

CASPER WY

Latitude = 42.92 N

Longitude = 106.40 W

Period of Record = 1973 to 1996

WMO No. 725690

Elevation = 5289 feet

Average Pressure = 24.66 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	98	60	34	14.5	W
0.4% Occurrence	93	59	38	13.1	SW
1.0% Occurrence	90	59	39	13.3	WSW
2.0% Occurrence	87	58	41	12.8	SW
Mean Daily Range	25	-	-	-	-
97.5% Occurrence	4	3	6	10.2	WSW
99.0% Occurrence	-5	-6	4	9.2	WSW
99.6% Occurrence	-13	-13	2	8.6	WSW
Median of Extreme Lows	-22	-22	1	7.6	WSW
	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	66	84	82	12.4	E
0.4% Occurrence	63	82	71	11.6	SSW
1.0% Occurrence	62	81	67	11.5	SW
2.0% Occurrence	60	80	60	11.5	SW
	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	97	68	0.54	8.3	E
0.4% Occurrence	87	67	0.49	9.2	E
1.0% Occurrence	81	66	0.45	9.2	E
2.0% Occurrence	74	66	0.41	10.0	E
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		40	560	0	1

Other Site Data

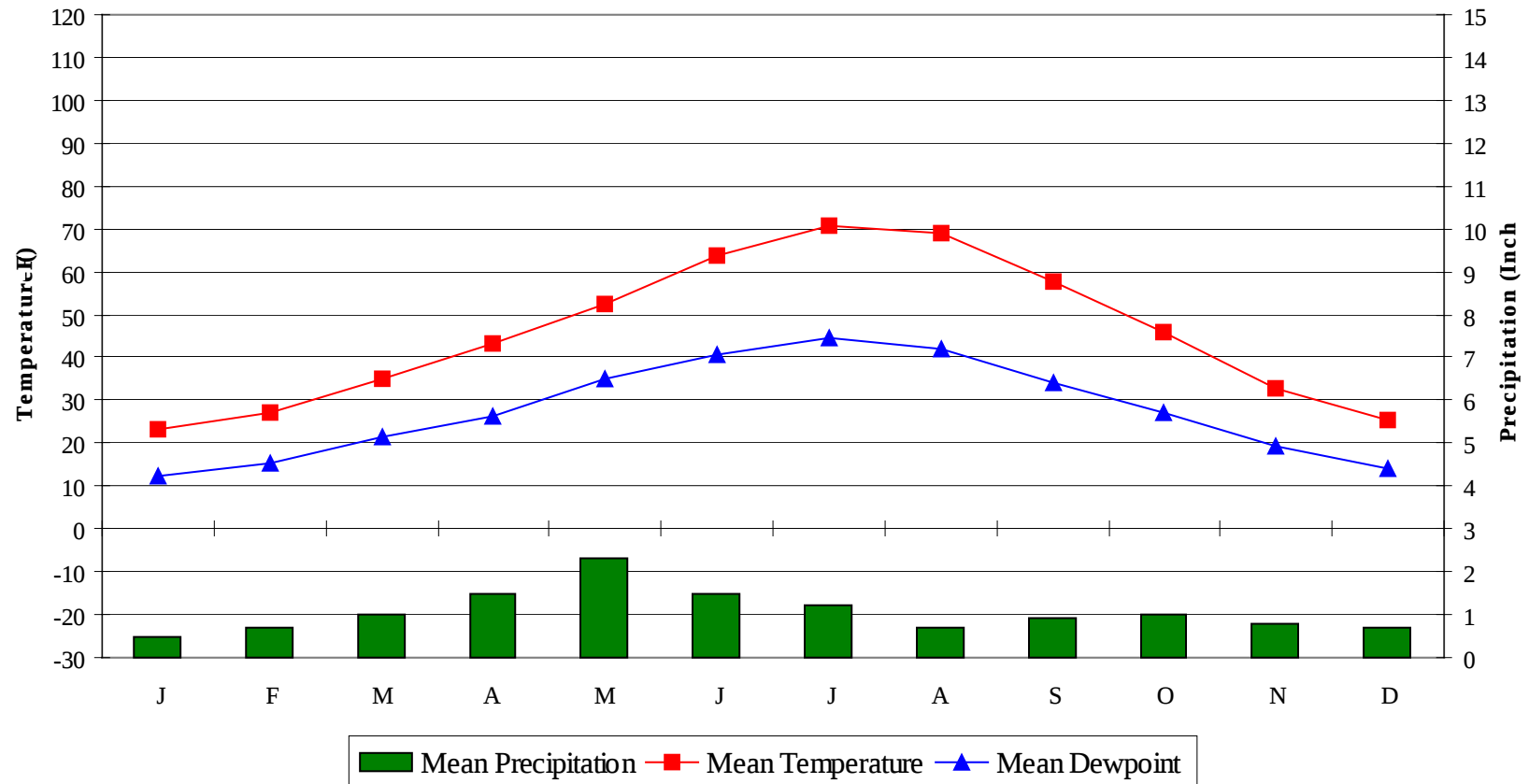
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
5	2.8	90	0.0 + 0.6
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
48.1	N/A	10	106

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

CASPER WY

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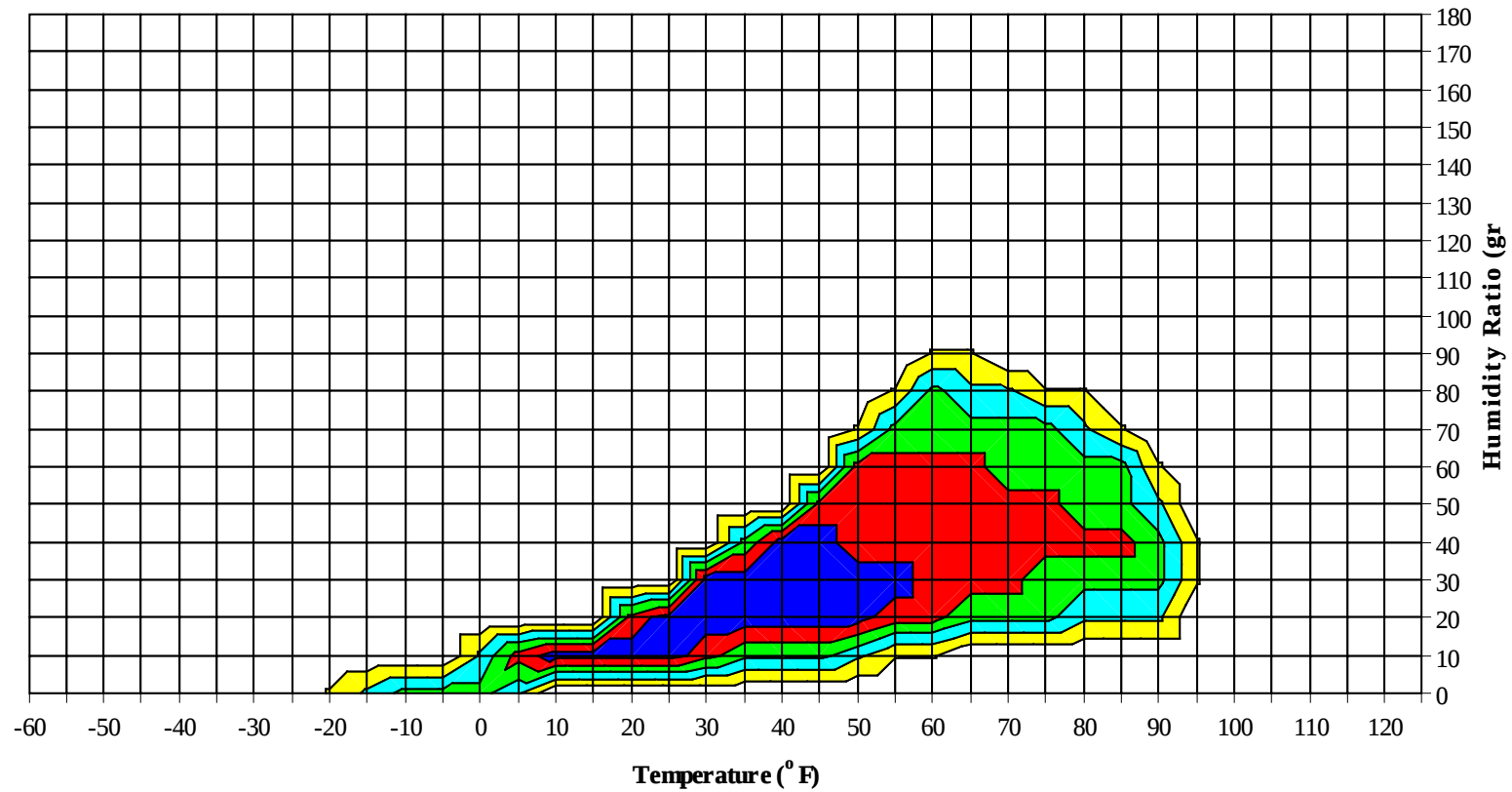
Average Annual Climate



CASPER WY

WMO No. 725690

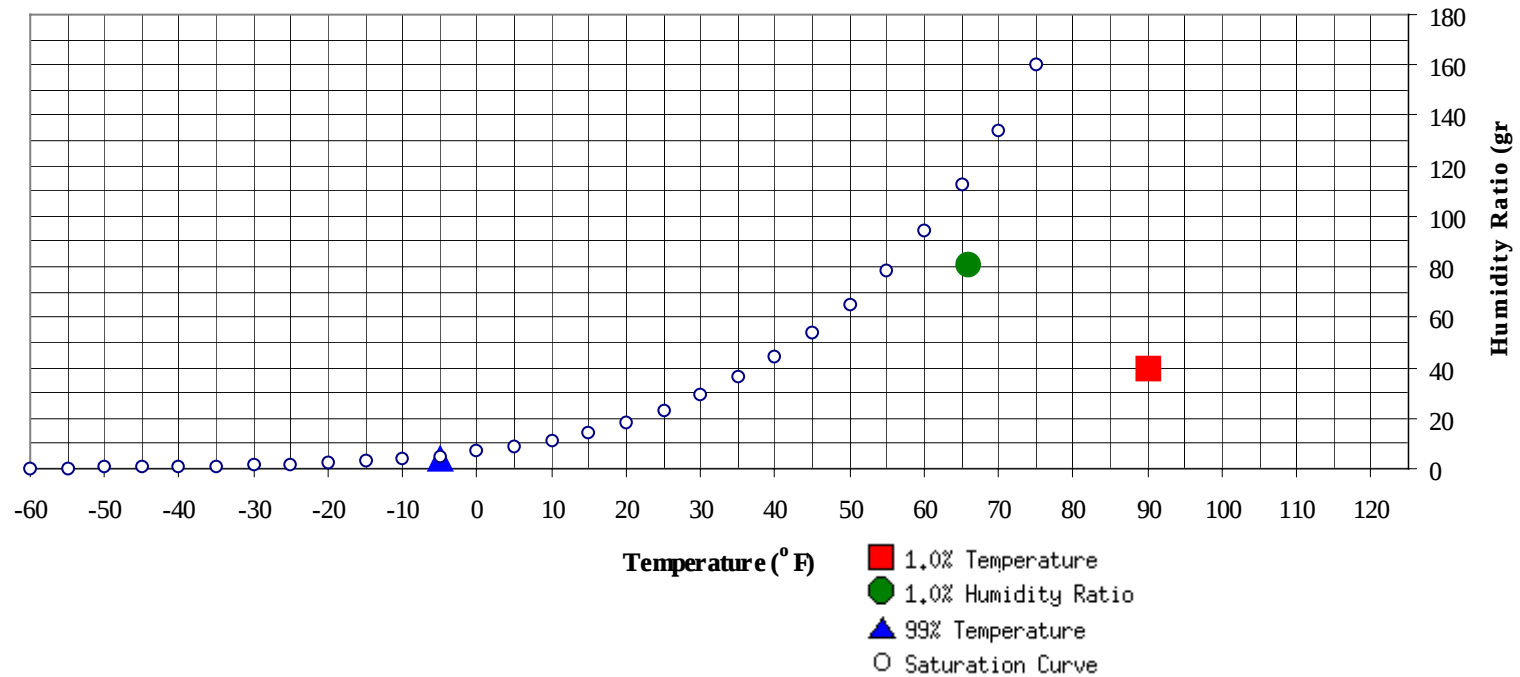
Long Term Psychrometric Summary



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

CASPER WY

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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)
	-5	3.6	-0.7		80.5	66	59.3	56	28.4

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	90	39.8	58.8	27.9

CASPER WY

WMO No. 725690

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		
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79															
70 / 74												1	0	1	47.8
65 / 69							0		0	48.5		3	1	4	46.5
60 / 64							1	0	1	44.4		12	2	14	43.7
55 / 59		1		1	39.7		5	1	5	41.9	0	21	7	28	41.6
50 / 54		3	0	3	38.9	0	12	2	15	39.2	2	29	14	45	39.2
45 / 49	0	14	2	16	36.0	1	21	7	29	37.0	8	36	24	68	37.0
40 / 44	8	31	16	54	33.8	12	33	23	68	34.3	23	39	37	99	34.5
35 / 39	23	37	32	92	30.8	25	37	33	95	31.1	39	36	42	117	31.7
30 / 34	34	41	39	114	27.4	38	35	40	114	27.6	51	31	47	130	28.7
25 / 29	42	32	38	112	23.6	40	26	35	101	24.0	53	19	34	106	24.9
20 / 24	35	24	35	94	19.6	33	16	25	74	19.8	34	9	20	63	20.2
15 / 19	32	20	26	78	15.2	23	11	17	51	15.4	20	5	10	34	15.8
10 / 14	21	15	17	54	10.6	17	8	12	37	10.8	7	4	5	16	10.8
5 / 9	16	11	13	40	5.9	11	7	9	26	6.0	5	2	3	10	6.0
0 / 4	16	7	12	35	1.0	8	4	8	20	1.0	4	1	2	6	1.6
-5 / -1	7	4	7	18	-3.1	4	2	4	11	-3.2	1	0	1	2	-2.5
-10 / -6	6	3	6	14	-7.6	5	2	3	10	-7.6	1		0	1	-7.5
-15 / -11	5	1	3	9	-12.2	3	1	1	5	-12.3	0		0	0	-10.6
-20 / -16	3	0	2	5	-16.8	2	0	2	4	-17.3	0			0	-15.0
-25 / -21	2	0	1	3	-21.7	1	0	1	2	-22.0					
-30 / -26	0		0	0	-26.5	1	1	1	2	-26.1					
-35 / -31	0			0	-30.3										
-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.

CASPER WY

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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		
100 / 104															
95 / 99												3	1	3	59.2
90 / 94												11	3	14	58.2
85 / 89							1	0	2	54.5		27	9	35	57.6
80 / 84		1	0	1	51.4		11	2	13	54.2	0	36	15	51	57.1
75 / 79		6	1	8	50.4	0	22	6	28	53.2	3	40	22	65	55.7
70 / 74			14	4	48.8	0	32	13	45	51.8	8	38	29	75	54.4
65 / 69	0	19	7	27	46.9	3	33	18	54	50.2	18	31	34	83	52.9
60 / 64	1	27	12	40	44.9	8	38	26	72	48.1	27	25	37	89	51.3
55 / 59	4	33	19	56	42.9	18	38	38	94	46.3	49	15	40	104	49.3
50 / 54	11	31	26	69	40.8	33	30	42	105	44.6	59	7	28	94	47.1
45 / 49	23	29	34	86	38.6	51	20	41	112	42.1	44	5	15	64	43.4
40 / 44	41	27	38	106	36.1	61	12	34	107	38.9	23	2	7	31	39.6
35 / 39	49	24	34	107	33.1	38	7	17	62	34.6	8	1	1	10	35.7
30 / 34	51	19	36	106	29.8	29	5	10	44	30.7	1	0		1	32.1
25 / 29	34	8	18	60	25.2	5	0	1	7	26.1					
20 / 24	16	2	7	25	20.7	1			1	21.6					
15 / 19	6	0	2	8	16.4										
10 / 14	2	0	0	2	11.2										
5 / 9	1		0	1	6.2										
0 / 4	0		0	0	1.1										
-5 / -1			0	0	-1.0										
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															
-45 / -41															

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CASPER WY

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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		
100 / 104		1		1	60.1		0		0	60.5					
95 / 99		8	2	10	60.1		3	1	4	60.4		0		0	59.7
90 / 94		30	11	41	59.4		24	5	28	59.2		4	1	5	58.3
85 / 89	0	49	18	68	58.9	0	51	17	68	58.0		13	3	17	56.0
80 / 84	2	57	27	86	58.2	0	55	22	78	57.4		29	7	36	54.4
75 / 79	7	44	33	84	57.4	4	46	30	80	56.4	0	37	12	50	53.1
70 / 74	21	31	43	95	56.3	16	32	43	90	55.2	3	39	18	60	51.9
65 / 69	36	15	43	94	55.0	33	19	45	97	53.8	9	32	26	67	50.3
60 / 64	57	7	42	106	53.8	48	10	40	99	52.3	19	26	34	79	48.5
55 / 59	70	3	22	95	51.6	65	6	29	99	50.0	31	22	38	91	46.4
50 / 54	42	1	7	50	48.4	52	2	13	67	47.1	43	14	37	94	44.2
45 / 49	12	0	1	13	44.4	22	0	3	26	43.4	50	11	30	91	41.3
40 / 44	2		0	2	40.6	7	0	1	8	38.7	43	6	18	67	38.1
35 / 39	0			0	37.0	1			1	35.1	23	4	8	35	34.2
30 / 34											13	3	5	21	30.5
25 / 29											4	1	2	6	25.3
20 / 24											2	0	1	3	21.6
15 / 19											0			0	17.2
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															
-45 / -41															

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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		
100 / 104															
95 / 99															
90 / 94															
85 / 89		0		0	51.8										
80 / 84		3	0	3	51.7										
75 / 79		9	1	11	50.3										
70 / 74		20	3	23	48.9		0		0	49.0					
65 / 69	0	29	6	35	47.2		3		3	46.5					
60 / 64	2	35	11	47	45.3		10	0	10	44.4		0		0	43.6
55 / 59	9	36	24	69	43.1	0	16	3	20	42.0		3		3	41.0
50 / 54	22	30	37	88	40.9	4	23	11	39	39.6	0	9	1	10	39.3
45 / 49	34	26	39	100	38.7	16	29	22	67	37.2	4	18	7	29	36.7
40 / 44	48	20	45	113	36.3	26	32	33	91	34.3	15	28	22	65	33.8
35 / 39	49	17	32	98	33.4	32	31	34	96	31.3	24	39	29	91	30.5
30 / 34	45	13	27	85	29.6	38	32	39	109	28.3	34	43	39	116	27.1
25 / 29	24	5	15	43	25.3	41	26	36	102	24.4	42	37	42	121	23.5
20 / 24	10	1	5	17	21.0	33	16	25	74	20.0	39	27	34	100	19.5
15 / 19	3	1	2	5	16.6	21	10	16	47	15.8	32	18	30	79	15.4
10 / 14	2	1	1	3	11.3	12	5	9	26	11.1	21	10	16	47	10.9
5 / 9	0	0	1	1	6.8	8	3	6	17	6.3	11	5	9	26	6.1
0 / 4	0		0	0	2.4	3	2	4	9	1.4	7	5	8	20	1.4
-5 / -1						2	1	2	5	-3.0	5	2	4	11	-3.1
-10 / -6						2	0	1	3	-7.1	5	2	2	9	-7.4
-15 / -11						1	0	0	1	-11.6	2	1	2	5	-12.3
-20 / -16						0		0	0	-17.0	1	1	1	4	-17.0
-25 / -21						0			0	-20.0	2	1	1	4	-22.2
-30 / -26											1	0	1	2	-26.8
-35 / -31											0	0	1	1	-31.9
-40 / -36											1		0	1	-36.2
-45 / -41											0			0	

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CASPER WY

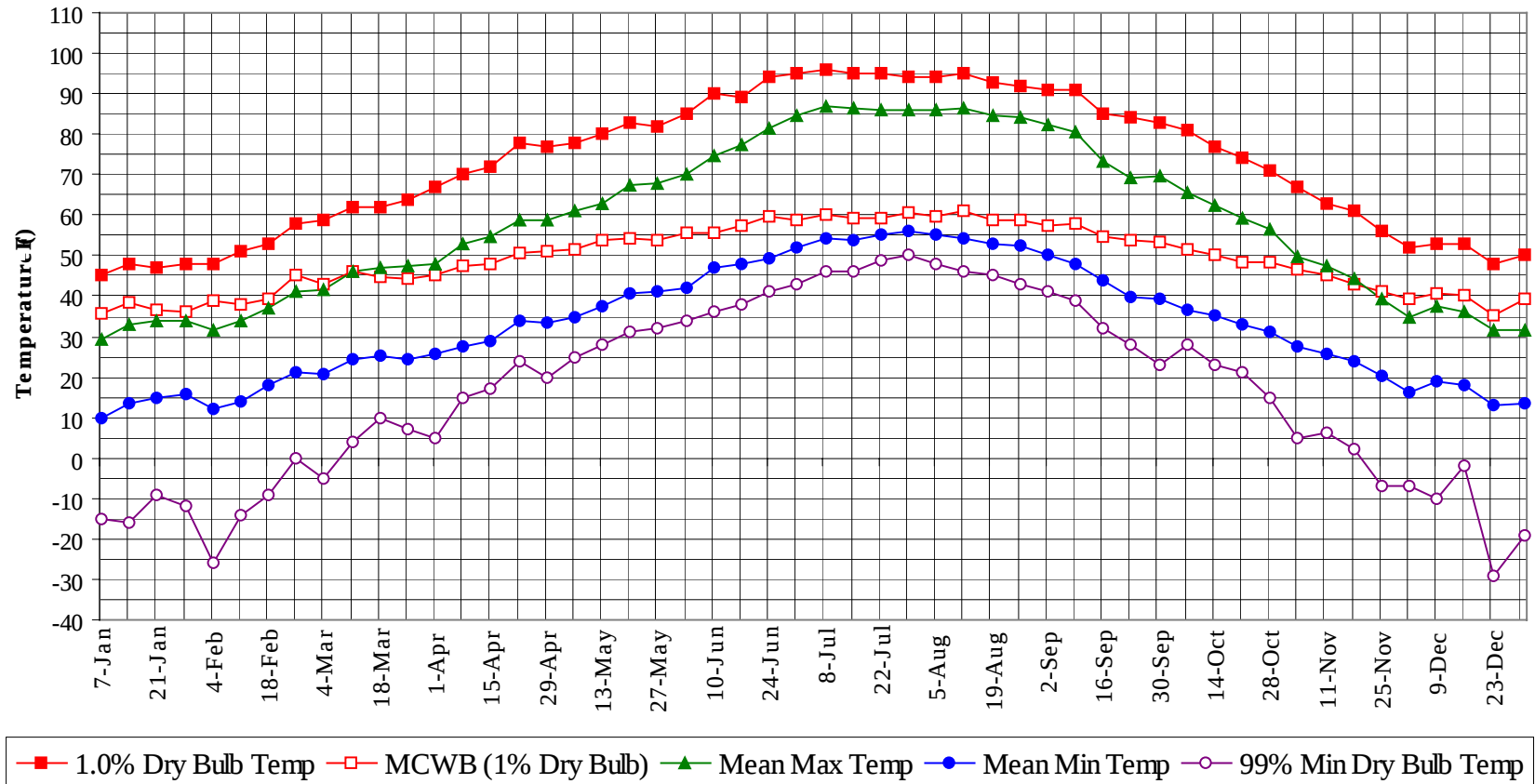
WMO No. 725690

Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)**Period of Record = 1973 to 1996**

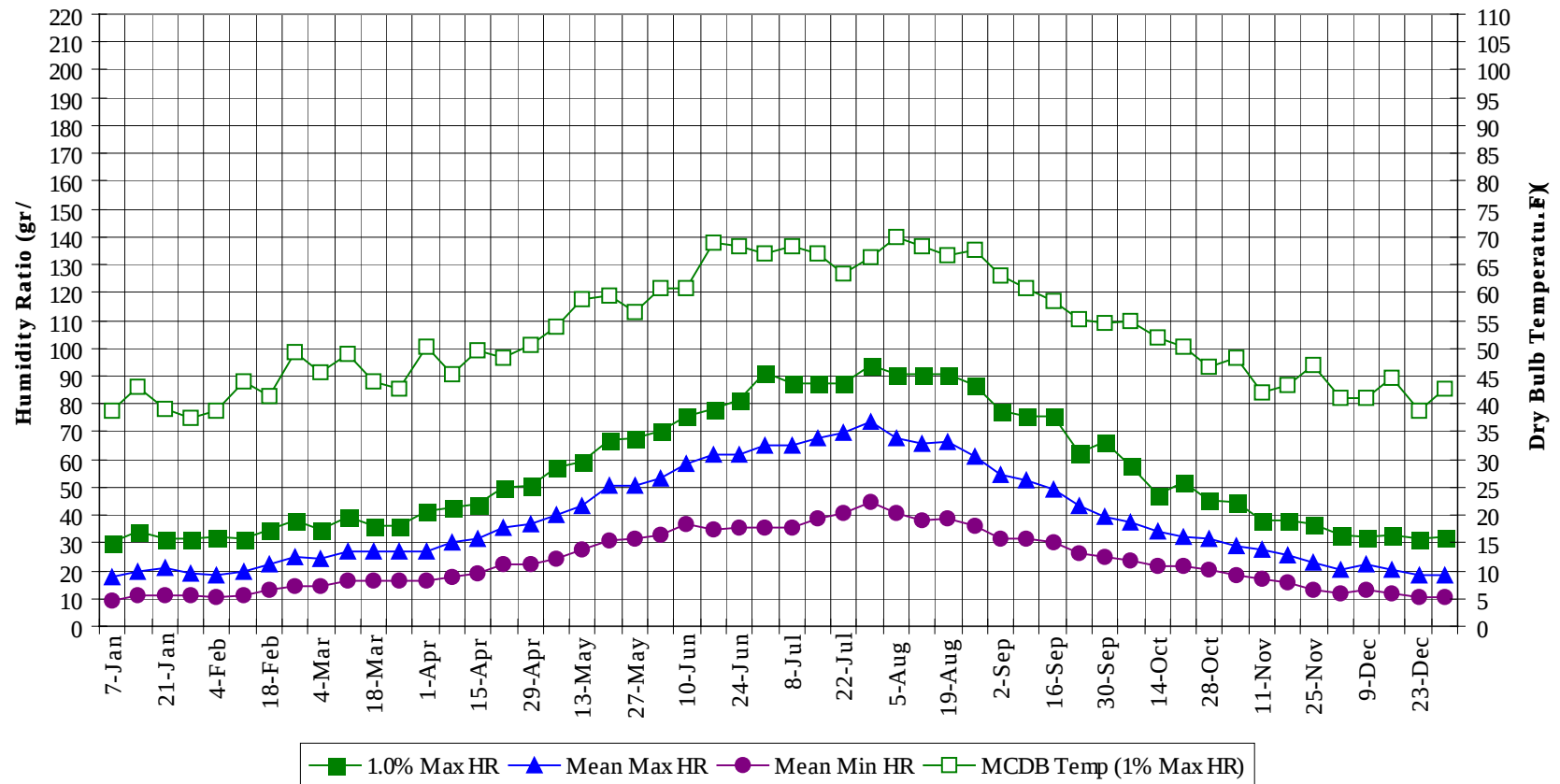
Temperature Range (°F)	Annual Totals				
	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
100 / 104		1		1	60.2
95 / 99		14	3	17	60.0
90 / 94		69	19	88	59.1
85 / 89	0	142	47	189	58.0
80 / 84	2	191	74	267	56.9
75 / 79	14	203	106	323	55.4
70 / 74	48	205	152	404	53.8
65 / 69	99	182	180	461	51.9
60 / 64	162	190	203	555	49.8
55 / 59	245	199	220	663	47.1
50 / 54	266	191	218	675	43.7
45 / 49	264	210	225	699	39.7
40 / 44	310	230	272	812	35.9
35 / 39	311	233	265	808	32.1
30 / 34	337	222	285	844	28.5
25 / 29	285	155	222	661	24.3
20 / 24	205	97	152	453	19.9
15 / 19	137	64	103	304	15.5
10 / 14	83	43	61	187	10.8
5 / 9	52	28	42	122	6.0
0 / 4	39	19	33	92	1.2
-5 / -1	20	9	18	47	-3.1
-10 / -6	18	8	12	38	-7.5
-15 / -11	11	3	7	21	-12.2
-20 / -16	7	2	5	13	-17.0
-25 / -21	5	1	3	9	-22.0
-30 / -26	2	1	2	5	-26.4
-35 / -31	1	0	1	1	-31.8
-40 / -36	1		0	1	-36.2
-45 / -41	0			0	

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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



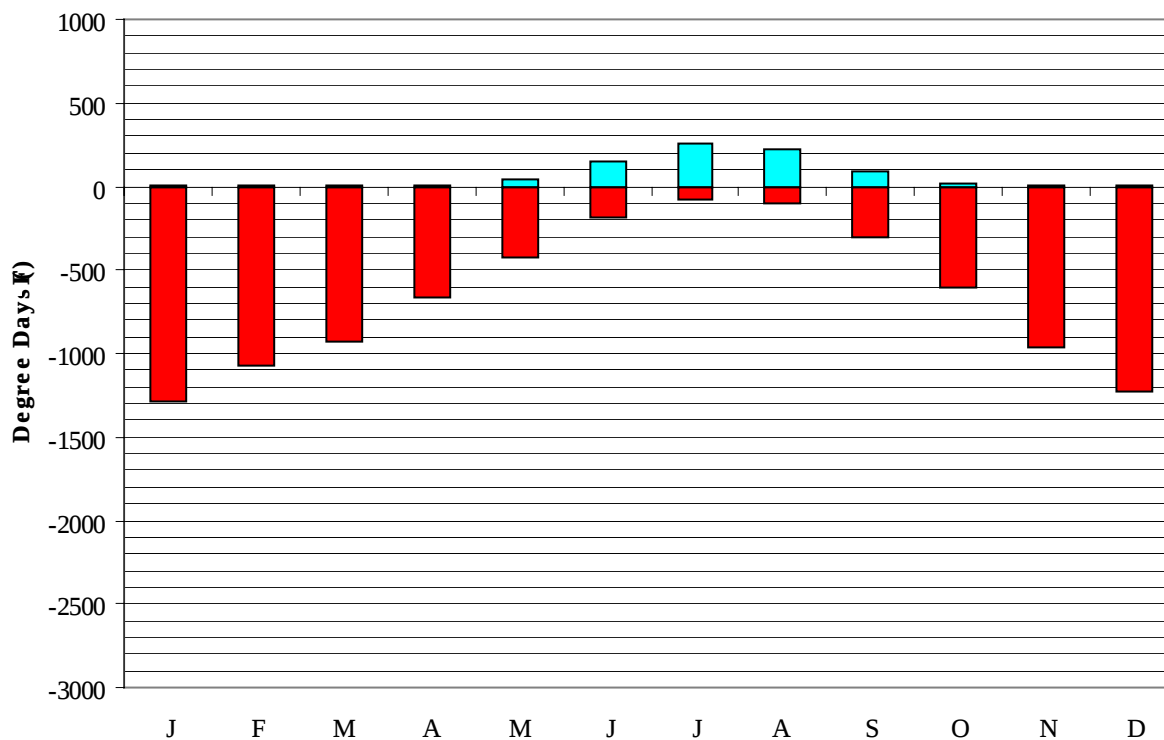
CASPER WY**WMO No. 725690****Long Term Dry Bulb Temperature and Humidity Summary**

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	35.5	29.1	10.1	-15.0	30.1	38.8	17.6	9.5
14-Jan	48.0	38.5	32.9	13.6	-16.0	34.3	42.9	19.5	10.9
21-Jan	47.0	36.6	33.8	14.8	-9.0	31.5	39.2	20.9	11.5
28-Jan	48.0	35.9	33.8	15.7	-12.0	31.5	37.3	19.2	11.0
4-Feb	48.0	38.7	31.7	12.0	-26.0	32.2	38.8	18.1	10.2
11-Feb	51.0	37.9	33.7	13.8	-14.0	31.5	43.9	19.5	10.9
18-Feb	53.0	39.1	36.9	18.2	-9.0	35.0	41.3	22.5	13.0
25-Feb	58.0	45.2	40.9	21.2	0.0	37.8	49.2	24.7	14.3
4-Mar	59.0	42.9	41.7	20.5	-5.0	35.0	45.7	24.4	14.5
11-Mar	62.0	46.2	46.0	24.4	4.0	39.2	49.0	26.9	16.4
18-Mar	62.0	44.9	46.9	25.1	10.0	36.4	44.0	27.1	16.3
25-Mar	64.0	44.2	47.5	24.6	7.0	36.4	42.8	27.2	16.1
1-Apr	67.0	45.3	48.1	25.8	5.0	41.3	50.3	26.9	16.4
8-Apr	70.0	47.3	52.8	27.7	15.0	42.7	45.4	30.2	17.9
15-Apr	72.0	47.7	54.8	29.1	17.0	44.1	49.6	31.7	18.7
22-Apr	78.0	50.6	58.7	33.7	24.0	49.7	48.4	35.3	22.1
29-Apr	77.0	51.0	58.9	33.3	20.0	50.4	50.5	37.0	22.5
6-May	78.0	51.3	61.2	34.9	25.0	57.4	53.7	39.8	24.5
13-May	80.0	53.7	63.1	37.4	28.0	58.8	58.7	43.5	27.4
20-May	83.0	54.4	67.6	40.8	31.0	67.2	59.3	50.3	31.0
27-May	82.0	54.0	67.9	41.2	32.0	67.9	56.4	50.5	31.8
3-Jun	85.0	55.5	70.2	42.2	34.0	70.0	60.7	53.4	32.8
10-Jun	90.0	55.8	74.6	46.9	36.0	75.6	60.9	58.2	36.5
17-Jun	89.0	57.5	77.6	47.9	38.0	78.4	69.1	61.6	35.1
24-Jun	94.0	59.9	81.6	49.2	41.0	81.2	68.2	61.8	35.2
1-Jul	95.0	58.6	84.6	52.2	43.0	91.0	66.9	65.1	35.4
8-Jul	96.0	59.9	86.8	54.3	46.0	87.5	68.2	65.3	35.7
15-Jul	95.0	59.3	86.2	53.8	46.0	87.5	67.0	67.6	38.7
22-Jul	95.0	59.4	86.0	55.2	49.0	87.5	63.4	69.8	40.8
29-Jul	94.0	60.8	86.2	55.9	50.0	93.8	66.2	73.2	44.7
5-Aug	94.0	59.5	85.9	55.2	48.0	90.3	70.1	67.8	40.8
12-Aug	95.0	61.0	86.7	54.4	46.0	90.3	68.2	65.7	38.3
19-Aug	93.0	59.0	84.6	53.1	45.0	90.3	66.7	66.3	39.0
26-Aug	92.0	58.6	84.3	52.5	43.0	86.8	67.6	61.4	36.2
2-Sep	91.0	57.6	82.6	50.0	41.0	77.7	63.0	54.4	31.5
9-Sep	91.0	58.0	80.5	48.0	39.0	75.6	60.9	52.3	31.8
16-Sep	85.0	54.7	73.2	43.8	32.0	75.6	58.4	49.6	30.3
23-Sep	84.0	53.9	69.4	39.9	28.0	62.3	55.0	43.3	26.1
30-Sep	83.0	53.3	69.5	39.2	23.0	66.5	54.4	39.4	24.6
7-Oct	81.0	51.7	65.7	36.5	28.0	58.1	55.0	37.6	23.8
14-Oct	77.0	50.0	62.6	35.1	23.0	47.6	52.0	33.9	21.5
21-Oct	74.0	48.4	59.1	32.8	21.0	51.8	50.1	32.5	21.4
28-Oct	71.0	48.4	56.4	31.3	15.0	45.5	46.6	31.5	20.4
4-Nov	67.0	46.6	49.7	27.7	5.0	44.8	48.2	28.6	18.6
11-Nov	63.0	45.3	47.6	25.9	6.0	37.8	42.0	27.3	17.3
18-Nov	61.0	43.1	44.4	24.1	2.0	37.8	43.4	25.3	15.6
25-Nov	56.0	41.3	39.5	20.2	-7.0	37.1	46.9	22.9	13.0
2-Dec	52.0	39.3	34.9	16.2	-7.0	32.9	41.2	20.7	11.5
9-Dec	53.0	40.7	37.6	18.7	-10.0	32.2	41.0	22.4	12.9
16-Dec	53.0	40.1	36.2	17.9	-2.0	32.9	44.6	20.6	11.6
23-Dec	48.0	35.1	31.7	13.0	-29.0	31.5	38.9	18.7	10.3
31-Dec	50.0	39.5	31.8	13.5	-19.0	32.2	42.7	18.3	10.4

CASPER WY

WMO No. 725690

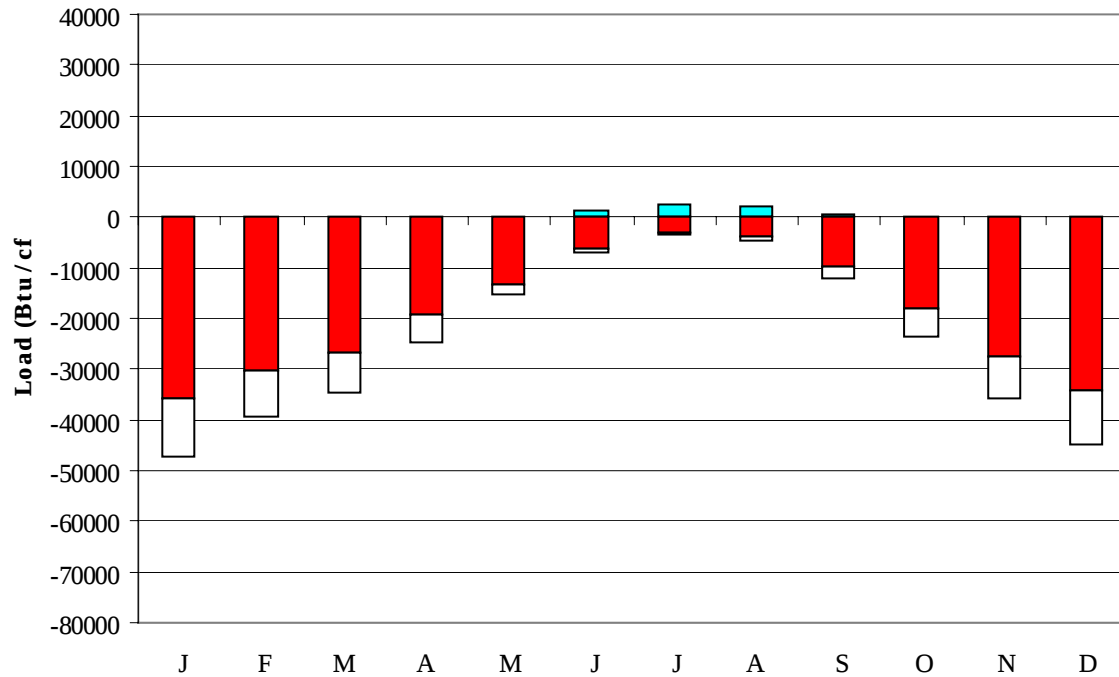
Degree Days, Heating and Cooling
(Base 65°F)



Mean Cooling Degree Days Mean Heating Degree Days

	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1293
FEB	0	1076
MAR	1	931
APR	11	662
MAY	40	429
JUN	145	183
JUL	256	80
AUG	226	106
SEP	91	305
OCT	17	610
NOV	0	969
DEC	0	1223
ANN	788	7867

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	-35934	0	-11260
FEB	0	-30092	0	-9310
MAR	0	-26524	0	-8139
APR	21	-19354	0	-5547
MAY	157	-13144	0	-2260
JUN	1243	-6136	0	-902
JUL	2601	-3056	3	-442
AUG	2177	-3827	6	-883
SEP	642	-9586	0	-2615
OCT	45	-18047	0	-5392
NOV	0	-27445	0	-8513
DEC	0	-34123	0	-10855
ANN	6886	-227268	9	-66118

Average Annual Solar Radiation – Nearest Available Site

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

City: CASPER
 State: WY
 WBAN No: 24089
 Lat(N): 42.92
 Long(W): 106.47
 Elev(ft): 5289

Stn Type: Secondary
 SHADING GEOMETRY IN DIMENSIONLESS UNITS

Window: 1
 Overhang: 0.618
 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	630	910	1280	1640	1920	2200	2220	1990	1550	1090	700	540	1390
	Std Dev	32	48	69	92	111	145	83	103	108	75	31	25	35
	Minimum	560	810	1140	1490	1700	1890	2100	1710	1320	920	640	510	1300
	Maximum	700	1020	1410	1880	2130	2410	2370	2130	1750	1230	750	610	1450
	Diffuse	250	350	500	650	730	680	620	540	440	350	280	220	470
Clear Day	Global	820	1180	1710	2260	2630	2780	2680	2360	1870	1320	890	710	1770
NORTH	Global	180	240	340	440	560	660	610	480	350	270	190	150	370
	Diffuse	180	240	330	420	490	510	490	430	350	270	190	150	340
Clear Day	Global	150	210	290	400	590	730	660	470	320	230	170	140	360
EAST	Global	460	630	840	1040	1180	1330	1370	1270	1030	750	510	410	900
	Diffuse	220	300	420	520	580	590	580	530	430	330	240	190	410
Clear Day	Global	680	900	1200	1450	1590	1630	1600	1480	1270	980	720	600	1180
SOUTH	Global	1230	1330	1290	1100	940	900	970	1160	1350	1400	1240	1160	1170
	Diffuse	340	410	490	540	560	550	540	520	470	410	350	300	460
Clear Day	Global	1990	2080	1950	1550	1190	1030	1090	1370	1770	2010	2000	1910	1660
WEST	Global	470	630	830	970	1080	1200	1190	1130	980	740	510	410	850
	Diffuse	230	300	420	530	590	610	590	540	440	330	250	190	420
Clear Day	Global	680	900	1200	1450	1590	1630	1600	1480	1270	980	720	600	1180

Average Annual Solar Heat and Illumination – Nearest Available Site

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

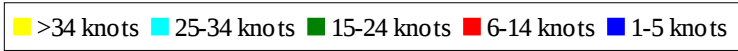
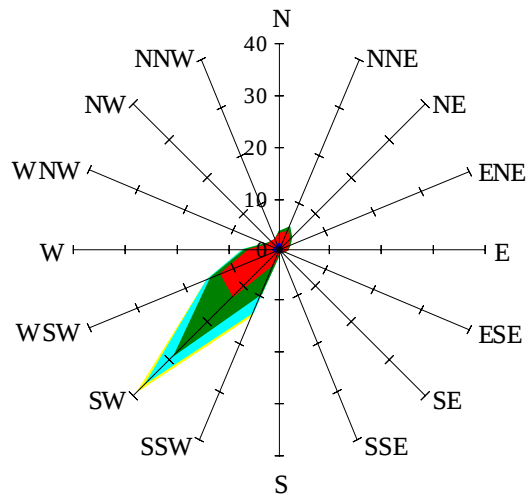
AVERAGE TRANSMITTED SOLAR RADIATION (Btu/sq.ft./day) FOR DOUBLE GLAZING, Percentage Uncertainty = 9		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
HORIZ	Unshaded	390	610	900	1170	1390	1610	1620	1440	1100	740	450	320	980
NORTH	Unshaded	120	170	230	300	370	420	390	310	240	180	130	110	250
	Shaded	110	150	200	260	320	370	350	280	220	160	120	93	220
EAST	Unshaded	320	440	600	750	850	950	980	910	740	530	350	280	640
	Shaded	280	390	510	630	700	790	810	760	630	460	310	250	540
SOUTH	Unshaded	930	990	900	730	590	540	580	740	920	1020	930	880	810
	Shaded	910	910	690	430	340	340	330	380	620	890	900	870	630
WEST	Unshaded	320	440	590	690	770	860	850	810	700	530	350	280	600
	Shaded	290	390	500	580	640	710	700	680	600	460	310	250	510

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	38	69	77	62	28	50	84	99	95	71
	M.Cloudy	25	48	57	44	19	33	63	76	69	50
NORTH	M.Clear	9	13	14	12	8	16	14	16	15	13
	M.Cloudy	9	15	16	14	7	13	16	17	17	15
EAST	M.Clear	78	58	14	12	8	87	74	31	15	13
	M.Cloudy	37	37	16	14	7	44	52	28	17	15
SOUTH	M.Clear	42	77	87	70	31	11	35	51	46	24
	M.Cloudy	23	46	56	43	16	11	29	41	36	20
WEST	M.Clear	9	13	20	66	73	11	14	16	50	81
	M.Cloudy	9	15	20	41	32	11	16	17	38	52
M.Clear	(% hrs)	30	31	25	25	26	54	52	46	37	31

		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	28	65	83	76	48	11	36	42	26	0
	M.Cloudy	18	45	59	52	33	8	24	29	17	0
NORTH	M.Clear	8	12	14	14	10	4	9	9	7	0
	M.Cloudy	7	14	16	15	11	4	9	10	7	0
EAST	M.Clear	75	72	28	14	10	40	39	9	7	0
	M.Cloudy	30	44	24	15	11	14	21	10	7	0
SOUTH	M.Clear	23	61	80	73	43	36	83	92	66	1
	M.Cloudy	12	38	53	46	26	13	39	46	29	0
WEST	M.Clear	8	12	14	52	80	4	9	20	48	1
	M.Cloudy	7	14	16	35	43	4	9	14	23	0
M.Clear	(% hrs)	56	55	52	47	46	32	35	34	33	36

Wind Summary - December, January, and February

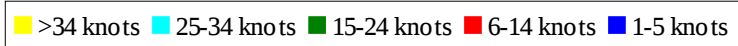
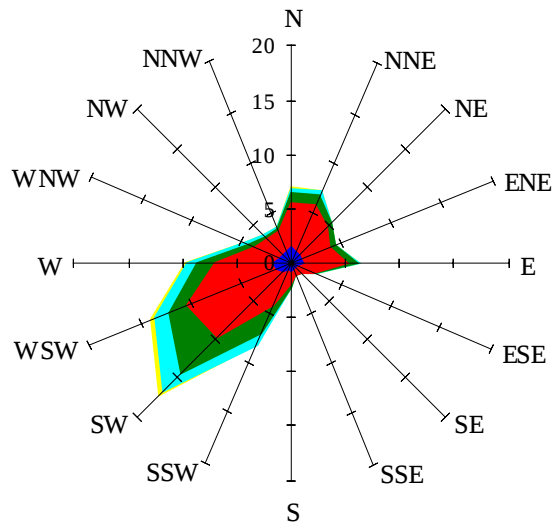
Labels of Percent Frequency on North Axis



Percent Calm = 1.41

Wind Summary - March, April, and May

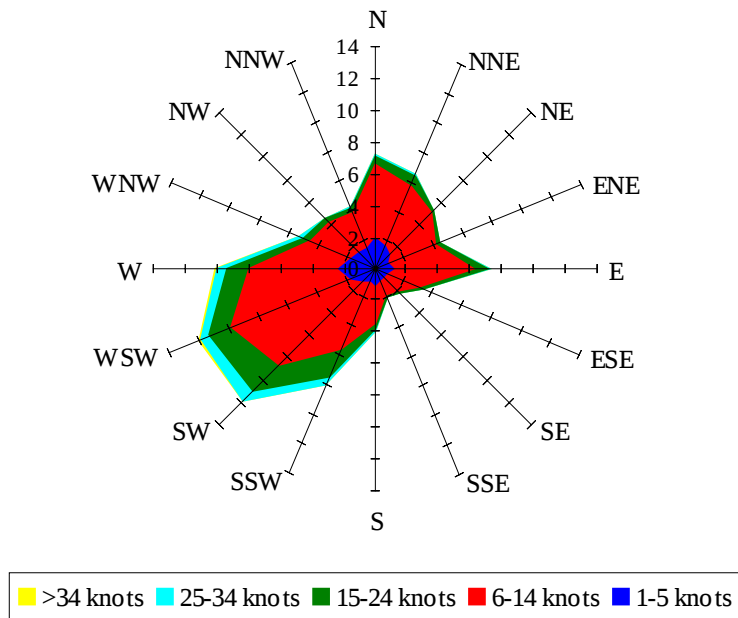
Labels of Percent Frequency on North Axis



Percent Calm = 2.17

Wind Summary - June, July, and August

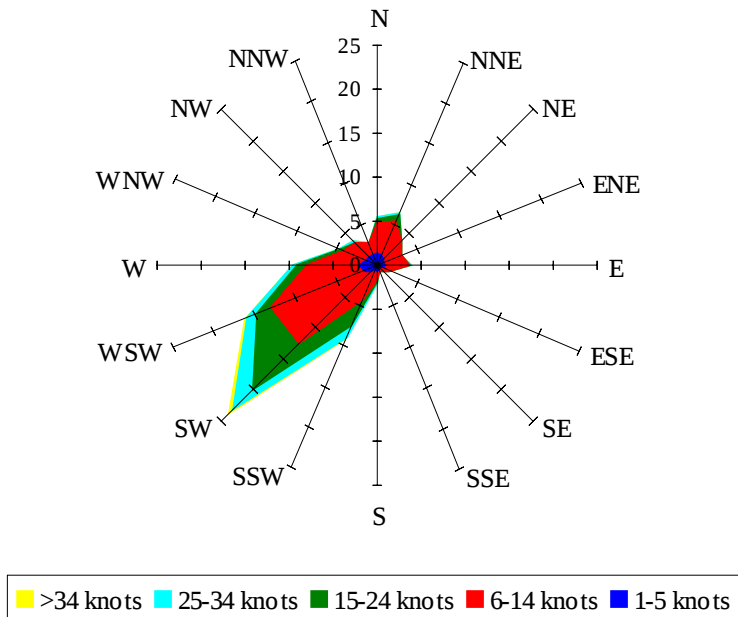
Labels of Percent Frequency on North Axis



Percent Calm = 2.44

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 2.27