SIOUX LOOKOUT CN	
Latitude = 50.12 N	WMO No. 718420
Longitude = 91.90 W	Elevation = 1280 feet
Period of Record = 1973 to 1996	Average Pressure = 28.56 inches Hg

Design Criteria Data

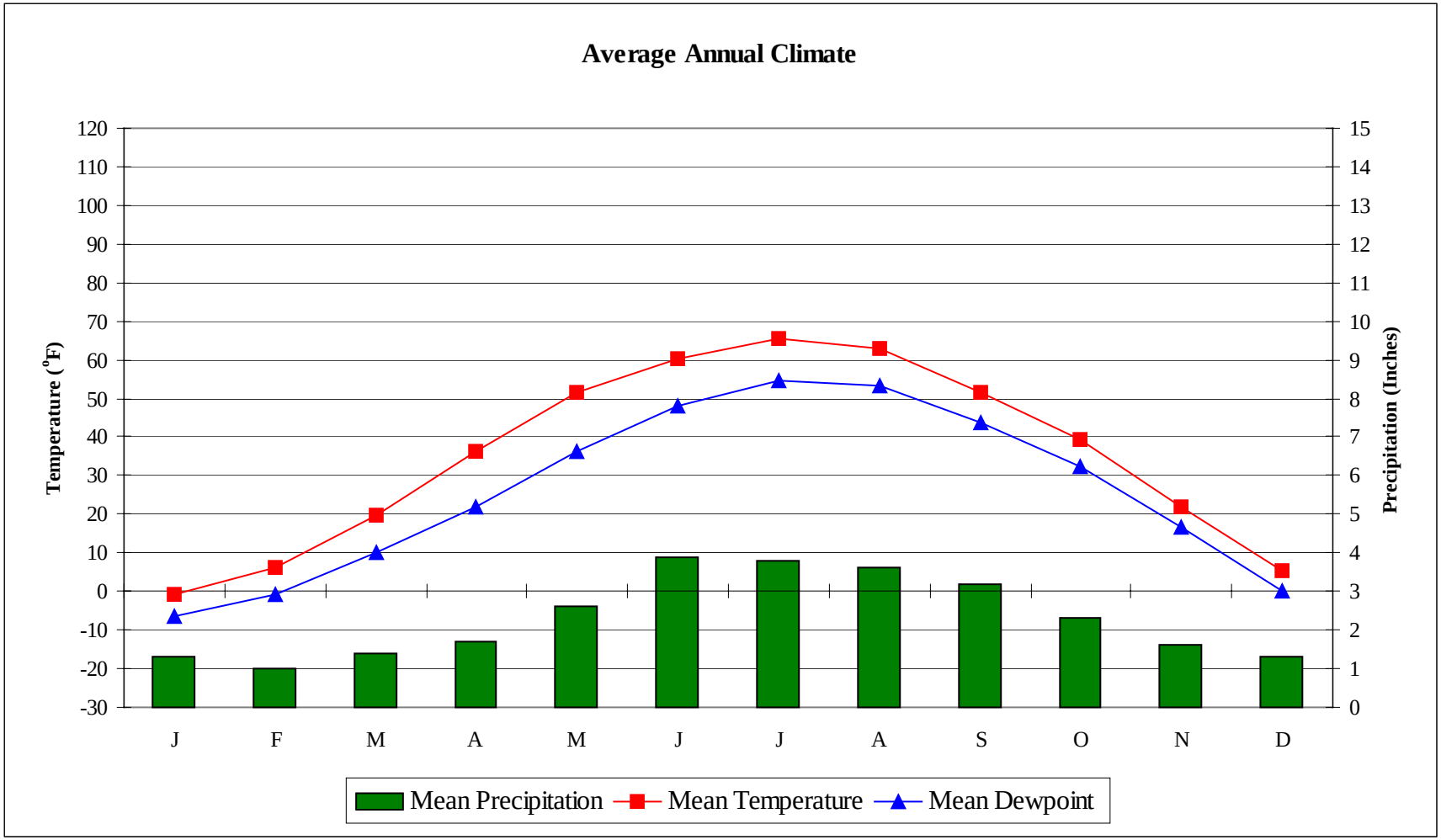
		Mean Coincident (Average) Values			
Dry Bulb Temperature (T)	**Design Value (^oF)**	Wet Bulb Temperature (^oF)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	90	70	84	9.3	SSW
0.4% Occurrence	84	67	75	8.4	SSW
1.0% Occurrence	81	65	72	8.2	S
2.0% Occurrence	79	64	70	8.1	S
Mean Daily Range	18	-	-	-	-
97.5% Occurrence	-19	-20	1	4.4	WNW
99.0% Occurrence	-26	-27	1	3.5	WNW
99.6% Occurrence	-31	-31	1	3.2	WNW
Median of Extreme Lows	-38	-38	1	2.5	WNW
		Mean Coincident (Average) Values			
Wet Bulb Temperature (T_{wb})	**Design Value (^oF)**	Dry Bulb Temperature (^oF)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	74	83	114	6.9	S
0.4% Occurrence	71	81	101	7.0	S
1.0% Occurrence	68	76	93	6.7	S
2.0% Occurrence	66	74	87	6.6	S
		Mean Coincident (Average) Values			
Humidity Ratio (HR)	**Design Value (gr/lb)**	Dry Bulb Temperature (^oF)	Vapor Pressure (in. Hg)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	117	77	0.74	6.4	S
0.4% Occurrence	108	76	0.69	5.8	S
1.0% Occurrence	96	72	0.61	6.2	S
2.0% Occurrence	90	70	0.57	5.9	S
Air Conditioning/		$T \geq 93^oF$	$T \geq 80^oF$	$T_{wb} \geq 73^oF$	$T_{wb} \geq 67^oF$
Humid Area Criteria	# of Hours	2	129	15	161

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^oF-RH 60% Latent + Sensible
3	N/A	N/A	0.2 + 0.1
Ground Water Temperature (^oF) 50 Foot Depth *	**Frost Depth 50 Year Recurrence (in.)**	**Ground Snow Load 50 Year Recurrence (lb/ft^2)**	**Average Annual Freeze-Thaw Cycles (#)**
37.6	N/A	N/A	51

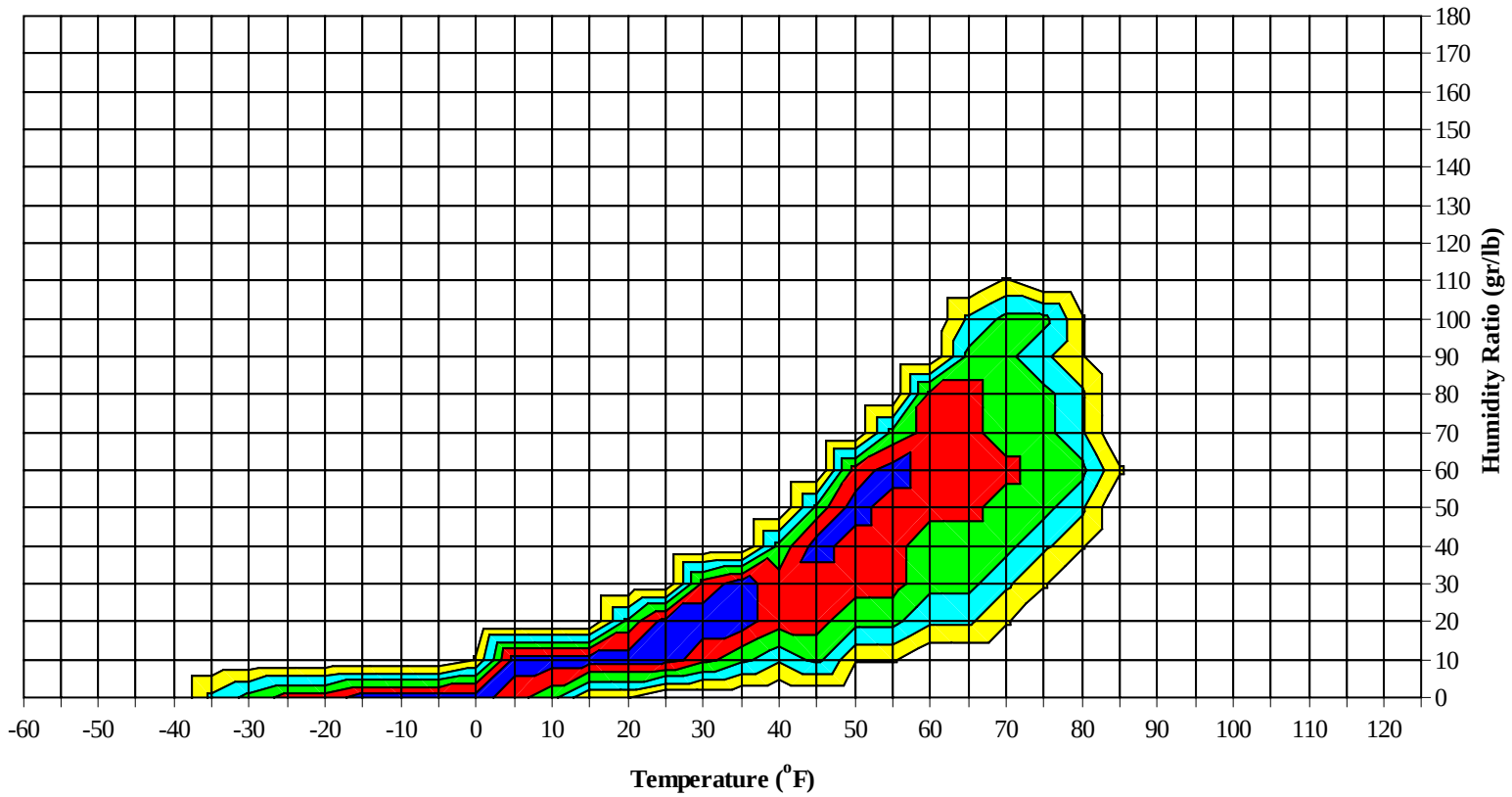
*Note: Temperatures at greater depths can be estimated by adding 1.5^oF per 100 feet additional depth.

SIOUX LOOKOUT **CN** WMO No. 718420



SIOUX LOOKOUT CN WMO No. 718420

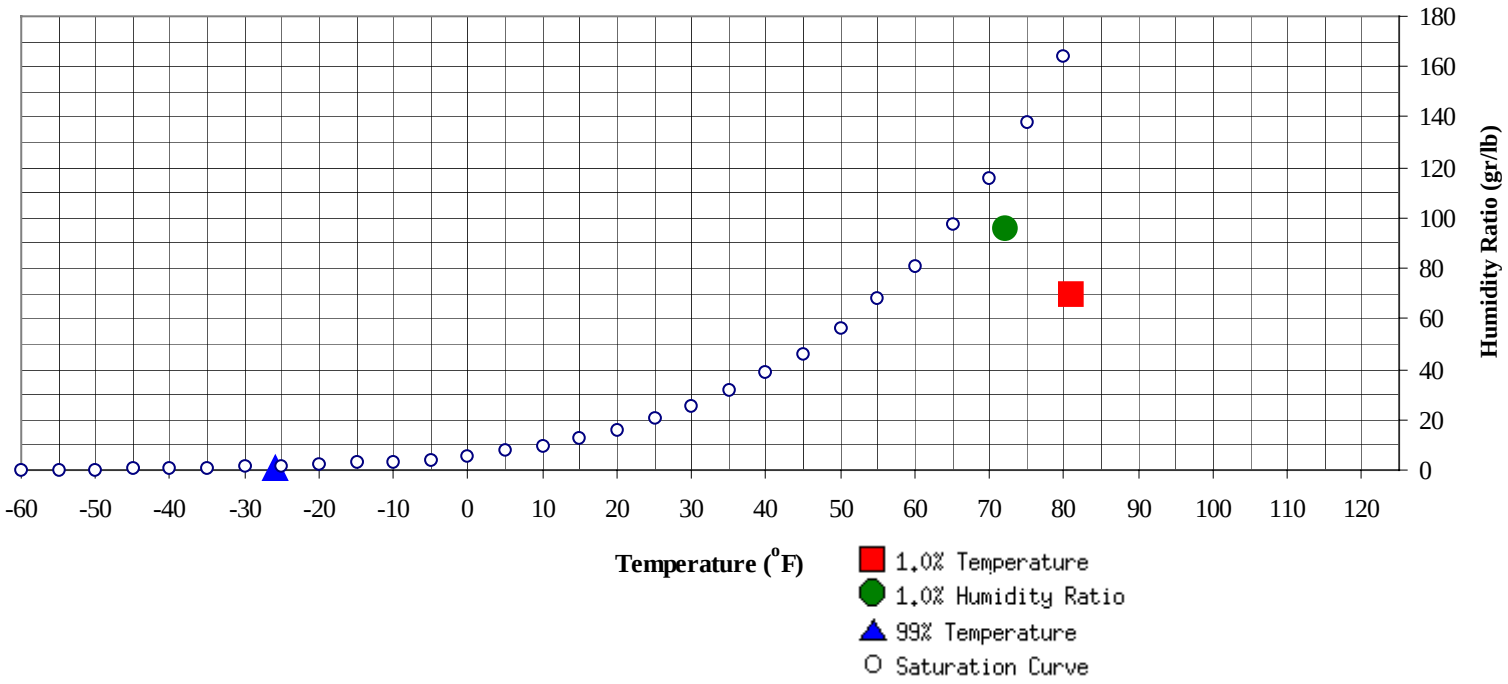
Long Term Psychrometric Summary



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

SIOUX LOOKOUT CN WMO No. 718420

Psychrometric Summary of Peak Design Values



	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)
99% Dry Bulb	-26	0.7	-6.1

	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
1.0% Humidity Ratio	95.9	72.1	66.9	64.4	32.3

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	81	70.1	64.7	30.4

SIOUX LOOKOUT CN WMO No. 718420

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

Period of Record = 1973 to 1996

Temperature Range (°F)	January Hour Group (LST) 01 To 08	09 To 16	17 To 00	Total Obs	MCWB (°F)	February Hour Group (LST) 01 To 08	09 To 16	17 To 00	Total Obs	MCWB (°F)	March Hour Group (LST) 01 To 08	09 To 16	17 To 00	Total Obs	MCWB (°F)
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79															
70 / 74															
65 / 69															
60 / 64															
55 / 59												1	0	1	43.5
50 / 54												5	2	7	41.1
45 / 49						0	1	0	1	38.8	0	10	7	17	38.2
40 / 44						0	2	1	3	37.1	1	13	10	24	35.0
35 / 39	0	2	1	3	33.5	2	6	5	13	33.8	13	31	26	70	32.8
30 / 34	3	6	5	14	29.8	9	13	12	34	29.8	29	38	40	107	29.3
25 / 29	10	14	13	37	25.2	16	20	19	55	25.1	32	35	40	107	24.2
20 / 24	10	12	12	34	21.2	12	19	18	49	20.7	25	23	23	71	20.0
15 / 19	16	22	21	59	16.4	18	25	23	67	16.1	28	29	28	85	15.5
10 / 14	20	25	24	69	11.3	21	28	24	74	10.8	24	24	23	71	10.5
5 / 9	25	30	29	84	6.0	21	28	27	77	5.7	24	18	19	61	5.5
0 / 4	26	31	28	85	0.8	21	25	26	73	0.7	21	10	15	46	0.5
-5 / -1	14	22	18	54	-3.7	15	15	16	46	-3.8	13	4	6	23	-3.8
-10 / -6	24	27	29	80	-8.1	22	16	21	59	-8.1	14	3	6	23	-8.1
-15 / -11	18	18	18	54	-12.6	15	9	11	35	-12.5	8	1	2	11	-12.4
-20 / -16	23	19	24	66	-17.0	20	8	10	38	-17.0	8	1	1	10	-16.6
-25 / -21	23	11	16	50	-22.1	15	5	5	25	-22.1	4	0	1	5	-22.0
-30 / -26	17	7	8	32	-27.2	10	2	3	15	-27.2	2		0	2	-27.3
-35 / -31	10	3	3	16	-31.7	4	0	0	4	-31.7	0			0	-31.0
-40 / -36	5	1	1	7	-35.9	3	0	0	3	-36.1					
-45 / -41	1	0		1	-41.2	0	0		0	-41.7					

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.

SIOUX LOOKOUT CN WMO No. 718420

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

Period of Record = 1973 to 1996

Temperature Range (°F)	April Hour Group (LST) 01 To 08	April 09 To 16	April 17 To 00	April Total Obs	April MCWB (°F)	May Hour Group (LST) 01 To 08	May 09 To 16	May 17 To 00	May Total Obs	May MCWB (°F)	June Hour Group (LST) 01 To 08	June 09 To 16	June 17 To 00	June Total Obs	June MCWB (°F)
95 / 99												0	0	0	72.1
90 / 94							1	0	1	65.6		2	1	3	69.9
85 / 89		0		0	60.0		2	1	3	63.6		4	1	5	67.2
80 / 84		0	0	0	59.3		9	3	12	61.4	0	15	8	23	64.5
75 / 79		1	1	2	56.6	0	15	7	22	59.4	2	27	16	45	62.1
70 / 74		4	1	5	52.9	2	22	15	39	56.3	7	39	28	74	59.7
65 / 69	0	4	2	6	51.3	4	21	14	39	54.1	15	34	29	78	58.1
60 / 64	0	9	5	14	48.0	14	32	31	77	52.0	39	45	51	135	55.7
55 / 59	2	16	10	28	45.0	22	37	35	94	48.3	59	40	48	147	52.7
50 / 54	5	28	18	51	41.9	36	39	41	116	45.4	54	21	32	107	48.8
45 / 49	10	35	28	73	38.4	48	33	39	120	42.1	36	10	20	66	44.2
40 / 44	17	29	28	74	35.7	30	15	22	67	38.0	17	2	6	25	40.2
35 / 39	36	42	45	123	32.7	42	14	24	80	34.6	9	0	2	11	36.7
30 / 34	57	34	49	140	29.0	31	7	14	52	30.3	1	0	0	1	32.0
25 / 29	50	20	31	101	24.1	13	1	3	17	25.3	0			0	27.0
20 / 24	20	8	10	38	19.9	3	0	0	3	20.7					
15 / 19	18	5	7	30	15.6	1	0	0	1	17.0					
10 / 14	12	2	3	17	10.5	0	0		0	12.6					
5 / 9	6	1	2	9	5.7										
0 / 4	4	1	1	6	0.8										
-5 / -1	2		0	2	-3.6										
-10 / -6	1		0	1	-8.0										
-15 / -11	0			0	-12.0										
-20 / -16	0			0	-15.0										
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															
-45 / -41															

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.

SIOUX LOOKOUT CN WMO No. 718420

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)				MCWB	Hour Group (LST)				MCWB	Hour Group (LST)				MCWB
	01 To 08	09 To 16	17 To 00	Total Obs	(°F)	01 To 08	09 To 16	17 To 00	Total Obs	(°F)	01 To 08	09 To 16	17 To 00	Total Obs	(°F)
95 / 99		0	0	0	76.5										
90 / 94		2	1	3	73.0		1	0	1	70.3		0		0	70.0
85 / 89		5	3	8	69.2		5	2	7	69.5		0	0	0	68.7
80 / 84	0	25	11	36	66.5		17	8	25	67.1	0	2	1	3	67.6
75 / 79	4	51	29	84	63.9	1	37	16	54	64.6	0	7	3	10	63.7
70 / 74	14	61	48	123	61.8	11	52	38	101	62.5	1	14	7	22	60.7
65 / 69	30	40	46	116	60.5	24	40	37	101	60.8	3	16	10	29	58.8
60 / 64	79	40	58	177	58.2	60	49	58	167	57.9	15	37	27	79	56.1
55 / 59	71	16	38	125	54.7	67	30	47	144	54.0	28	49	40	118	52.1
50 / 54	38	6	13	57	50.5	52	13	32	97	49.8	49	51	55	155	48.5
45 / 49	11	0	2	13	46.2	26	3	10	39	45.6	58	34	46	138	44.0
40 / 44	1	0	0	1	41.8	5	0	1	6	41.1	32	16	23	71	39.8
35 / 39	0			0	38.4	2		0	2	36.9	34	11	21	66	35.8
30 / 34								0	0	34.0	18	2	7	27	31.4
25 / 29											2	0	1	3	27.0
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															
-45 / -41															

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.

SIOUX LOOKOUT CN WMO No. 718420

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

Period of Record = 1973 to 1996

Temperature Range (°F)	October Hour Group (LST) 01 To 08	09 To 16	17 To 00	Total Obs	MCWB (°F)	November Hour Group (LST) 01 To 08	09 To 16	17 To 00	Total Obs	MCWB (°F)	December Hour Group (LST) 01 To 08	09 To 16	17 To 00	Total Obs	MCWB (°F)
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79		0		0	58.3										
70 / 74		1	0	1	58.9										
65 / 69	0	3	1	4	56.0										
60 / 64	1	10	4	15	54.5		0		0	52.3					
55 / 59	5	18	11	34	50.9	0	2	1	3	48.0					
50 / 54	12	30	18	60	46.2	1	3	2	6	45.5					
45 / 49	31	43	37	111	42.8	4	9	5	18	42.2	0	0	0	0	44.8
40 / 44	31	33	38	103	39.0	6	9	7	22	38.2	0	0	0	0	39.3
35 / 39	54	47	54	155	34.9	16	21	19	56	34.5	1	3	1	5	33.6
30 / 34	63	42	53	158	30.2	30	37	34	101	30.1	9	12	10	31	30.0
25 / 29	35	16	23	74	25.6	44	44	48	136	25.1	20	25	23	68	25.5
20 / 24	9	4	7	20	20.7	31	30	32	93	20.9	18	18	21	57	21.3
15 / 19	5	1	2	8	16.9	34	32	28	94	16.4	27	31	30	88	16.5
10 / 14	1	0	0	1	11.6	22	22	25	69	11.2	27	28	22	77	11.5
5 / 9						19	15	18	52	6.3	22	26	25	73	6.0
0 / 4						13	8	11	32	1.0	24	25	29	78	0.8
-5 / -1						7	3	5	15	-3.7	14	16	15	45	-3.7
-10 / -6						7	3	4	14	-7.6	20	24	25	69	-8.1
-15 / -11						2	1	1	4	-12.2	14	14	16	44	-12.6
-20 / -16						1	0	1	2	-16.7	20	14	18	52	-16.9
-25 / -21						1	0	1	2	-21.6	14	7	9	30	-22.1
-30 / -26						1		0	1	-26.9	10	3	4	17	-27.2
-35 / -31						0			0	-31.0	4	0	1	5	-31.8
-40 / -36											1	0	0	1	-35.7
-45 / -41															

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.

SIOUX LOOKOUT CN WMO No. 718420

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) 01 To 08	09 To 16	17 To 00	Total Obs	MCWB (°F)
95 / 99		1	0	1	74.3
90 / 94		6	2	8	70.9
85 / 89		16	7	23	68.3
80 / 84	0	67	30	97	65.5
75 / 79	7	139	71	216	63.1
70 / 74	35	192	136	363	60.8
65 / 69	75	159	138	372	59.0
60 / 64	208	222	231	662	56.3
55 / 59	253	208	229	690	52.2
50 / 54	245	198	212	655	47.5
45 / 49	224	177	194	595	42.6
40 / 44	140	120	135	395	38.2
35 / 39	209	176	196	581	34.2
30 / 34	250	191	224	665	29.8
25 / 29	223	177	201	601	24.9
20 / 24	131	116	125	372	20.7
15 / 19	149	147	140	436	16.2
10 / 14	127	131	121	379	11.0
5 / 9	118	120	119	357	5.9
0 / 4	110	101	110	321	0.7
-5 / -1	65	61	61	187	-3.8
-10 / -6	90	73	84	248	-8.1
-15 / -11	57	43	50	150	-12.5
-20 / -16	73	42	55	170	-17.0
-25 / -21	58	23	31	112	-22.1
-30 / -26	41	11	15	67	-27.2
-35 / -31	18	3	4	25	-31.7
-40 / -36	9	1	1	11	-35.9
-45 / -41	2	0		2	-41.3

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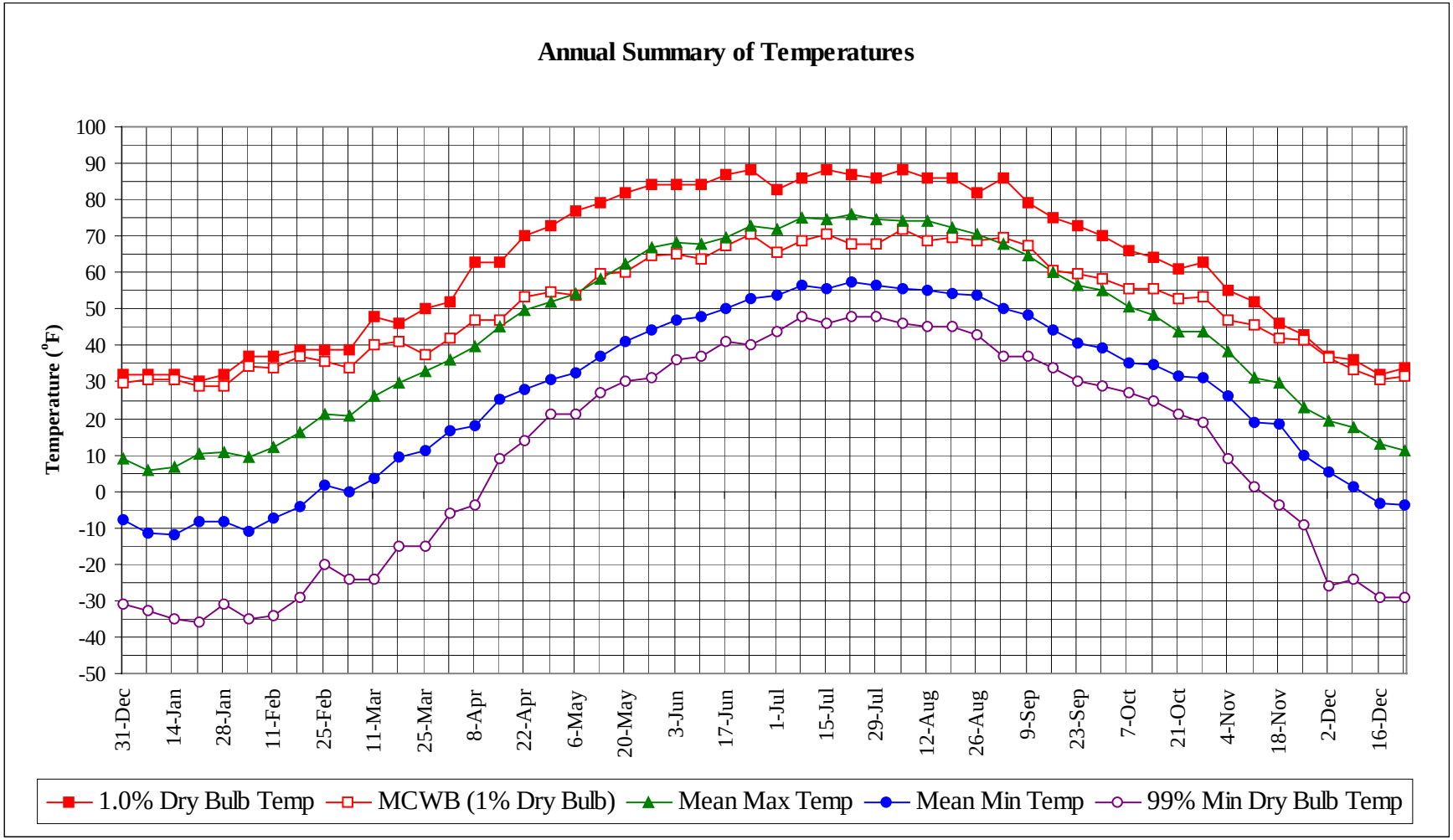
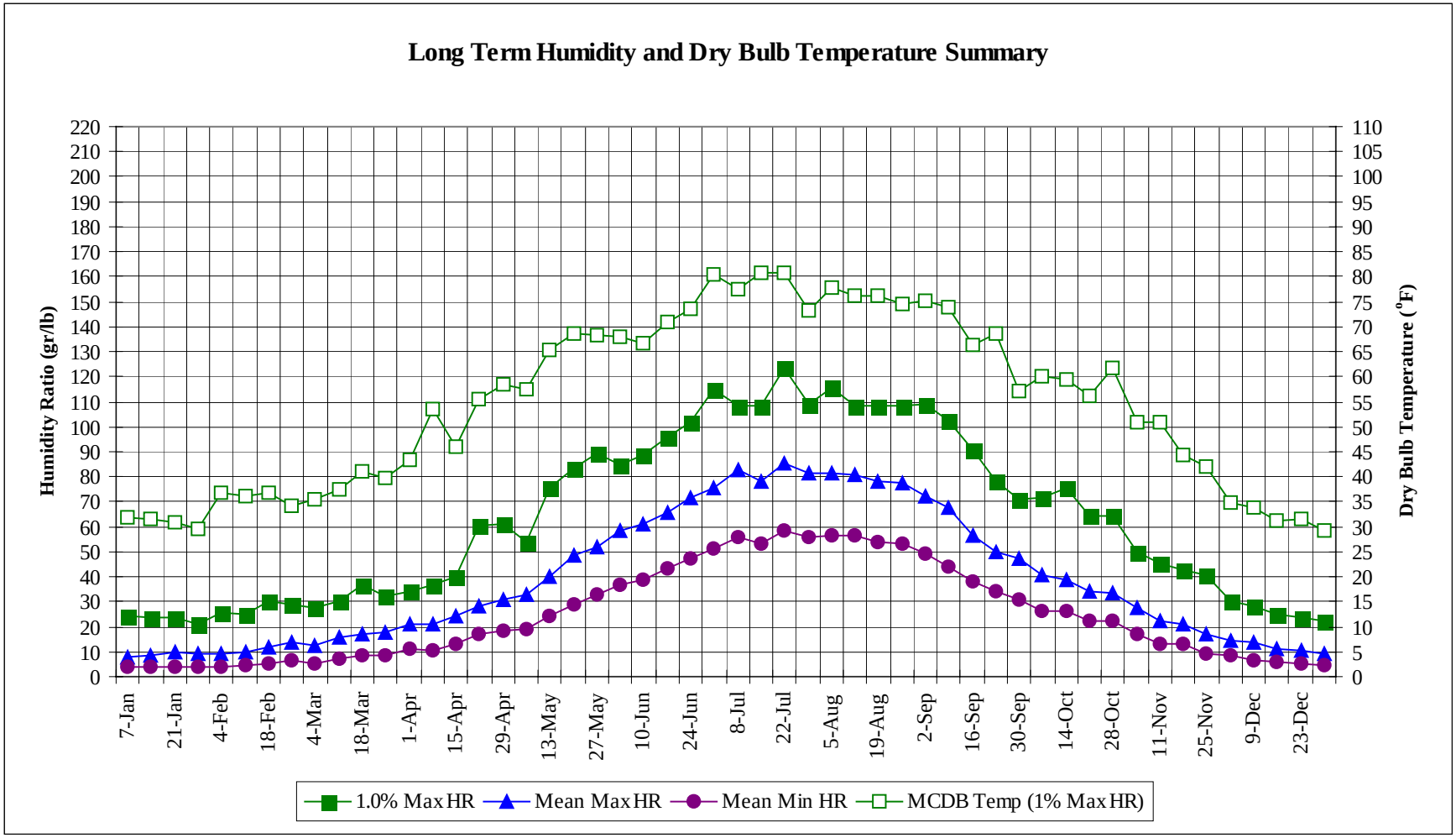
SIOUX LOOKOUT CN WMO No. 718420



SIOUX LOOKOUT CN WMO No. 718420

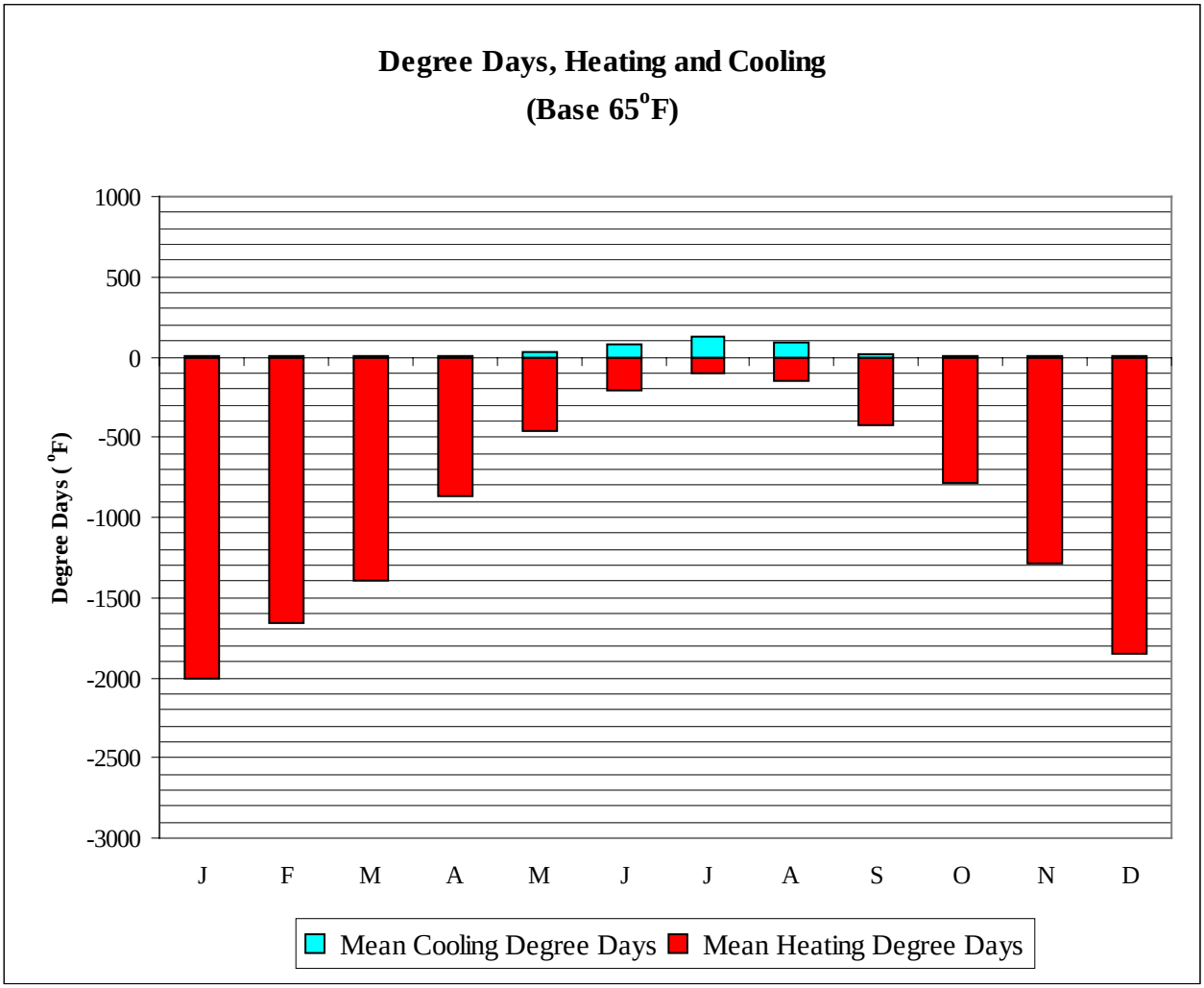


SIOUX LOOKOUT CN WMO No. 718420

Long Term Dry Bulb Temperature and Humidity Summary

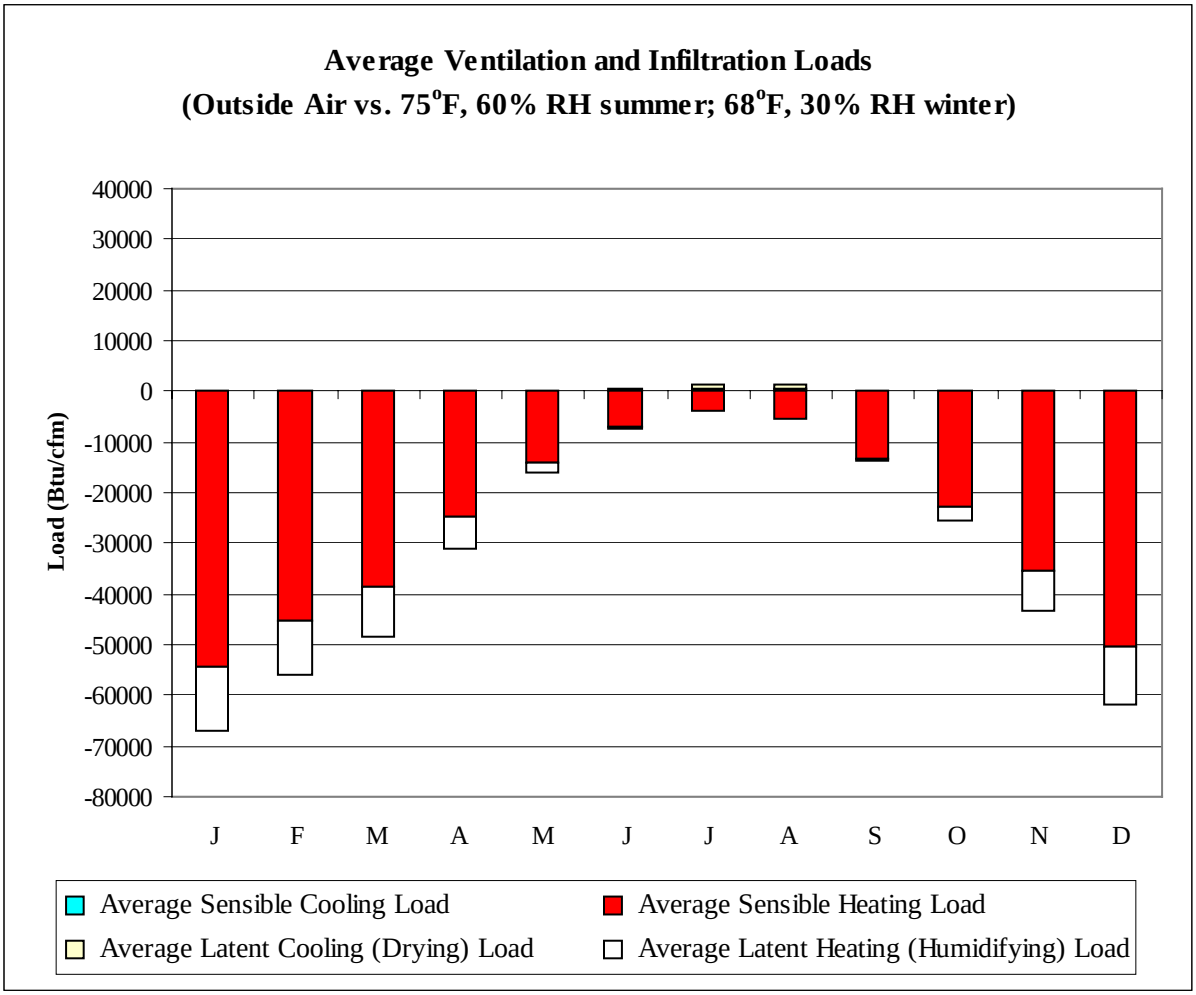
Week Ending	1.0% Temp (°F)	MCWB @ 1% Temp (°F)	Mean Max Temp (°F)	Mean Min Temp (°F)	99% Temp (°F)	1.0% HR (gr/lb)	MCDB @ 1% HR (°F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	32.0	30.9	5.7	-11.3	-33.0	24.5	31.8	8.1	3.7
14-Jan	32.0	30.7	6.6	-12.1	-35.0	23.8	31.4	8.4	3.7
21-Jan	30.0	28.9	10.5	-8.4	-36.0	23.8	30.7	9.8	4.1
28-Jan	32.0	28.9	10.9	-8.5	-31.0	21.0	29.4	9.2	3.6
4-Feb	37.0	34.4	9.4	-11.2	-35.0	25.9	36.7	9.1	3.8
11-Feb	37.0	33.8	12.0	-7.5	-34.0	25.2	36.2	9.8	4.4
18-Feb	39.0	36.9	16.0	-4.0	-29.0	30.1	36.7	11.8	5.4
25-Feb	39.0	35.6	21.3	1.7	-20.0	28.7	34.3	14.0	6.5
4-Mar	39.0	33.7	20.7	-0.3	-24.0	27.3	35.5	12.7	5.4
11-Mar	48.0	40.3	26.3	3.3	-24.0	30.1	37.3	15.8	6.9
18-Mar	46.0	40.9	30.0	9.2	-15.0	37.1	41.0	17.3	8.8
25-Mar	50.0	37.5	33.1	11.0	-15.0	32.2	39.7	18.0	8.6
1-Apr	52.0	41.9	35.9	16.5	-6.0	34.3	43.5	20.7	11.1
8-Apr	63.0	47.0	39.9	17.9	-4.0	37.1	53.7	20.7	10.8
15-Apr	63.0	47.1	45.4	25.2	9.0	39.9	46.0	24.5	13.3
22-Apr	70.0	53.4	49.6	27.8	14.0	60.2	55.6	28.4	16.9
29-Apr	73.0	54.5	51.8	30.8	21.0	60.9	58.4	31.0	18.3
6-May	77.0	53.9	54.2	32.3	21.0	53.9	57.6	32.8	19.3
13-May	79.0	59.5	58.3	36.8	27.0	75.6	65.5	40.2	24.3
20-May	82.0	60.3	62.6	41.0	30.0	83.3	68.7	48.3	29.1
27-May	84.0	64.7	66.8	44.3	31.0	89.6	68.2	52.1	32.8
3-Jun	84.0	64.9	68.4	47.0	36.0	84.7	67.9	58.6	37.0
10-Jun	84.0	63.5	67.8	47.7	37.0	88.9	66.6	61.0	39.0
17-Jun	87.0	67.5	69.5	50.3	41.0	95.9	71.1	66.0	43.5
24-Jun	88.0	70.4	73.0	52.9	40.0	101.5	73.5	71.7	47.3
1-Jul	83.0	65.5	71.7	53.6	44.0	114.8	80.4	75.4	51.3
8-Jul	86.0	68.7	74.9	56.3	48.0	108.5	77.6	82.6	55.9
15-Jul	88.0	70.6	74.5	55.4	46.0	108.5	80.9	78.3	53.2
22-Jul	87.0	68.0	76.1	57.4	48.0	123.2	80.6	85.2	58.5
29-Jul	86.0	67.7	74.5	56.5	48.0	109.2	73.2	81.3	55.6
5-Aug	88.0	71.7	74.0	55.7	46.0	115.5	77.8	81.7	56.7
12-Aug	86.0	68.9	74.2	55.3	45.0	108.5	76.3	80.9	56.4
19-Aug	86.0	69.8	72.3	54.1	45.0	108.5	76.1	78.0	53.9
26-Aug	82.0	68.8	70.6	53.6	43.0	108.5	74.5	77.7	53.4
2-Sep	86.0	69.8	68.0	50.3	37.0	109.2	75.3	72.4	49.1
9-Sep	79.0	67.2	64.7	48.3	37.0	102.2	73.9	67.3	44.3
16-Sep	75.0	60.7	60.0	44.1	34.0	90.3	66.2	56.8	38.2
23-Sep	73.0	59.7	56.7	40.7	30.0	78.4	68.5	50.2	34.0
30-Sep	70.0	58.3	55.0	39.1	29.0	70.7	57.0	47.4	31.1
7-Oct	66.0	55.8	50.5	35.2	27.0	71.4	60.0	40.9	26.2
14-Oct	64.0	55.7	48.2	34.9	25.0	75.6	59.5	39.0	26.2
21-Oct	61.0	52.7	43.9	31.5	21.0	64.4	56.2	33.9	22.6
28-Oct	63.0	53.2	43.6	31.0	19.0	64.4	61.6	33.2	22.3
4-Nov	55.0	46.9	38.6	26.3	9.0	49.7	50.9	27.7	17.3
11-Nov	52.0	45.6	31.0	19.1	1.0	45.5	50.9	22.3	13.2
18-Nov	46.0	42.1	29.9	18.3	-4.0	42.7	44.3	21.3	13.3
25-Nov	43.0	41.6	22.7	9.7	-9.0	40.6	42.0	16.8	9.4
2-Dec	37.0	36.6	19.5	5.4	-26.0	30.1	35.0	14.7	8.5
9-Dec	36.0	33.4	17.4	1.3	-24.0	28.0	33.7	13.7	6.6
16-Dec	32.0	30.5	13.0	-3.4	-29.0	25.2	31.2	11.3	5.7
23-Dec	34.0	31.6	11.4	-3.7	-29.0	23.8	31.7	10.5	5.4
31-Dec	32.0	29.7	8.7	-7.8	-31.0	22.4	29.3	9.3	4.5

SIOUX LOOKOUT CN WMO No. 718420



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	2011
FEB	0	1661
MAR	0	1398
APR	3	869
MAY	35	458
JUN	72	207
JUL	120	98
AUG	87	151
SEP	15	422
OCT	1	782
NOV	0	1282
DEC	0	1849
ANN	332	11188

SIOUX LOOKOUT CN WMO No. 718420



	Average Sensible Cooling Load (Btu/cfm)	Average Sensible Heating Load (Btu/cfm)	Average Latent Cooling Load (Btu/cfm)	Average Latent Heating Load (Btu/cfm)
JAN	0	-54501	0	-12536
FEB	0	-45241	0	-10702
MAR	0	-38647	0	-9653
APR	8	-24814	0	-6244
MAY	169	-13956	23	-2135
JUN	358	-7053	311	-174
JUL	572	-3879	934	-2
AUG	391	-5514	887	-14
SEP	39	-13116	131	-461
OCT	0	-22612	0	-2881
NOV	0	-35530	0	-7765
DEC	0	-50340	0	-11617
ANN	1537	-315203	2286	-64184

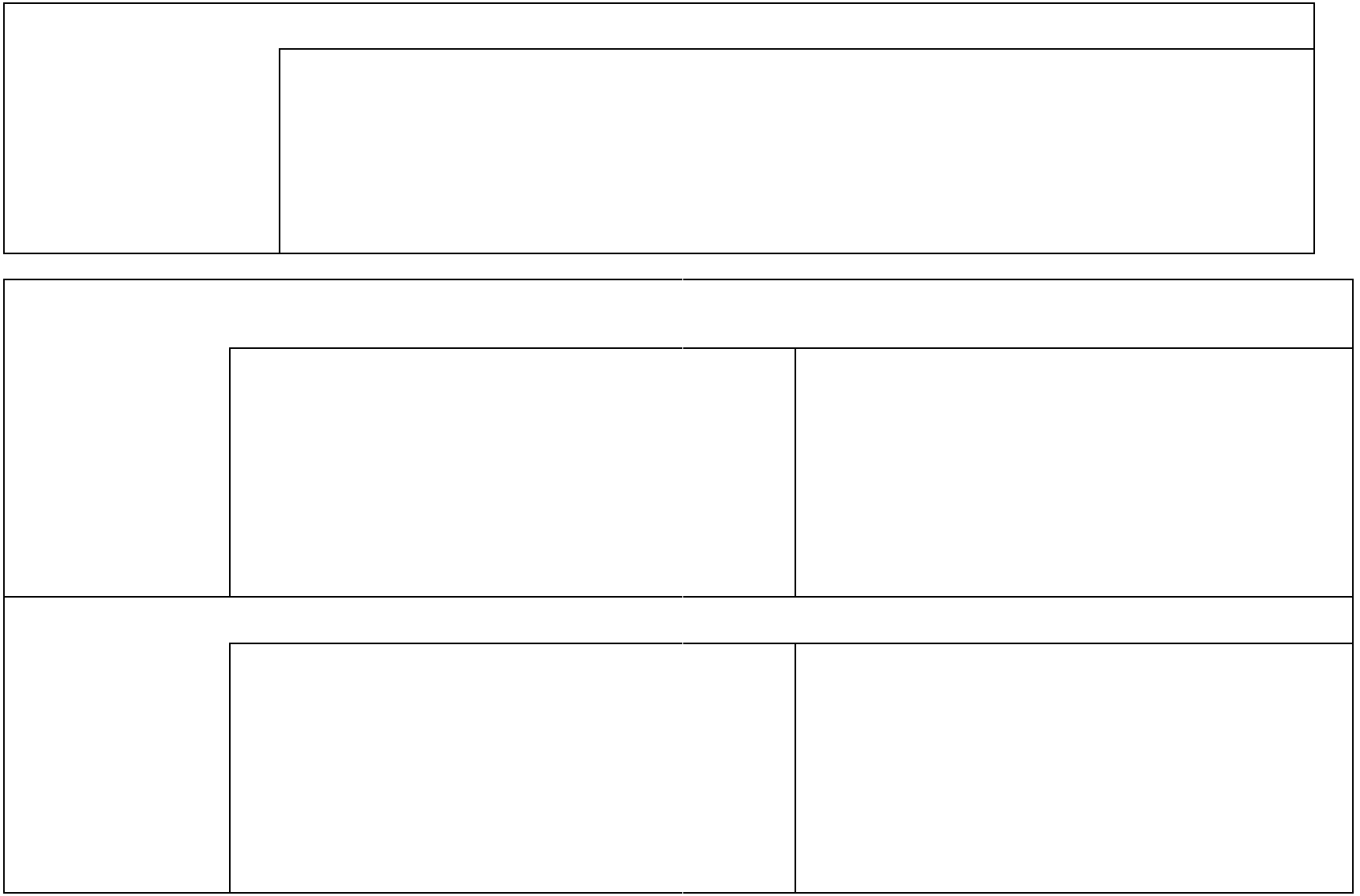
Average Annual Solar Radiation – Nearest Available Site

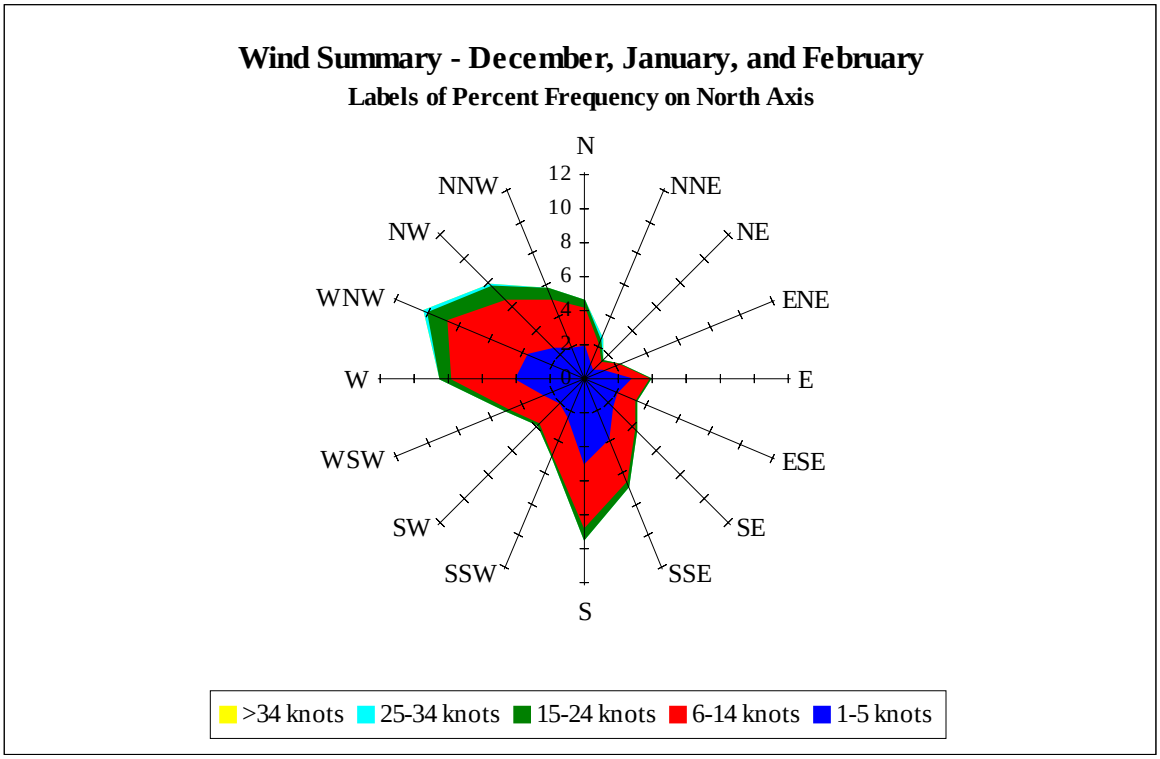
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

No Solar Radiation
Data Available

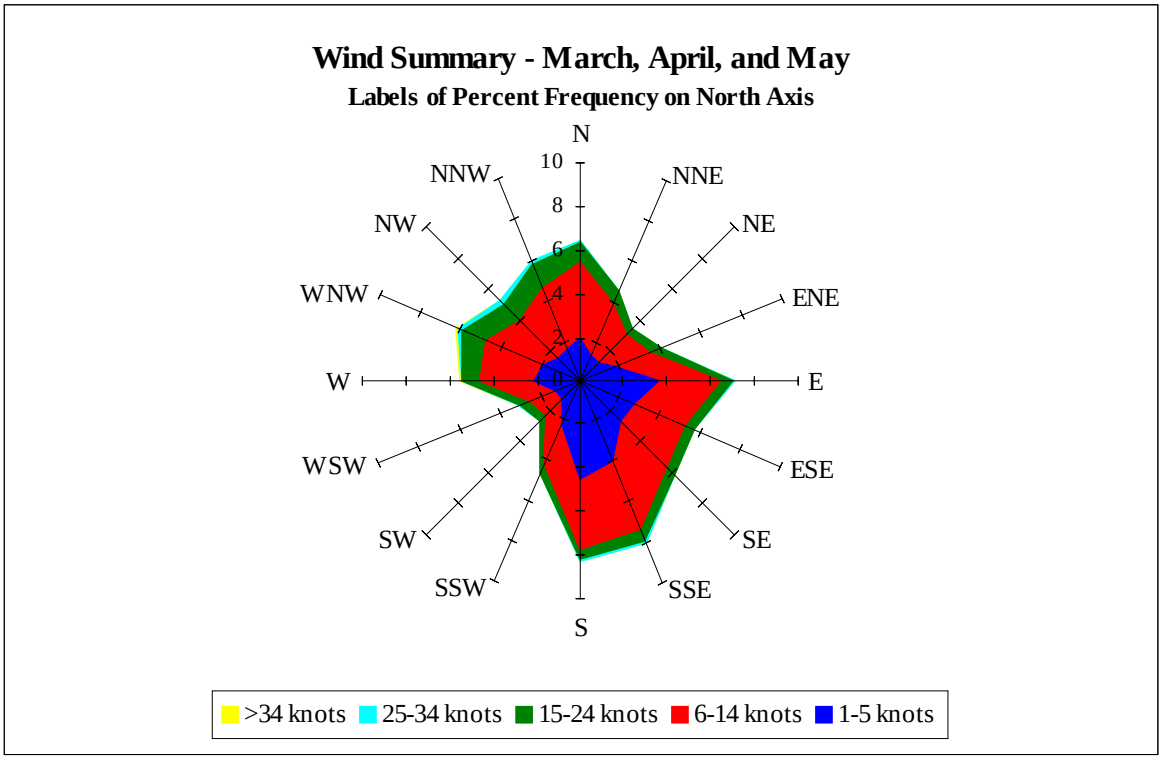
Average Annual Solar Heat and Illumination – Nearest Available Site

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

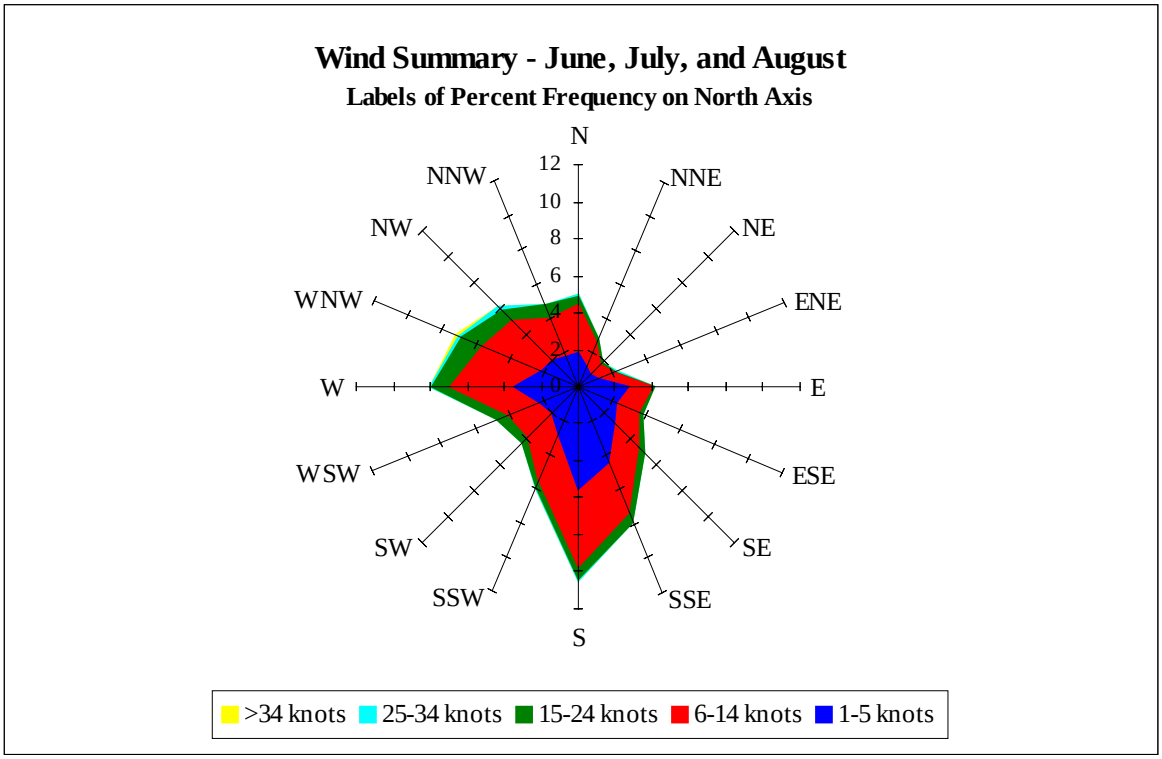




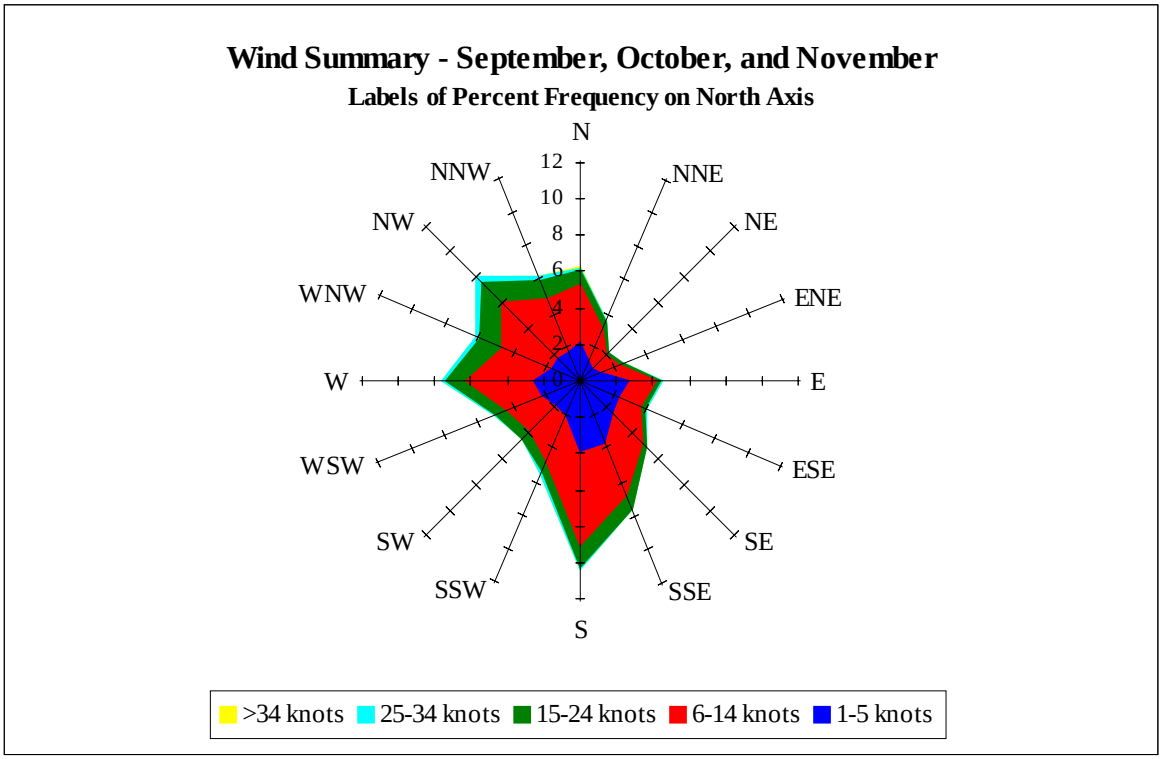
Percent Calm = 16.00



Percent Calm = 13.55



Percent Calm = 15.94



Percent Calm = 11.58