

BUDAPEST, HUNGARY

Latitude = 47.43 N

Longitude = 19.27 E

Period of Record = 1973 to 1995

WMO No. 128390

Elevation = 607 feet

Average Pressure = 29.41 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	93	70	76	8.6	S
0.4% Occurrence	90	69	77	9.5	S
1.0% Occurrence	86	68	76	8.5	S
2.0% Occurrence	82	66	71	8.3	S
Mean Daily Range	16	-	-	-	-
97.5% Occurrence	21	20	13	4.5	E
99.0% Occurrence	16	15	10	3.1	N
99.6% Occurrence	10	9	7	3.0	N
Median of Extreme Lows	7	6	6	1.9	NNW
	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	73	87	99	7.0	S
0.4% Occurrence	71	85	92	7.4	S
1.0% Occurrence	69	82	85	7.5	S
2.0% Occurrence	68	80	83	7.3	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	106	79	0.69	5.5	WSW
0.4% Occurrence	99	77	0.65	5.4	NW
1.0% Occurrence	92	74	0.61	5.7	N
2.0% Occurrence	87	73	0.57	6.0	N
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		10	304	13	277

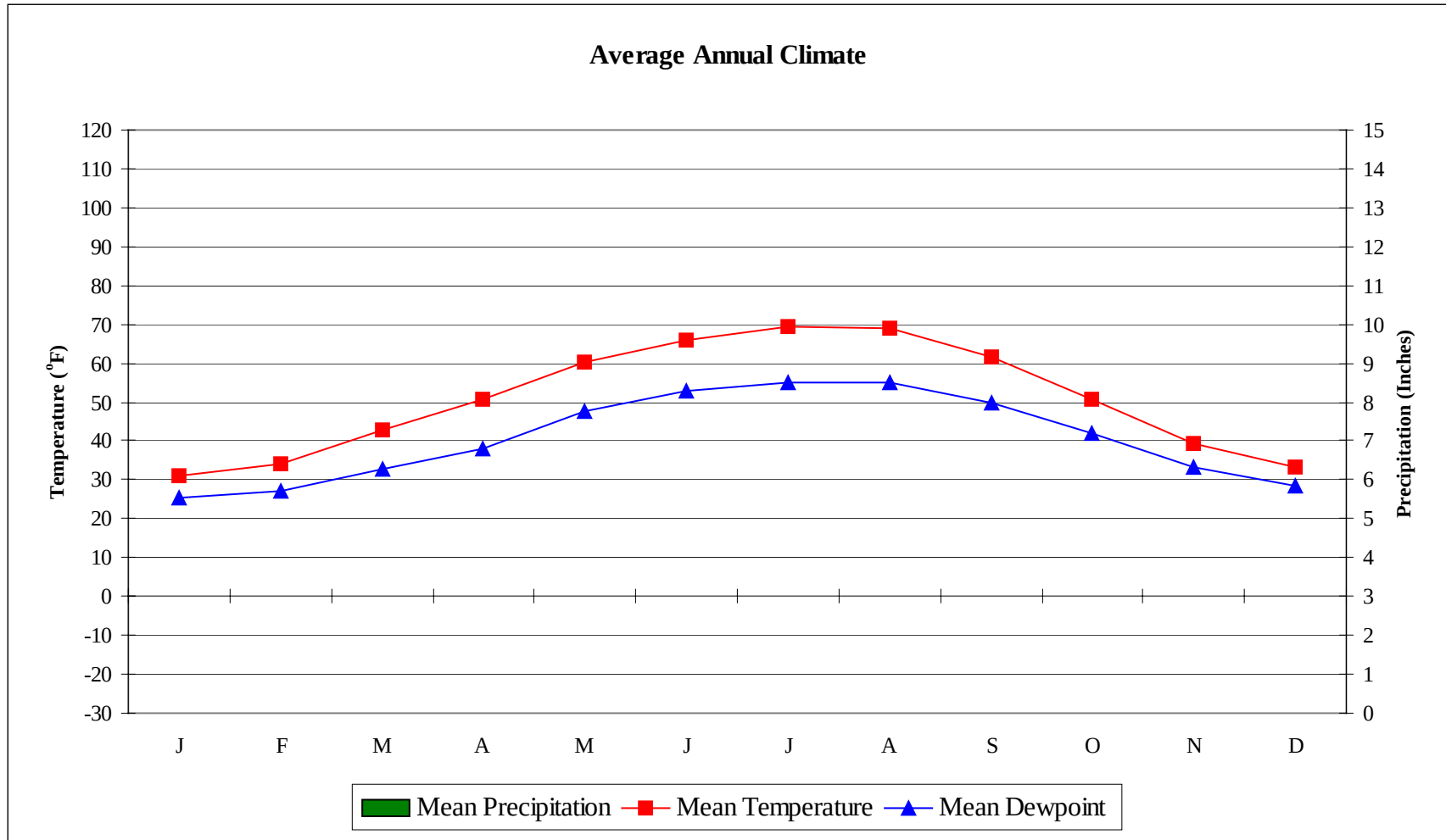
Other Site Data

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	N/A	N/A	0.2 + 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 (#)
53.3	N/A	N/A	52

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

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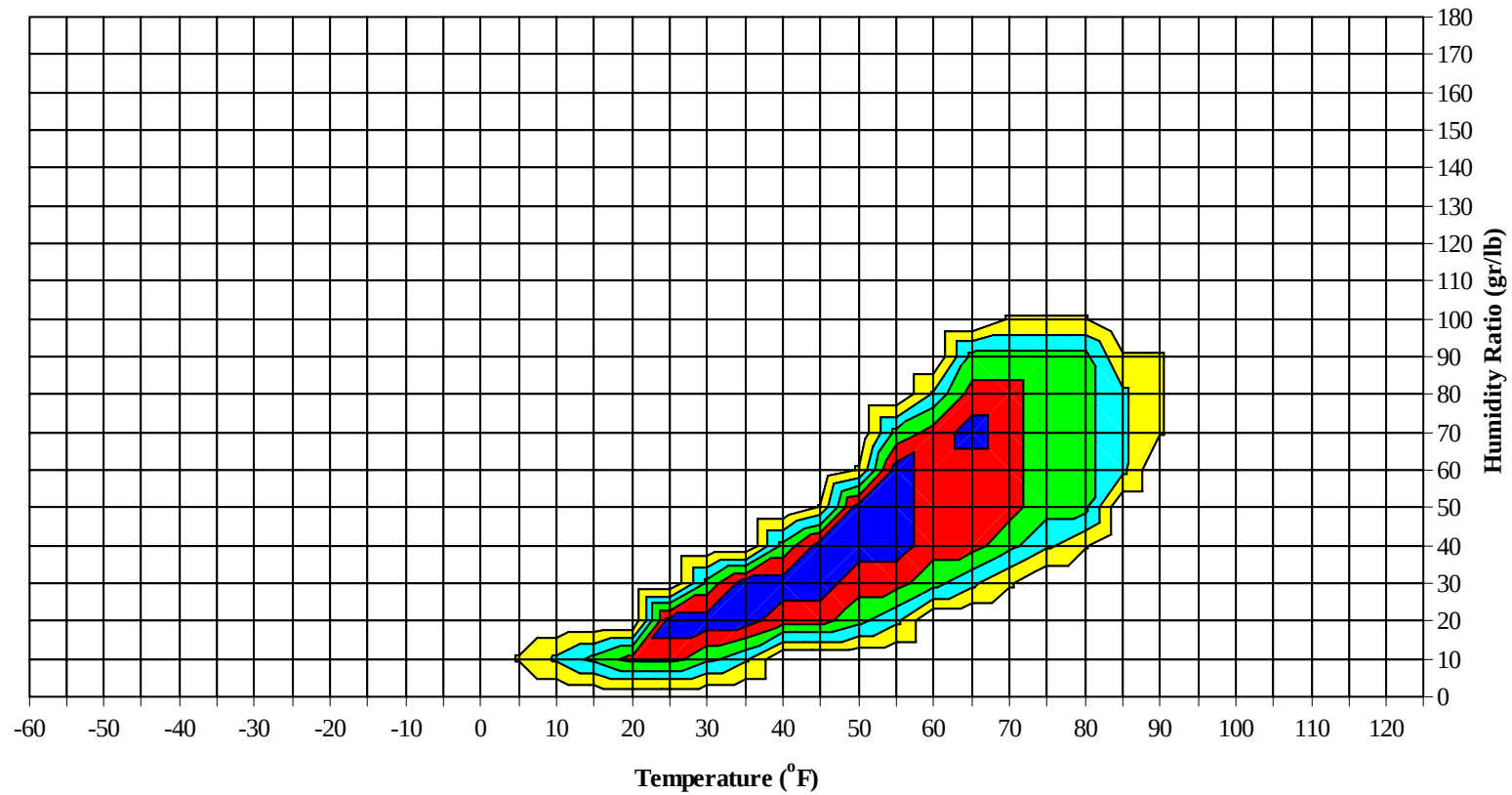


No Precipitation Data Available

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Long Term Psychrometric Summary

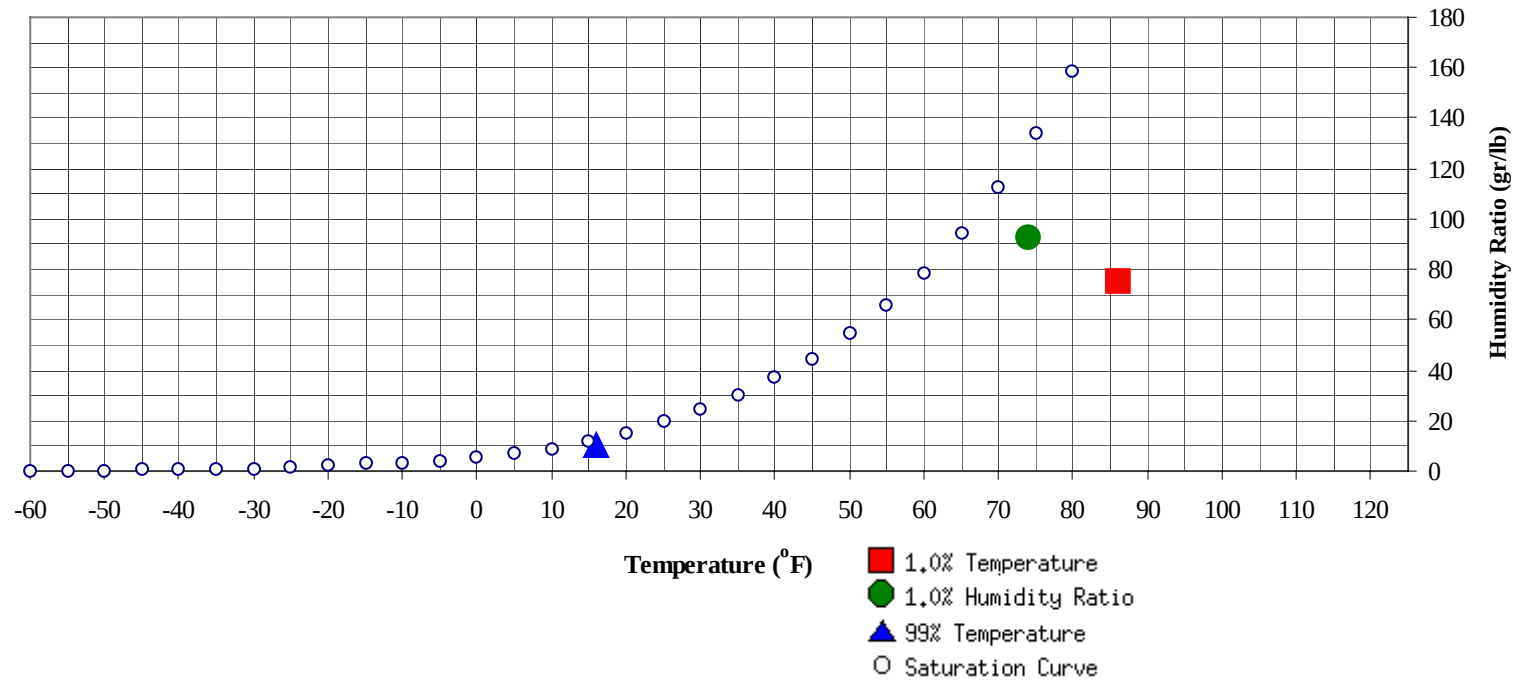


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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Psychrometric Summary of Peak Design Values



99% Dry Bulb	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)	1.0% Humidity Ratio	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
	16	10	5.4		92.4	74.1	67.6	64.4	32.2

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	86	75.5	67.9	32.5

BUDAPEST, HUNGARY

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

Period of Record = 1973 to 1995

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												0		0	58.1
70 / 74												3	0	3	56.7
65 / 69												5	1	6	54.3
60 / 64							1	0	1	49.7	0	17	6	23	51.4
55 / 59						0	4	1	5	47.8	2	34	18	54	48.4
50 / 54	0	4	2	6	45.3	1	13	4	18	44.6	13	46	37	95	45.0
45 / 49	6	20	10	36	41.9	5	25	15	45	41.2	36	52	52	140	41.6
40 / 44	13	25	16	54	38.5	12	34	25	71	38.4	39	35	43	117	38.4
35 / 39	40	60	57	157	34.7	53	66	63	182	34.6	71	38	53	161	34.6
30 / 34	69	63	67	199	30.4	68	48	64	180	30.3	55	14	27	97	30.3
25 / 29	56	44	49	149	25.5	47	21	31	99	25.1	21	4	8	33	25.1
20 / 24	22	15	20	57	20.9	15	7	10	32	20.4	4	1	2	7	20.3
15 / 19	21	11	17	49	16.7	11	4	6	21	16.5	4	1	1	6	16.5
10 / 14	13	3	7	23	11.6	6	1	3	10	11.4	1		0	1	11.9
5 / 9	6	1	3	10	6.5	3	0	1	4	6.3	1			1	6.7
0 / 4	1	1	1	3	1.1	2	0	1	3	1.3	0			0	3.0
-5 / -1	0	0	0	0	-3.9	0	0	0	0	-3.9					
-10 / -6	0		0	0	-7.8	1	0	0	1	-7.6					
-15 / -11	0			0	-12.5										

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.

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

Period of Record = 1973 to 1995

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	71.7
90 / 94							0		0	69.3		2	0	2	69.7
85 / 89							1	0	1	68.0		8	2	10	68.1
80 / 84		0	0	0	61.2		10	2	12	64.6	0	29	11	40	66.5
75 / 79		5	1	6	59.2	0	33	12	45	61.9	4	52	25	81	63.5
70 / 74	0	13	4	17	56.2	4	52	26	82	59.1	14	59	43	116	61.0
65 / 69	1	17	7	25	54.2	9	41	27	77	57.2	30	36	39	105	59.5
60 / 64	3	45	22	70	51.9	37	53	60	151	55.1	69	37	64	170	57.0
55 / 59	14	56	43	113	48.9	68	36	63	167	52.1	74	14	42	130	53.5
50 / 54	48	55	63	165	45.9	79	15	41	135	48.4	40	3	13	56	49.5
45 / 49	70	34	56	160	42.2	37	5	14	56	43.7	8		1	9	45.0
40 / 44	46	10	26	82	38.6	9	0	3	12	39.4	1			1	40.6
35 / 39	44	5	16	65	35.2	4	0	1	5	35.7	0			0	38.0
30 / 34	12	0	2	14	30.4	0			0	31.7					
25 / 29	3		0	3	25.8										
20 / 24	0			0	22.0										
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															

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WMO No. 128390

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

Period of Record = 1973 to 1995

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	72.3		3	1	4	71.4					
90 / 94		12	3	15	69.3		13	4	17	69.9		0		0	69.3
85 / 89	0	19	6	25	68.0	0	18	6	24	68.4		3	0	3	69.4
80 / 84	1	50	20	71	66.0	1	45	16	62	66.3	0	14	2	16	66.1
75 / 79	9	63	36	109	64.0	7	62	35	104	64.1	0	39	11	50	63.4
70 / 74	30	54	58	142	62.0	26	52	51	129	62.0	2	52	23	77	60.4
65 / 69	43	28	46	117	60.6	41	25	43	109	60.6	7	40	30	77	58.3
60 / 64	88	18	54	160	58.1	85	23	57	165	58.0	44	54	64	162	56.5
55 / 59	57	4	22	83	53.7	60	8	28	96	53.9	81	29	61	171	53.0
50 / 54	17		3	20	49.7	25	0	6	31	49.8	65	9	36	110	49.0
45 / 49	2		0	2	44.8	4		0	4	45.2	30	1	11	42	44.1
40 / 44	0			0		0			0	41.3	7	0	2	9	39.8
35 / 39	0			0		0			0	36.0	4	0	0	4	36.4
30 / 34											0	0		0	31.8
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															

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.

BUDAPEST, HUNGARY

WMO No. 128390

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

Period of Record = 1973 to 1995

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															
75 / 79		5	0	5	61.4										
70 / 74	0	15	2	17	59.7										
65 / 69	0	19	6	25	57.4										
60 / 64	4	46	23	73	54.9	0	3	1	4	53.9		1		1	52.2
55 / 59	32	58	46	136	51.8	1	11	3	15	50.4	0	3	1	4	49.3
50 / 54	53	54	62	169	47.8	11	30	18	59	47.3	5	11	6	22	46.4
45 / 49	61	34	56	151	43.4	32	53	43	128	43.2	11	19	14	44	42.6
40 / 44	39	12	24	75	39.5	39	45	46	130	39.3	15	29	18	62	39.2
35 / 39	33	5	17	55	35.5	64	54	62	180	35.3	59	69	67	195	35.1
30 / 34	15	1	8	24	30.5	51	31	42	124	30.7	72	65	73	210	30.7
25 / 29	9		3	12	25.6	23	8	17	48	25.4	47	36	42	125	25.5
20 / 24	1		0	1	21.6	9	2	5	16	21.0	15	9	14	38	20.9
15 / 19	0		0	0	18.7	7	1	3	11	17.0	15	5	10	30	16.7
10 / 14						2	0	1	3	11.7	7	1	3	11	12.1
5 / 9						0		0	0	7.0	2	0	0	2	6.7
0 / 4						0		0	0	1.5	0		0	0	1.5
-5 / -1															
-10 / -6															
-15 / -11															

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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WMO No. 128390

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

Period of Record = 1973 to 1995

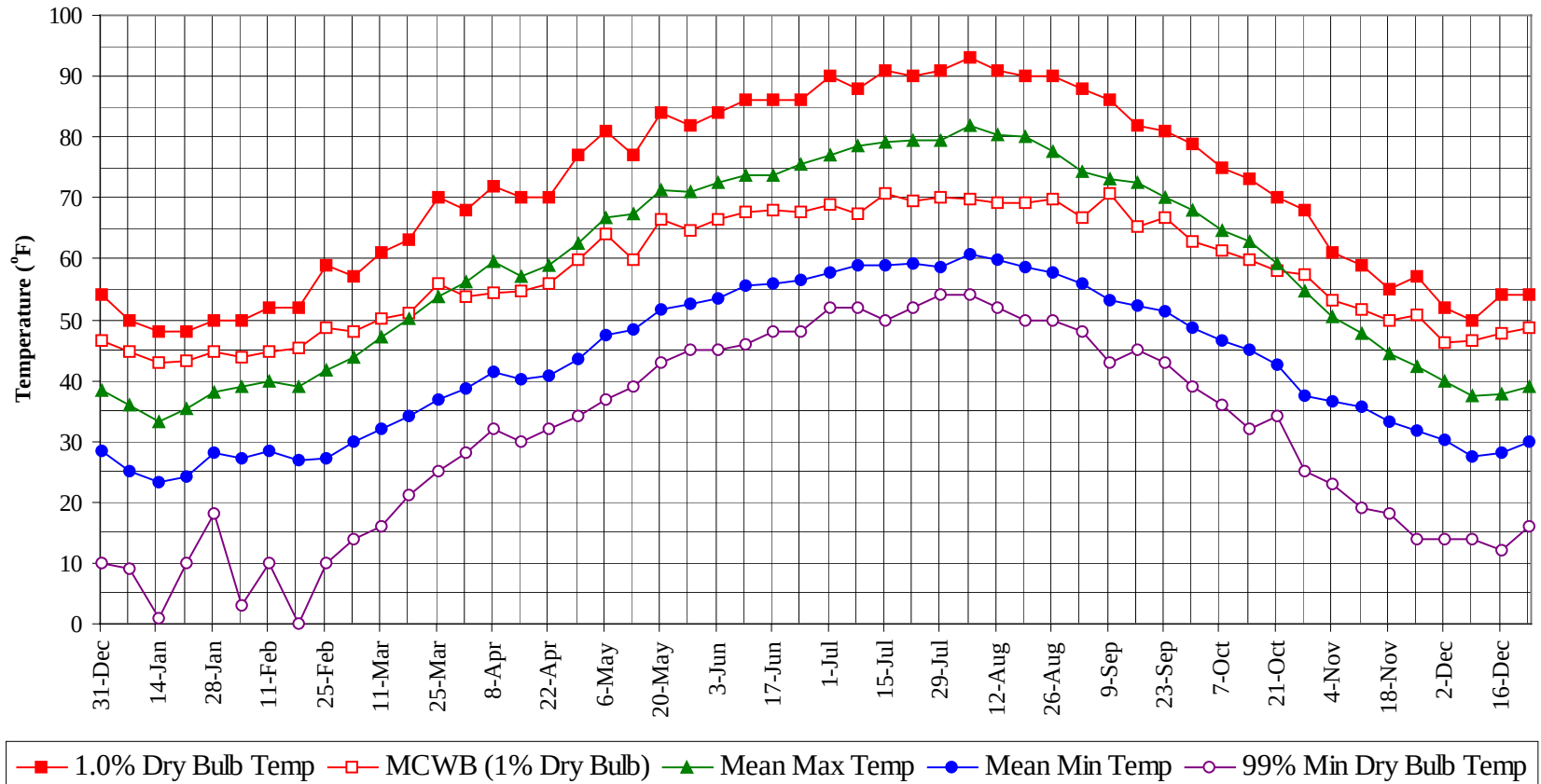
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
95 / 99		3	1	4	71.5
90 / 94		27	7	34	69.6
85 / 89	0	49	15	64	68.2
80 / 84	2	149	52	203	66.1
75 / 79	20	260	120	400	63.5
70 / 74	77	302	207	586	60.9
65 / 69	131	210	199	541	59.1
60 / 64	332	299	350	980	56.3
55 / 59	390	257	328	975	52.1
50 / 54	357	240	291	888	47.4
45 / 49	304	242	272	818	42.7
40 / 44	221	189	201	612	38.9
35 / 39	370	297	335	1001	34.9
30 / 34	343	220	281	844	30.5
25 / 29	204	112	150	466	25.4
20 / 24	67	34	51	152	20.8
15 / 19	57	21	37	115	16.7
10 / 14	29	5	15	49	11.7
5 / 9	11	1	5	17	6.5
0 / 4	3	1	2	6	1.3
-5 / -1	1	0	0	1	-3.9
-10 / -6	2	0	0	2	-7.7
-15 / -11	0			0	-12.5

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.

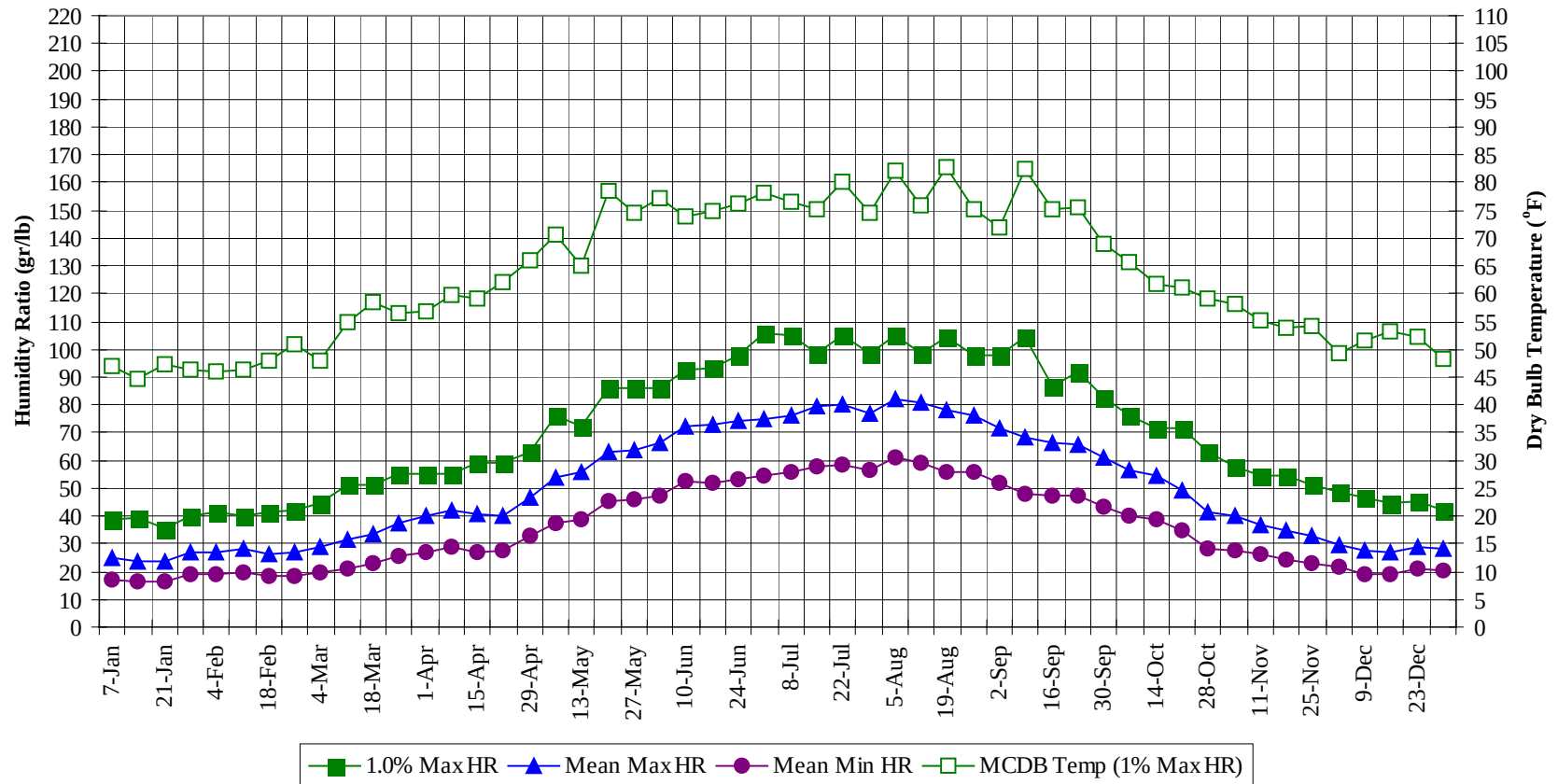
BUDAPEST, HUNGARY

WMO No. 128390

Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary

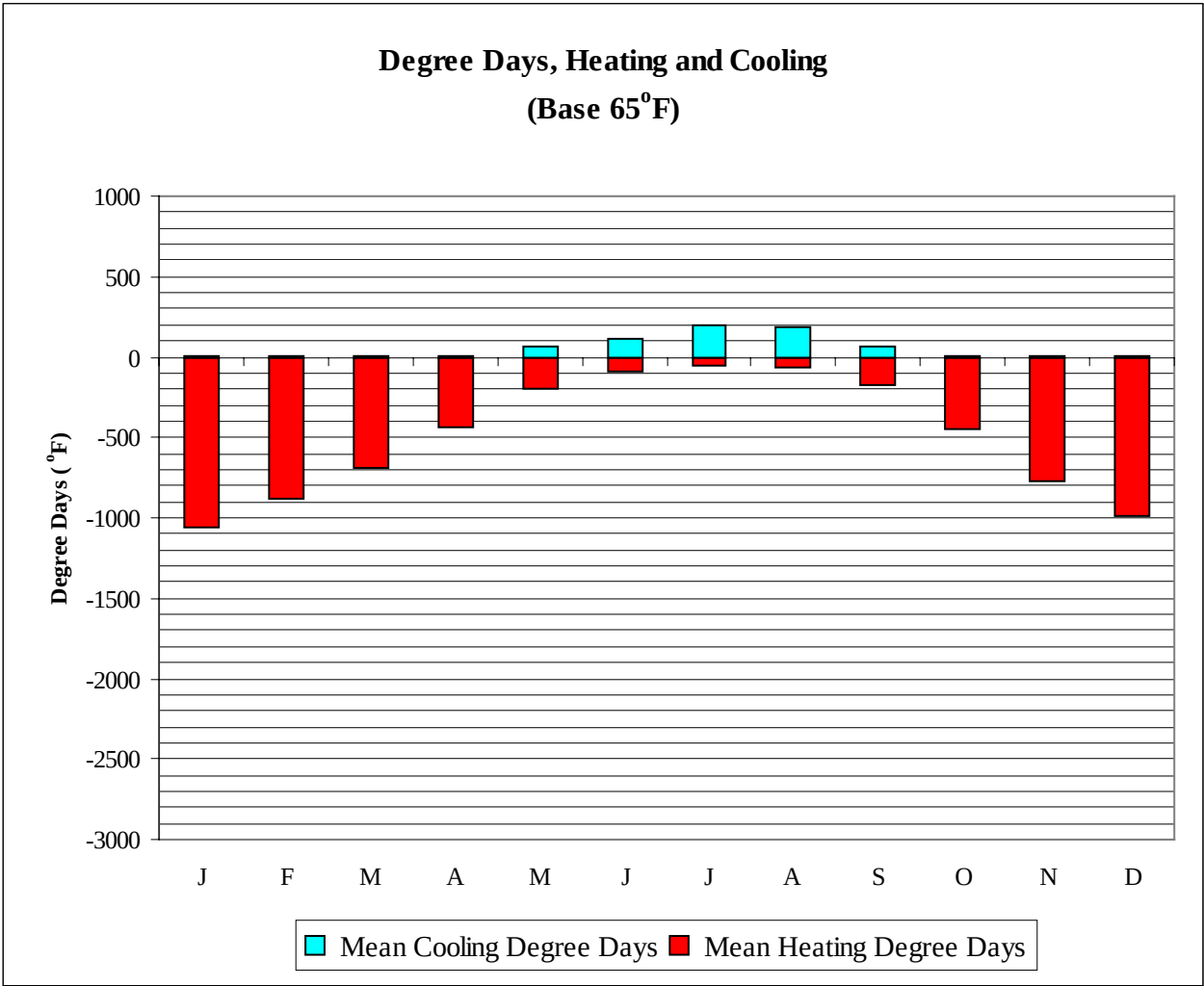


BUDAPEST, HUNGARY

WMO No. 128390

Long Term Dry Bulb Temperature and Humidity Summary

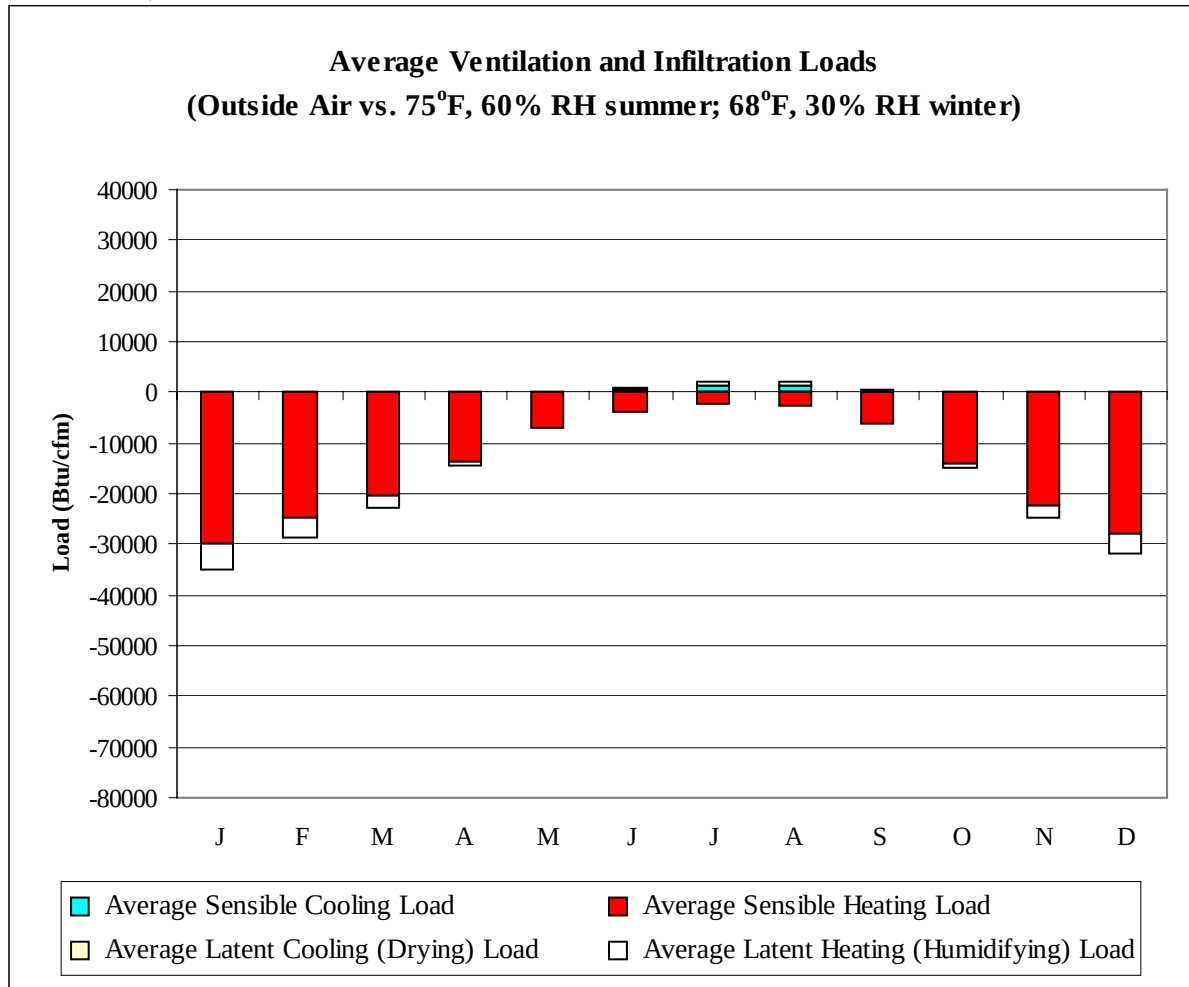
Week Ending	1.0% Temp (°F)	MCWB @ 1% Temp (°F)	Mean Max Temp (°F)	Mean Min Temp (°F)	99% Temp (°F)	1.0% HR (gr/lb)	MCDB @ 1% HR (°F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	50.0	44.6	36.0	25.0	9.0	38.5	47.0	25.3	17.1
14-Jan	48.0	43.0	33.3	23.1	1.0	39.2	44.7	23.8	16.4
21-Jan	48.0	43.2	35.2	24.3	10.0	35.7	47.2	23.6	16.3
28-Jan	50.0	44.8	37.9	28.0	18.0	39.9	46.4	27.1	19.1
4-Feb	50.0	43.7	38.8	27.2	3.0	41.3	46.0	26.9	18.8
11-Feb	52.0	44.8	40.0	28.5	10.0	39.9	46.4	28.0	19.5
18-Feb	52.0	45.2	39.0	26.9	0.0	41.3	47.9	26.3	18.6
25-Feb	59.0	48.6	41.6	27.2	10.0	42.0	51.0	27.0	18.3
4-Mar	57.0	48.2	43.7	29.9	14.0	44.8	47.8	29.1	19.9
11-Mar	61.0	50.2	47.2	32.1	16.0	51.1	54.7	31.2	21.3
18-Mar	63.0	51.0	50.3	34.0	21.0	51.1	58.4	33.6	23.1
25-Mar	70.0	55.9	53.7	36.7	25.0	55.3	56.4	37.7	25.4
1-Apr	68.0	53.9	56.3	38.5	28.0	55.3	56.9	40.1	26.8
8-Apr	72.0	54.2	59.4	41.3	32.0	55.3	59.6	42.2	28.9
15-Apr	70.0	54.6	57.1	40.1	30.0	58.8	59.1	40.7	26.8
22-Apr	70.0	56.0	58.9	40.7	32.0	58.8	61.9	40.3	27.5
29-Apr	77.0	59.8	62.5	43.4	34.0	63.0	65.9	46.8	32.7
6-May	81.0	64.0	66.8	47.5	37.0	76.3	70.5	53.8	37.5
13-May	77.0	59.9	67.3	48.4	39.0	72.1	65.0	55.8	39.0
20-May	84.0	66.6	71.3	51.7	43.0	86.1	78.3	62.9	45.2
27-May	82.0	64.6	70.9	52.5	45.0	86.1	74.4	63.5	46.0
3-Jun	84.0	66.5	72.6	53.5	45.0	86.1	77.3	66.1	47.4
10-Jun	86.0	67.8	73.7	55.6	46.0	92.4	74.0	72.1	52.2
17-Jun	86.0	67.9	73.6	55.8	48.0	93.1	74.8	72.8	51.9
24-Jun	86.0	67.6	75.5	56.4	48.0	98.0	76.2	74.2	53.3
1-Jul	90.0	69.0	77.2	57.6	52.0	105.7	78.2	74.9	54.4
8-Jul	88.0	67.4	78.5	59.0	52.0	105.0	76.6	76.3	55.6
15-Jul	91.0	70.6	79.0	59.0	50.0	98.7	75.2	79.2	57.9
22-Jul	90.0	69.6	79.3	59.2	52.0	105.0	80.0	79.9	58.5
29-Jul	91.0	70.1	79.4	58.7	54.0	98.7	74.6	76.9	56.8
5-Aug	93.0	69.7	81.9	60.8	54.0	105.0	82.0	82.2	60.8
12-Aug	91.0	69.3	80.4	59.7	52.0	98.7	75.8	80.8	59.3
19-Aug	90.0	69.2	80.1	58.5	50.0	104.3	82.9	78.1	55.7
26-Aug	90.0	69.8	77.8	57.6	50.0	98.0	75.2	75.9	55.5
2-Sep	88.0	66.7	74.4	55.8	48.0	98.0	71.9	71.3	51.8
9-Sep	86.0	70.8	73.0	53.2	43.0	104.3	82.3	68.4	47.7
16-Sep	82.0	65.3	72.5	52.1	45.0	86.8	75.1	66.4	47.3
23-Sep	81.0	66.7	70.2	51.4	43.0	91.7	75.6	65.6	47.2
30-Sep	79.0	63.0	68.0	48.6	39.0	82.6	68.9	61.2	43.1
7-Oct	75.0	61.4	64.8	46.6	36.0	76.3	65.8	56.7	39.9
14-Oct	73.0	59.7	63.0	44.9	32.0	71.4	61.6	54.2	38.5
21-Oct	70.0	57.9	59.2	42.6	34.0	71.4	61.1	49.2	34.9
28-Oct	68.0	57.5	54.6	37.5	25.0	63.0	59.0	41.3	28.3
4-Nov	61.0	53.1	50.5	36.7	23.0	58.1	58.0	40.1	27.7
11-Nov	59.0	51.7	47.6	35.7	19.0	54.6	55.2	36.7	26.3
18-Nov	55.0	49.9	44.4	33.2	18.0	54.6	54.0	34.6	24.6
25-Nov	57.0	50.8	42.4	31.7	14.0	51.1	54.2	32.8	23.3
2-Dec	52.0	46.3	39.9	30.3	14.0	48.3	49.1	29.8	21.5
9-Dec	50.0	46.4	37.4	27.4	14.0	46.9	51.6	27.6	19.4
16-Dec	54.0	47.7	37.7	28.0	12.0	44.8	53.2	27.0	19.2
23-Dec	54.0	48.5	38.8	30.0	16.0	45.5	52.2	29.0	20.9
31-Dec	54.0	46.6	38.3	28.4	10.0	42.0	48.2	28.4	20.4



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1062
FEB	0	876
MAR	2	693
APR	10	435
MAY	60	202
JUN	118	94
JUL	192	51
AUG	183	66
SEP	66	175
OCT	9	453
NOV	0	776
DEC	0	983
ANN	638	5866

BUDAPEST, HUNGARY

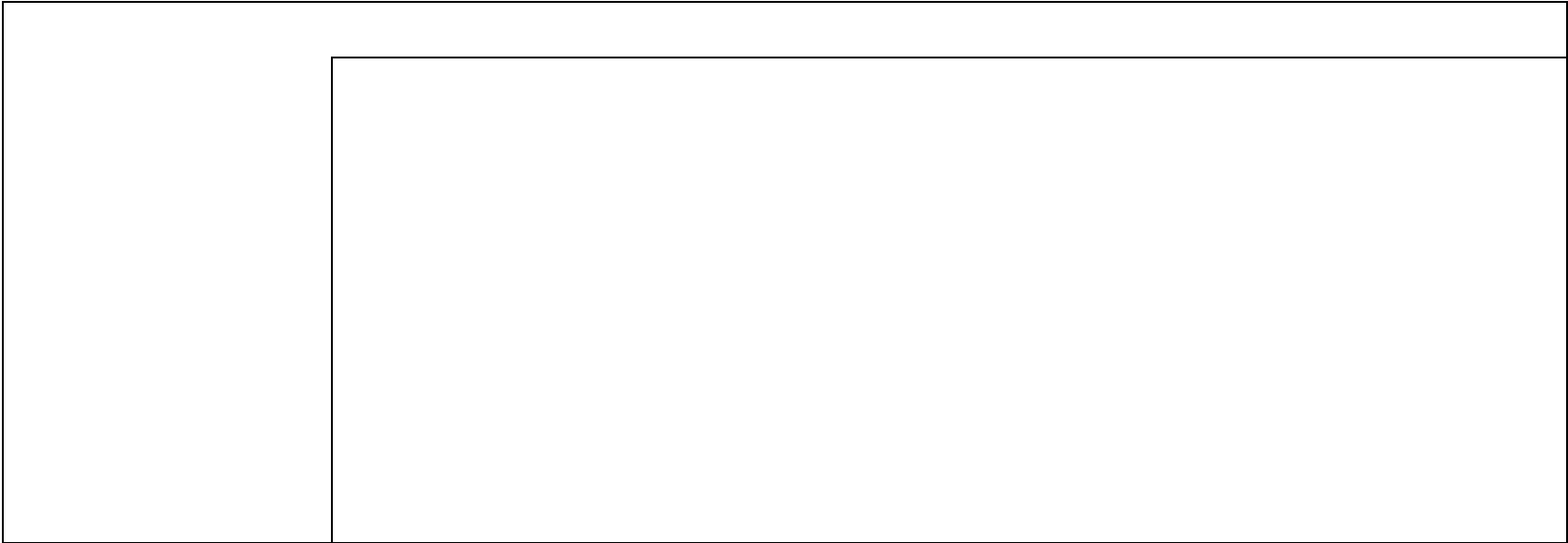
WMO No. 128390



	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	-29926	0	-4954
FEB	0	-24907	0	-3934
MAR	0	-20358	0	-2498
APR	12	-13489	0	-1022
MAY	185	-7037	43	-132
JUN	609	-3719	407	-7
JUL	1319	-2282	782	0
AUG	1325	-2774	743	0
SEP	258	-6228	180	-47
OCT	5	-14028	1	-681
NOV	0	-22444	0	-2249
DEC	0	-27878	0	-3874
ANN	3713	-175070	2156	-19398

Average Annual Solar Radiation – Nearest Available Site
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

No Solar Radiation
Data Available

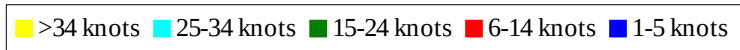
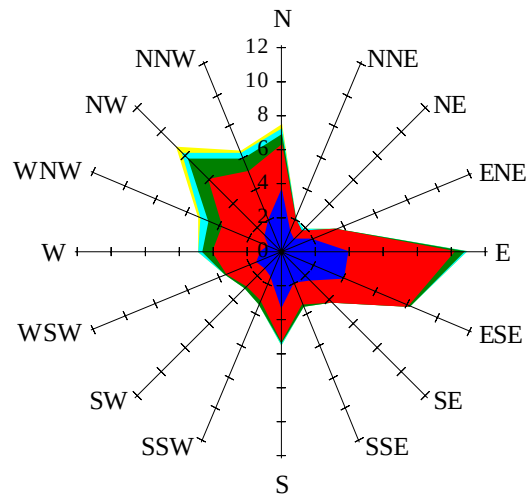


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

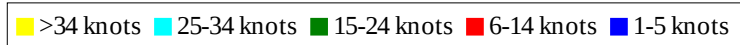
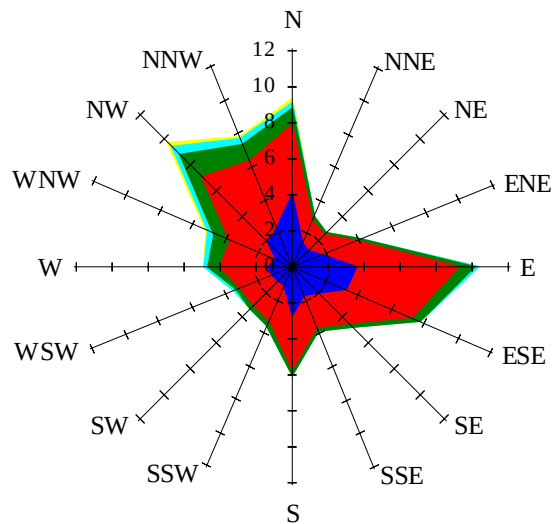
Labels of Percent Frequency on North Axis



Percent Calm = 19.11

Wind Summary - March, April, and May

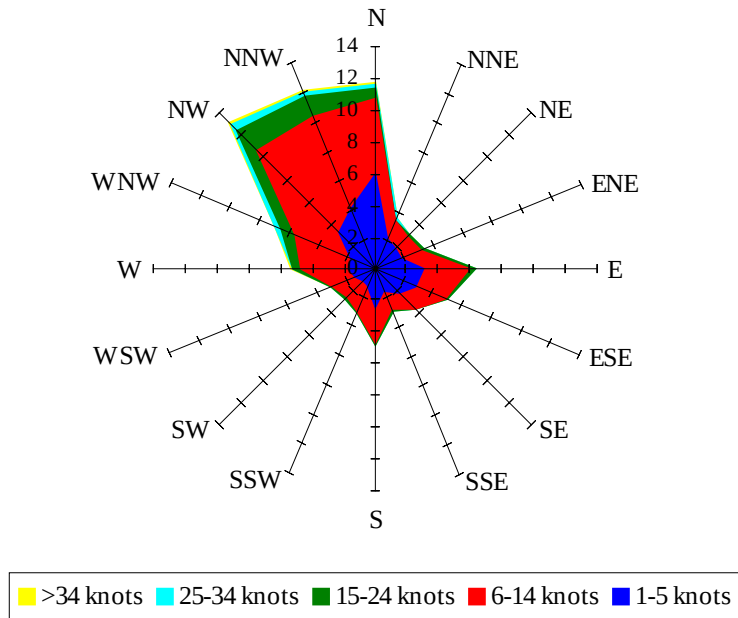
Labels of Percent Frequency on North Axis



Percent Calm = 11.04

Wind Summary - June, July, and August

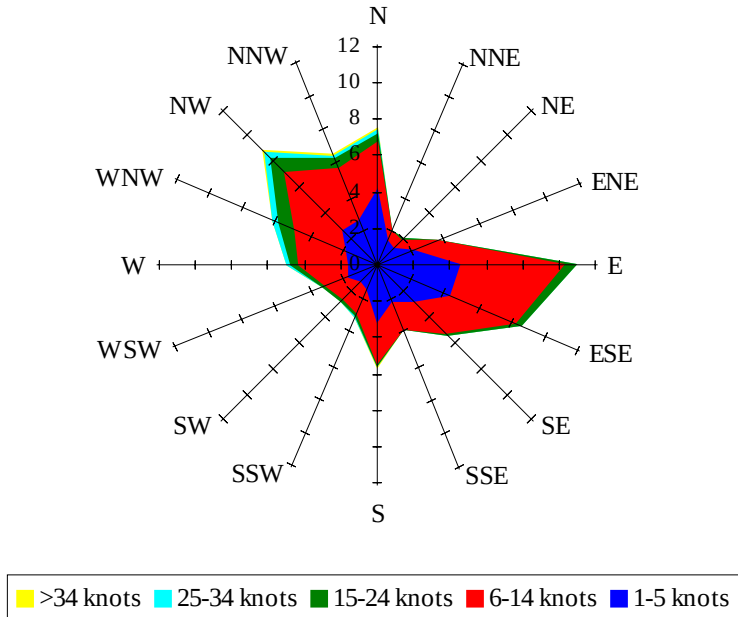
Labels of Percent Frequency on North Axis



Percent Calm = 10.29

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 15.63