

ROCHESTER MN

Latitude = 43.92 N

Longitude = 92.50 W

Period of Record = 1973 to 1996

WMO No. 726440

Elevation = 1319 feet

Average Pressure = 28.56 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	75	106	17.4	SW
0.4% Occurrence	88	73	106	15.0	S
1.0% Occurrence	86	72	102	14.9	S
2.0% Occurrence	83	70	96	14.2	S
Mean Daily Range	18	-	-	-	-
97.5% Occurrence	-5	-6	3	12.5	WNW
99.0% Occurrence	-12	-12	2	12.5	WNW
99.6% Occurrence	-18	-18	1	12.9	WNW
Median of Extreme Lows	-23	-23	1	13.6	W
	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	80	88	147	13.6	S
0.4% Occurrence	76	84	127	14.7	S
1.0% Occurrence	74	82	119	14.0	S
2.0% Occurrence	72	80	110	13.3	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	153	87	0.97	13.7	S
0.4% Occurrence	132	82	0.85	13.5	S
1.0% Occurrence	124	80	0.79	12.8	S
2.0% Occurrence	116	78	0.74	12.7	S
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		9	338	165	726

Other Site Data

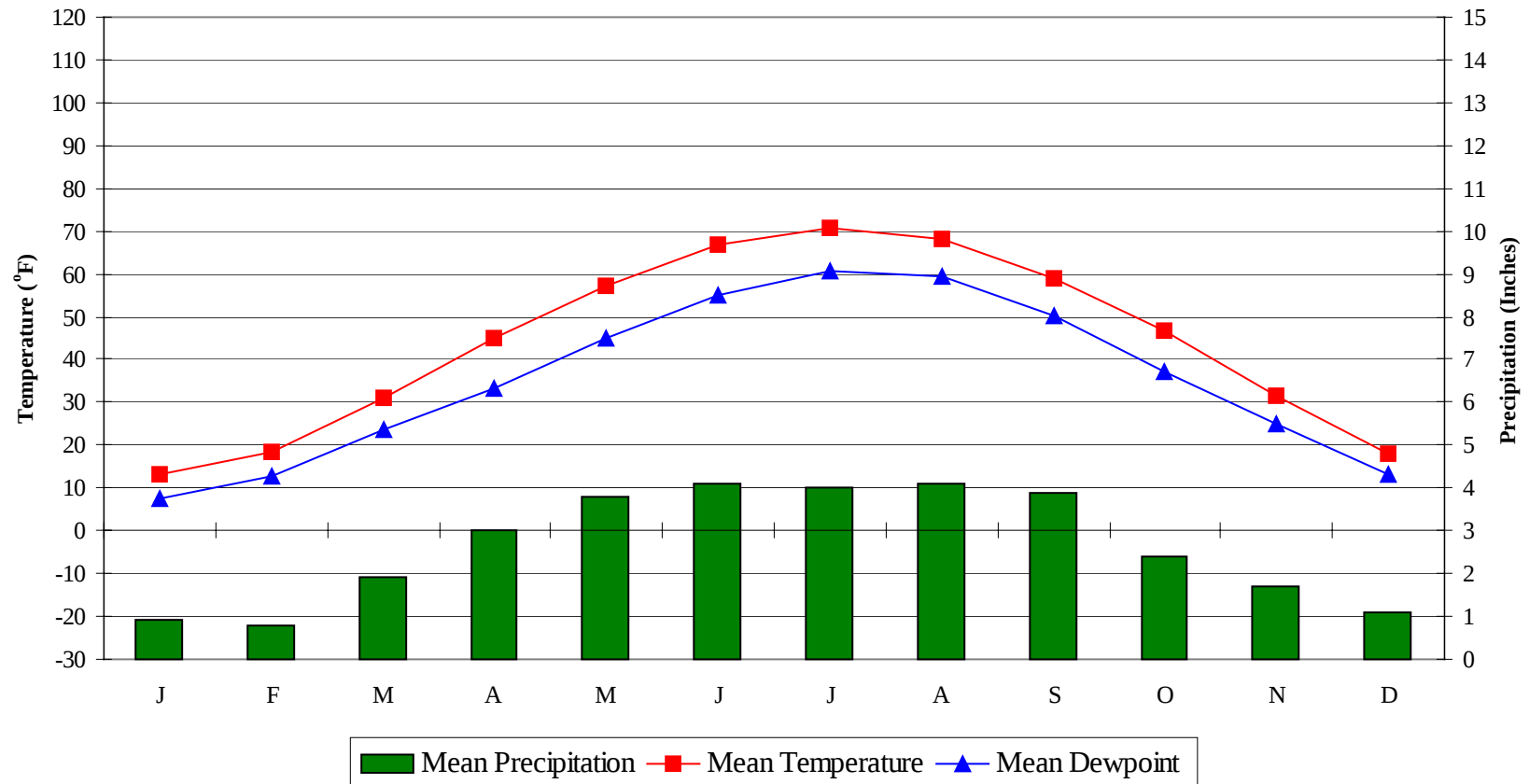
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
5	3.3	90	1.1 + 0.3
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
46.3	N/A	47	58

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

ROCHESTER MN

WMO No. 726440

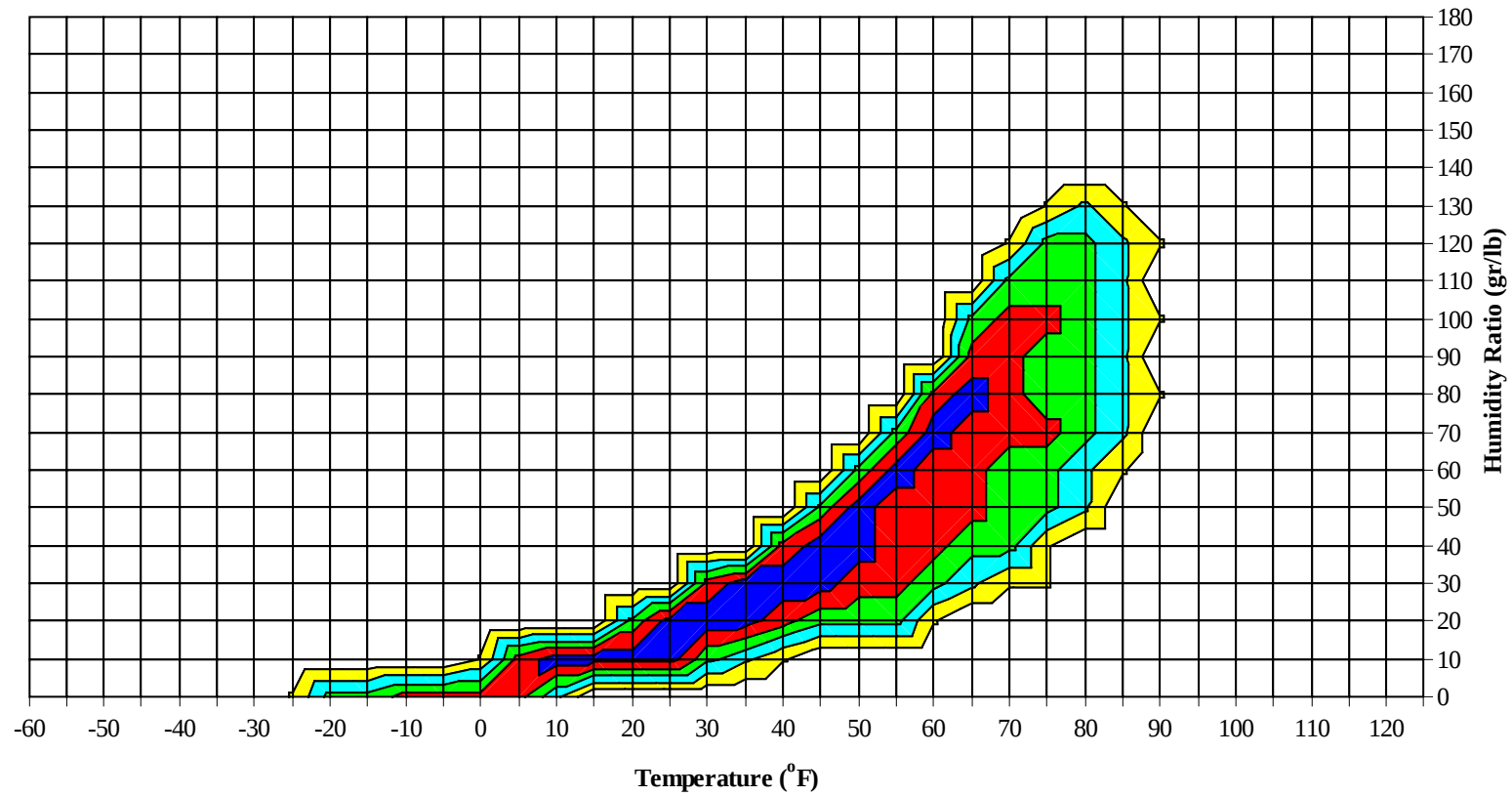
Average Annual Climate



ROCHESTER MN

WMO No. 726440

Long Term Psychrometric Summary

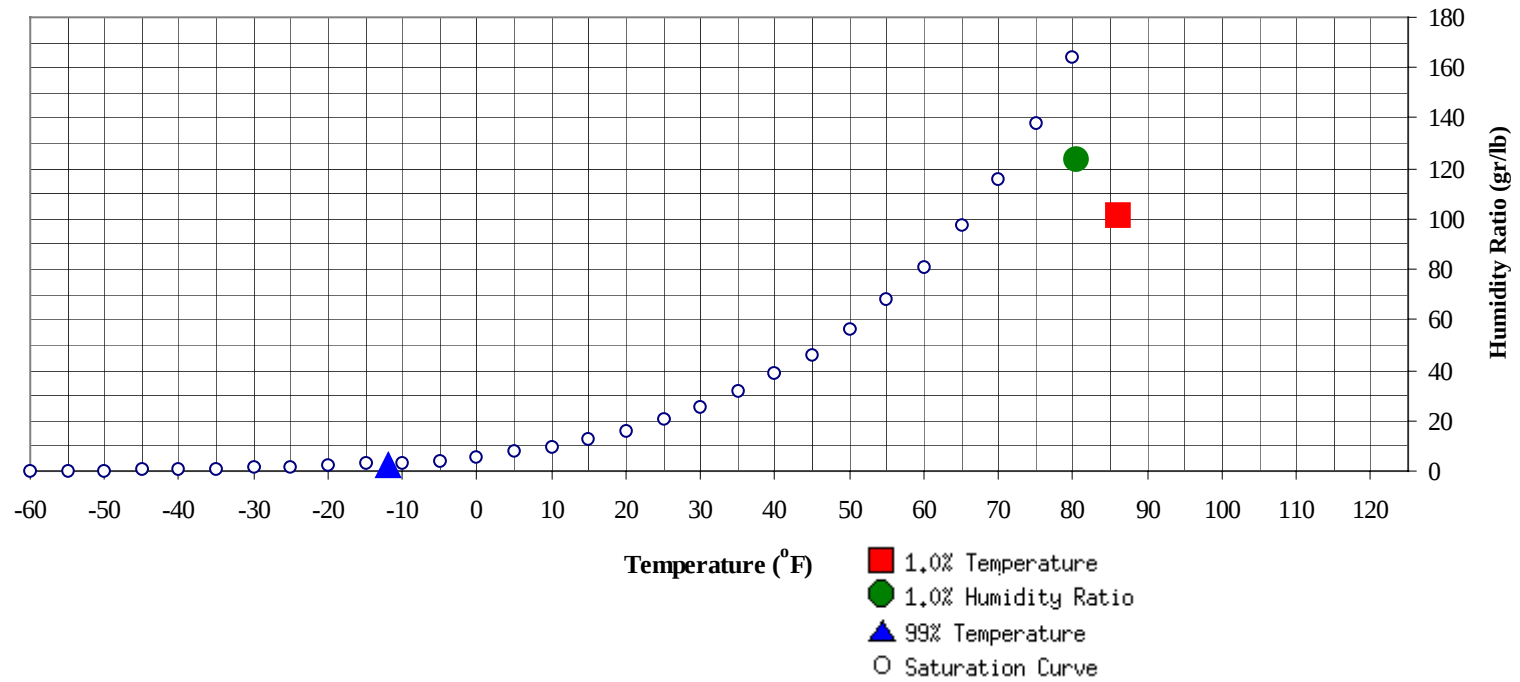


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

ROCHESTER MN

WMO No. 726440

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	-12	2	-2.6		123.9	80.3	74.3	72	38.7

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	86	101.3	71.9	36.5

ROCHESTER MN

WMO No. 726440

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												1	0	1	60.9
70 / 74												1	0	1	61.2
65 / 69												2	1	3	56.6
60 / 64							0		0	52.2		3	1	4	53.4
55 / 59		0		0	44.0		1	0	1	49.0	1	8	5	14	50.1
50 / 54		0		0	42.6		1	0	1	45.7	4	12	7	23	45.9
45 / 49		1	0	1	38.8	0	2	1	3	42.2	7	19	13	39	42.2
40 / 44	1	2	1	4	37.8	1	7	3	11	37.5	12	29	24	65	38.1
35 / 39	3	11	8	22	33.9	9	23	18	50	33.9	33	51	47	131	33.9
30 / 34	22	30	29	81	30.4	30	42	42	114	30.3	65	49	61	175	30.1
25 / 29	28	30	29	87	25.7	33	31	33	96	25.5	40	29	34	103	24.9
20 / 24	30	32	30	92	20.9	31	29	26	85	20.5	29	18	22	69	20.3
15 / 19	29	33	31	93	16.0	23	25	25	73	15.8	20	11	14	45	15.8
10 / 14	28	25	22	75	11.1	21	17	18	56	10.9	15	7	8	30	10.9
5 / 9	22	23	26	71	6.3	16	18	20	54	6.1	7	4	6	17	6.1
0 / 4	21	20	21	62	1.2	21	13	17	51	1.2	7	3	4	14	1.1
-5 / -1	15	14	15	44	-3.3	12	7	9	28	-3.2	5	0	2	7	-2.9
-10 / -6	19	12	18	49	-7.5	14	4	8	26	-7.4	3	0	0	3	-6.7
-15 / -11	15	7	10	32	-11.8	8	2	2	12	-11.8	0			0	-11.0
-20 / -16	9	4	5	18	-16.8	4	1	2	7	-16.6					
-25 / -21	6	2	3	11	-21.5	1	0	0	1	-21.5					
-30 / -26	3	0	1	4	-26.3	1	0	0	1	-26.9					
-35 / -31						0	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.

ROCHESTER MN

WMO No. 726440

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													0		0 74.0
95 / 99													1	0	1 72.3
90 / 94		0		0	63.0		0		0	69.8		4	1	5	72.8
85 / 89		0	0	0	64.7		4	1	5	66.4	0	17	4	21	70.7
80 / 84		3	0	3	62.1		12	3	15	65.2	1	37	14	52	68.5
75 / 79		5	2	7	61.8	0	22	8	30	62.9	7	51	28	86	65.5
70 / 74		9	5	14	58.4	3	36	17	56	60.5	20	49	42	111	63.4
65 / 69	1	14	8	23	55.5	11	41	32	84	57.9	45	42	52	139	60.7
60 / 64	6	23	14	43	52.7	34	45	45	124	55.2	63	26	50	139	57.6
55 / 59	11	29	21	61	48.9	40	36	43	119	51.3	53	10	30	93	53.4
50 / 54	15	34	31	80	45.3	49	31	44	124	47.5	30	2	14	46	49.0
45 / 49	29	36	39	104	42.0	48	14	32	94	43.5	16	1	5	22	44.7
40 / 44	42	32	43	117	38.3	36	6	15	57	39.2	4	0	0	4	40.8
35 / 39	51	28	39	118	34.0	19	1	6	26	34.6	1			1	36.8
30 / 34	51	18	25	94	29.9	7	0	1	8	30.0					
25 / 29	19	5	8	32	25.1	1	0	0	1	26.1					
20 / 24	8	2	3	13	20.2	0			0	21.5					
15 / 19	4	0	2	6	15.5										
10 / 14	1	0	0	1	11.0										
5 / 9	1		0	1	6.5										
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															

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ROCHESTER MN

WMO No. 726440

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		0		0	75.0										
95 / 99		2	0	2	76.2		1	0	1	75.3					
90 / 94		10	2	12	74.8		3	1	4	75.1		1		1	72.0
85 / 89	0	29	9	38	73.1	0	18	4	22	74.3		4	0	4	73.2
80 / 84	2	56	23	81	70.1	1	40	14	55	71.1		14	3	17	69.2
75 / 79	15	65	43	123	67.8	7	62	32	101	68.0		27	10	38	66.7
70 / 74	41	53	59	153	65.8	27	60	52	139	65.7	8	33	21	62	64.2
65 / 69	65	24	56	145	63.1	59	40	57	156	62.8	20	43	30	93	60.6
60 / 64	66	9	40	115	59.1	70	18	51	139	59.0	34	49	44	127	56.9
55 / 59	43	1	14	58	54.8	48	5	26	79	54.7	46	35	47	128	53.1
50 / 54	14	0	3	17	50.5	26	0	10	36	50.2	47	19	38	104	48.8
45 / 49	2		0	2	46.0	10		2	12	45.6	37	10	28	75	44.6
40 / 44	0			0	42.0	1		0	1	42.1	26	4	13	43	40.1
35 / 39											15	0	6	21	35.8
30 / 34											5		2	7	31.1
25 / 29											1			1	26.6
20 / 24											0			0	23.0
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															

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ROCHESTER MN

WMO No. 726440

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	61.2										
80 / 84		2	0	2	64.1										
75 / 79		4	1	5	61.7										
70 / 74	0	12	3	15	59.6		0		0	56.8					
65 / 69	2	16	6	24	57.3		1	0	1	55.9					
60 / 64	8	30	17	55	54.5	1	5	1	7	54.3		0	0	0	57.5
55 / 59	17	38	27	82	50.7	3	9	4	16	51.3	0	0	0	0	54.4
50 / 54	28	46	37	111	46.7	6	13	9	28	47.0	0	1	0	1	50.0
45 / 49	42	40	49	131	42.7	9	22	15	46	42.5	1	1	0	2	44.6
40 / 44	48	30	40	118	38.8	18	26	21	65	38.6	1	4	2	7	38.4
35 / 39	41	19	36	96	34.2	29	37	34	100	34.2	7	18	11	36	34.3
30 / 34	38	7	24	69	30.2	54	52	57	162	29.9	30	43	39	112	30.4
25 / 29	18	2	7	27	25.5	42	31	38	111	25.2	44	42	45	131	25.8
20 / 24	6	0	3	9	21.0	31	19	25	75	20.8	40	37	37	114	20.9
15 / 19	2	0	0	2	16.7	23	10	16	49	16.2	33	27	32	92	16.2
10 / 14	0			0	12.0	11	7	9	27	11.2	20	20	22	62	11.2
5 / 9						7	4	6	17	6.5	19	16	17	52	6.4
0 / 4						3	2	3	8	1.4	18	15	14	47	1.3
-5 / -1						3	0	1	4	-2.6	10	9	9	28	-3.0
-10 / -6						2	0	1	3	-6.9	11	8	11	30	-7.4
-15 / -11						0	0	0	0	-11.7	7	3	6	16	-11.9
-20 / -16						0			0	-15.0	4	2	3	9	-16.5
-25 / -21						0			0	-20.0	3	1	1	5	-21.7
-30 / -26											1	0	1	2	-26.4
-35 / -31											0		0	0	-30.0

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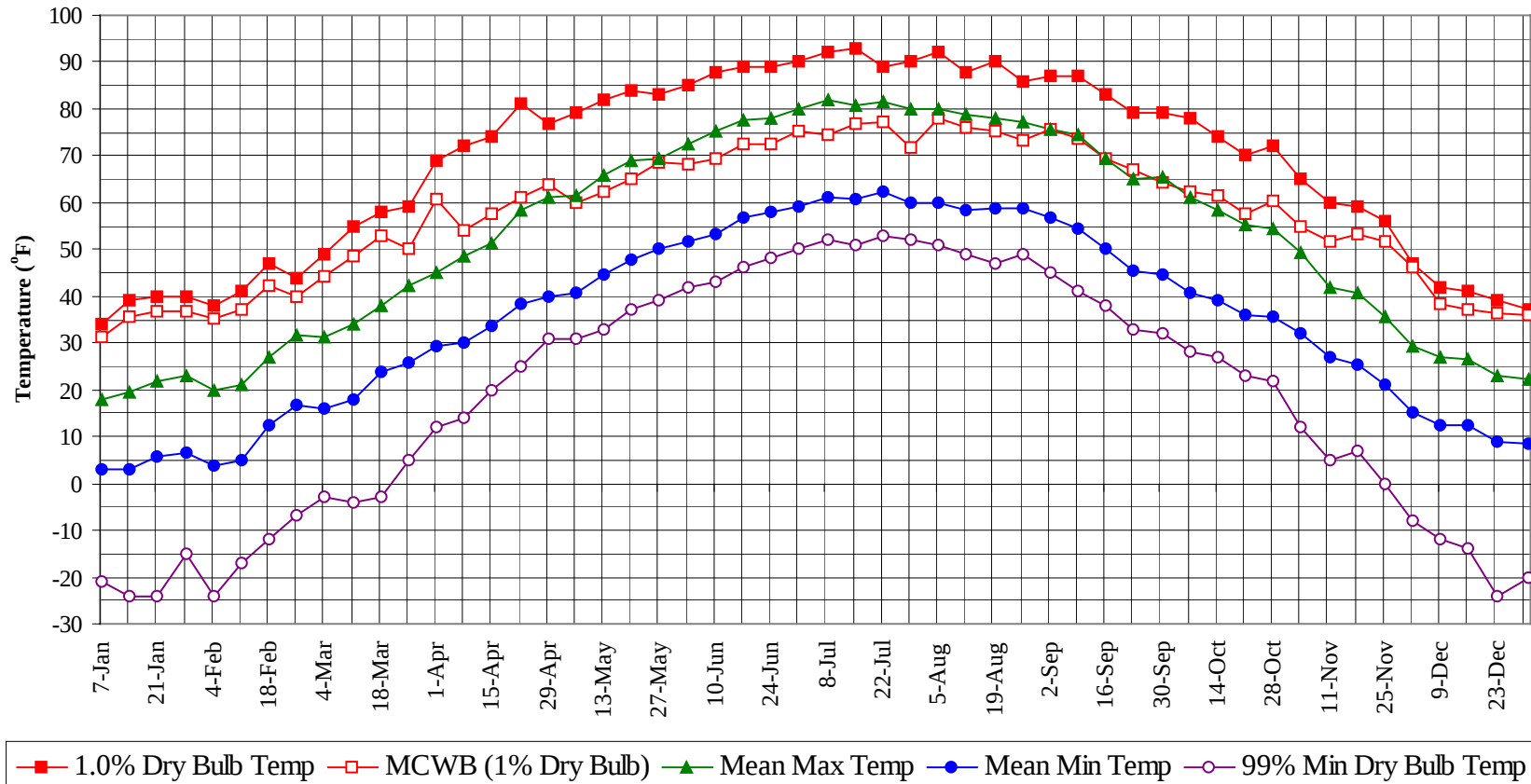
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

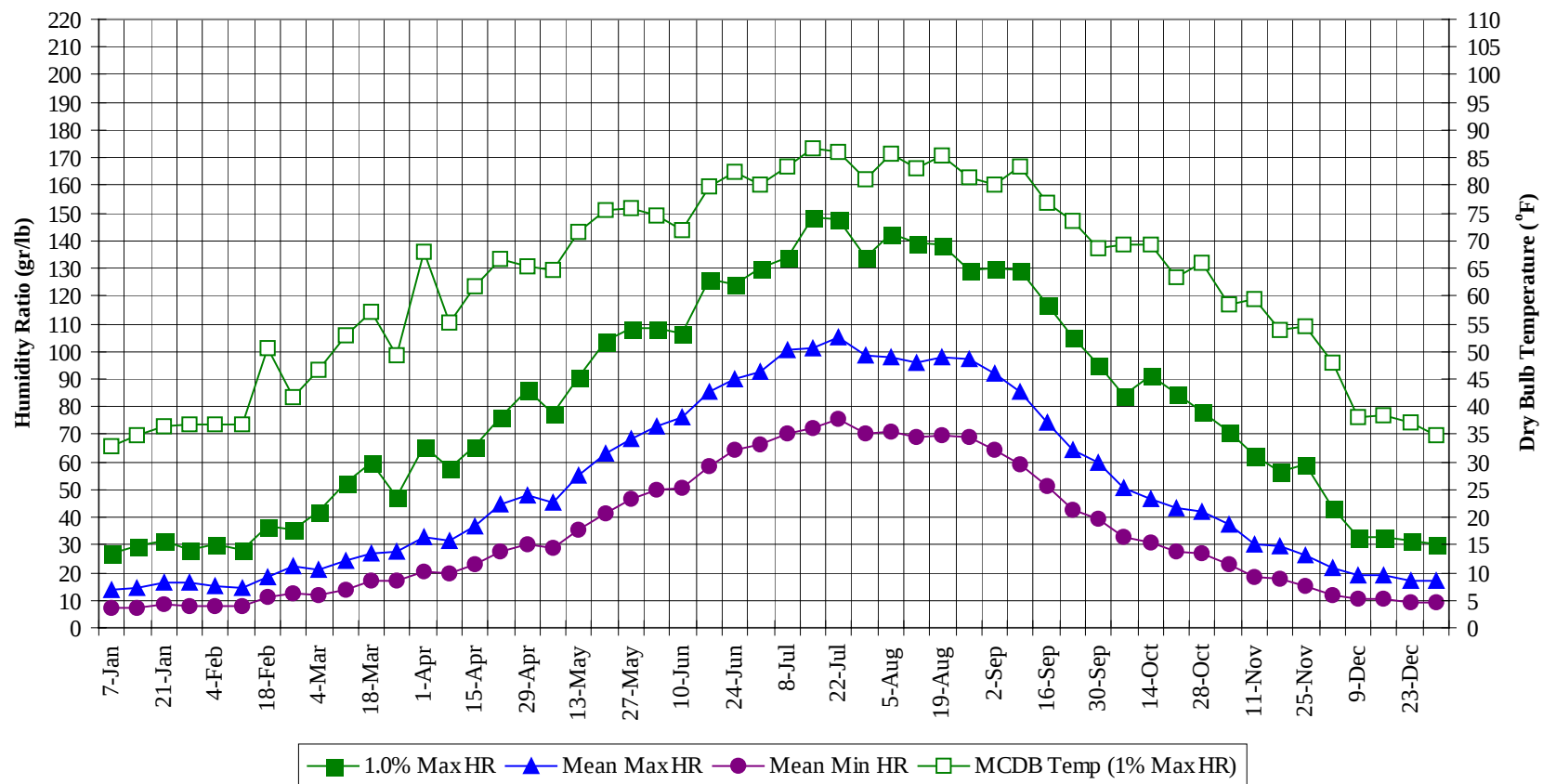
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
100 / 104		0		0	74.8
95 / 99		3	1	4	75.0
90 / 94		18	4	22	74.2
85 / 89	0	72	18	90	72.4
80 / 84	3	164	57	224	69.4
75 / 79	29	235	122	386	66.7
70 / 74	99	253	196	548	64.2
65 / 69	201	223	238	662	61.0
60 / 64	279	209	262	751	57.0
55 / 59	259	173	216	649	52.3
50 / 54	218	162	193	573	47.6
45 / 49	202	147	183	532	43.1
40 / 44	190	143	163	496	38.7
35 / 39	209	190	206	605	34.1
30 / 34	302	240	280	823	30.2
25 / 29	227	169	194	590	25.4
20 / 24	176	138	145	459	20.7
15 / 19	134	107	120	360	16.0
10 / 14	96	77	79	252	11.1
5 / 9	72	65	76	213	6.3
0 / 4	69	52	60	181	1.2
-5 / -1	44	31	36	111	-3.1
-10 / -6	49	24	38	111	-7.4
-15 / -11	31	13	18	62	-11.8
-20 / -16	18	7	10	35	-16.7
-25 / -21	11	3	4	18	-21.6
-30 / -26	5	1	1	7	-26.5
-35 / -31	0	0	0	0	-30.0

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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary

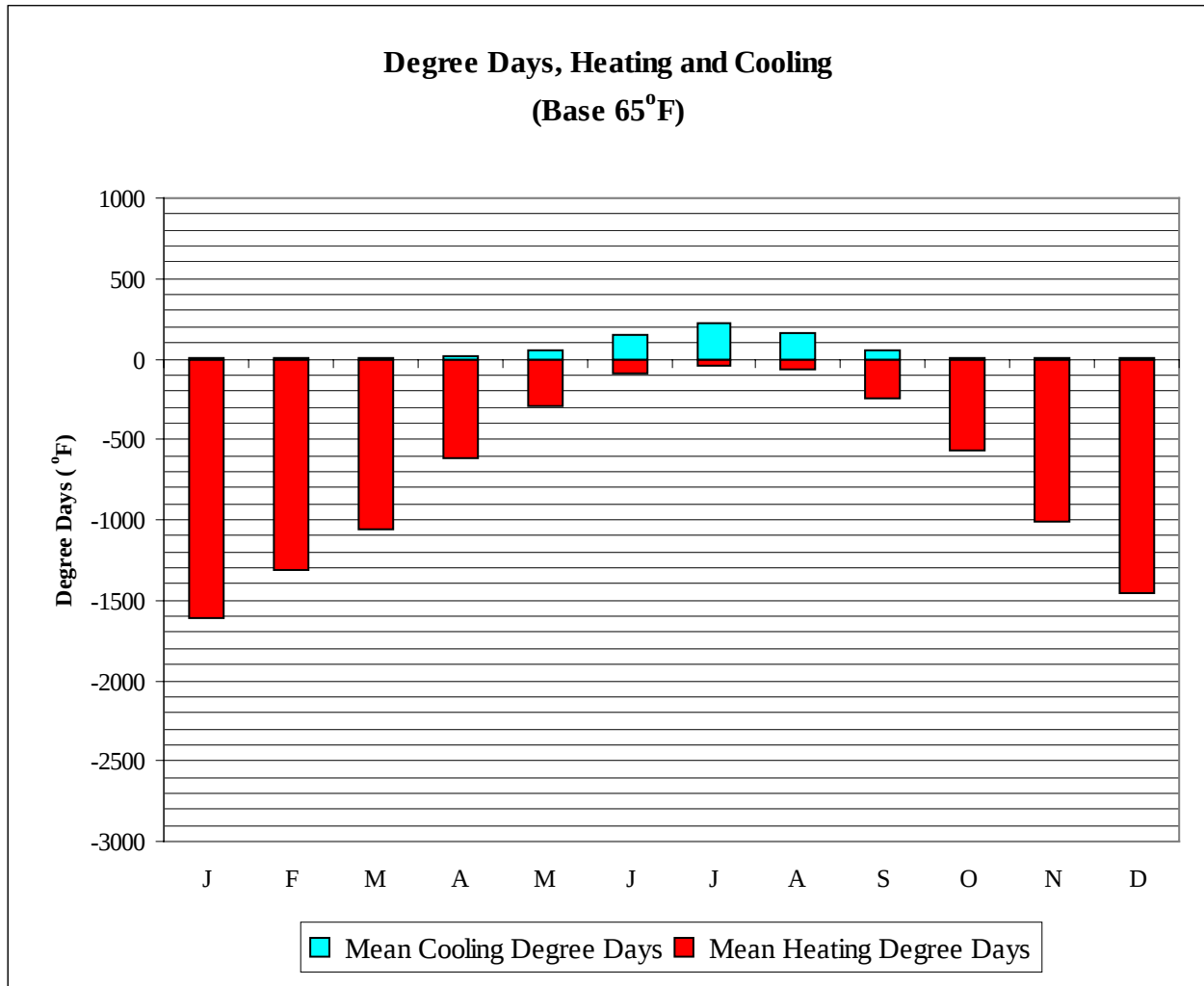


ROCHESTER MN

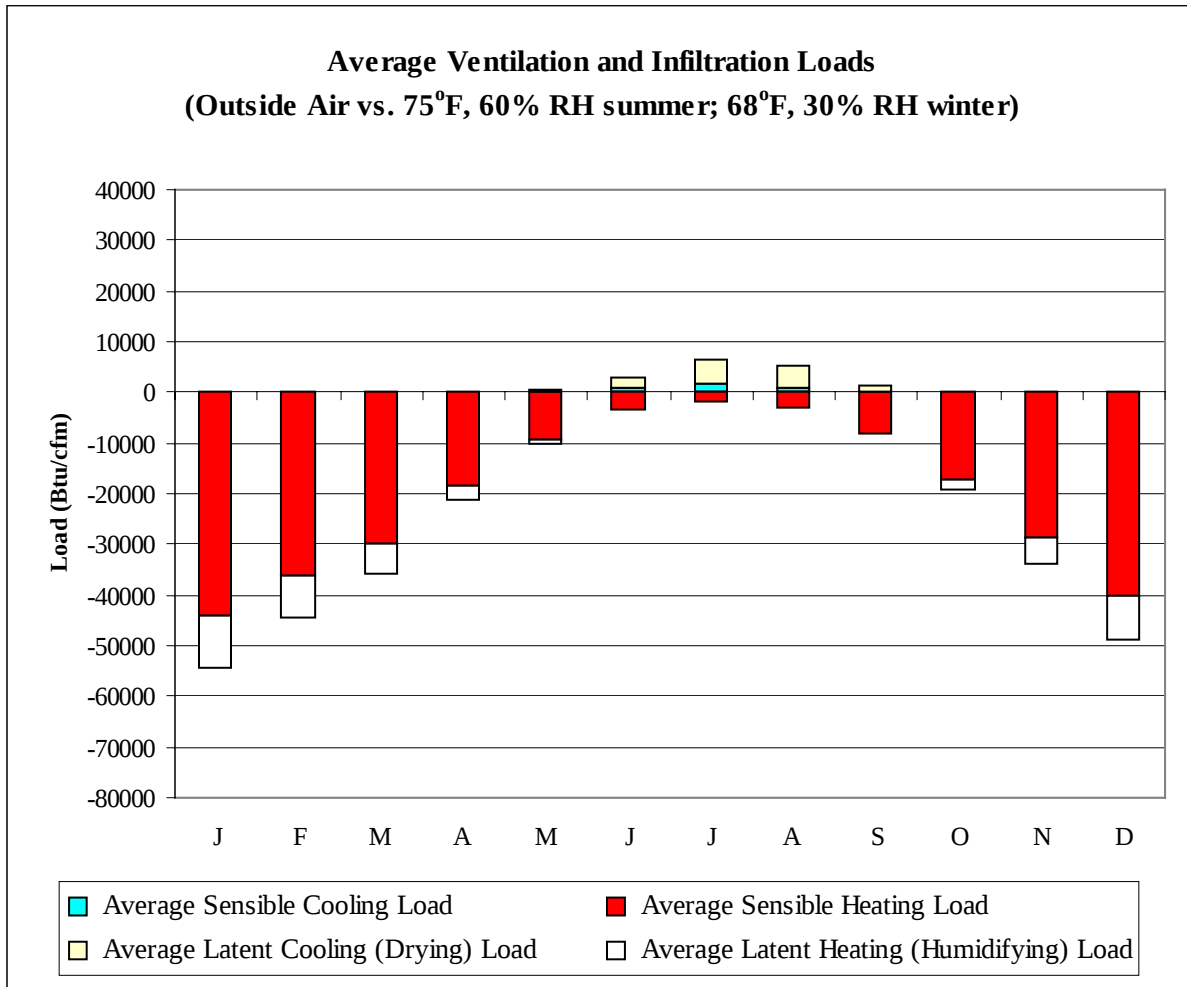
WMO No. 726440

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	34.0	31.2	18.0	3.0	-21.0	26.6	33.0	13.6	7.2
14-Jan	39.0	35.5	19.4	3.0	-24.0	29.4	34.7	14.4	7.2
21-Jan	40.0	36.8	21.9	5.8	-24.0	31.5	36.4	16.3	8.6
28-Jan	40.0	36.8	23.1	6.6	-15.0	28.0	36.8	16.1	7.8
4-Feb	38.0	35.2	20.0	3.6	-24.0	30.1	36.6	14.9	7.6
11-Feb	41.0	37.0	21.2	4.8	-17.0	28.0	36.9	14.5	7.6
18-Feb	47.0	42.3	27.1	12.4	-12.0	37.1	50.7	18.7	10.9
25-Feb	44.0	39.7	31.5	16.7	-7.0	35.7	41.8	22.1	12.8
4-Mar	49.0	44.2	31.4	15.9	-3.0	42.0	46.5	20.9	12.0
11-Mar	55.0	48.6	34.2	18.1	-4.0	52.5	52.8	24.1	13.9
18-Mar	58.0	52.7	38.0	23.8	-3.0	59.5	57.0	27.2	16.9
25-Mar	59.0	50.3	42.2	25.7	5.0	47.6	49.4	27.9	16.9
1-Apr	69.0	60.8	45.2	29.4	12.0	65.8	67.9	32.6	20.3
8-Apr	72.0	54.0	48.5	30.1	14.0	58.1	55.3	31.8	19.4
15-Apr	74.0	57.6	51.3	33.5	20.0	65.8	61.7	36.6	22.9
22-Apr	81.0	61.2	58.4	38.3	25.0	76.3	66.6	44.5	27.5
29-Apr	77.0	63.8	61.0	40.1	31.0	86.1	65.3	47.8	30.4
6-May	79.0	60.1	61.6	40.5	31.0	77.7	64.8	45.4	28.8
13-May	82.0	62.4	65.9	44.6	33.0	90.3	71.7	55.1	35.8
20-May	84.0	65.0	69.0	47.7	37.0	103.6	75.4	63.2	41.5
27-May	83.0	68.7	69.5	50.0	39.0	108.5	75.9	68.1	46.6
3-Jun	85.0	68.4	72.6	51.7	42.0	108.5	74.6	73.2	50.0
10-Jun	88.0	69.4	75.2	53.3	43.0	106.4	72.0	76.4	50.3
17-Jun	89.0	72.4	77.6	56.7	46.0	126.0	79.8	85.4	58.7
24-Jun	89.0	72.5	77.9	58.1	48.0	123.9	82.3	90.2	64.2
1-Jul	90.0	75.4	79.8	59.2	50.0	130.2	80.1	92.7	66.2
8-Jul	92.0	74.3	81.9	61.1	52.0	133.7	83.6	100.5	70.2
15-Jul	93.0	76.6	81.0	60.7	51.0	148.4	86.9	101.3	72.4
22-Jul	89.0	77.3	81.6	62.2	53.0	147.7	85.9	105.1	75.5
29-Jul	90.0	71.6	80.0	60.1	52.0	133.7	81.2	98.8	70.6
5-Aug	92.0	78.2	79.9	59.9	51.0	142.8	85.6	98.0	71.1
12-Aug	88.0	76.1	78.9	58.5	49.0	139.3	82.9	95.7	68.8
19-Aug	90.0	75.1	78.2	58.8	47.0	138.6	85.3	97.6	69.3
26-Aug	86.0	73.2	77.1	58.6	49.0	129.5	81.5	97.5	68.7
2-Sep	87.0	75.8	75.7	56.6	45.0	130.2	80.0	92.2	64.2
9-Sep	87.0	73.9	74.6	54.3	41.0	129.5	83.2	85.2	59.0
16-Sep	83.0	69.5	69.4	50.2	38.0	116.9	76.8	74.3	50.9
23-Sep	79.0	67.1	65.0	45.6	33.0	105.0	73.5	64.2	42.7
30-Sep	79.0	64.2	65.6	44.8	32.0	95.2	68.6	59.5	39.6
7-Oct	78.0	62.3	61.0	40.7	28.0	84.0	69.1	50.5	32.6
14-Oct	74.0	61.3	58.5	39.0	27.0	91.0	69.3	46.8	30.7
21-Oct	70.0	57.6	55.1	36.1	23.0	84.7	63.5	43.1	27.4
28-Oct	72.0	60.4	54.4	35.7	22.0	78.4	65.9	41.9	26.9
4-Nov	65.0	54.8	49.2	31.9	12.0	70.7	58.4	37.1	23.1
11-Nov	60.0	51.5	42.0	26.8	5.0	62.3	59.4	30.2	18.4
18-Nov	59.0	53.4	40.8	25.5	7.0	56.7	53.9	29.6	18.1
25-Nov	56.0	51.8	35.7	21.1	0.0	58.8	54.6	26.1	15.1
2-Dec	47.0	46.0	29.3	15.1	-8.0	43.4	47.8	21.5	12.1
9-Dec	42.0	38.2	26.8	12.3	-12.0	32.9	38.0	19.2	10.6
16-Dec	41.0	37.3	26.7	12.3	-14.0	32.9	38.3	19.2	10.8
23-Dec	39.0	36.5	22.8	8.7	-24.0	31.5	37.2	16.9	9.5
31-Dec	37.0	35.8	22.2	8.4	-20.0	30.1	35.0	16.8	9.4



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1614
FEB	0	1312
MAR	1	1054
APR	12	618
MAY	51	289
JUN	146	93
JUL	222	41
AUG	165	69
SEP	58	244
OCT	9	574
NOV	0	1012
DEC	0	1456
ANN	663	8376



	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	-44254	0	-10194
FEB	0	-36209	0	-8201
MAR	1	-29722	0	-5891
APR	42	-18241	9	-2768
MAY	215	-9412	413	-563
JUN	899	-3594	2020	-7
JUL	1522	-1851	4966	0
AUG	926	-2859	4226	-1
SEP	246	-8109	1192	-179
OCT	22	-17172	28	-1843
NOV	0	-28550	0	-5370
DEC	0	-40161	0	-8849
ANN	3873	-240134	12854	-43866

Average Annual Solar Radiation – Nearest Available Site

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

City: ROCHESTER
 State: MN
 WBAN No: 14925
 Lat(N): 43.92
 Long(W): 92.5
 Elev(ft): 1319

Stn Type: Secondary
 SHADING GEOMETRY IN DIMENSIONLESS UNITS
 Window: 1
 Overhang: 0.647
 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	560	850	1160	1460	1770	1950	1950	1680	1280	890	550	450	1210
	Std Dev	41	62	105	121	134	124	124	110	117	80	43	37	37
	Minimum	480	720	940	1220	1520	1730	1660	1420	1030	730	450	370	1160
	Maximum	650	960	1370	1750	2050	2300	2220	1900	1500	1050	630	530	1310
	Diffuse	300	440	600	700	790	850	800	700	560	410	310	270	560
Clear Day	Global	750	1110	1620	2140	2500	2650	2550	2230	1740	1210	800	640	1670
NORTH	Global	180	260	350	430	540	630	600	470	360	260	190	160	370
	Diffuse	180	260	350	420	490	530	520	450	350	260	190	160	350
Clear Day	Global	160	230	310	410	570	690	640	460	330	240	170	140	360
EAST	Global	400	570	730	880	1030	1110	1110	980	790	590	370	310	740
	Diffuse	230	330	440	510	590	630	620	550	440	320	220	190	420
Clear Day	Global	610	830	1120	1350	1490	1530	1490	1370	1160	870	640	530	1080
SOUTH	Global	1000	1150	1110	980	900	860	910	1010	1080	1090	830	800	980
	Diffuse	350	450	520	540	570	590	590	560	490	410	320	300	470
Clear Day	Global	1840	1980	1900	1540	1220	1080	1130	1380	1700	1870	1800	1720	1590
WEST	Global	400	560	720	870	1020	1110	1140	1020	810	590	370	310	750
	Diffuse	230	330	440	520	600	640	630	560	450	320	230	190	430
Clear Day	Global	610	830	1120	1350	1490	1530	1490	1370	1160	870	640	530	1080

Average Annual Solar Heat and Illumination – Nearest Available Site

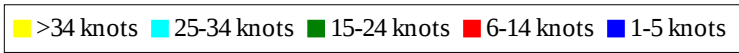
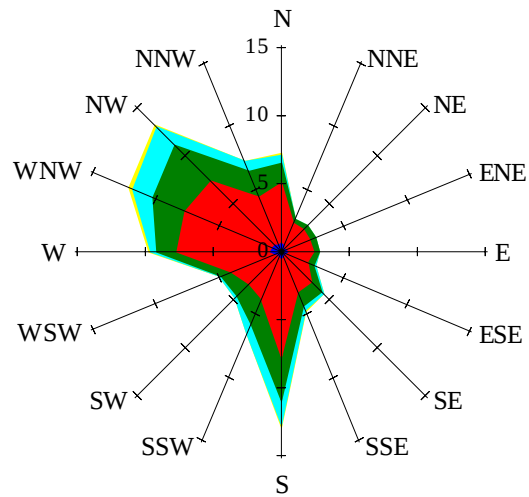
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

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	350	570	810	1040	1280	1410	1420	1210	900	610	360	280	850
NORTH	Unshaded	130	180	240	300	360	410	390	320	250	180	130	110	250
	Shaded	110	150	210	250	310	350	340	280	210	150	110	89	210
EAST	Unshaded	270	400	510	630	740	790	790	700	560	410	250	210	520
	Shaded	230	340	430	510	600	640	640	570	470	350	220	180	430
SOUTH	Unshaded	760	850	780	660	570	540	570	650	740	790	620	610	680
	Shaded	730	780	600	400	340	350	350	370	500	680	590	580	520
WEST	Unshaded	280	390	510	620	720	790	820	730	580	420	260	210	530
	Shaded	240	340	430	510	590	640	670	600	480	360	220	180	440

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	34	65	76	61	26	46	80	97	94	70
	M.Cloudy	21	41	50	39	17	30	54	67	66	48
NORTH	M.Clear	9	13	14	13	8	16	16	17	17	15
	M.Cloudy	9	15	17	14	7	13	17	19	19	16
EAST	M.Clear	71	57	14	13	8	79	73	33	17	15
	M.Cloudy	24	29	17	14	7	36	43	28	19	16
SOUTH	M.Clear	39	75	88	71	30	11	36	53	49	26
	M.Cloudy	16	35	43	33	13	11	26	38	36	21
WEST	M.Clear	9	13	19	64	65	11	16	17	49	78
	M.Cloudy	9	15	19	31	22	11	17	19	36	47
M.Clear	(% hrs)	29	30	29	28	28	36	35	32	29	31
		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	24	60	78	73	46	8	32	39	24	0
	M.Cloudy	14	35	47	47	28	6	20	24	15	0
NORTH	M.Clear	8	13	15	15	11	4	9	10	7	0
	M.Cloudy	6	13	16	16	11	3	9	10	7	0
EAST	M.Clear	62	69	30	15	11	28	37	10	7	0
	M.Cloudy	18	30	22	16	11	7	15	10	7	0
SOUTH	M.Clear	20	58	79	73	42	25	74	85	59	1
	M.Cloudy	9	27	38	39	21	6	24	29	17	0
WEST	M.Clear	8	13	15	49	72	4	9	18	42	1
	M.Cloudy	6	13	16	30	31	3	9	12	14	0
M.Clear	(% hrs)	38	38	37	36	40	28	28	27	27	29

Wind Summary - December, January, and February

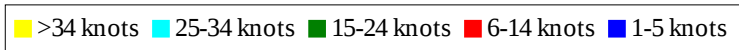
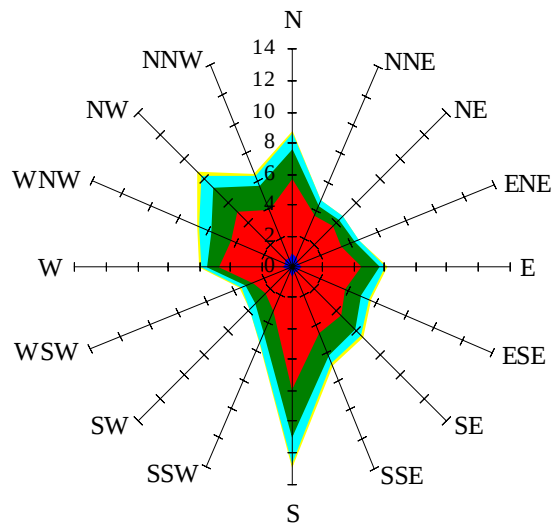
Labels of Percent Frequency on North Axis



Percent Calm = 0.57

Wind Summary - March, April, and May

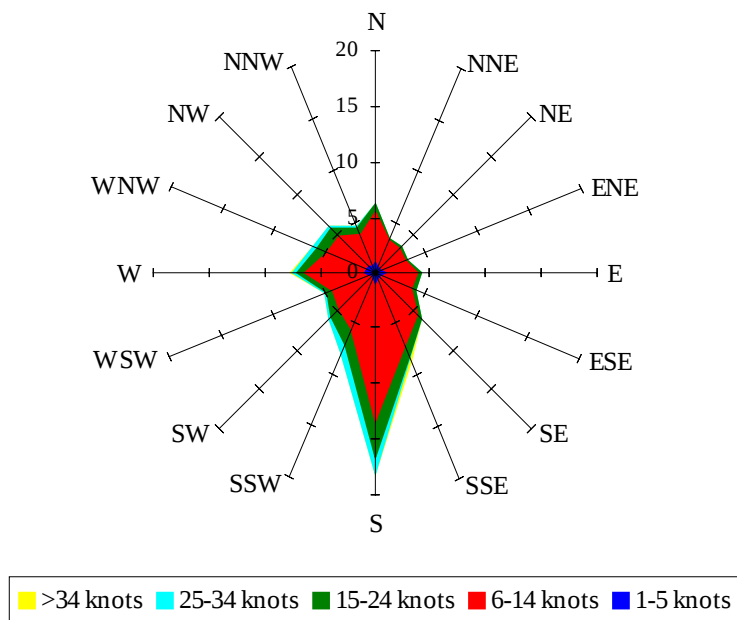
Labels of Percent Frequency on North Axis



Percent Calm = 0.54

Wind Summary - June, July, and August

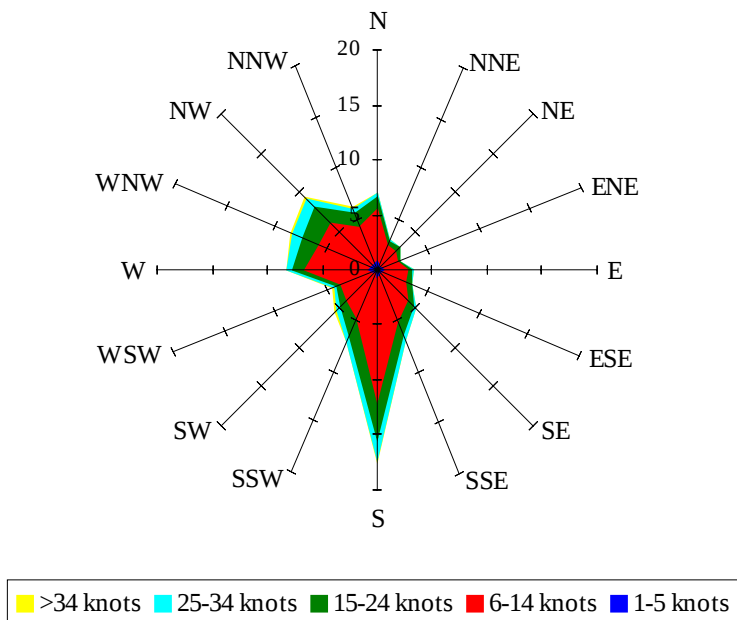
Labels of Percent Frequency on North Axis



Percent Calm = 0.80

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 0.73