

NIAGARA FALLS INTL NY

Latitude = 43.10 N

WMO No. 725287

Longitude = 78.95 W

Elevation = 591 feet

Period of Record = 1968 to 1996

Average Pressure = 29.34 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	91	76	115	12.8	SW
0.4% Occurrence	87	73	100	12.2	SW
1.0% Occurrence	84	71	95	11.7	SW
2.0% Occurrence	82	69	90	11.6	SW
Mean Daily Range	16	-	-	-	-
97.5% Occurrence	11	10	7	12.3	W
99.0% Occurrence	6	5	5	12.0	W
99.6% Occurrence	2	1	5	12.5	W
Median of Extreme Lows	-4	-4	3	13.0	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	79	86	140	12.7	SW
0.4% Occurrence	76	84	124	12.5	SW
1.0% Occurrence	74	82	116	11.9	SW
2.0% Occurrence	72	79	109	10.8	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	139	83	0.90	11.1	SW
0.4% Occurrence	125	80	0.82	10.7	SW
1.0% Occurrence	118	78	0.77	11.5	SW
2.0% Occurrence	111	76	0.73	8.2	W
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		3	326	144	803

Other Site Data

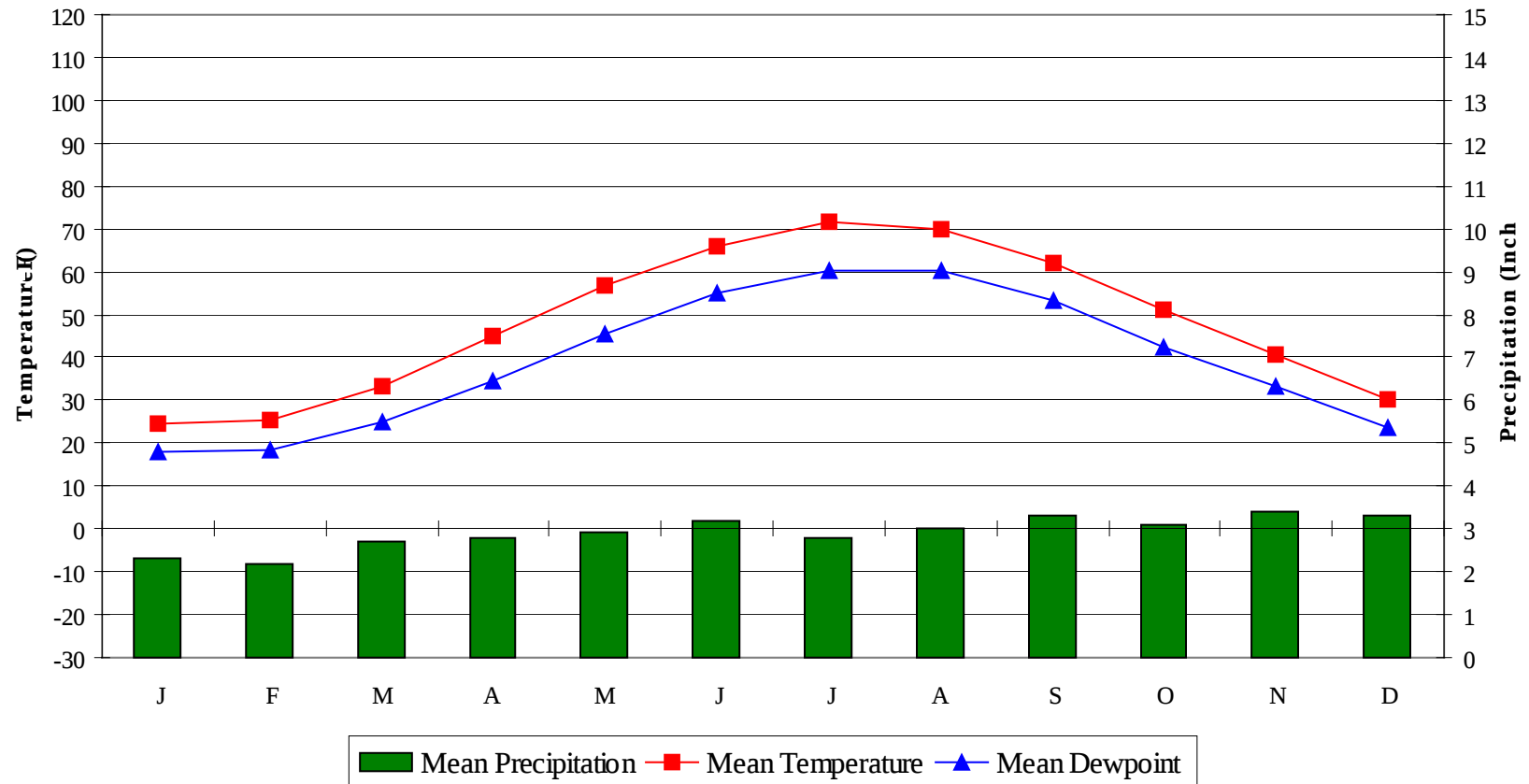
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
6	2.3	90	1.1 + 0.3
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
50.6	59	39	59

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

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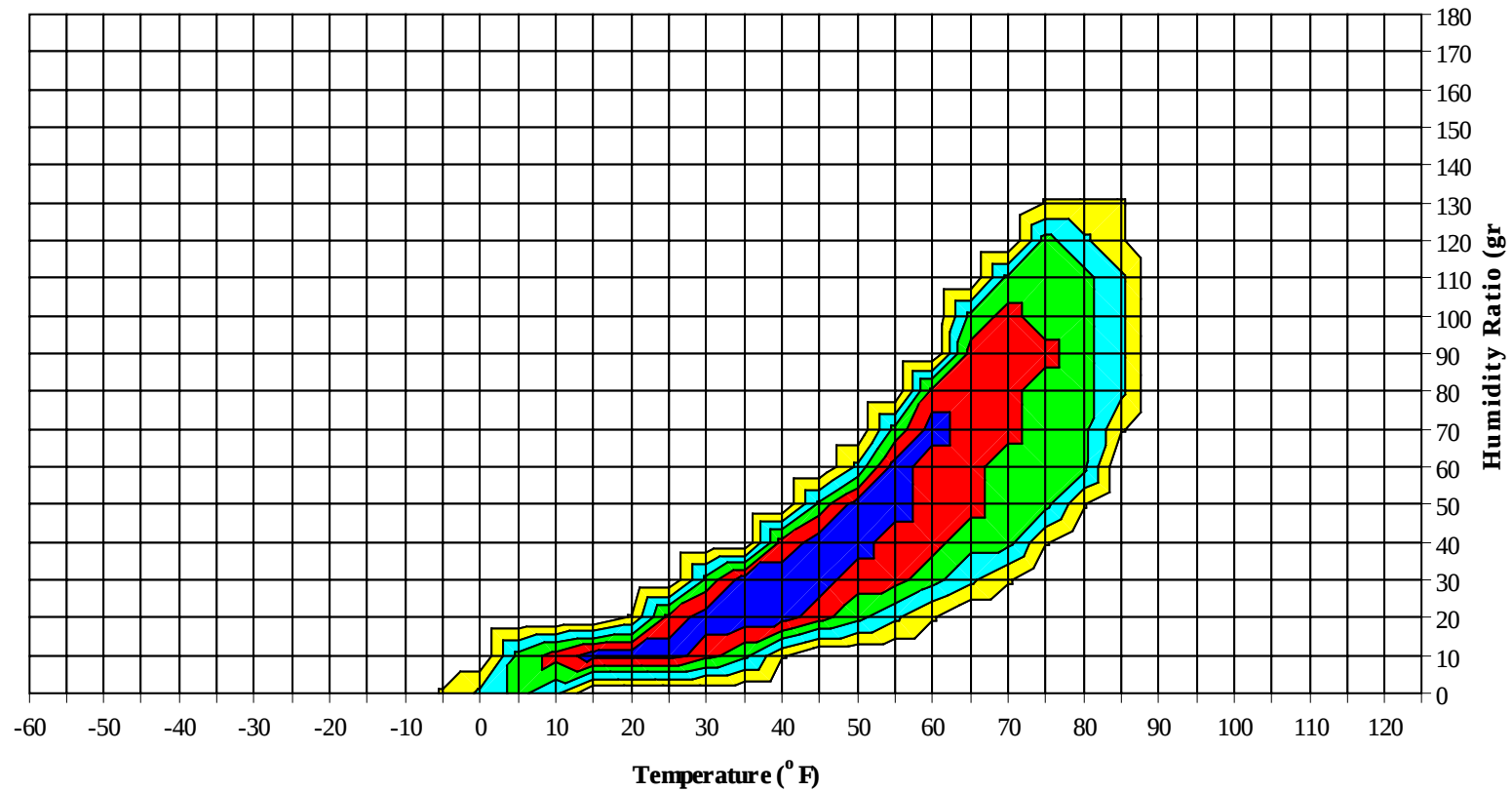
Average Annual Climate



NIAGARA FALLS INTL NY

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Long Term Psychrometric Summary

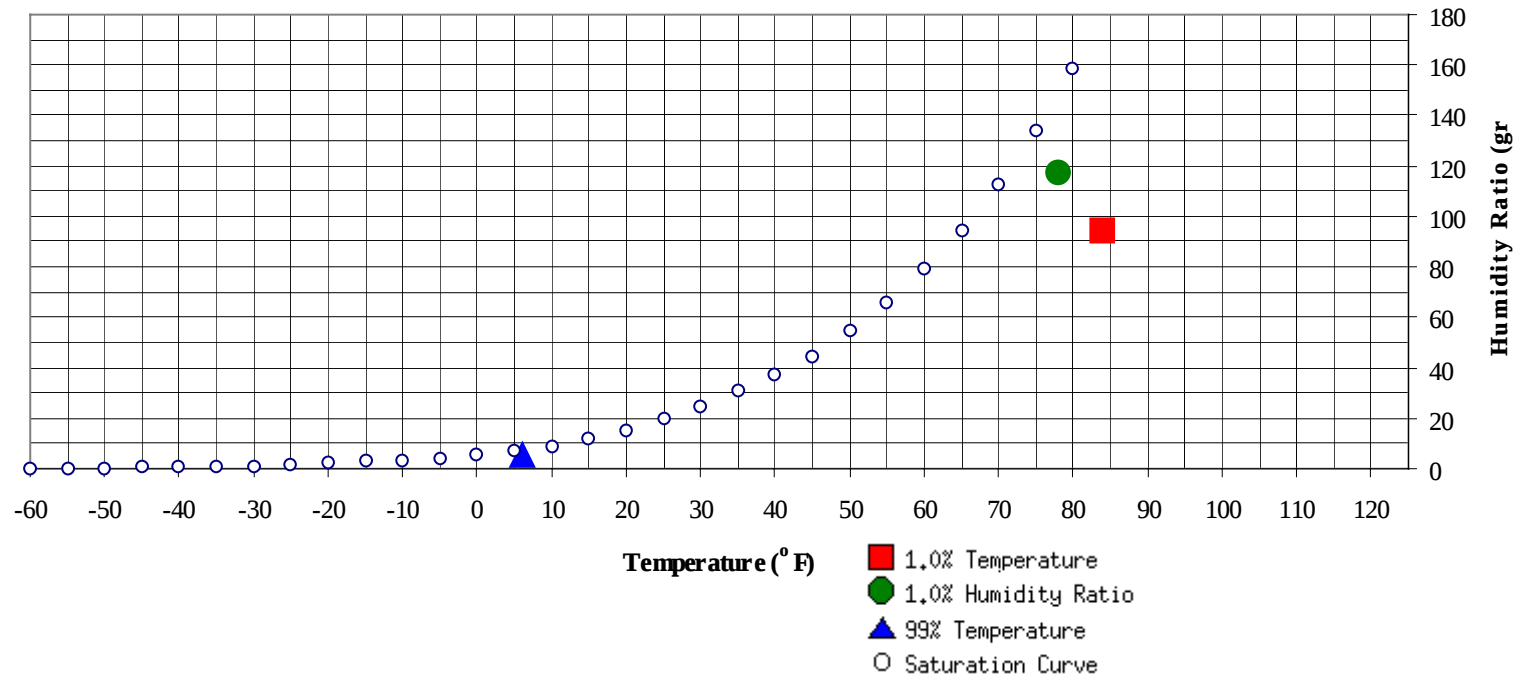


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

NIAGARA FALLS INTL NY

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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	6	5.4	2.3		117.6	77.9	73.1	71.1	37.1

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	84	94.5	70.8	35.0

NIAGARA FALLS INTL NY

WMO No. 725287

Dry-Bulb Temperature Hours For An Average Year (Sheet 1 of 5)

Period of Record = 1968 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												1	0	1	62.6
70 / 74												1	0	2	57.7
65 / 69												3	1	4	55.0
60 / 64	0	0	0	1	57.2		0	0	0	56.7	1	5	2	8	52.2
55 / 59	0	1	1	2	51.2	0	1	1	2	49.6	3	10	6	18	49.7
50 / 54	2	3	2	7	47.5	1	4	1	6	46.7	7	13	9	29	46.2
45 / 49	5	6	4	14	42.4	3	7	5	15	42.8	9	22	14	46	41.8
40 / 44	8	15	10	33	38.8	7	16	11	34	38.3	17	37	28	81	38.1
35 / 39	21	33	30	84	34.1	23	33	29	85	34.3	38	49	46	133	34.0
30 / 34	42	43	43	128	29.9	38	41	39	117	30.0	56	48	57	161	29.6
25 / 29	34	41	37	112	24.9	29	33	32	95	24.8	45	29	38	112	24.8
20 / 24	36	39	36	111	20.1	32	34	37	103	20.2	35	16	26	77	20.2
15 / 19	38	31	38	107	15.7	32	28	33	93	15.7	19	9	12	40	15.6
10 / 14	27	21	26	74	10.9	23	16	19	58	10.7	12	4	6	22	10.9
5 / 9	18	11	14	42	6.3	22	8	14	44	6.3	5	1	2	7	6.5
0 / 4	9	4	6	20	1.5	10	2	3	15	1.8	2	0	0	2	2.3
-5 / -1	3	1	2	7	-2.9	2	0	1	2	-2.8	0			0	-3.0
-10 / -6	2	1	1	3	-6.9	1	0	0	1	-7.5	0			0	-7.3
-15 / -11	1	0	0	1	-10.9	0	0	0	0	-12.3					
-20 / -16	0			0	-15.0	0			0	-15.5					

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.

NIAGARA FALLS INTL NY

WMO No. 725287

Dry-Bulb Temperature Hours For An Average Year (Sheet 2 of 5)

Period of Record = 1968 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													0	0	76.0
90 / 94		0		0	66.0		0	0	0	69.3		1	0	1	76.3
85 / 89		0	0	0	67.6		2	0	3	69.2		9	2	12	71.1
80 / 84		2	0	3	65.1		12	3	15	66.8	0	33	11	45	68.8
75 / 79		5	2	7	62.5	0	21	8	30	64.5	4	48	25	77	66.0
70 / 74	0	9	3	13	59.4	3	29	14	47	61.2	22	56	43	121	63.5
65 / 69	2	13	6	21	55.8	12	42	25	79	57.8	46	47	53	146	61.0
60 / 64	5	19	13	37	52.8	27	44	41	112	55.0	57	28	51	136	57.6
55 / 59	12	29	21	63	49.7	41	41	48	130	51.3	55	12	34	100	53.4
50 / 54	19	36	27	81	46.0	50	31	45	126	47.5	34	5	16	55	49.1
45 / 49	28	43	43	114	42.2	51	18	38	108	43.7	16	1	5	23	44.8
40 / 44	50	38	51	138	38.5	39	7	19	65	39.4	4	0	0	4	40.1
35 / 39	49	26	39	115	33.9	20	1	4	25	35.1	0			0	36.5
30 / 34	45	13	26	84	29.8	4	0	1	5	31.6					
25 / 29	21	3	8	33	25.4	0		0	0	27.2					
20 / 24	6	2	2	9	20.4										
15 / 19	1	1	1	3	15.4										
10 / 14	0			0	11.4										
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															

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NIAGARA FALLS INTL NY

WMO No. 725287

Dry-Bulb Temperature Hours For An Average Year (Sheet 3 of 5)

Period of Record = 1968 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		1	0	1	73.0		0	0	0	82.0					
90 / 94		4	1	5	74.5		3	0	3	76.4		0		0	73.5
85 / 89		27	7	34	72.6		19	4	23	72.5		4	0	4	72.5
80 / 84	2	62	24	88	69.6	1	54	17	72	70.1		16	3	20	70.5
75 / 79	15	73	51	139	67.3	11	71	42	124	67.9	4	34	13	51	67.4
70 / 74	55	51	68	175	65.6	48	56	67	171	65.9	19	46	31	96	65.1
65 / 69	71	23	55	149	62.7	67	32	60	159	62.7	34	52	44	130	61.4
60 / 64	61	6	31	98	58.7	64	12	41	117	58.7	39	45	49	133	57.3
55 / 59	33	1	10	44	54.2	39	2	14	55	54.4	51	29	50	130	53.2
50 / 54	10		1	11	50.3	16	0	3	19	49.9	48	12	31	91	49.0
45 / 49	0			0	46.1	3		1	3	44.6	27	2	14	43	44.6
40 / 44						0		0	0	40.2	13	0	4	17	40.3
35 / 39											4		1	5	35.6
30 / 34											1			1	32.2
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 = 1968 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		1		1	66.6										
75 / 79		5	1	6	64.1		0		0	65.0					
70 / 74	1	16	3	20	61.4		1	0	1	61.5		0	0	0	62.0
65 / 69	6	24	12	42	59.1	0	6	1	7	58.2	0	0	0	0	59.6
60 / 64	17	39	24	80	56.2	5	12	6	23	55.8	0	1	1	2	55.9
55 / 59	33	47	39	119	52.0	12	18	14	44	52.2	2	4	3	8	51.8
50 / 54	40	49	50	139	47.8	20	27	21	68	47.8	5	5	3	13	47.8
45 / 49	50	38	52	139	43.4	25	37	31	93	43.2	7	10	9	27	43.0
40 / 44	46	21	40	107	39.2	39	47	46	133	38.7	15	25	16	56	38.5
35 / 39	34	7	21	62	35.0	51	46	50	147	34.1	39	53	48	140	34.3
30 / 34	16	0	6	22	30.4	47	36	46	129	29.7	55	58	59	172	30.0
25 / 29	5		1	5	25.8	28	8	19	55	25.4	44	38	41	124	24.9
20 / 24	0			0	22.7	10	2	6	17	20.7	33	24	29	87	20.2
15 / 19						2	0	1	3	15.9	22	19	22	63	15.7
10 / 14						0	0	0	1	10.4	13	7	10	31	11.0
5 / 9						0		0	0	7.5	7	3	5	15	6.2
0 / 4											3	0	2	5	1.9
-5 / -1											0	0	0	1	-2.4
-10 / -6											0	0		0	-7.4
-15 / -11											0			0	-12.7
-20 / -16											0			0	-17.0

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NIAGARA FALLS INTL NY

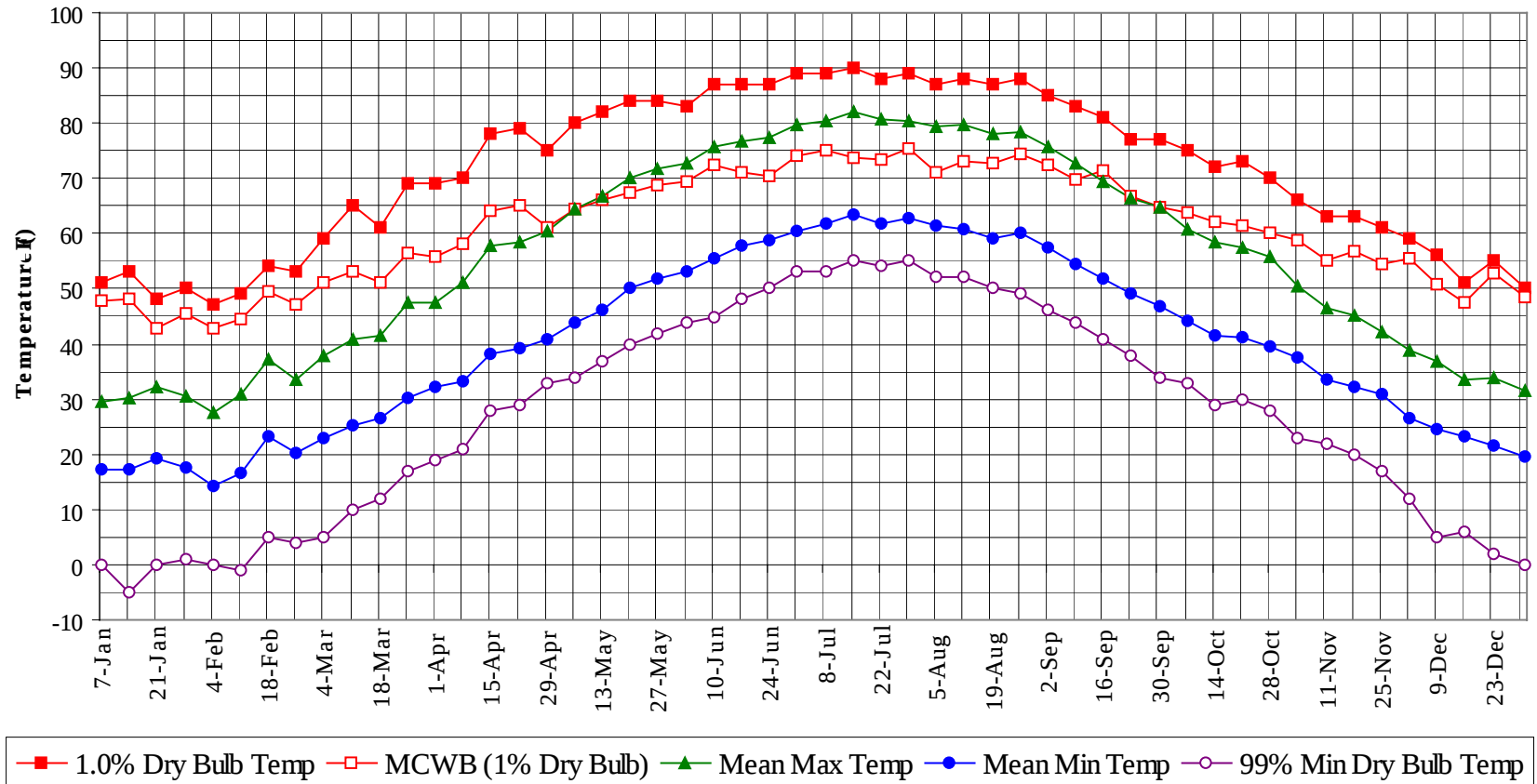
WMO No. 725287

Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)
Period of Record = 1968 to 1996

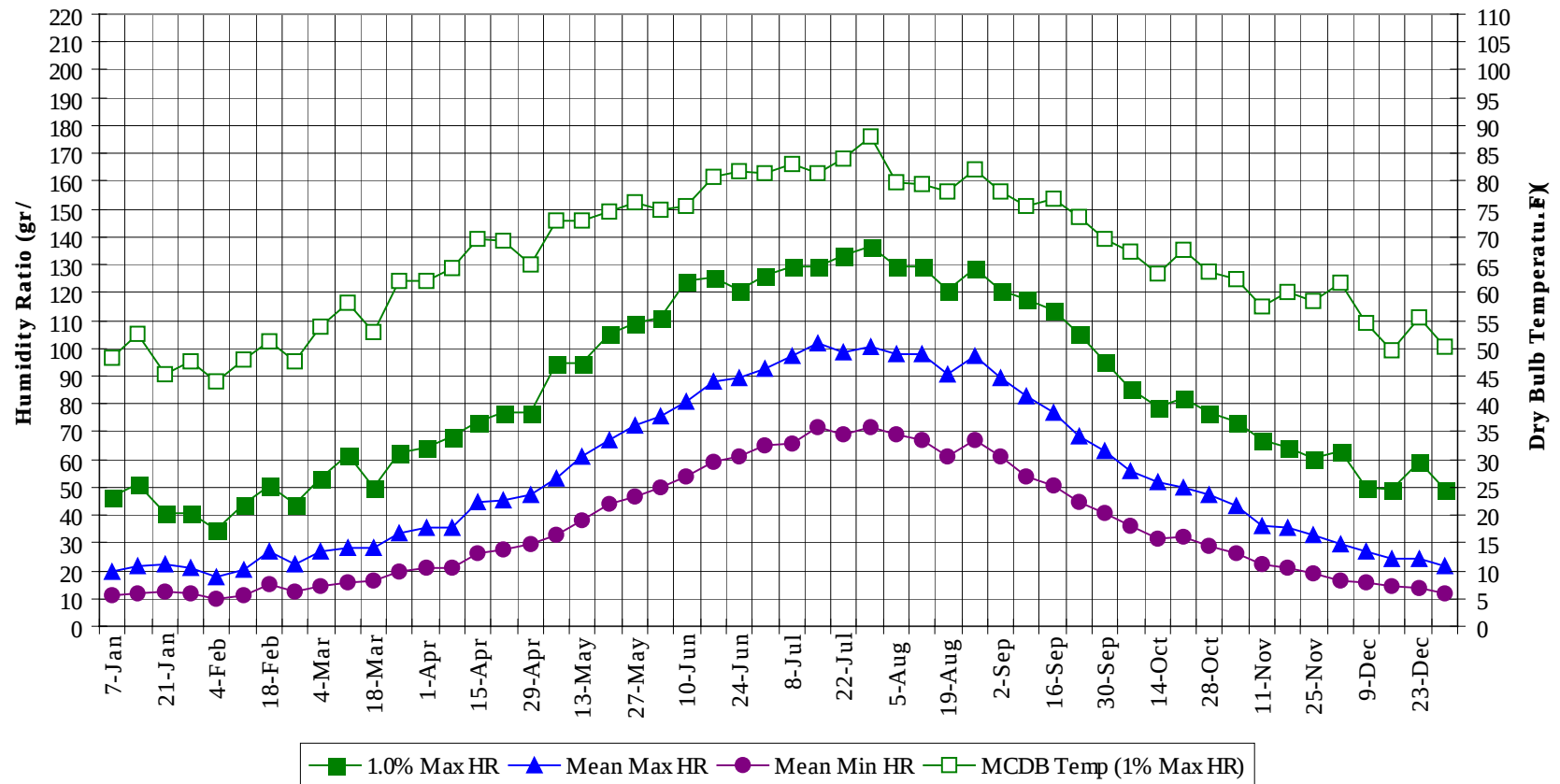
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
95 / 99		1	0	1	74.2
90 / 94		8	1	10	75.2
85 / 89		62	13	75	72.2
80 / 84	3	180	58	241	69.4
75 / 79	33	256	141	431	66.9
70 / 74	147	266	230	643	64.6
65 / 69	237	242	255	734	61.1
60 / 64	274	210	260	744	57.0
55 / 59	280	194	239	713	52.4
50 / 54	252	184	208	644	47.8
45 / 49	226	184	214	624	43.2
40 / 44	240	206	225	671	38.7
35 / 39	281	251	269	800	34.2
30 / 34	304	242	278	823	29.9
25 / 29	207	154	177	539	25.0
20 / 24	152	118	136	406	20.2
15 / 19	115	88	107	310	15.7
10 / 14	76	48	62	186	10.8
5 / 9	52	23	34	109	6.3
0 / 4	23	7	12	41	1.7
-5 / -1	5	2	3	10	-2.8
-10 / -6	3	1	1	5	-7.1
-15 / -11	1	0	0	1	-11.5
-20 / -16	0			0	-15.7

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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



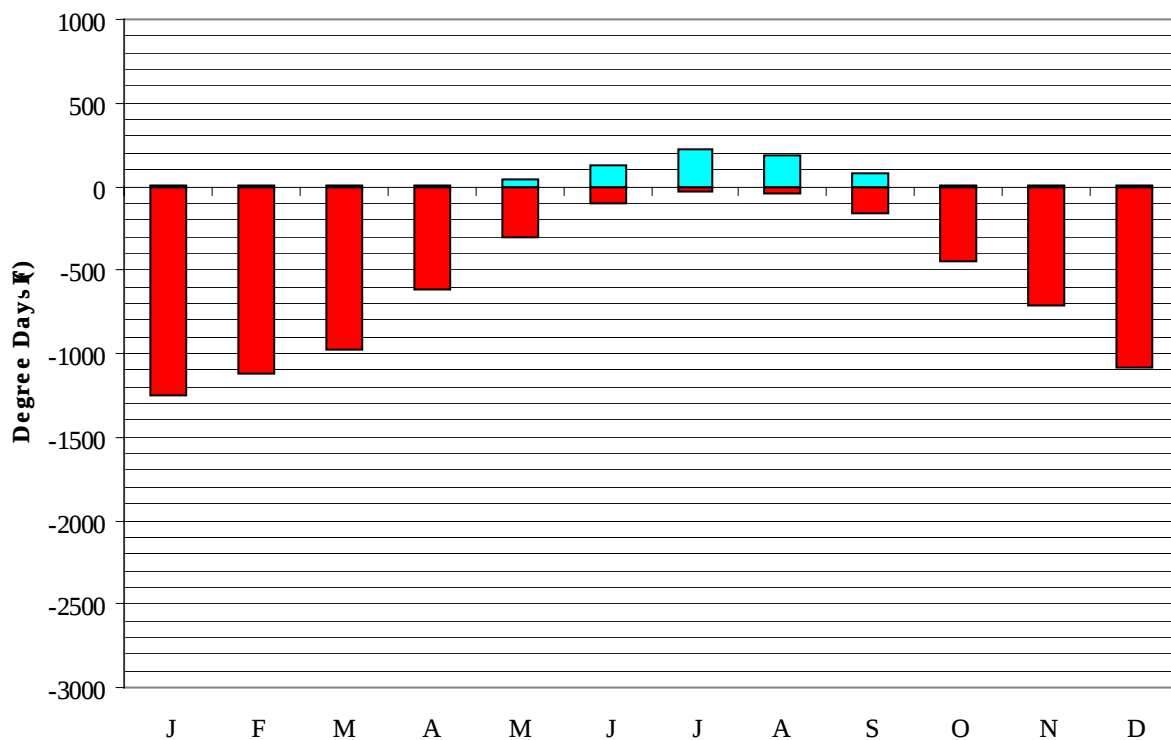
NIAGARA FALLS INTL NY
WMO No. 725287
Long Term Dry Bulb Temperature and Humidity Summary

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	51.0	47.9	29.5	17.3	0.0	46.9	48.4	19.9	11.0
14-Jan	53.0	48.0	30.1	17.2	-5.0	51.1	52.7	21.8	11.8
21-Jan	48.0	42.9	32.1	19.3	0.0	40.6	45.2	22.5	12.4
28-Jan	50.0	45.5	30.4	17.7	1.0	40.6	47.5	20.9	11.5
4-Feb	47.0	42.9	27.7	14.4	0.0	35.0	44.1	18.0	9.8
11-Feb	49.0	44.6	30.7	16.6	-1.0	44.1	48.0	20.6	11.0
18-Feb	54.0	49.5	37.2	23.3	5.0	50.4	51.3	27.1	15.4
25-Feb	53.0	47.1	33.6	20.3	4.0	44.1	47.7	22.0	12.5
4-Mar	59.0	51.1	37.9	22.8	5.0	53.2	53.9	26.8	14.8
11-Mar	65.0	53.0	41.0	25.1	10.0	61.6	58.2	28.3	15.7
18-Mar	61.0	51.0	41.5	26.4	12.0	49.7	52.8	28.0	16.2
25-Mar	69.0	56.5	47.5	30.2	17.0	62.3	62.1	33.5	19.5
1-Apr	69.0	55.8	47.6	32.2	19.0	64.4	62.0	35.4	21.1
8-Apr	70.0	58.2	51.3	33.1	21.0	68.6	64.3	35.7	21.0
15-Apr	78.0	64.2	57.9	38.0	28.0	73.5	69.7	44.9	26.2
22-Apr	79.0	64.9	58.5	39.1	29.0	77.0	69.2	45.0	27.5
29-Apr	75.0	61.3	60.6	41.0	33.0	77.0	65.0	47.2	29.3
6-May	80.0	64.4	64.4	43.8	34.0	94.5	72.8	53.4	32.8
13-May	82.0	66.2	66.9	46.2	37.0	94.5	73.0	61.0	37.8
20-May	84.0	67.3	70.0	50.1	40.0	105.0	74.6	67.3	43.9
27-May	84.0	68.8	71.8	51.7	42.0	109.2	76.1	72.4	46.8
3-Jun	83.0	69.6	72.9	53.3	44.0	111.3	75.0	75.7	50.1
10-Jun	87.0	72.6	75.8	55.5	45.0	123.9	75.5	80.5	54.1
17-Jun	87.0	71.0	76.8	57.9	48.0	125.3	80.7	88.0	58.8
24-Jun	87.0	70.5	77.3	59.0	50.0	121.1	81.8	89.2	61.3
1-Jul	89.0	73.9	79.7	60.5	53.0	126.0	81.5	92.8	64.7
8-Jul	89.0	75.1	80.5	61.9	53.0	129.5	83.0	97.2	65.9
15-Jul	90.0	73.6	81.9	63.5	55.0	129.5	81.5	101.6	71.8
22-Jul	88.0	73.3	80.8	61.9	54.0	133.0	84.0	98.8	69.0
29-Jul	89.0	75.4	80.4	62.8	55.0	136.5	88.0	100.7	71.7
5-Aug	87.0	71.0	79.3	61.6	52.0	129.5	79.9	98.0	69.3
12-Aug	88.0	73.0	79.7	60.8	52.0	129.5	79.3	98.0	67.3
19-Aug	87.0	72.7	78.1	59.0	50.0	121.1	78.3	90.5	61.2
26-Aug	88.0	74.3	78.4	60.2	49.0	128.8	82.1	96.9	67.2
2-Sep	85.0	72.3	75.8	57.6	46.0	121.1	78.1	89.1	61.3
9-Sep	83.0	69.7	72.7	54.4	44.0	117.6	75.6	82.8	54.1
16-Sep	81.0	71.5	69.3	51.8	41.0	113.4	77.0	76.9	50.3
23-Sep	77.0	66.8	66.3	49.2	38.0	105.0	73.5	68.4	44.7
30-Sep	77.0	64.7	64.8	46.8	34.0	95.2	69.6	62.8	40.5
7-Oct	75.0	63.7	61.0	44.3	33.0	85.4	67.2	56.1	36.2
14-Oct	72.0	62.2	58.4	41.4	29.0	79.1	63.5	51.6	31.7
21-Oct	73.0	61.4	57.4	41.3	30.0	81.9	67.6	50.1	32.3
28-Oct	70.0	60.1	55.7	39.4	28.0	77.0	63.7	47.2	29.2
4-Nov	66.0	58.7	50.4	37.4	23.0	73.5	62.3	43.0	26.5
11-Nov	63.0	55.1	46.4	33.5	22.0	67.2	57.5	36.3	22.4
18-Nov	63.0	56.9	45.0	32.4	20.0	64.4	60.1	35.6	21.3
25-Nov	61.0	54.6	42.3	30.8	17.0	60.2	58.4	32.8	19.3
2-Dec	59.0	55.5	39.0	26.7	12.0	63.0	61.8	29.6	16.5
9-Dec	56.0	50.9	36.8	24.5	5.0	49.7	54.4	26.9	15.5
16-Dec	51.0	47.5	33.7	23.1	6.0	49.0	49.6	24.1	14.4
23-Dec	55.0	52.9	33.7	21.4	2.0	58.8	55.6	24.6	13.7
31-Dec	50.0	48.5	31.6	19.5	0.0	49.0	50.2	21.8	12.1

NIAGARA FALLS INTL NY

WMO No. 725287

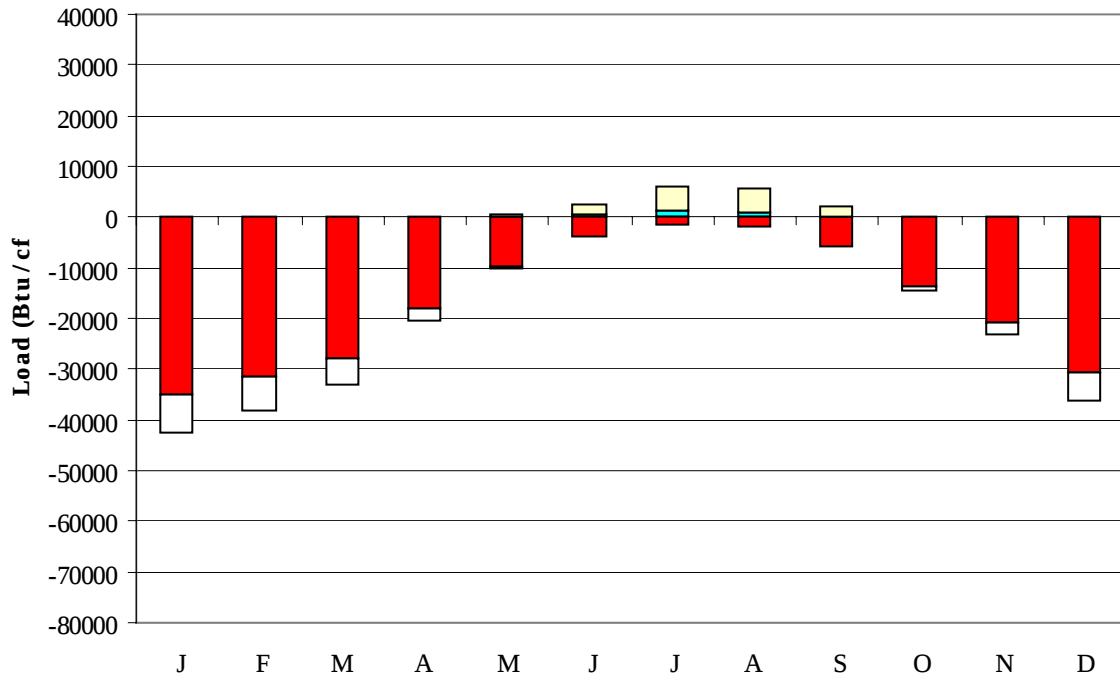
Degree Days, Heating and Cooling (Base 65°F)



■ Mean Cooling Degree Days ■ Mean Heating Degree Days

	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1256
FEB	0	1125
MAR	1	980
APR	10	612
MAY	45	303
JUN	122	99
JUL	221	31
AUG	190	44
SEP	77	163
OCT	11	444
NOV	1	710
DEC	0	1083
ANN	677	6850

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	-34970	0	-7395
FEB	0	-31361	0	-6704
MAR	1	-27803	0	-5200
APR	32	-18092	6	-2382
MAY	192	-9832	356	-461
JUN	627	-3803	1852	-21
JUL	1419	-1483	4505	0
AUG	1084	-1954	4388	0
SEP	277	-5750	1745	-42
OCT	14	-13753	64	-714
NOV	0	-20668	2	-2683
DEC	0	-30482	0	-5625
ANN	3646	-199951	12918	-31227

Average Annual Solar Radiation – Nearest Available Site

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

City: BUFFALO
 State: NY
 WBAN No: 14733
 Lat(N): 42.93
 Long(W): 78.73
 Elev(ft): 705

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	500	740	1070	1440	1740	1940	1910	1640	1240	840	500	400	1170
	Std Dev	40	59	85	119	157	134	109	101	110	73	42	38	39
	Minimum	430	640	940	1140	1360	1610	1700	1460	1070	700	420	330	1080
	Maximum	580	870	1270	1640	2060	2200	2110	1870	1430	1060	590	480	1260
	Diffuse	360	500	600	700	790	840	820	740	600	450	340	300	590
Clear Day	Global	790	1150	1640	2170	2510	2650	2560	2240	1770	1240	830	670	1690
NORTH	Global	190	270	340	430	530	610	590	470	360	270	190	160	370
	Diffuse	190	270	340	420	490	530	520	450	360	270	190	160	350
Clear Day	Global	170	230	310	420	570	690	640	460	340	250	170	150	370
EAST	Global	320	460	660	860	990	1070	1070	960	760	540	320	260	690
	Diffuse	240	330	420	510	580	620	620	550	450	320	220	190	420
Clear Day	Global	630	850	1110	1350	1480	1520	1480	1360	1160	880	650	550	1090
SOUTH	Global	680	850	970	940	870	840	870	970	1000	940	630	550	840
	Diffuse	360	440	490	530	560	580	580	560	500	410	310	290	470
Clear Day	Global	1850	1990	1870	1510	1180	1040	1090	1340	1680	1860	1810	1740	1580
WEST	Global	320	470	650	850	1000	1090	1090	970	770	540	310	260	700
	Diffuse	240	330	420	510	590	630	630	560	450	330	220	190	430
Clear Day	Global	630	850	1110	1350	1480	1520	1480	1360	1160	880	650	550	1090

Average Annual Solar Heat and Illumination – Nearest Available Site

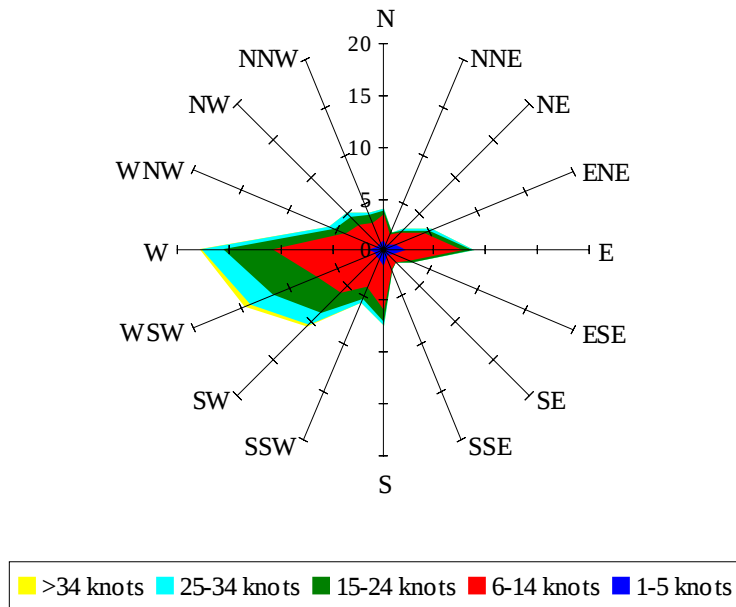
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

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	330	510	750	1030	1260	1410	1380	1180	880	570	330	260	830
NORTH	Unshaded	130	190	240	290	350	400	380	320	250	180	130	110	250
	Shaded	110	150	200	250	310	350	330	280	220	160	110	91	210
EAST	Unshaded	220	330	470	610	700	760	760	680	540	380	220	170	490
	Shaded	190	270	400	510	570	620	630	570	450	320	190	150	410
SOUTH	Unshaded	510	620	680	630	550	520	540	630	690	680	470	410	580
	Shaded	480	550	520	390	340	350	350	370	480	580	440	390	430
WEST	Unshaded	220	330	460	610	710	780	780	690	550	380	220	170	490
	Shaded	190	280	390	510	590	640	640	580	460	320	180	150	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	33	66	78	63	29	44	80	98	95	71
	M.Cloudy	19	39	46	38	17	27	51	67	65	48
NORTH	M.Clear	9	13	14	13	8	18	16	17	17	15
	M.Cloudy	8	14	16	14	7	12	16	18	18	16
EAST	M.Clear	70	59	14	13	8	77	74	35	17	15
	M.Cloudy	23	29	16	14	7	32	41	28	18	16
SOUTH	M.Clear	36	73	86	70	32	11	33	51	48	26
	M.Cloudy	14	33	39	31	13	10	24	37	35	21
WEST	M.Clear	9	13	17	62	68	11	16	17	47	78
	M.Cloudy	8	14	17	29	21	10	16	18	34	45
M.Clear	(% hrs)	23	21	19	19	21	37	33	31	33	33

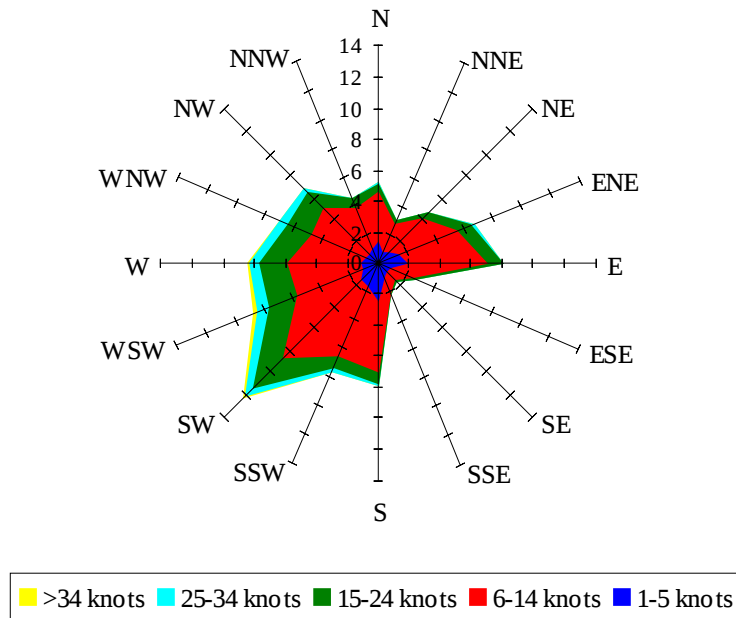
		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	23	60	79	75	49	8	32	40	25	2
	M.Cloudy	13	35	50	48	29	5	19	23	15	2
NORTH	M.Clear	7	13	15	15	12	4	9	10	8	1
	M.Cloudy	6	13	16	16	11	3	8	10	7	1
EAST	M.Clear	57	70	32	15	12	24	37	10	8	1
	M.Cloudy	18	32	23	16	11	6	14	10	7	1
SOUTH	M.Clear	17	55	76	71	43	21	71	83	57	6
	M.Cloudy	8	27	41	39	21	5	21	25	17	2
WEST	M.Clear	7	13	15	47	73	4	9	16	40	8
	M.Cloudy	6	13	16	29	30	3	8	11	13	2
M.Clear	(% hrs)	35	28	26	27	32	11	11	11	11	12

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



Percent Calm = 2.73

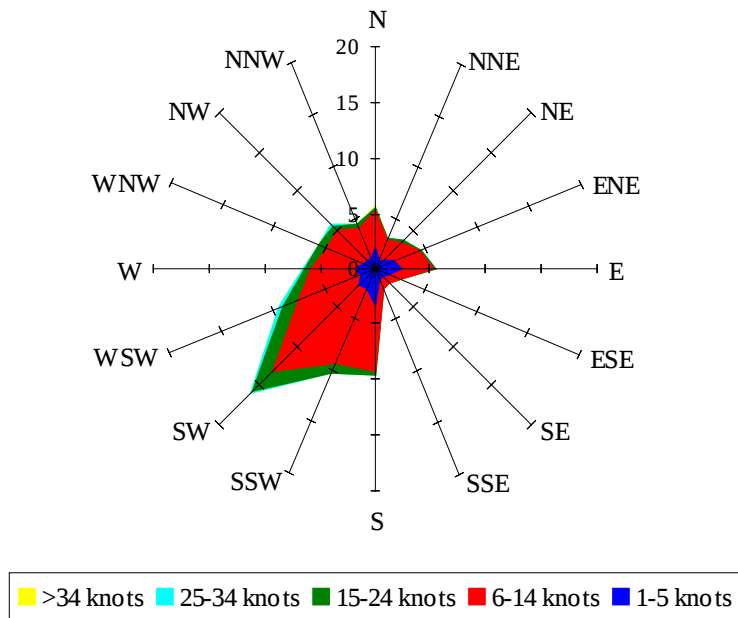
Wind Summary - March, April, and May **Labels of Percent Frequency on North Axis**



Percent Calm = 3.49

Wind Summary - June, July, and August

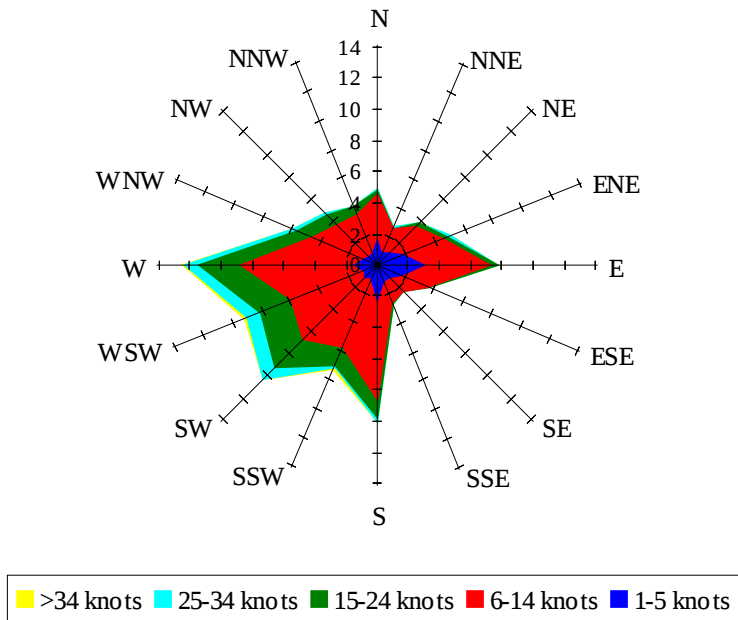
Labels of Percent Frequency on North Axis



Percent Calm = 5.13

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 4.62