

TRAVERSE CITY MI

Latitude = 44.73 N

Longitude = 85.58 W

Period of Record = 1973 to 1996

WMO No. 726387

Elevation = 623 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	94	74	98	13.3	SW
0.4% Occurrence	89	71	89	11.8	SW
1.0% Occurrence	86	70	88	11.5	SW
2.0% Occurrence	83	69	84	11.0	SW
Mean Daily Range	18	-	-	-	-
97.5% Occurrence	8	7	6	7.9	S
99.0% Occurrence	2	1	5	7.2	S
99.6% Occurrence	-3	-4	4	4.5	S
Median of Extreme Lows	-11	-12	2	5.4	S
	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	88	138	12.0	SSW
0.4% Occurrence	75	85	118	11.3	SSW
1.0% Occurrence	73	82	110	10.2	SSW
2.0% Occurrence	71	80	102	9.5	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	137	75	0.88	8.1	SW
0.4% Occurrence	121	80	0.79	8.8	SSW
1.0% Occurrence	113	79	0.74	8.2	SSW
2.0% Occurrence	106	75	0.69	8.7	S
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		11	343	103	576

Other Site Data

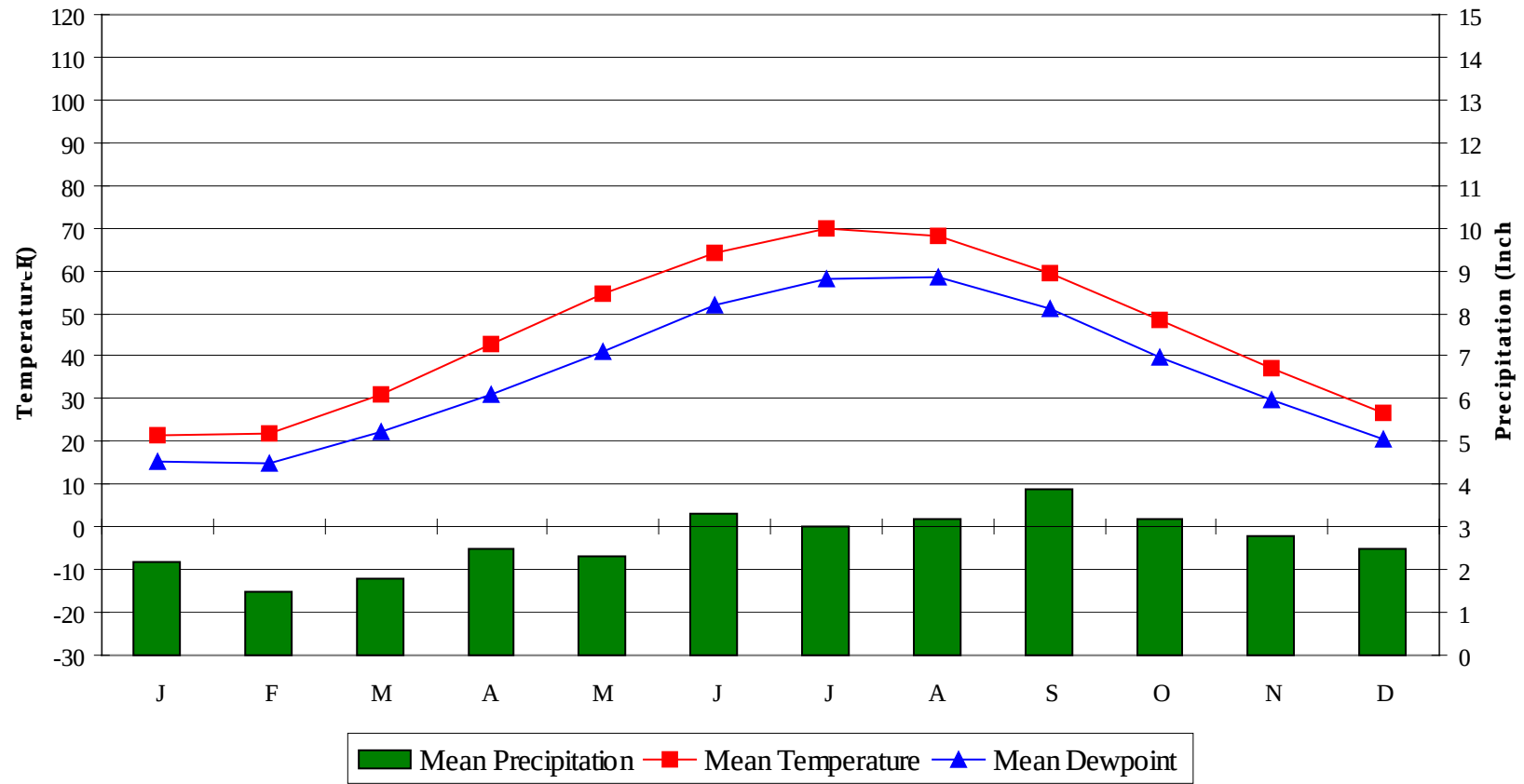
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
5	2.5	90	0.7 + 0.3
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
48.1	N/A	N/A	66

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

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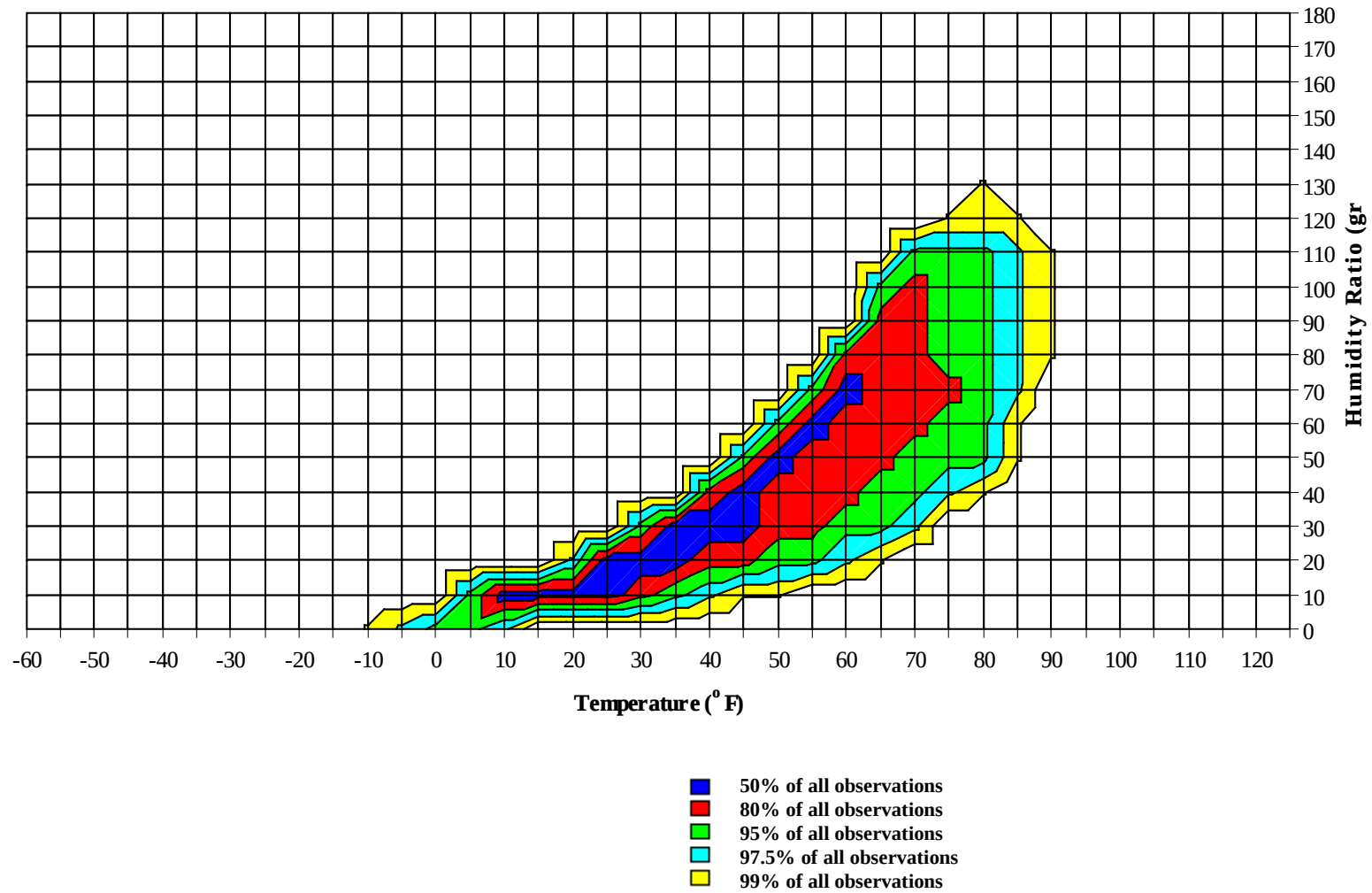
Average Annual Climate



TRAVERSE CITY MI

WMO No. 726387

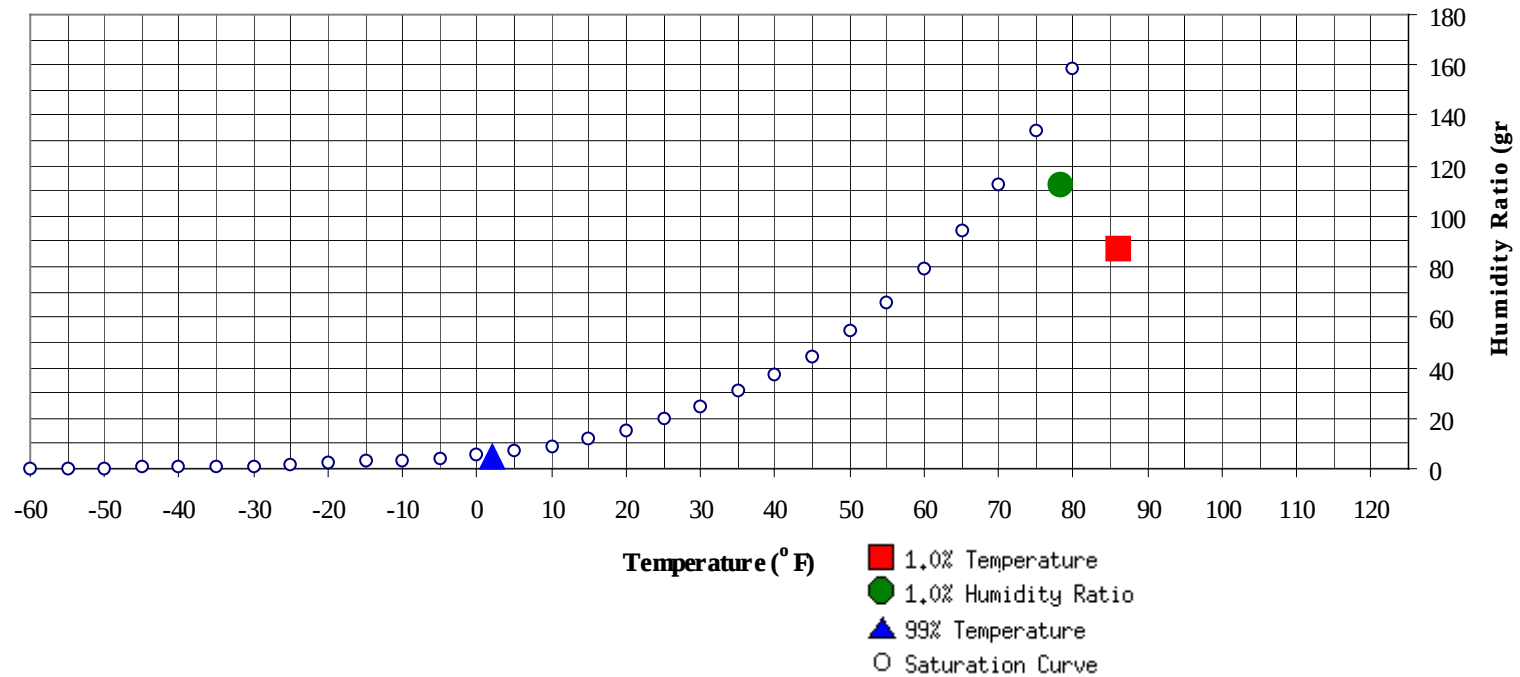
Long Term Psychrometric Summary



TRAVERSE CITY MI

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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	2	4.7	1.2		112.7	78.4	72.5	70	36.5

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	86	87.6	70.2	34.4

TRAVERSE CITY MI

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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		
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79												0	0	0	59.4
70 / 74											0	1	0	1	56.3
65 / 69											0	2	1	4	55.0
60 / 64											1	4	2	7	51.9
55 / 59		0		0	50.0		0	0	1	45.0	2	6	3	10	49.0
50 / 54	0	0	0	1	47.9	0	1	0	2	44.0	4	12	8	24	45.1
45 / 49	1	2	1	4	43.2	1	4	2	7	40.9	6	19	11	36	40.5
40 / 44	2	7	4	13	37.8	4	10	8	22	36.8	13	33	25	71	37.1
35 / 39	14	21	16	51	34.0	13	28	22	63	33.7	31	49	45	125	33.5
30 / 34	38	40	42	120	29.9	35	34	37	106	30.0	53	48	57	158	29.4
25 / 29	35	41	36	112	25.1	27	34	31	93	24.5	41	30	40	111	24.8
20 / 24	42	51	49	142	20.2	30	39	36	105	20.0	35	25	25	85	20.0
15 / 19	36	35	40	111	15.5	34	35	35	104	15.4	23	13	18	54	15.6
10 / 14	40	28	27	95	10.9	30	20	24	75	10.8	16	6	8	30	11.0
5 / 9	20	15	17	53	6.3	21	11	15	47	6.2	8	3	4	15	6.2
0 / 4	11	7	9	27	1.5	12	5	8	25	1.3	6	1	1	8	1.7
-5 / -1	3	1	3	8	-3.0	6	2	3	10	-3.0	3	0	1	4	-2.5
-10 / -6	3	1	2	6	-7.2	5	1	2	7	-7.1	3		0	3	-7.1
-15 / -11	1	0	1	2	-11.6	2	0	1	3	-11.9	1			1	-10.7
-20 / -16	1	0		1	-16.1	1	0	0	2	-16.5					
-25 / -21	0			0	-20.0	1		0	1	-21.4					
-30 / -26						0			0	-27.0					
-35 / -31						0			0	-30.0					
-40 / -36						0			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		
95 / 99												1	0	1	73.7
90 / 94							2	0	2	70.1		5	1	6	71.7
85 / 89		1	0	1	64.7		5	2	6	67.9	0	15	5	20	68.6
80 / 84		3	1	4	63.4		12	4	16	64.8	1	31	13	45	66.3
75 / 79		4	2	6	61.4	0	20	8	28	62.1	5	38	25	68	64.3
70 / 74	1	6	4	11	58.4	4	26	13	43	59.4	14	45	34	92	62.2
65 / 69	4	10	6	20	55.9	11	31	21	64	56.4	31	41	44	117	59.6
60 / 64	6	16	9	31	52.1	21	39	33	93	53.5	49	35	44	128	56.6
55 / 59	7	21	13	42	47.9	26	37	37	100	49.9	50	19	37	106	53.3
50 / 54	12	33	25	69	44.4	36	34	42	112	46.4	43	10	24	77	49.2
45 / 49	20	39	34	93	41.1	45	26	40	112	43.1	27	2	10	38	45.0
40 / 44	37	45	46	128	37.5	44	14	29	86	39.1	13		3	16	40.8
35 / 39	47	34	45	126	33.8	31	3	13	48	34.9	6		1	6	36.6
30 / 34	45	21	34	100	29.5	21	0	5	26	30.6	1			1	33.1
25 / 29	35	7	17	60	25.1	8		0	8	26.6					
20 / 24	16	2	4	21	20.8										
15 / 19	4	1	1	5	15.8										
10 / 14	1	0	0	1	11.8										
5 / 9	0			0	7.5										
0 / 4	0			0	4.0										
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															

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TRAVERSE CITY MI

WMO No. 726387

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		
95 / 99		2	1	2	74.5		1	0	1	75.8					
90 / 94		10	3	14	73.5		5	2	7	73.8		1	0	1	73.3
85 / 89	0	26	10	36	70.9	0	15	5	20	71.8		3	1	4	71.4
80 / 84	2	50	27	79	68.4	2	42	18	61	69.5		13	4	17	68.6
75 / 79	11	57	42	110	66.3	8	56	36	99	67.1	1	21	10	32	65.8
70 / 74	31	55	54	140	64.5	26	62	54	142	65.1	10	36	21	68	63.8
65 / 69	53	33	49	134	62.0	57	42	55	155	62.6	23	44	34	101	60.9
60 / 64	66	14	39	119	58.7	63	20	44	127	58.9	33	49	46	127	57.2
55 / 59	47	3	17	67	54.6	45	4	22	72	54.8	49	42	51	141	53.3
50 / 54	26	0	5	31	50.6	31	1	9	41	50.7	50	22	39	111	49.2
45 / 49	9		1	10	46.1	13	0	2	15	46.5	38	7	23	69	44.9
40 / 44	2		0	2	42.1	3		0	3	41.8	23	2	9	33	40.9
35 / 39	0			0	38.0	0		0	1	38.1	9	0	3	12	36.3
30 / 34						0			0	33.3	3		0	4	32.4
25 / 29											0			0	28.3
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															

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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		
95 / 99															
90 / 94															
85 / 89															
80 / 84		2	0	2	64.5										
75 / 79		4	1	5	63.4										
70 / 74	1	9	4	14	60.4	0	1	0	1	60.2					
65 / 69	3	18	9	30	57.6	0	2	1	3	57.7					
60 / 64	11	29	21	61	55.0	3	6	4	12	55.1	0	0	0	0	58.7
55 / 59	21	37	27	86	51.2	6	11	7	23	52.4	1	1	1	2	54.4
50 / 54	34	50	41	126	47.3	10	19	15	44	47.6	1	2	1	4	47.6
45 / 49	45	46	52	143	43.3	17	24	21	62	42.9	3	5	3	11	42.7
40 / 44	53	33	48	134	39.2	29	42	34	105	38.4	6	12	9	27	38.4
35 / 39	47	17	33	96	35.0	48	52	53	153	33.9	29	42	33	103	34.2
30 / 34	26	2	11	39	30.9	63	50	60	172	29.7	54	57	59	170	30.0
25 / 29	7	0	2	9	27.0	39	23	32	94	25.2	47	44	49	140	25.1
20 / 24	0		0	0	23.4	17	8	12	37	20.8	39	35	36	109	20.5
15 / 19						6	2	3	10	16.3	28	27	30	85	15.8
10 / 14						2	1	1	3	11.7	23	15	16	55	11.2
5 / 9						0	0	0	1	6.4	9	5	8	22	6.5
0 / 4											5	2	3	10	1.9
-5 / -1											1	0	0	1	-2.9
-10 / -6											1	0	1	2	-7.4
-15 / -11											1	0		1	-11.5
-20 / -16											0			0	-15.0
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															

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TRAVERSE CITY MI

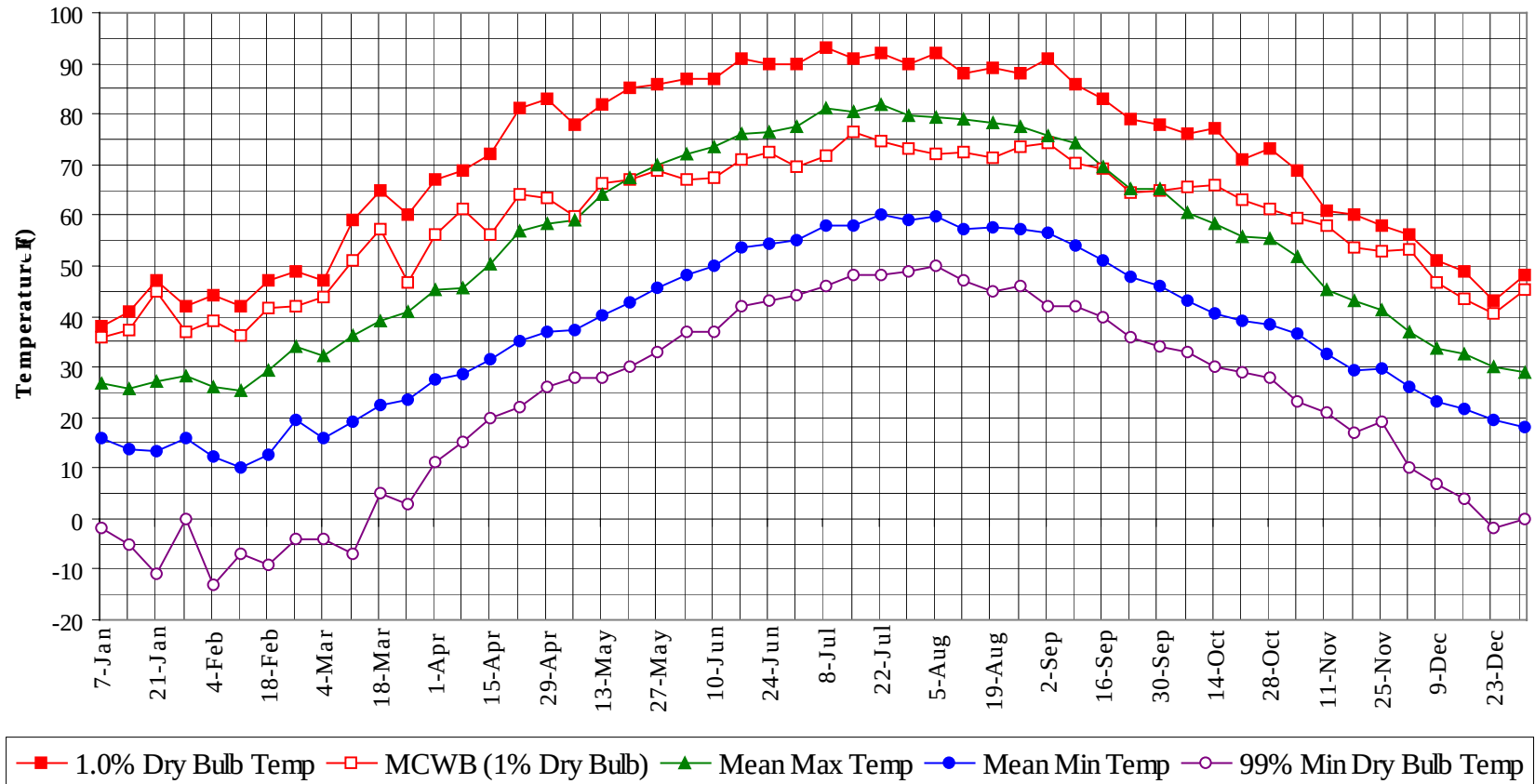
WMO No. 726387

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

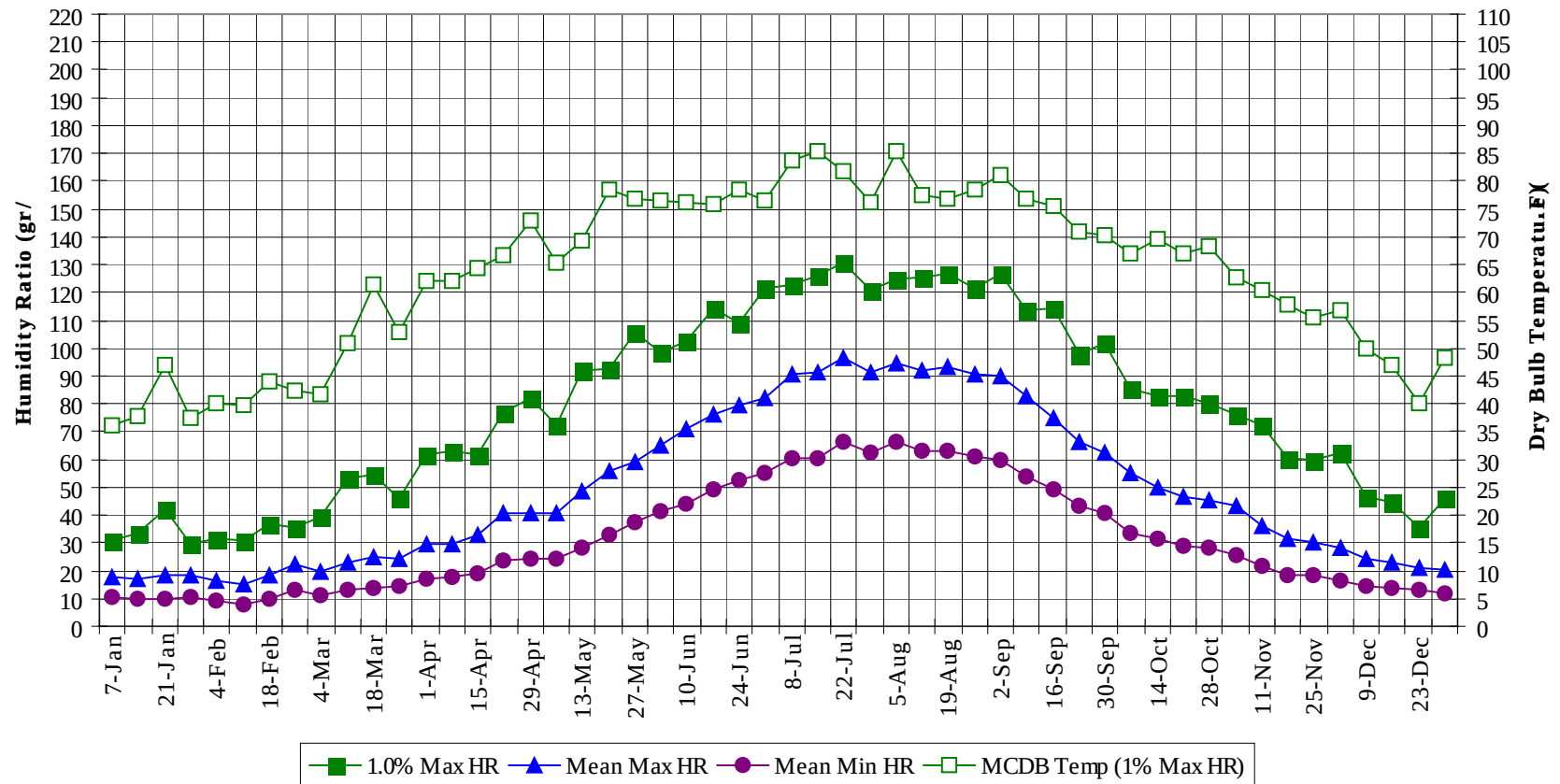
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
95 / 99		3	1	4	74.5
90 / 94		22	7	29	73.0
85 / 89	0	65	23	88	70.3
80 / 84	5	152	68	224	67.9
75 / 79	26	200	123	349	65.6
70 / 74	86	240	184	510	63.5
65 / 69	183	224	220	627	60.5
60 / 64	252	212	242	707	56.7
55 / 59	254	182	215	650	52.3
50 / 54	248	184	210	642	47.7
45 / 49	225	173	201	599	43.1
40 / 44	228	197	215	640	38.5
35 / 39	274	244	264	782	34.1
30 / 34	338	252	304	895	29.8
25 / 29	238	180	207	625	25.0
20 / 24	178	160	162	500	20.2
15 / 19	132	112	126	370	15.6
10 / 14	113	70	77	260	11.0
5 / 9	59	35	45	138	6.3
0 / 4	34	15	21	70	1.5
-5 / -1	13	4	6	23	-2.9
-10 / -6	12	2	4	18	-7.2
-15 / -11	5	1	1	7	-11.7
-20 / -16	2	0	0	2	-16.3
-25 / -21	1		0	1	-21.3
-30 / -26	0			0	-27.0
-35 / -31	0			0	-30.0
-40 / -36	0			0	

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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



TRAVERSE CITY MI

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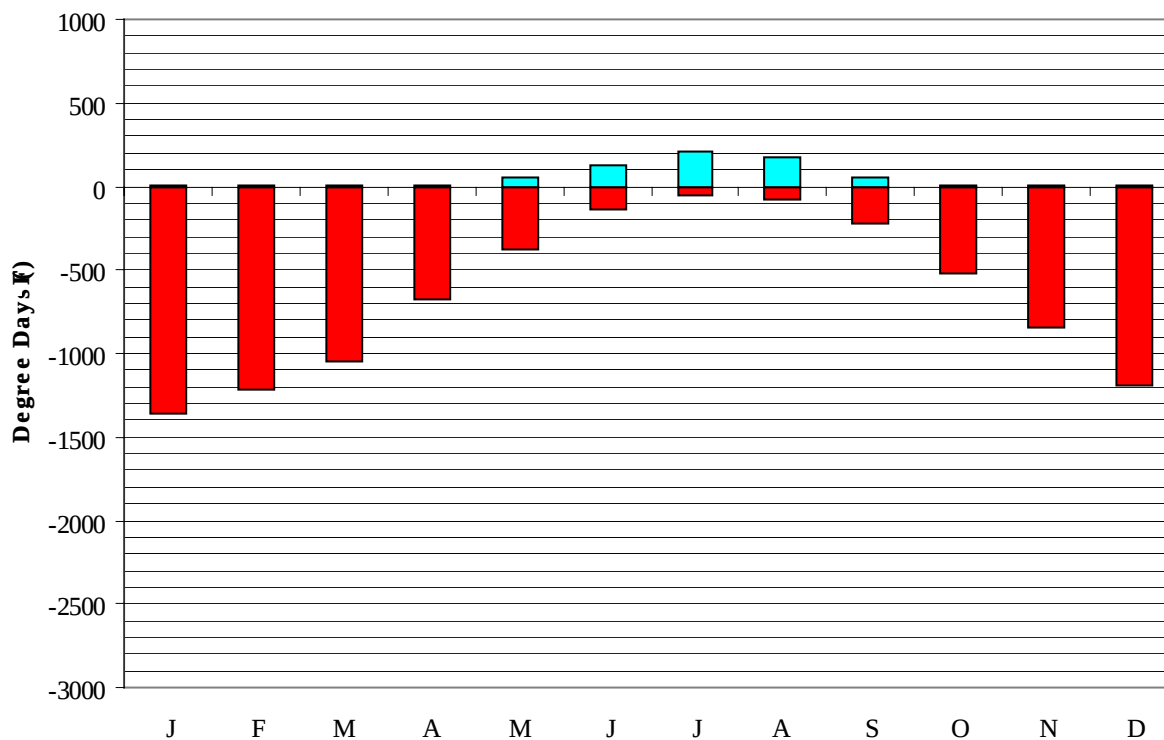
Long Term Dry Bulb Temperature and Humidity Summary

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	38.0	35.9	26.7	15.8	-2.0	30.8	36.3	17.7	10.4
14-Jan	41.0	37.4	25.8	13.8	-5.0	33.6	37.7	17.3	9.6
21-Jan	47.0	44.8	27.1	13.4	-11.0	42.0	47.1	18.2	10.1
28-Jan	42.0	36.9	28.1	16.1	0.0	29.4	37.6	18.7	10.6
4-Feb	44.0	39.0	26.0	12.4	-13.0	31.5	40.0	16.6	9.2
11-Feb	42.0	36.2	25.2	10.1	-7.0	30.8	39.9	15.2	8.1
18-Feb	47.0	41.8	29.2	12.8	-9.0	37.1	43.9	18.1	9.8
25-Feb	49.0	41.9	33.9	19.4	-4.0	35.7	42.3	22.5	13.2
4-Mar	47.0	43.6	32.1	16.0	-4.0	39.2	41.8	19.5	11.0
11-Mar	59.0	51.0	36.2	19.0	-7.0	53.2	50.9	23.2	13.3
18-Mar	65.0	57.3	39.2	22.4	5.0	54.6	61.3	24.9	13.7
25-Mar	60.0	46.7	40.7	23.3	3.0	46.2	52.9	24.5	14.5
1-Apr	67.0	56.0	45.2	27.6	11.0	61.6	62.2	29.8	17.1
8-Apr	69.0	61.3	45.5	28.6	15.0	63.0	61.9	29.6	17.8
15-Apr	72.0	56.0	50.3	31.5	20.0	61.6	64.4	32.9	19.1
22-Apr	81.0	64.2	56.8	35.0	22.0	77.0	66.8	40.7	23.9
29-Apr	83.0	63.5	58.5	36.8	26.0	81.9	72.9	40.7	24.0
6-May	78.0	59.8	58.9	37.2	28.0	72.1	65.2	40.9	24.6
13-May	82.0	66.3	64.3	40.2	28.0	91.7	69.3	48.3	28.2
20-May	85.0	67.0	67.4	42.8	30.0	92.4	78.6	55.6	32.9
27-May	86.0	68.9	70.0	45.6	33.0	105.7	76.9	59.3	37.5
3-Jun	87.0	67.2	72.2	48.2	37.0	98.7	76.5	64.7	41.4
10-Jun	87.0	67.4	73.7	49.8	37.0	102.2	76.1	70.9	44.1
17-Jun	91.0	71.0	76.0	53.6	42.0	114.1	75.8	75.9	49.6
24-Jun	90.0	72.5	76.3	54.5	43.0	109.2	78.5	79.4	52.4
1-Jul	90.0	69.7	77.6	55.0	44.0	121.8	76.5	81.8	54.9
8-Jul	93.0	71.8	81.3	58.1	46.0	122.5	83.6	90.9	60.6
15-Jul	91.0	76.3	80.4	58.0	48.0	126.0	85.3	91.5	60.2
22-Jul	92.0	74.6	81.7	60.2	48.0	130.9	81.7	96.4	66.3
29-Jul	90.0	73.3	79.6	59.0	49.0	121.1	76.2	91.6	62.2
5-Aug	92.0	72.0	79.5	59.8	50.0	124.6	85.5	94.7	66.0
12-Aug	88.0	72.6	79.1	57.4	47.0	125.3	77.5	92.0	62.7
19-Aug	89.0	71.3	78.1	57.6	45.0	126.7	76.9	93.6	63.3
26-Aug	88.0	73.6	77.6	57.2	46.0	121.8	78.6	90.3	61.1
2-Sep	91.0	74.3	75.6	56.4	42.0	126.7	81.2	90.1	60.0
9-Sep	86.0	70.3	74.3	54.0	42.0	113.4	77.0	82.9	53.7
16-Sep	83.0	69.1	69.6	51.2	40.0	114.1	75.6	75.2	49.3
23-Sep	79.0	64.5	65.1	47.8	36.0	98.0	70.8	66.3	43.5
30-Sep	78.0	65.0	65.1	45.9	34.0	101.5	70.3	62.6	40.9
7-Oct	76.0	65.7	60.6	43.0	33.0	85.4	67.1	55.3	33.8
14-Oct	77.0	66.0	58.3	40.5	30.0	82.6	69.7	50.2	31.3
21-Oct	71.0	62.9	55.7	39.0	29.0	82.6	66.9	46.9	28.9
28-Oct	73.0	61.1	55.4	38.2	28.0	79.8	68.2	45.6	28.3
4-Nov	69.0	59.2	51.8	36.6	23.0	76.3	62.6	43.0	25.7
11-Nov	61.0	58.1	45.3	32.5	21.0	72.1	60.4	36.1	21.5
18-Nov	60.0	53.8	42.9	29.5	17.0	60.2	57.8	31.4	18.7
25-Nov	58.0	52.9	41.3	29.7	19.0	59.5	55.5	30.2	18.6
2-Dec	56.0	53.3	36.8	26.1	10.0	62.3	56.9	28.0	16.5
9-Dec	51.0	46.8	33.8	23.1	7.0	46.9	49.8	24.1	14.6
16-Dec	49.0	43.5	32.6	21.7	4.0	44.8	47.0	22.7	13.9
23-Dec	43.0	40.6	30.2	19.6	-2.0	35.7	40.0	21.0	12.9
31-Dec	48.0	45.3	29.0	18.1	0.0	46.2	48.2	20.2	12.0

TRAVERSE CITY MI

WMO No. 726387

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



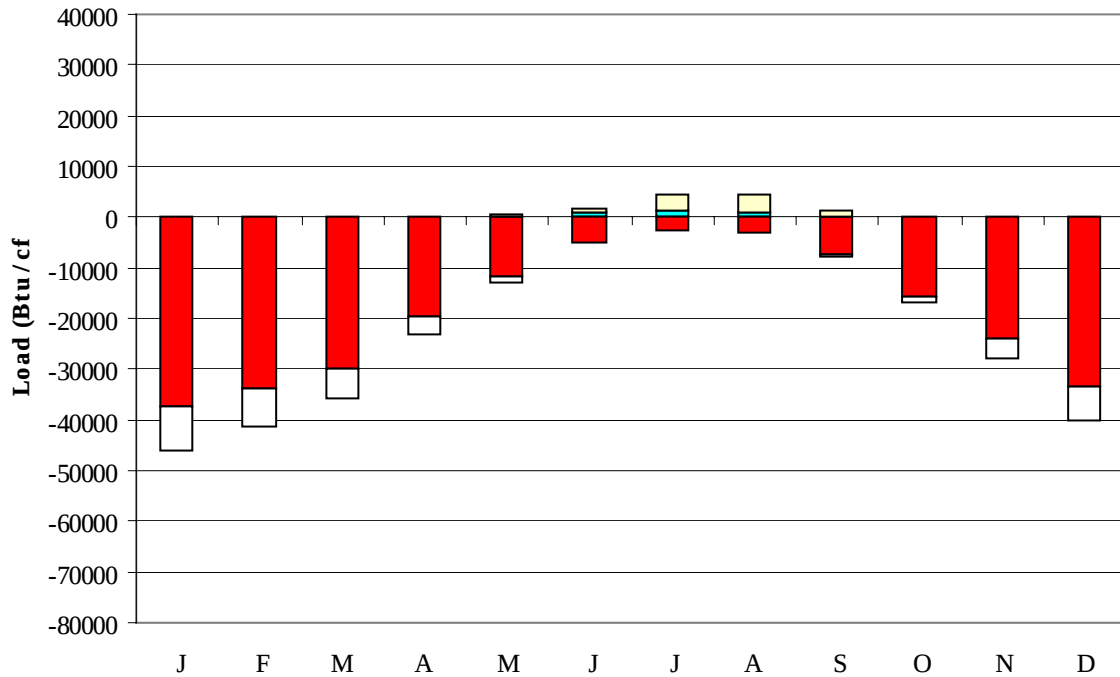
■ Mean Cooling Degree Days ■ Mean Heating Degree Days

	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1355
FEB	0	1218
MAR	1	1052
APR	11	678
MAY	48	375
JUN	123	143
JUL	210	59
AUG	168	73
SEP	58	223
OCT	9	522
NOV	0	840
DEC	0	1192
ANN	629	7730

TRAVERSE CITY MI

WMO No. 726387

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	-37523	0	-8346
FEB	0	-33765	0	-7588
MAR	0	-29673	0	-6142
APR	56	-19791	7	-3419
MAY	264	-11707	225	-1041
JUN	804	-5089	1021	-65
JUL	1494	-2446	3030	-5
AUG	979	-2929	3306	-3
SEP	240	-7545	1028	-94
OCT	16	-15831	34	-1004
NOV	0	-24109	0	-3731
DEC	0	-33304	1	-6772
ANN	3853	-223712	8652	-38210

Average Annual Solar Radiation – Nearest Available Site

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

City: TRAVERSE CITY
 State: MI
 WBAN No: 14850
 Lat(N): 44.73
 Long(W): 85.58
 Elev(ft): 630

Stn Type: Secondary
 SHADING GEOMETRY IN DIMENSIONLESS UNITS

Window: 1
 Overhang: 0.67
 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	470	760	1120	1440	1780	1950	1920	1600	1180	770	460	370	1150
	Std Dev	31	62	95	75	127	136	77	95	93	52	40	28	29
	Minimum	390	600	900	1280	1530	1710	1800	1450	990	650	380	280	1100
	Maximum	530	880	1270	1600	2080	2290	2080	1860	1390	900	540	430	1220
	Diffuse	380	510	620	680	760	810	780	710	580	430	320	300	570
Clear Day	Global	730	1090	1610	2120	2500	2640	2540	2210	1710	1170	760	610	1640
NORTH	Global	190	270	360	420	540	610	580	470	350	250	180	160	370
	Diffuse	190	270	360	410	490	520	510	440	350	250	180	160	340
Clear Day	Global	160	220	300	410	580	690	630	460	320	230	160	130	360
EAST	Global	300	480	690	860	1020	1090	1100	950	730	490	290	230	690
	Diffuse	240	340	440	500	580	620	610	540	430	310	210	190	420
Clear Day	Global	610	840	1130	1360	1500	1540	1500	1370	1150	870	620	520	1080
SOUTH	Global	620	910	1060	990	930	880	920	980	1000	880	590	490	850
	Diffuse	370	470	530	530	570	580	580	550	490	390	290	300	470
Clear Day	Global	1840	2000	1930	1560	1240	1090	1140	1390	1710	1870	1800	1730	1610
WEST	Global	300	490	710	880	1050	1130	1120	980	740	500	290	240	700
	Diffuse	240	340	450	510	590	630	620	550	440	310	210	190	420
Clear Day	Global	610	840	1130	1360	1500	1540	1500	1370	1150	870	620	520	1080

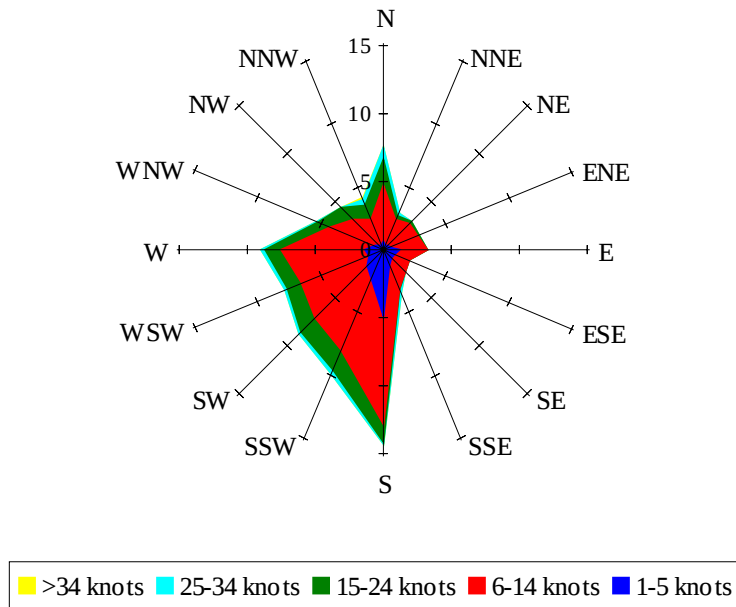
Average Annual Solar Heat and Illumination – Nearest Available Site

(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	310	510	780	1030	1290	1410	1390	1150	830	520	300	250	820
NORTH	Unshaded	130	190	250	290	360	400	380	310	240	170	120	110	250
	Shaded	110	150	210	240	300	340	330	270	210	150	98	85	210
EAST	Unshaded	200	330	490	620	730	770	780	680	520	340	200	160	490
	Shaded	170	280	400	500	590	620	630	550	430	280	170	130	400
SOUTH	Unshaded	460	670	750	660	590	550	570	640	690	640	440	370	590
	Shaded	430	600	560	390	330	340	340	360	460	540	410	340	420
WEST	Unshaded	210	340	500	630	750	800	800	700	530	350	200	160	500
	Shaded	170	280	420	510	600	640	650	570	440	290	170	140	410

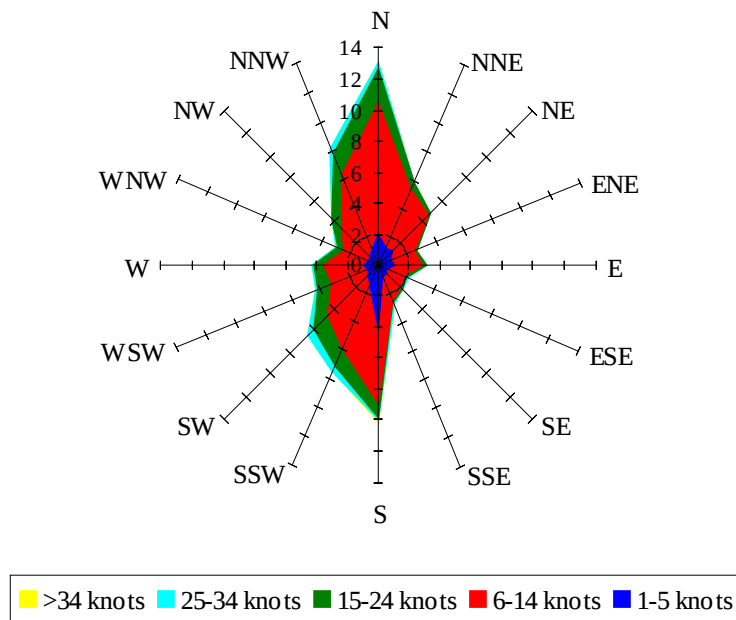
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9		March					June				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	23	58	74	66	36	35	72	93	95	77
	M.Cloudy	15	37	48	44	24	22	46	67	68	53
NORTH	M.Clear	7	12	14	13	9	19	14	16	16	15
	M.Cloudy	6	14	17	16	10	12	15	18	18	16
EAST	M.Clear	60	66	24	13	9	71	78	45	16	15
	M.Cloudy	20	31	20	16	10	30	42	35	18	16
SOUTH	M.Clear	25	67	87	76	41	10	29	50	52	34
	M.Cloudy	11	32	42	39	20	9	21	38	39	26
WEST	M.Clear	7	12	14	53	71	10	14	16	35	73
	M.Cloudy	6	14	17	31	29	9	15	18	29	46
M.Clear	(% hrs)	23	22	23	22	23	33	35	30	31	34
		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	14	50	73	75	54	3	24	37	27	4
	M.Cloudy	9	30	48	49	33	2	15	23	18	3
NORTH	M.Clear	5	12	14	15	12	2	8	10	8	2
	M.Cloudy	4	11	16	16	12	1	7	10	8	2
EAST	M.Clear	43	72	42	15	12	9	37	12	8	2
	M.Cloudy	14	32	27	16	12	2	13	10	8	2
SOUTH	M.Clear	10	48	74	76	51	7	57	80	62	13
	M.Cloudy	5	24	41	43	27	2	17	25	20	4
WEST	M.Clear	5	12	14	36	69	2	8	10	35	16
	M.Cloudy	4	11	16	26	33	1	7	10	14	4
M.Clear	(% hrs)	29	27	21	21	25	6	6	6	6	8

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



Percent Calm = 10.16

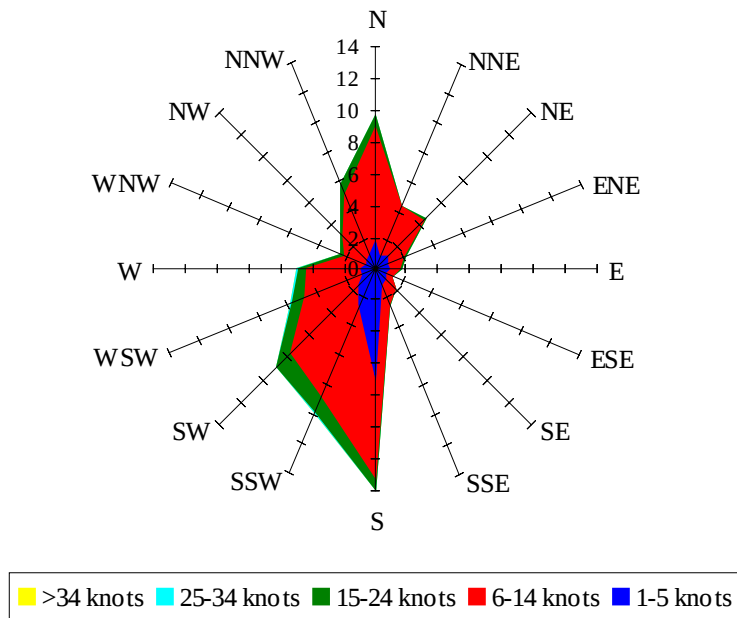
Wind Summary - March, April, and May **Labels of Percent Frequency on North Axis**



Percent Calm = 16.33

Wind Summary - June, July, and August

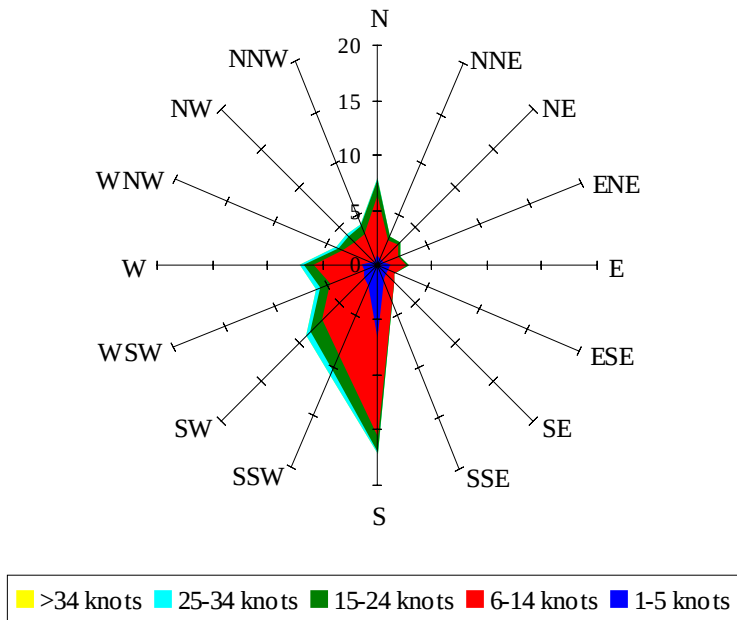
Labels of Percent Frequency on North Axis



Percent Calm = 18.59

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 13.33