

PENDLETON OR

Latitude = 45.68 N

Longitude = 118.80 W

Period of Record = 1973 to 1996

WMO No. 726880

Elevation = 1496 feet

Average Pressure = 28.41 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	101	66	46	10.1	N
0.4% Occurrence	96	64	44	9.0	N
1.0% Occurrence	93	63	45	8.7	WNW
2.0% Occurrence	89	62	44	8.9	WNW
Mean Daily Range	19	-	-	-	-
97.5% Occurrence	20	19	14	4.7	SSE
99.0% Occurrence	10	9	8	4.9	SSE
99.6% Occurrence	3	2	5	4.7	SSE
Median of Extreme Lows	-4	-4	3	5.3	SE
	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	69	93	70	9.5	WNW
0.4% Occurrence	66	91	58	8.8	NW
1.0% Occurrence	64	88	54	8.7	WNW
2.0% Occurrence	63	86	52	8.5	WNW
	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	83	74	0.52	7.8	NW
0.4% Occurrence	74	70	0.47	7.2	W
1.0% Occurrence	69	70	0.44	7.2	W
2.0% Occurrence	64	69	0.41	7.4	W
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		88	609	1	26

Other Site Data

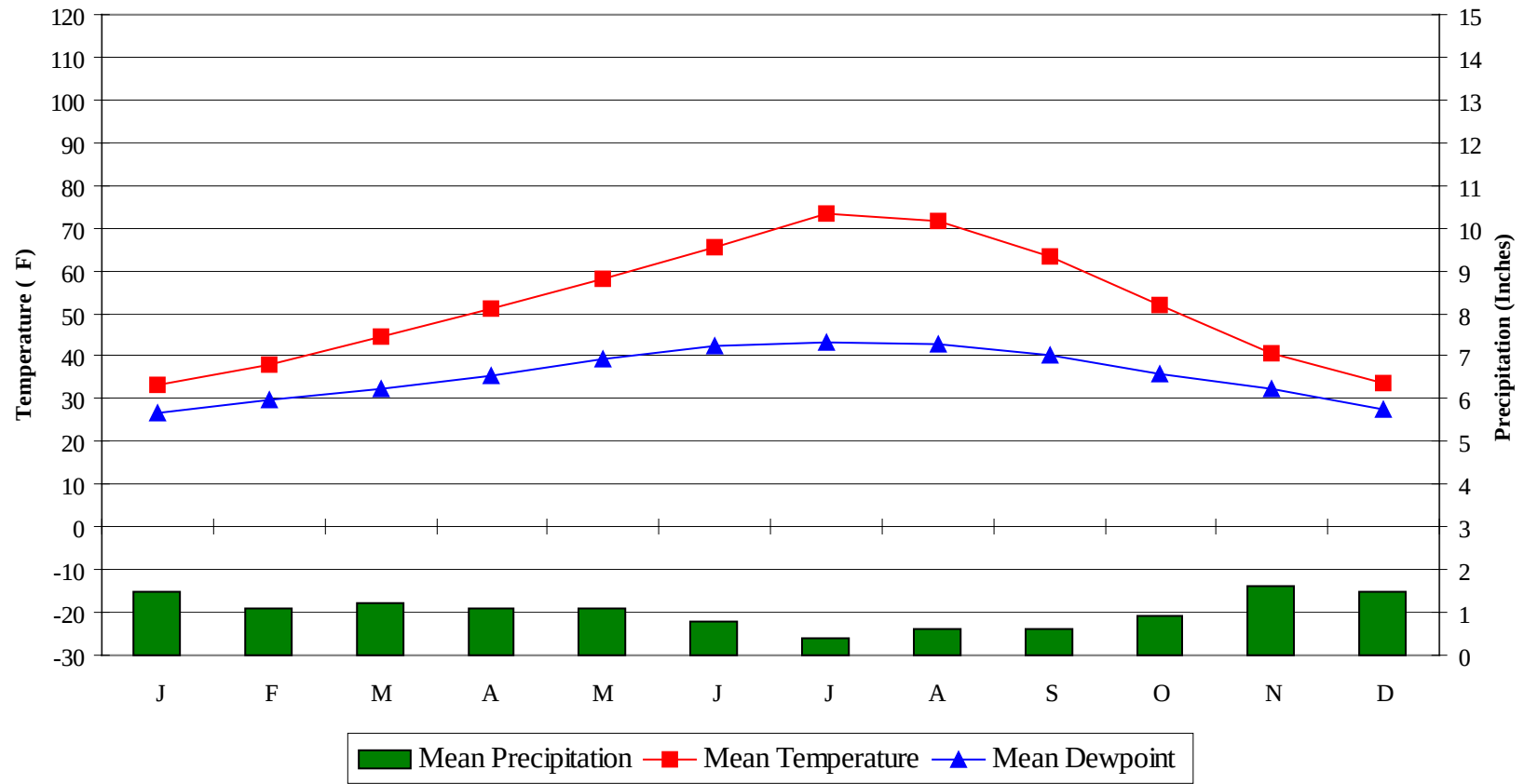
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
6	1.0	85	0.0 + 0.7
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
54.2	54	13	39

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

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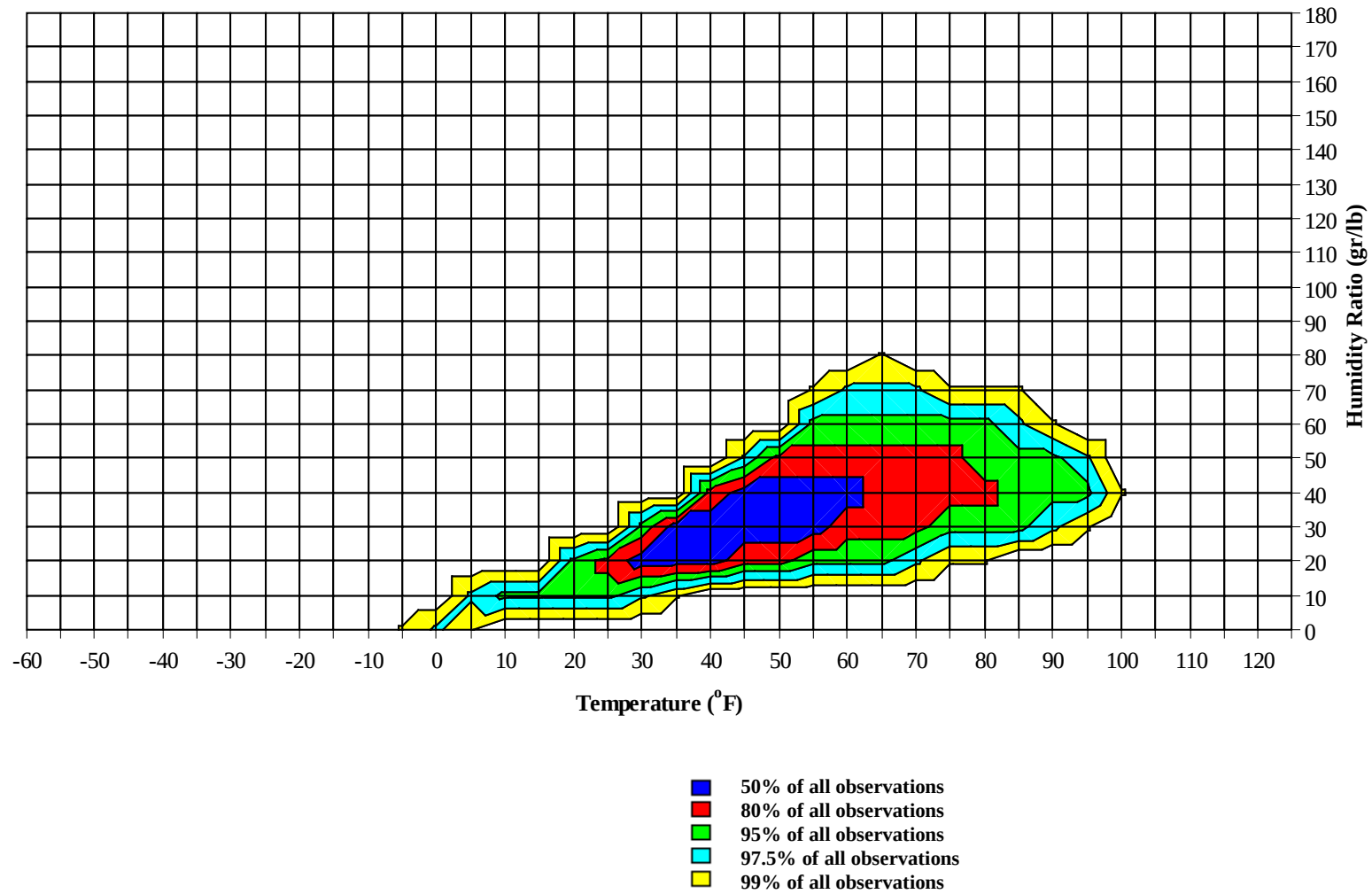
Average Annual Climate



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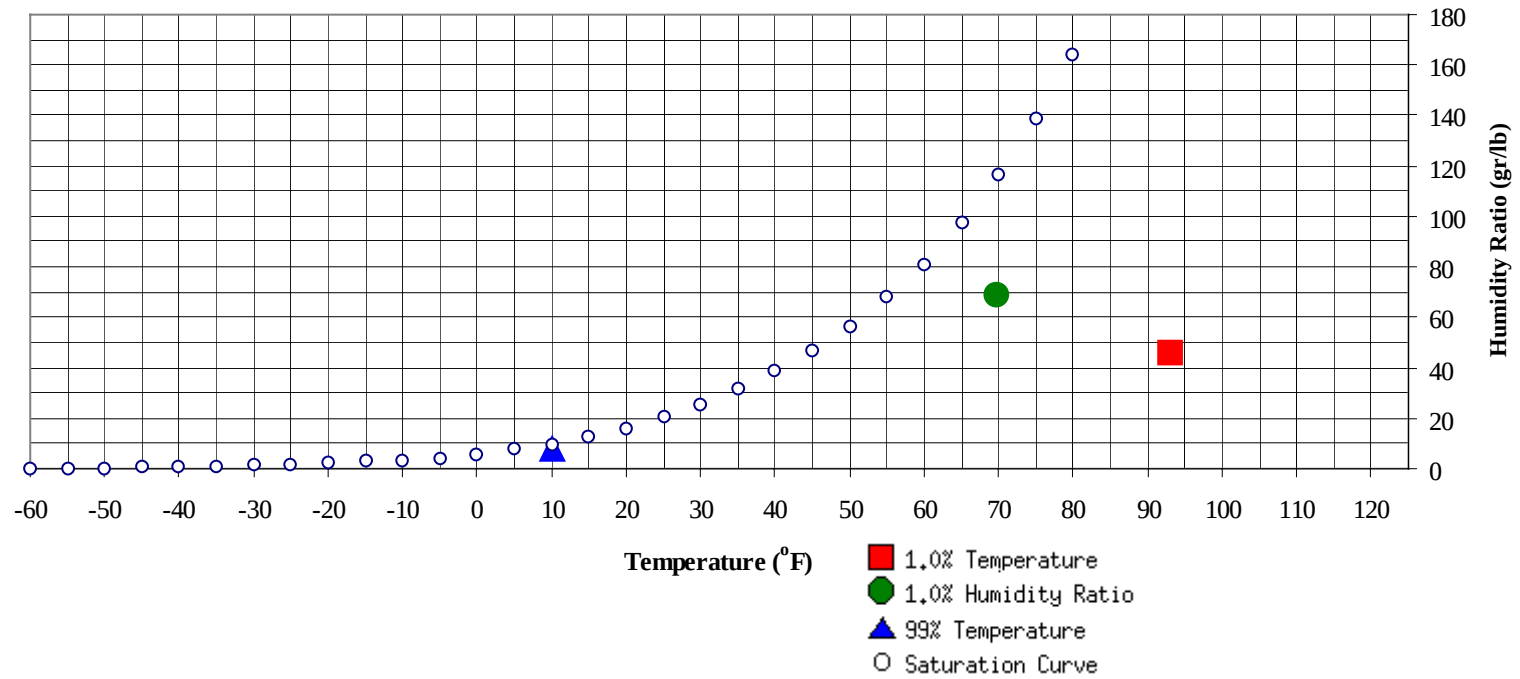
Long Term Psychrometric Summary



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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	10	7.8	3.6		68.6	69.6	60.4	55.1	27.4

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	93	45.7	63.7	29.5

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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		
105 / 109															
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79															
70 / 74												1	0	1	52.6
65 / 69		1		1	54.2		1	0	1	54.9		6	1	7	51.9
60 / 64	0	2	0	2	49.9	1	5	1	7	50.9	1	19	5	25	49.4
55 / 59	3	8	3	14	47.5	3	16	5	24	47.3	3	40	15	58	46.7
50 / 54	7	17	8	32	44.7	8	30	15	53	44.7	10	61	35	107	44.1
45 / 49	16	28	23	67	41.4	19	46	35	100	41.5	36	67	68	171	41.3
40 / 44	29	39	35	103	38.0	34	41	47	122	38.2	72	36	70	177	38.1
35 / 39	45	41	49	135	34.5	54	29	47	130	34.4	77	11	37	125	34.0
30 / 34	53	44	53	150	30.7	52	26	39	117	30.4	37	5	11	53	29.9
25 / 29	38	25	29	92	26.1	26	17	16	59	25.9	9	2	4	15	25.9
20 / 24	23	17	20	60	21.2	11	6	10	27	21.0	3	1	1	5	21.2
15 / 19	13	10	9	32	16.4	5	3	3	11	15.9	0	0	0	0	16.5
10 / 14	6	7	6	19	11.1	3	2	2	7	11.1	0	0	0	0	12.5
5 / 9	6	5	6	17	6.5	2	1	2	5	6.2	0			0	5.4
0 / 4	5	3	5	13	1.4	1	1	1	3	1.5					
-5 / -1	3	0	1	4	-3.2	1	0	1	2	-3.3					
-10 / -6	1	0	1	2	-7.1	1	0	1	2	-7.1					
-15 / -11	0		0	0	-11.3	1	0	0	1	-11.1					
-20 / -16															

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		
105 / 109															
100 / 104												1	0	1	65.2
95 / 99							0		0	65.0		3	1	4	64.8
90 / 94		0		0	64.5		2	0	2	63.9		9	4	13	63.1
85 / 89		1	0	1	59.3		6	2	8	61.8	0	21	9	30	61.3
80 / 84		2	0	2	60.6	0	12	5	17	60.2	1	32	15	49	59.3
75 / 79		6	1	7	58.1	0	19	9	28	58.0	3	38	24	65	57.6
70 / 74	0	14	5	19	55.2	2	29	16	47	55.3	10	37	31	78	55.8
65 / 69	1	25	12	38	52.6	6	45	29	80	53.2	25	42	41	107	53.9
60 / 64	3	38	21	62	50.0	19	51	39	108	50.7	44	32	47	123	52.0
55 / 59	11	54	34	99	47.1	39	48	50	137	48.4	63	18	40	121	49.7
50 / 54	31	56	54	141	44.6	61	28	52	141	45.9	58	7	23	88	46.6
45 / 49	69	36	61	165	41.8	75	9	35	119	42.6	32	1	5	38	43.3
40 / 44	69	9	40	117	38.0	38	1	8	47	38.5	3		0	3	39.6
35 / 39	44	1	12	57	34.0	8	0	1	9	34.8	0			0	35.0
30 / 34	11	0	1	12	30.5	0		0	0	30.5					
25 / 29	1		0	1	26.3										
20 / 24	0			0											
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															

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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		
105 / 109		1	0	1	69.7										
100 / 104		5	2	7	67.2		2	1	3	65.2					
95 / 99		16	7	23	64.8		13	4	17	64.4		1	0	1	64.5
90 / 94		36	16	52	63.0		26	11	37	62.9		7	1	8	62.3
85 / 89	0	38	23	62	61.5	0	34	16	50	61.2		17	4	21	60.6
80 / 84	4	44	33	81	59.8	2	50	29	81	59.4		30	10	40	59.0
75 / 79	14	40	41	95	58.0	9	49	40	98	57.7	0	38	16	55	57.1
70 / 74	30	32	41	102	56.1	23	37	43	103	56.0	3	41	26	71	55.1
65 / 69	52	23	39	113	54.2	51	25	47	123	54.2	15	41	43	100	53.1
60 / 64	65	10	32	106	52.3	70	10	36	116	52.3	39	36	48	123	51.0
55 / 59	54	3	13	70	49.6	64	3	16	83	49.8	63	19	46	129	48.7
50 / 54	25	0	2	27	46.6	24	0	3	27	46.4	60	8	30	98	46.0
45 / 49	4	0	0	4	43.7	5		0	5	43.0	43	2	11	56	42.4
40 / 44						0			0	37.7	12	0	3	15	38.5
35 / 39											4		0	4	34.0
30 / 34											0			0	29.0
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															

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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		
105 / 109															
100 / 104															
95 / 99															
90 / 94		0		0	60.0										
85 / 89		1		1	59.1										
80 / 84		4	0	4	57.9										
75 / 79		10	1	11	56.6		0		0	56.8					
70 / 74	0	17	4	21	54.4		1		1	54.1					
65 / 69	1	34	10	45	52.2	0	3	0	3	52.2		0	0	0	53.1
60 / 64	6	49	23	78	49.8	2	8	3	13	50.9	1	3	1	5	50.3
55 / 59	21	53	44	118	47.6	6	17	8	31	48.0	4	7	4	15	47.7
50 / 54	45	44	55	144	45.1	15	38	19	72	45.6	8	16	8	32	45.2
45 / 49	68	25	59	151	42.0	35	59	42	137	42.3	17	33	19	69	41.7
40 / 44	58	8	35	101	38.3	48	46	57	152	38.6	28	38	35	101	38.0
35 / 39	33	3	11	47	34.3	53	27	51	132	34.7	44	42	45	131	34.2
30 / 34	12	1	4	17	30.0	42	21	34	98	30.7	52	41	51	144	30.6
25 / 29	3	0	2	5	26.2	21	9	13	43	26.0	49	36	48	133	26.4
20 / 24	0	0	0	0	21.5	7	6	5	18	20.9	19	14	14	47	21.5
15 / 19	0			0	17.7	3	1	3	7	15.7	14	10	11	35	16.8
10 / 14						2	2	2	6	11.2	4	3	5	12	12.0
5 / 9						2	1	2	5	6.1	2	2	2	6	6.2
0 / 4						1	0	0	1	1.9	1	2	1	4	1.5
-5 / -1						0	0	0	0	-4.0	2	1	1	4	-3.4
-10 / -6						1	0	0	1	-8.4	1	1	1	3	-6.8
-15 / -11						0		0	0	-11.4	1	0	1	2	-11.6
-20 / -16											1		0	1	-16.1

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

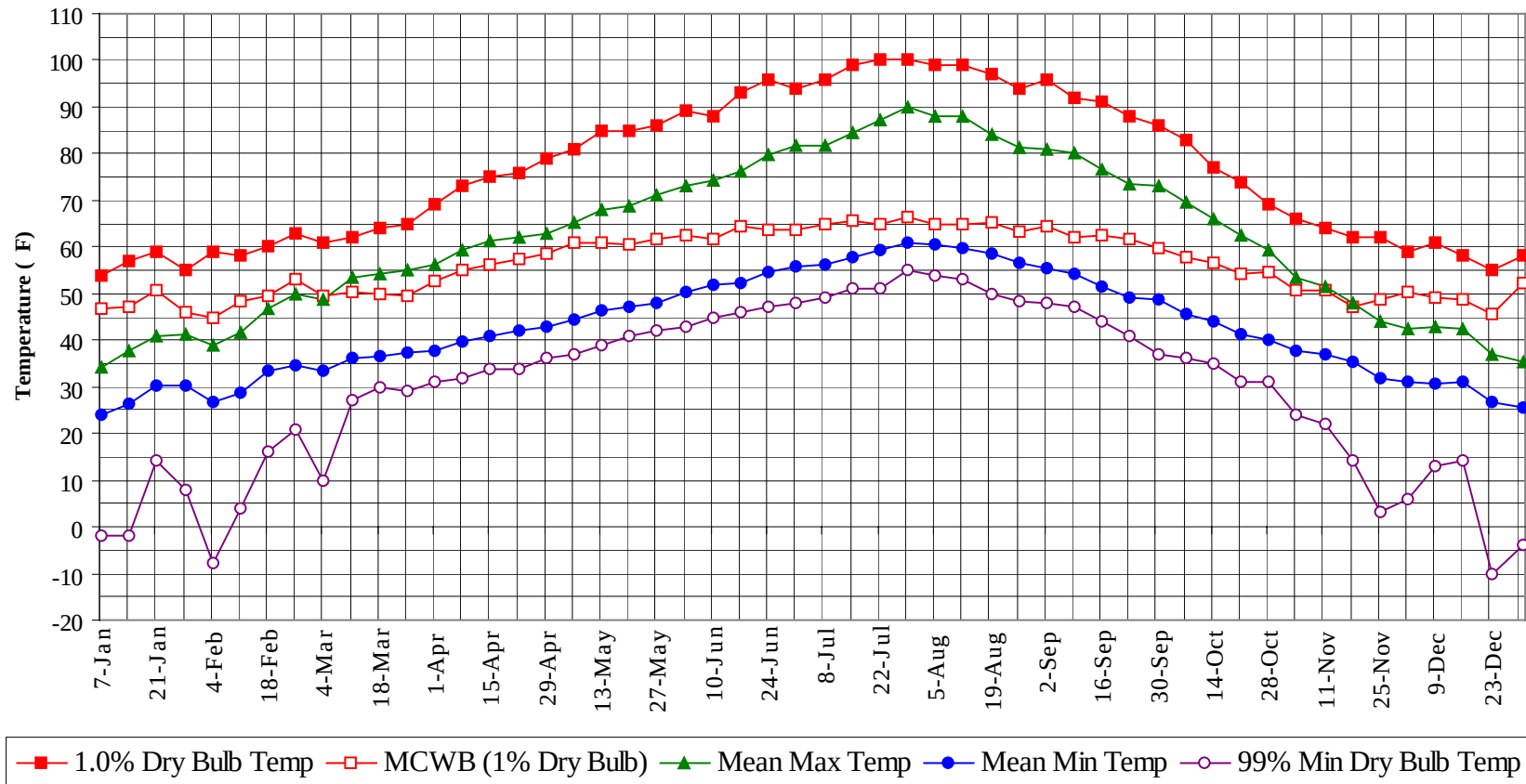
Temperature Range (°F)	Annual Totals				
	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
105 / 109		1	0	1	69.7
100 / 104		8	2	10	66.5
95 / 99		32	12	44	64.6
90 / 94		78	32	111	62.9
85 / 89	1	117	52	170	61.2
80 / 84	6	173	89	267	59.5
75 / 79	26	197	128	351	57.7
70 / 74	66	205	160	431	55.7
65 / 69	145	242	215	602	53.5
60 / 64	239	256	248	743	51.2
55 / 59	323	284	274	881	48.4
50 / 54	343	304	304	952	45.3
45 / 49	415	309	362	1086	41.9
40 / 44	399	220	337	956	38.2
35 / 39	375	157	263	794	34.3
30 / 34	271	141	201	614	30.5
25 / 29	156	91	117	364	26.2
20 / 24	67	45	53	165	21.2
15 / 19	38	26	28	92	16.4
10 / 14	16	15	16	47	11.4
5 / 9	13	10	13	36	6.3
0 / 4	8	6	7	21	1.5
-5 / -1	5	2	3	10	-3.3
-10 / -6	4	1	2	7	-7.1
-15 / -11	2	0	1	3	-11.4
-20 / -16	1		0	1	-16.1

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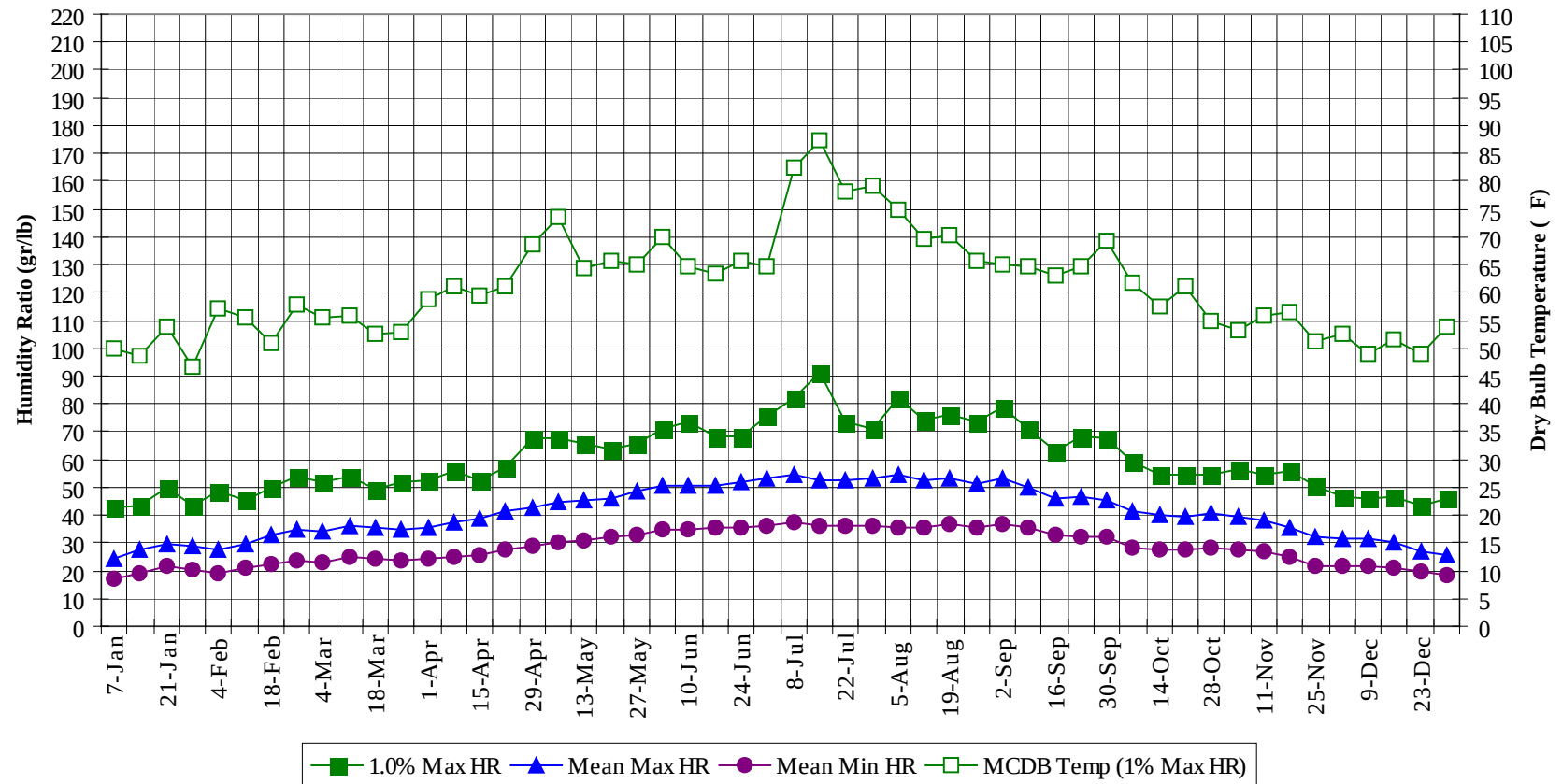
Annual Summary of Temperatures



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Long Term Humidity and Dry Bulb Temperature Summary



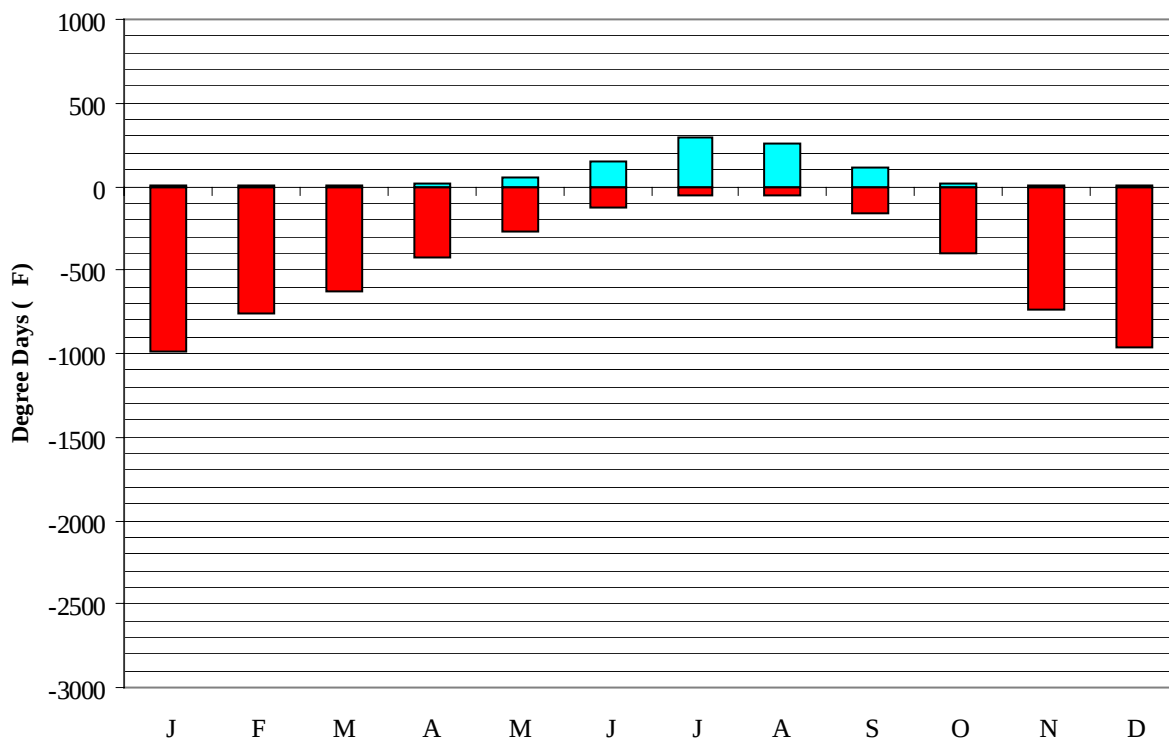
PENDLETON OR**WMO No. 726880****Long Term Dry Bulb Temperature and Humidity Summary**

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	54.0	46.6	34.2	23.9	-2.0	42.7	49.8	24.6	17.2
14-Jan	57.0	47.4	37.7	26.5	-2.0	43.4	48.7	27.7	19.2
21-Jan	59.0	50.8	40.7	30.1	14.0	49.7	53.9	29.6	21.6
28-Jan	55.0	46.0	41.4	30.1	8.0	43.4	46.7	29.2	20.7
4-Feb	59.0	45.0	39.1	26.7	-8.0	48.3	57.2	27.4	19.0
11-Feb	58.0	48.2	41.8	28.7	4.0	45.5	55.3	29.3	20.7
18-Feb	60.0	49.6	46.8	33.4	16.0	49.7	50.8	32.9	22.3
25-Feb	63.0	52.9	50.0	34.8	21.0	53.9	57.7	34.8	23.6
4-Mar	61.0	49.7	48.9	33.5	10.0	51.8	55.4	34.5	23.3
11-Mar	62.0	50.2	53.3	36.3	27.0	53.9	56.0	35.9	24.8
18-Mar	64.0	49.9	54.2	36.5	30.0	49.0	52.5	35.4	24.3
25-Mar	65.0	49.6	55.0	37.2	29.0	51.8	52.8	34.8	23.7
1-Apr	69.0	52.6	56.2	37.8	31.0	52.5	58.9	35.5	24.1
8-Apr	73.0	55.1	59.2	39.5	32.0	56.0	61.0	37.5	25.2
15-Apr	75.0	56.3	61.2	40.8	34.0	52.5	59.5	38.7	25.9
22-Apr	76.0	57.3	62.0	41.9	34.0	57.4	61.1	41.3	27.5
29-Apr	79.0	58.6	62.9	42.7	36.0	67.9	68.8	42.8	29.0
6-May	81.0	60.7	65.2	44.3	37.0	67.9	73.5	44.6	30.3
13-May	85.0	60.7	67.9	46.2	39.0	65.8	64.5	45.3	31.1
20-May	85.0	60.3	68.7	47.3	41.0	63.7	65.7	46.0	32.4
27-May	86.0	61.9	71.0	48.0	42.0	65.8	64.9	48.6	32.8
3-Jun	89.0	62.6	73.0	50.1	43.0	70.7	70.1	50.8	35.0
10-Jun	88.0	61.9	74.2	51.7	45.0	73.5	64.6	50.6	34.9
17-Jun	93.0	64.6	76.2	52.4	46.0	68.6	63.2	50.8	35.5
24-Jun	96.0	63.8	79.8	54.7	47.0	68.6	65.6	52.0	35.6
1-Jul	94.0	63.7	81.6	55.7	48.0	75.6	64.8	53.0	35.8
8-Jul	96.0	65.0	81.8	56.1	49.0	81.9	82.4	54.8	37.5
15-Jul	99.0	65.6	84.5	58.0	51.0	91.0	87.3	52.3	36.0
22-Jul	100.0	64.7	87.4	59.5	51.0	73.5	78.2	52.8	35.9
29-Jul	100.0	66.5	89.8	61.1	55.0	70.7	79.2	53.2	35.9
5-Aug	99.0	64.6	88.2	60.4	54.0	81.9	74.9	54.2	35.6
12-Aug	99.0	64.7	87.8	59.9	53.0	74.2	69.5	52.2	35.3
19-Aug	97.0	65.3	83.9	58.4	50.0	76.3	70.2	52.9	36.9
26-Aug	94.0	63.1	81.5	56.5	48.5	73.5	65.5	51.5	35.6
2-Sep	96.0	64.4	81.0	55.6	48.0	79.1	64.9	52.9	37.1
9-Sep	92.0	62.1	80.1	54.1	47.0	70.7	64.7	49.8	35.6
16-Sep	91.0	62.5	76.5	51.3	44.0	63.0	63.0	45.8	32.6
23-Sep	88.0	61.5	73.6	49.1	41.0	68.6	64.8	46.3	32.2
30-Sep	86.0	59.7	73.1	48.6	37.0	67.9	69.4	45.5	32.4
7-Oct	83.0	57.6	69.4	45.7	36.0	58.8	61.6	41.4	28.4
14-Oct	77.0	56.6	66.0	44.1	35.0	54.6	57.4	39.8	27.8
21-Oct	74.0	54.4	62.7	41.1	31.0	54.6	60.9	39.3	27.5
28-Oct	69.0	54.8	59.2	40.1	31.0	54.6	55.0	40.6	28.3
4-Nov	66.0	50.8	53.5	37.8	24.0	56.7	53.2	39.4	27.3
11-Nov	64.0	50.7	51.3	36.9	22.0	54.6	55.8	38.0	27.0
18-Nov	62.0	47.3	48.1	35.2	14.0	56.0	56.6	35.5	25.0
25-Nov	62.0	48.6	44.0	31.7	3.0	50.4	51.2	32.0	21.9
2-Dec	59.0	50.2	42.3	31.2	6.0	46.9	52.5	31.4	21.8
9-Dec	61.0	49.2	42.9	30.7	13.0	46.2	48.9	31.5	21.7
16-Dec	58.0	48.8	42.4	30.9	14.0	46.9	51.4	30.3	21.0
23-Dec	55.0	45.7	37.0	26.6	-10.0	43.4	49.1	26.7	19.4
31-Dec	58.0	52.3	35.3	25.8	-4.0	46.2	54.0	25.8	18.3

PENDLETON OR

WMO No. 726880

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



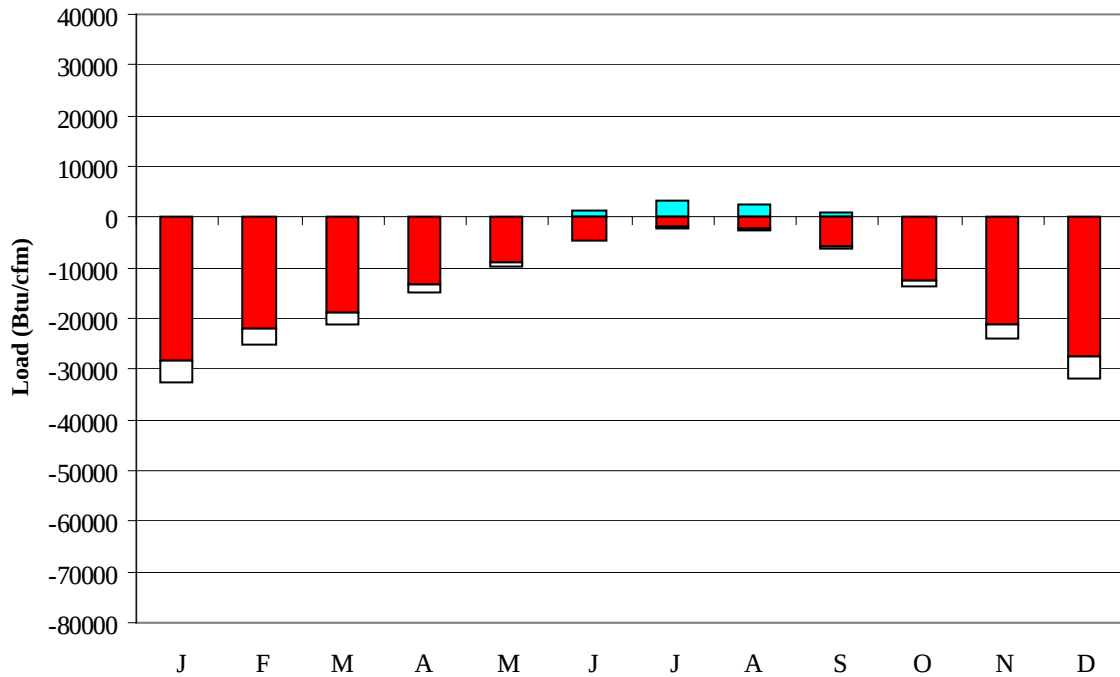
■ Mean Cooling Degree Days ■ Mean Heating Degree Days

	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	992
FEB	0	765
MAR	1	629
APR	13	431
MAY	55	270
JUN	148	120
JUL	297	48
AUG	261	54
SEP	111	162
OCT	17	401
NOV	0	733
DEC	0	966
ANN	902	5571

PENDLETON OR

WMO No. 726880

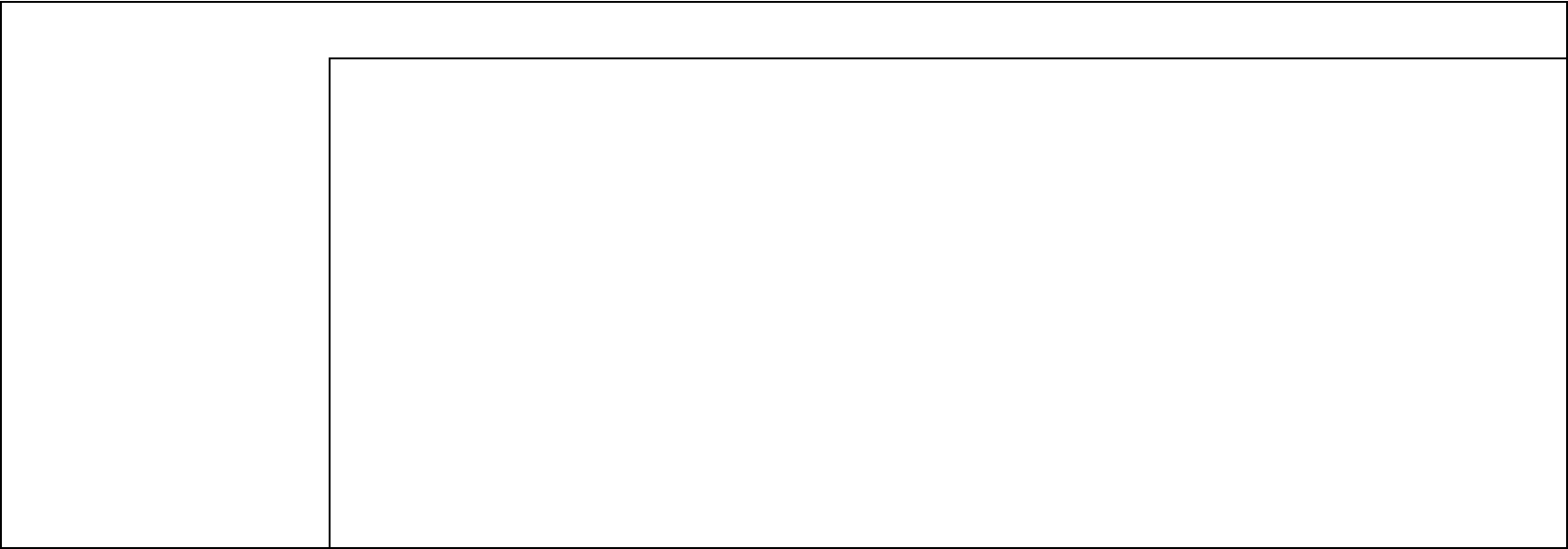
Average Ventilation and Infiltration Loads
(Outside Air vs. 75°F, 60% RH summer; 68°F, 30% RH winter)



	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	-28116	0	-4586
FEB	0	-22027	0	-3212
MAR	0	-18713	0	-2496
APR	33	-13358	0	-1531
MAY	300	-8943	0	-699
JUN	1150	-4427	1	-295
JUL	3130	-2019	24	-211
AUG	2491	-2273	6	-266
SEP	774	-5687	0	-566
OCT	56	-12487	0	-1320
NOV	0	-21323	0	-2543
DEC	0	-27447	0	-4307
ANN	7934	-166820	31	-22032

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

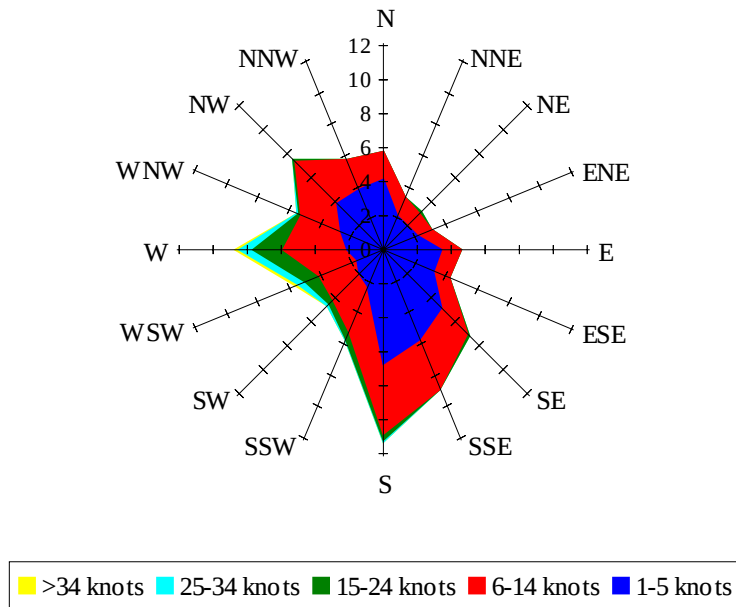
No Solar Radiation
Data Available



Average Annual Solar Heat and Illumination – Nearest Available Site

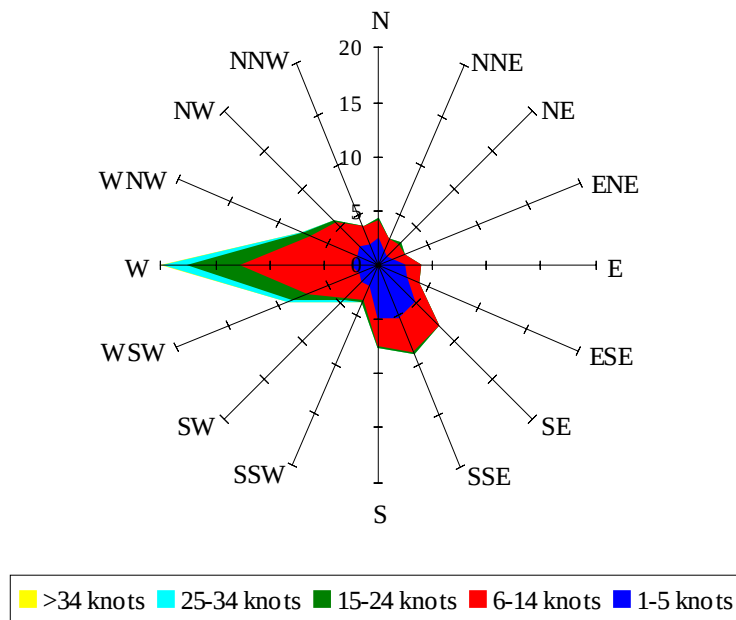
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

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



Percent Calm = 6.14

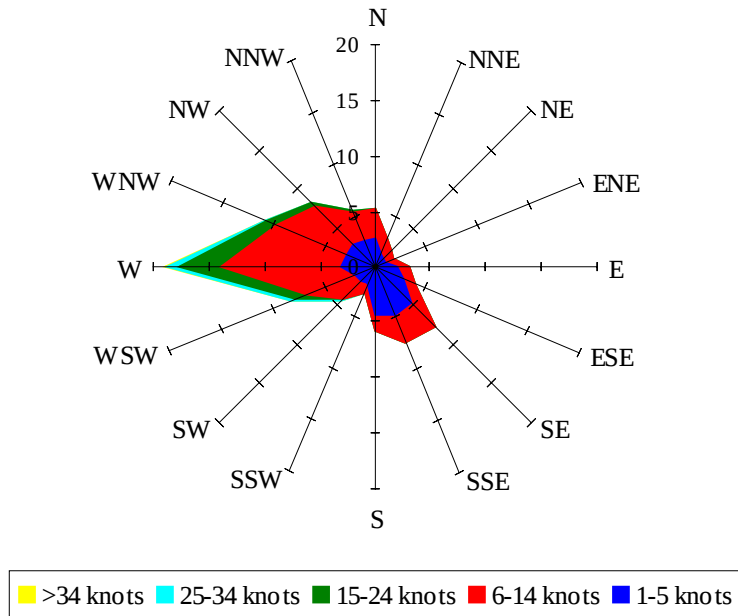
Wind Summary - March, April, and May **Labels of Percent Frequency on North Axis**



Percent Calm = 2.51

Wind Summary - June, July, and August

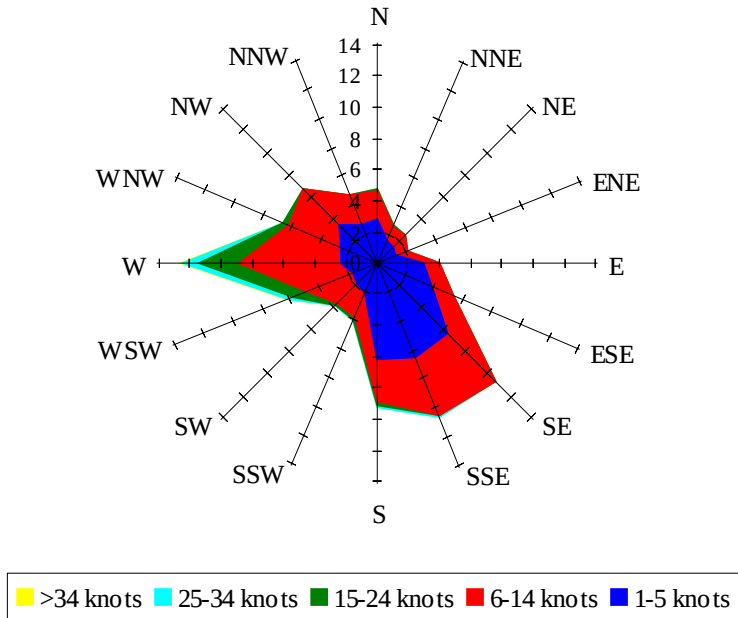
Labels of Percent Frequency on North Axis



Percent Calm = 2.14

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 4.48