

SIOUX FALLS SD

Latitude = 43.58 N

WMO No. 726510

Longitude = 96.73 W

Elevation = 1427 feet

Period of Record = 1973 to 1996

Average Pressure = 28.45 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	100	74	89	17.2	S
0.4% Occurrence	94	73	95	14.7	S
1.0% Occurrence	91	73	98	14.2	S
2.0% Occurrence	87	71	94	13.1	S
Mean Daily Range	21	-	-	-	-
97.5% Occurrence	-3	-4	3	10.3	NW
99.0% Occurrence	-11	-12	2	8.9	NW
99.6% Occurrence	-16	-16	2	7.3	NW
Median of Extreme Lows	-23	-23	1	7.0	W
	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	79	90	140	12.3	S
0.4% Occurrence	77	88	129	13.0	S
1.0% Occurrence	75	87	118	12.8	S
2.0% Occurrence	73	84	110	12.3	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	144	85	0.90	11.8	SSW
0.4% Occurrence	131	84	0.82	14.2	SSE
1.0% Occurrence	123	82	0.77	13.3	S
2.0% Occurrence	116	79	0.74	10.4	S
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		56	622	232	892

Other Site Data

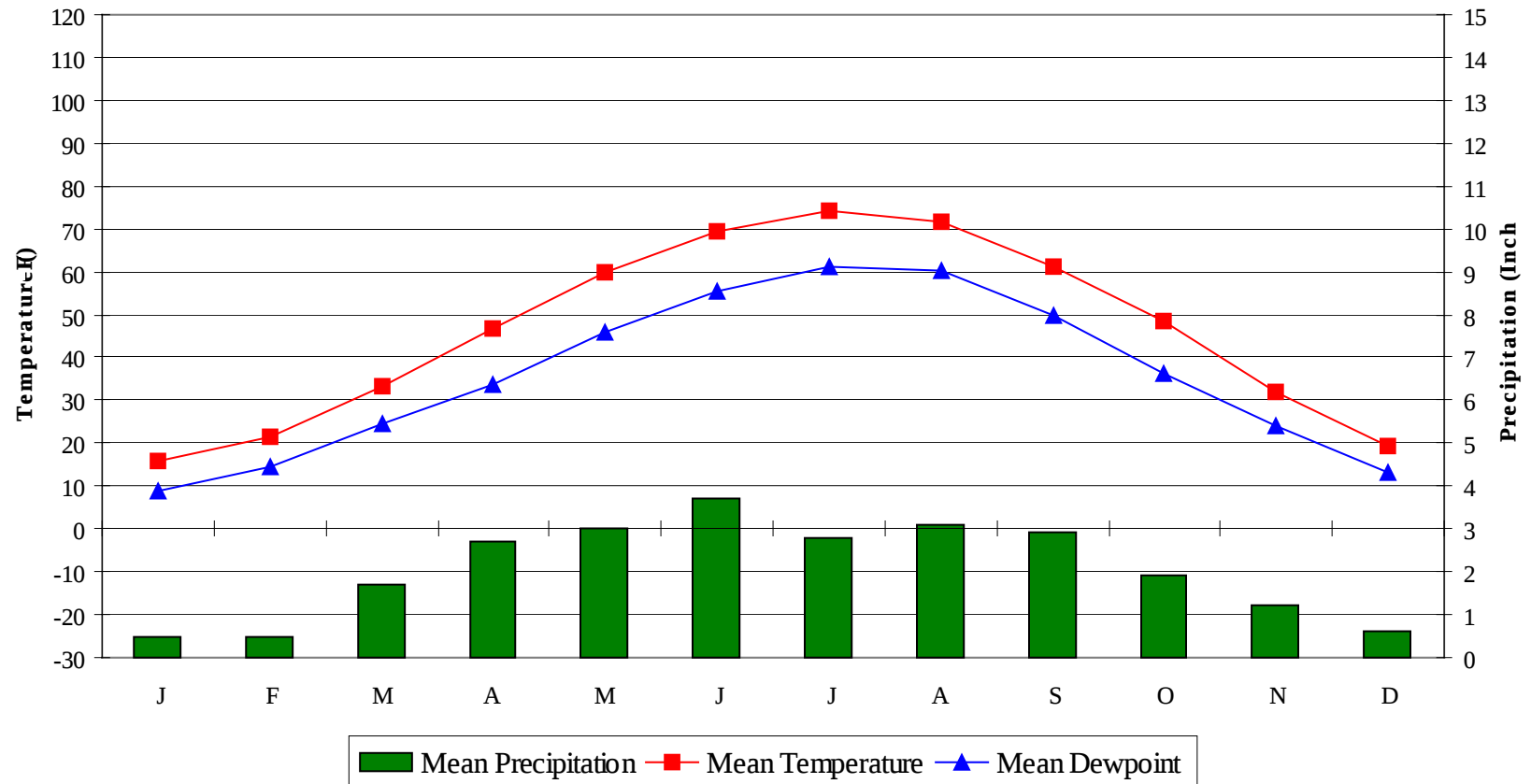
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
5	3.5	90	1.1 + 0.7
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
48.6	102	40	75

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

SIOUX FALLS SD

WMO No. 726510

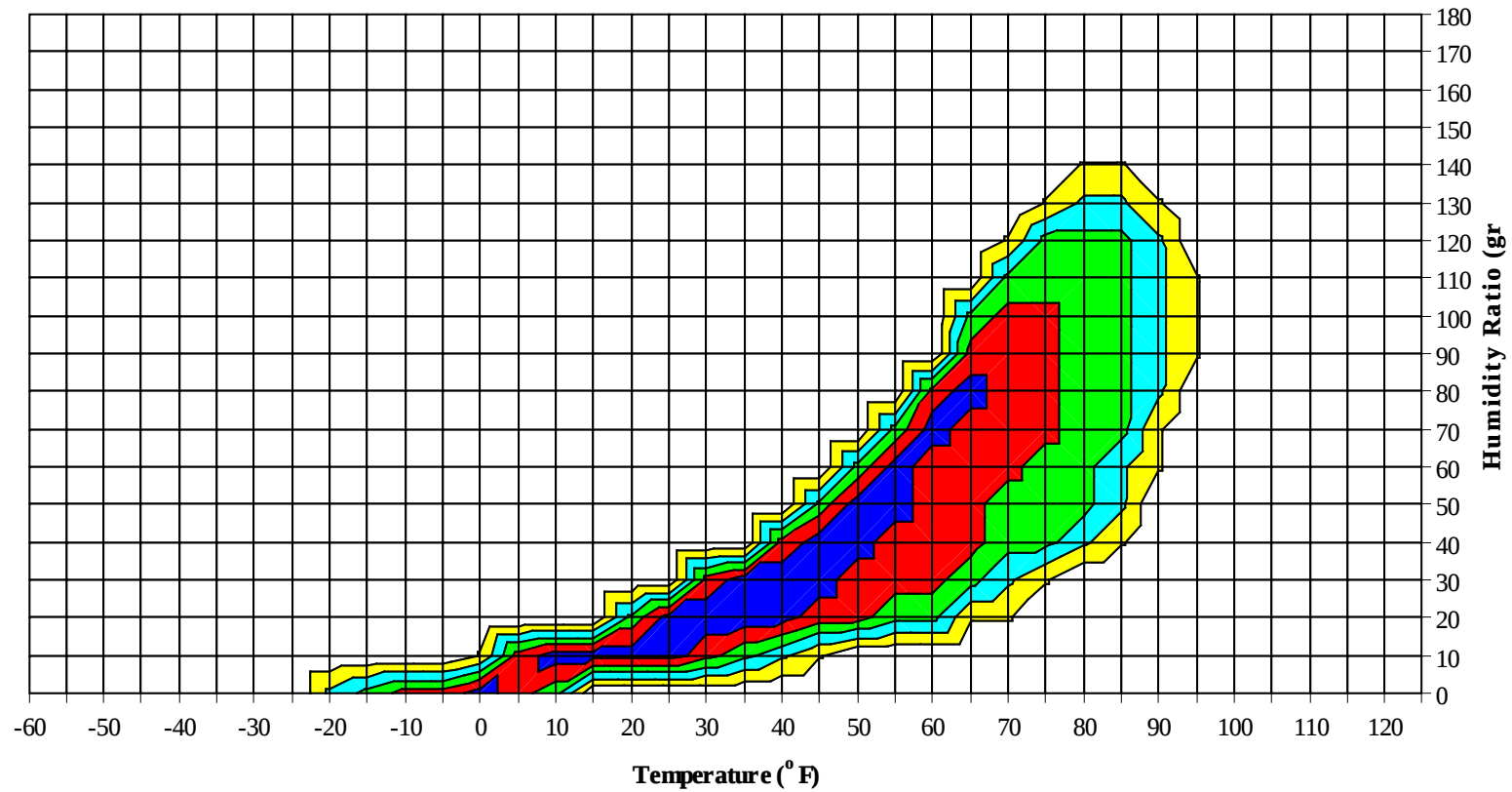
Average Annual Climate



SIOUX FALLS SD

WMO No. 726510

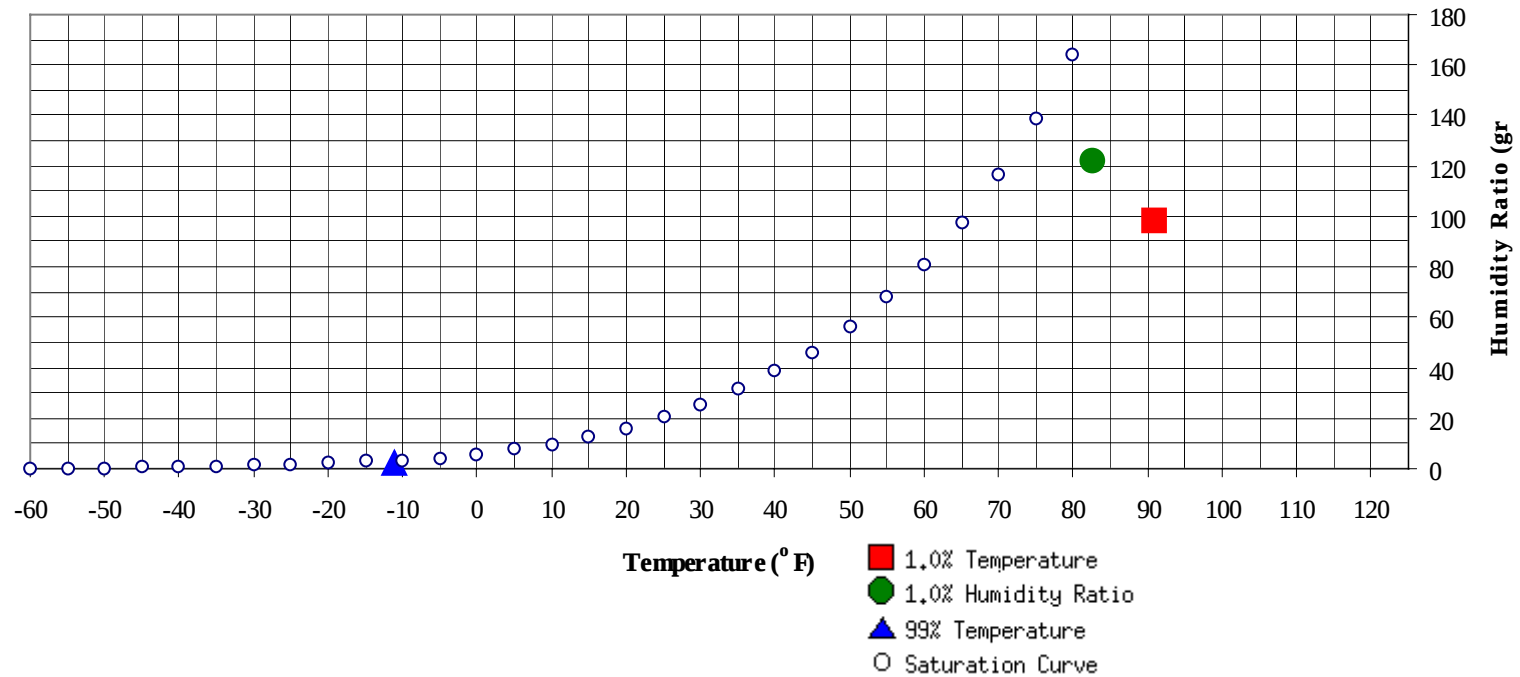
Long Term Psychrometric Summary



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

SIOUX FALLS SD

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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	-11	2	-2.3		122.5	82.7	74.3	71.1	39.1

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	91	98.3	72.7	37.3

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WMO No. 726510

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		
105 / 109															
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84												0	0	0	59.3
75 / 79												1	0	1	56.5
70 / 74							0		0	57.5		2	1	3	55.7
65 / 69		0		0	48.0		0	0	0	51.1		0	3	2	53.2
60 / 64		0	0	0	47.5		1	0	2	46.8		0	8	4	50.1
55 / 59		1	0	1	44.0		3	1	3	45.3		1	11	7	47.1
50 / 54		2	0	2	42.0	0	5	2	8	42.8		4	17	13	44.8
45 / 49	0	4	1	5	38.7	0	9	4	14	40.0		7	25	20	41.1
40 / 44	1	9	4	13	35.9	3	16	10	30	37.0		14	36	33	37.6
35 / 39	6	19	19	44	33.3	13	25	26	65	33.8		42	44	47	34.0
30 / 34	23	28	29	80	29.8	33	32	39	104	30.2		58	39	47	30.1
25 / 29	31	31	33	95	25.4	35	27	30	92	25.5		42	22	30	25.2
20 / 24	35	32	31	98	20.7	32	25	26	83	20.5		31	18	20	20.3
15 / 19	29	28	26	83	15.8	25	24	23	72	15.7		19	8	10	15.7
10 / 14	26	25	23	73	10.7	19	17	17	54	10.7		10	6	7	10.7
5 / 9	20	19	24	64	5.9	14	14	16	45	5.8		7	3	5	6.2
0 / 4	20	20	20	60	0.9	17	11	12	40	1.1		6	2	2	1.2
-5 / -1	14	10	11	36	-3.3	9	5	5	19	-3.3		2	1	1	-3.0
-10 / -6	16	10	13	40	-7.7	9	4	6	18	-7.7		2	0	1	-7.7
-15 / -11	14	5	10	29	-12.4	7	2	4	13	-12.2		1			-11.6
-20 / -16	8	2	3	14	-17.0	3	1	2	6	-16.7					
-25 / -21	3	1	1	6	-21.3	3	0	0	3	-21.6					
-30 / -26	1	0		1	-26.3	1	0	0	1	-26.1					

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 FALLS SD

WMO No. 726510

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		
105 / 109												0	0	0	74.2
100 / 104												1	0	1	73.0
95 / 99												2	1	4	72.7
90 / 94		1	0	1	63.8		1	0	1	66.5		12	5	17	71.1
85 / 89		2	1	3	62.4		7	3	10	66.3	0	25	16	41	69.8
80 / 84		4	2	6	60.8		16	8	24	65.0	2	40	27	69	67.3
75 / 79	0	7	5	12	59.1	0	31	18	49	62.0	12	50	39	102	65.2
70 / 74	0	13	8	22	56.4	5	43	29	77	59.5	29	47	43	119	62.8
65 / 69	2	17	12	31	54.0	18	42	34	93	57.1	48	33	42	122	60.4
60 / 64	7	25	19	51	51.0	36	39	43	118	54.6	57	19	35	110	57.5
55 / 59	11	31	24	66	47.7	43	31	40	114	51.3	45	8	20	73	53.4
50 / 54	20	36	32	88	44.8	50	23	34	107	47.7	28	2	9	39	49.1
45 / 49	31	35	37	102	41.9	44	11	23	78	43.7	14	1	3	17	45.1
40 / 44	42	27	39	107	38.3	29	4	11	44	39.4	5	0	0	5	41.0
35 / 39	49	22	31	102	34.3	17	1	4	22	34.7	1			1	37.7
30 / 34	43	12	21	76	30.2	6	0	0	7	30.2					
25 / 29	23	4	8	34	25.4	1			1	26.0					
20 / 24	8	1	2	11	20.7										
15 / 19	3	1	1	4	15.8										
10 / 14	1	0	0	2	11.3										
5 / 9	0			0	7.7										
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															

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SIOUX FALLS SD

WMO No. 726510

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		
105 / 109		0	0	1	73.5		0		0	69.0					
100 / 104		2	1	3	73.9		1	0	1	73.3		0	0	0	69.0
95 / 99		11	4	15	74.6		4	1	6	74.0		1	0	1	71.1
90 / 94		24	12	36	73.2		15	6	22	74.2		4	1	6	70.4
85 / 89	0	40	27	68	71.6	0	31	17	48	72.1		12	5	17	68.9
80 / 84	9	53	39	100	69.3	3	49	32	85	69.8	0	20	11	31	67.5
75 / 79	28	54	50	133	67.1	17	54	47	118	67.7	2	29	20	51	64.9
70 / 74	50	37	48	134	65.3	43	48	55	146	65.5	15	36	28	79	62.3
65 / 69	65	18	39	121	62.6	63	28	44	135	62.5	23	40	33	96	59.4
60 / 64	56	6	21	83	59.2	57	11	27	95	58.7	29	41	38	108	56.0
55 / 59	29	1	6	36	55.1	39	4	14	58	54.5	46	29	41	115	52.6
50 / 54	10		1	11	50.8	19	0	5	24	50.4	47	18	32	97	48.5
45 / 49	2			2	46.6	7	0	1	7	46.0	38	7	18	63	44.3
40 / 44						1	0	0	1	42.5	22	3	8	33	40.1
35 / 39											12	1	4	16	35.7
30 / 34											5	0	2	6	30.8
25 / 29											1			1	26.7
20 / 24											0			0	23.0
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															

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SIOUX FALLS SD

WMO No. 726510

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		
105 / 109															
100 / 104															
95 / 99															
90 / 94															
85 / 89		1	0	1	62.8										
80 / 84		4	1	5	61.3										
75 / 79		8	2	10	59.6		0		0	55.3					
70 / 74	0	15	6	21	57.7		1		1	55.2					
65 / 69	1	22	12	36	54.8		2	0	3	52.3					
60 / 64	8	34	22	65	52.7	0	7	1	9	51.1					
55 / 59	17	39	33	90	49.6	2	12	6	21	49.0	0	1	0	1	50.4
50 / 54	27	41	39	107	46.1	5	18	11	33	44.8	0	2	0	2	43.2
45 / 49	41	35	44	120	42.6	9	23	16	47	41.1	0	6	1	7	39.9
40 / 44	44	26	36	106	38.5	16	26	23	66	37.7	2	13	4	19	36.8
35 / 39	44	13	27	84	34.1	27	35	36	99	33.7	9	23	17	49	33.5
30 / 34	35	6	18	59	30.0	48	41	49	137	29.8	27	38	42	107	30.0
25 / 29	18	2	7	27	25.3	47	32	38	117	25.4	38	40	42	120	25.4
20 / 24	9	1	2	11	21.2	36	19	26	80	20.7	47	36	39	122	20.8
15 / 19	2	0	0	3	16.3	22	10	16	48	16.1	31	25	27	83	16.0
10 / 14	0		0	0	13.1	13	7	7	27	11.1	23	19	21	63	10.9
5 / 9						7	3	4	15	6.5	20	15	17	52	6.1
0 / 4						3	2	4	9	1.5	20	11	13	45	1.2
-5 / -1						2	1	2	5	-2.8	8	6	8	22	-3.2
-10 / -6						3	0	1	4	-7.1	11	6	8	25	-7.6
-15 / -11						0			0	-11.0	5	4	5	14	-12.1
-20 / -16											4	1	3	8	-17.0
-25 / -21											2	1	1	4	-21.4
-30 / -26											1	0	0	1	-25.4

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SIOUX FALLS SD

WMO No. 726510

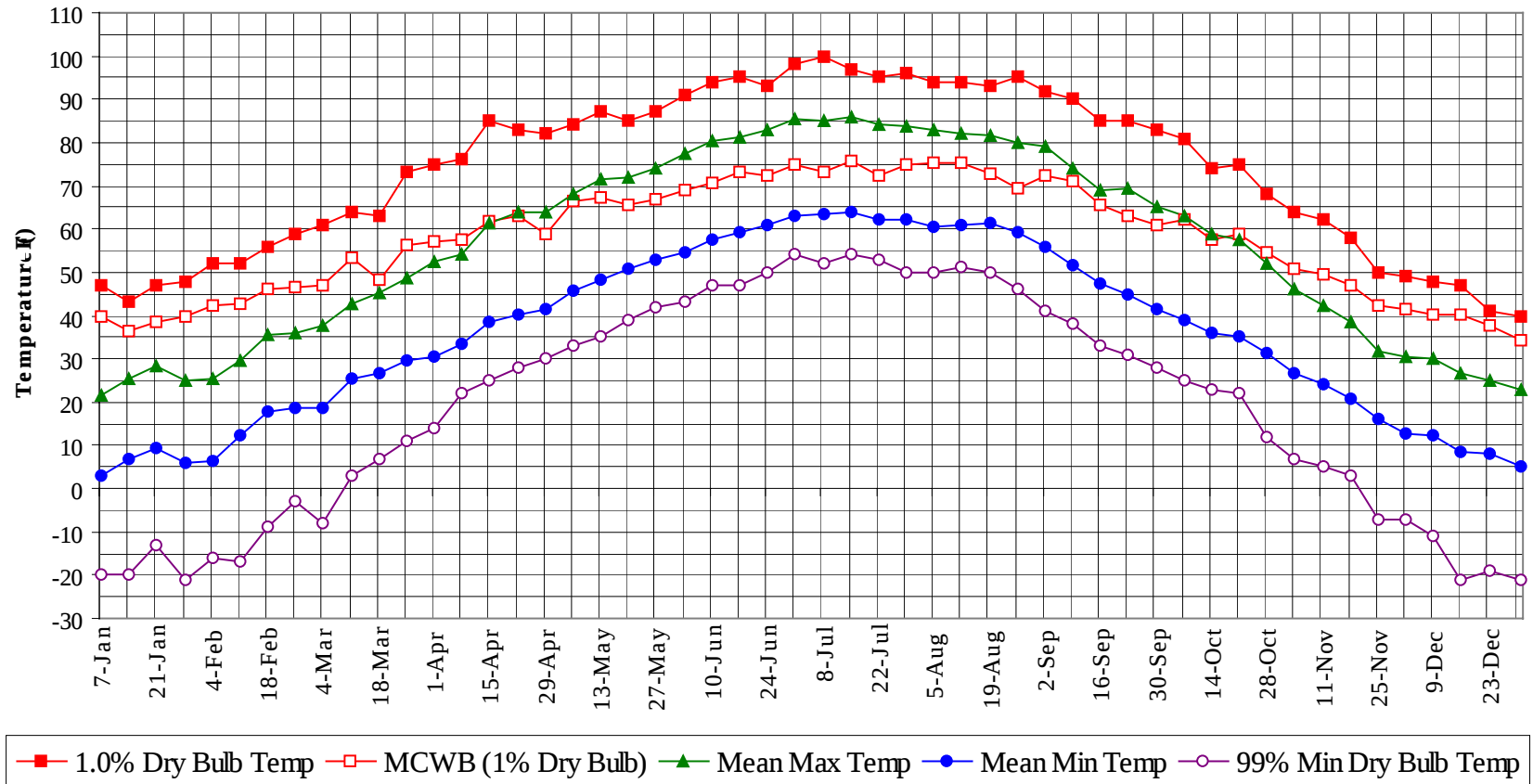
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

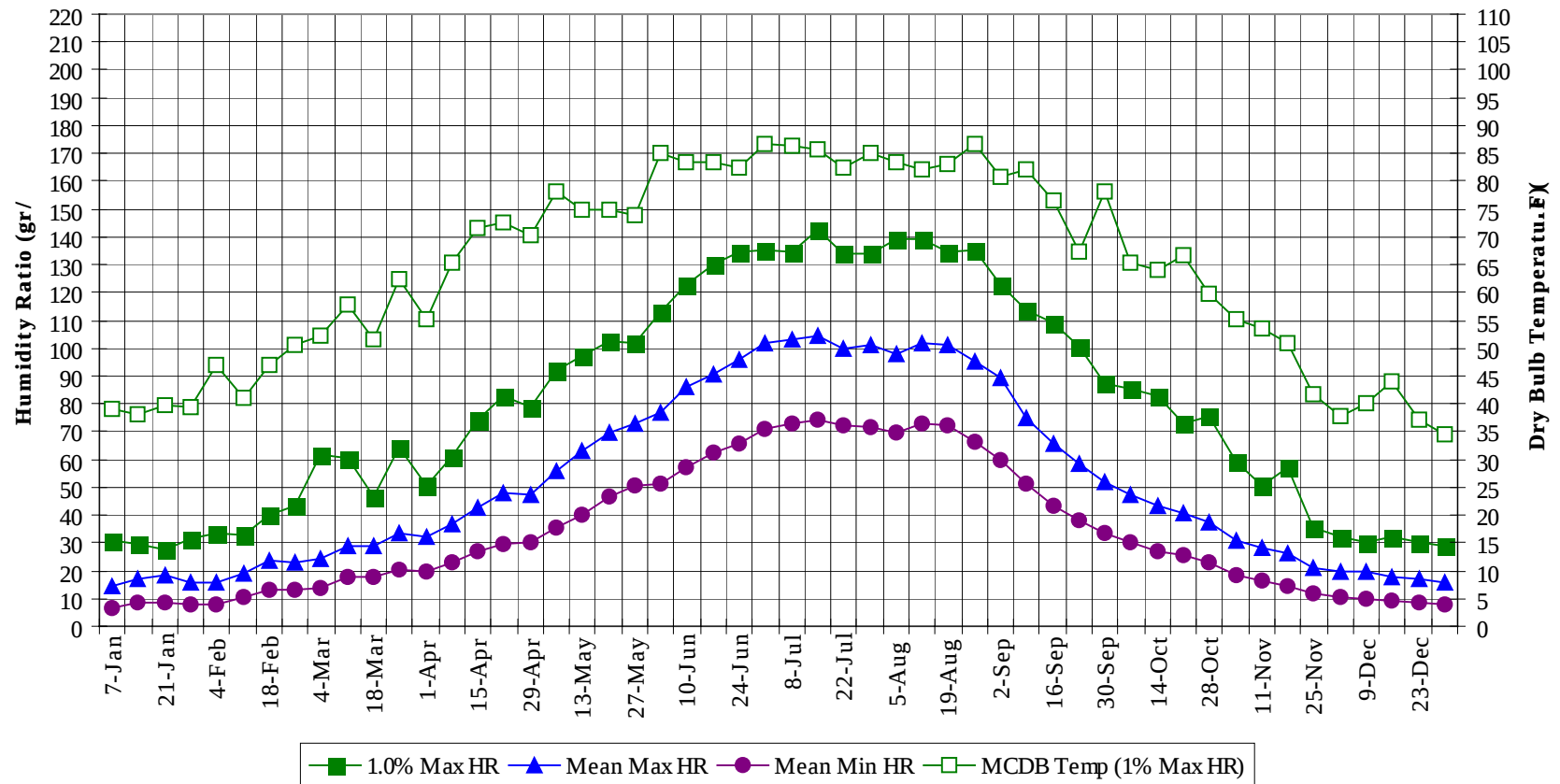
Temperature Range (°F)	Annual Totals				
	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
105 / 109		1	0	1	73.3
100 / 104		4	2	5	73.5
95 / 99		18	7	26	74.1
90 / 94		57	25	82	72.7
85 / 89	1	118	69	188	70.6
80 / 84	14	187	120	321	68.2
75 / 79	60	234	182	475	65.7
70 / 74	142	241	217	601	63.1
65 / 69	220	204	218	643	59.9
60 / 64	251	188	212	651	55.9
55 / 59	234	170	192	596	51.4
50 / 54	209	164	176	549	46.9
45 / 49	191	154	166	512	42.5
40 / 44	177	159	168	505	38.2
35 / 39	219	182	211	612	34.0
30 / 34	277	196	246	719	30.0
25 / 29	236	159	189	583	25.4
20 / 24	198	133	147	478	20.7
15 / 19	132	97	104	333	15.8
10 / 14	93	75	75	242	10.8
5 / 9	70	56	68	194	6.0
0 / 4	67	47	51	165	1.1
-5 / -1	36	22	27	85	-3.2
-10 / -6	40	21	29	91	-7.6
-15 / -11	29	11	19	58	-12.2
-20 / -16	16	4	8	28	-16.9
-25 / -21	8	2	3	13	-21.4
-30 / -26	2	0	0	3	-26.0

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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



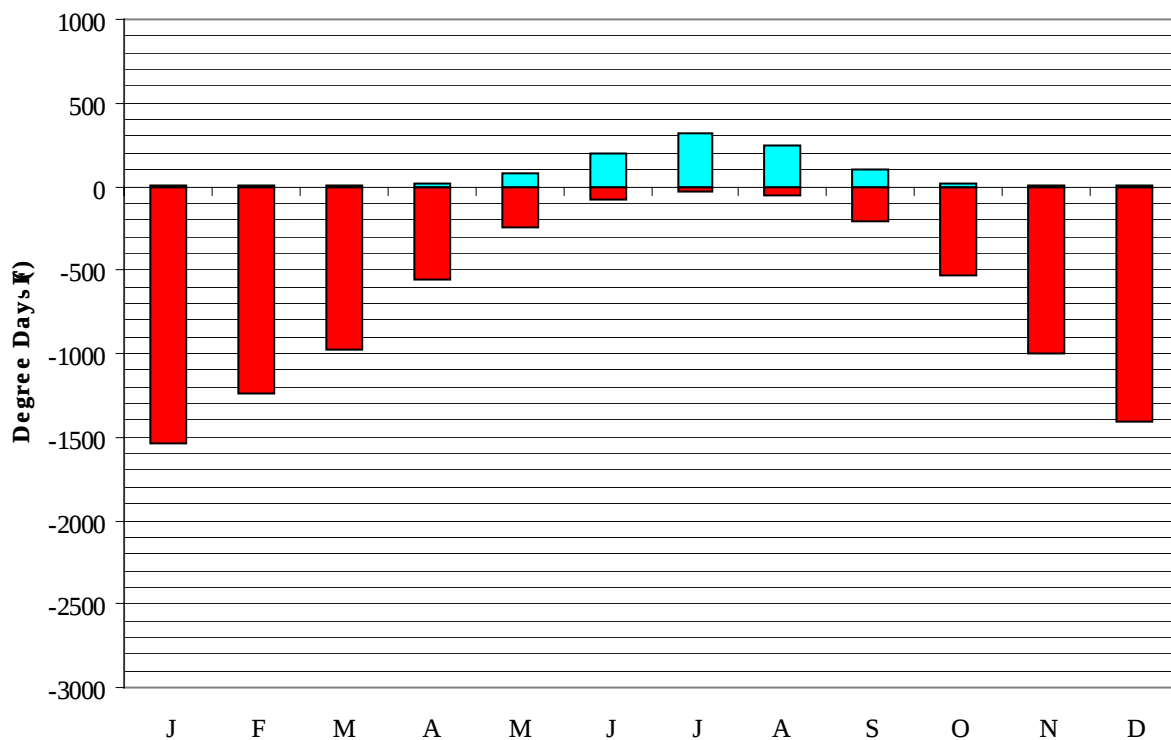
SIOUX FALLS SD**WMO No. 726510****Long Term Dry Bulb Temperature and Humidity Summary**

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	47.0	39.7	21.4	2.9	-20.0	30.8	39.2	14.2	6.8
14-Jan	43.0	36.3	25.6	6.9	-20.0	29.4	38.2	17.2	8.3
21-Jan	47.0	38.6	28.3	9.2	-13.0	27.3	39.6	18.2	8.4
28-Jan	48.0	40.0	24.9	6.0	-21.0	31.5	39.4	16.0	8.2
4-Feb	52.0	42.2	25.3	6.6	-16.0	33.6	47.0	15.8	7.9
11-Feb	52.0	42.8	29.7	12.3	-17.0	32.9	41.0	19.3	10.7
18-Feb	56.0	46.3	35.6	17.6	-9.0	39.9	46.9	23.6	13.1
25-Feb	59.0	46.6	36.1	18.5	-3.0	43.4	50.7	23.0	13.4
4-Mar	61.0	46.8	37.7	18.7	-8.0	61.6	52.2	24.3	13.8
11-Mar	64.0	53.2	42.6	25.5	3.0	60.2	57.8	29.1	17.9
18-Mar	63.0	48.1	45.5	26.5	7.0	46.9	51.5	28.7	17.9
25-Mar	73.0	56.4	48.6	29.6	11.0	64.4	62.3	33.4	20.5
1-Apr	75.0	57.1	52.4	30.3	14.0	50.4	55.1	31.9	19.6
8-Apr	76.0	57.6	54.2	33.7	22.0	60.9	65.4	36.5	23.2
15-Apr	85.0	61.8	61.4	38.5	25.0	74.2	71.4	43.0	27.2
22-Apr	83.0	63.0	63.9	40.1	28.0	82.6	72.7	47.8	29.6
29-Apr	82.0	58.7	64.0	41.4	30.0	79.1	70.3	47.5	30.0
6-May	84.0	66.3	68.2	45.8	33.0	91.7	78.1	56.1	35.2
13-May	87.0	67.2	71.4	48.1	35.0	97.3	74.9	63.0	40.0
20-May	85.0	65.7	72.1	50.9	39.0	102.2	74.7	69.5	47.0
27-May	87.0	66.8	74.0	52.7	42.0	101.5	73.8	73.0	50.3
3-Jun	91.0	69.1	77.5	54.6	43.0	112.7	85.1	76.9	50.9
10-Jun	94.0	70.7	80.5	57.4	47.0	122.5	83.4	85.9	57.3
17-Jun	95.0	73.3	81.0	59.3	47.0	130.2	83.3	90.7	62.7
24-Jun	93.0	72.5	83.1	60.8	50.0	134.4	82.4	96.0	65.9
1-Jul	98.0	74.9	85.4	63.0	54.0	135.1	86.6	101.5	70.8
8-Jul	100.0	73.3	85.2	63.4	52.0	134.4	86.3	103.0	72.7
15-Jul	97.0	75.9	86.1	64.1	54.0	142.8	85.7	104.1	74.4
22-Jul	95.0	72.3	84.1	62.4	53.0	133.7	82.3	100.1	72.3
29-Jul	96.0	75.1	84.0	62.1	50.0	133.7	84.9	100.9	71.7
5-Aug	94.0	75.4	83.1	60.5	50.0	139.3	83.4	97.6	69.9
12-Aug	94.0	75.3	82.1	61.1	51.0	139.3	82.1	101.8	72.9
19-Aug	93.0	72.7	81.8	61.2	50.0	134.4	83.2	101.3	72.0
26-Aug	95.0	69.4	79.9	59.3	46.0	135.1	86.7	95.3	66.4
2-Sep	92.0	72.2	79.0	55.9	41.0	122.5	80.9	89.1	59.6
9-Sep	90.0	70.9	73.9	51.8	38.0	113.4	82.1	75.1	51.5
16-Sep	85.0	65.8	68.9	47.3	33.0	109.2	76.7	65.8	43.5
23-Sep	85.0	62.9	69.2	44.7	31.0	100.8	67.4	58.2	37.8
30-Sep	83.0	61.0	65.2	41.5	28.0	87.5	78.1	52.0	33.3
7-Oct	81.0	62.1	63.0	39.0	25.0	85.4	65.5	47.0	30.0
14-Oct	74.0	57.8	58.9	36.1	23.0	82.6	64.0	43.3	27.1
21-Oct	75.0	58.8	57.5	35.1	22.0	72.8	66.8	40.8	25.5
28-Oct	68.0	54.6	52.0	31.2	12.0	75.6	59.8	37.3	22.8
4-Nov	64.0	50.9	46.1	26.8	7.0	58.8	55.1	30.7	18.4
11-Nov	62.0	49.4	42.4	24.3	5.0	50.4	53.5	27.9	16.6
18-Nov	58.0	46.8	38.6	21.0	3.0	57.4	51.0	26.1	14.6
25-Nov	50.0	42.1	31.8	15.9	-7.0	35.7	41.8	21.3	11.9
2-Dec	49.0	41.3	30.5	12.8	-7.0	32.2	37.6	19.9	10.4
9-Dec	48.0	40.4	29.9	12.5	-11.0	30.1	40.0	19.5	10.2
16-Dec	47.0	40.4	26.5	8.6	-21.0	32.2	44.0	17.7	9.1
23-Dec	41.0	37.5	25.2	8.2	-19.0	30.1	37.1	17.2	8.8
31-Dec	40.0	34.4	22.7	5.3	-21.0	28.7	34.4	15.5	8.1

SIOUX FALLS SD

WMO No. 726510

Degree Days, Heating and Cooling (Base 65°F)



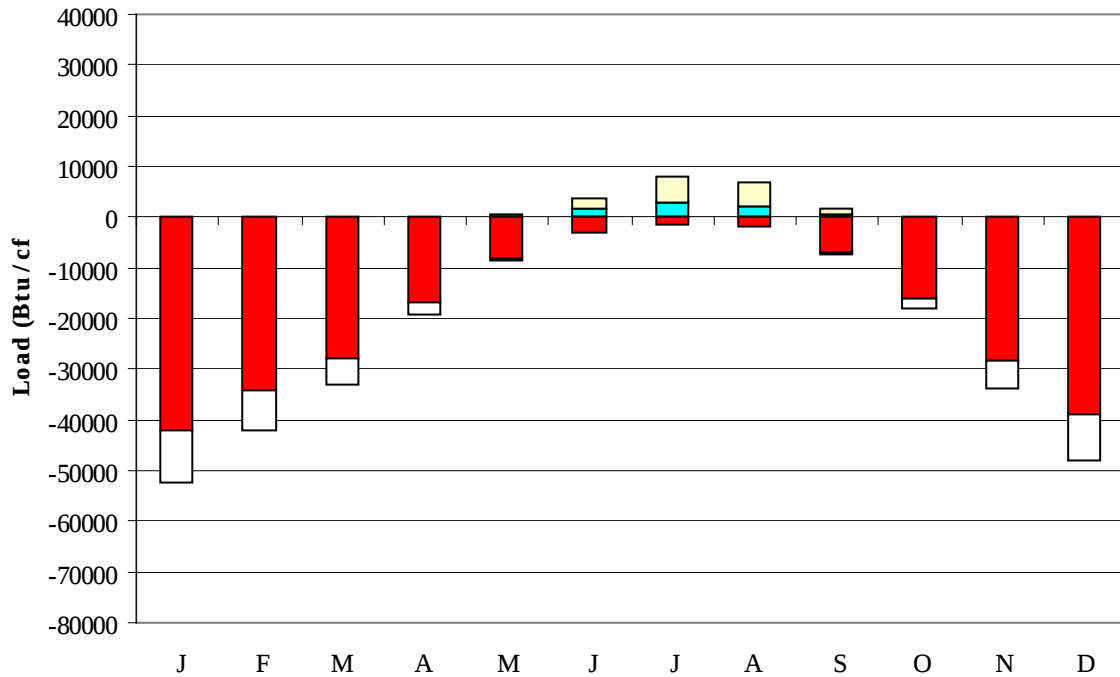
■ Mean Cooling Degree Days ■ Mean Heating Degree Days

	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1533
FEB	0	1234
MAR	2	980
APR	21	562
MAY	77	247
JUN	203	76
JUL	314	27
AUG	248	48
SEP	98	210
OCT	17	537
NOV	0	997
DEC	0	1413
ANN	981	7864

SIOUX FALLS SD

WMO No. 726510

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 (Drying) Load ■ Average Latent Heating (Humidifying) Load

	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	-42155	0	-10087
FEB	0	-34185	0	-7869
MAR	4	-27794	0	-5400
APR	114	-16722	4	-2475
MAY	382	-8150	260	-489
JUN	1611	-2924	2224	-5
JUL	2990	-1271	4871	0
AUG	2004	-1992	4880	-2
SEP	641	-7011	1171	-220
OCT	62	-16137	23	-2043
NOV	0	-28173	0	-5768
DEC	0	-39030	0	-9062
ANN	7808	-225544	13433	-43420

Average Annual Solar Radiation – Nearest Available Site

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

City: SIOUX FALLS
 State: SD
 WBAN No: 14944
 Lat(N): 43.57
 Long(W): 96.73
 Elev(ft): 1427

Stn Type: Secondary
 SHADING GEOMETRY IN DIMENSIONLESS UNITS

Window: 1
 Overhang: 0.636
 Vert Gap: 0.33

AVERAGE INCIDENT SOLAR RADIATION (Btu/sq.ft./day), Percentage Uncertainty = 9		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
HORIZ	Global	590	860	1200	1530	1840	2060	2090	1800	1380	970	610	480	1290
	Std Dev	36	63	105	154	142	128	106	124	142	86	51	32	45
	Minimum	520	700	1020	1110	1410	1780	1880	1580	1040	770	460	430	1200
	Maximum	650	1020	1510	1790	2070	2330	2320	2090	1630	1120	690	550	1380
	Diffuse	290	410	560	660	770	790	730	650	520	390	300	250	530
Clear Day	Global	770	1130	1640	2160	2520	2660	2570	2250	1770	1240	820	660	1690
NORTH	Global	180	260	350	430	550	640	600	470	360	260	190	160	370
	Diffuse	180	260	340	420	490	530	510	440	350	260	190	160	350
Clear Day	Global	160	220	310	420	590	700	640	450	330	240	160	140	360
EAST	Global	420	570	760	920	1070	1130	1180	1050	870	650	420	340	780
	Diffuse	230	320	430	510	590	630	610	540	440	330	230	190	420
Clear Day	Global	630	850	1120	1360	1500	1540	1500	1370	1170	900	650	560	1100
SOUTH	Global	1090	1180	1160	1040	930	890	950	1070	1180	1220	990	940	1050
	Diffuse	340	430	500	530	570	580	570	550	480	410	330	300	470
Clear Day	Global	1890	2000	1890	1540	1210	1060	1110	1350	1710	1900	1850	1790	1610
WEST	Global	430	580	750	930	1070	1210	1220	1090	880	660	430	350	800
	Diffuse	230	320	430	510	600	640	620	550	440	330	240	200	430
Clear Day	Global	630	850	1120	1360	1500	1540	1500	1370	1170	900	650	560	1100

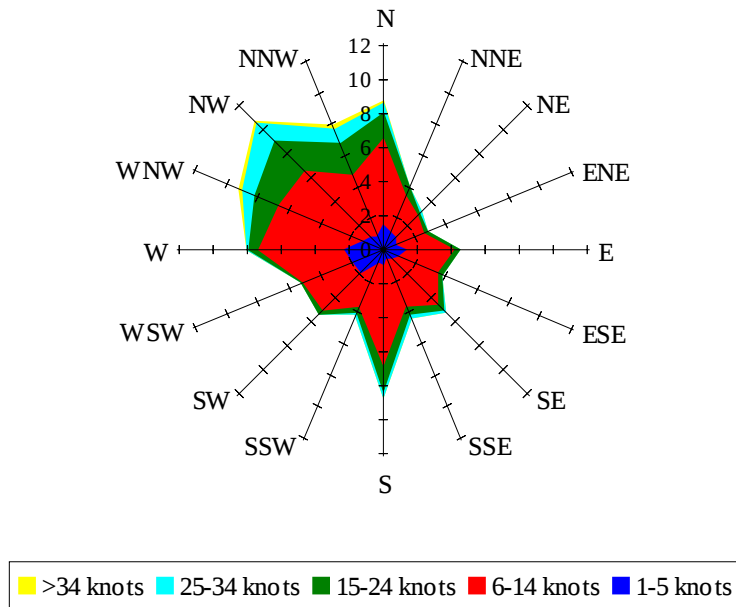
Average Annual Solar Heat and Illumination – Nearest Available Site

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

AVERAGE TRANSMITTED SOLAR RADIATION (Btu/sq.ft./day) FOR DOUBLE GLAZING, Percentage Uncertainty = 9		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
HORIZ	Unshaded	370	570	840	1090	1330	1500	1520	1300	980	660	390	300	910
NORTH	Unshaded	130	180	240	290	360	410	390	310	250	180	130	110	250
	Shaded	110	150	210	250	310	360	340	280	220	160	110	92	220
EAST	Unshaded	290	400	540	660	760	810	840	750	620	460	290	230	550
	Shaded	250	340	450	550	630	660	690	620	520	390	250	200	460
SOUTH	Unshaded	830	870	820	690	590	540	580	690	810	890	750	710	730
	Shaded	800	800	620	410	340	350	350	370	550	760	710	690	560
WEST	Unshaded	300	410	540	660	760	860	870	780	630	460	300	240	570
	Shaded	260	350	450	550	630	710	720	650	530	400	260	210	480

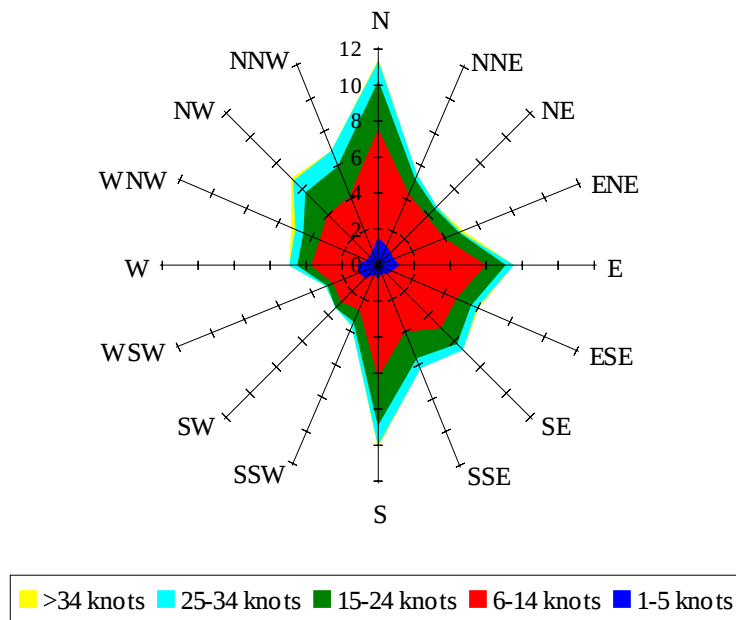
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9		March					June				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	29	63	77	65	32	41	77	98	97	75
	M.Cloudy	18	40	50	42	22	26	51	68	71	55
NORTH	M.Clear	8	13	14	13	9	19	15	17	17	15
	M.Cloudy	7	14	17	15	9	13	16	19	19	16
EAST	M.Clear	69	63	17	13	9	76	77	41	17	15
	M.Cloudy	24	32	18	15	9	33	44	31	19	16
SOUTH	M.Clear	33	71	88	75	37	11	31	51	51	30
	M.Cloudy	14	35	46	37	17	10	24	37	39	25
WEST	M.Clear	8	13	14	59	70	11	15	17	42	77
	M.Cloudy	7	14	17	31	28	10	16	19	34	51
M.Clear	(% hrs)	32	32	30	31	30	39	41	39	39	41
		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	19	57	79	77	52	5	31	40	28	3
	M.Cloudy	11	34	48	49	32	4	19	26	18	3
NORTH	M.Clear	7	12	15	15	12	3	8	10	8	2
	M.Cloudy	5	13	16	16	12	2	8	10	7	1
EAST	M.Clear	57	74	37	15	12	21	41	10	8	2
	M.Cloudy	16	32	24	16	12	5	16	10	7	1
SOUTH	M.Clear	15	54	78	76	48	18	73	88	69	10
	M.Cloudy	7	26	39	41	25	5	24	34	23	3
WEST	M.Clear	7	12	15	43	74	3	8	12	44	13
	M.Cloudy	5	13	16	28	34	2	8	11	17	4
M.Clear	(% hrs)	48	48	46	44	47	32	32	32	32	35

Wind Summary - December, January, and February **Labels of Percent Frequency on North Axis**



Percent Calm = 5.66

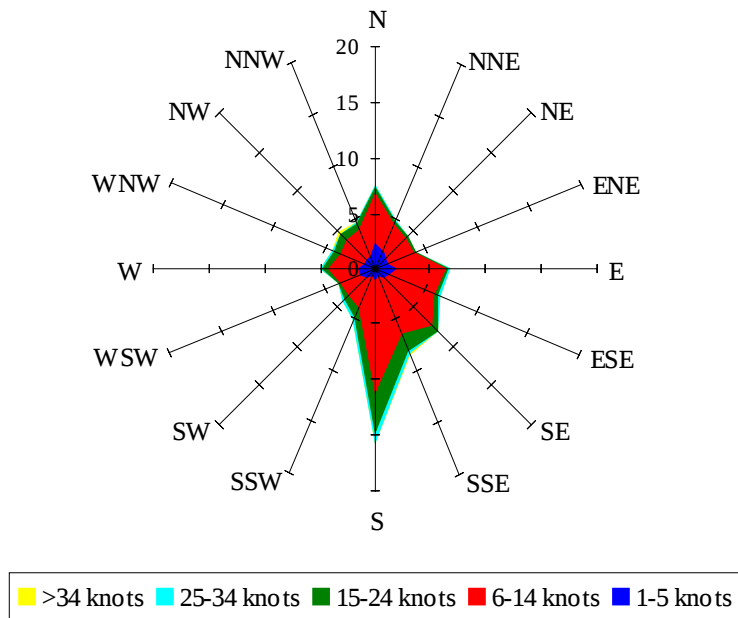
Wind Summary - March, April, and May **Labels of Percent Frequency on North Axis**



Percent Calm = 4.56

Wind Summary - June, July, and August

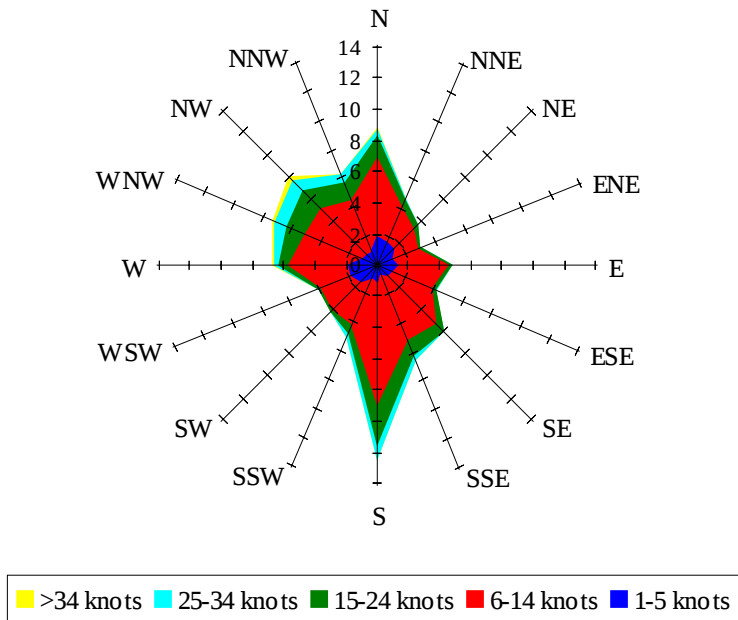
Labels of Percent Frequency on North Axis



Percent Calm = 5.20

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 5.83