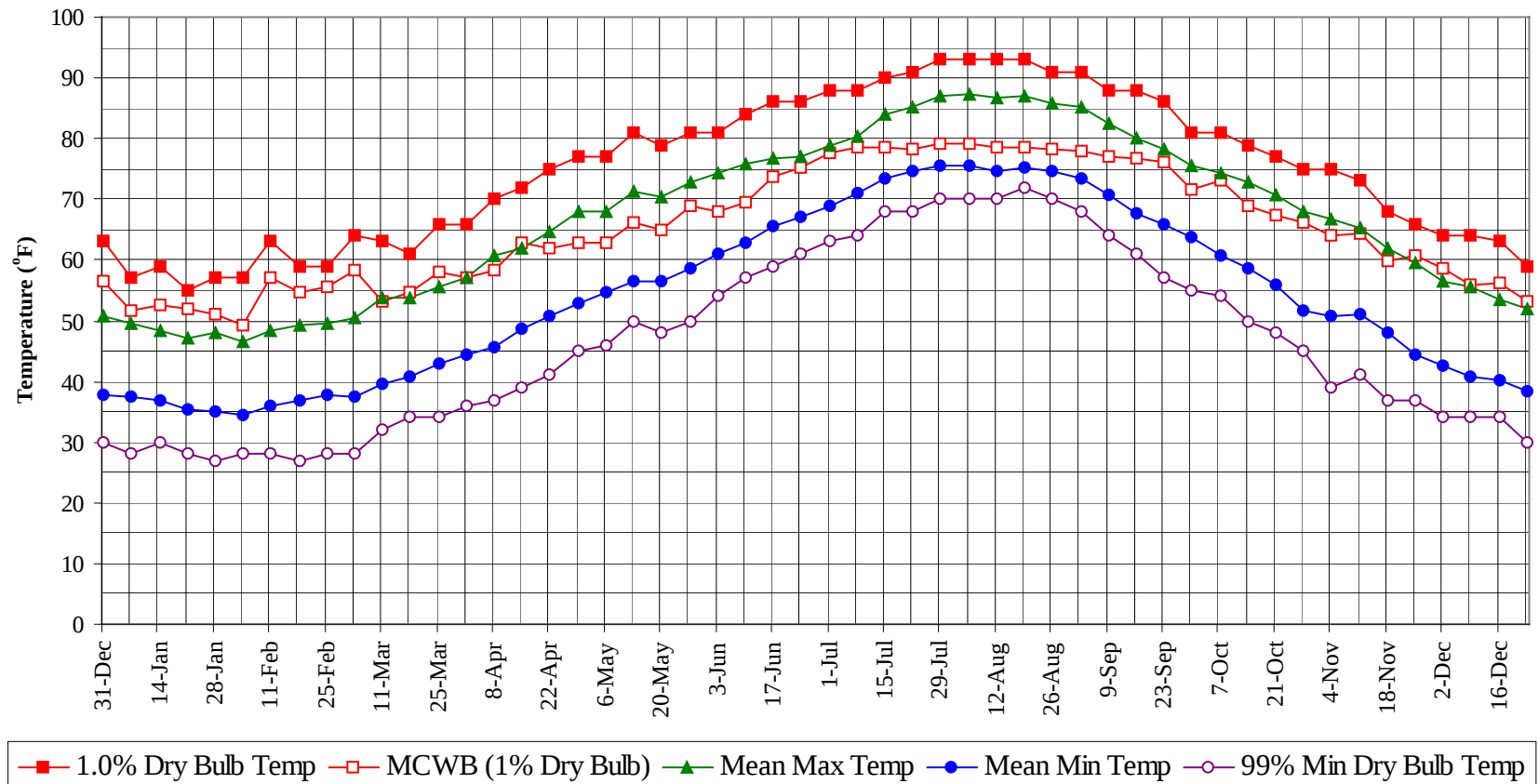
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

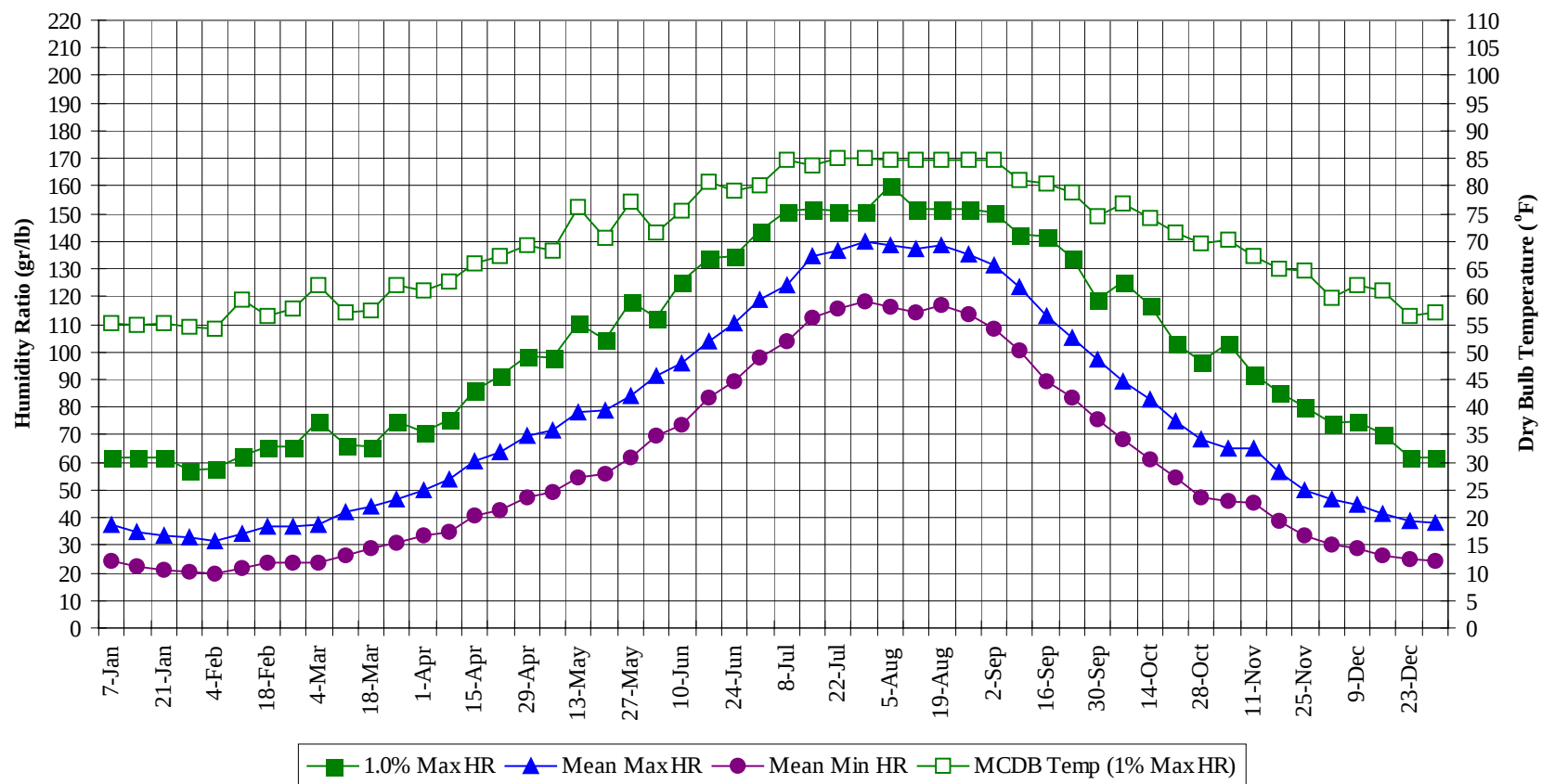
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
95 / 99		4	0	4	78.5
90 / 94		74	10	84	78.6
85 / 89	2	143	42	187	77.9
80 / 84	81	260	215	557	75.7
75 / 79	333	338	325	997	72.5
70 / 74	309	381	348	1038	67.1
65 / 69	206	223	231	660	62.6
60 / 64	315	294	315	925	58.2
55 / 59	308	298	304	911	52.7
50 / 54	333	332	334	1000	47.4
45 / 49	340	300	348	989	42.0
40 / 44	233	138	203	574	37.9
35 / 39	288	109	186	584	34.1
30 / 34	142	24	51	216	30.3
25 / 29	28	3	5	36	26.1
20 / 24	0			0	20.9

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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



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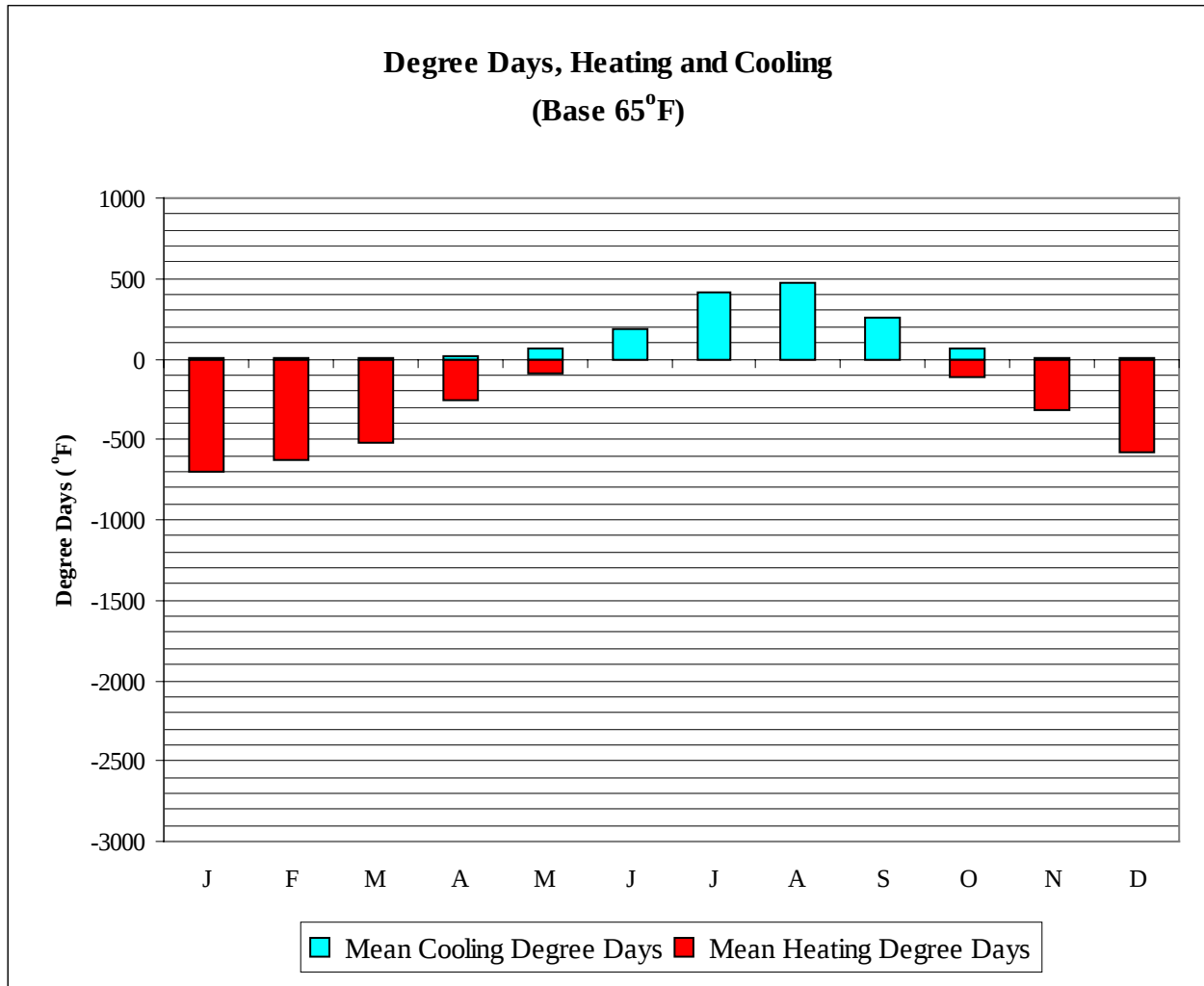
Long Term Dry Bulb Temperature and Humidity Summary

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	57.0	51.8	49.5	37.4	28.0	61.6	55.1	37.6	24.0
14-Jan	59.0	52.6	48.4	37.0	30.0	61.6	54.8	34.8	22.2
21-Jan	55.0	52.1	47.2	35.4	28.0	61.6	55.1	33.4	20.9
28-Jan	57.0	51.0	48.0	35.1	27.0	57.4	54.4	32.6	20.7
4-Feb	57.0	49.4	46.6	34.4	28.0	58.1	54.2	31.7	20.0
11-Feb	63.0	57.1	48.4	36.0	28.0	62.3	59.6	34.2	21.5
18-Feb	59.0	54.6	49.4	36.7	27.0	65.8	56.4	37.0	23.5
25-Feb	59.0	55.5	49.5	37.7	28.0	65.8	57.7	37.0	23.5
4-Mar	64.0	58.4	50.3	37.4	28.0	74.9	62.2	37.5	23.5
11-Mar	63.0	53.2	53.8	39.5	32.0	66.5	57.3	42.2	26.2
18-Mar	61.0	54.8	53.6	40.9	34.0	65.8	57.5	43.7	28.6
25-Mar	66.0	58.1	55.5	42.8	34.0	74.9	62.2	46.6	30.7
1-Apr	66.0	57.1	57.2	44.4	36.0	70.7	61.1	49.7	33.4
8-Apr	70.0	58.2	60.7	45.7	37.0	75.6	62.7	53.7	34.6
15-Apr	72.0	63.0	62.0	48.8	39.0	86.1	66.0	60.6	41.0
22-Apr	75.0	62.1	64.5	50.6	41.0	91.0	67.3	63.8	42.9
29-Apr	77.0	62.7	67.9	52.8	45.0	98.7	69.2	69.7	47.1
6-May	77.0	62.9	67.9	54.8	46.0	98.0	68.4	71.5	49.4
13-May	81.0	66.3	71.3	56.5	50.0	110.6	76.2	78.2	54.7
20-May	79.0	64.9	70.4	56.4	48.0	104.3	70.8	78.5	56.0
27-May	81.0	68.9	72.8	58.5	50.0	118.3	77.2	84.2	61.8
3-Jun	81.0	68.1	74.2	61.1	54.0	112.0	71.6	91.1	69.4
10-Jun	84.0	69.5	75.9	62.9	57.0	125.3	75.5	96.1	73.8
17-Jun	86.0	73.8	76.7	65.5	59.0	133.7	80.7	103.9	83.6
24-Jun	86.0	75.3	77.1	67.1	61.0	134.4	79.2	110.1	89.6
1-Jul	88.0	77.5	78.7	69.0	63.0	143.5	80.1	118.6	98.1
8-Jul	88.0	78.6	80.2	70.9	64.0	151.2	84.8	124.3	104.0
15-Jul	90.0	78.6	84.1	73.3	68.0	151.9	83.7	134.9	112.1
22-Jul	91.0	78.2	85.2	74.5	68.0	151.2	85.1	136.9	115.5
29-Jul	93.0	79.1	86.9	75.5	70.0	151.2	85.0	139.6	118.3
5-Aug	93.0	79.3	87.3	75.5	70.0	160.3	84.8	138.4	116.1
12-Aug	93.0	78.7	86.9	74.7	70.0	151.9	84.6	137.3	114.3
19-Aug	93.0	78.5	87.0	75.3	72.0	151.9	84.7	138.6	116.7
26-Aug	91.0	78.2	85.9	74.8	70.0	151.9	84.6	135.6	113.7
2-Sep	91.0	77.9	85.3	73.4	68.0	150.5	84.6	131.5	108.3
9-Sep	88.0	77.1	82.4	70.7	64.0	142.8	81.3	123.3	100.7
16-Sep	88.0	76.7	80.1	67.8	61.0	142.1	80.5	113.3	89.3
23-Sep	86.0	76.2	78.2	66.0	57.0	133.7	78.8	104.9	83.6
30-Sep	81.0	71.7	75.7	63.6	55.0	119.0	74.5	97.2	75.8
7-Oct	81.0	73.1	74.2	60.7	54.0	125.3	76.7	89.6	68.2
14-Oct	79.0	69.0	72.7	58.5	50.0	116.9	74.3	82.5	60.9
21-Oct	77.0	67.4	70.6	56.0	48.0	102.9	71.5	74.6	54.3
28-Oct	75.0	66.2	68.1	51.7	45.0	96.6	69.8	68.0	47.5
4-Nov	75.0	64.2	66.7	50.8	39.0	102.9	70.4	65.0	46.0
11-Nov	73.0	64.5	65.4	51.1	41.0	91.7	67.4	65.1	45.6
18-Nov	68.0	59.8	62.0	48.0	37.0	85.4	65.1	56.8	38.9
25-Nov	66.0	60.9	59.6	44.4	37.0	79.8	64.7	50.1	33.2
2-Dec	64.0	58.5	56.6	42.7	34.0	74.2	59.7	46.3	30.4
9-Dec	64.0	55.8	55.7	40.8	34.0	74.9	61.9	44.4	29.0
16-Dec	63.0	56.1	53.6	40.1	34.0	70.0	61.1	41.3	26.0
23-Dec	59.0	53.1	51.9	38.3	30.0	61.6	56.5	38.4	24.8
31-Dec	63.0	56.5	50.7	37.7	30.0	61.6	57.1	38.3	24.2

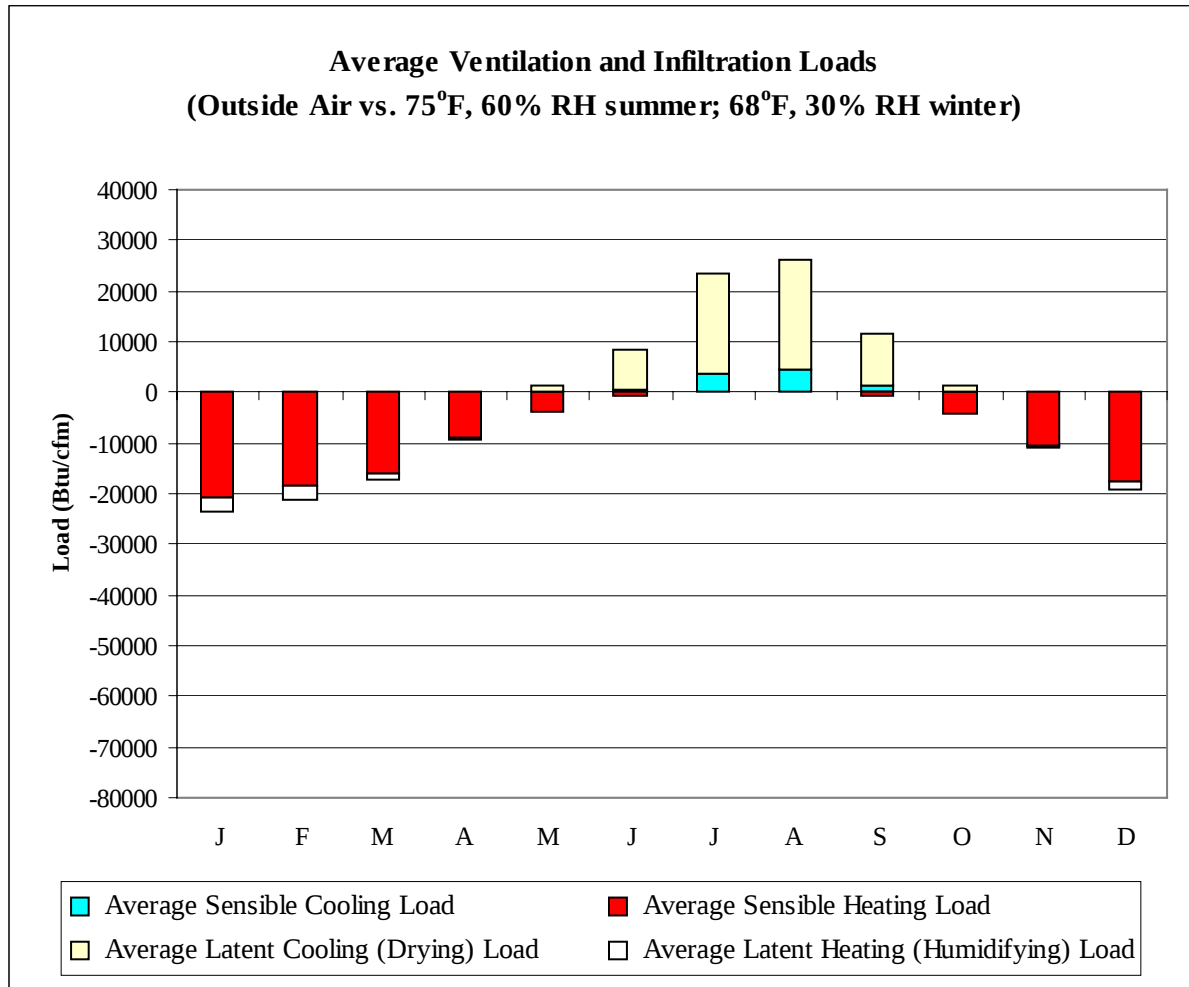
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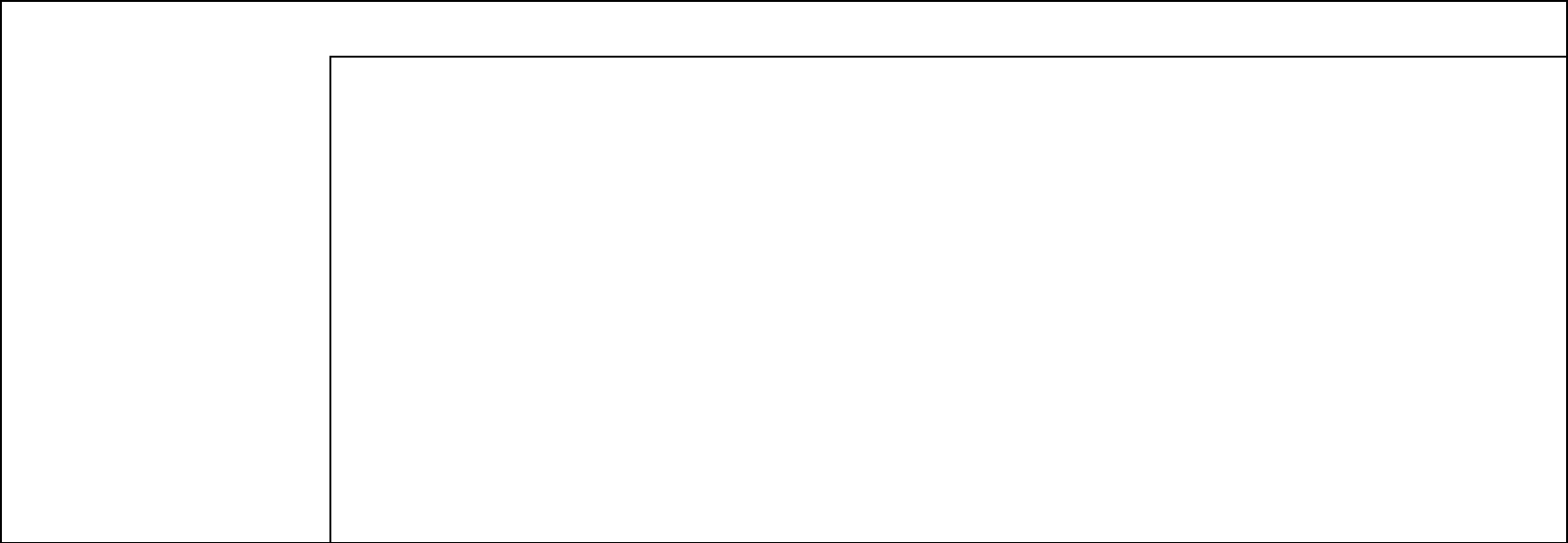
	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	706
FEB	0	628
MAR	1	525
APR	14	263
MAY	66	92
JUN	191	11
JUL	419	0
AUG	472	0
SEP	258	9
OCT	71	110
NOV	7	319
DEC	0	583
ANN	1500	3246



	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	-20700	0	-2973
FEB	0	-18471	1	-2584
MAR	1	-16011	9	-1166
APR	17	-8963	170	-221
MAY	126	-3980	1273	-14
JUN	666	-776	7633	0
JUL	3578	-28	20040	0
AUG	4449	-3	21811	0
SEP	1270	-566	10375	0
OCT	63	-4317	1429	-6
NOV	1	-10487	134	-327
DEC	0	-17523	0	-1658
ANN	10171	-101825	62875	-8949

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

No Solar Radiation
Data Available

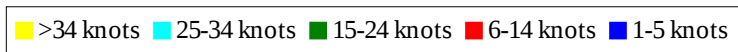
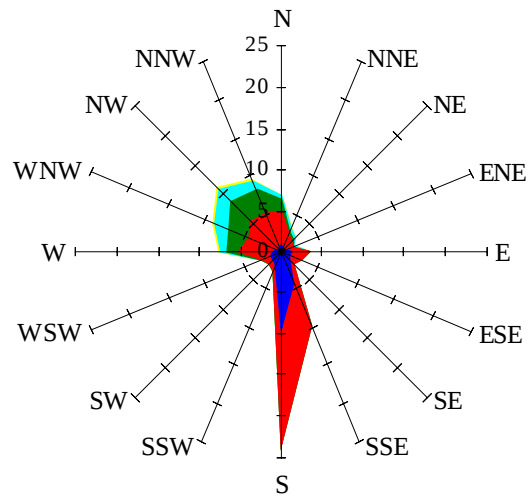


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

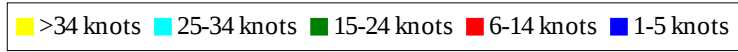
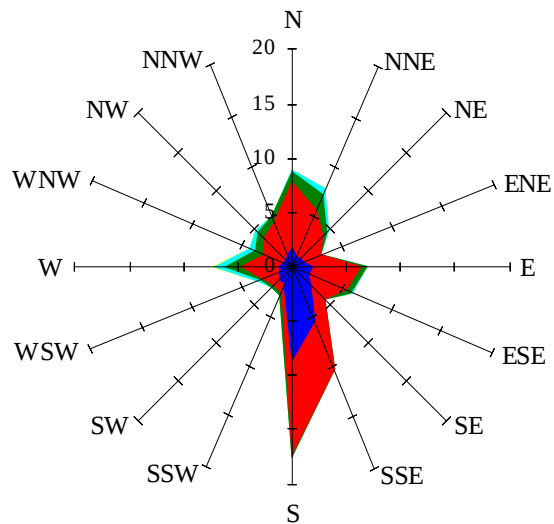
Labels of Percent Frequency on North Axis



Percent Calm = 0.73

Wind Summary - March, April, and May

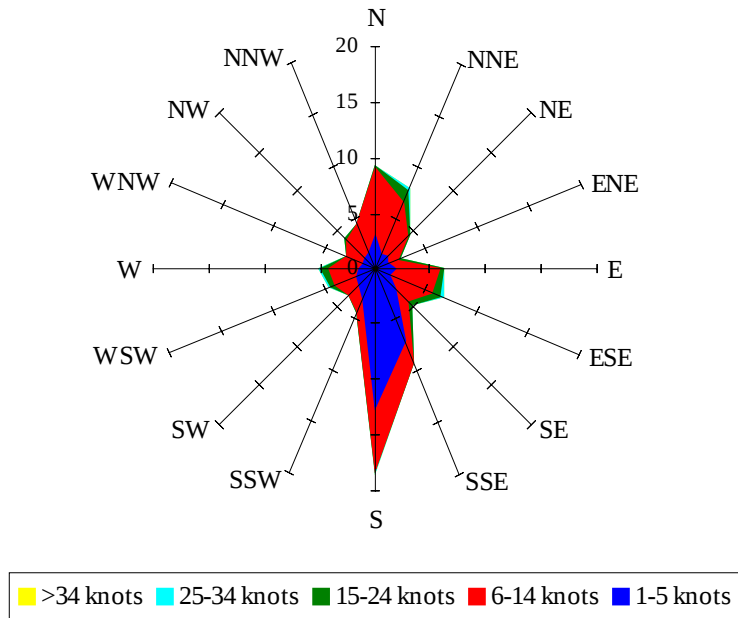
Labels of Percent Frequency on North Axis



Percent Calm = 1.66

Wind Summary - June, July, and August

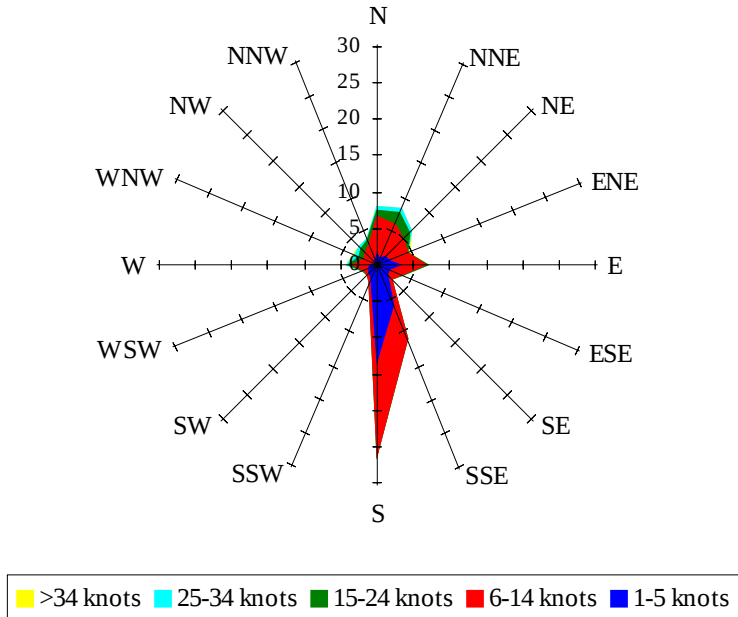
Labels of Percent Frequency on North Axis



Percent Calm = 3.15

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 1.41