

PIERRE SD	
Latitude = 44.38 N	WMO No. 726686
Longitude = 100.20 W	Elevation = 1742 feet
Period of Record = 1973 to 1996	Average Pressure = 28.10 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	105	71	69	14.2	S
0.4% Occurrence	99	70	72	14.3	S
1.0% Occurrence	95	70	77	13.5	S
2.0% Occurrence	91	69	76	13.0	S
Mean Daily Range	23	-	-	-	-
97.5% Occurrence	-1	-2	4	12.0	NW
99.0% Occurrence	-8	-9	2	10.1	NW
99.6% Occurrence	-14	-14	2	10.2	NW
Median of Extreme Lows	-20	-20	1	10.1	NW
	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	78	93	128	14.3	ESE
0.4% Occurrence	74	90	107	12.7	SE
1.0% Occurrence	73	89	103	12.8	SE
2.0% Occurrence	71	86	96	12.6	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	133	84	0.82	11.6	ESE
0.4% Occurrence	118	81	0.74	11.4	SE
1.0% Occurrence	111	80	0.69	11.7	SE
2.0% Occurrence	103	78	0.65	11.5	ESE
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		147	783	101	652

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	3.3	90	0.5 + 0.9
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 (#)
49.7	114	35	83

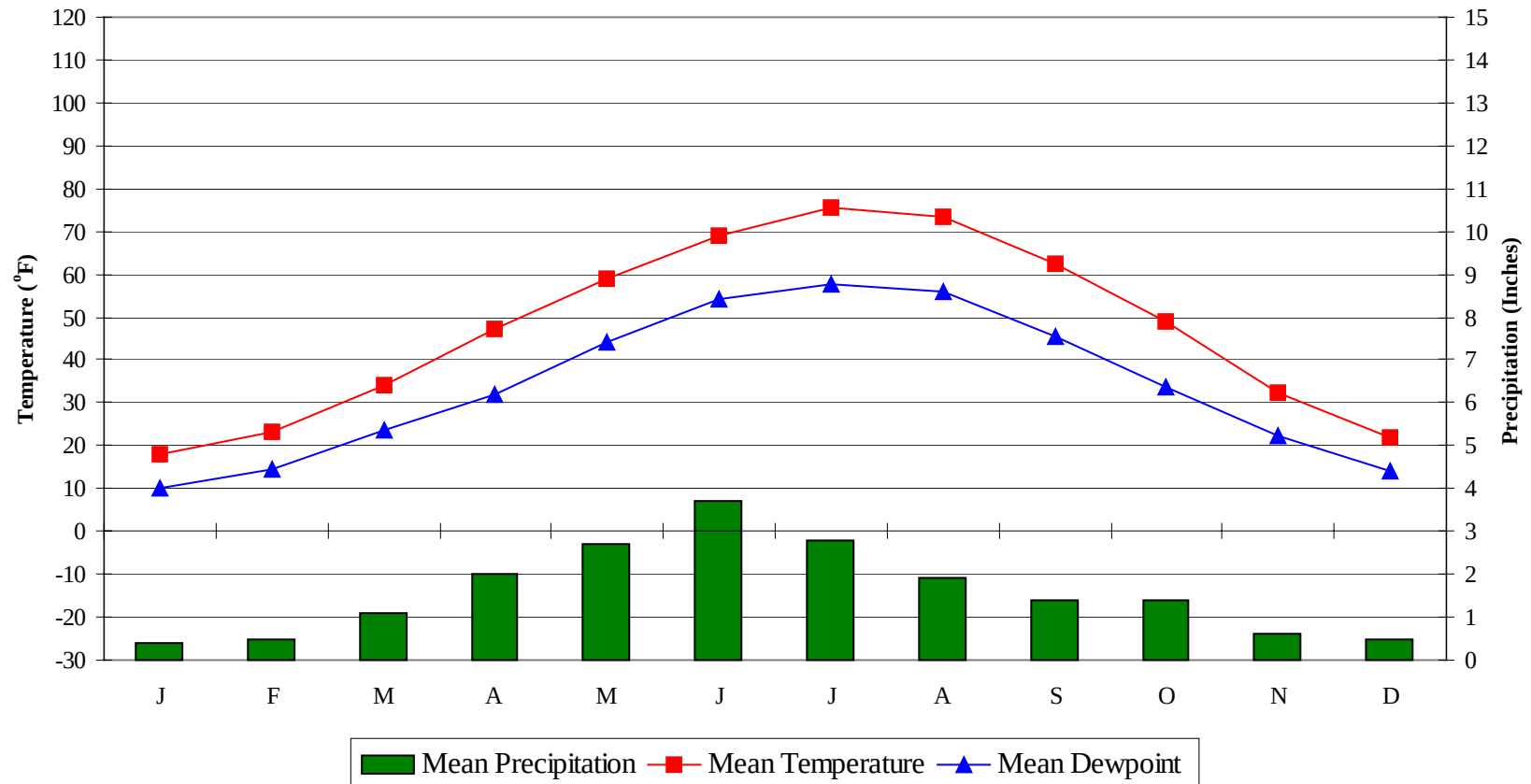
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.

PIERRE

SD

WMO No. 726686

Average Annual Climate

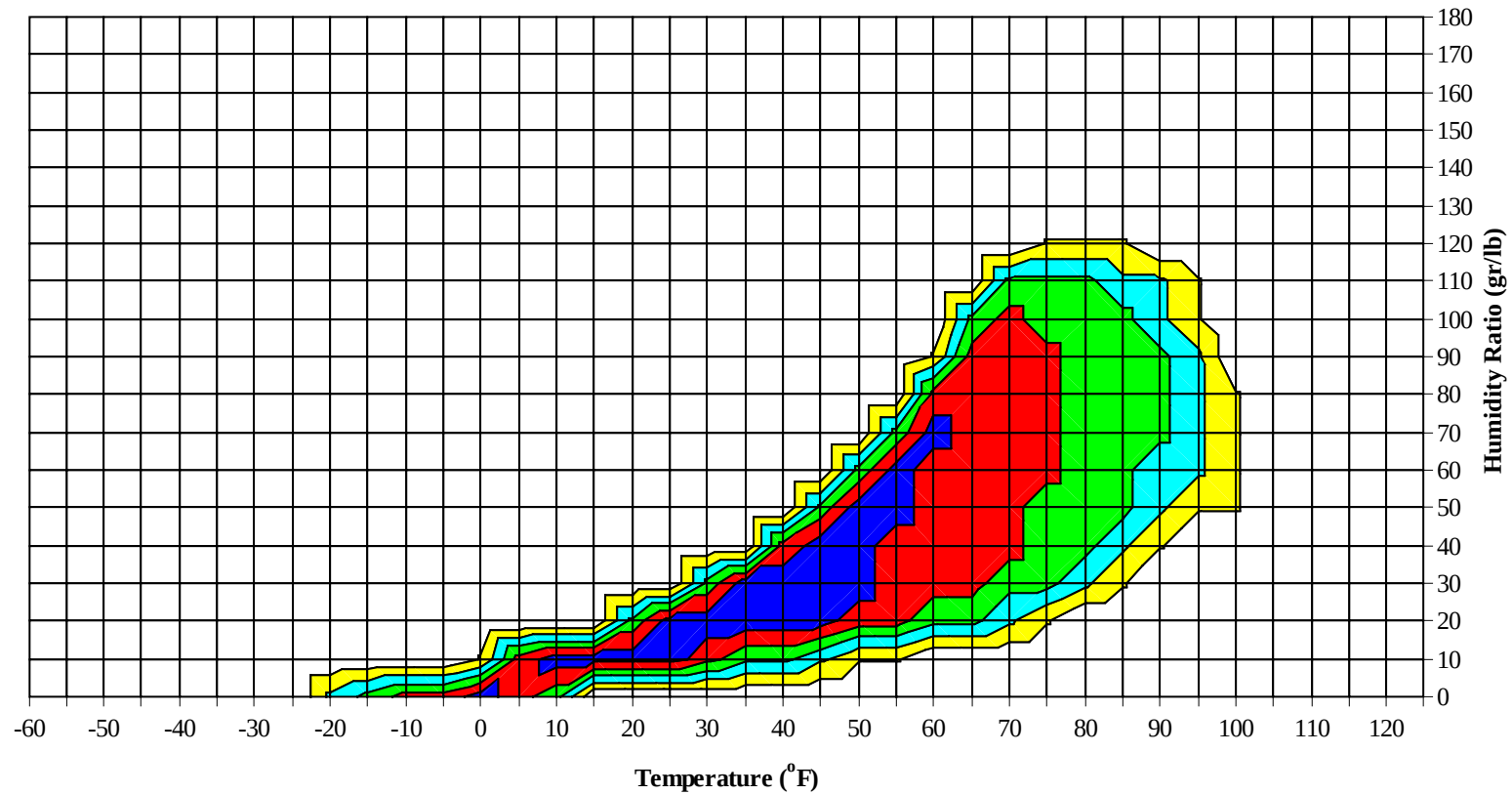


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SD

WMO No. 726686

Long Term Psychrometric Summary

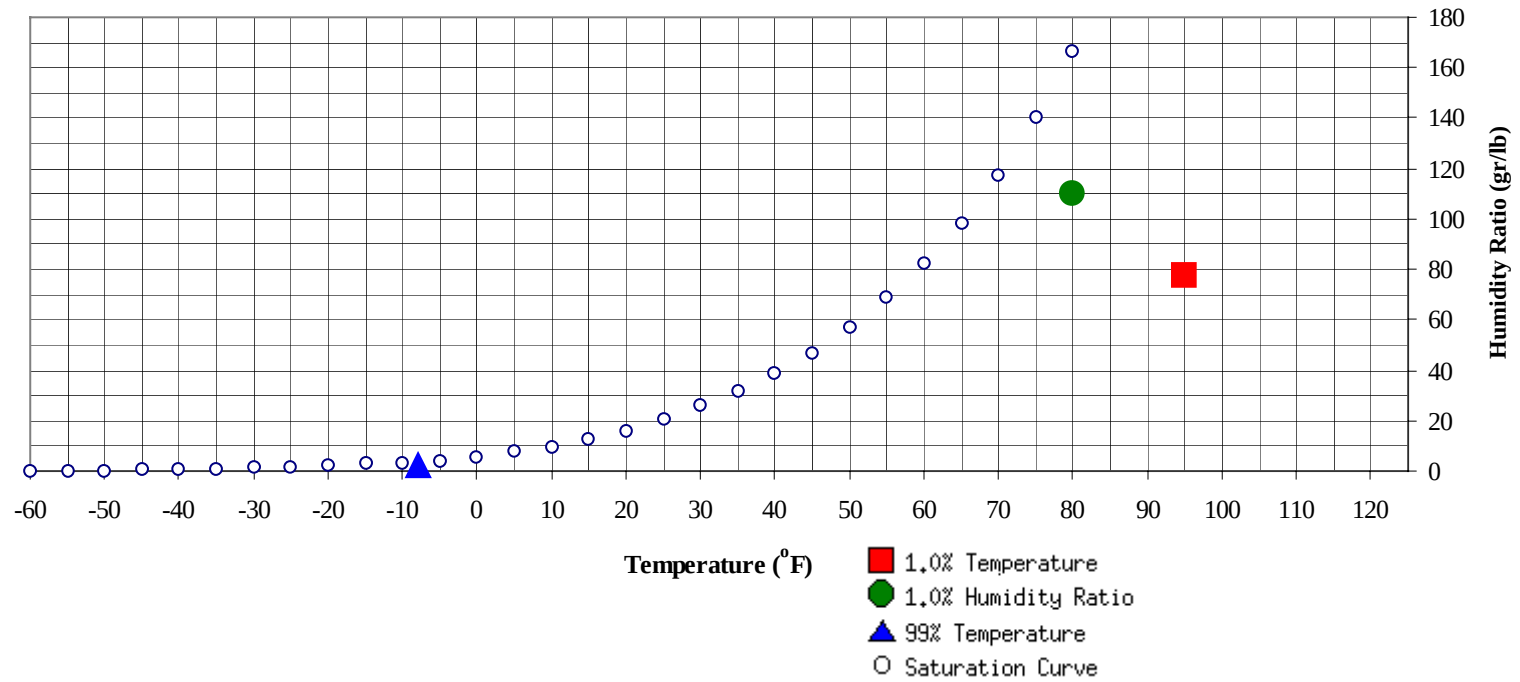


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

PIERRE SD

WMO No. 726686

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	-8	2.5	-1.5		110.6	80	71.5	68	36.5

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	95	77.5	70	35.0

PIERRE

SD

WMO No. 726686

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		
110 / 114															
105 / 109															
100 / 104															
95 / 99															
90 / 94															
85 / 89												0		0	55.3
80 / 84												0	0	0	57.3
75 / 79												1	0	1	55.1
70 / 74							0		0	52.1		3	0	3	53.4
65 / 69		0		0	47.3		1	0	1	48.4		6	1	7	50.5
60 / 64		1		1	46.0		3	0	3	45.9	0	11	3	14	47.6
55 / 59		2	0	2	43.3		7	1	8	43.9	1	16	6	23	44.9
50 / 54	0	4	0	4	40.9		11	2	13	41.5	2	24	11	37	42.6
45 / 49	1	9	2	12	38.7	0	15	6	21	38.6	7	31	21	59	39.9
40 / 44	4	21	9	34	36.0	6	21	14	41	36.1	20	36	35	91	37.1
35 / 39	11	25	24	60	32.8	18	24	30	72	33.0	42	39	48	129	33.6
30 / 34	24	29	30	83	29.0	34	28	37	99	29.3	60	30	50	140	29.8
25 / 29	32	28	31	91	25.0	38	24	30	92	25.2	43	17	27	87	25.0
20 / 24	34	24	29	87	20.5	27	22	21	70	20.5	29	14	19	62	20.5
15 / 19	30	23	24	77	15.7	20	18	18	56	15.6	18	8	11	37	15.7
10 / 14	24	20	21	65	10.7	22	16	20	58	10.7	9	6	7	22	10.9
5 / 9	19	21	20	60	5.8	18	14	14	46	6.0	8	3	5	16	6.0
0 / 4	20	19	21	60	0.9	14	10	12	36	1.2	5	2	3	10	1.6
-5 / -1	15	10	14	39	-3.2	9	4	6	19	-3.2	2	0	1	3	-3.2
-10 / -6	15	8	13	36	-7.5	8	2	6	16	-7.5	1	0	1	2	-7.2
-15 / -11	10	3	6	19	-12.3	6	2	4	12	-12.0	1		0	1	-11.9
-20 / -16	8	0	3	11	-16.5	3	1	2	6	-16.7	0			0	-15.0
-25 / -21	1	0	0	1	-21.2	2	0	1	3	-21.7					
-30 / -26	0			0	-25.0	1		0	1	-27.2					
-35 / -31						0			0	-31.1					

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.

PIERRE

SD

WMO No. 726686

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		
110 / 114												0		0	72.5
105 / 109												0	0	0	70.9
100 / 104							0		0	66.0		0	2	0	70.8
95 / 99		0		0	61.3		0	0	0	65.2		0	6	1	70.6
90 / 94		1	0	1	60.6		3	0	3	65.3		0	17	4	69.1
85 / 89		2	0	2	60.4		11	2	13	64.5		0	31	10	68.1
80 / 84		7	1	8	58.2		19	6	25	62.3		3	40	19	66.3
75 / 79		10	3	13	56.7	1	31	11	43	60.7	10	46	30	86	63.9
70 / 74	0	15	6	21	54.1	5	39	20	64	58.3	26	40	40	106	61.9
65 / 69	2	22	9	33	51.8	14	40	30	84	56.0	43	29	45	117	59.9
60 / 64	5	25	16	46	49.2	27	39	38	104	53.5	60	17	45	122	57.1
55 / 59	12	35	23	70	46.6	48	31	48	127	51.0	54	7	28	89	53.3
50 / 54	19	34	32	85	43.8	55	18	45	118	47.6	30	3	14	47	49.1
45 / 49	32	29	38	99	41.1	44	10	28	82	43.4	12	0	4	16	44.9
40 / 44	48	27	43	118	37.8	33	4	14	51	39.1	3		0	3	41.1
35 / 39	50	17	36	102	34.0	14	1	5	20	34.6					
30 / 34	42	10	21	73	29.9	5	0	1	6	30.5					
25 / 29	21	4	9	34	25.3	1		0	1	25.0					
20 / 24	6	1	3	10	20.5	0			0	22.5					
15 / 19	3	0	0	3	16.3										
10 / 14	1		0	1	10.6										
5 / 9	0		0	0	6.4										
0 / 4	0			0	3.0										
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															

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PIERRE

SD

WMO No. 726686

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		
110 / 114		0		0	70.9		0		0	69.8					
105 / 109		4	1	5	71.5		2	0	2	70.4		0		0	70.2
100 / 104		11	3	14	71.3		7	1	8	70.8		2	0	2	67.8
95 / 99		23	7	30	70.8		17	4	21	70.3		7	1	8	66.5
90 / 94	1	36	14	51	69.8	0	33	10	43	68.9	0	10	2	12	66.2
85 / 89	3	47	24	74	68.0	1	48	18	67	67.7	0	20	5	25	64.4
80 / 84	11	50	35	96	66.4	6	49	31	86	66.0	1	27	11	39	62.7
75 / 79	27	36	41	104	65.3	18	38	39	95	64.6	4	30	16	50	60.8
70 / 74	50	22	47	119	63.8	42	28	49	119	63.2	11	35	24	70	58.7
65 / 69	65	11	41	117	61.4	62	14	47	123	60.9	19	35	32	86	56.4
60 / 64	53	4	26	83	58.6	63	8	29	100	57.6	35	28	41	104	54.3
55 / 59	31	2	8	41	54.9	36	3	13	52	53.5	47	23	42	112	51.0
50 / 54	7	0	1	8	50.8	15	0	5	20	49.0	49	13	34	96	47.4
45 / 49	1			1	46.2	4		1	5	44.5	37	6	20	63	43.2
40 / 44						1			1	41.3	24	2	9	35	38.8
35 / 39						0			0		9	0	4	13	34.0
30 / 34						0			0		3		1	4	29.6
25 / 29						0			0		1		0	1	25.3
20 / 24						0			0		0			0	22.6
15 / 19						0			0						
10 / 14						0			0						
5 / 9						0			0						
0 / 4						0			0						
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															

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PIERRE

SD

WMO No. 726686

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		
110 / 114															
105 / 109															
100 / 104															
95 / 99		0		0	62.0										
90 / 94		1		1	59.5										
85 / 89		2	0	2	59.3										
80 / 84	0	7	0	7	57.9										
75 / 79	0	11	1	12	56.3		1		1	54.4					
70 / 74	0	20	4	24	54.6		2	0	2	51.3					
65 / 69	1	27	10	38	52.3		4	0	4	49.7		0		0	50.0
60 / 64	6	35	16	57	50.0	0	8	0	8	47.8		1		1	45.5
55 / 59	14	39	32	85	47.7	1	14	4	19	45.6		2	0	2	43.2
50 / 54	31	37	41	109	44.9	3	22	11	36	42.7		6	0	6	40.8
45 / 49	50	28	47	125	41.6	9	25	16	50	39.6	1	11	2	14	38.8
40 / 44	53	24	45	122	37.9	18	31	23	72	36.1	4	22	9	35	35.7
35 / 39	45	11	29	85	33.6	35	36	38	109	33.0	15	32	24	71	32.4
30 / 34	24	4	15	43	29.6	46	34	49	129	29.4	27	35	33	95	28.9
25 / 29	14	1	6	21	25.3	49	23	40	112	25.1	46	38	47	130	25.0
20 / 24	5	0	2	7	20.8	32	17	27	76	20.5	42	30	35	107	20.6
15 / 19	2	1	1	4	16.3	22	10	12	44	16.0	35	21	29	85	15.9
10 / 14	0	0	0	0	11.4	11	6	8	25	11.2	25	17	21	63	11.0
5 / 9	1		0	1	7.8	6	4	6	16	6.3	19	9	16	44	6.0
0 / 4						5	2	3	10	1.3	12	9	12	33	1.0
-5 / -1						2	1	2	5	-2.6	8	7	7	22	-3.3
-10 / -6						0		1	1	-6.5	8	5	7	20	-7.6
-15 / -11						0			0	-10.0	4	3	4	11	-12.1
-20 / -16											2	1	2	5	-16.7
-25 / -21											1	0	1	2	-21.7
-30 / -26											0			0	-26.4
-35 / -31															

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PIERRE SD

WMO No. 726686

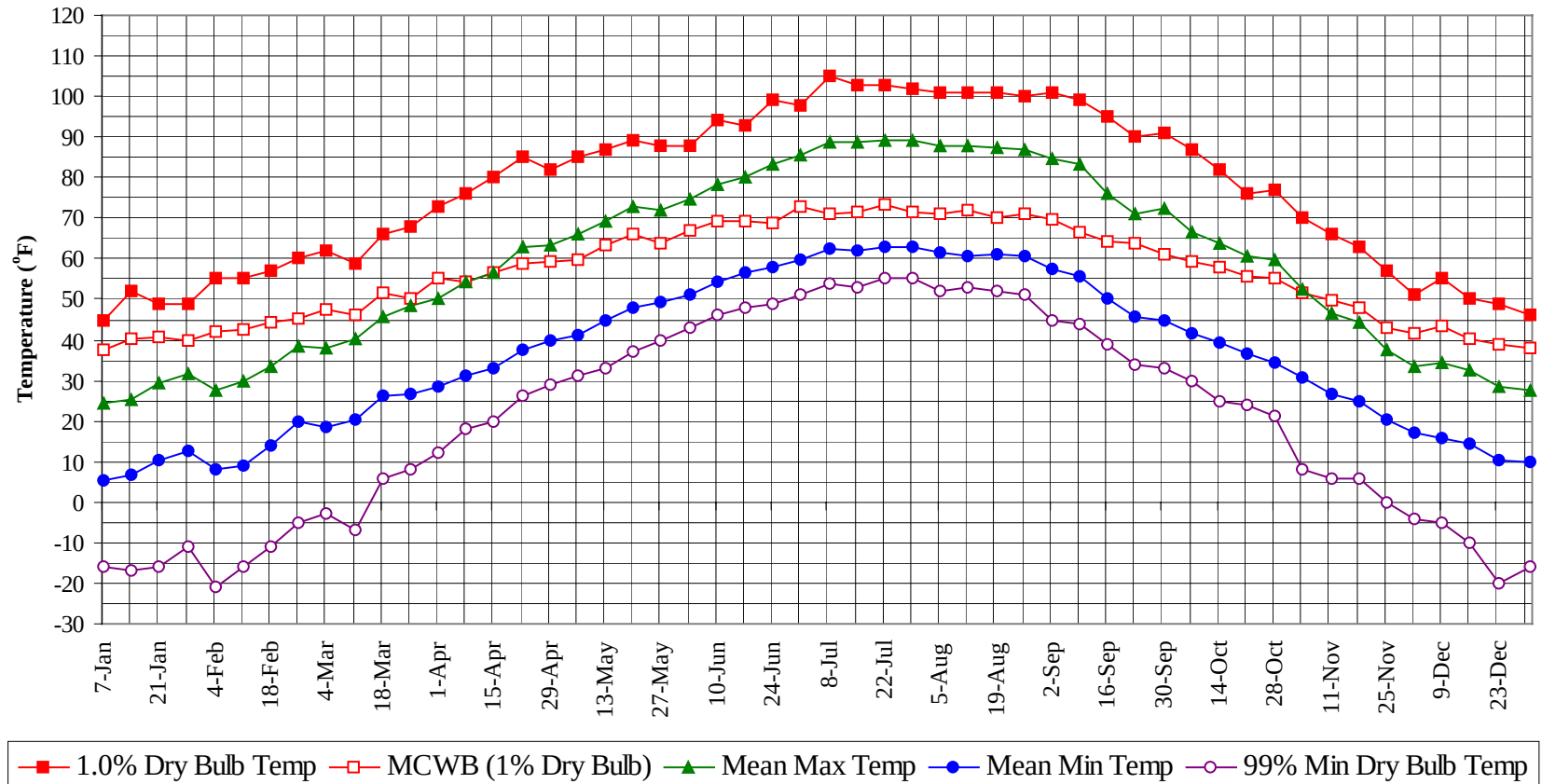
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

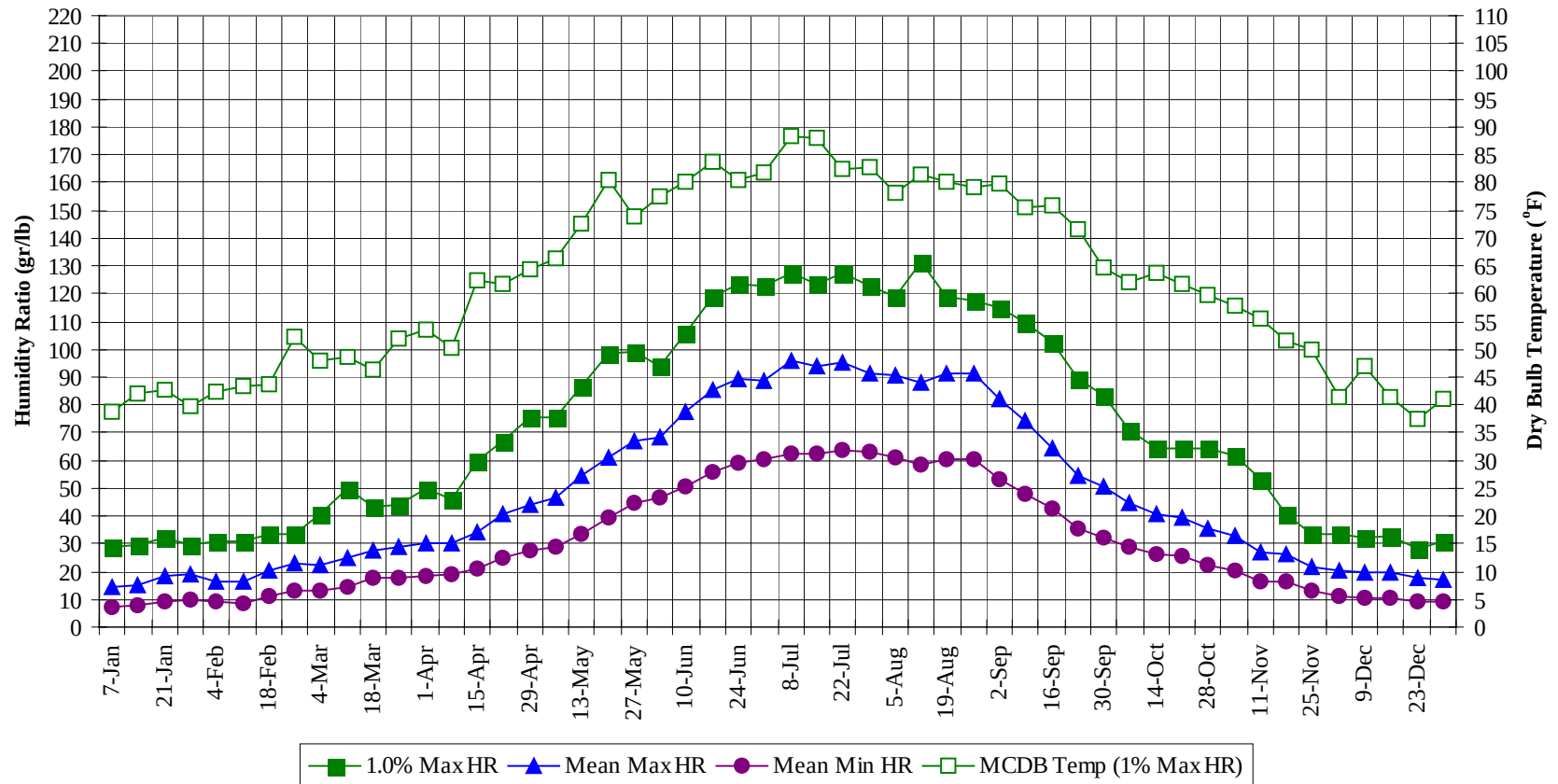
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
110 / 114		1		1	70.8
105 / 109		6	1	7	71.1
100 / 104	0	23	4	27	70.9
95 / 99	0	54	14	68	70.0
90 / 94	1	102	31	134	68.8
85 / 89	5	162	59	226	67.1
80 / 84	21	199	104	324	65.1
75 / 79	59	205	141	405	63.2
70 / 74	135	203	190	528	61.0
65 / 69	205	190	215	610	58.2
60 / 64	251	179	213	643	54.7
55 / 59	245	180	205	630	50.4
50 / 54	211	171	195	577	45.8
45 / 49	196	164	183	543	41.5
40 / 44	213	188	199	600	37.4
35 / 39	238	185	237	660	33.3
30 / 34	266	171	238	675	29.4
25 / 29	246	136	192	574	25.1
20 / 24	176	108	135	419	20.5
15 / 19	129	81	95	305	15.8
10 / 14	92	64	78	234	10.9
5 / 9	70	51	61	182	6.0
0 / 4	57	43	50	150	1.1
-5 / -1	35	22	30	87	-3.2
-10 / -6	34	15	27	76	-7.5
-15 / -11	21	7	14	42	-12.1
-20 / -16	13	3	7	23	-16.6
-25 / -21	4	1	1	6	-21.6
-30 / -26	1		0	1	-26.8
-35 / -31	0			0	-31.1

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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



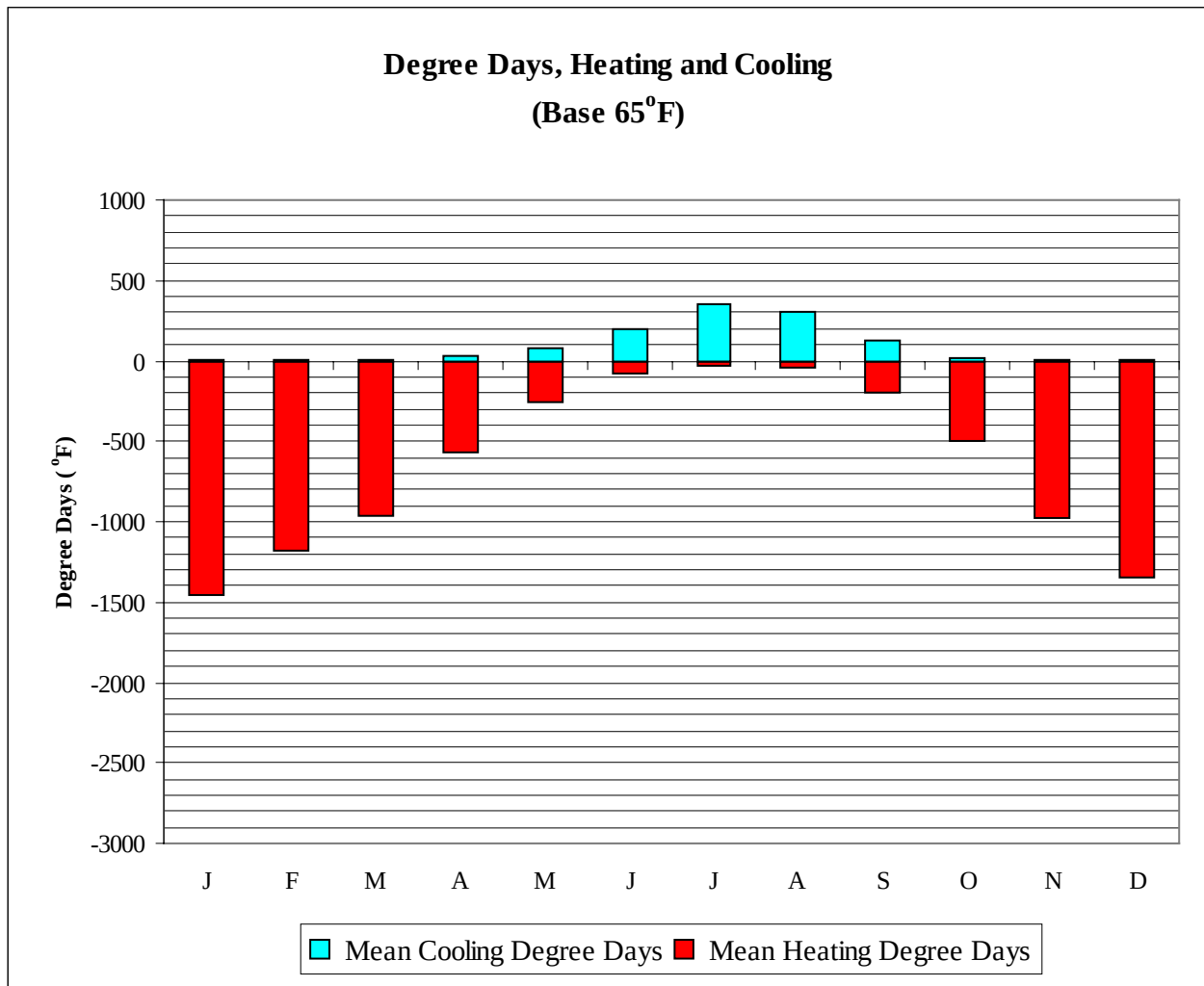
PIERRE**SD****WMO No. 726686****Long Term Dry Bulb Temperature and Humidity Summary**

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	45.0	37.4	24.2	5.2	-16.0	28.7	38.8	14.7	7.3
14-Jan	52.0	40.4	25.2	6.5	-17.0	29.4	42.1	15.3	7.7
21-Jan	49.0	40.8	29.5	10.4	-16.0	32.2	42.7	18.4	9.5
28-Jan	49.0	40.0	31.6	12.4	-11.0	29.4	39.9	19.0	9.7
4-Feb	55.0	42.2	27.8	8.1	-21.0	30.8	42.5	16.5	9.0
11-Feb	55.0	42.5	29.8	8.9	-16.0	30.8	43.3	16.6	8.6
18-Feb	57.0	44.5	33.4	14.1	-11.0	33.6	43.8	20.3	11.1
25-Feb	60.0	45.3	38.7	19.7	-5.0	33.6	52.1	22.7	13.5
4-Mar	62.0	47.5	37.9	18.6	-3.0	40.6	48.0	22.2	13.0
11-Mar	59.0	46.0	40.3	20.5	-7.0	49.7	48.6	25.1	14.5
18-Mar	66.0	51.4	45.9	26.2	6.0	43.4	46.2	27.7	17.7
25-Mar	68.0	50.1	48.2	26.8	8.0	44.1	51.9	28.6	17.5
1-Apr	73.0	55.1	50.4	28.4	12.0	49.7	53.4	30.0	18.6
8-Apr	76.0	54.3	54.1	31.4	18.0	46.2	50.2	30.4	19.2
15-Apr	80.0	56.6	56.4	32.9	20.0	59.5	62.4	34.2	21.3
22-Apr	85.0	59.0	62.9	37.7	26.0	67.2	61.7	40.6	24.8
29-Apr	82.0	59.1	63.2	39.7	29.0	75.6	64.3	43.9	27.7
6-May	85.0	59.7	65.9	41.3	31.0	75.6	66.4	46.7	29.0
13-May	87.0	63.3	69.1	45.0	33.0	86.8	72.6	54.7	33.8
20-May	89.0	66.1	72.9	48.1	37.0	98.7	80.3	61.0	39.4
27-May	88.0	64.0	72.1	49.5	40.0	99.4	74.0	67.1	44.5
3-Jun	88.0	66.9	74.6	51.2	43.0	93.8	77.6	68.6	46.4
10-Jun	94.0	69.1	78.4	54.4	46.0	105.7	80.0	77.4	50.3
17-Jun	93.0	69.3	80.2	56.6	48.0	119.0	83.8	85.7	56.1
24-Jun	99.0	69.0	83.1	58.0	49.0	123.2	80.3	89.5	59.4
1-Jul	98.0	73.0	85.6	59.7	51.0	122.5	81.9	88.7	60.6
8-Jul	105.0	71.0	88.8	62.4	54.0	127.4	88.5	95.7	62.4
15-Jul	103.0	71.4	88.7	62.1	53.0	123.2	88.0	93.9	62.3
22-Jul	103.0	73.2	89.1	63.1	55.0	127.4	82.6	95.4	63.7
29-Jul	102.0	71.4	89.2	63.0	55.0	122.5	82.7	91.3	63.1
5-Aug	101.0	71.3	87.8	61.7	52.0	119.0	78.1	90.7	60.9
12-Aug	101.0	72.0	87.7	60.7	53.0	131.6	81.4	87.8	58.5
19-Aug	101.0	70.2	87.2	61.1	52.0	119.0	80.1	91.4	60.7
26-Aug	100.0	71.2	86.8	60.8	51.0	117.6	79.0	91.0	60.4
2-Sep	101.0	69.6	84.5	57.4	45.0	114.8	79.7	82.2	53.5
9-Sep	99.0	66.4	83.2	55.6	44.0	109.9	75.5	74.5	48.2
16-Sep	95.0	64.4	75.8	50.2	39.0	102.2	75.7	64.6	42.7
23-Sep	90.0	63.8	71.1	45.9	34.0	89.6	71.7	54.5	35.2
30-Sep	91.0	61.1	72.3	44.7	33.0	83.3	64.7	50.9	32.5
7-Oct	87.0	59.1	66.5	41.5	30.0	70.7	62.1	44.5	28.8
14-Oct	82.0	58.1	63.8	39.3	25.0	64.4	63.6	40.5	26.2
21-Oct	76.0	55.7	60.5	36.8	24.0	64.4	61.9	39.4	25.7
28-Oct	77.0	55.3	59.5	34.5	21.0	64.4	59.9	35.6	22.5
4-Nov	70.0	51.4	52.4	30.7	8.0	61.6	57.9	32.6	20.2
11-Nov	66.0	49.6	46.6	26.5	6.0	53.2	55.6	27.3	16.7
18-Nov	63.0	47.9	44.3	25.0	6.0	40.6	51.5	26.0	16.2
25-Nov	57.0	43.0	37.6	20.3	0.0	33.6	49.8	21.6	13.1
2-Dec	51.0	41.6	33.6	17.1	-4.0	33.6	41.3	20.3	11.4
9-Dec	55.0	43.4	34.4	15.6	-5.0	32.2	46.9	19.8	10.8
16-Dec	50.0	40.4	32.5	14.5	-10.0	32.9	41.3	19.5	10.5
23-Dec	49.0	38.8	28.5	10.6	-20.0	28.0	37.5	17.6	9.2
31-Dec	46.0	38.1	27.4	10.1	-16.0	30.8	40.9	16.8	9.2

PIERRE

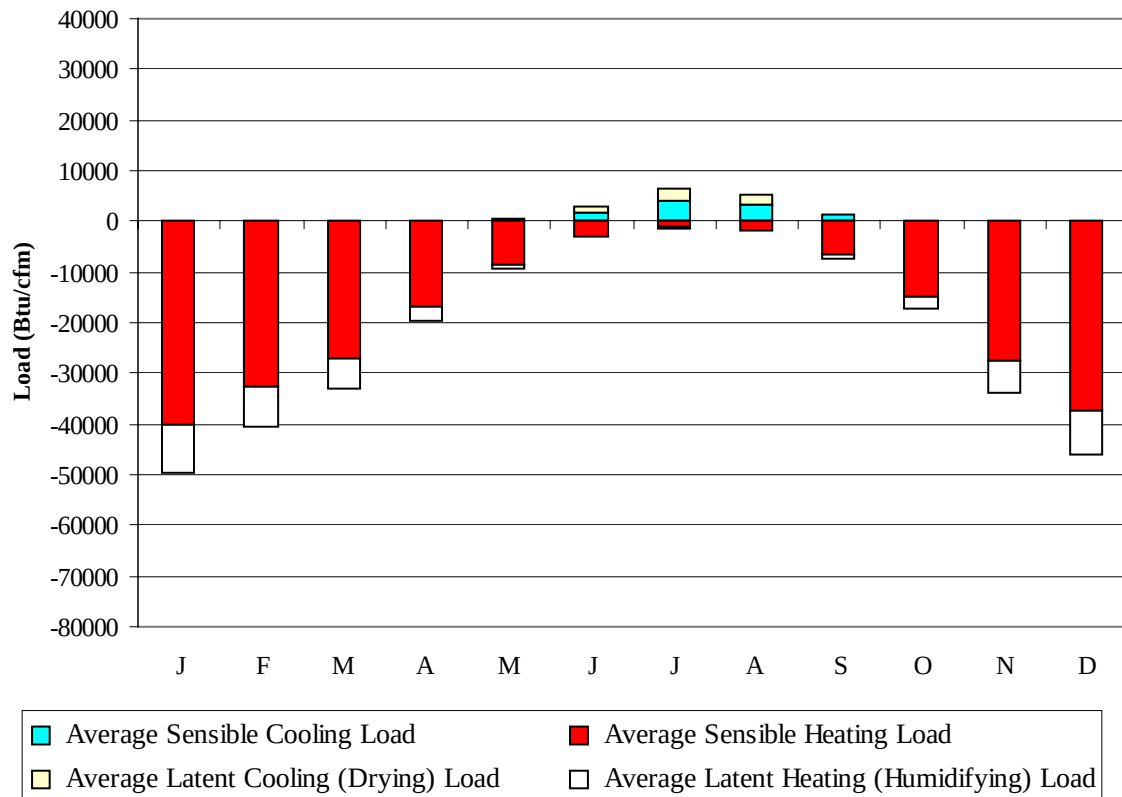
SD

WMO No. 726686



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1453
FEB	0	1177
MAR	2	960
APR	24	563
MAY	78	263
JUN	200	82
JUL	357	26
AUG	306	43
SEP	127	203
OCT	23	498
NOV	1	977
DEC	0	1343
ANN	1119	7588

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	-40077	0	-9705
FEB	0	-32706	0	-7817
MAR	5	-27273	0	-5823
APR	139	-16716	2	-3027
MAY	480	-8591	121	-645
JUN	1764	-3181	1302	-20
JUL	4031	-1249	2334	-4
AUG	3240	-1828	1888	-22
SEP	1157	-6763	315	-506
OCT	124	-15008	0	-2366
NOV	1	-27631	0	-6214
DEC	0	-37214	0	-8942
ANN	10941	-218237	5962	-45091

Average Annual Solar Radiation – Nearest Available Site

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

City: PIERRE
 State: SD
 WBAN No: 24025
 Lat(N): 44.38
 Long(W): 100.28
 Elev(ft): 1726

Stn Type: Secondary
 SHADING GEOMETRY IN DIMENSIONLESS UNITS
 Window: 1
 Overhang: 0.66
 Vert Gap: 0.331

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	570	840	1220	1580	1890	2120	2150	1890	1440	990	620	480	1320
	Std Dev	41	58	91	140	121	132	87	102	115	80	41	27	32
	Minimum	440	740	1000	1220	1640	1830	1950	1680	1200	830	510	440	1250
	Maximum	650	960	1390	1820	2140	2340	2340	2090	1660	1150	700	540	1370
	Diffuse	280	410	560	670	760	750	680	590	490	380	300	250	510
Clear Day	Global	750	1110	1640	2180	2550	2690	2590	2260	1780	1230	810	640	1690
NORTH	Global	180	250	350	440	560	640	600	470	350	260	190	150	370
	Diffuse	180	250	350	430	500	520	500	440	350	260	190	150	340
Clear Day	Global	160	220	300	410	590	710	650	460	320	230	160	140	360
EAST	Global	410	570	790	970	1110	1210	1240	1140	910	680	430	350	820
	Diffuse	230	320	430	520	600	620	600	540	430	330	230	190	420
Clear Day	Global	630	860	1160	1400	1540	1580	1540	1420	1200	910	660	550	1120
SOUTH	Global	1090	1180	1220	1090	970	930	990	1160	1280	1290	1060	980	1100
	Diffuse	350	440	520	550	580	570	560	540	490	420	350	310	470
Clear Day	Global	1890	2020	1940	1580	1240	1080	1130	1390	1740	1940	1880	1800	1630
WEST	Global	430	580	790	970	1100	1200	1240	1150	940	680	450	360	830
	Diffuse	230	320	440	530	610	630	610	550	440	330	240	200	430
Clear Day	Global	630	860	1160	1400	1540	1580	1540	1420	1200	910	660	550	1120

Average Annual Solar Heat and Illumination – Nearest Available Site

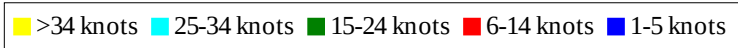
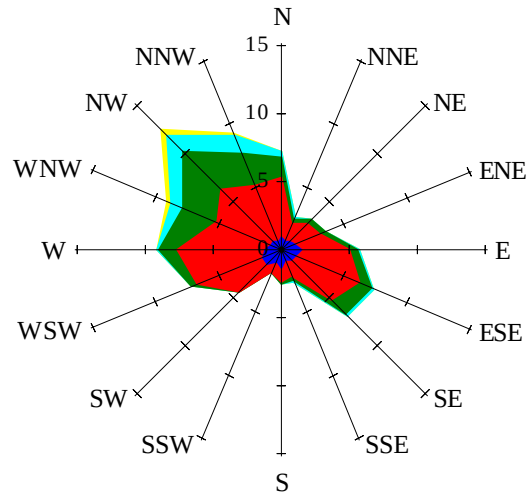
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

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	350	560	850	1130	1370	1540	1570	1370	1020	670	390	290	930
NORTH	Unshaded	120	180	240	300	370	410	390	310	240	180	130	110	250
	Shaded	100	150	210	260	320	360	340	280	210	160	110	90	220
EAST	Unshaded	280	400	560	690	790	860	890	820	650	480	300	240	580
	Shaded	250	340	470	570	640	700	720	670	540	420	260	210	480
SOUTH	Unshaded	830	880	860	730	620	560	610	740	880	940	800	740	770
	Shaded	800	800	650	430	350	350	340	380	580	810	770	720	580
WEST	Unshaded	290	400	560	690	790	860	890	820	670	480	310	250	590
	Shaded	260	350	470	570	640	690	720	680	560	410	270	220	490

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	24	59	75	67	36	37	74	96	97	78
	M.Cloudy	15	40	52	46	25	24	51	67	74	58
NORTH	M.Clear	7	12	14	13	9	20	14	16	16	15
	M.Cloudy	7	14	17	15	10	13	16	18	18	17
EAST	M.Clear	66	66	23	13	9	74	80	46	16	15
	M.Cloudy	21	35	21	15	10	34	49	34	18	17
SOUTH	M.Clear	28	69	88	78	42	10	29	51	53	34
	M.Cloudy	12	36	49	43	22	9	23	38	42	28
WEST	M.Clear	7	12	14	54	72	10	14	16	36	74
	M.Cloudy	7	14	17	33	33	9	16	18	32	52
M.Clear	(% hrs)	33	32	29	30	30	45	46	45	40	40
		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	15	53	77	78	56	3	27	39	29	5
	M.Cloudy	9	33	49	54	38	2	18	26	19	4
NORTH	M.Clear	6	11	14	14	12	2	8	9	8	2
	M.Cloudy	4	12	15	16	13	1	7	10	8	2
EAST	M.Clear	50	76	43	14	12	13	42	12	8	2
	M.Cloudy	15	35	28	16	13	4	18	11	8	2
SOUTH	M.Clear	11	50	78	78	54	10	66	87	71	16
	M.Cloudy	6	26	43	48	32	3	26	38	28	5
WEST	M.Clear	6	11	14	37	74	2	8	9	41	20
	M.Cloudy	4	12	15	28	40	1	7	10	18	6
M.Clear	(% hrs)	49	49	48	49	50	31	31	31	35	38

Wind Summary - December, January, and February

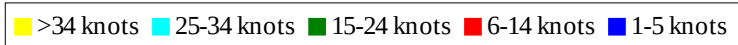
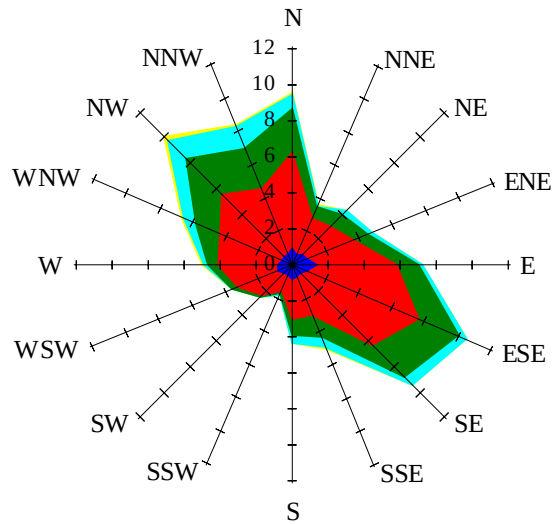
Labels of Percent Frequency on North Axis



Percent Calm = 6.62

Wind Summary - March, April, and May

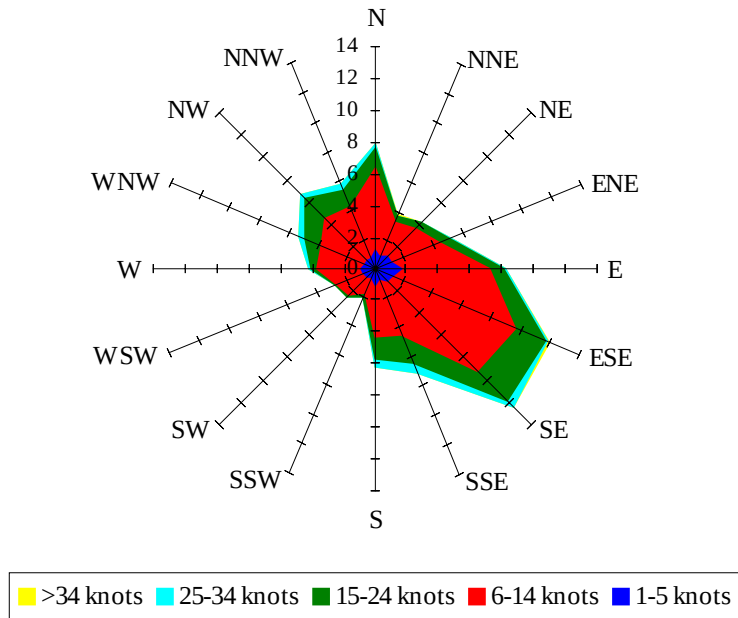
Labels of Percent Frequency on North Axis



Percent Calm = 4.24

Wind Summary - June, July, and August

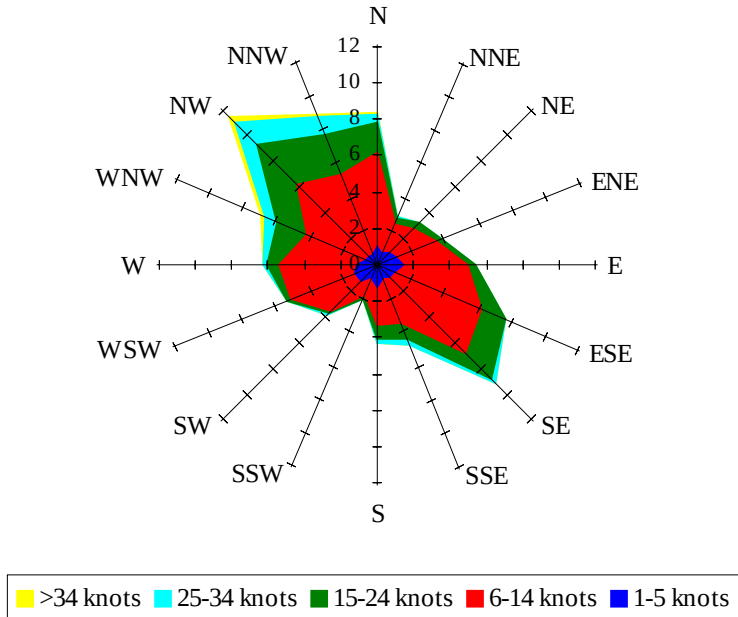
Labels of Percent Frequency on North Axis



Percent Calm = 4.81

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 6.43