WILLOW GROVE PA	
Latitude = 40.20 N	WMO No. 724086
Longitude = 75.15 W	Elevation = 361 feet
Period of Record = 1973 to 1996	Average Pressure = 29.62 inches Hg

Design Criteria Data

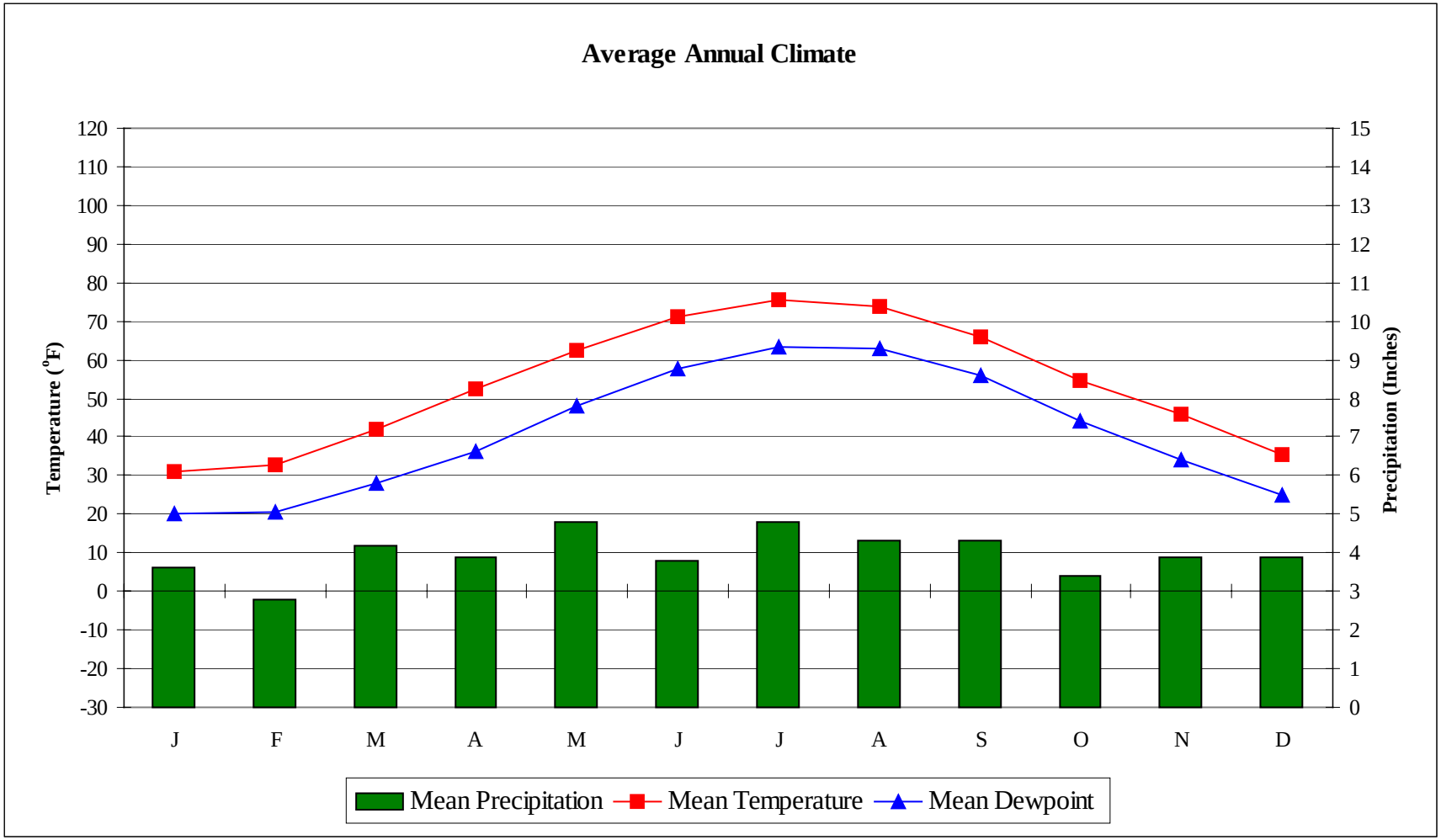
		Mean Coincident (Average) Values			
Dry Bulb Temperature (T)	**Design Value (^oF)**	Wet Bulb Temperature (^oF)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	96	77	108	6.4	W
0.4% Occurrence	92	75	103	5.9	W
1.0% Occurrence	89	73	100	6.1	W
2.0% Occurrence	87	72	98	6.0	W
Mean Daily Range	18	-	-	-	-
97.5% Occurrence	18	16	8	6.9	WNW
99.0% Occurrence	13	11	6	6.6	WNW
99.6% Occurrence	9	8	5	7.3	W
Median of Extreme Lows	2	1	3	6.6	WNW
		Mean Coincident (Average) Values			
Wet Bulb Temperature (T_{wb})	**Design Value (^oF)**	Dry Bulb Temperature (^oF)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	81	92	139	5.3	WSW
0.4% Occurrence	77	87	123	5.6	W
1.0% Occurrence	76	85	119	5.5	W
2.0% Occurrence	74	82	113	5.2	W
		Mean Coincident (Average) Values			
Humidity Ratio (HR)	**Design Value (gr/lb)**	Dry Bulb Temperature (^oF)	Vapor Pressure (in. Hg)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	157	86	1.04	6.9	SSW
0.4% Occurrence	129	83	0.85	5.0	WSW
1.0% Occurrence	124	81	0.82	4.5	W
2.0% Occurrence	117	79	0.77	4.8	W
Air Conditioning/		$T \geq 93^oF$	$T \geq 80^oF$	$T_{wb} \geq 73^oF$	$T_{wb} \geq 67^oF$
Humid Area Criteria	# of Hours	28	675	355	1323

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^oF-RH 60% Latent + Sensible
7	3.1	110	1.8 + 0.7
Ground Water Temperature (^oF) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft^2)	Average Annual Freeze-Thaw Cycles (#)
56.1	N/A	N/A	56

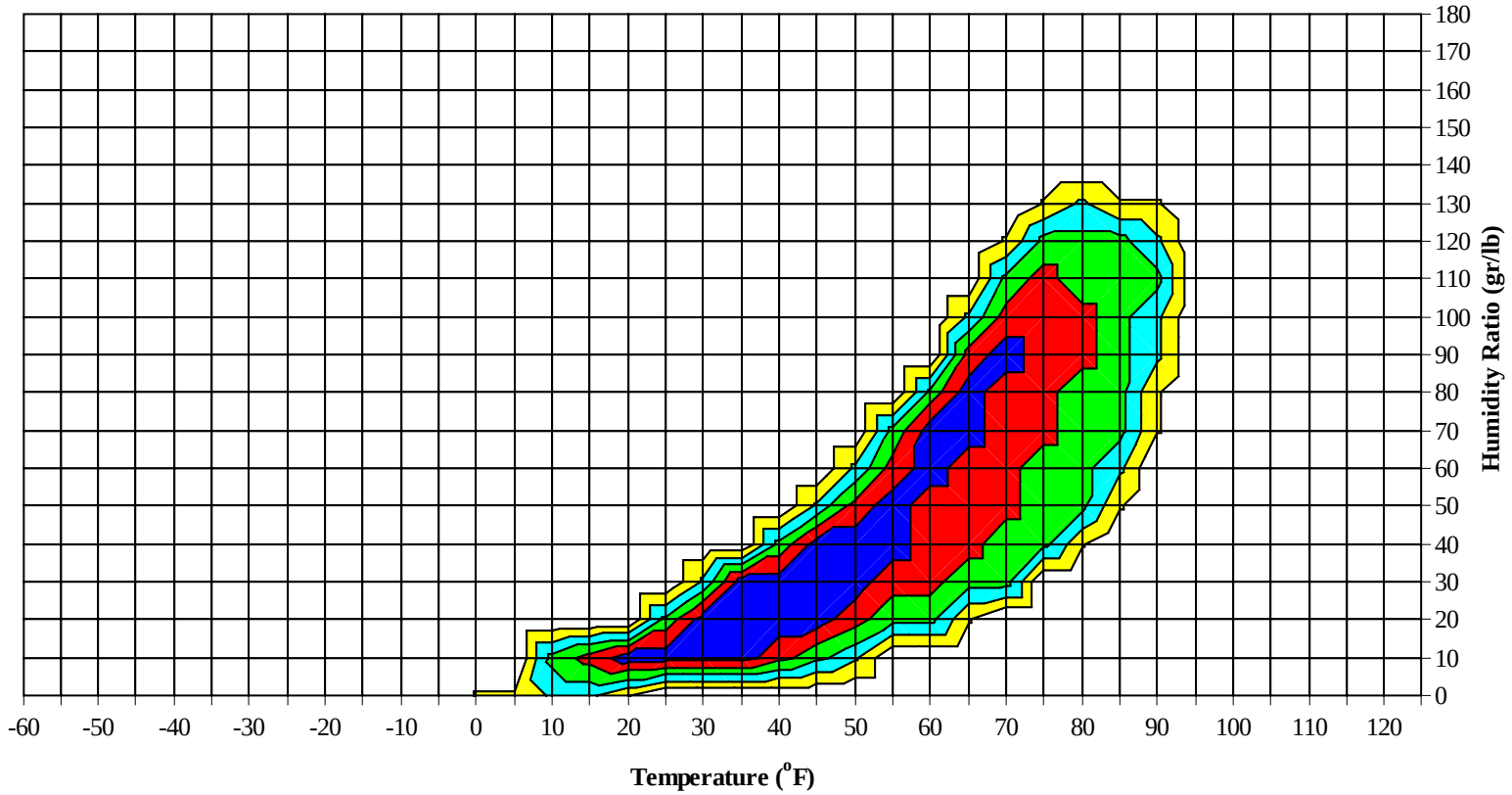
*Note: Temperatures at greater depths can be estimated by adding 1.5^oF per 100 feet additional depth.

WILLOW GROVE **PA** WMO No. 724086



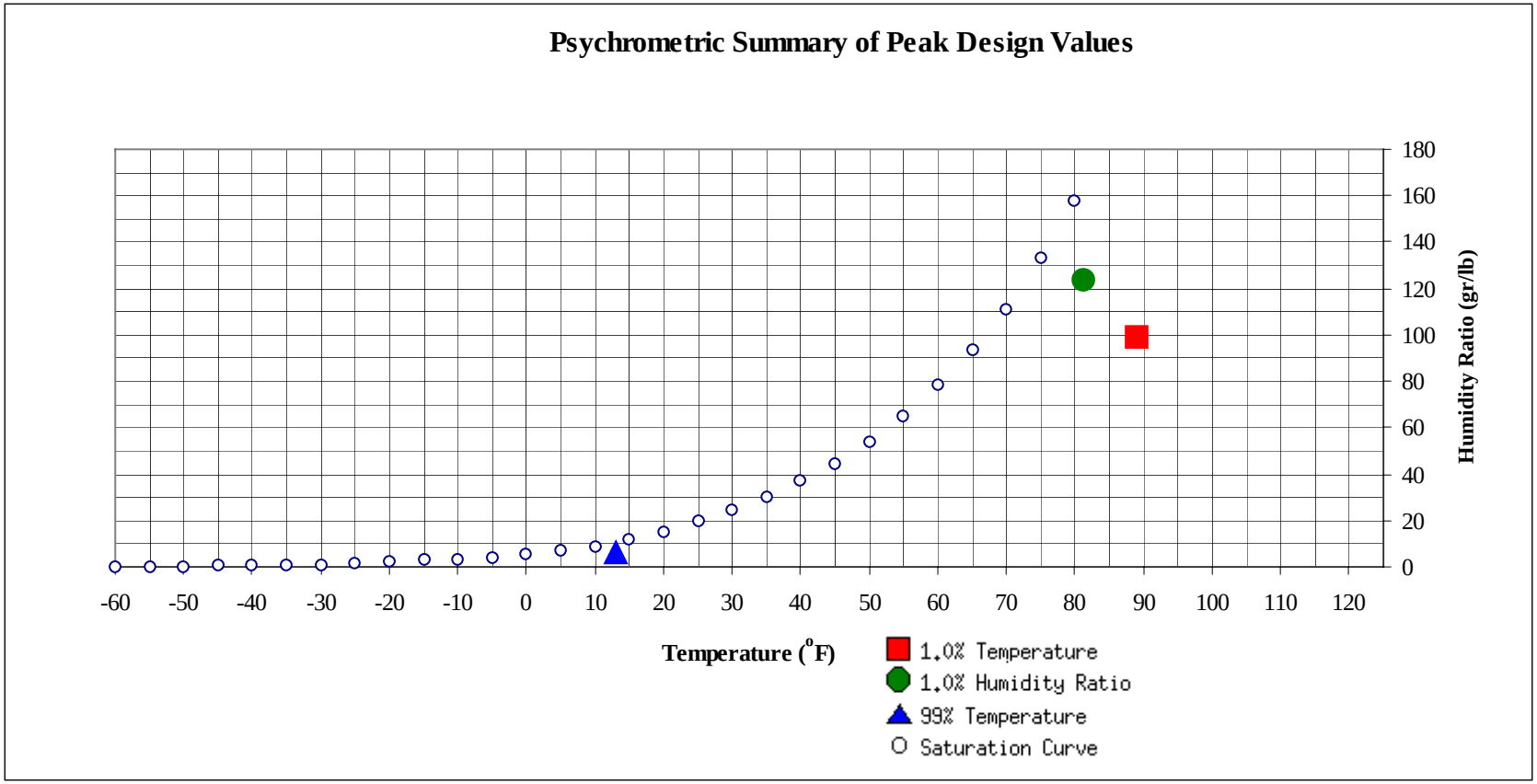
WILLOW GROVE **PA** WMO No. 724086

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**

WILLOW GROVE **PA** WMO No. 724086



	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)
99% Dry Bulb	13	6.2	4.1

	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
1.0% Humidity Ratio	123.9	81.3	75.3	73	38.9

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	89	98.9	73.1	36.9

WILLOW GROVE PA WMO No. 724086

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

Period of Record = 1973 to 1996

Temperature Range (°F)	January Hour Group (LST) 01 To 08	January 09 To 16	January 17 To 00	January Total Obs	January MCWB (°F)	February Hour Group (LST) 01 To 08	February 09 To 16	February 17 To 00	February Total Obs	February MCWB (°F)	March Hour Group (LST) 01 To 08	March 09 To 16	March 17 To 00	March Total Obs	March MCWB (°F)
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84												1	0	1	64.4
75 / 79							0		0	60.7		3	1	4	62.0
70 / 74							0	0	0	59.0	0	5	2	7	58.2
65 / 69		1	0	1	58.8	0	2	0	2	52.7	1	8	5	14	55.4
60 / 64	1	2	1	4	55.8	1	4	2	7	52.9	4	12	8	24	52.5
55 / 59	2	5	4	11	52.4	2	8	5	15	49.4	7	24	17	48	48.8
50 / 54	3	10	6	19	46.5	5	15	11	31	46.1	13	33	26	72	44.9
45 / 49	6	18	12	36	41.6	11	22	17	50	41.2	22	45	39	106	40.8
40 / 44	16	37	26	79	37.1	18	34	25	77	36.9	41	45	51	137	36.9
36 / 40												0		0	
35 / 39	41	48	47	136	32.9	28	39	42	110	32.6	59	36	47	142	32.7
33 / 37												0	0	0	
30 / 34	48	44	46	138	28.7	43	36	43	123	28.3	47	21	30	98	28.4
27 / 31												0	0	0	
25 / 29	40	34	39	113	23.9	37	29	32	98	23.3	27	10	13	50	23.3
24 / 28												0	0	0	
21 / 25												0	0	0	
20 / 24	32	25	30	87	19.5	32	19	25	76	19.2	17	4	5	26	19.1
18 / 22												0	0	0	
15 / 19	29	13	21	63	14.9	24	10	13	47	14.9	6	1	2	9	14.9
12 / 16												0	0	0	
10 / 14	18	6	10	34	10.3	16	3	5	24	10.5	3	0	0	3	10.8
9 / 13												0	0	0	
6 / 10												0	0	0	
5 / 9	8	3	3	14	5.8	5	1	2	8	5.8	1	0	0	1	6.1
3 / 7													0	0	
0 / 4	3	1	1	5	0.7	2	0	0	2	1.0	0	0		0	
-5 / -1	2	0	0	2	-3.4	1	0	0	1	-3.4					
-10 / -6	1	0	0	1	-7.0	0			0	-6.5					

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.

WILLOW GROVE PA WMO No. 724086

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)				MCWB	Hour Group (LST)				MCWB	Hour Group (LST)				MCWB
	01 To 08	09 To 16	17 To 00	Total Obs	(°F)	01 To 08	09 To 16	17 To 00	Total Obs	(°F)	01 To 08	09 To 16	17 To 00	Total Obs	(°F)
100 / 104															
95 / 99							0	0	0	75.1		2	0	2	75.4
90 / 94		1	0	1	68.3		3	1	4	71.7		12	3	15	73.5
85 / 89		2	1	3	65.8	0	11	3	14	69.1	0	29	10	39	71.2
80 / 84		5	2	7	63.8	1	20	9	30	66.4	3	54	29	86	68.4
75 / 79	0	9	4	13	60.8	2	33	19	54	63.7	15	57	44	116	66.2
70 / 74	1	17	12	30	58.5	10	44	31	85	61.3	50	41	58	149	64.4
65 / 69	7	26	16	49	55.1	27	46	42	115	58.2	63	27	48	138	61.1
60 / 64	13	36	27	76	52.0	46	41	49	136	55.1	55	14	32	101	57.3
55 / 59	23	42	36	101	48.7	53	30	44	127	51.3	36	3	13	52	52.9
50 / 54	35	41	46	122	45.1	54	16	34	104	47.4	15	1	3	19	48.7
45 / 49	56	35	47	138	41.4	34	3	12	49	42.8	4		0	4	43.9
40 / 44	53	17	32	102	37.3	16	1	4	21	38.4	0			0	40.3
36 / 40															
35 / 39	33	5	11	49	32.6	4		0	4	34.1					
33 / 37															
30 / 34	17	3	5	25	28.6	0			0	26.5					
27 / 31															
25 / 29	3	0	1	4	23.8	0			0	25.0					
24 / 28															
21 / 25															
20 / 24	1	0	0	1	18.6										
18 / 22															
15 / 19	0			0	15.3										
12 / 16															
10 / 14															
9 / 13															
6 / 10															
5 / 9															
3 / 7															
0 / 4															
-5 / -1															
-10 / -6															

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.

WILLOW GROVE PA WMO No. 724086

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

Period of Record = 1973 to 1996

	July					August					September				
	Hour Group (LST)				MCWB	Hour Group (LST)				MCWB	Hour Group (LST)				MCWB
Temperature Range (°F)	01 To 08	09 To 16	17 To 00	Total Obs	(°F)	01 To 08	09 To 16	17 To 00	Total Obs	(°F)	01 To 08	09 To 16	17 To 00	Total Obs	(°F)
100 / 104		0	0	0	78.8								0	0	
95 / 99		6	1	7	77.4		1	0	1	77.3		0	0	0	74.5
90 / 94	0	22	7	29	75.1		14	3	17	75.5		3	1	4	75.4
85 / 89	1	52	23	76	72.8	0	45	13	58	73.2	0	11	2	13	72.1
80 / 84	8	72	44	124	70.4	4	70	36	110	70.6	1	31	10	42	70.2
75 / 79	39	55	63	157	68.9	26	62	60	148	68.9	7	46	26	79	67.4
70 / 74	89	29	67	185	67.0	77	37	73	188	67.0	27	53	46	126	64.8
65 / 69	65	9	31	105	62.9	72	13	40	125	62.9	48	47	50	145	61.3
60 / 64	34	2	10	46	58.4	43	4	19	66	58.8	48	32	49	129	57.4
55 / 59	11	0	2	13	54.0	21	1	5	27	53.9	50	11	35	96	53.5
50 / 54	2		0	2	49.7	4	0	0	4	49.0	35	4	15	54	48.7
45 / 49						1	0	0	1	44.5	18	0	6	24	44.0
40 / 44						0			0	40.5	8		1	9	39.9
36 / 40															
35 / 39											0			0	36.4
33 / 37															
30 / 34															
27 / 31															
25 / 29															
24 / 28															
21 / 25															
20 / 24															
18 / 22															
15 / 19															
12 / 16															
10 / 14															
9 / 13															
6 / 10															
5 / 9															
3 / 7															
0 / 4															
-5 / -1															
-10 / -6															

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.

WILLOW GROVE PA WMO No. 724086

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)				MCWB	Hour Group (LST)				MCWB	Hour Group (LST)				MCWB
	01 To 08	09 To 16	17 To 00	Total Obs	(°F)	01 To 08	09 To 16	17 To 00	Total Obs	(°F)	01 To 08	09 To 16	17 To 00	Total Obs	(°F)
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84		4	0	4	68.6										
75 / 79	0	12	3	15	66.3		3	0	3	62.3					
70 / 74	3	29	11	43	62.8	0	7	2	9	62.0		0	0	0	59.5
65 / 69	9	40	24	73	59.6	3	13	8	24	59.0	0	1	0	1	60.2
60 / 64	24	47	37	108	55.7	11	23	16	50	55.9	3	5	4	12	56.9
55 / 59	37	52	48	137	51.2	16	30	24	70	50.9	4	9	6	19	52.2
50 / 54	44	37	50	131	47.0	25	42	32	99	46.4	7	20	12	39	47.2
45 / 49	50	18	41	109	42.7	33	42	40	115	41.6	14	34	20	68	42.3
40 / 44	42	6	25	73	38.7	42	39	49	130	37.2	27	47	42	116	37.4
36 / 40															
35 / 39	27	1	10	38	34.3	47	28	39	114	32.9	48	51	53	152	32.9
33 / 37															
30 / 34	11	0	1	12	30.1	37	9	23	69	29.1	54	34	48	136	28.6
27 / 31															
25 / 29	2			2	25.9	21	1	8	30	24.6	39	23	29	91	23.9
24 / 28															
21 / 25															
20 / 24						5	1	1	7	20.2	23	15	18	56	19.3
18 / 22															
15 / 19						1	0	0	1	16.6	15	5	11	31	15.0
12 / 16															
10 / 14						0			0	12.3	10	2	3	15	10.7
9 / 13															
6 / 10															
5 / 9											3	1	1	5	6.2
3 / 7															
0 / 4											1	0	0	1	0.7
-5 / -1											0		0	0	-2.3
-10 / -6															

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.

WILLOW GROVE PA WMO No. 724086

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

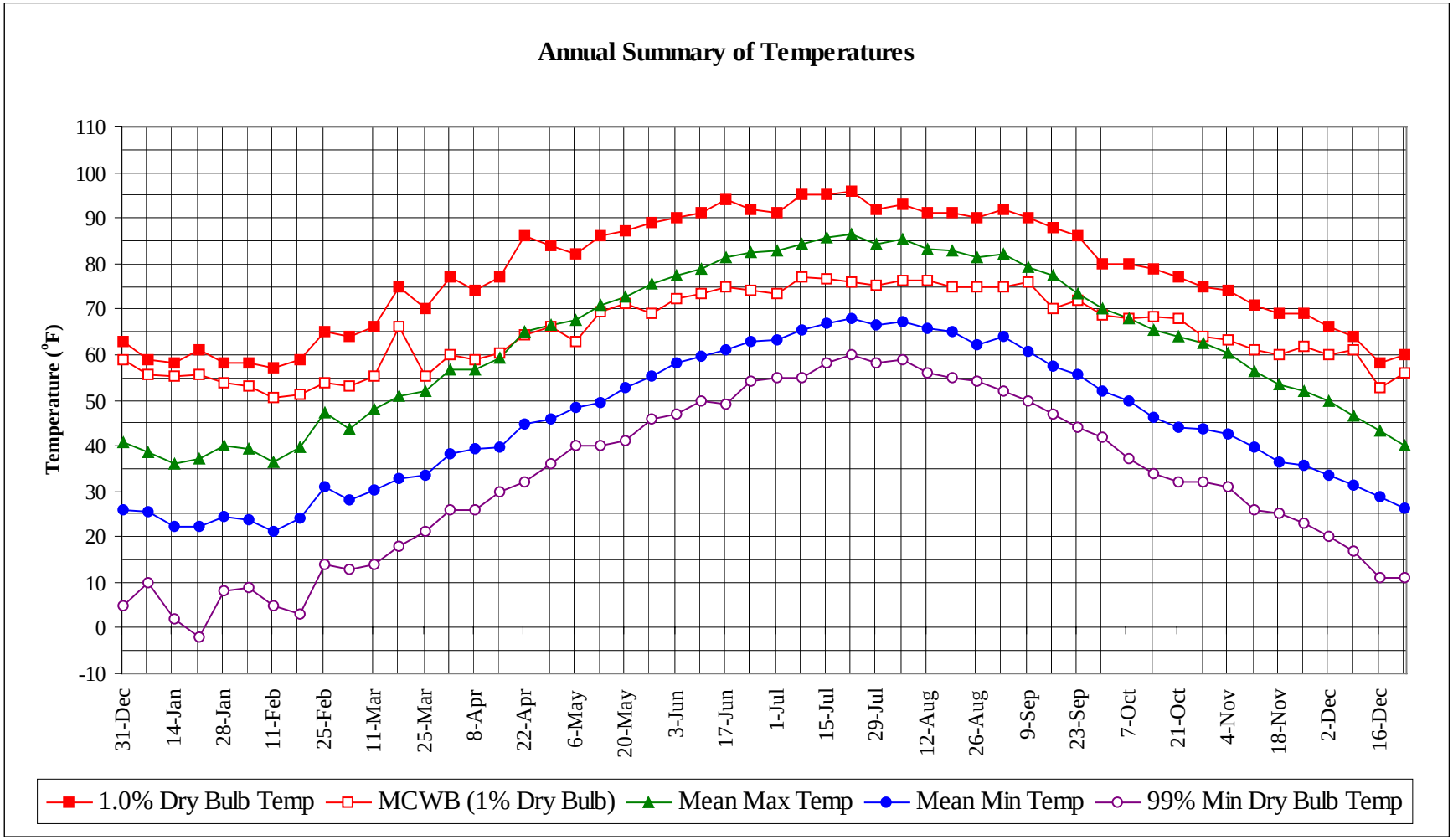
Period of Record = 1973 to 1996

Annual Totals

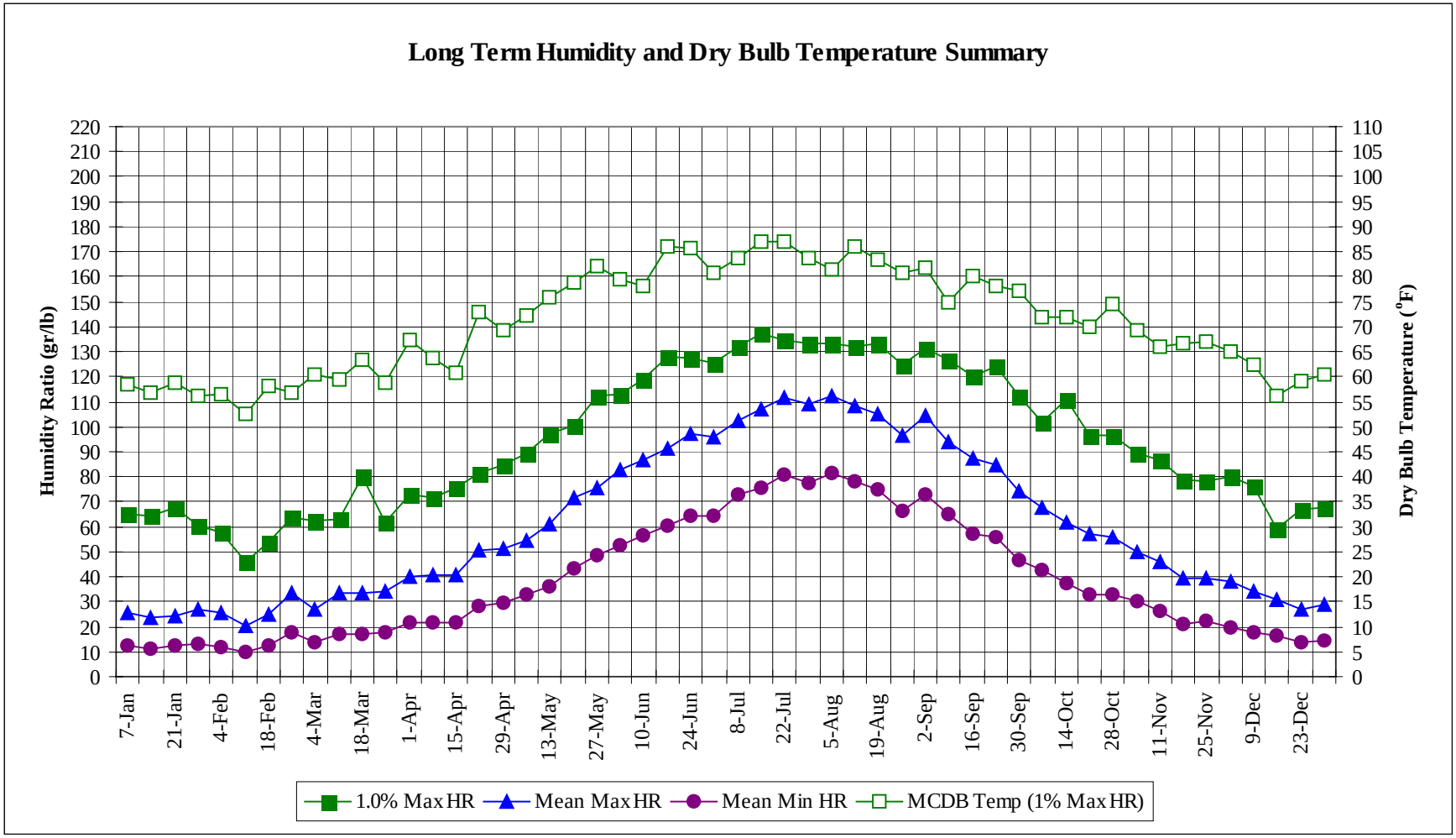
Temperature Range (°F)	Hour Group (LST) 01 To 08	09 To 16	17 To 00	Total Obs	MCWB (°F)
100 / 104		0	0	0	78.8
95 / 99		10	2	12	76.8
90 / 94	0	55	13	68	74.6
85 / 89	2	149	50	201	72.2
80 / 84	16	253	129	398	69.6
75 / 79	89	280	219	588	67.3
70 / 74	254	262	301	817	64.9
65 / 69	291	234	263	789	60.5
60 / 64	280	223	253	757	56.0
55 / 59	261	216	236	714	51.3
50 / 54	241	219	235	696	46.6
45 / 49	249	219	234	703	41.8
40 / 44	264	227	254	746	37.4
36 / 40					
35 / 39	288	210	251	750	32.9
33 / 37					
30 / 34	257	150	197	604	28.6
27 / 31					
25 / 29	168	100	124	392	23.7
24 / 28					
21 / 25					
20 / 24	111	63	81	255	19.3
18 / 22					
15 / 19	76	30	48	154	14.9
12 / 16					
10 / 14	47	11	19	77	10.5
9 / 13					
6 / 10					
5 / 9	16	6	6	28	5.8
3 / 7					
0 / 4	6	1	2	9	0.8
-5 / -1	3	0	1	4	-3.4
-10 / -6	1	0	0	1	-7.0

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.

WILLOW GROVE PA WMO No. 724086



WILLOW GROVE **PA** WMO No. 724086

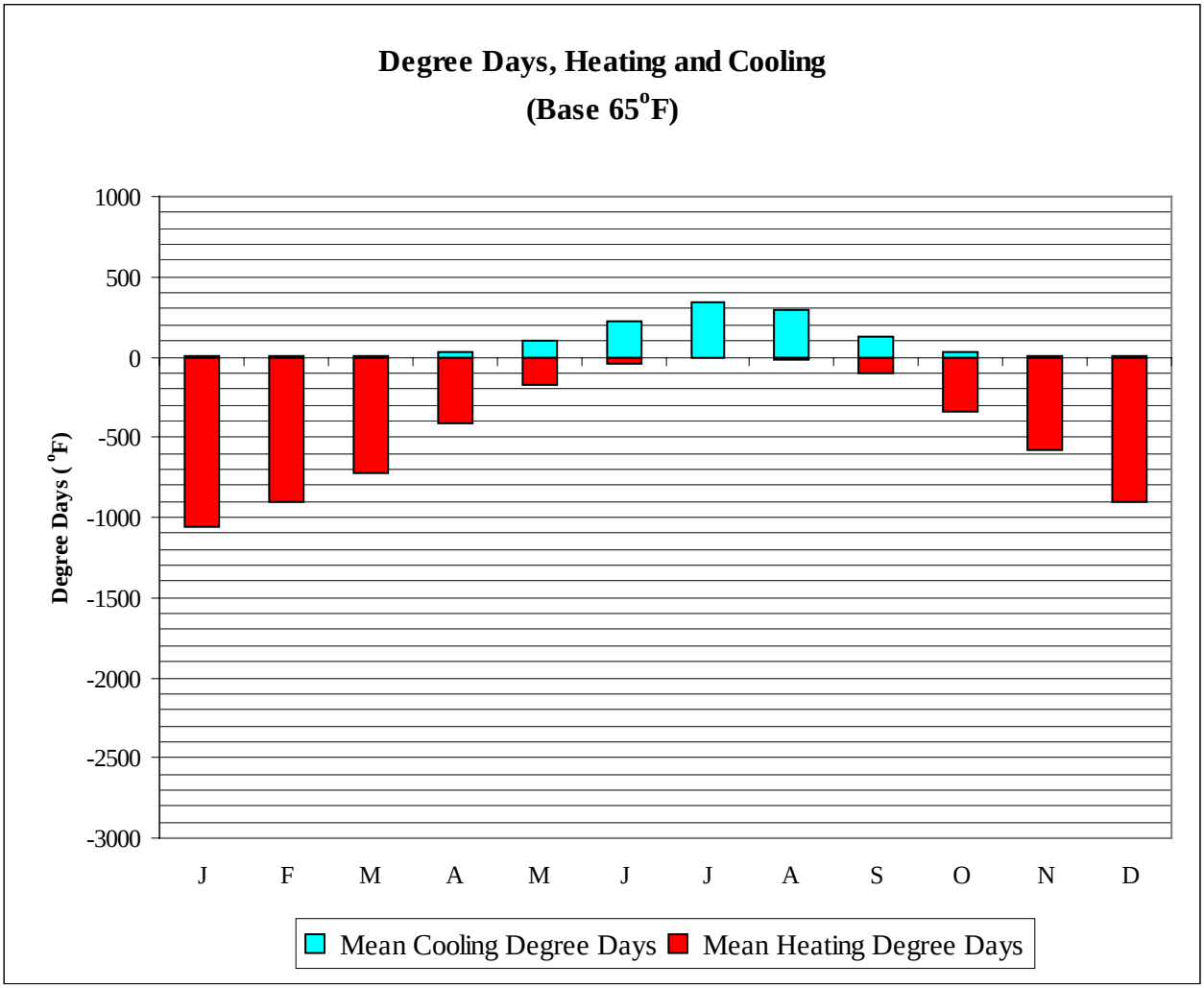


WILLOW GROVE PA WMO No. 724086

Long Term Dry Bulb Temperature and Humidity Summary

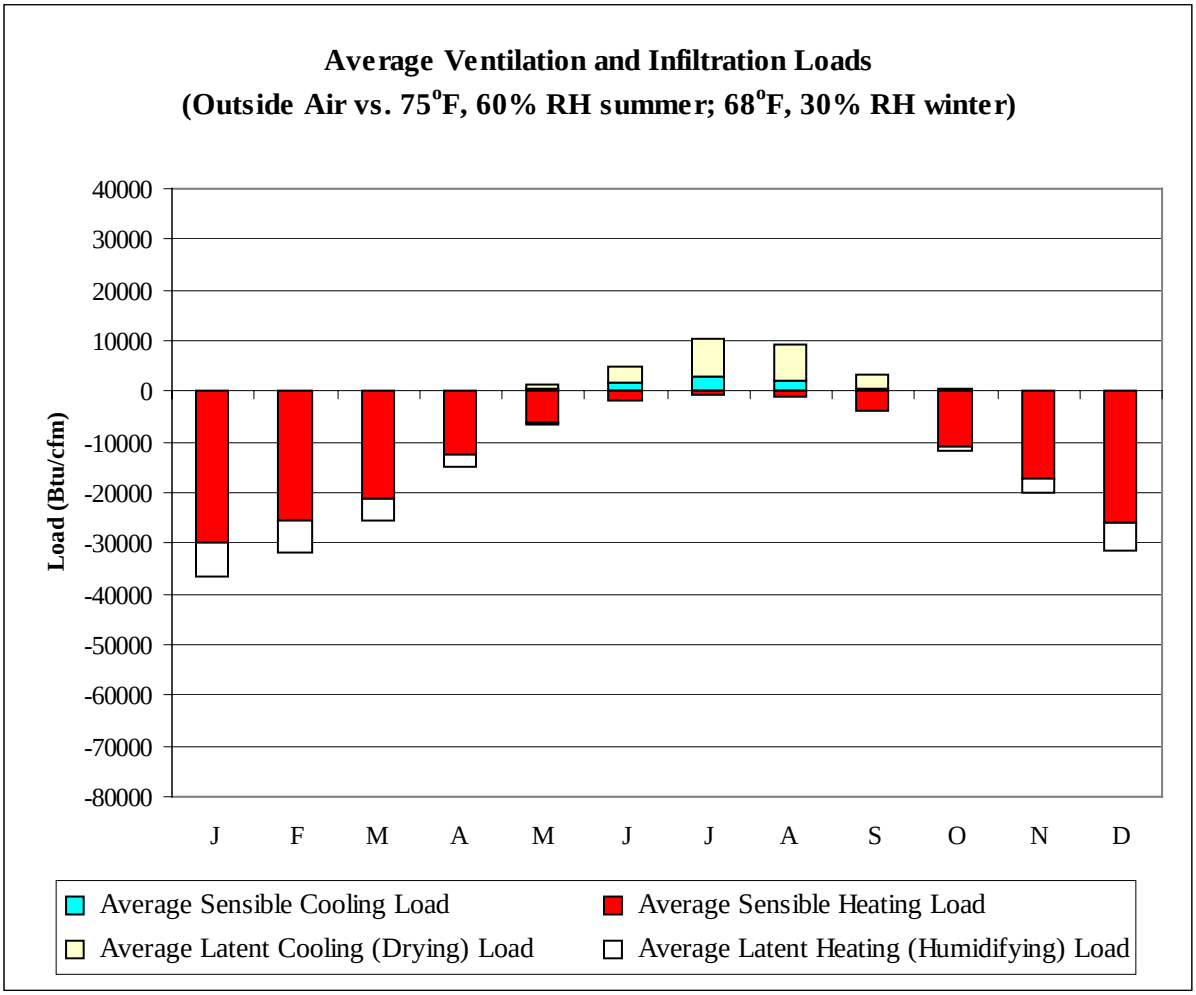
Week Ending	1.0% Temp (°F)	MCWB @ 1% Temp (°F)	Mean Max Temp (°F)	Mean Min Temp (°F)	99% Temp (°F)	1.0% HR (gr/lb)	MCDB @ 1% HR (°F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	59.0	55.5	38.4	25.4	10.0	65.1	58.5	25.7	12.7
14-Jan	58.0	55.1	36.2	22.2	2.0	64.4	56.8	23.8	11.3
21-Jan	61.0	55.7	37.1	22.3	-2.0	67.9	58.9	24.5	12.3
28-Jan	58.0	53.9	39.9	24.4	8.0	60.2	56.3	27.0	13.1
4-Feb	58.0	53.3	39.4	23.7	9.0	58.1	56.6	25.5	12.0
11-Feb	57.0	50.6	36.3	21.1	5.0	46.2	52.6	20.6	10.0
18-Feb	59.0	51.5	39.6	24.0	3.0	53.9	58.3	24.7	12.5
25-Feb	65.0	53.7	47.3	30.9	14.0	63.7	56.9	33.2	17.5
4-Mar	64.0	53.0	43.8	28.2	13.0	62.3	60.4	26.7	13.5
11-Mar	66.0	55.3	47.9	30.3	14.0	63.0	59.5	33.4	17.0
18-Mar	75.0	66.0	50.9	32.9	18.0	79.8	63.3	33.6	17.2
25-Mar	70.0	55.3	52.0	33.5	21.0	61.6	58.9	34.0	17.7
1-Apr	77.0	60.1	56.7	38.4	26.0	72.8	67.4	39.9	22.0
8-Apr	74.0	59.0	56.6	39.2	26.0	71.4	63.7	40.7	21.8
15-Apr	77.0	60.2	59.3	39.8	30.0	75.6	60.9	41.0	21.8
22-Apr	86.0	64.5	65.1	44.8	32.0	81.2	73.0	50.3	28.1
29-Apr	84.0	66.0	66.7	45.9	36.0	84.7	69.3	51.6	29.7
6-May	82.0	62.8	67.5	48.3	40.0	89.6	72.3	54.8	32.8
13-May	86.0	69.3	70.7	49.4	40.0	97.3	75.8	61.1	36.0
20-May	87.0	71.3	72.6	52.7	41.0	100.8	78.8	71.9	43.6
27-May	89.0	68.9	75.4	55.1	46.0	112.0	82.1	75.8	48.6
3-Jun	90.0	72.4	77.4	58.0	47.0	112.7	79.5	82.5	52.8
10-Jun	91.0	73.5	79.0	59.5	50.0	119.0	78.3	86.7	56.2
17-Jun	94.0	74.9	81.5	60.9	49.0	128.1	86.2	91.3	60.5
24-Jun	92.0	74.1	82.5	62.9	54.0	127.4	85.8	97.2	64.4
1-Jul	91.0	73.3	82.7	63.2	55.0	125.3	80.9	95.7	64.1
8-Jul	95.0	77.0	84.2	65.3	55.0	132.3	83.7	102.7	73.2
15-Jul	95.0	76.6	85.8	66.9	58.0	137.2	87.1	106.9	75.4
22-Jul	96.0	76.1	86.3	67.9	60.0	134.4	87.1	111.6	80.7
29-Jul	92.0	75.3	84.3	66.5	58.0	133.0	83.7	109.1	77.2
5-Aug	93.0	76.3	85.4	67.1	59.0	133.0	81.4	112.4	81.6
12-Aug	91.0	76.2	83.3	65.9	56.0	132.3	85.9	108.3	78.2
19-Aug	91.0	74.8	82.8	64.9	55.0	133.0	83.5	104.8	75.0
26-Aug	90.0	74.7	81.4	62.0	54.0	124.6	80.7	96.8	66.3
2-Sep	92.0	75.0	82.2	63.9	52.0	131.6	81.9	104.4	72.9
9-Sep	90.0	75.8	79.3	60.5	50.0	126.7	74.8	93.8	64.9
16-Sep	88.0	70.2	77.2	57.6	47.0	120.4	80.2	87.6	57.2
23-Sep	86.0	72.0	73.6	55.6	44.0	123.9	78.1	84.5	55.9
30-Sep	80.0	68.9	70.1	51.8	42.0	112.0	77.2	74.5	46.7
7-Oct	80.0	68.0	68.0	49.6	37.0	101.5	72.0	67.8	42.7
14-Oct	79.0	68.1	65.4	46.2	34.0	111.3	72.0	61.6	37.6
21-Oct	77.0	67.9	64.0	44.0	32.0	96.6	69.9	57.3	32.9
28-Oct	75.0	63.8	62.5	43.6	32.0	96.6	74.4	55.8	32.5
4-Nov	74.0	63.2	60.4	42.4	31.0	89.6	69.2	49.7	30.3
11-Nov	71.0	61.1	56.3	39.5	26.0	86.8	66.1	46.1	26.2
18-Nov	69.0	60.1	53.3	36.3	25.0	79.1	66.7	39.6	21.3
25-Nov	69.0	61.6	51.9	35.7	23.0	78.4	67.0	39.1	22.3
2-Dec	66.0	59.9	49.9	33.5	20.0	79.8	65.1	38.2	19.6
9-Dec	64.0	61.1	46.7	31.4	17.0	76.3	62.6	34.2	17.5
16-Dec	58.0	52.8	43.2	28.8	11.0	58.8	56.2	31.0	16.4
23-Dec	60.0	55.9	40.2	26.4	11.0	67.2	59.0	27.2	13.9
31-Dec	63.0	58.8	40.8	26.0	5.0	67.9	60.3	29.1	14.4

WILLOW GROVE **PA** WMO No. 724086



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1057
FEB	0	904
MAR	6	722
APR	26	408
MAY	97	175
JUN	227	40
JUL	338	10
AUG	289	18
SEP	131	100
OCT	27	343
NOV	5	583
DEC	0	910
ANN	1146	5270

WILLOW GROVE PA WMO No. 724086



	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	-29816	1	-6958
FEB	0	-25625	0	-6213
MAR	15	-21060	7	-4498
APR	122	-12657	31	-2188
MAY	549	-6150	745	-404
JUN	1642	-1773	3227	-8
JUL	2832	-557	7380	0
AUG	2134	-925	6901	0
SEP	669	-3797	2639	-34
OCT	52	-10976	451	-753
NOV	3	-17379	58	-2784
DEC	0	-25993	2	-5487
ANN	8018	-156708	21442	-29327

Average Annual Solar Radiation – Nearest Available Site

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

City: PHILADELPHIA
State: PA
WBAN No: 13739
Lat(N): 39.88
Long(W): 75.25
Elev(ft): 30

Stn Type: Secondary
SHADING GEOMETRY IN DIMENSIONLESS UNITS
Window: 1
Overhang: 0.53
Vert Gap: 0.32

AVERAGE INCIDENT SOLAR RADIATION (Btu/sq.ft./day), Percentage Uncertainty = 11

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
HORIZ	Global	620	870	1200	1520	1760	1940	1890	1710	1380	1020	680	530	1260
	Std Dev	42	72	91	118	135	115	116	88	100	74	55	39	35
	Minimum	520	770	1010	1230	1530	1640	1580	1530	1180	880	560	430	1200
	Maximum	710	1080	1370	1740	2050	2220	2110	1850	1560	1150	800	610	1350
	Diffuse	310	420	550	700	840	880	870	760	610	450	330	280	580
Clear Day	Global	890	1240	1710	2190	2490	2590	2510	2240	1820	1340	940	780	1730
NORTH	Global	190	260	340	430	540	610	580	480	380	290	210	170	370
	Diffuse	190	260	340	430	500	530	520	460	380	290	210	170	360
Clear Day	Global	180	240	330	430	580	680	620	480	360	270	200	160	380
EAST	Global	420	570	740	900	970	1050	1030	970	820	650	450	370	740
	Diffuse	240	320	420	520	600	630	630	570	470	360	250	210	430
Clear Day	Global	680	870	1110	1310	1410	1430	1400	1310	1140	910	690	610	1070
SOUTH	Global	1000	1080	1070	950	830	790	820	940	1070	1150	990	900	960
	Diffuse	340	410	480	540	570	580	580	570	520	450	360	310	480
Clear Day	Global	1880	1930	1780	1410	1080	940	990	1240	1580	1810	1830	1800	1520
WEST	Global	430	560	730	880	970	1050	1030	960	820	650	450	370	740
	Diffuse	240	320	420	520	610	640	630	580	470	360	260	210	440
Clear Day	Global	680	870	1110	1310	1410	1430	1400	1310	1140	910	690	610	1070

Average Annual Solar Heat and Illumination – Nearest Available Site

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

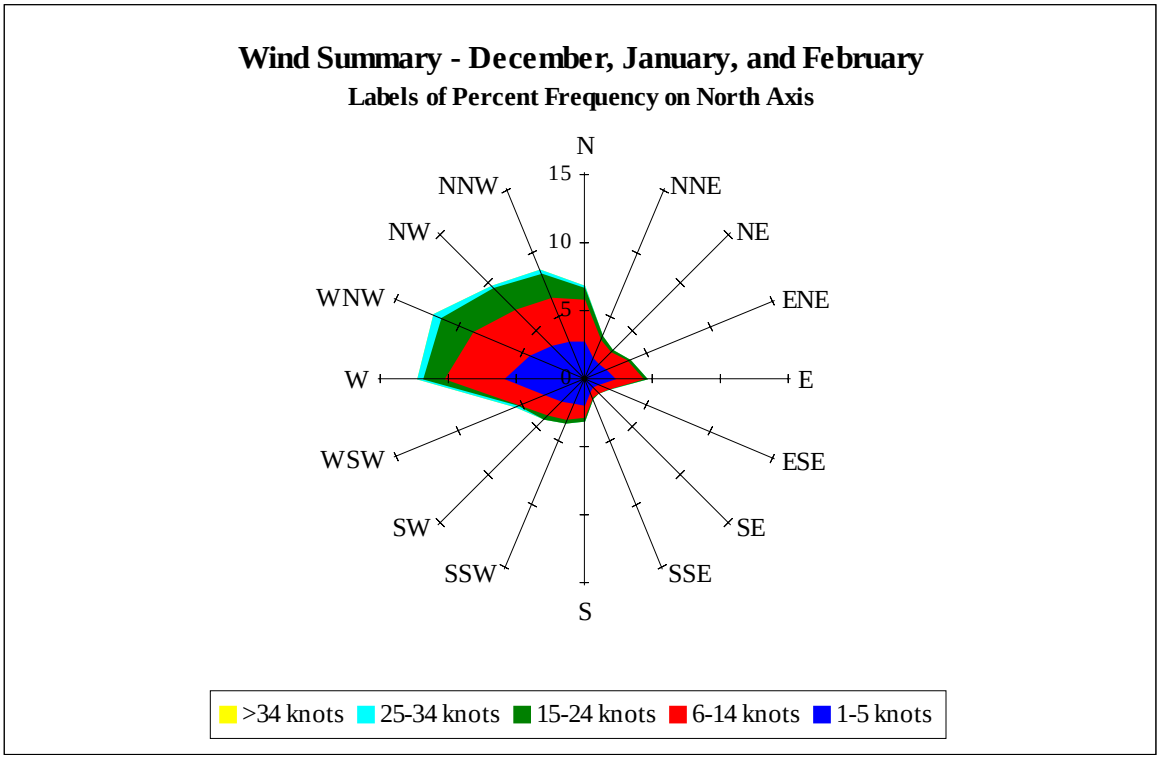
AVERAGE TRANSMITTED SOLAR RADIATION (Btu/sq.ft./day) FOR DOUBLE GLAZING, Percentage Uncertainty = 11

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
HORIZ	Unshaded	400	600	850	1090	1270	1410	1370	1240	990	710	450	340	890
NORTH	Unshaded	130	180	240	300	360	400	380	330	260	200	140	120	250
	Shaded	120	160	210	260	320	350	340	290	230	180	130	100	220
EAST	Unshaded	290	400	520	640	690	740	730	690	580	450	310	250	520
	Shaded	260	350	460	550	580	620	610	580	500	400	280	230	450
SOUTH	Unshaded	750	790	740	620	520	480	500	600	730	830	740	680	660
	Shaded	730	730	590	410	350	360	360	390	520	730	710	660	540
WEST	Unshaded	300	390	520	620	690	740	730	680	580	450	310	250	520
	Shaded	270	350	450	530	590	630	620	580	500	400	280	220	450

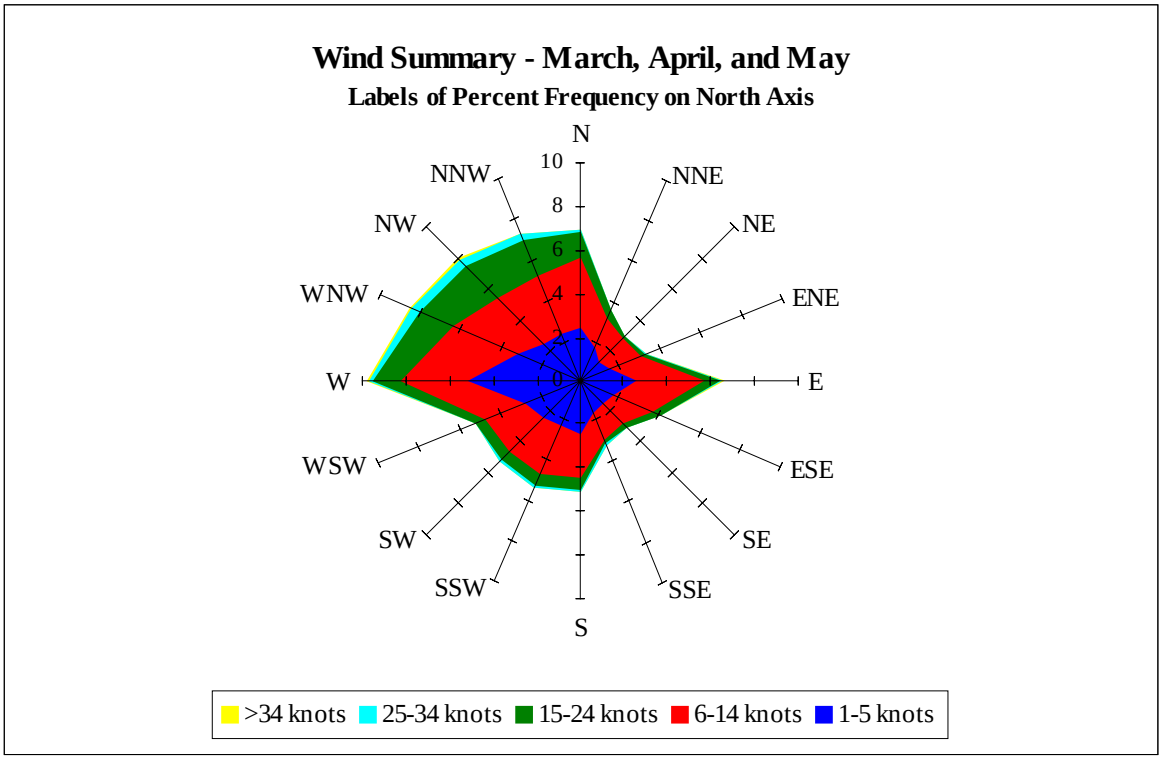
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 11

		March					June				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	39	71	80	63	25	47	83	100	94	66
	M.Cloudy	22	43	48	37	15	28	55	69	66	44
NORTH	M.Clear	10	14	15	13	8	18	17	17	17	16
	M.Cloudy	9	15	16	13	6	13	18	20	19	15
EAST	M.Clear	72	55	15	13	8	75	71	30	17	16
	M.Cloudy	25	29	16	13	6	31	42	26	19	15
SOUTH	M.Clear	39	73	82	64	25	12	33	47	42	21
	M.Cloudy	17	35	40	30	11	11	25	35	32	17
WEST	M.Clear	10	14	24	66	61	12	17	17	53	76
	M.Cloudy	9	15	19	31	20	11	18	20	38	42
M.Clear	(% hrs)	36	33	31	32	35	40	39	37	35	37

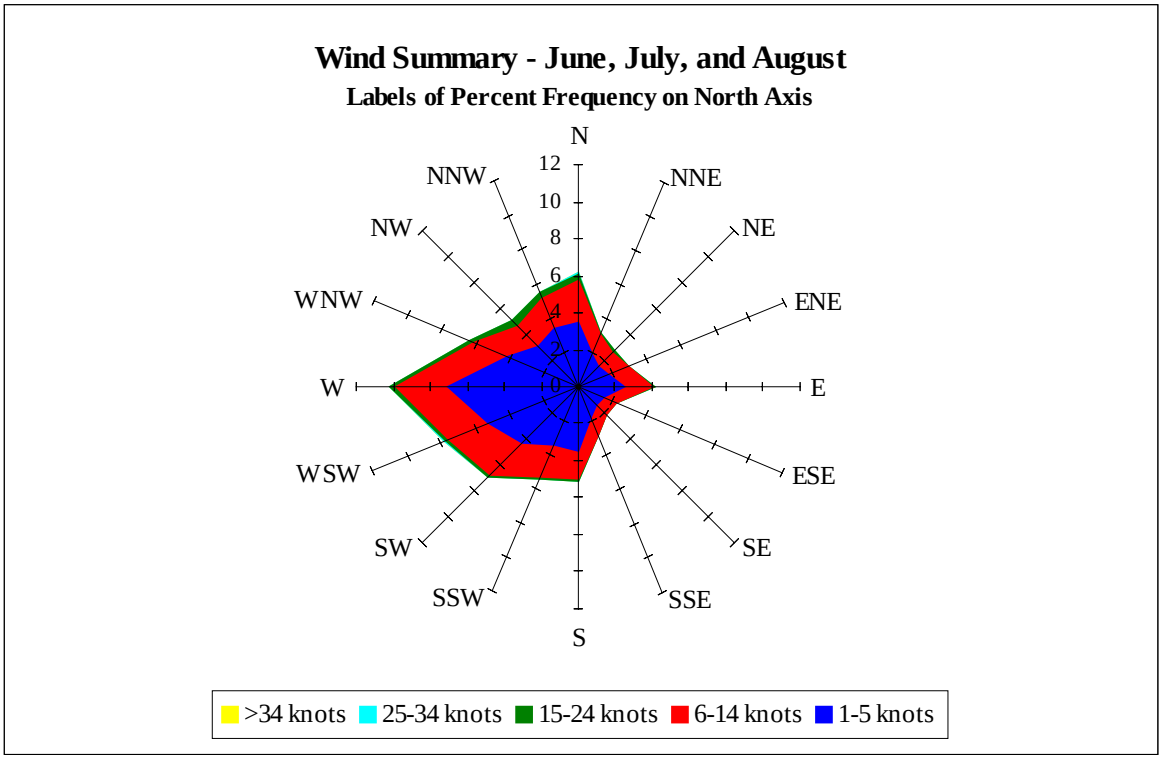
		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	28	66	83	76	45	14	40	45	27	2
	M.Cloudy	16	40	53	50	28	8	22	26	16	2
NORTH	M.Clear	9	14	16	16	12	5	10	10	8	1
	M.Cloudy	7	14	18	16	11	4	9	10	7	1
EAST	M.Clear	62	68	27	16	12	39	37	10	8	1
	M.Cloudy	20	33	22	16	11	10	16	10	7	1
SOUTH	M.Clear	21	57	75	67	37	36	79	85	58	5
	M.Cloudy	10	29	42	39	20	10	27	31	19	1
WEST	M.Clear	9	14	16	53	71	5	10	22	46	7
	M.Cloudy	7	14	18	33	31	4	9	13	16	2
M.Clear	(% hrs)	43	45	43	39	40	33	32	30	31	36



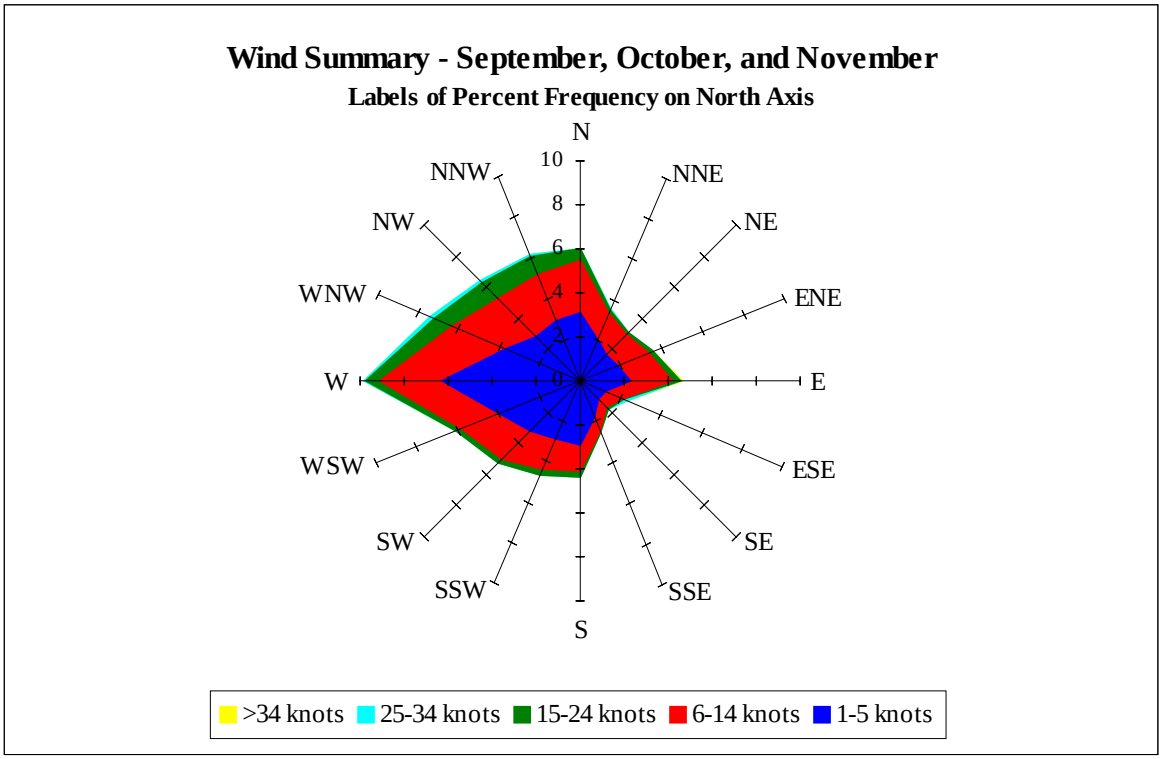
Percent Calm = 15.73



Percent Calm = 13.09



Percent Calm = 21.58



Percent Calm = 22.46