

LYON, FRANCE

Latitude = 45.72 N

Longitude = 4.95 E

Period of Record = 1973 to 1996

WMO No. 074800

Elevation = 659 feet

Average Pressure = 29.30 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	95	69	66	11.8	S
0.4% Occurrence	90	69	72	10.3	S
1.0% Occurrence	88	69	75	9.2	S
2.0% Occurrence	84	67	75	9.1	S
Mean Daily Range	14	-	-	-	-
97.5% Occurrence	28	27	19	4.2	N
99.0% Occurrence	25	24	17	3.7	N
99.6% Occurrence	21	20	13	4.5	N
Median of Extreme Lows	18	17	11	6.7	N
	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	74	85	106	5.5	N
0.4% Occurrence	71	84	92	7.4	S
1.0% Occurrence	70	83	89	7.6	S
2.0% Occurrence	69	82	86	7.8	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	113	81	0.74	5.0	NNE
0.4% Occurrence	100	75	0.65	5.8	S
1.0% Occurrence	97	75	0.64	5.7	S
2.0% Occurrence	92	74	0.61	5.5	N
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		15	396	17	401

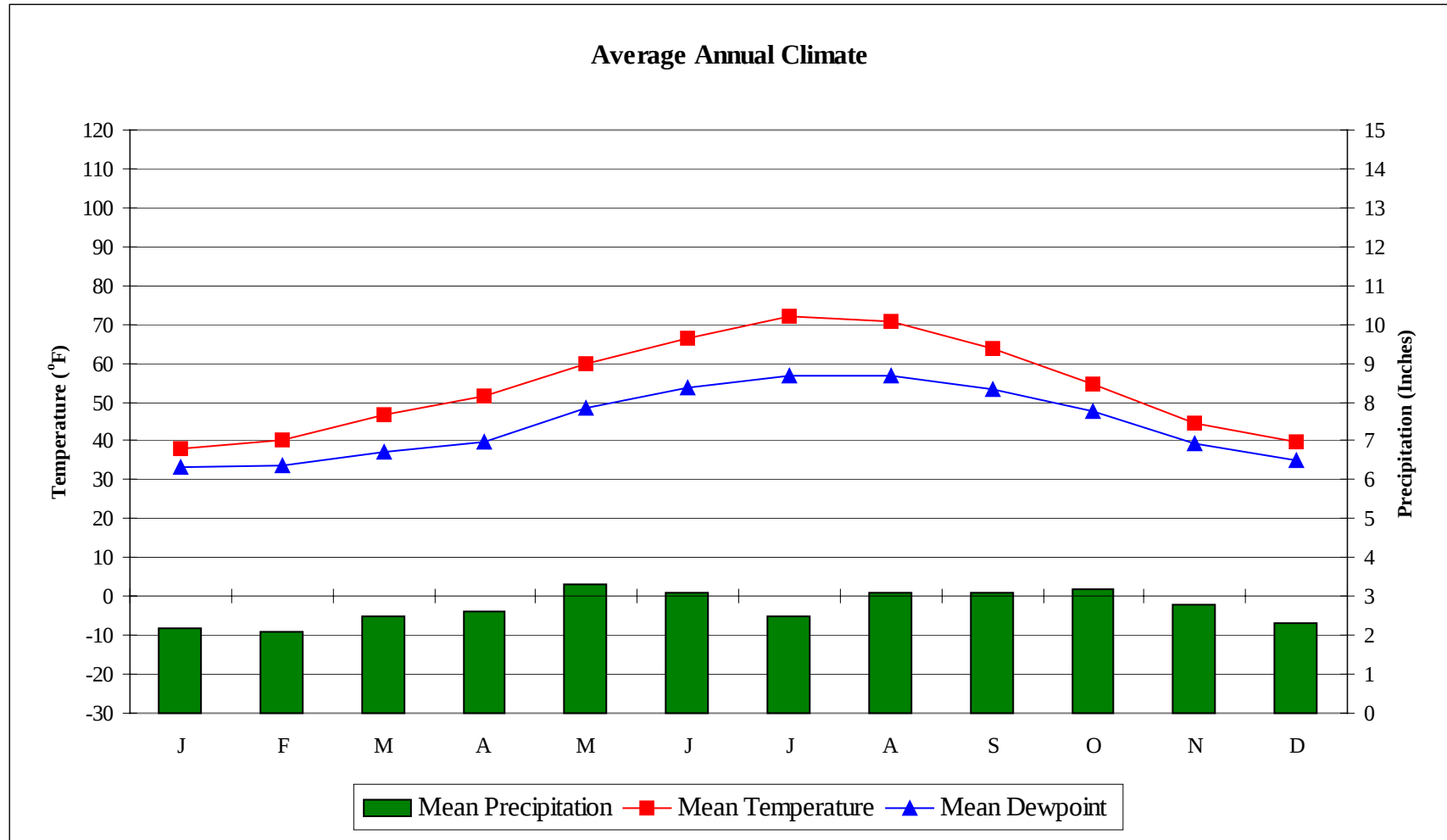
Other Site Data

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
7	N/A	N/A	0.2 + 0.3
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 (#)
56.6	N/A	N/A	29

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

LYON, FRANCE

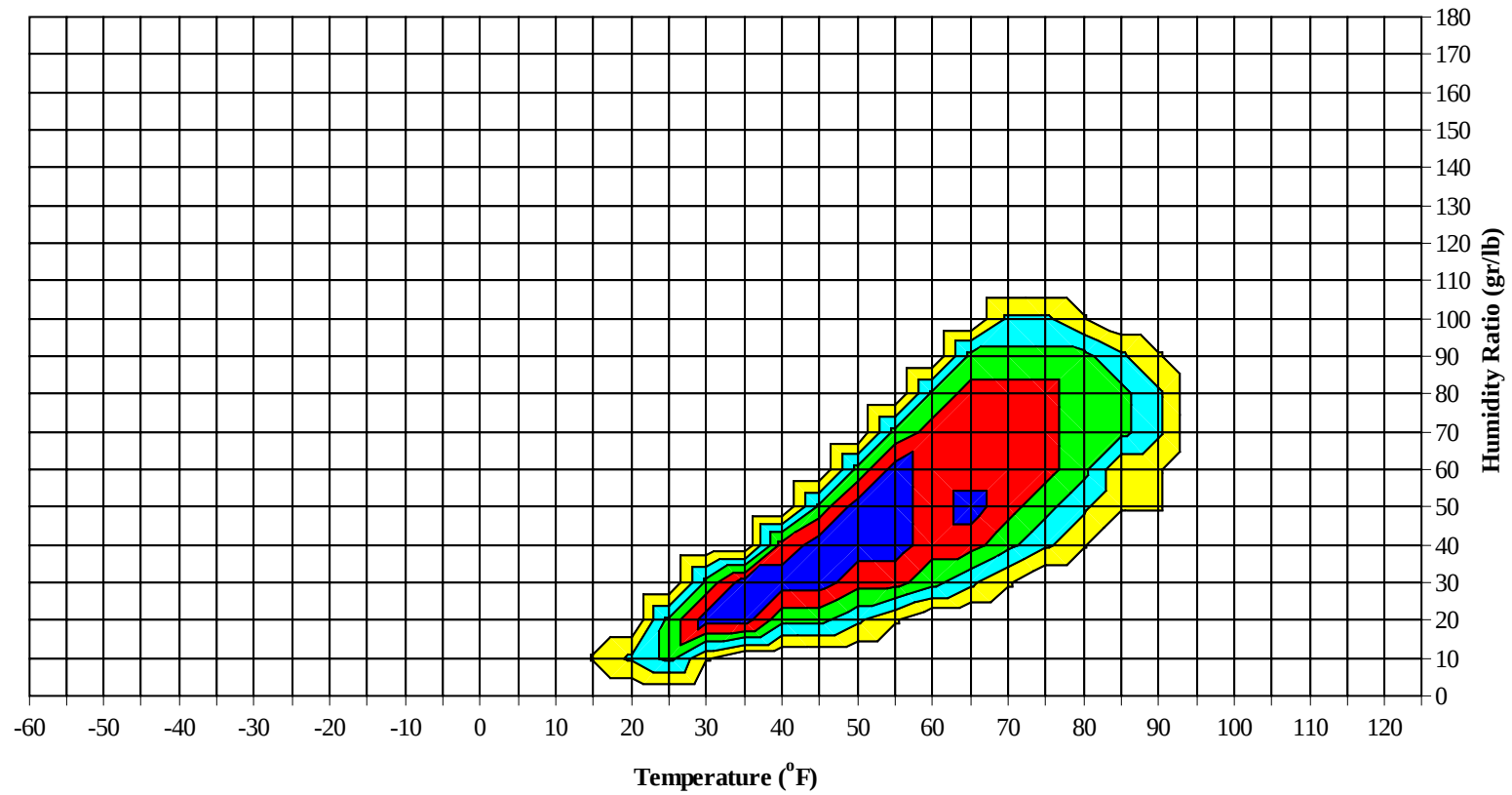
WMO No. 074800



LYON, FRANCE

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Long Term Psychrometric Summary

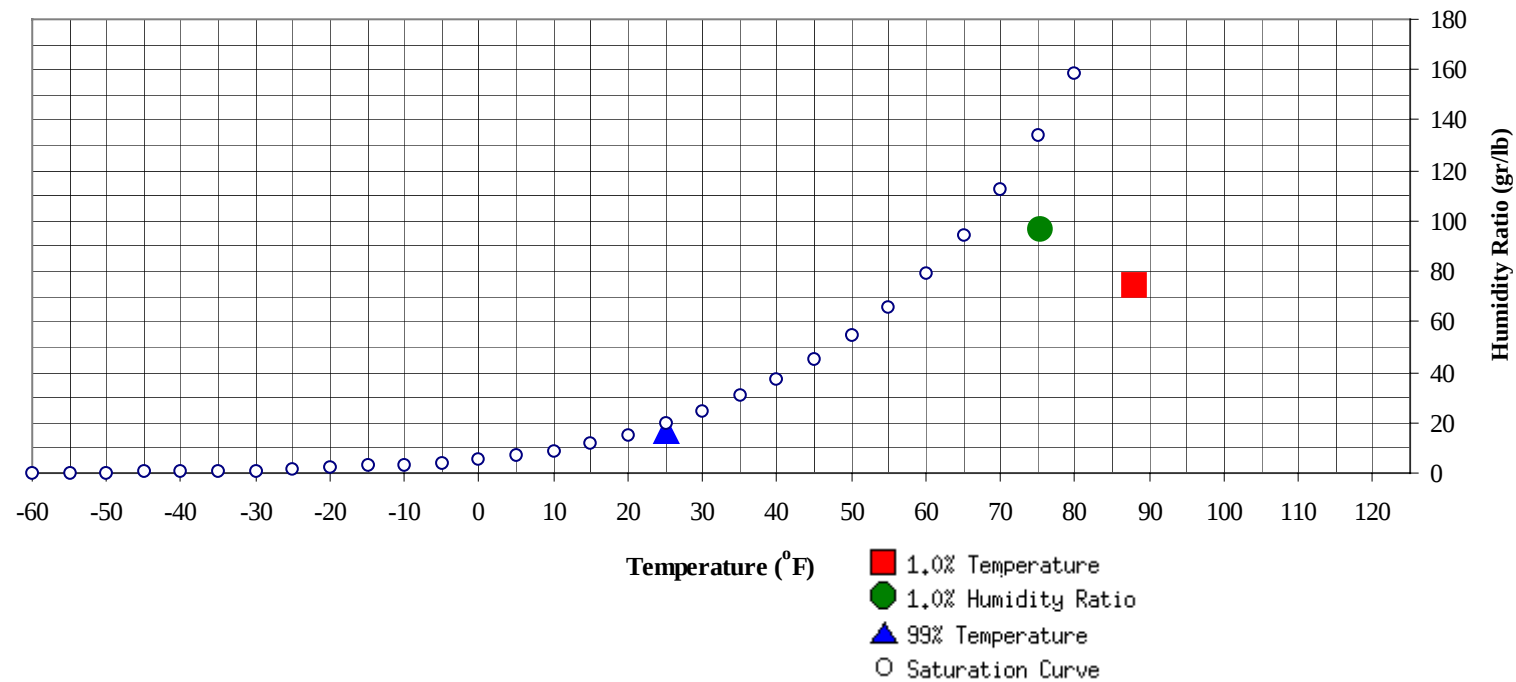


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

LYON, FRANCE

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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)
	25	16.3	8.5		96.6	75.2	68.6	65.6	33.2

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	88	74.9	68.5	32.9

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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		
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79												0	0	0	56.4
70 / 74							0	0	0	54.0		2	1	3	55.8
65 / 69							1	0	1	50.8		5	2	7	54.0
60 / 64		0		0	53.8		3	1	4	51.6	0	18	13	31	52.2
55 / 59	3	8	3	14	49.6	0	15	7	22	49.2	3	38	35	76	49.2
50 / 54	12	27	20	58	47.1	12	30	28	70	46.5	26	58	57	141	46.4
45 / 49	26	44	43	113	43.4	24	42	47	113	42.9	55	58	63	176	42.5
40 / 44	32	37	42	111	39.6	32	34	39	105	39.3	45	36	40	121	38.8
35 / 39	61	60	63	184	35.5	57	50	53	161	35.3	61	25	31	116	35.1
30 / 34	63	43	49	155	30.9	59	34	39	132	30.6	42	7	6	55	30.6
25 / 29	36	20	19	75	26.0	29	13	8	51	25.9	16	1	0	17	26.0
20 / 24	9	4	3	16	21.1	9	1	0	10	21.0	0			0	21.7
15 / 19	4	3	3	10	16.7	1	1	1	3	16.5					
10 / 14	1	2	2	6	11.5	0	0	0	0	11.6					
5 / 9	0	0	1	1	6.7										
0 / 4			0	0	3.0										

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		
100 / 104															
95 / 99															
90 / 94															
85 / 89							0	0	0	63.2		1	0	1	67.5
80 / 84							4	3	7	63.3		6	3	9	67.8
75 / 79		1	1	3	59.4	0	18	13	31	61.8		20	16	37	66.7
70 / 74		10	6	16	56.4	0	34	27	62	59.8	0	38	33	71	64.2
65 / 69		14	10	24	54.6	0	34	27	62	59.8	10	53	48	111	61.8
60 / 64	0	37	31	68	52.3	3	35	32	70	57.4	26	38	43	107	59.6
55 / 59	11	53	53	117	49.7	25	62	58	144	55.4	67	51	56	173	57.0
50 / 54	41	56	59	157	46.7	70	51	56	177	52.6	85	26	32	143	53.8
45 / 49	67	44	48	159	42.8	79	32	40	150	49.0	44	5	9	58	50.1
40 / 44	53	16	20	89	39.3	53	10	17	80	44.8	9	1	1	10	45.8
35 / 39	49	7	12	68	35.5	15	1	2	18	40.3	0			0	41.6
30 / 34	17	1	1	19	31.3	4	0	0	4	36.9					
25 / 29	1			1	27.6										
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															

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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	0	1	69.9										
95 / 99		2	2	4	69.3		1	0	1	67.5					
90 / 94		12	10	21	69.0		9	8	17	68.4		0	0	0	72.0
85 / 89		18	16	34	68.3		16	13	29	68.2		3	1	4	67.3
80 / 84	0	43	40	83	66.9	0	36	31	66	66.7		15	8	23	66.7
75 / 79	7	53	51	111	64.8	3	52	49	104	65.0	0	28	23	51	64.7
70 / 74	33	56	53	142	62.6	23	59	57	139	62.9	4	43	43	90	62.3
65 / 69	49	33	36	118	60.6	51	36	44	131	61.2	13	43	44	100	59.7
60 / 64	87	25	31	143	58.5	88	31	36	154	58.8	46	54	60	160	57.7
55 / 59	58	5	9	71	55.0	61	8	10	79	54.8	78	38	41	157	54.0
50 / 54	13	0	0	13	51.2	18	0	1	19	50.6	60	13	17	91	50.0
45 / 49	1			1	45.9	4			4	46.2	30	2	3	36	45.5
40 / 44						0			0	40.8	7		0	7	41.5
35 / 39											1			1	37.7
30 / 34															
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															

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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															
80 / 84		1		1	62.3										
75 / 79		5	1	6	62.3										
70 / 74	0	15	8	23	60.9		0		0	60.5					
65 / 69	1	24	14	39	59.0	0	1	0	1	57.1		0	0	0	54.7
60 / 64	13	45	44	102	56.7	2	12	4	18	54.7	0	3	1	4	53.9
55 / 59	42	63	62	166	53.3	12	30	24	66	52.1	4	12	7	24	50.5
50 / 54	73	54	59	186	49.4	21	45	46	112	48.8	18	32	29	79	47.5
45 / 49	56	29	41	127	44.7	47	57	58	162	44.2	36	44	40	121	43.7
40 / 44	31	10	14	55	40.7	48	37	42	128	40.1	31	39	40	110	39.9
35 / 39	24	3	5	32	37.0	59	34	39	132	35.9	55	53	60	168	35.7
30 / 34	7	0	0	7	32.0	38	20	24	82	30.9	64	45	50	159	30.9
25 / 29	0			0	28.0	12	3	3	18	26.3	28	16	16	60	26.0
20 / 24						2	0	0	2	21.7	7	2	3	13	21.0
15 / 19						0			0	19.0	4	1	1	7	17.2
10 / 14											0		0	0	13.2
5 / 9															
0 / 4															

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 5 of 5)

Period of Record = 1973 to 1996

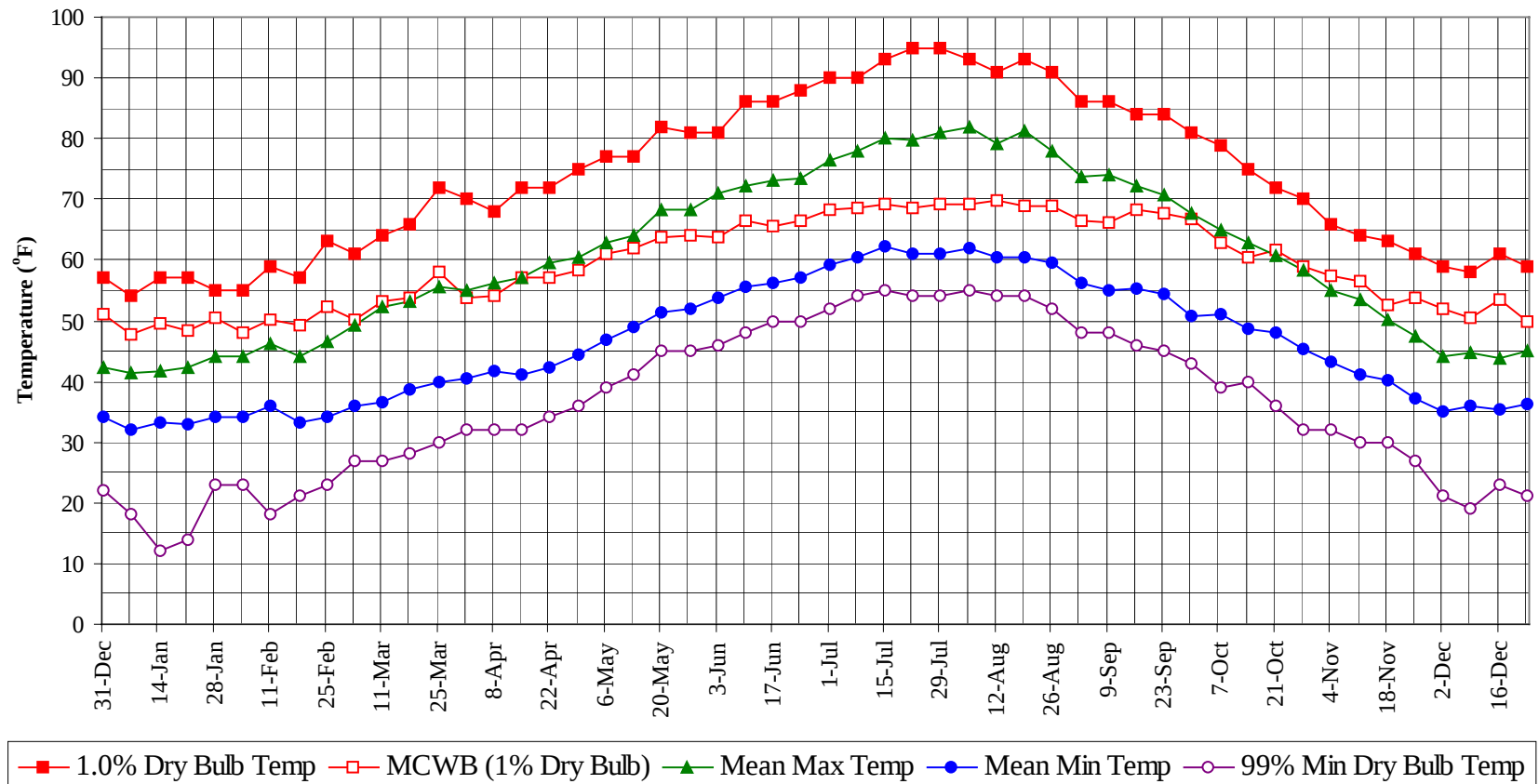
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
100 / 104		1	0	1	69.9
95 / 99		4	2	6	68.7
90 / 94		23	18	41	68.7
85 / 89		44	34	78	68.1
80 / 84	1	120	95	216	66.7
75 / 79	10	197	167	374	64.4
70 / 74	73	273	239	585	61.8
65 / 69	143	231	221	595	59.5
60 / 64	329	339	332	1001	56.6
55 / 59	427	347	337	1112	52.4
50 / 54	415	349	368	1133	48.1
45 / 49	405	333	366	1104	43.6
40 / 44	294	211	244	748	39.6
35 / 39	369	233	264	866	35.6
30 / 34	287	150	171	608	30.8
25 / 29	125	52	47	225	26.0
20 / 24	26	8	6	41	21.1
15 / 19	12	5	4	21	16.8
10 / 14	3	2	2	7	11.6
5 / 9	0	0	1	1	6.7
0 / 4			0	0	3.0

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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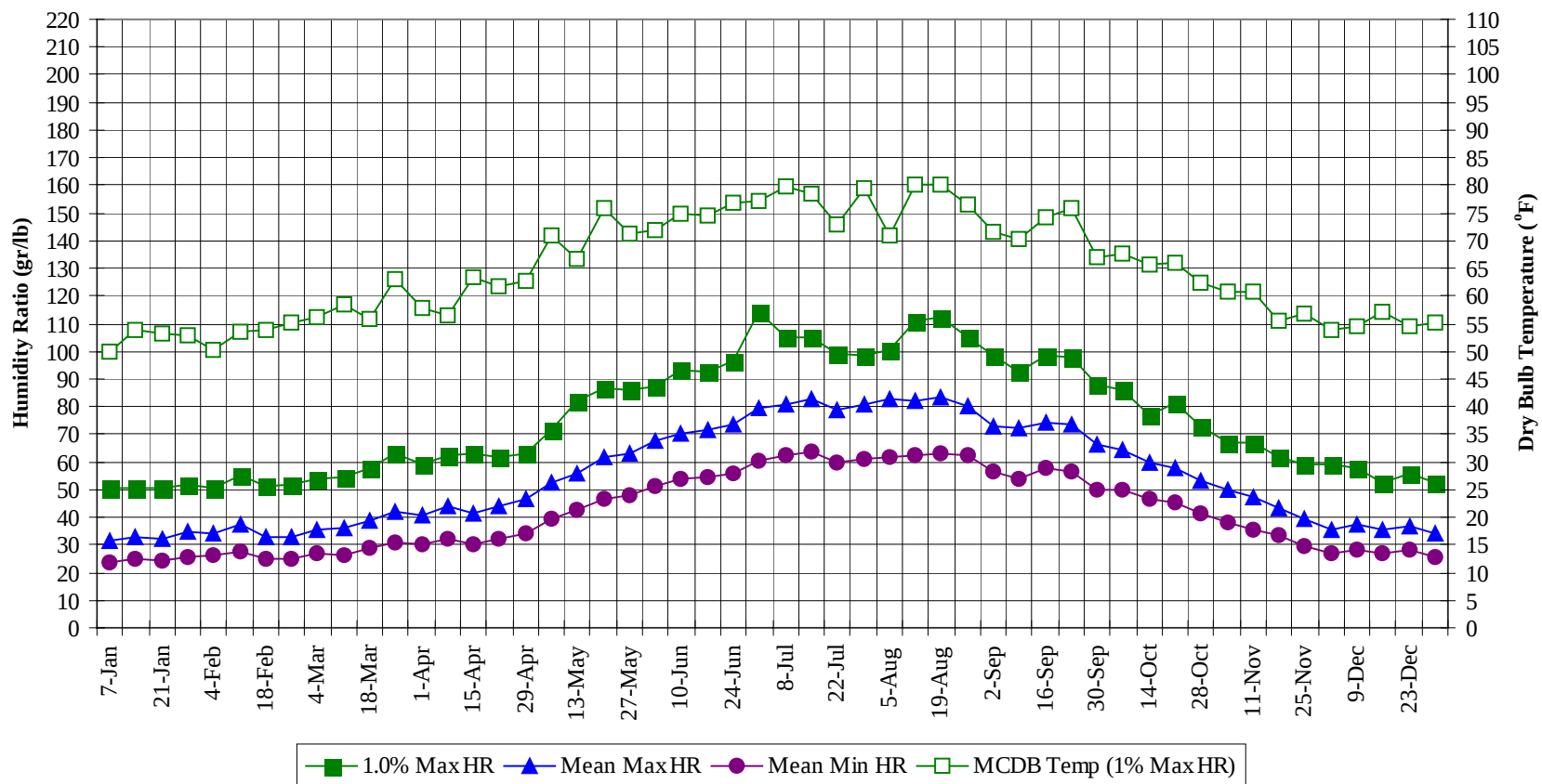
Annual Summary of Temperatures



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Long Term Humidity and Dry Bulb Temperature Summary

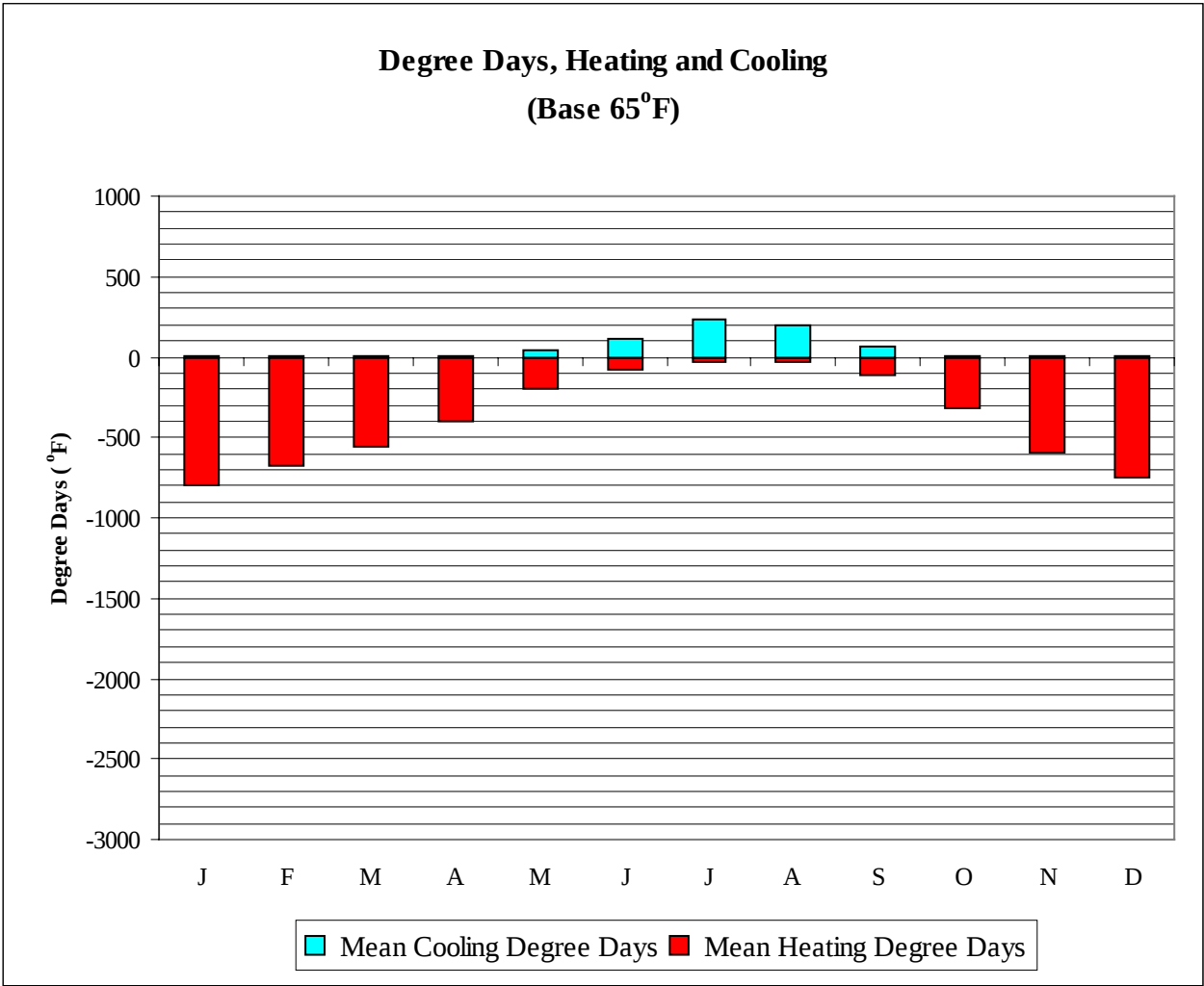


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Long Term Dry Bulb Temperature and Humidity Summary

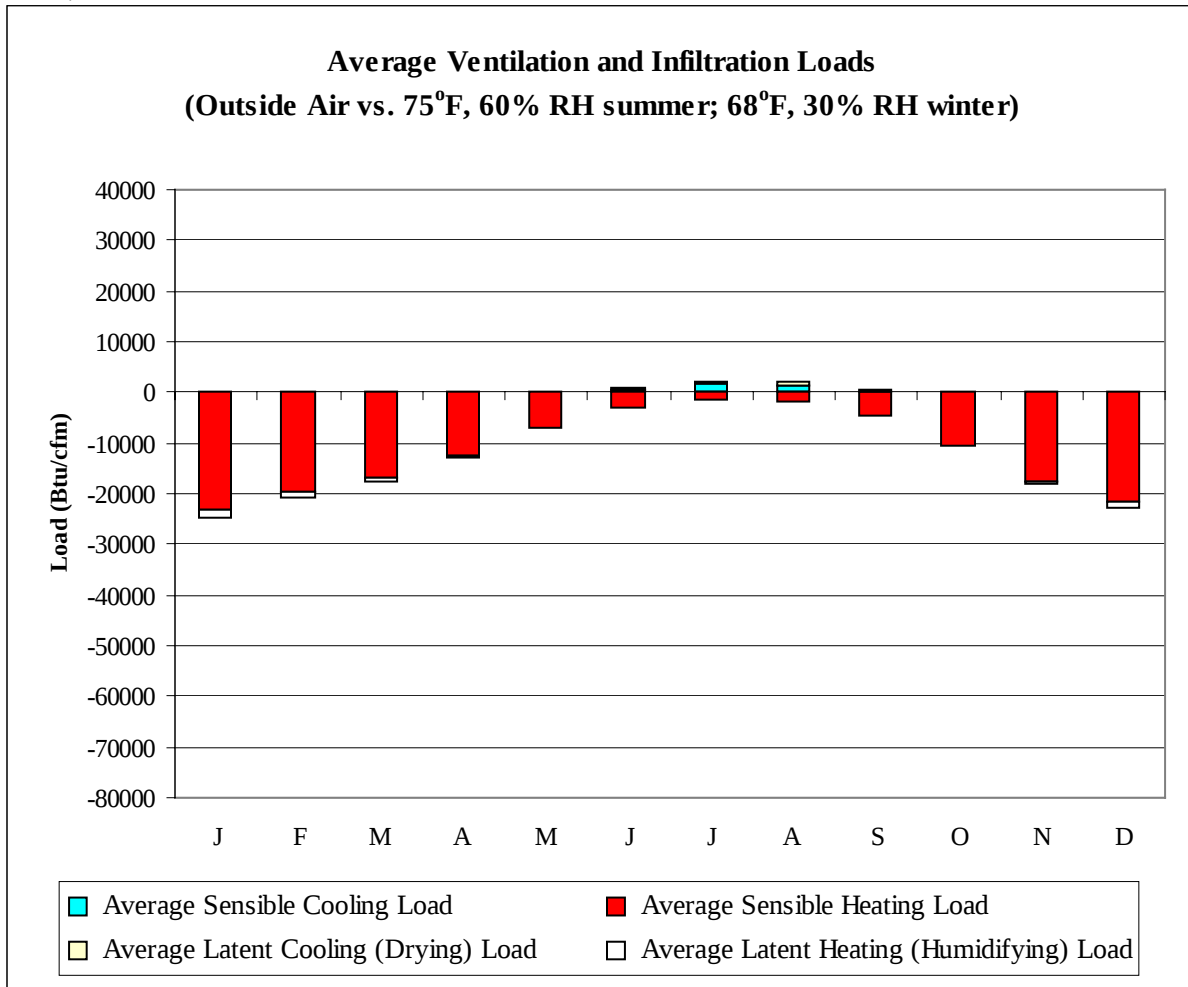
Week Ending	1.0% Temp (°F)	MCWB @ 1% Temp (°F)	Mean Max Temp (°F)	Mean Min Temp (°F)	99% Temp (°F)	1.0% HR (gr/lb)	MCDB @ 1% HR (°F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	54.0	47.8	41.3	32.0	18.0	50.4	49.8	31.6	23.7
14-Jan	57.0	49.5	41.7	33.2	12.0	50.4	53.8	33.0	25.2
21-Jan	57.0	48.4	42.2	32.9	14.0	50.4	53.3	32.4	24.5
28-Jan	55.0	50.3	44.0	34.0	23.0	51.8	52.8	34.8	25.5
4-Feb	55.0	48.1	44.1	34.1	23.0	50.4	50.3	34.4	26.2
11-Feb	59.0	50.0	46.3	35.8	18.0	55.3	53.5	37.3	27.4
18-Feb	57.0	49.4	44.0	33.3	21.0	51.1	53.7	32.6	24.6
25-Feb	63.0	52.3	46.4	34.1	23.0	51.8	55.3	33.2	24.8
4-Mar	61.0	50.1	49.4	35.9	27.0	53.9	56.1	35.6	26.7
11-Mar	64.0	53.1	52.4	36.5	27.0	54.6	58.6	36.1	26.5
18-Mar	66.0	53.8	53.3	38.7	28.0	58.1	55.9	38.9	28.9
25-Mar	72.0	58.2	55.6	40.0	30.0	63.0	63.1	42.4	31.2
1-Apr	70.0	53.8	55.0	40.6	32.0	58.8	57.6	40.9	30.1
8-Apr	68.0	54.0	56.2	41.6	32.0	62.3	56.5	43.7	32.1
15-Apr	72.0	57.2	57.1	41.0	32.0	63.0	63.5	41.7	30.4
22-Apr	72.0	57.0	59.5	42.2	34.0	61.6	61.7	43.7	32.0
29-Apr	75.0	58.4	60.3	44.3	36.0	63.0	62.9	46.8	34.4
6-May	77.0	61.1	62.9	46.7	39.0	71.4	71.1	52.7	39.4
13-May	77.0	62.0	64.1	48.9	41.0	81.9	66.7	55.8	42.7
20-May	82.0	63.8	68.3	51.4	45.0	86.8	75.8	62.0	46.9
27-May	81.0	64.1	68.3	52.1	45.0	86.1	71.3	63.3	48.0
3-Jun	81.0	63.7	70.9	53.6	46.0	87.5	72.0	67.6	50.9
10-Jun	86.0	66.5	72.1	55.5	48.0	93.1	74.8	70.2	53.5
17-Jun	86.0	65.4	73.3	56.3	50.0	92.4	74.6	71.3	54.7
24-Jun	88.0	66.4	73.4	57.2	50.0	96.6	77.0	73.2	55.8
1-Jul	90.0	68.3	76.6	59.3	52.0	114.1	77.3	79.6	60.7
8-Jul	90.0	68.6	78.0	60.5	54.0	105.0	79.9	80.9	62.1
15-Jul	93.0	69.2	80.1	62.1	55.0	105.0	78.5	82.6	63.9
22-Jul	95.0	68.6	79.8	61.1	54.0	99.4	73.0	79.0	60.0
29-Jul	95.0	69.3	81.0	61.1	54.0	98.7	79.6	80.8	60.9
5-Aug	93.0	69.2	81.9	61.9	55.0	100.8	71.0	82.5	61.5
12-Aug	91.0	69.9	79.3	60.4	54.0	111.3	80.2	82.0	62.7
19-Aug	93.0	69.0	81.3	60.4	54.0	112.0	80.1	83.1	63.3
26-Aug	91.0	68.9	77.8	59.6	52.0	105.0	76.6	80.2	62.2
2-Sep	86.0	66.4	73.7	56.3	48.0	98.7	71.6	73.1	56.6
9-Sep	86.0	66.2	74.1	54.9	48.0	92.4	70.1	72.3	53.8
16-Sep	84.0	68.3	72.2	55.3	46.0	98.7	74.3	74.5	57.5
23-Sep	84.0	67.8	70.8	54.4	45.0	98.0	75.9	73.5	56.4
30-Sep	81.0	66.7	67.8	50.8	43.0	88.2	67.1	66.2	49.8
7-Oct	79.0	62.8	65.0	51.0	39.0	86.1	67.8	64.6	50.1
14-Oct	75.0	60.3	62.9	48.7	40.0	77.0	65.8	59.5	46.6
21-Oct	72.0	61.7	60.9	47.9	36.0	81.2	66.0	57.8	45.0
28-Oct	70.0	58.8	58.2	45.4	32.0	72.8	62.3	53.1	41.2
4-Nov	66.0	57.5	55.0	43.1	32.0	67.2	60.9	50.0	38.1
11-Nov	64.0	56.6	53.6	41.0	30.0	67.2	60.7	47.1	35.3
18-Nov	63.0	52.6	50.1	40.1	30.0	61.6	55.5	43.6	33.3
25-Nov	61.0	53.8	47.6	37.0	27.0	58.8	56.8	39.7	29.5
2-Dec	59.0	51.9	44.2	35.0	21.0	58.8	53.9	35.8	27.0
9-Dec	58.0	50.5	44.7	36.0	19.0	58.1	54.6	37.3	28.6
16-Dec	61.0	53.5	43.9	35.3	23.0	52.5	57.0	35.4	27.0
23-Dec	59.0	50.0	45.0	36.1	21.0	56.0	54.6	36.8	28.3
31-Dec	57.0	51.1	42.3	34.1	22.0	52.5	55.1	33.9	25.8



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	802
FEB	0	675
MAR	1	559
APR	5	399
MAY	37	196
JUN	108	75
JUL	232	26
AUG	201	33
SEP	71	118
OCT	11	318
NOV	0	592
DEC	0	750
ANN	666	4543

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	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	-23102	0	-1473
FEB	0	-19660	0	-1192
MAR	1	-16902	0	-780
APR	2	-12613	0	-448
MAY	76	-7036	28	-17
JUN	427	-3193	301	0
JUL	1514	-1326	668	0
AUG	1175	-1662	767	0
SEP	236	-4669	246	-1
OCT	10	-10507	13	-35
NOV	0	-17625	0	-533
DEC	0	-21761	0	-1130
ANN	3441	-140056	2023	-5609

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

No Solar Radiation
Data Available

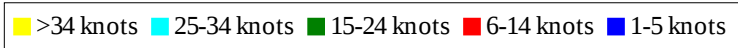
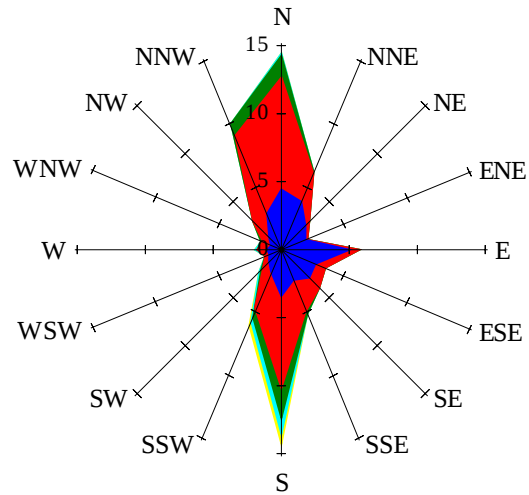


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

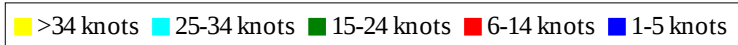
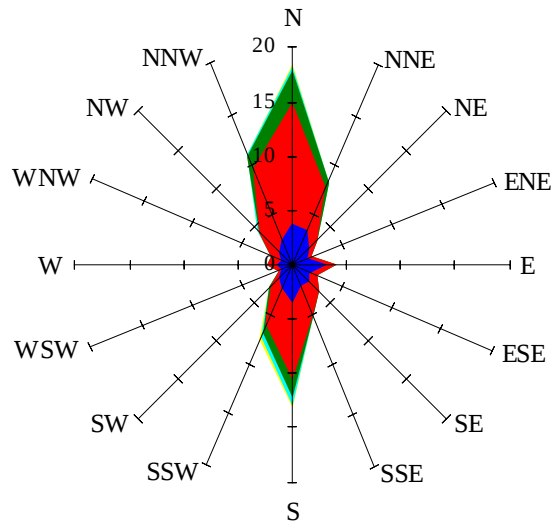
Labels of Percent Frequency on North Axis



Percent Calm = 16.32

Wind Summary - March, April, and May

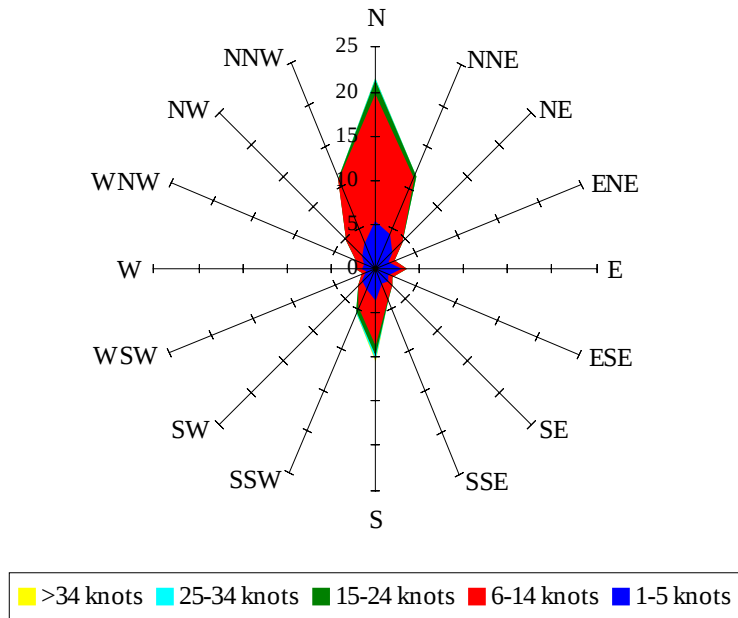
Labels of Percent Frequency on North Axis



Percent Calm = 10.00

Wind Summary - June, July, and August

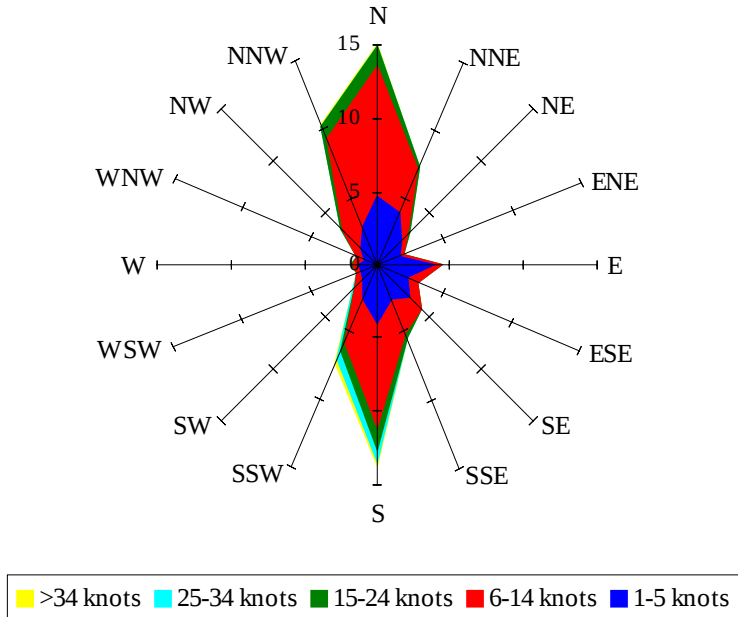
Labels of Percent Frequency on North Axis



Percent Calm = 9.77

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 14.71