

RESOLUTE CN

Latitude = 74.72 N

Longitude = 94.98 W

Period of Record = 1973 to 1996

WMO No. 719240

Elevation = 220 feet

Average Pressure = 29.64 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	55	47	38	13.1	NNE
0.4% Occurrence	51	45	36	12.4	SE
1.0% Occurrence	48	44	36	12.2	SE
2.0% Occurrence	45	42	34	12.6	ESE
Mean Daily Range	9	-	-	-	-
97.5% Occurrence	-38	-38	1	9.2	NNW
99.0% Occurrence	-42	-42	0	8.8	NNW
99.6% Occurrence	-45	-44	0	8.6	NNW
Median of Extreme Lows	-49	-49	0	11.2	NNW
	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	50	55	44	12.7	SE
0.4% Occurrence	46	50	39	12.1	SE
1.0% Occurrence	44	47	36	11.8	SE
2.0% Occurrence	42	45	34	12.4	SE
	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	44	50	0.30	11.1	SE
0.4% Occurrence	41	49	0.28	11.6	SE
1.0% Occurrence	38	46	0.26	11.4	SE
2.0% Occurrence	35	45	0.24	12.1	SE
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		0	0	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
1	N/A	N/A	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 (#)
5.4	N/A	N/A	24

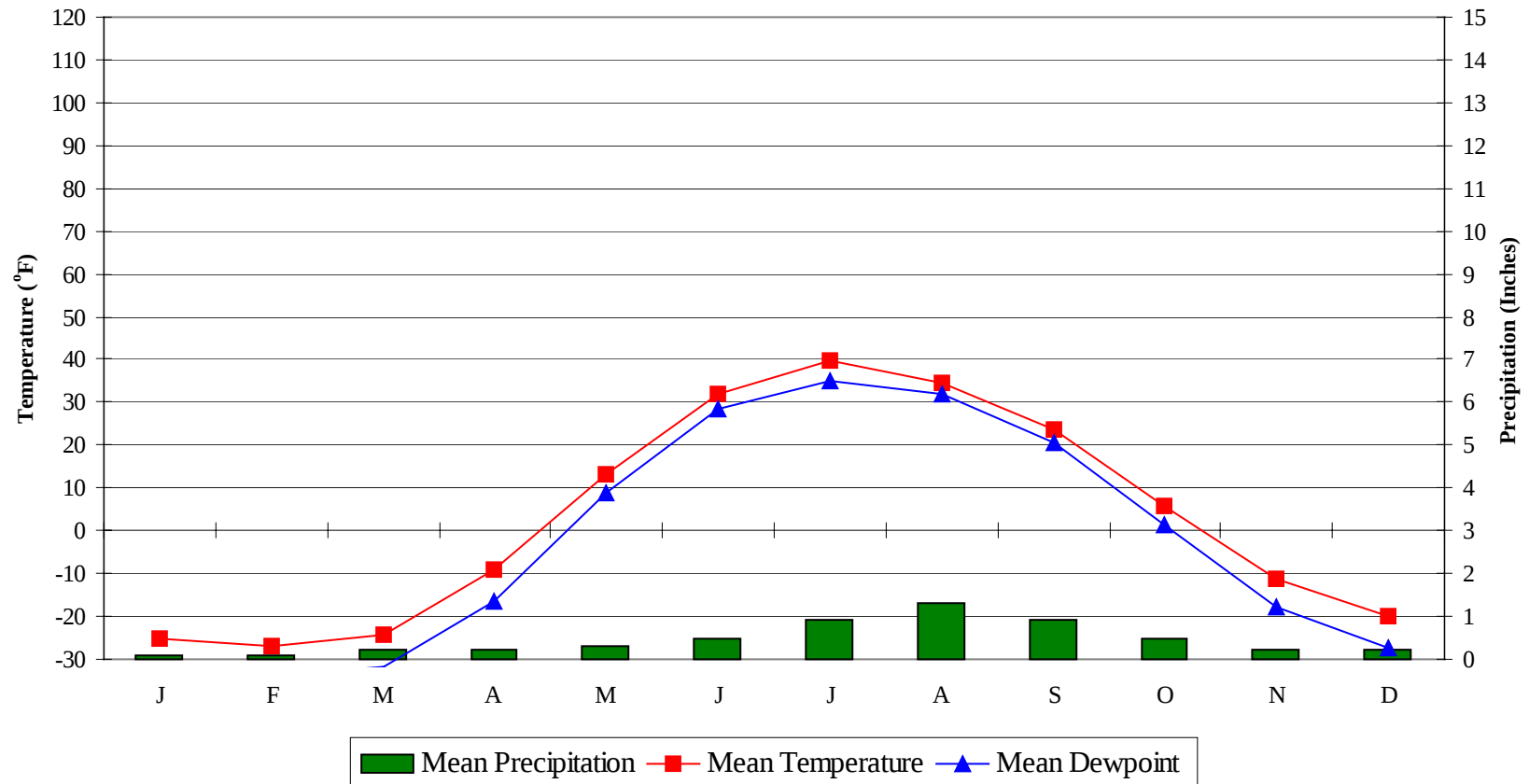
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.

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Average Annual Climate

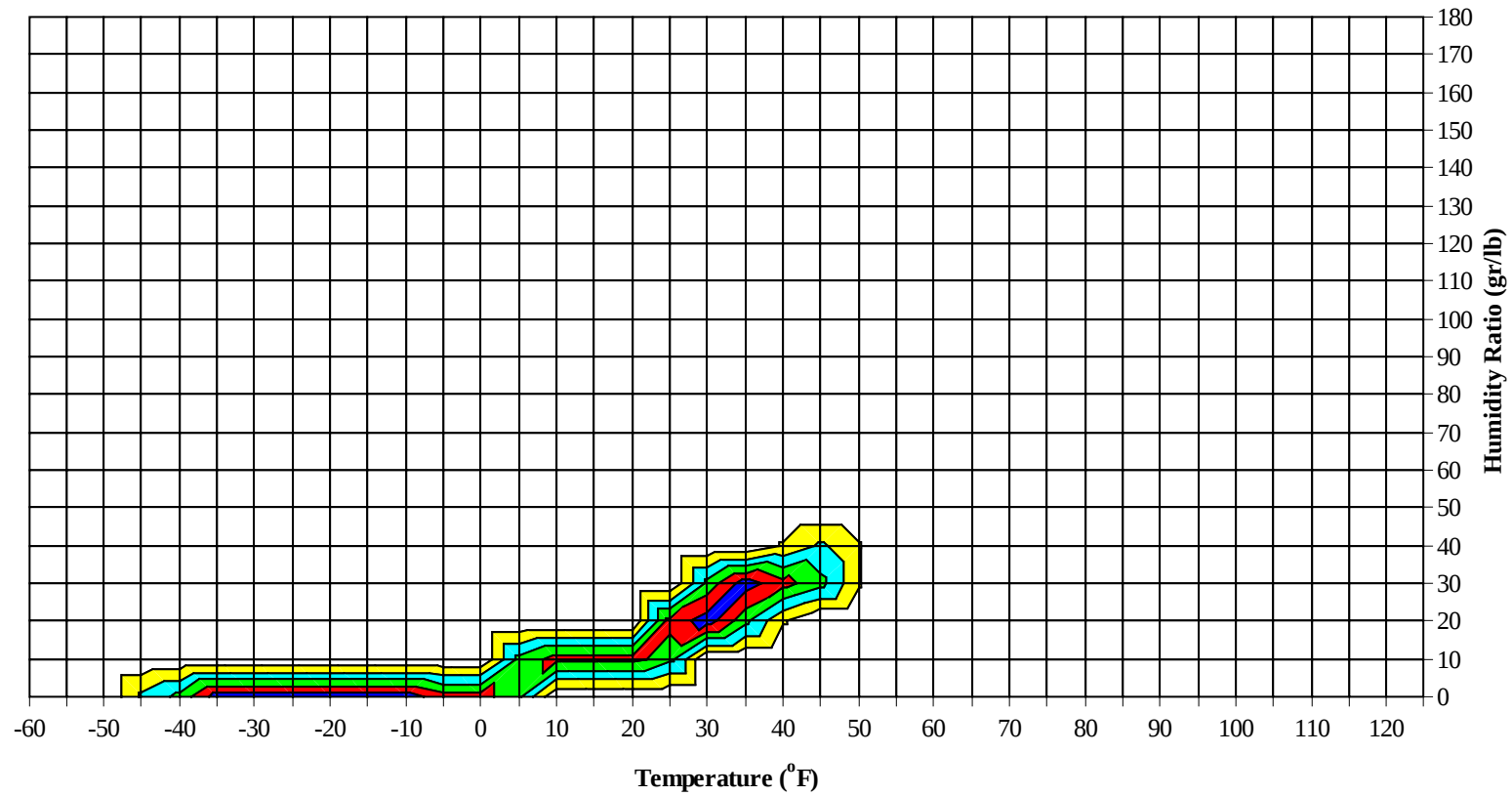


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Long Term Psychrometric Summary



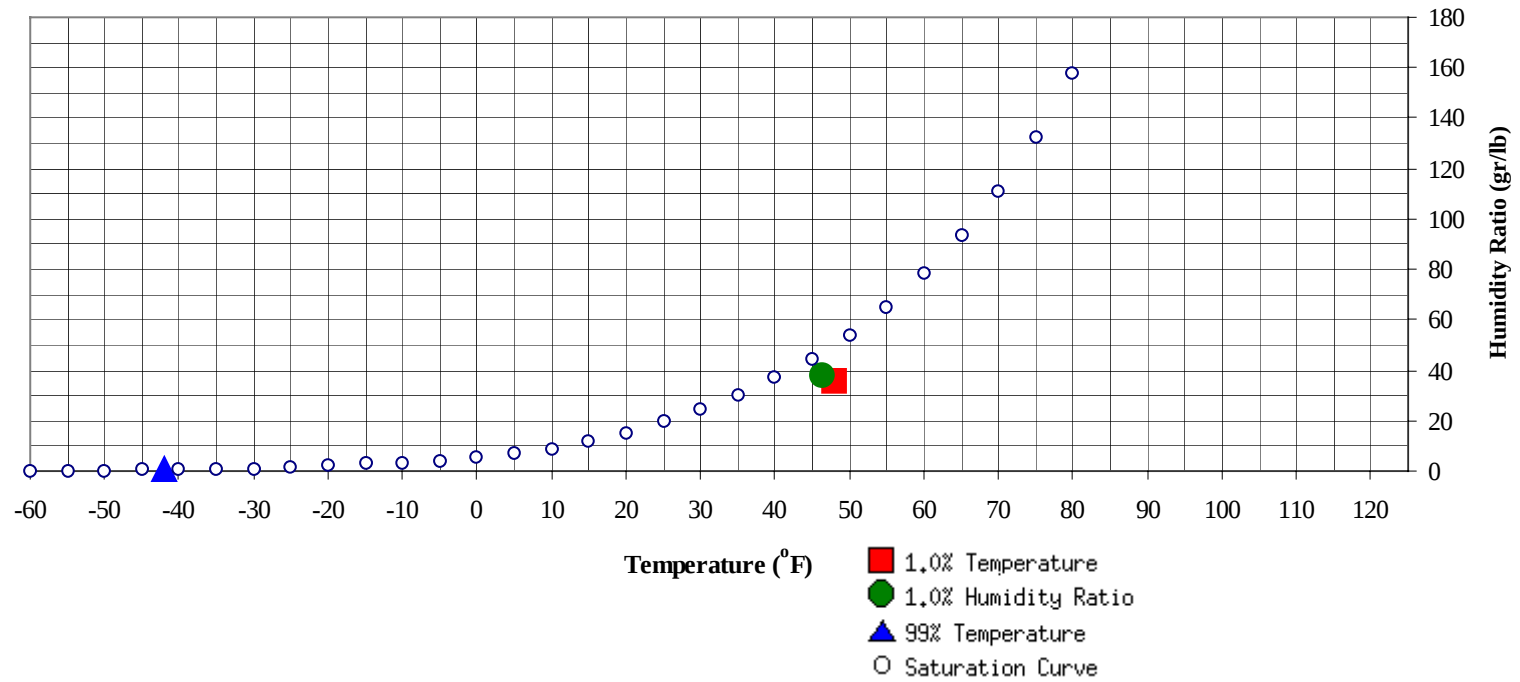
- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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Psychrometric Summary of Peak Design Values



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)
	-42	0.5	-10.0		37.8	46.4	43.8	40.9	17.0

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	48	35.3	43.8	17.0

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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		
60 / 64															
55 / 59															
50 / 54															
45 / 49															
40 / 44															
35 / 39															
30 / 34															
25 / 29	0	0	0	0	25.4										
20 / 24	0	0	0	0	19.5										
15 / 19	1	0	0	1	15.0	0	0		0	14.7	0			0	15.0
10 / 14	1	1	1	3	11.3	0	0	0	0	12.7	0	0	0	0	10.6
5 / 9	1	1	1	3	5.6	0	1	0	1	5.9	0	1	1	2	4.5
0 / 4	5	4	4	13	0.5	4	3	3	10	0.3	5	7	5	17	0.1
-5 / -1	4	6	4	14	-4.0	2	3	3	8	-4.0	6	8	7	21	-4.1
-10 / -6	11	11	11	33	-8.4	9	8	8	25	-8.3	15	18	16	49	-8.2
-15 / -11	16	12	13	41	-12.6	10	13	13	36	-12.6	13	17	14	44	-12.7
-20 / -16	26	29	28	83	-17.4	24	23	23	70	-17.3	30	33	32	95	-17.3
-25 / -21	43	41	40	124	-22.4	32	37	34	104	-22.3	38	42	42	122	-22.4
-30 / -26	53	51	53	157	-27.5	43	41	43	128	-27.6	50	53	54	157	-27.6
-35 / -31	36	37	39	112	-31.9	32	32	29	94	-32.0	38	33	38	109	-31.9
-40 / -36	34	35	38	107	-36.5	41	39	42	123	-36.5	34	25	27	86	-36.3
-45 / -41	15	15	14	44	-41.5	19	18	19	56	-41.5	12	9	10	31	-41.5
-50 / -46	3	3	4	10	-45.8	5	3	4	12	-45.9	4	2	3	9	-45.7
-55 / -51		0	0	0		2	2	1	5	-51.2	1	0	1	2	-51.2
-60 / -56						0	0	0	0						
-65 / -61						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 = 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		
60 / 64															
55 / 59													0	0	48.7
50 / 54											0	2	1	3	44.5
45 / 49											2	8	7	17	41.9
40 / 44						0	0		0	37.6	8	20	14	42	38.5
35 / 39						1	2	2	5	34.1	45	68	64	177	35.0
30 / 34	0	0	0	0	30.0	9	16	13	38	30.6	104	86	96	286	31.2
25 / 29	0	0	0	0	25.5	20	28	27	75	25.5	44	32	35	111	26.2
20 / 24	1	1	2	4	21.1	22	29	28	79	21.1	16	13	12	41	21.4
15 / 19	5	7	6	18	16.3	42	46	46	134	16.5	15	8	10	33	17.1
10 / 14	7	13	12	32	11.1	46	52	48	146	11.3	5	2	2	9	12.0
5 / 9	13	21	18	52	5.7	43	41	42	126	6.1	1	0	0	1	6.3
0 / 4	21	33	25	78	0.5	35	20	26	81	0.9	0		0	0	3.2
-5 / -1	21	24	26	71	-3.9	15	10	10	35	-3.6					
-10 / -6	37	40	42	119	-8.2	13	3	6	22	-7.5					
-15 / -11	27	28	30	85	-12.6	3	0	1	4	-12.1					
-20 / -16	40	33	32	104	-17.0	0		0	0	-16.1					
-25 / -21	32	24	31	87	-22.2										
-30 / -26	26	12	14	52	-27.3										
-35 / -31	6	2	3	11	-31.8										
-40 / -36	3	1	1	5	-35.9										
-45 / -41	1	0	0	1	-41.5										
-50 / -46															
-55 / -51															
-60 / -56															
-65 / -61															

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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		
60 / 64		0	0	0	51.8										
55 / 59	0	6	3	9	48.8		0	0	0	49.3					
50 / 54	6	21	15	42	45.7	0	4	2	6	46.1					
45 / 49	29	47	39	115	42.4	7	20	13	40	42.7		0	0	0	40.5
40 / 44	43	50	51	144	39.4	14	32	27	73	39.5	0	1	1	2	38.4
35 / 39	94	89	91	274	35.9	64	76	72	212	35.8	7	13	9	29	35.1
30 / 34	76	35	49	160	32.3	119	93	107	319	31.4	41	50	43	134	30.7
25 / 29	0		0	0	28.1	40	20	26	86	26.6	73	77	75	225	25.8
20 / 24						3	2	2	7	21.4	46	39	48	133	21.5
15 / 19						0	0	0	0	18.3	40	34	33	107	17.0
10 / 14											22	17	20	59	11.7
5 / 9											9	7	9	25	6.8
0 / 4											2	1	2	5	1.6
-5 / -1											0	0	0	0	-3.2
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															
-45 / -41															
-50 / -46															
-55 / -51															
-60 / -56															
-65 / -61															

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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		
60 / 64															
55 / 59															
50 / 54															
45 / 49															
40 / 44															
35 / 39	0			0	33.0										
30 / 34	1	1	1	3	30.1										
25 / 29	14	15	14	43	25.9	0	0		0	24.0	0			0	24.0
20 / 24	15	13	14	42	21.5	1	1	0	2	21.2	0	0	0	0	21.2
15 / 19	25	28	23	76	16.8	3	2	3	8	16.5	0	0	0	0	17.9
10 / 14	41	40	41	122	11.4	6	9	8	23	11.1	2	2	2	6	10.7
5 / 9	46	48	47	140	6.4	18	17	16	51	6.0	4	4	5	13	5.9
0 / 4	37	35	38	110	1.0	24	24	22	70	0.6	9	8	8	25	0.5
-5 / -1	19	22	22	63	-3.7	19	18	18	55	-3.8	8	10	10	28	-4.0
-10 / -6	27	25	26	78	-7.7	33	33	34	100	-8.1	22	22	21	65	-8.2
-15 / -11	11	10	12	33	-12.4	30	29	30	89	-12.5	24	21	22	67	-12.6
-20 / -16	9	7	10	26	-16.4	45	43	46	134	-17.0	35	39	38	112	-17.1
-25 / -21	1	2	2	5	-21.7	36	37	36	109	-22.1	50	48	49	146	-22.4
-30 / -26	1	0	0	1	-27.8	19	20	21	60	-27.3	47	46	49	141	-27.5
-35 / -31	0	0	0	0	-31.6	5	5	6	16	-31.6	26	26	25	77	-31.9
-40 / -36			0	0	-35.0	2	2	1	5	-35.8	16	16	15	47	-36.2
-45 / -41							0		0	-40.0	4	4	5	13	-40.7
-50 / -46											1	1	0	2	-46.5
-55 / -51															
-60 / -56															
-65 / -61															

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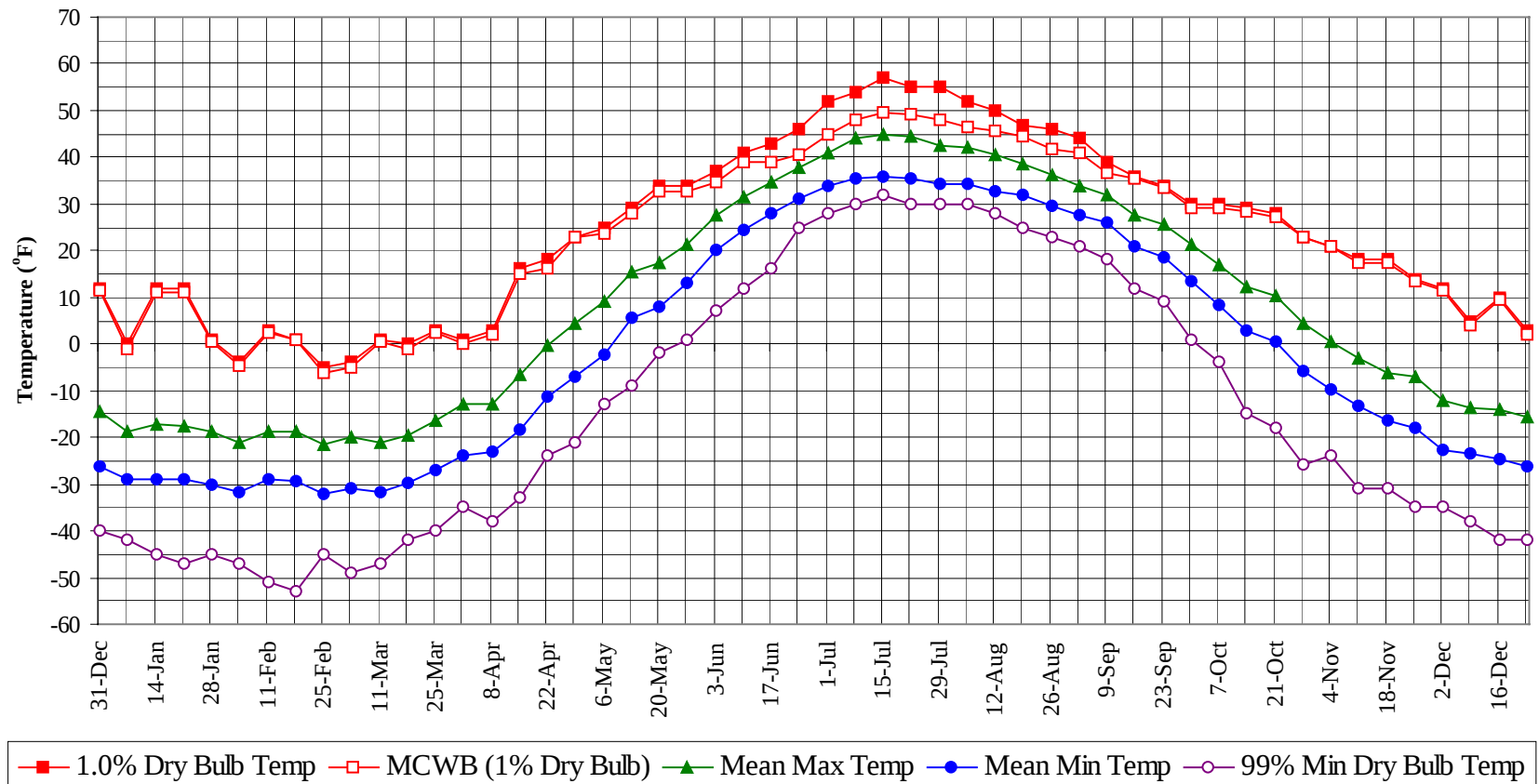
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

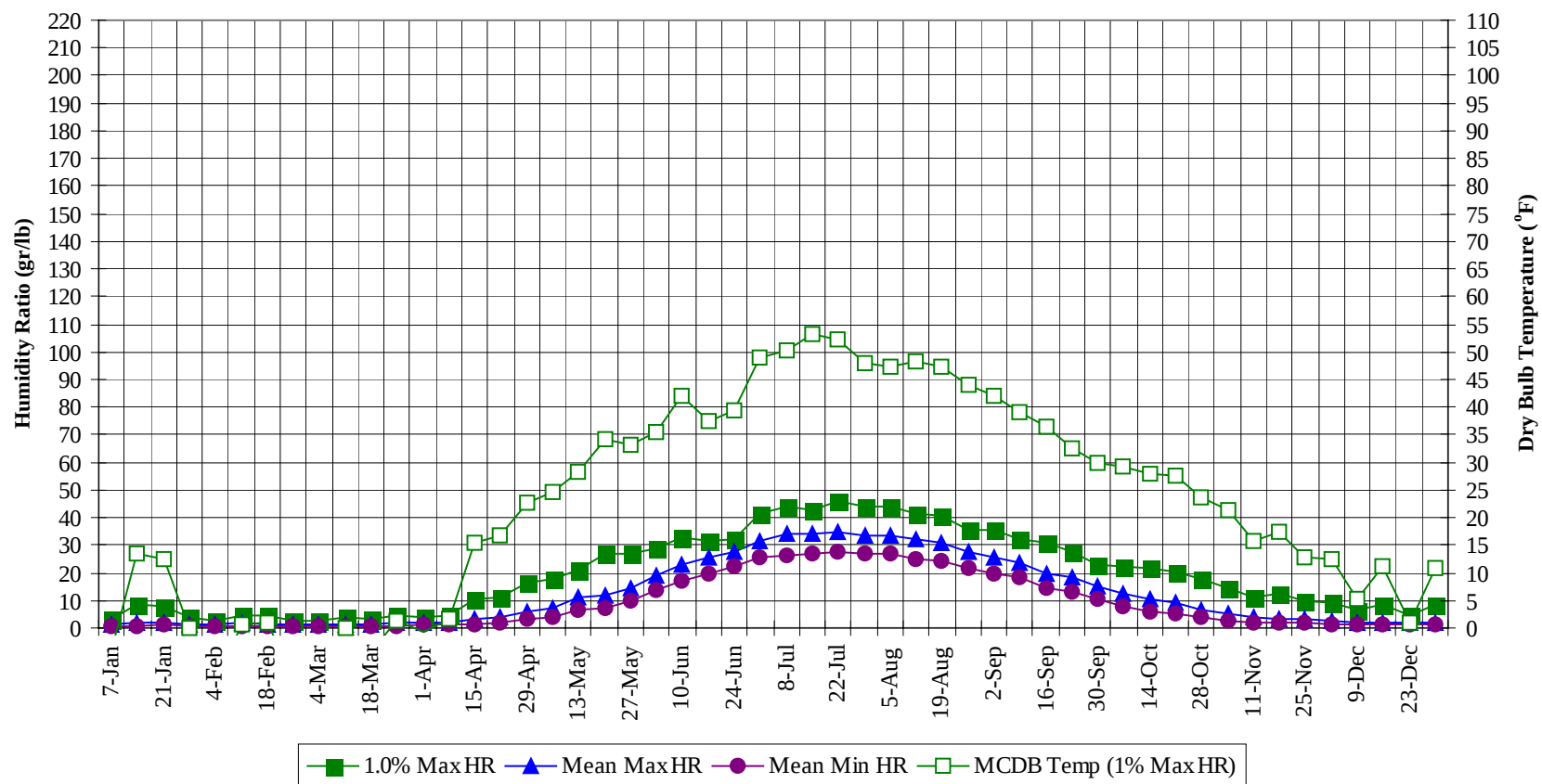
Annual Totals						
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)	
	01 To 08	09 To 16	17 To 00			
60 / 64		0	0	0	51.8	
55 / 59		0	6	3	9	48.8
50 / 54		6	26	18	50	45.7
45 / 49		38	75	59	172	42.4
40 / 44		65	104	93	261	39.3
35 / 39		211	250	237	698	35.6
30 / 34		351	282	309	941	31.4
25 / 29		193	174	176	543	26.0
20 / 24		105	99	107	310	21.4
15 / 19		130	126	123	378	16.7
10 / 14		130	136	133	398	11.4
5 / 9		135	140	139	413	6.2
0 / 4		140	134	132	405	0.7
-5 / -1		95	101	100	295	-3.9
-10 / -6		166	159	162	487	-8.1
-15 / -11		135	132	135	401	-12.6
-20 / -16		210	208	207	625	-17.1
-25 / -21		233	231	232	696	-22.3
-30 / -26		239	224	233	696	-27.5
-35 / -31		144	137	140	420	-31.9
-40 / -36		130	119	123	371	-36.4
-45 / -41		51	47	48	146	-41.4
-50 / -46		13	9	12	34	-45.9
-55 / -51		3	2	2	7	-51.2
-60 / -56		0	0	0	0	
-65 / -61		0			0	

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Annual Summary of Temperatures

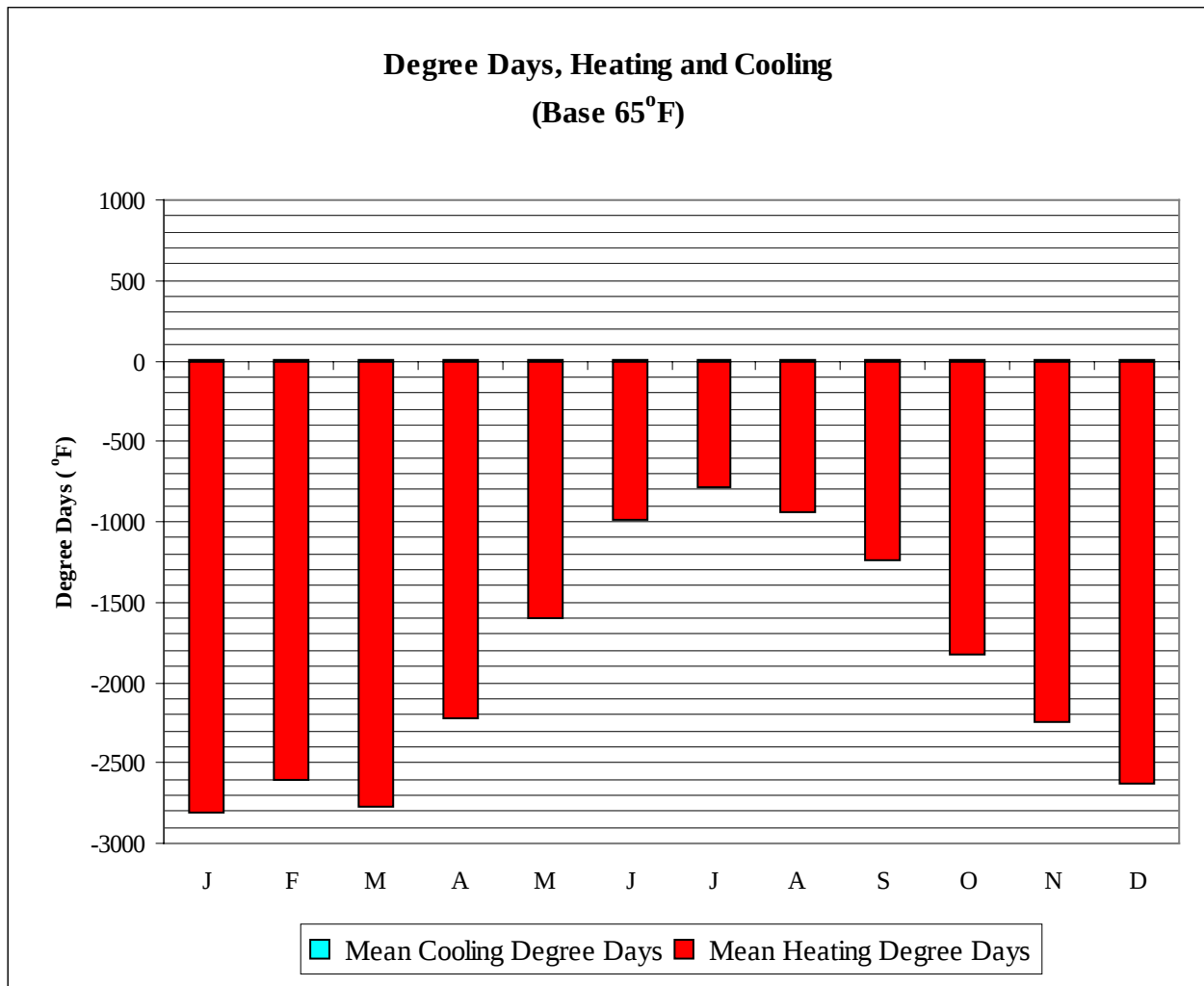


Long Term Humidity and Dry Bulb Temperature Summary

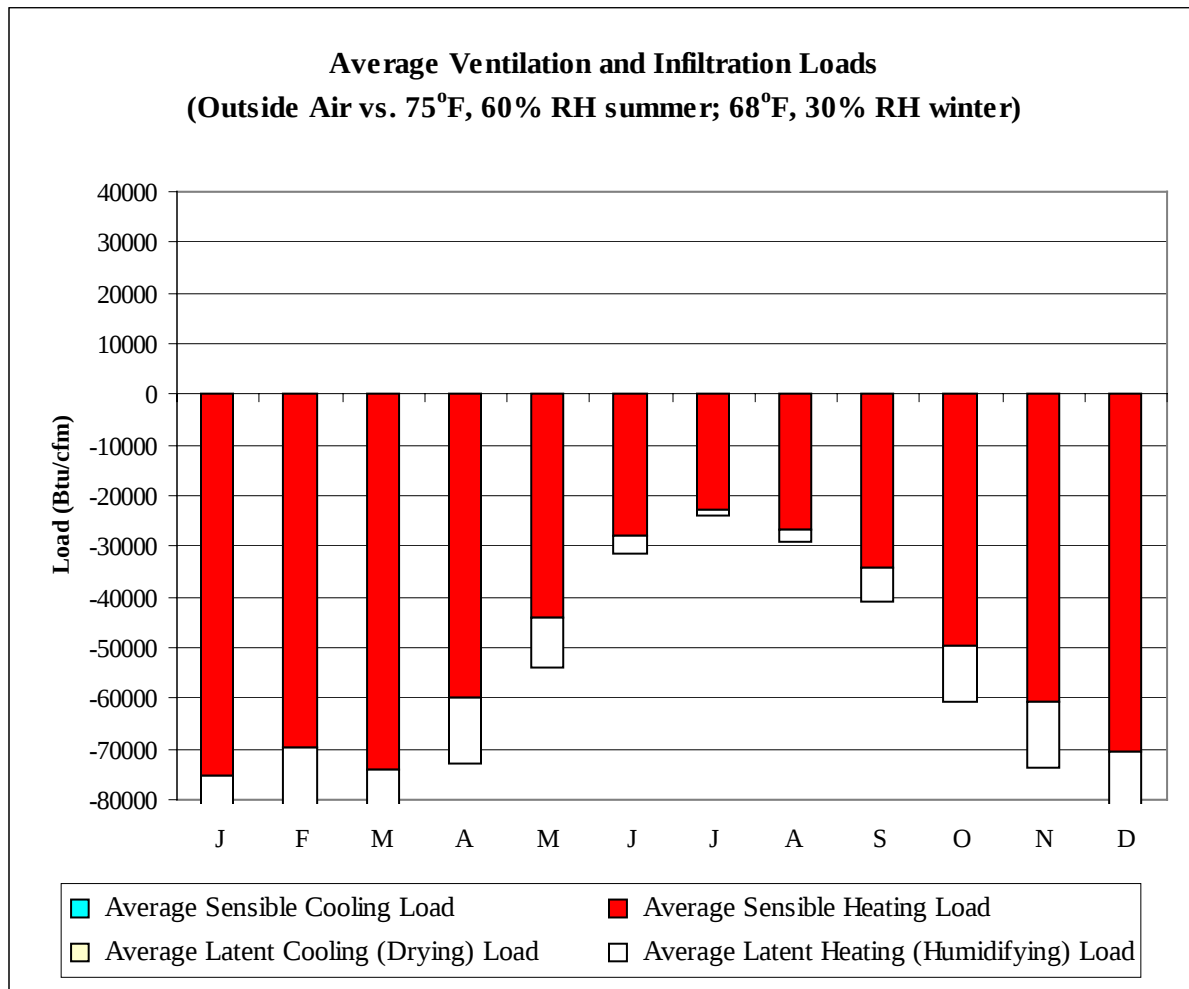


RESOLUTE**CN****WMO No. 719240****Long Term Dry Bulb Temperature and Humidity Summary**

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	0.0	-1.0	-18.7	-29.1	-42.0	3.5	-4.1	1.5	0.8
14-Jan	12.0	11.0	-17.4	-28.8	-45.0	8.4	13.4	1.9	0.9
21-Jan	12.0	10.9	-17.7	-28.9	-47.0	7.7	12.5	1.9	1.0
28-Jan	1.0	0.5	-18.7	-30.0	-45.0	4.2	0.0	1.6	0.9
4-Feb	-4.0	-4.8	-21.0	-31.8	-47.0	2.8	-9.1	1.3	0.8
11-Feb	3.0	2.5	-18.6	-29.1	-51.0	4.9	0.7	1.7	1.0
18-Feb	1.0	0.7	-18.6	-29.3	-53.0	4.9	1.0	1.6	0.9
25-Feb	-5.0	-6.0	-21.6	-32.2	-45.0	2.8	-9.3	1.3	0.8
4-Mar	-4.0	-5.0	-20.1	-30.8	-49.0	2.8	-9.3	1.4	0.8
11-Mar	1.0	0.5	-21.2	-31.6	-47.0	4.2	-0.1	1.3	0.8
18-Mar	0.0	-1.2	-19.4	-29.9	-42.0	3.5	-4.4	1.5	0.9
25-Mar	3.0	2.4	-16.5	-27.1	-40.0	4.9	1.4	1.8	1.0
1-Apr	1.0	0.3	-13.1	-23.8	-35.0	4.2	-0.5	1.9	1.0
8-Apr	3.0	2.0	-12.7	-23.3	-38.0	4.9	1.6	2.0	1.1
15-Apr	16.0	15.0	-6.7	-18.2	-33.0	10.5	15.4	3.2	1.6
22-Apr	18.0	16.0	-0.5	-11.4	-24.0	11.2	16.6	4.2	2.2
29-Apr	23.0	22.7	4.4	-6.9	-21.0	16.1	22.6	6.0	3.2
6-May	25.0	23.8	9.2	-2.1	-13.0	17.5	24.7	7.4	4.0
13-May	29.0	28.0	15.6	5.8	-9.0	21.0	28.1	10.9	6.6
20-May	34.0	32.9	17.4	7.9	-2.0	26.6	34.3	12.0	7.5
27-May	34.0	32.6	21.4	13.0	1.0	26.6	33.2	14.4	9.8
3-Jun	37.0	34.6	27.7	20.1	7.0	28.7	35.5	19.1	13.5
10-Jun	41.0	38.9	31.6	24.5	12.0	32.9	42.2	22.7	17.0
17-Jun	43.0	39.0	34.5	27.8	16.0	31.5	37.6	25.5	19.8
24-Jun	46.0	40.4	37.6	31.2	25.0	32.2	39.3	27.8	22.6
1-Jul	52.0	44.8	41.1	33.8	28.0	41.3	48.9	31.4	25.5
8-Jul	54.0	47.8	44.3	35.5	30.0	44.1	50.2	34.0	26.6
15-Jul	57.0	49.7	44.8	36.0	32.0	42.7	53.1	33.9	27.1
22-Jul	55.0	49.1	44.5	35.5	30.0	46.2	52.2	34.6	27.4
29-Jul	55.0	48.0	42.6	34.4	30.0	44.1	48.0	33.8	26.9
5-Aug	52.0	46.3	42.2	34.2	30.0	44.1	47.4	33.3	26.8
12-Aug	50.0	45.6	40.4	32.9	28.0	41.3	48.2	31.9	25.3
19-Aug	47.0	44.3	38.6	31.7	25.0	40.6	47.3	30.6	24.4
26-Aug	46.0	41.8	36.3	29.7	23.0	35.7	43.9	27.7	21.8
2-Sep	44.0	40.9	34.1	27.6	21.0	35.7	41.9	25.7	19.9
9-Sep	39.0	36.4	31.7	25.9	18.0	32.2	39.0	23.7	18.1
16-Sep	36.0	35.6	27.4	20.9	12.0	30.8	36.6	19.6	14.4
23-Sep	34.0	33.4	25.5	18.4	9.0	27.3	32.6	18.4	12.9
30-Sep	30.0	29.2	21.2	13.5	1.0	23.1	29.7	15.1	10.3
7-Oct	30.0	29.1	17.1	8.3	-4.0	22.4	29.2	12.5	7.9
14-Oct	29.0	28.2	12.4	2.9	-15.0	21.7	28.0	10.2	6.1
21-Oct	28.0	27.0	10.3	0.6	-18.0	20.3	27.6	9.2	5.5
28-Oct	23.0	23.0	4.6	-6.0	-26.0	17.5	23.6	6.7	3.7
4-Nov	21.0	20.8	0.3	-9.6	-24.0	14.7	21.4	5.1	2.9
11-Nov	18.0	17.4	-3.2	-13.4	-31.0	11.2	15.7	4.2	2.2
18-Nov	18.0	17.5	-6.1	-16.5	-31.0	12.6	17.3	3.4	1.9
25-Nov	14.0	13.6	-6.8	-18.0	-35.0	9.8	12.7	3.4	1.7
2-Dec	12.0	11.3	-11.9	-22.6	-35.0	9.1	12.3	2.4	1.3
9-Dec	5.0	4.0	-13.6	-23.4	-38.0	6.3	5.2	2.2	1.2
16-Dec	10.0	9.7	-14.0	-24.7	-42.0	8.4	11.1	2.2	1.2
23-Dec	3.0	2.0	-15.6	-26.2	-42.0	4.9	0.9	1.9	1.0
31-Dec	12.0	11.5	-14.4	-26.4	-40.0	8.4	10.7	2.3	1.0



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	2809
FEB	0	2605
MAR	0	2767
APR	0	2218
MAY	0	1601
JUN	0	993
JUL	0	788
AUG	0	938
SEP	0	1237
OCT	0	1829
NOV	0	2249
DEC	0	2632
ANN	0	22666



	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	-75218	0	-13970
FEB	0	-69724	0	-12441
MAR	0	-74127	0	-14067
APR	0	-59819	0	-13037
MAY	0	-43901	0	-9947
JUN	0	-28064	0	-3496
JUL	0	-22844	0	-1075
AUG	0	-26726	0	-2193
SEP	0	-34389	0	-6351
OCT	0	-49802	0	-11042
NOV	0	-60598	0	-13064
DEC	0	-70638	0	-14163
ANN	0	-615850	0	-114846

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

No Solar Radiation
Data Available

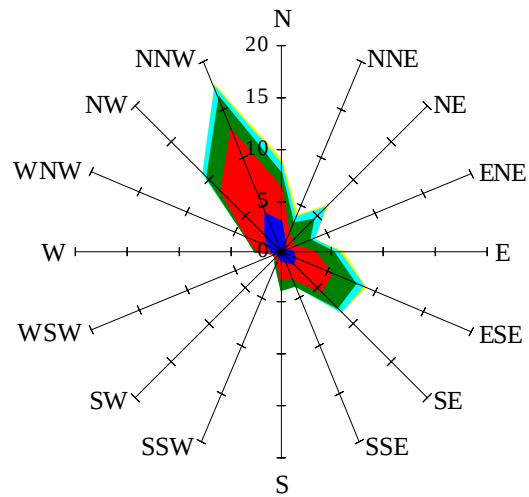


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

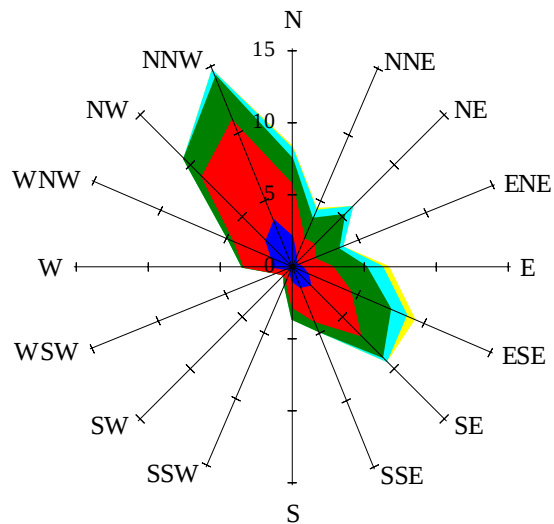
Labels of Percent Frequency on North Axis



Percent Calm = 9.69

Wind Summary - March, April, and May

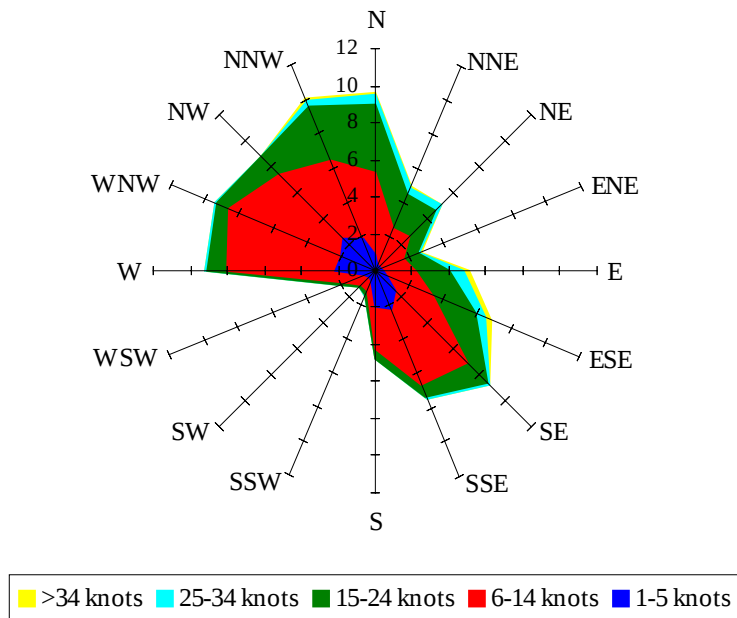
Labels of Percent Frequency on North Axis



Percent Calm = 7.72

Wind Summary - June, July, and August

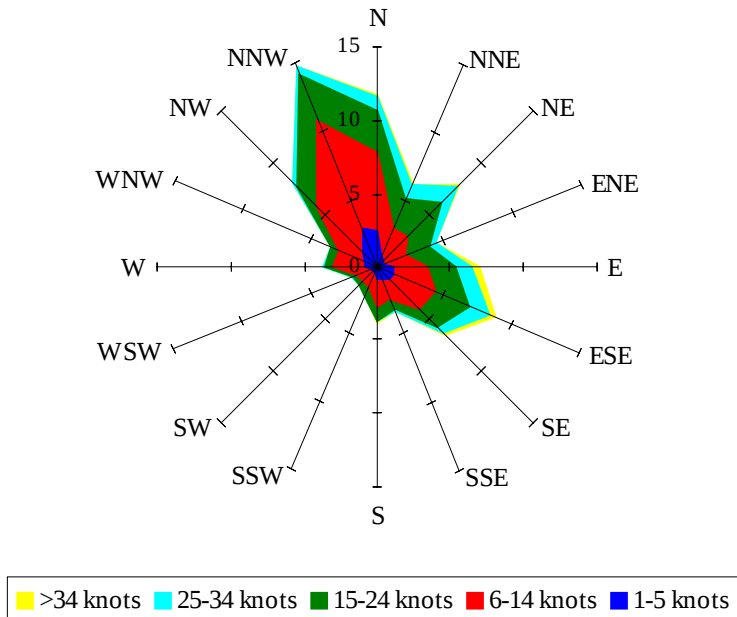
Labels of Percent Frequency on North Axis



Percent Calm = 2.73

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 4.98