

YOUNGSTOWN OH

Latitude = 41.27 N

Longitude = 80.67 W

Period of Record = 1973 to 1996

WMO No. 725250

Elevation = 1184 feet

Average Pressure = 28.73 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	92	74	101	10.4	WSW
0.4% Occurrence	88	73	102	9.8	SW
1.0% Occurrence	85	71	95	9.7	SW
2.0% Occurrence	83	70	92	9.8	SW
Mean Daily Range	18	-	-	-	-
97.5% Occurrence	11	10	7	10.4	W
99.0% Occurrence	4	3	5	10.2	WSW
99.6% Occurrence	0	-1	4	9.9	WSW
Median of Extreme Lows	-7	-7	3	12.7	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	78	87	132	10.7	W
0.4% Occurrence	75	84	119	9.7	SW
1.0% Occurrence	74	83	115	9.6	SW
2.0% Occurrence	72	80	110	9.0	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	138	83	0.88	9.7	SSW
0.4% Occurrence	124	80	0.79	9.1	SW
1.0% Occurrence	119	79	0.77	8.2	SW
2.0% Occurrence	112	76	0.72	8.6	SW
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		6	385	141	854

Other Site Data

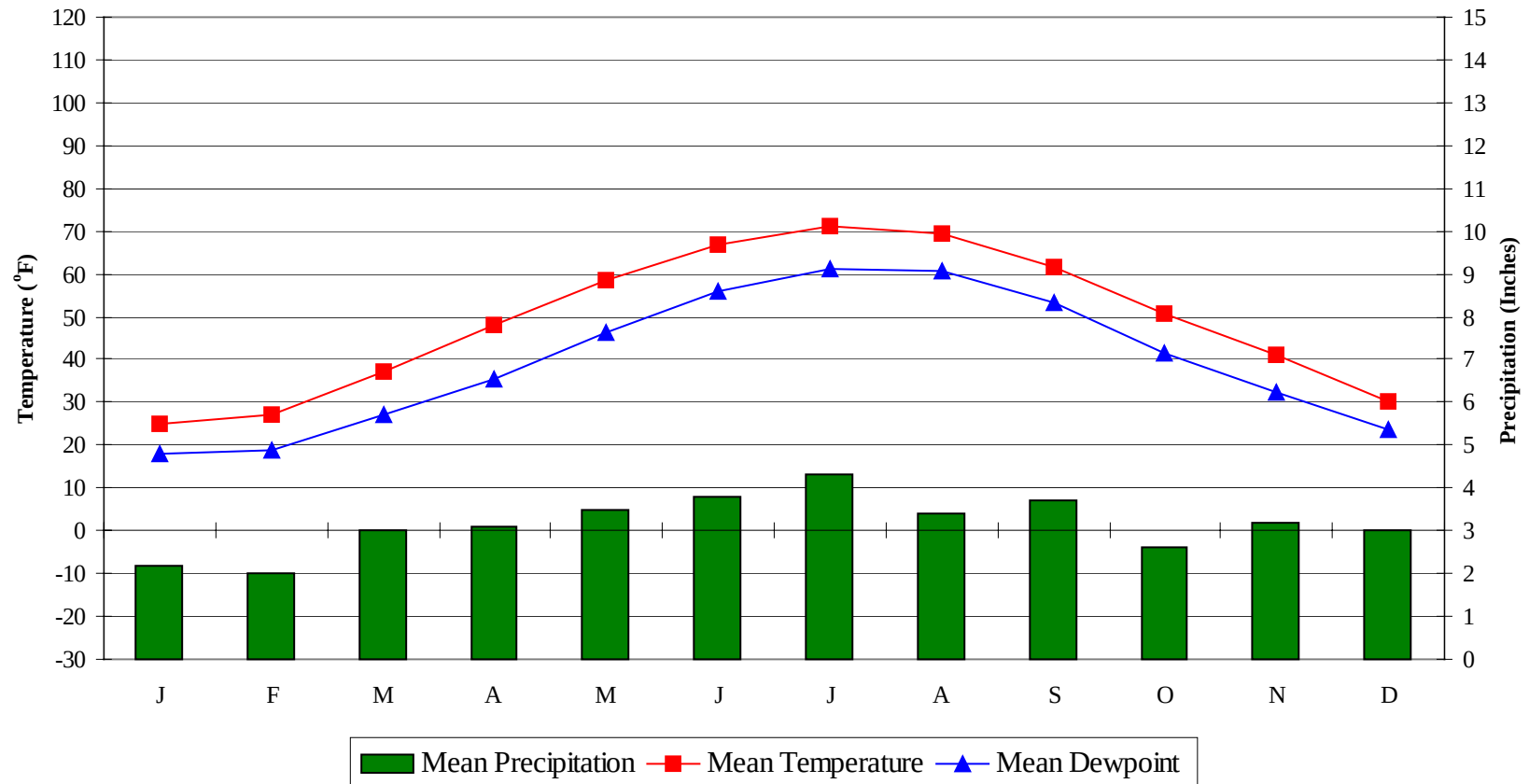
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
6	2.7	90	1.2 + 0.4
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
51.4	N/A	10	57

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

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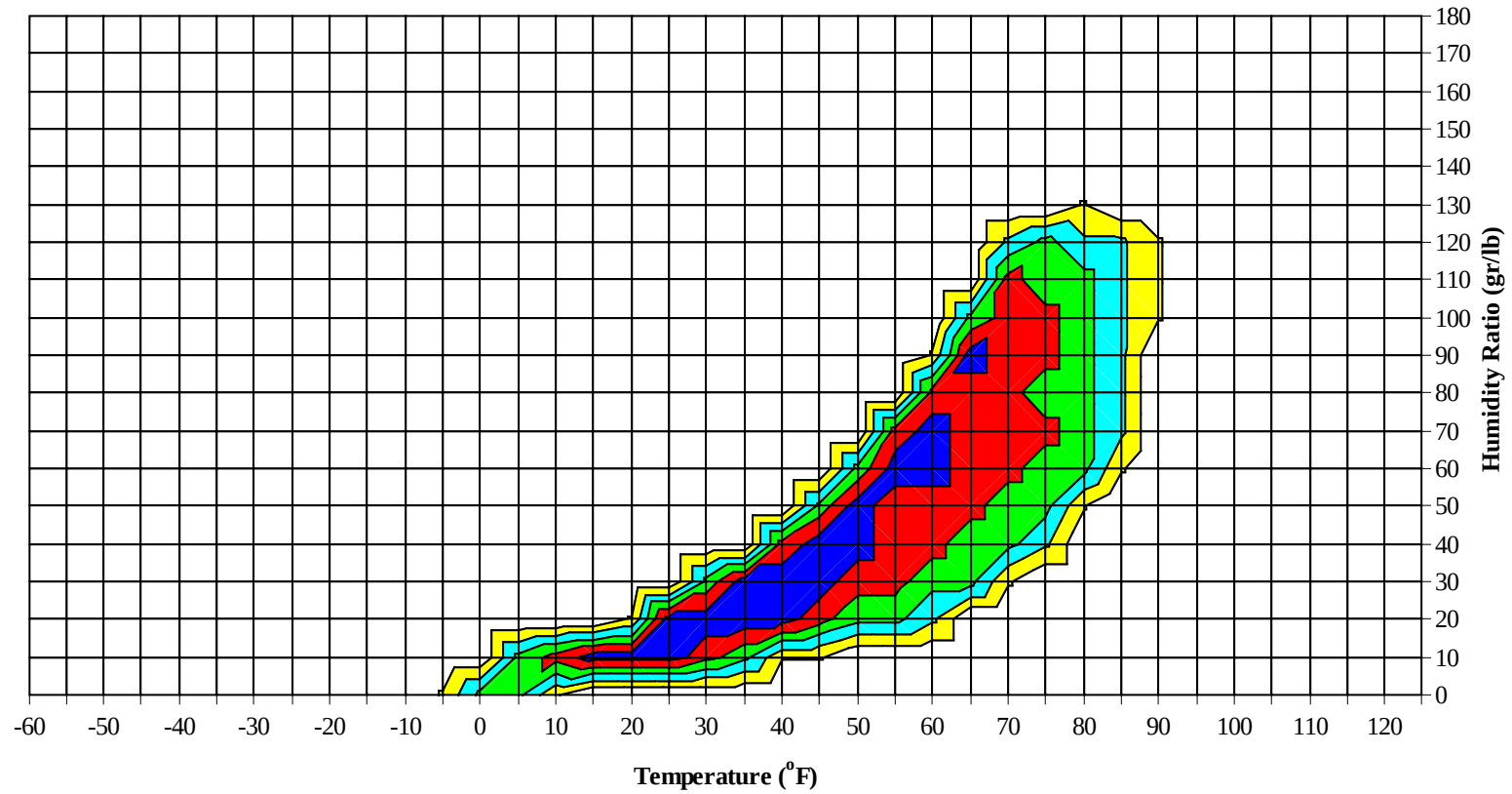
Average Annual Climate



YOUNGSTOWN OH

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Long Term Psychrometric Summary

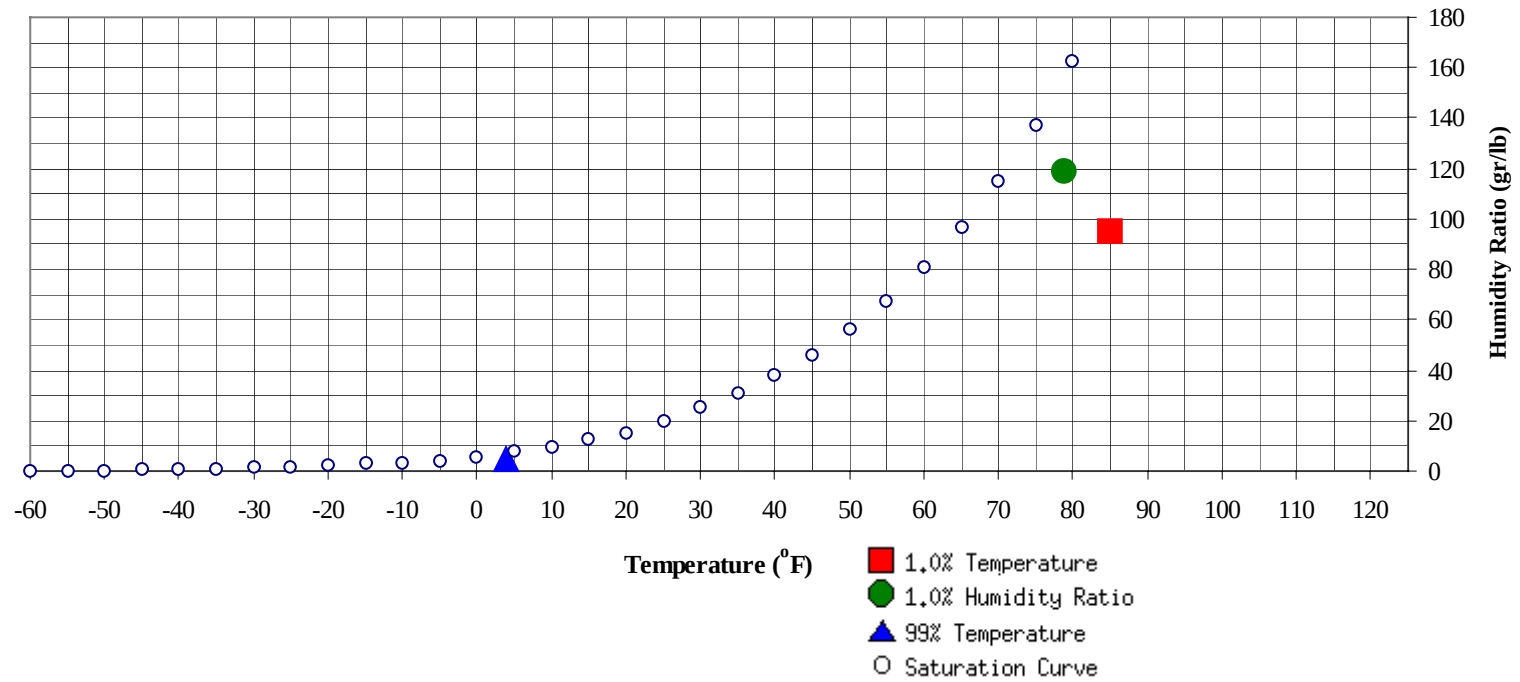


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

YOUNGSTOWN OH

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Psychrometric Summary of Peak Design Values



	(°F)	MCHR	Enthalpy	1.0% Humidity Ratio	(gr/lb)	MCDB	MCWB	MC Dewpt	Enthalpy
		(gr/lb)	(btu/lb)			(°F)	(°F)	(°F)	(btu/lb)
99% Dry Bulb	4	5.1	1.7		119	78.9	73.2	71	37.6

1.0% Dry Bulb	(°F)	MCHR	MCWB	Enthalpy
		(gr/lb)	(°F)	(btu/lb)
	85	95.2	70.8	35.3

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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												0		0	61.0
75 / 79												2	1	3	59.2
70 / 74												5	2	7	57.0
65 / 69		0	0	0	58.1		0	0	0	52.0	1	8	6	15	54.4
60 / 64	0	1	0	1	56.2		2	1	3	50.3	4	10	8	22	52.4
55 / 59	1	2	1	4	51.8	1	5	3	9	49.8	9	15	13	37	49.9
50 / 54	3	5	3	11	47.4	4	7	9	20	46.5	12	22	19	53	45.8
45 / 49	7	9	6	22	42.5	8	12	9	29	42.1	16	30	23	69	41.8
40 / 44	11	15	14	40	38.2	11	19	17	47	37.9	25	32	32	89	37.8
35 / 39	18	28	27	73	33.7	23	28	28	79	33.5	34	37	36	107	33.1
30 / 34	41	49	46	136	29.6	34	38	36	108	29.6	47	40	43	130	29.2
25 / 29	42	37	41	120	25.0	30	34	32	96	24.4	40	25	33	98	24.6
20 / 24	33	35	33	101	20.2	30	30	30	90	19.9	29	13	19	61	20.1
15 / 19	29	29	26	84	15.4	29	23	26	78	15.4	16	6	8	30	15.7
10 / 14	28	20	26	74	10.8	22	13	17	52	10.9	9	2	4	15	10.8
5 / 9	15	9	11	35	6.1	15	8	10	33	6.2	4	1	1	6	6.3
0 / 4	10	5	8	23	1.5	11	3	5	19	1.4	2	0	1	3	1.6
-5 / -1	6	2	2	10	-3.0	5	1	1	7	-2.7	1		0	1	-2.4
-10 / -6	2	1	2	5	-7.2	2	0	0	2	-7.3	0			0	-8.0
-15 / -11	2	1	1	4	-12.4	0			0	-12.0					
-20 / -16	1	0	0	1	-17.0										
-25 / -21	0	0	0	0	-20.8										

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												0	0	0	73.3
90 / 94												3	1	4	72.0
85 / 89		1	0	1	62.7		4	1	5	68.2		15	5	20	71.0
80 / 84		5	1	6	62.7		20	6	26	66.1	0	41	15	56	68.4
75 / 79	0	10	4	14	60.7	0	27	14	41	63.4	4	56	30	90	65.8
70 / 74	1	13	8	22	58.0	5	34	22	61	60.9	20	51	44	115	64.0
65 / 69	6	18	14	38	55.4	17	38	33	88	58.2	57	41	54	151	61.9
60 / 64	16	27	22	65	52.9	37	42	41	120	55.4	58	21	40	119	57.9
55 / 59	18	32	24	74	49.3	38	35	41	114	51.4	43	9	27	78	53.7
50 / 54	22	34	32	88	45.5	47	25	39	111	47.8	31	4	16	51	49.5
45 / 49	32	32	36	100	41.9	43	16	27	86	43.6	18	1	6	25	45.3
40 / 44	41	30	37	108	38.0	32	6	16	54	39.3	7		2	9	40.7
35 / 39	39	23	30	92	33.7	19	1	7	27	35.0	2		0	2	36.9
30 / 34	38	12	21	71	29.8	7		1	8	30.9					
25 / 29	18	4	9	31	25.3	1		0	1	25.3					
20 / 24	8	1	1	10	21.0										
15 / 19	1		0	1	17.1										
10 / 14	0			0	13.0										
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															

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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		
95 / 99		1	0	1	73.0		0		0	76.2					
90 / 94		8	2	10	73.9		6	1	7	74.5		1		1	73.1
85 / 89		30	10	40	72.5		19	5	24	72.4		6	1	7	71.7
80 / 84	1	61	27	89	69.7	0	53	18	71	69.8		16	4	20	69.6
75 / 79	12	68	46	126	67.4	5	64	39	109	67.6	1	33	13	47	66.9
70 / 74	49	50	60	159	66.2	37	59	61	157	66.3	12	48	29	89	64.5
65 / 69	70	21	51	142	63.3	68	35	57	160	63.4	35	50	44	130	61.7
60 / 64	57	9	33	99	59.4	66	11	39	116	59.6	41	42	46	130	57.7
55 / 59	36	1	15	52	55.1	44	2	19	65	55.3	45	28	42	116	53.6
50 / 54	18	0	4	22	50.7	19	0	7	26	50.8	47	12	31	90	49.4
45 / 49	5		0	5	46.1	7		2	9	46.0	31	4	18	53	45.1
40 / 44	0			0	42.8	2		0	2	42.3	18	0	8	26	40.7
35 / 39						0			0	36.5	8		2	10	36.0
30 / 34						0			0	32.3	1		0	1	32.4
25 / 29											0			0	29.0
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															

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YOUNGSTOWN OH

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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		1		1	66.5										
75 / 79		7	1	8	63.1		0	0	0	63.5		0		0	64.0
70 / 74		18	5	23	60.2		3	1	4	60.8		0	0	0	62.0
65 / 69	4	28	16	48	58.3	1	8	4	13	58.0	0	1	0	1	59.7
60 / 64	16	37	26	79	55.3	8	16	11	35	55.1	2	3	1	6	55.7
55 / 59	29	40	38	107	51.6	15	18	19	52	51.7	4	5	6	15	52.4
50 / 54	39	45	44	128	47.4	19	26	23	68	47.0	7	8	7	22	47.8
45 / 49	44	41	48	133	43.1	22	31	27	80	42.5	8	14	10	32	42.9
40 / 44	50	20	40	110	39.2	33	39	34	106	38.2	13	22	16	51	38.6
35 / 39	37	8	22	67	35.1	41	42	42	125	33.8	30	43	35	108	34.0
30 / 34	22	2	8	32	30.9	55	38	50	143	29.7	60	56	63	178	29.8
25 / 29	5		1	6	26.4	30	14	21	65	25.2	46	39	44	129	25.0
20 / 24	1		0	1	21.6	13	3	6	22	21.0	30	23	28	81	20.4
15 / 19						3	1	1	5	16.5	22	16	17	55	15.6
10 / 14						1	0	0	1	11.7	12	10	10	32	10.8
5 / 9						0	0	0	0	5.8	9	4	6	19	6.3
0 / 4						0			0	1.1	4	2	3	9	1.6
-5 / -1											2	0	1	3	-2.8
-10 / -6											1	1	0	2	-7.0
-15 / -11											0	0	0	0	-11.8
-20 / -16															
-25 / -21															

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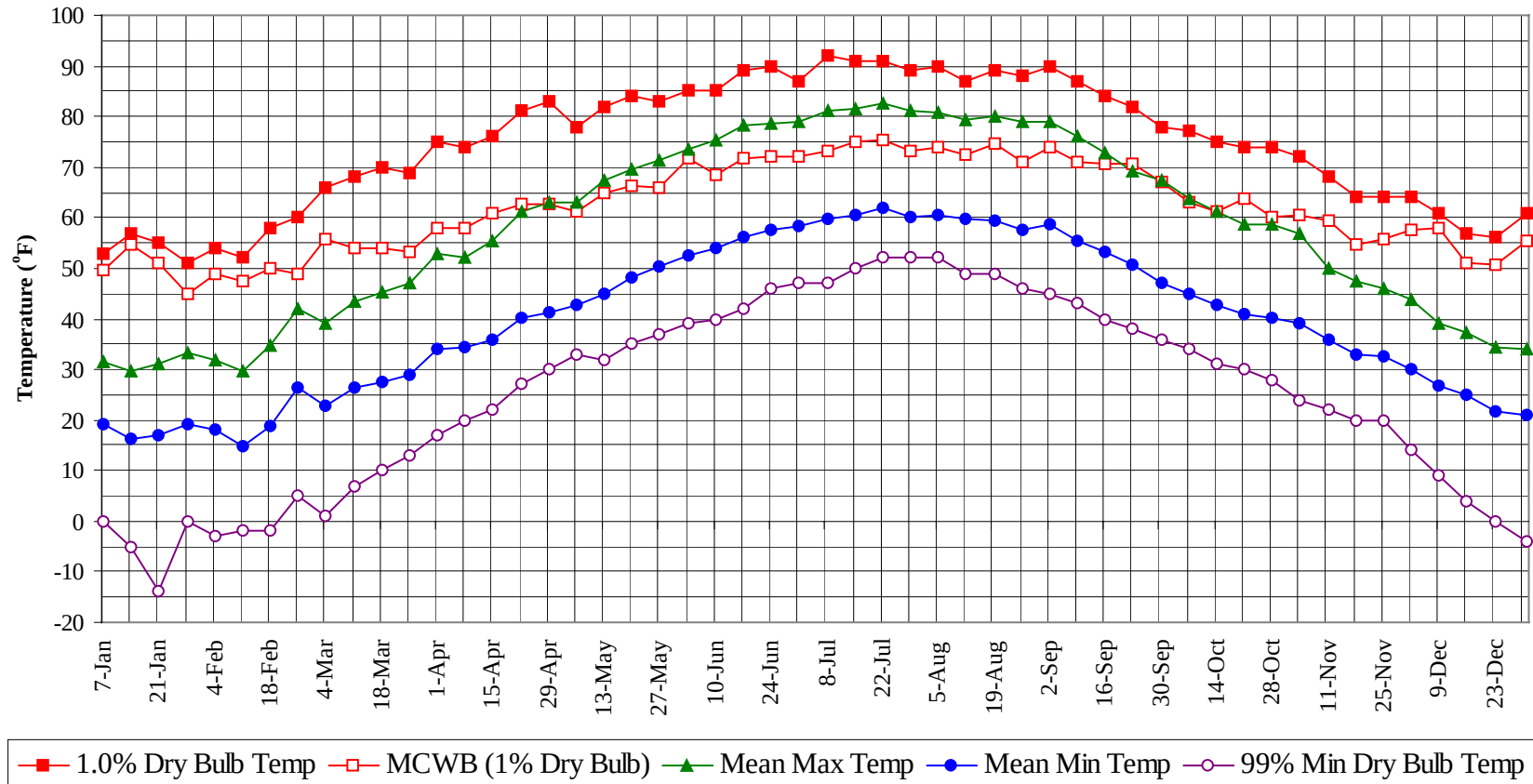
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

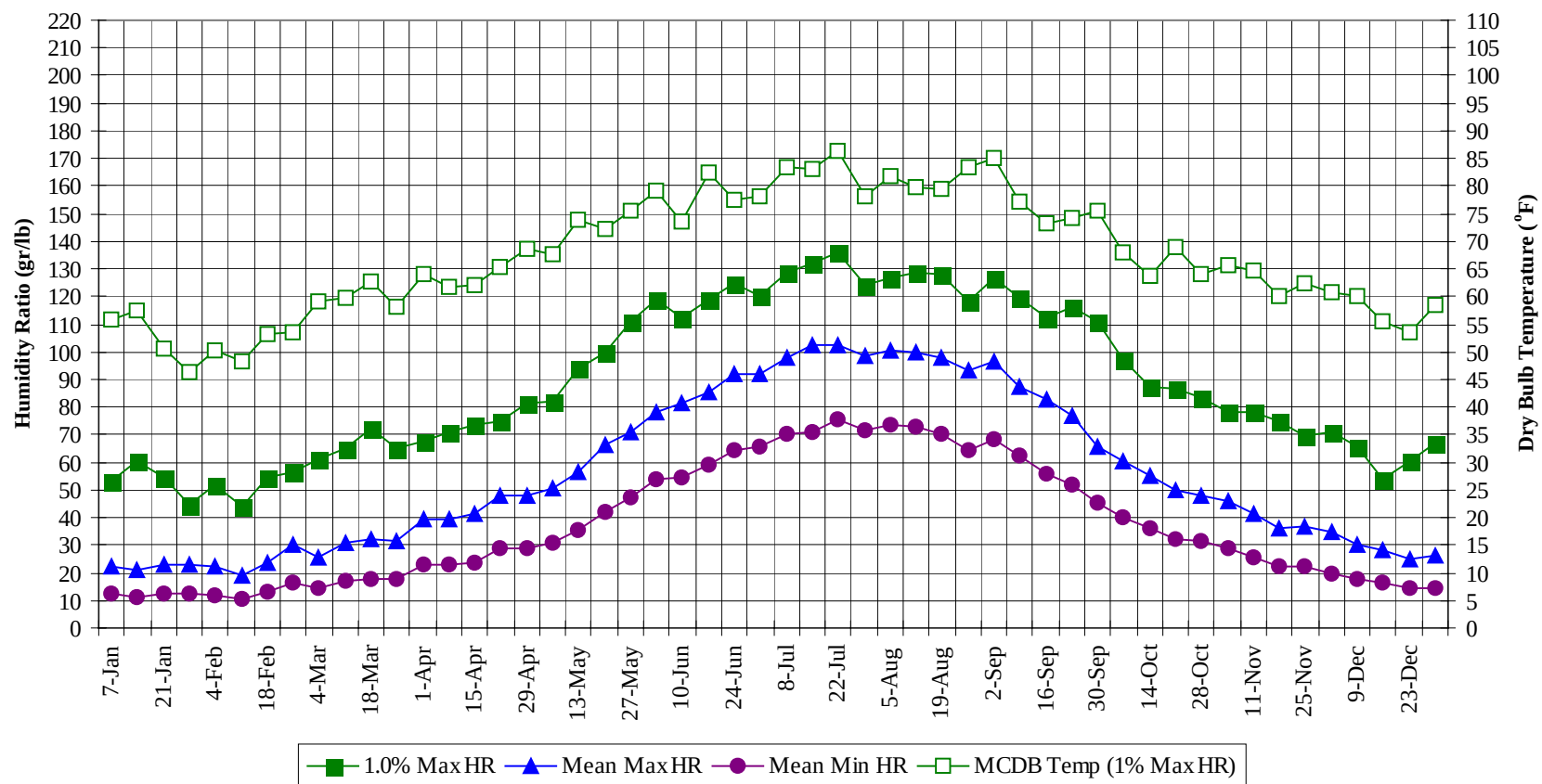
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
95 / 99		1	0	1	73.4
90 / 94		18	3	21	73.7
85 / 89		73	22	95	71.8
80 / 84	2	195	71	268	68.9
75 / 79	22	267	146	435	66.4
70 / 74	122	282	229	633	64.4
65 / 69	254	247	277	778	61.2
60 / 64	300	221	269	789	56.9
55 / 59	280	193	247	720	52.4
50 / 54	268	188	234	690	47.7
45 / 49	240	191	214	645	43.0
40 / 44	245	184	218	647	38.6
35 / 39	254	210	231	695	33.9
30 / 34	309	237	268	813	29.7
25 / 29	213	154	182	549	24.9
20 / 24	144	105	119	368	20.2
15 / 19	100	76	79	255	15.5
10 / 14	72	45	58	175	10.9
5 / 9	43	23	29	95	6.2
0 / 4	28	9	16	53	1.5
-5 / -1	13	3	4	20	-2.8
-10 / -6	5	2	3	10	-7.2
-15 / -11	2	1	1	4	-12.2
-20 / -16	1	0	0	1	-17.0
-25 / -21	0	0	0	0	-20.8

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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



YOUNGSTOWN**OH****WMO No. 725250****Long Term Dry Bulb Temperature and Humidity Summary**

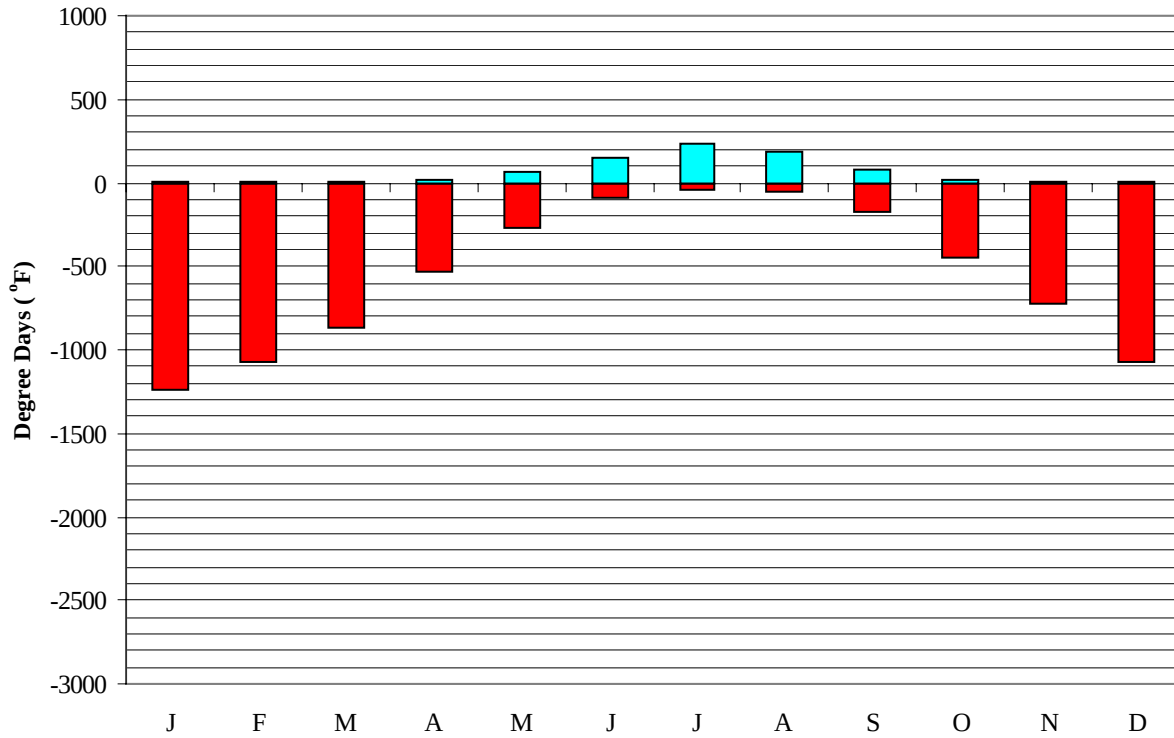
Week Ending	1.0% Temp (°F)	MCWB @ 1% Temp (°F)	Mean Max Temp (°F)	Mean Min Temp (°F)	99% Temp (°F)	1.0% HR (gr/lb)	MCDB @ 1% HR (°F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	53.0	49.7	31.7	19.2	0.0	53.2	55.7	22.3	12.6
14-Jan	57.0	54.8	29.8	16.3	-5.0	60.2	57.3	21.3	11.3
21-Jan	55.0	51.1	31.0	17.1	-14.0	54.6	50.7	22.8	12.6
28-Jan	51.0	45.1	33.2	19.3	0.0	44.8	46.5	22.9	12.5
4-Feb	54.0	49.0	31.8	18.1	-3.0	51.8	50.3	22.2	12.0
11-Feb	52.0	47.3	29.6	14.7	-2.0	44.1	48.1	19.1	10.4
18-Feb	58.0	49.9	34.6	19.0	-2.0	54.6	53.1	23.5	13.0
25-Feb	60.0	49.0	41.9	26.3	5.0	56.7	53.6	30.4	16.7
4-Mar	66.0	55.9	39.0	22.7	1.0	60.9	59.1	25.4	14.4
11-Mar	68.0	53.9	43.5	26.3	7.0	65.1	59.9	31.2	17.1
18-Mar	70.0	54.1	45.2	27.6	10.0	72.1	62.6	32.2	17.5
25-Mar	69.0	53.3	47.0	28.9	13.0	65.1	58.2	31.4	17.7
1-Apr	75.0	57.9	52.8	33.8	17.0	67.9	64.2	39.1	22.8
8-Apr	74.0	57.8	52.0	34.4	20.0	70.7	61.7	39.2	22.7
15-Apr	76.0	60.8	55.6	35.7	22.0	73.5	61.9	41.1	23.7
22-Apr	81.0	62.6	61.2	40.3	27.0	74.9	65.5	47.7	28.8
29-Apr	83.0	62.8	63.2	41.3	30.0	81.2	68.7	47.7	29.1
6-May	78.0	61.1	63.1	42.8	33.0	81.9	67.8	50.3	30.6
13-May	82.0	64.7	67.4	44.7	32.0	93.8	74.0	56.7	35.5
20-May	84.0	66.4	69.7	48.3	35.0	100.1	72.4	66.1	42.3
27-May	83.0	65.8	71.3	50.2	37.0	111.3	75.5	70.9	47.2
3-Jun	85.0	71.6	73.6	52.7	39.0	119.0	79.1	78.0	53.6
10-Jun	85.0	68.6	75.2	53.8	40.0	112.0	73.5	81.4	54.4
17-Jun	89.0	71.7	78.2	56.1	42.0	119.0	82.4	85.6	59.1
24-Jun	90.0	72.0	78.4	57.7	46.0	124.6	77.6	91.7	64.4
1-Jul	87.0	72.2	78.8	58.1	47.0	120.4	78.3	92.0	65.4
8-Jul	92.0	73.3	81.2	59.8	47.0	128.8	83.3	97.9	70.2
15-Jul	91.0	74.8	81.6	60.4	50.0	132.3	83.0	102.6	70.7
22-Jul	91.0	75.4	82.6	61.8	52.0	135.8	86.3	102.2	75.2
29-Jul	89.0	73.1	81.1	60.3	52.0	123.9	78.3	98.5	71.6
5-Aug	90.0	73.9	80.8	60.7	52.0	126.7	81.7	100.2	73.9
12-Aug	87.0	72.4	79.4	59.8	49.0	128.8	79.8	99.8	72.9
19-Aug	89.0	74.6	80.1	59.3	49.0	128.1	79.5	98.1	70.0
26-Aug	88.0	71.1	78.9	57.6	46.0	118.3	83.4	93.0	64.6
2-Sep	90.0	74.0	78.9	58.7	45.0	126.7	84.9	96.4	68.6
9-Sep	87.0	71.1	76.0	55.4	43.0	119.7	77.1	87.6	62.1
16-Sep	84.0	70.5	72.9	53.2	40.0	112.0	73.4	82.8	56.1
23-Sep	82.0	70.6	69.2	50.6	38.0	116.2	74.1	76.5	51.7
30-Sep	78.0	67.1	67.3	47.2	36.0	111.3	75.4	65.9	45.2
7-Oct	77.0	63.0	63.8	44.9	34.0	97.3	67.9	60.2	39.9
14-Oct	75.0	61.1	61.2	42.9	31.0	87.5	63.8	55.3	36.4
21-Oct	74.0	63.7	58.6	40.9	30.0	86.8	68.9	50.2	32.0
28-Oct	74.0	60.0	58.5	40.3	28.0	83.3	64.1	48.2	31.3
4-Nov	72.0	60.5	56.9	39.0	24.0	78.4	65.8	46.1	29.2
11-Nov	68.0	59.4	50.1	35.7	22.0	78.4	64.8	41.3	25.6
18-Nov	64.0	54.9	47.3	33.0	20.0	74.9	60.2	36.3	22.2
25-Nov	64.0	55.8	46.1	32.7	20.0	69.3	62.4	36.5	22.6
2-Dec	64.0	57.6	43.6	30.1	14.0	70.7	60.6	34.5	19.5
9-Dec	61.0	57.8	39.2	26.7	9.0	65.8	60.3	30.0	17.7
16-Dec	57.0	51.0	37.4	25.0	4.0	53.9	55.4	28.0	16.6
23-Dec	56.0	50.8	34.3	21.9	0.0	60.2	53.6	24.7	14.2
31-Dec	61.0	55.6	34.0	21.0	-4.0	67.2	58.5	26.4	14.6

YOUNGSTOWN

OH

WMO No. 725250

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



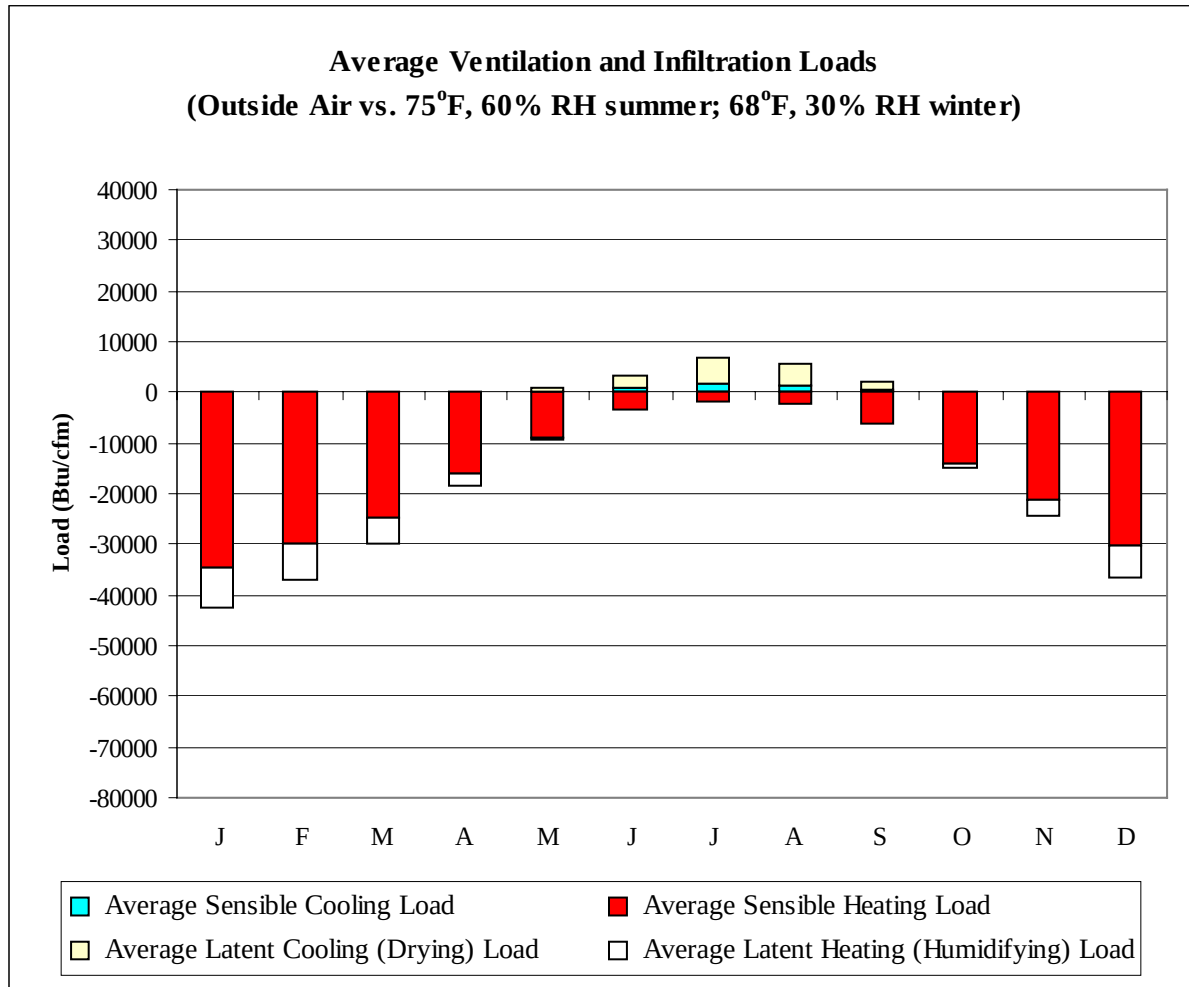
■ Mean Cooling Degree Days
 ■ Mean Heating Degree Days

	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1241
FEB	0	1069
MAR	4	865
APR	20	533
MAY	66	271
JUN	151	95
JUL	231	43
AUG	191	55
SEP	80	179
OCT	14	455
NOV	2	721
DEC	0	1077
ANN	759	6604

YOUNGSTOWN

OH

WMO No. 725250



	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	-34578	0	-7998
FEB	0	-29892	0	-7011
MAR	5	-24768	0	-5195
APR	80	-15949	5	-2471
MAY	313	-8853	538	-510
JUN	871	-3554	2399	-13
JUL	1594	-1848	5105	0
AUG	1140	-2330	4416	-1
SEP	329	-6188	1768	-53
OCT	15	-14026	93	-925
NOV	0	-20993	2	-3293
DEC	0	-30323	0	-6296
ANN	4347	-193302	14326	-33766

Average Annual Solar Radiation – Nearest Available Site

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

City: YOUNGSTOWN
 State: OH
 WBAN No: 14852
 Lat(N): 41.27
 Long(W): 80.67
 Elev(ft): 1184

Stn Type: Secondary
 SHADING GEOMETRY IN DIMENSIONLESS UNITS
 Window: 1
 Overhang: 0.57
 Vert Gap: 0.326

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	510	740	1050	1400	1690	1870	1830	1590	1260	890	530	420	1150
	Std Dev	34	67	70	116	154	129	97	109	108	74	50	30	33
	Minimum	450	630	920	1110	1380	1650	1680	1430	1040	780	420	360	1080
	Maximum	570	940	1270	1610	1970	2230	2050	1840	1440	1180	640	490	1220
	Diffuse	360	490	630	760	870	910	900	810	640	470	360	320	630
Clear Day	Global	820	1180	1660	2160	2490	2610	2520	2230	1790	1280	880	720	1700
NORTH	Global	200	270	350	440	540	610	590	480	380	280	200	170	380
	Diffuse	200	270	350	430	510	540	530	470	380	280	200	170	360
Clear Day	Global	180	250	330	430	580	680	630	480	360	270	190	160	380
EAST	Global	320	460	620	820	960	1040	1050	920	770	560	330	260	680
	Diffuse	230	320	420	520	600	640	640	570	460	340	230	200	430
Clear Day	Global	620	830	1080	1310	1420	1450	1420	1310	1130	880	650	550	1060
SOUTH	Global	660	820	880	880	820	790	820	900	980	960	650	530	810
	Diffuse	340	420	490	540	580	590	600	580	520	430	320	280	470
Clear Day	Global	1780	1890	1790	1460	1140	990	1040	1280	1610	1800	1750	1690	1520
WEST	Global	320	470	620	810	940	1030	1030	920	760	550	340	260	670
	Diffuse	230	320	420	520	600	650	640	580	470	340	240	200	440
Clear Day	Global	620	830	1080	1310	1420	1450	1420	1310	1130	880	650	550	1060

Average Annual Solar Heat and Illumination – Nearest Available Site

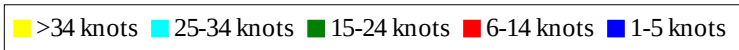
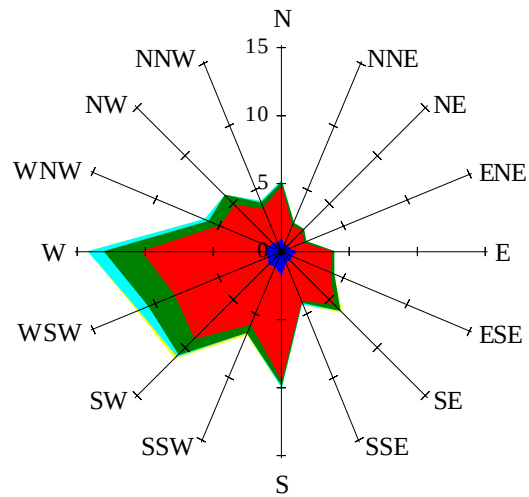
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

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	340	510	730	1000	1210	1350	1320	1140	900	610	360	280	810
NORTH	Unshaded	140	190	240	300	360	400	390	330	260	190	140	120	260
	Shaded	110	160	210	260	310	350	340	290	230	170	120	96	220
EAST	Unshaded	220	320	440	580	680	740	750	650	550	390	230	180	480
	Shaded	190	270	370	490	570	620	630	550	470	340	200	150	410
SOUTH	Unshaded	490	600	620	580	520	490	510	580	670	690	480	390	550
	Shaded	460	540	480	380	350	360	360	380	480	600	450	370	430
WEST	Unshaded	220	330	440	580	660	730	730	650	540	390	230	170	470
	Shaded	190	280	370	490	560	610	620	550	460	340	200	150	400

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	31	65	79	65	31	40	78	97	96	72
	M.Cloudy	17	37	44	38	18	25	49	66	65	47
NORTH	M.Clear	9	14	15	14	9	19	16	17	17	16
	M.Cloudy	7	15	17	15	8	13	17	19	19	16
EAST	M.Clear	66	61	16	14	9	71	75	39	17	16
	M.Cloudy	18	27	17	15	8	29	40	30	19	16
SOUTH	M.Clear	31	68	83	69	32	11	30	48	47	26
	M.Cloudy	12	29	35	29	13	10	22	35	34	20
WEST	M.Clear	9	14	15	59	65	11	16	17	45	75
	M.Cloudy	7	15	17	27	20	10	17	19	33	41
M.Clear	(% hrs)	23	20	19	20	21	37	36	26	25	30
		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	20	59	79	77	51	7	33	42	29	3
	M.Cloudy	11	34	51	49	31	5	18	23	17	3
NORTH	M.Clear	7	13	16	16	13	3	9	11	8	2
	M.Cloudy	5	13	17	17	12	2	8	10	8	1
EAST	M.Clear	51	70	36	16	13	22	39	11	8	2
	M.Cloudy	14	30	25	17	12	5	13	10	8	1
SOUTH	M.Clear	14	52	73	71	43	18	69	81	62	8
	M.Cloudy	7	24	40	39	22	4	18	22	17	2
WEST	M.Clear	7	13	16	45	70	3	9	14	42	11
	M.Cloudy	5	13	17	28	31	2	8	11	13	3
M.Clear	(% hrs)	41	36	27	24	32	13	13	12	10	12

Wind Summary - December, January, and February

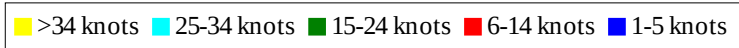
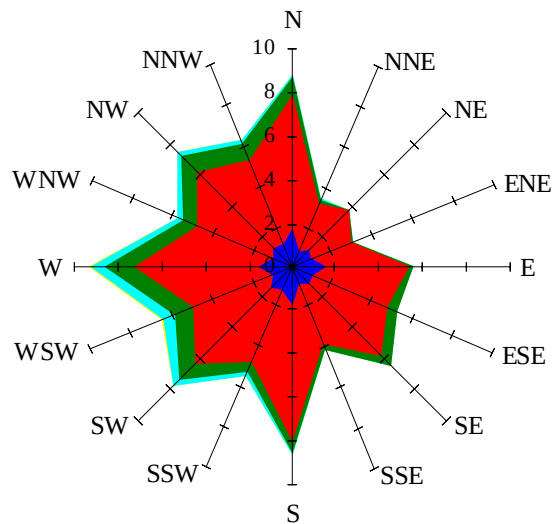
Labels of Percent Frequency on North Axis



Percent Calm = 2.60

Wind Summary - March, April, and May

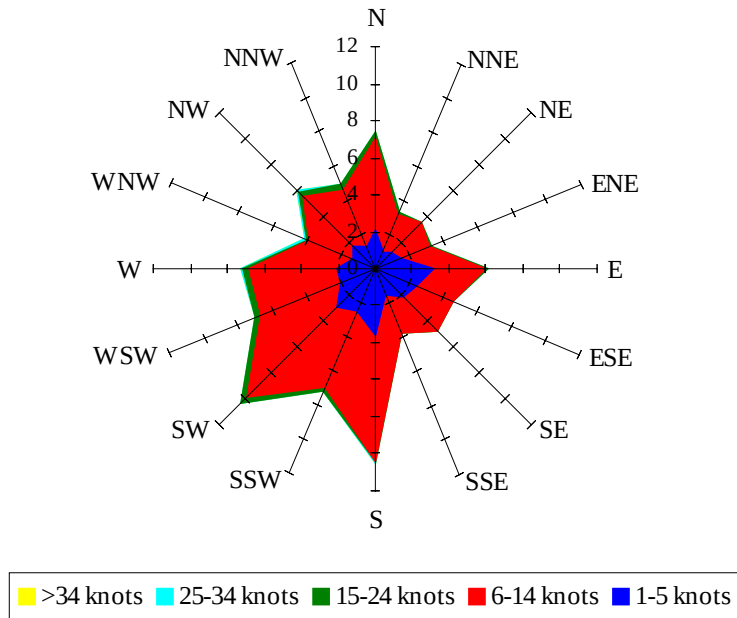
Labels of Percent Frequency on North Axis



Percent Calm = 3.40

Wind Summary - June, July, and August

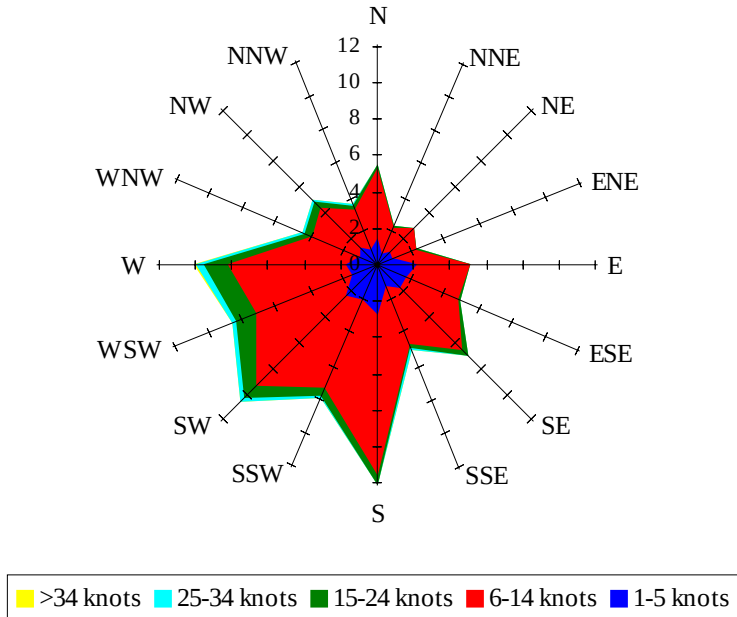
Labels of Percent Frequency on North Axis



Percent Calm = 6.51

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 4.22