WARSAW, POLAND	
Latitude = 52.17 N	WMO No. 123750
Longitude = 20.97 E	Elevation = 351 feet
Period of Record = 1973 to 1996	Average Pressure = 29.57 inches Hg

Design Criteria Data

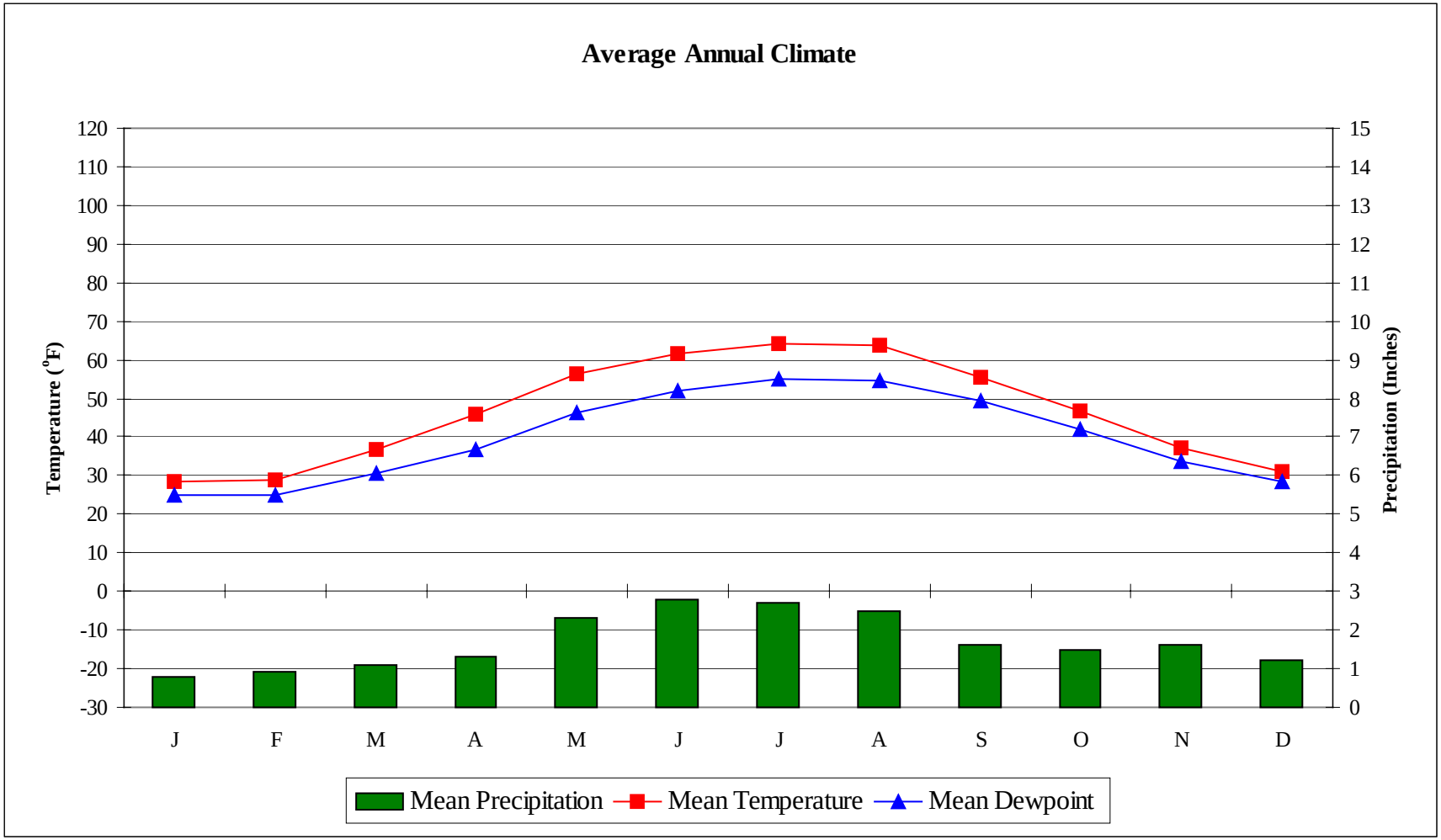
		Mean Coincident (Average) Values			
Dry Bulb Temperature (T)	**Design Value (^oF)**	Wet Bulb Temperature (^oF)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	90	70	80	8.0	VARIABLE
0.4% Occurrence	84	68	76	8.5	VARIABLE
1.0% Occurrence	81	66	74	8.3	VARIABLE
2.0% Occurrence	77	64	70	8.5	VARIABLE
Mean Daily Range	14	-	-	-	-
97.5% Occurrence	16	15	10	8.6	E
99.0% Occurrence	9	9	7	7.5	E
99.6% Occurrence	3	3	5	7.0	E
Median of Extreme Lows	1	0	5	6.0	E
		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	72	84	98	8.1	S
0.4% Occurrence	70	80	92	7.9	S
1.0% Occurrence	68	78	87	7.8	VARIABLE
2.0% Occurrence	66	74	82	7.7	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	105	76	0.69	7.8	S
0.4% Occurrence	97	75	0.65	7.3	W
1.0% Occurrence	92	72	0.61	7.3	W
2.0% Occurrence	86	70	0.57	7.0	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	2	99	4	141

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	N/A	N/A	0.1 + 0.1
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 (#)
48.9	N/A	N/A	47

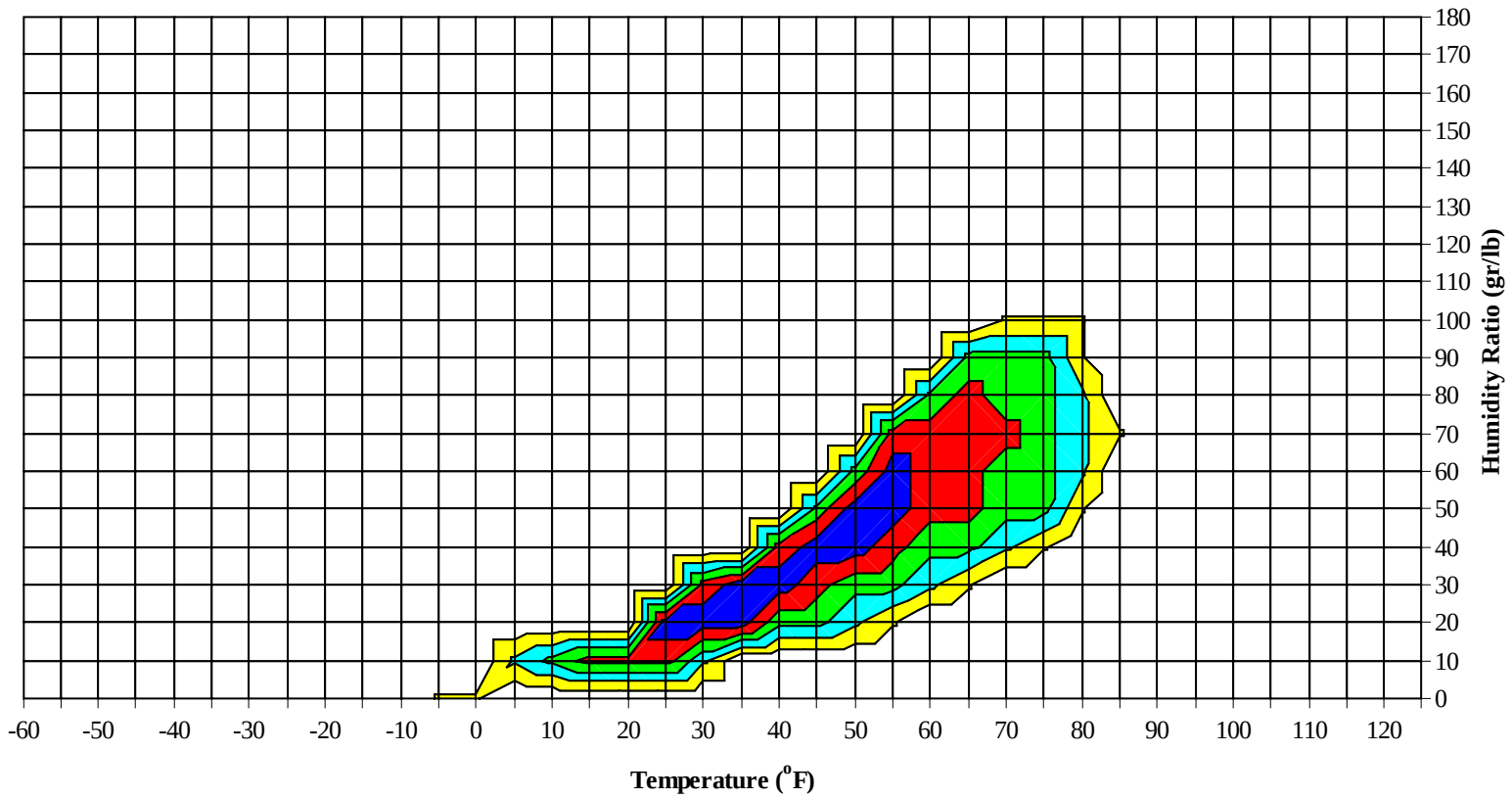
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.

WARSAW, POLAND WMO No. 123750



WARSAW, POLAND WMO No. 123750

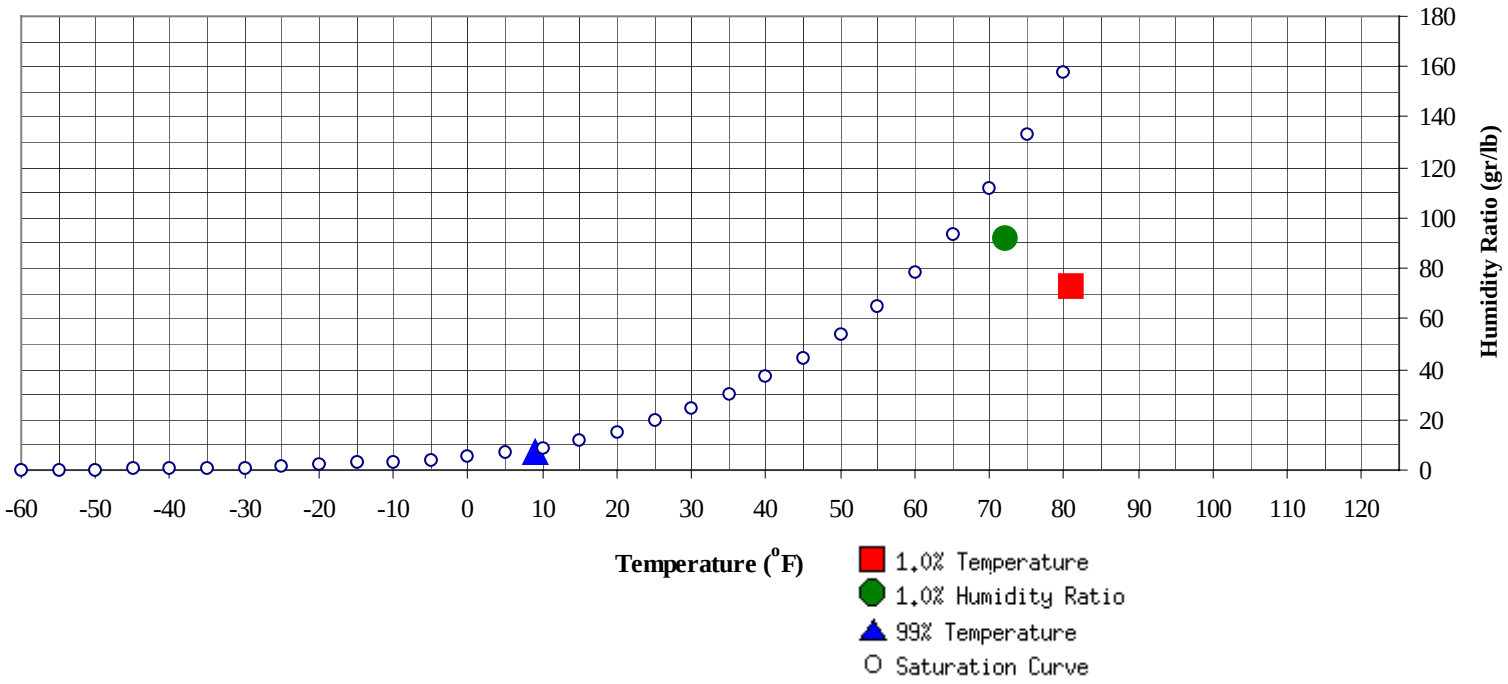
Long Term Psychrometric Summary



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

WARSAW, POLAND WMO No. 123750

Psychrometric Summary of Peak Design Values



	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)
99% Dry Bulb	9	6.8	3.2

	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
1.0% Humidity Ratio	91.7	72.2	67	64.4	31.6

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	81	73.2	66.3	30.9

WARSAW, POLAND WMO No. 123750

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)
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79															
70 / 74												0		0	56.5
65 / 69												1	0	1	53.5
60 / 64						0	0		0	51.8		6	1	7	51.2
55 / 59		0	0	0	50.8	0	2	0	2	48.6		12	4	16	48.7
50 / 54	1	2	1	4	47.0	1	3	2	6	46.1	2	23	14	39	46.2
45 / 49	4	10	6	20	43.5	3	10	5	18	42.9	16	40	33	88	42.3
40 / 44	14	21	16	51	39.7	7	18	14	39	39.4	24	39	32	94	38.9
35 / 39	42	49	47	138	35.6	31	45	38	114	35.3	56	64	64	184	34.8
30 / 34	67	65	67	199	31.1	66	63	66	194	30.9	82	41	66	189	30.8
25 / 29	40	39	39	118	25.6	42	40	45	127	25.4	42	16	24	82	25.5
20 / 24	24	24	22	70	21.0	22	19	19	60	20.9	13	4	6	23	20.8
15 / 19	21	17	23	61	16.6	21	14	18	53	16.5	10	2	3	15	16.6
10 / 14	16	11	13	40	11.5	15	7	8	30	11.4	3	1	1	5	11.3
5 / 9	10	4	8	22	6.4	9	3	5	17	6.3	1	0	0	1	6.6
0 / 4	5	3	2	10	1.2	4	1	2	7	1.2	0	0		0	1.5
-5 / -1	2	1	1	4	-3.3	2	0	1	3	-3.3	0			0	-2.4
-10 / -6	2	1	2	5	-7.6	1	0	0	1	-7.4					
-15 / -11	0	0	0	0	-12.0	0			0	-11.5					
-20 / -16	1	0	0	1	-16.7										
-25 / -21	0	0		0	-21.2										

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.

WARSAW, POLAND WMO No. 123750

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

Period of Record = 1973 to 1996

Temperature Range (°F)	April Hour Group (LST) 01 To 08	April 09 To 16	April 17 To 00	April Total Obs	April MCWB (°F)	May Hour Group (LST) 01 To 08	May 09 To 16	May 17 To 00	May Total Obs	May MCWB (°F)	June Hour Group (LST) 01 To 08	June 09 To 16	June 17 To 00	June Total Obs	June MCWB (°F)
95 / 99															
90 / 94												0	0	0	66.8
85 / 89							1		1	67.4		3	0	3	67.9
80 / 84		0	0	0	63.0		6	1	7	65.8	0	14	4	18	66.4
75 / 79		3	0	3	59.0	0	20	5	25	62.6	1	32	12	45	63.9
70 / 74		8	2	10	57.2	2	37	16	55	60.0	6	44	26	76	61.6
65 / 69	0	8	3	11	55.4	4	33	19	56	57.8	14	39	32	84	59.7
60 / 64	1	21	10	32	52.5	21	50	44	115	55.3	47	55	57	159	57.3
55 / 59	5	35	22	62	49.5	50	45	59	154	52.2	70	38	62	170	53.8
50 / 54	21	51	42	114	46.2	64	33	53	151	48.4	66	13	38	117	50.1
45 / 49	51	56	58	165	42.6	63	19	32	115	44.3	29	2	9	40	45.6
40 / 44	45	30	43	117	38.9	25	5	11	41	40.1	6		0	6	41.1
35 / 39	68	24	43	135	35.3	15	1	5	21	36.0	1			1	37.6
30 / 34	40	4	16	60	31.1	4		1	5	31.9					
25 / 29	10	0	1	11	26.3	0			0	28.0					
20 / 24	0			0	22.2										
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															

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.

WARSAW, POLAND WMO No. 123750

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

Period of Record = 1973 to 1996

Temperature Range (°F)	July Hour Group (LST) 01 To 08	July 09 To 16	July 17 To 00	July Total Obs	July MCWB (°F)	August Hour Group (LST) 01 To 08	August 09 To 16	August 17 To 00	August Total Obs	August MCWB (°F)	September Hour Group (LST) 01 To 08	September 09 To 16	September 17 To 00	September Total Obs	September MCWB (°F)
95 / 99		0	0	0	70.5		1	0	1	70.9					
90 / 94		2	0	2	69.6		2	1	3	70.9					
85 / 89	0	6	1	7	68.7		6	1	7	70.2					
80 / 84	0	19	7	26	66.7	0	19	6	25	67.5		2	0	2	65.3
75 / 79	2	46	19	67	64.4	1	44	16	61	64.7	0	11	2	13	64.5
70 / 74	9	56	41	105	62.7	8	58	32	98	62.5	0	24	7	31	62.1
65 / 69	23	43	40	105	60.8	16	42	39	97	60.8	2	26	12	40	60.1
60 / 64	65	50	66	181	58.5	66	48	70	183	58.6	15	56	40	111	57.1
55 / 59	83	25	55	163	54.9	84	23	55	162	54.9	53	65	63	180	53.8
50 / 54	56	3	18	77	51.1	56	5	24	85	51.1	81	45	71	197	50.1
45 / 49	10	0	1	11	46.7	17		3	20	46.1	56	10	34	100	45.5
40 / 44	0	0		0	41.8	1			1	41.8	21	0	8	29	41.1
35 / 39						0			0	38.0	11	0	3	14	37.0
30 / 34											2		0	2	32.1
25 / 29											0			0	28.0
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															

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.

WARSAW, POLAND WMO No. 123750

Dry-Bulb Temperature Hours For An Average Year (Sheet 4 of 5)

Period of Record = 1973 to 1996

Temperature Range (°F)	October Hour Group (LST) 01 To 08	October 09 To 16	October 17 To 00	October Total Obs	October MCWB (°F)	November Hour Group (LST) 01 To 08	November 09 To 16	November 17 To 00	November Total Obs	November MCWB (°F)	December Hour Group (LST) 01 To 08	December 09 To 16	December 17 To 00	December Total Obs	December MCWB (°F)
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79		0		0	64.4										
70 / 74		5	0	5	61.4										
65 / 69		9	1	10	59.2										
60 / 64	1	23	8	32	56.2		0		0	53.3					
55 / 59	11	40	27	79	52.9	1	4	1	6	52.1		0		0	50.0
50 / 54	44	63	54	161	49.2	6	18	10	34	48.5	2	4	2	8	47.6
45 / 49	69	54	66	189	44.7	28	45	37	110	44.4	11	12	12	35	44.4
40 / 44	44	28	39	111	40.5	39	47	41	127	40.3	17	24	17	58	40.2
35 / 39	42	19	32	93	36.2	64	58	66	189	36.1	50	62	56	168	35.9
30 / 34	27	6	16	49	31.1	54	40	43	138	31.2	74	69	77	220	31.4
25 / 29	10	0	4	14	26.8	28	18	27	73	25.6	42	37	38	118	25.8
20 / 24	1		0	1	21.9	11	6	7	24	21.3	18	17	15	50	21.3
15 / 19	0			0	17.8	7	3	5	15	17.0	18	13	16	47	16.8
10 / 14						3	0	2	5	12.0	9	6	8	23	11.8
5 / 9						0		0	0	6.9	5	2	3	10	6.7
0 / 4						0			0	3.3	2	1	2	5	1.3
-5 / -1											1	0	1	2	-3.5
-10 / -6											0	0		0	-6.1
-15 / -11															
-20 / -16															
-25 / -21															

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.

WARSAW, POLAND WMO No. 123750

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

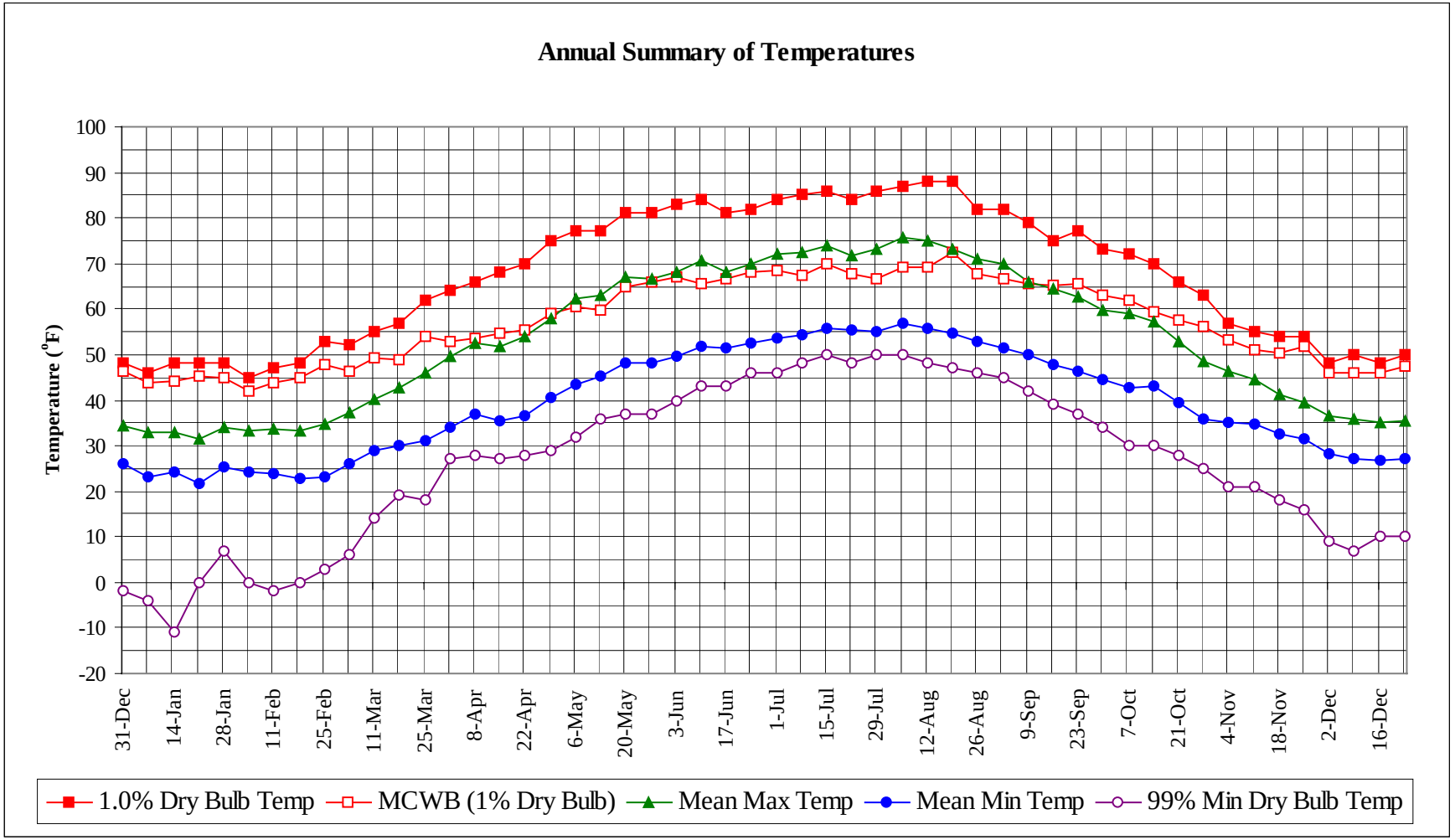
Period of Record = 1973 to 1996

Annual Totals

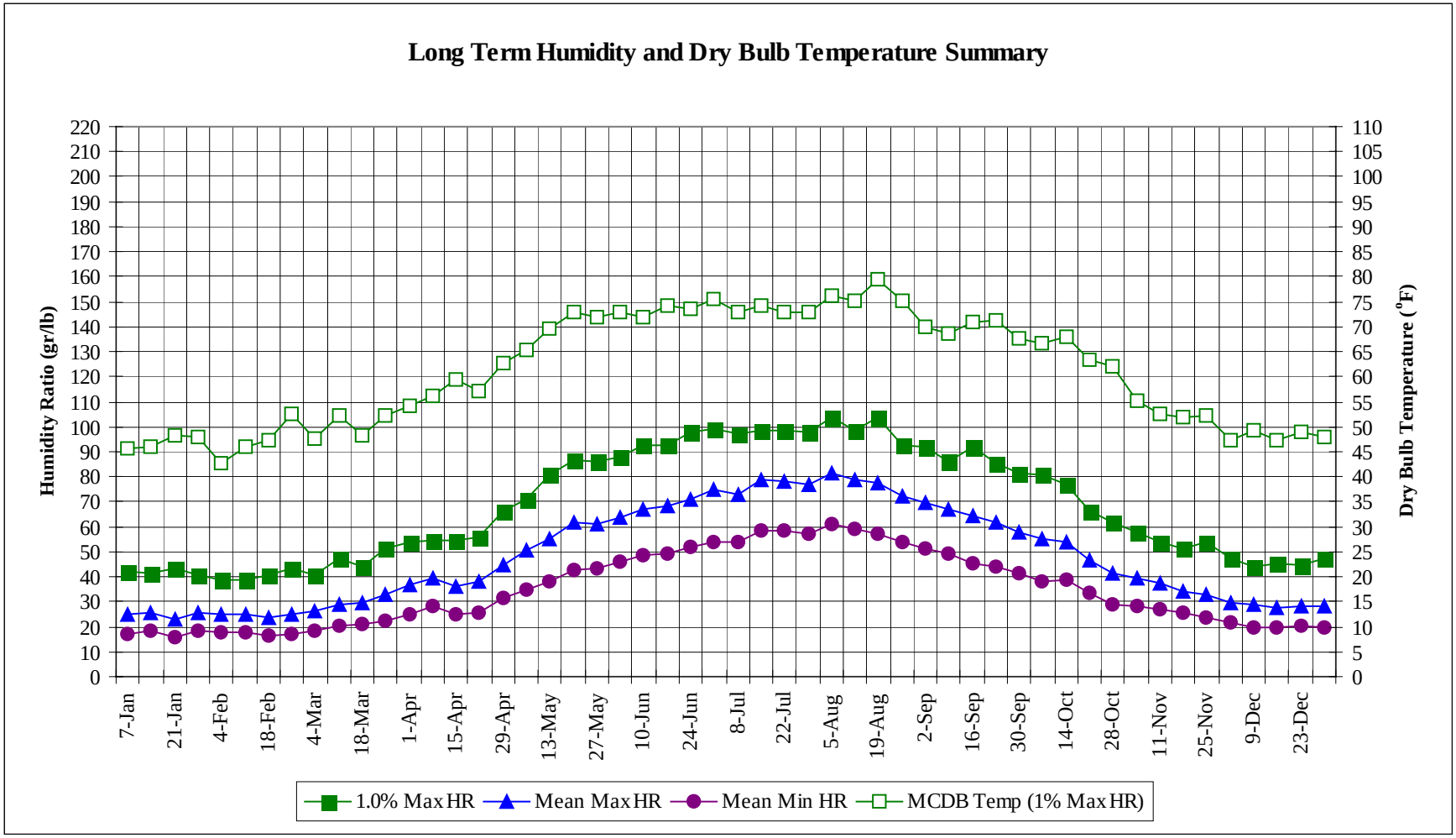
Temperature Range (°F)	Hour Group (LST) 01 To 08	09 To 16	17 To 00	Total Obs	MCWB (°F)
95 / 99		1	0	1	70.8
90 / 94		4	1	5	70.2
85 / 89	0	15	3	18	69.1
80 / 84	0	59	18	77	66.7
75 / 79	4	156	56	215	64.1
70 / 74	25	230	123	378	61.8
65 / 69	59	201	144	404	59.9
60 / 64	214	310	294	818	57.2
55 / 59	353	289	348	990	53.5
50 / 54	398	262	329	989	49.2
45 / 49	354	259	296	909	44.1
40 / 44	242	212	222	676	39.8
35 / 39	380	324	357	1061	35.6
30 / 34	417	288	352	1056	31.1
25 / 29	215	152	181	548	25.6
20 / 24	89	70	70	229	21.1
15 / 19	77	50	66	193	16.6
10 / 14	46	24	33	103	11.5
5 / 9	25	9	16	50	6.5
0 / 4	12	4	6	22	1.2
-5 / -1	5	2	3	10	-3.3
-10 / -6	3	2	2	7	-7.4
-15 / -11	1	0	0	1	-11.9
-20 / -16	1	0	0	1	-16.7
-25 / -21	0	0		0	-21.2

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.

WARSAW, POLAND WMO No. 123750



WARSAW, POLAND WMO No. 123750

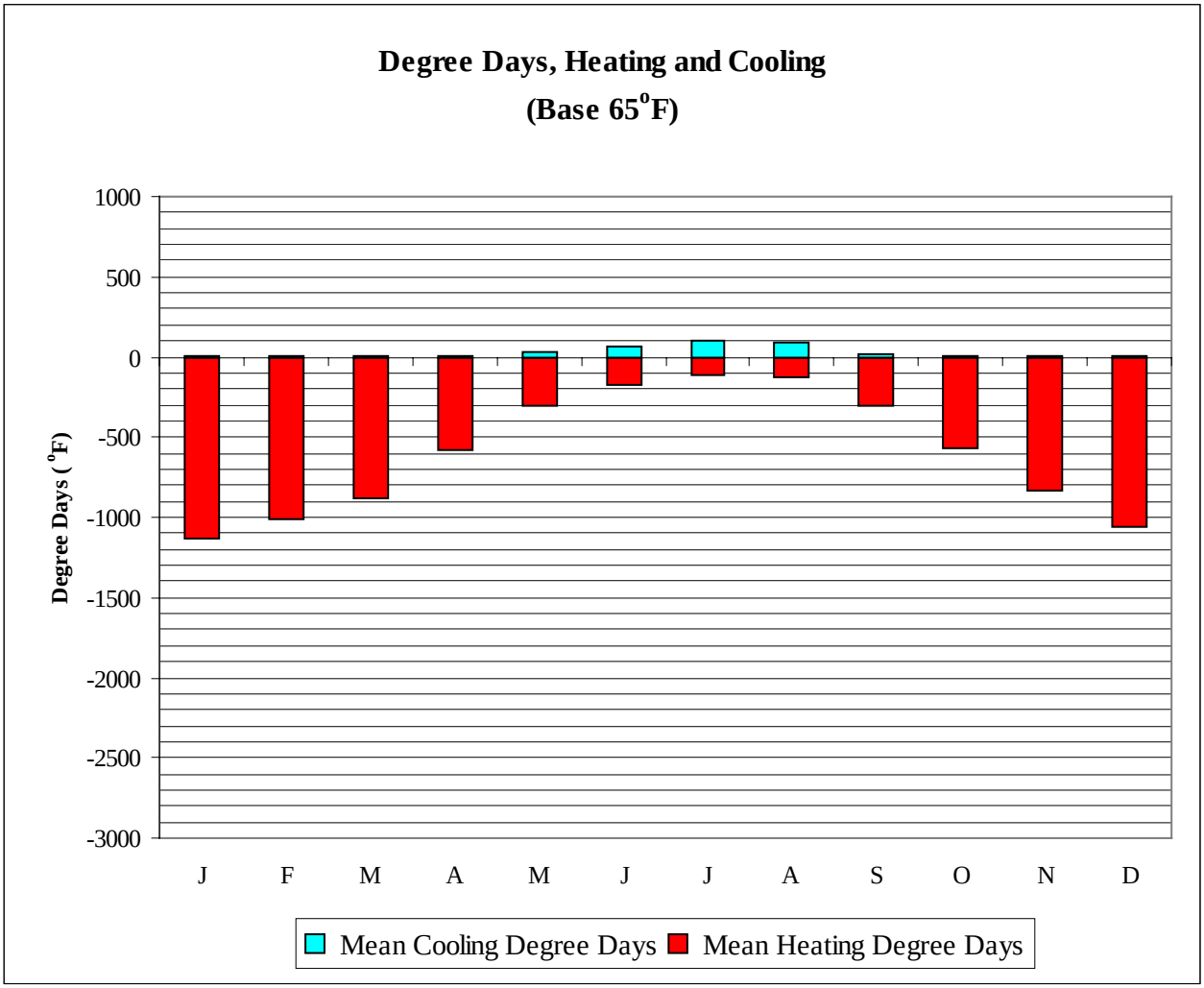


WARSAW, POLAND WMO No. 123750

Long Term Dry Bulb Temperature and Humidity Summary

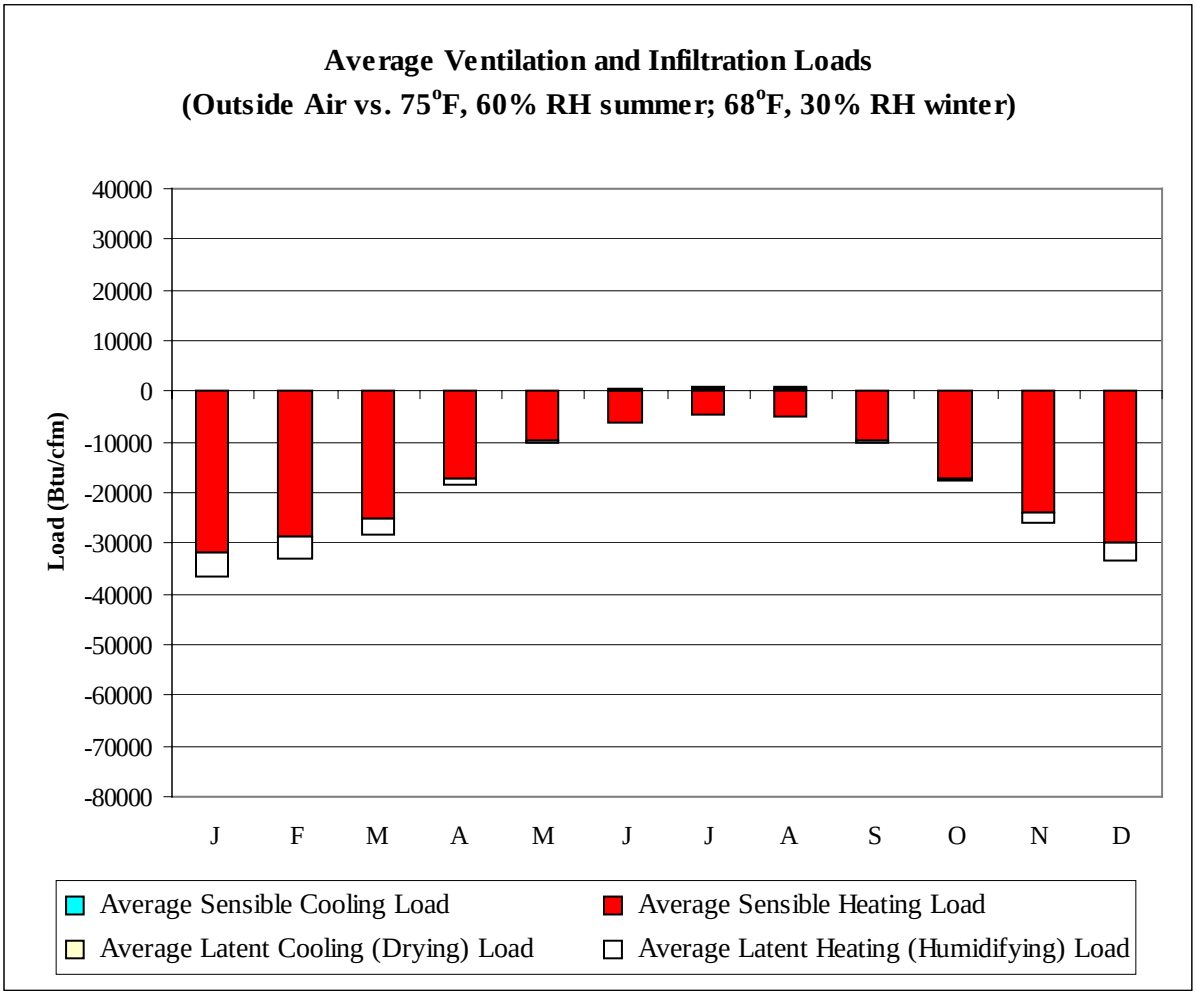
Week Ending	1.0% Temp (°F)	MCWB @ 1% Temp (°F)	Mean Max Temp (°F)	Mean Min Temp (°F)	99% Temp (°F)	1.0% HR (gr/lb)	MCDB @ 1% HR (°F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	46.0	43.7	32.8	23.1	-4.0	42.0	45.7	25.2	17.0
14-Jan	48.0	44.3	32.9	24.3	-11.0	41.3	45.9	25.4	18.1
21-Jan	48.0	45.4	31.5	21.7	0.0	43.4	48.3	23.1	15.6
28-Jan	48.0	44.7	33.9	25.5	7.0	40.6	47.9	25.8	18.5
4-Feb	45.0	41.9	33.2	24.2	0.0	38.5	42.6	24.9	17.6
11-Feb	47.0	43.9	33.5	23.8	-2.0	38.5	46.0	25.0	17.5
18-Feb	48.0	45.0	33.4	22.6	0.0	40.6	47.2	23.7	16.3
25-Feb	53.0	47.8	34.7	23.3	3.0	43.4	52.7	25.2	16.8
4-Mar	52.0	46.4	37.2	26.1	6.0	40.6	47.5	26.6	18.2
11-Mar	55.0	49.3	40.1	28.8	14.0	47.6	52.1	29.2	20.1
18-Mar	57.0	48.9	42.8	30.0	19.0	44.1	48.2	29.8	20.8
25-Mar	62.0	54.0	45.9	31.3	18.0	51.1	52.2	32.9	22.2
1-Apr	64.0	52.9	49.7	34.1	27.0	53.9	54.3	36.6	24.8
8-Apr	66.0	53.8	52.5	36.8	28.0	54.6	56.1	39.1	28.0
15-Apr	68.0	54.6	51.8	35.3	27.0	54.6	59.5	36.1	24.9
22-Apr	70.0	55.2	54.0	36.4	28.0	56.0	57.2	38.2	25.6
29-Apr	75.0	58.9	57.8	40.5	29.0	66.5	62.7	44.6	31.4
6-May	77.0	60.5	62.4	43.5	32.0	70.7	65.3	50.3	34.6
13-May	77.0	59.9	63.2	45.4	36.0	80.5	69.5	55.3	38.4
20-May	81.0	64.7	67.2	48.1	37.0	86.8	73.0	61.8	42.9
27-May	81.0	65.9	66.5	48.2	37.0	86.1	71.9	61.1	43.1
3-Jun	83.0	67.0	68.2	49.5	40.0	88.2	72.8	63.9	46.0
10-Jun	84.0	65.7	70.6	51.9	43.0	92.4	72.0	67.2	48.9
17-Jun	81.0	66.8	68.0	51.3	43.0	92.4	74.2	68.4	49.4
24-Jun	82.0	68.0	70.0	52.6	46.0	98.0	73.6	70.9	52.0
1-Jul	84.0	68.4	71.9	53.6	46.0	99.4	75.4	74.6	53.7
8-Jul	85.0	67.5	72.5	54.4	48.0	97.3	72.8	73.0	53.7
15-Jul	86.0	69.8	73.8	55.7	50.0	98.7	74.2	78.8	58.3
22-Jul	84.0	67.6	71.8	55.3	48.0	98.7	73.0	78.3	58.2
29-Jul	86.0	66.6	73.1	55.1	50.0	98.0	72.9	76.5	57.5
5-Aug	87.0	69.1	75.9	56.8	50.0	103.6	76.2	81.3	60.8
12-Aug	88.0	69.2	74.9	55.9	48.0	98.7	75.2	79.0	59.1
19-Aug	88.0	72.4	73.3	54.6	47.0	103.6	79.3	77.7	57.3
26-Aug	82.0	67.8	71.2	53.0	46.0	92.4	75.1	72.0	53.6
2-Sep	82.0	66.8	70.1	51.4	45.0	91.7	69.8	69.8	51.1
9-Sep	79.0	65.4	65.9	49.9	42.0	86.1	68.5	67.2	49.1
16-Sep	75.0	65.2	64.3	47.7	39.0	91.7	71.1	64.6	45.3
23-Sep	77.0	65.6	62.5	46.4	37.0	85.4	71.3	61.7	44.0
30-Sep	73.0	63.1	59.8	44.6	34.0	81.2	67.8	58.0	41.2
7-Oct	72.0	62.0	59.1	42.8	30.0	80.5	66.7	55.3	37.9
14-Oct	70.0	59.3	57.3	43.0	30.0	77.0	68.1	53.9	38.5
21-Oct	66.0	57.7	53.0	39.5	28.0	66.5	63.3	46.9	33.7
28-Oct	63.0	56.1	48.7	35.7	25.0	61.6	62.1	41.6	28.9
4-Nov	57.0	53.1	46.3	35.1	21.0	58.1	55.0	39.4	28.5
11-Nov	55.0	51.1	44.5	34.6	21.0	53.9	52.5	37.8	27.2
18-Nov	54.0	50.3	41.4	32.7	18.0	51.1	51.9	34.5	25.5
25-Nov	54.0	51.8	39.6	31.6	16.0	53.9	52.1	32.7	23.7
2-Dec	48.0	46.0	36.5	28.1	9.0	47.6	47.4	29.3	21.5
9-Dec	50.0	46.2	35.8	27.2	7.0	44.1	49.4	28.6	20.0
16-Dec	48.0	46.0	35.0	26.8	10.0	45.5	47.2	27.8	19.9
23-Dec	50.0	47.4	35.3	27.1	10.0	44.8	48.8	28.4	20.4
31-Dec	48.0	46.4	34.5	26.0	-2.0	47.6	48.1	28.0	19.5

WARSAW, POLAND WMO No. 123750



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1134
FEB	0	1017
MAR	0	876
APR	5	579
MAY	35	300
JUN	63	169
JUL	96	115
AUG	92	129
SEP	18	302
OCT	2	569
NOV	0	835
DEC	0	1055
ANN	312	7080

WARSAW, POLAND WMO No. 123750



	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	-31802	0	-4904
FEB	0	-28564	0	-4525
MAR	0	-25104	0	-3125
APR	5	-17278	0	-1304
MAY	88	-9818	53	-179
JUN	240	-6102	313	-8
JUL	418	-4499	563	0
AUG	435	-4903	591	0
SEP	34	-9933	84	-35
OCT	0	-17120	5	-559
NOV	0	-23971	0	-2032
DEC	0	-29747	0	-3792
ANN	1220	-208841	1609	-20463

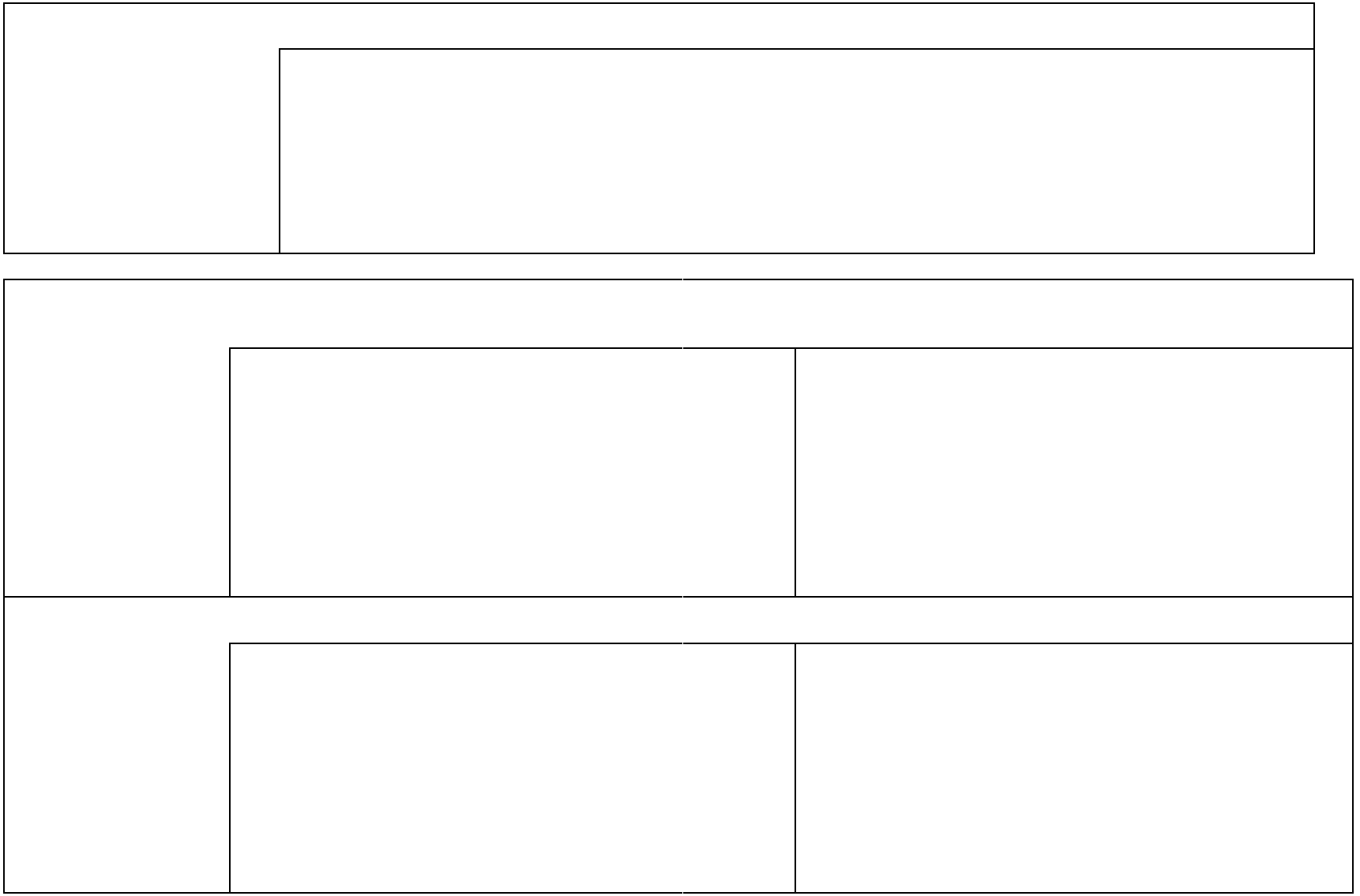
Average Annual Solar Radiation – Nearest Available Site

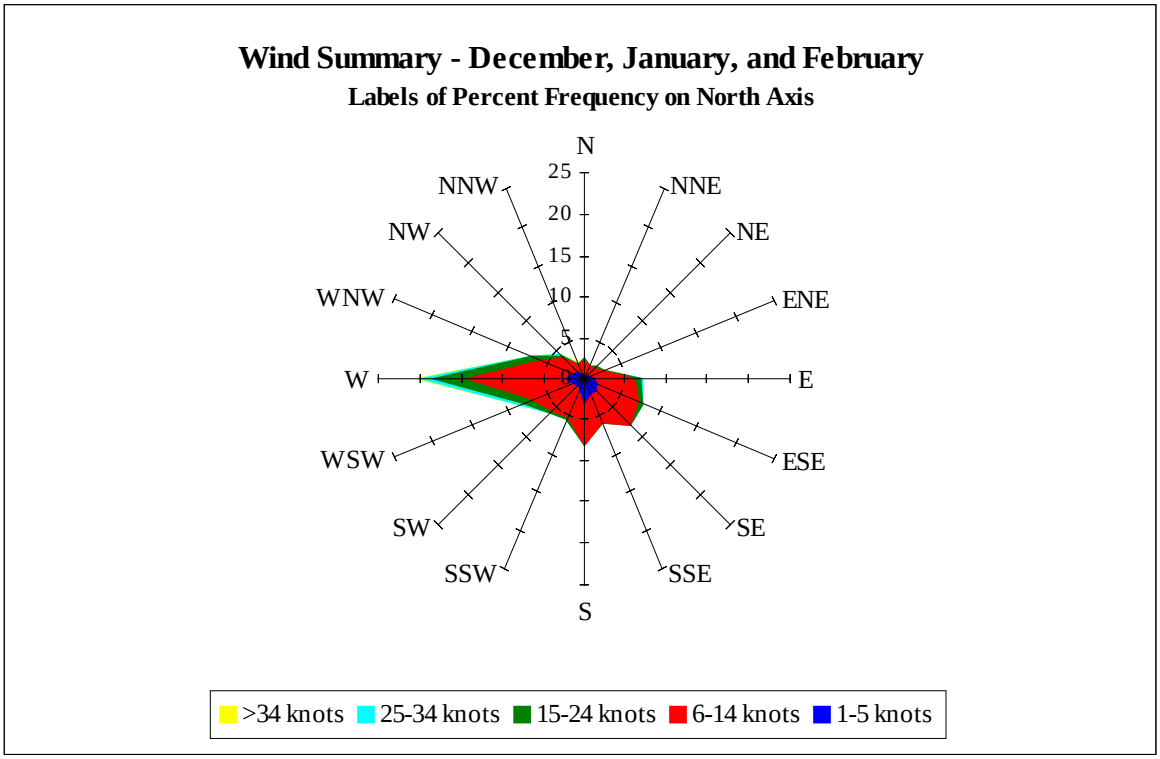
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

No Solar Radiation
Data Available

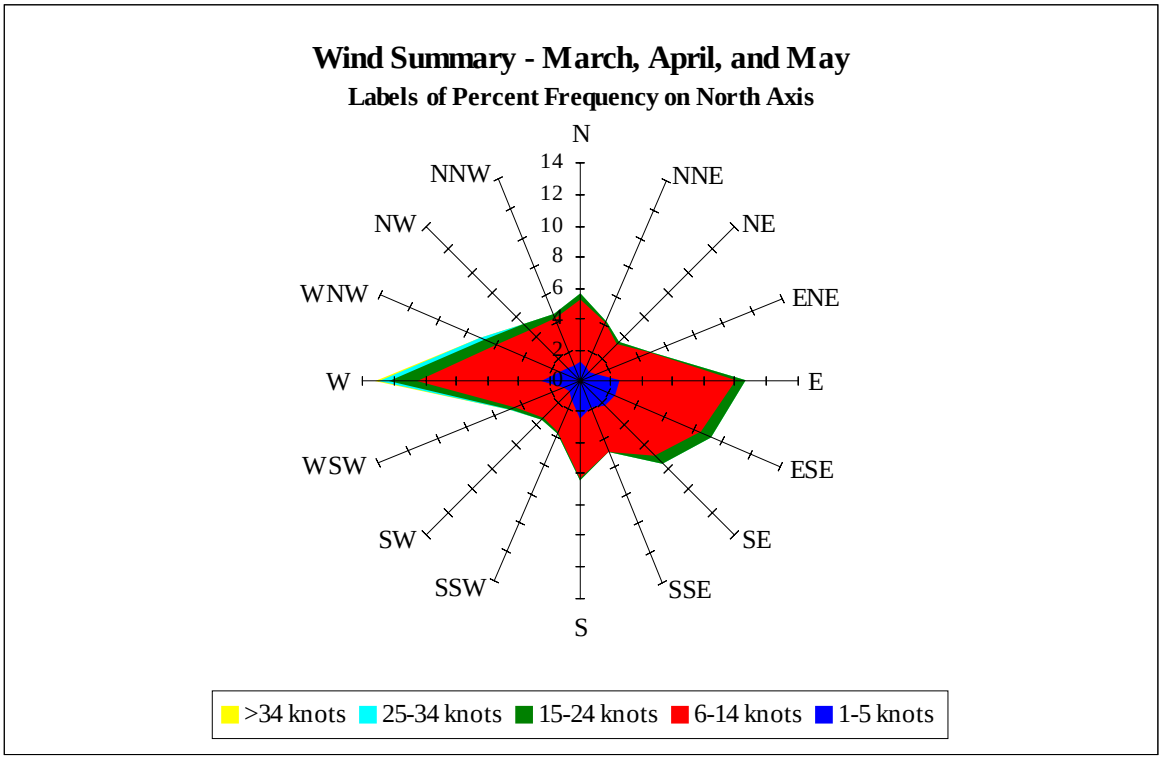
Average Annual Solar Heat and Illumination – Nearest Available Site

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

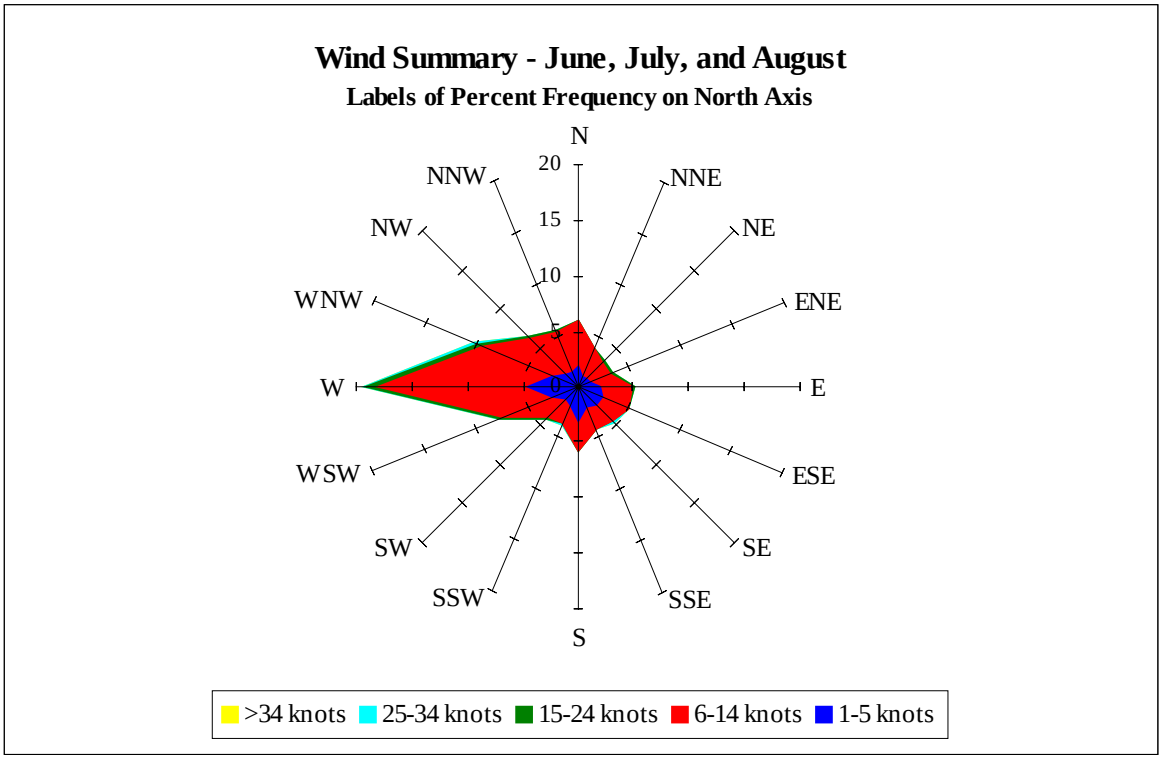




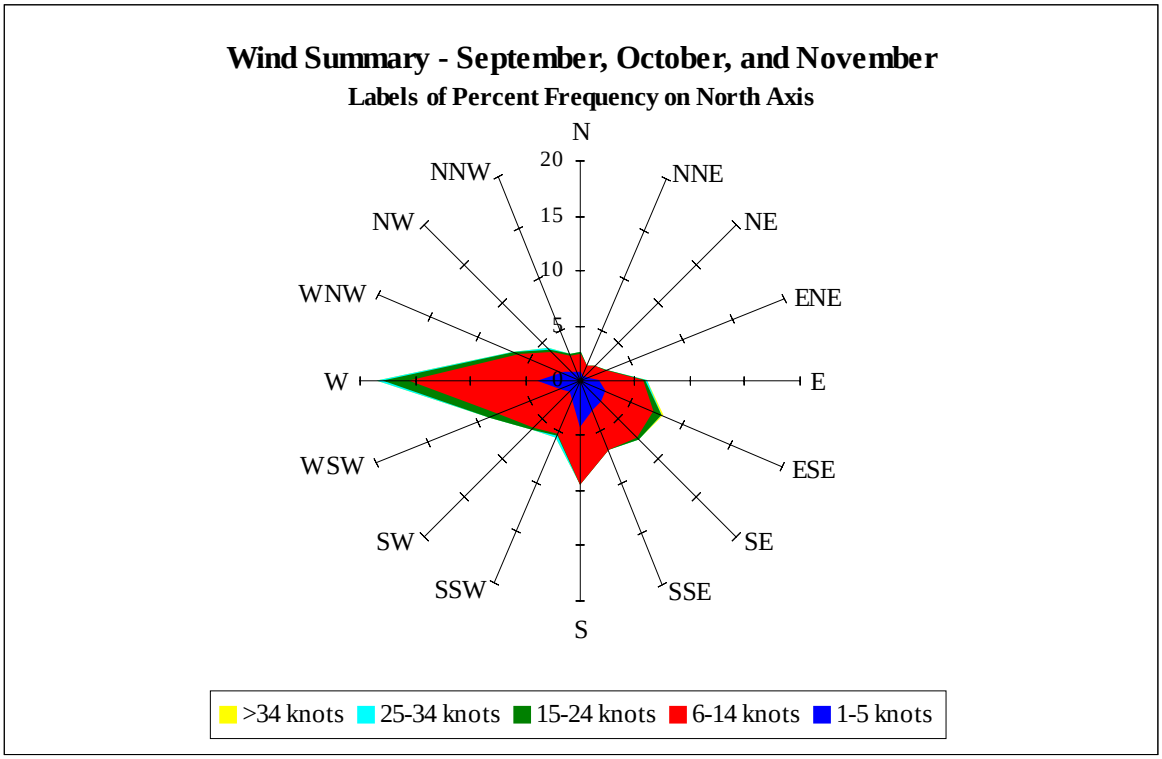
Percent Calm = 1.75



Percent Calm = 1.82



Percent Calm = 2.96



Percent Calm = 2.23