

RIMINI, ITALY	
Latitude = 44.03 N	WMO No. 161490
Longitude = 12.62 E	Elevation = 43 feet
Period of Record = 1973 to 1996	Average Pressure = 29.92 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	95	72	83	10.2	SSW
0.4% Occurrence	88	74	106	8.2	E
1.0% Occurrence	86	73	105	7.7	E
2.0% Occurrence	84	73	106	7.7	E
Mean Daily Range	16	-	-	-	-
97.5% Occurrence	30	29	20	3.3	W
99.0% Occurrence	28	27	19	2.9	SSW
99.6% Occurrence	25	24	17	3.4	W
Median of Extreme Lows	21	20	13	5.3	W
	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	81	85	150	7.5	E
0.4% Occurrence	78	84	134	7.2	E
1.0% Occurrence	76	83	123	7.2	E
2.0% Occurrence	75	82	118	7.1	E
	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	155	83	1.02	8.5	NE
0.4% Occurrence	139	82	0.93	7.2	E
1.0% Occurrence	126	81	0.84	7.9	E
2.0% Occurrence	118	79	0.78	6.4	E
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		5	482	341	1263

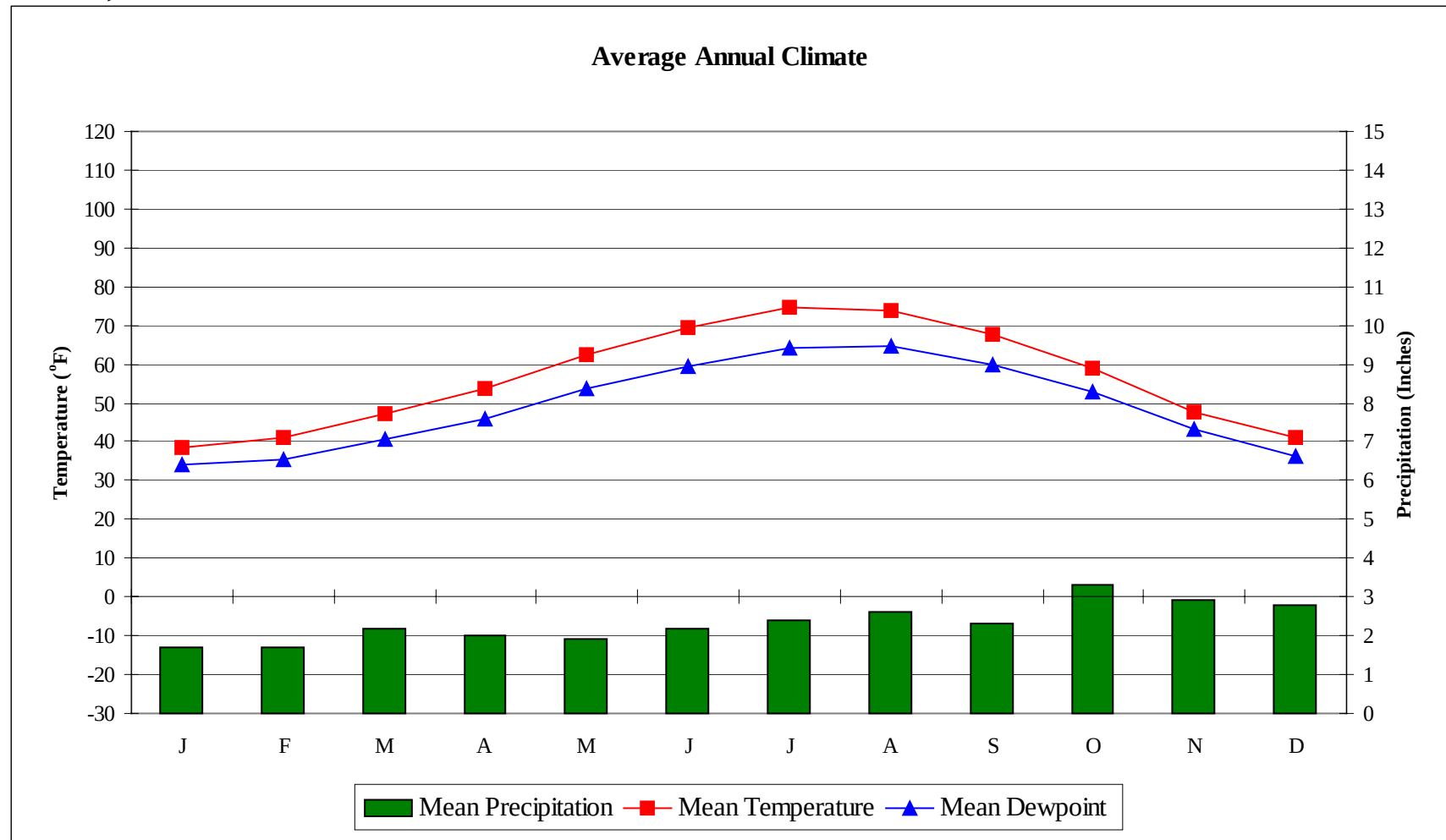
Other Site Data

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
7	N/A	N/A	1.8 + 0.5
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 (#)
58.8	N/A	N/A	34

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

RIMINI, ITALY

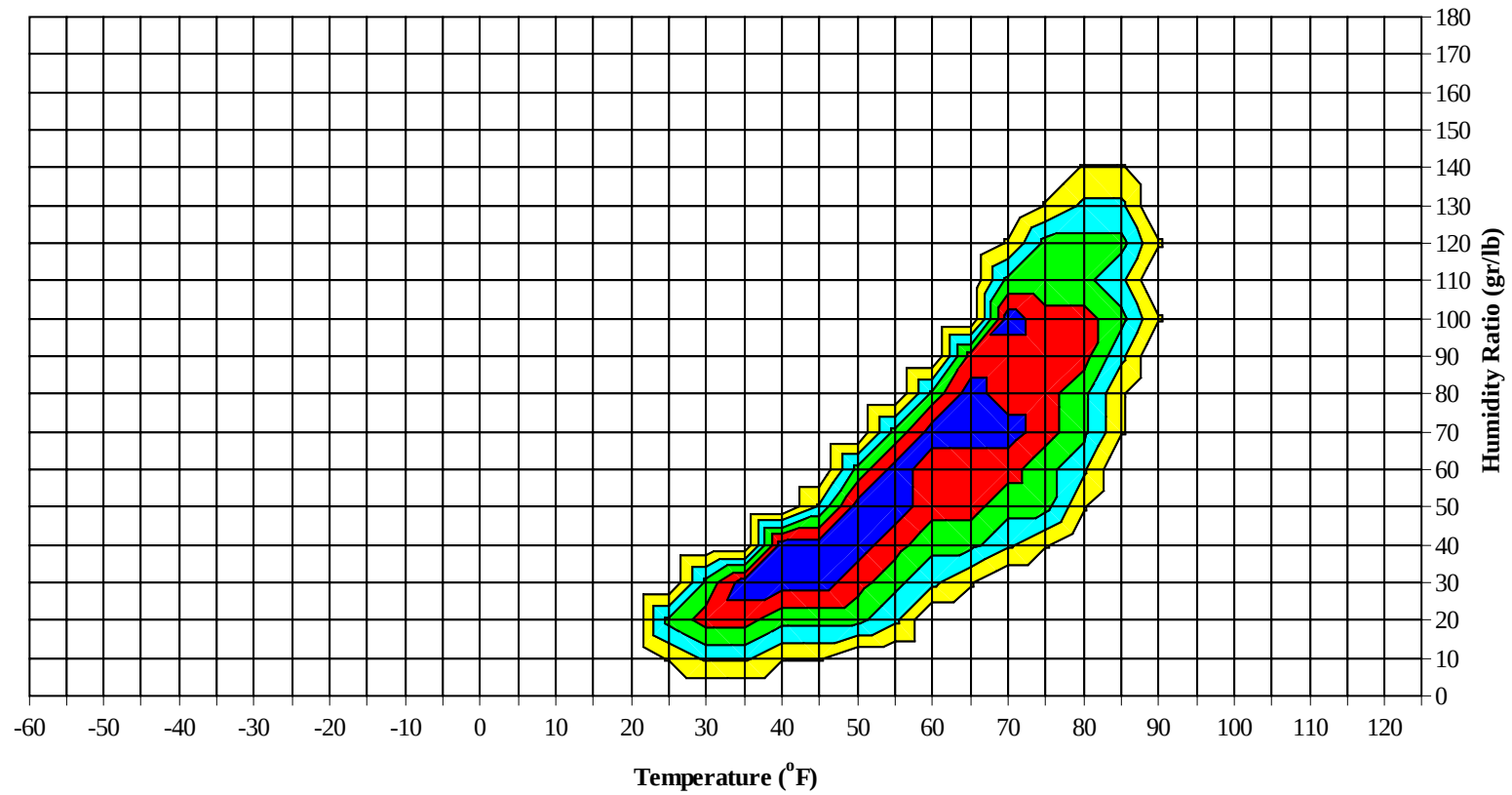
WMO No. 161490



RIMINI, ITALY

WMO No. 161490

Long Term Psychrometric Summary

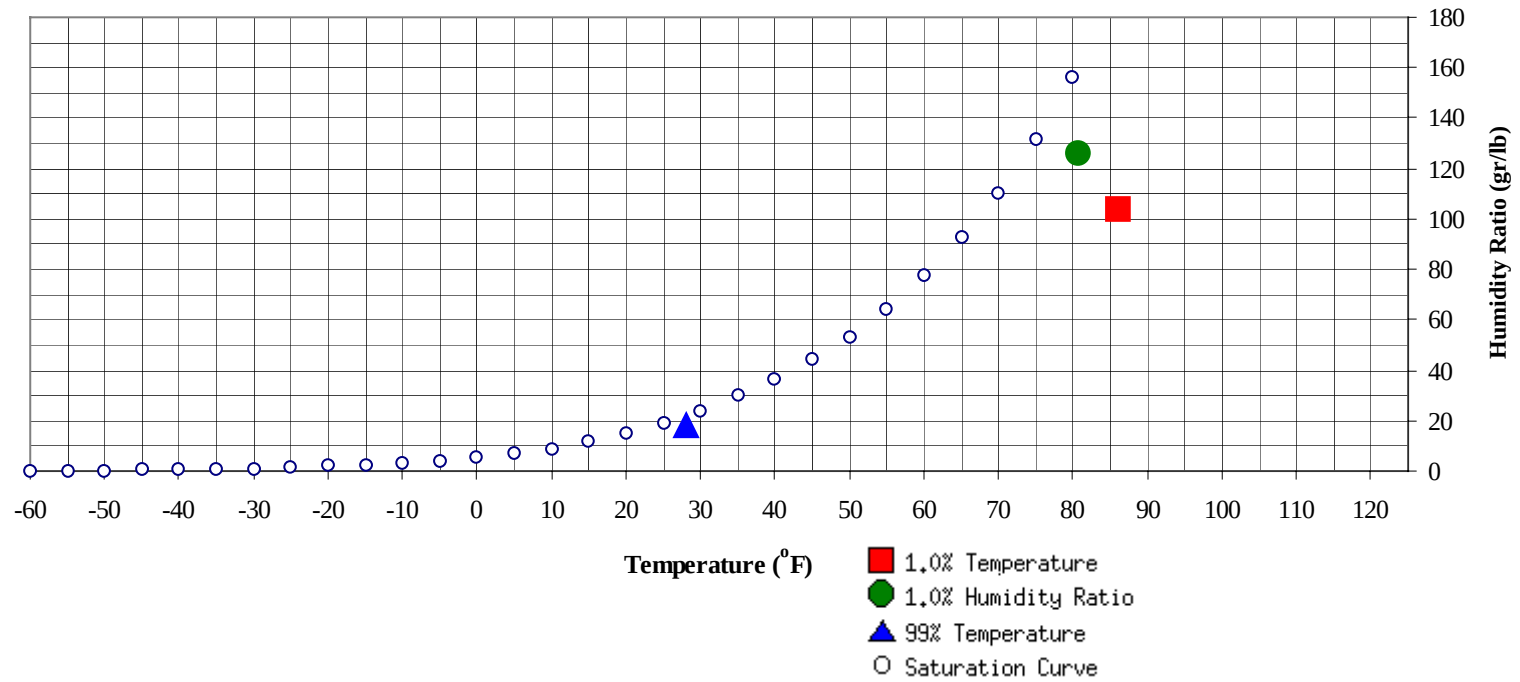


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

RIMINI, ITALY

WMO No. 161490

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)
	28	18.4	9.5		126	80.8	75.5	73.6	39.1

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	86	103.8	73.3	36.9

RIMINI, ITALY

WMO No. 161490

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		
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79												0		0	57.5
70 / 74								0	0	52.0		1	0	1	57.3
65 / 69	0	0		0	54.5		1	0	1	54.2	0	5	1	6	54.9
60 / 64	0	1	1	2	53.1	0	3	1	4	51.6	1	20	7	28	53.2
55 / 59	4	7	4	15	50.2	2	14	5	21	49.3	8	58	32	99	51.1
50 / 54	6	18	11	35	46.5	9	34	20	63	46.5	34	75	70	179	48.1
45 / 49	21	60	38	119	43.2	29	61	53	144	43.4	67	54	75	197	44.1
40 / 44	38	56	54	147	39.9	37	48	54	139	39.9	57	19	33	109	40.4
35 / 39	70	61	76	206	36.0	71	41	58	170	35.8	48	12	22	82	36.2
30 / 34	69	33	51	153	31.3	55	18	26	99	31.3	27	3	6	36	31.5
25 / 29	33	10	11	54	26.6	17	3	5	25	26.5	6	0	1	7	26.9
20 / 24	5	2	2	9	21.9	3	0	1	4	21.7	1	0	0	1	22.9
15 / 19	1	0	1	2	17.3	1	0	0	1	17.6					
10 / 14	1	0	0	1	12.2	0	0		0	13.0					
5 / 9	0	0	0	0	6.3										
0 / 4	0	0		0	2.6										

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.

RIMINI, ITALY

WMO No. 161490

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		
100 / 104															
95 / 99												0	0	0	73.7
90 / 94												1	0	1	75.4
85 / 89							0		0	65.5		6	2	8	71.1
80 / 84		0	0	0	63.3		4	1	5	66.7		42	18	60	70.1
75 / 79		1	0	1	60.4	0	30	12	42	65.4	7	85	54	146	67.3
70 / 74	0	5	2	7	58.0	4	70	40	114	62.6	30	66	72	167	64.4
65 / 69	1	21	7	29	57.0	10	58	44	112	60.5	49	23	42	114	62.5
60 / 64	4	70	33	107	55.2	43	55	71	169	58.2	85	14	36	135	59.7
55 / 59	27	88	79	194	52.4	97	23	56	176	54.7	54	4	13	71	55.8
50 / 54	78	42	74	194	49.0	68	7	19	94	50.6	14	0	2	16	51.4
45 / 49	76	11	33	120	44.9	23	1	4	28	45.8	1		0	1	46.1
40 / 44	37	2	9	48	40.7	3		0	3	41.2					
35 / 39	17	0	2	19	36.9	0		0	0	36.8					
30 / 34	0		0	0	31.9										
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															

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RIMINI, ITALY

WMO No. 161490

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		
100 / 104		0		0	78.0		0	0	0	71.0					
95 / 99		1	0	1	73.0		1	0	1	71.4					
90 / 94		7	3	10	73.1		7	2	9	74.7		0	0	0	71.0
85 / 89		30	12	42	73.8	0	25	8	33	74.3	0	2	0	2	70.4
80 / 84	3	98	59	160	72.2	4	90	53	147	73.0	0	20	4	24	70.4
75 / 79	26	82	87	196	69.0	17	77	78	172	69.4	3	82	35	120	68.6
70 / 74	73	22	53	148	66.6	66	34	60	160	66.8	17	76	74	168	65.5
65 / 69	70	6	21	97	64.1	79	9	28	116	64.4	41	33	53	127	63.2
60 / 64	57	2	11	70	60.5	62	5	15	82	60.8	89	21	49	159	60.2
55 / 59	17	0	1	18	55.9	19	1	3	23	56.1	67	6	21	94	55.7
50 / 54	1			1	52.4	1	0	0	1	52.8	21	1	3	25	50.9
45 / 49											2	0	0	2	45.5
40 / 44															
35 / 39															
30 / 34															
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															

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RIMINI, ITALY

WMO No. 161490

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		
100 / 104															
95 / 99															
90 / 94															
85 / 89		0		0	69.0										
80 / 84	0	1	0	1	65.6										
75 / 79	0	8	1	9	65.2										
70 / 74	2	40	14	56	64.5	0	1	0	1	61.7	0	0		0	59.5
65 / 69	9	46	30	85	61.8	0	5	1	6	59.0	0	1	0	1	56.9
60 / 64	46	74	66	186	58.8	4	16	7	27	57.0	2	5	2	9	54.6
55 / 59	73	50	72	195	54.7	18	48	32	98	53.5	7	10	9	26	51.6
50 / 54	63	22	42	127	50.5	44	71	59	175	49.4	10	31	12	53	47.4
45 / 49	40	7	19	66	45.6	65	58	70	193	44.9	35	65	52	152	43.8
40 / 44	12	1	3	16	41.2	44	23	39	106	40.7	45	55	58	158	40.2
35 / 39	2	0		2	37.3	45	14	26	85	36.6	72	55	76	204	36.2
30 / 34						18	3	5	26	31.7	54	19	32	105	31.5
25 / 29						2	0	0	2	27.2	21	5	6	32	26.7
20 / 24						0			0	23.0	2	1	0	3	22.4
15 / 19											0	0	0	0	16.6
10 / 14											0			0	14.0
5 / 9															
0 / 4															

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.

RIMINI, ITALY

WMO No. 161490

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

Period of Record = 1973 to 1996

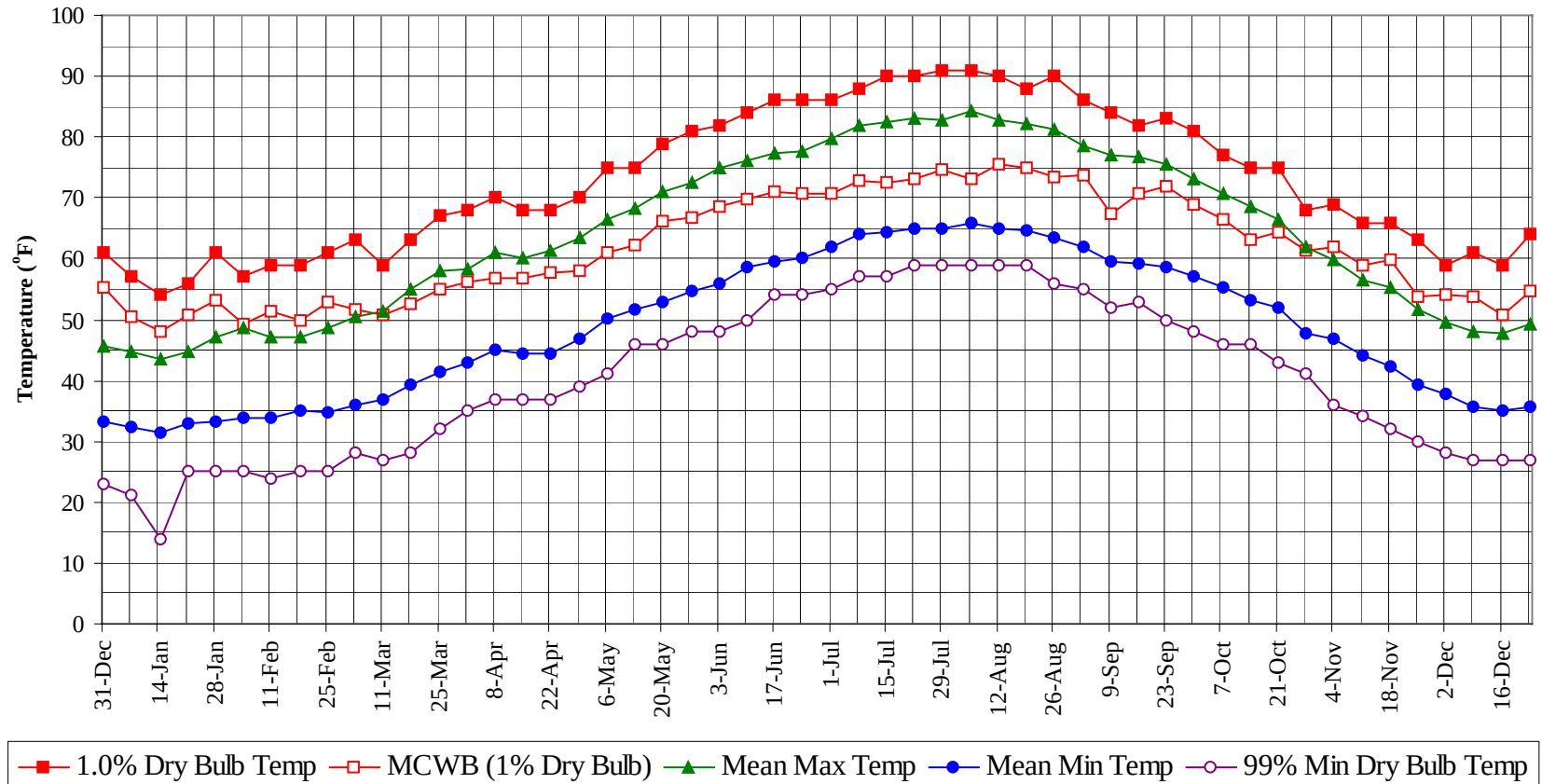
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
100 / 104		0	0	0	74.5
95 / 99		2	1	3	72.2
90 / 94		15	5	20	73.9
85 / 89	0	61	22	83	73.6
80 / 84	7	253	134	395	71.9
75 / 79	52	361	263	676	68.4
70 / 74	188	312	311	811	65.2
65 / 69	256	206	226	688	62.4
60 / 64	388	284	299	971	58.6
55 / 59	388	309	327	1024	53.8
50 / 54	350	302	315	967	49.0
45 / 49	363	321	348	1032	44.2
40 / 44	276	205	254	735	40.3
35 / 39	330	185	264	779	36.1
30 / 34	228	79	123	430	31.4
25 / 29	80	19	25	124	26.6
20 / 24	11	3	3	17	22.0
15 / 19	2	1	1	4	17.3
10 / 14	1	0	0	1	12.5
5 / 9	0	0	0	0	6.3
0 / 4	0	0		0	2.6

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.

RIMINI, ITALY

WMO No. 161490

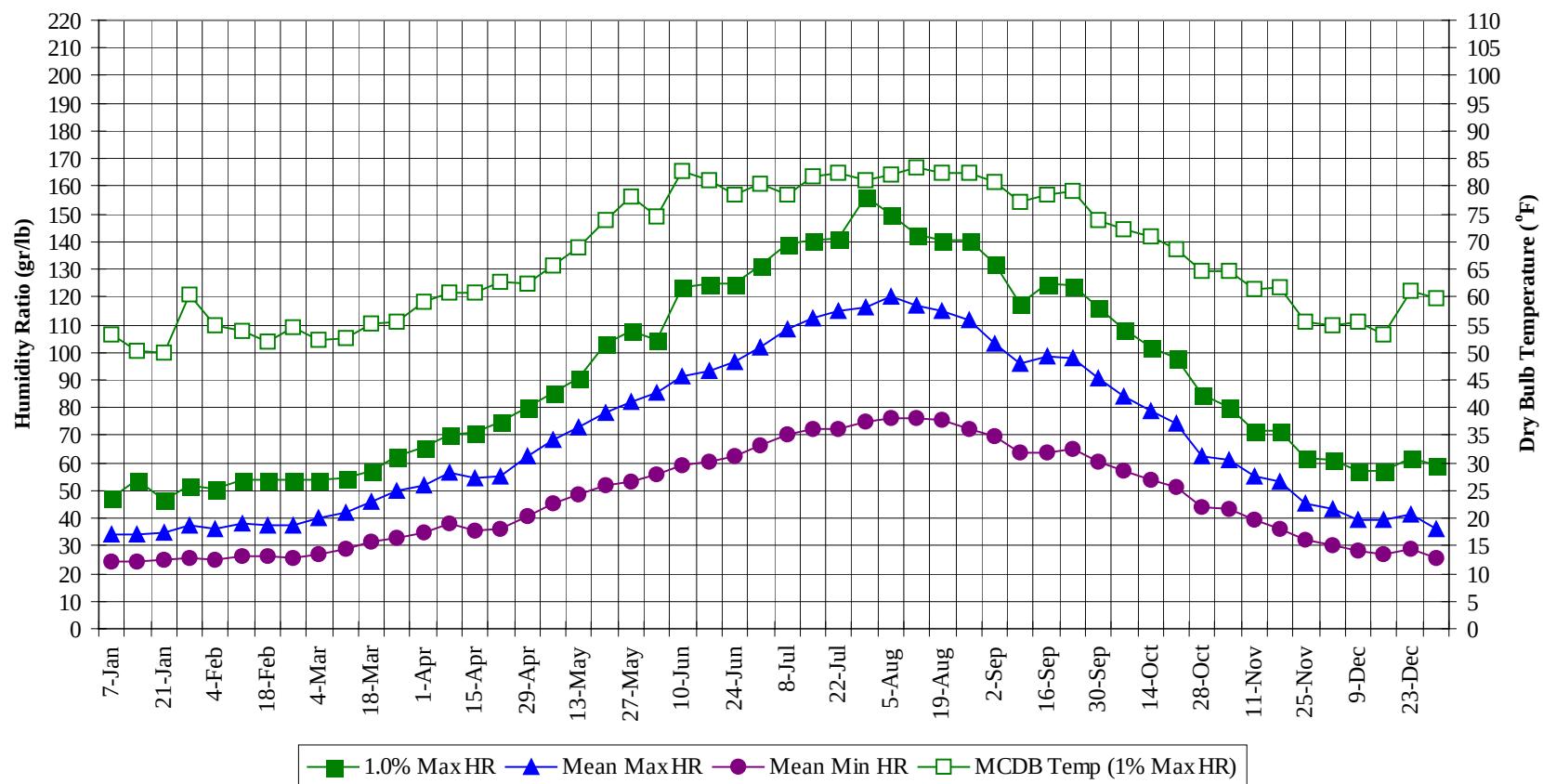
Annual Summary of Temperatures



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WMO No. 161490

Long Term Humidity and Dry Bulb Temperature Summary



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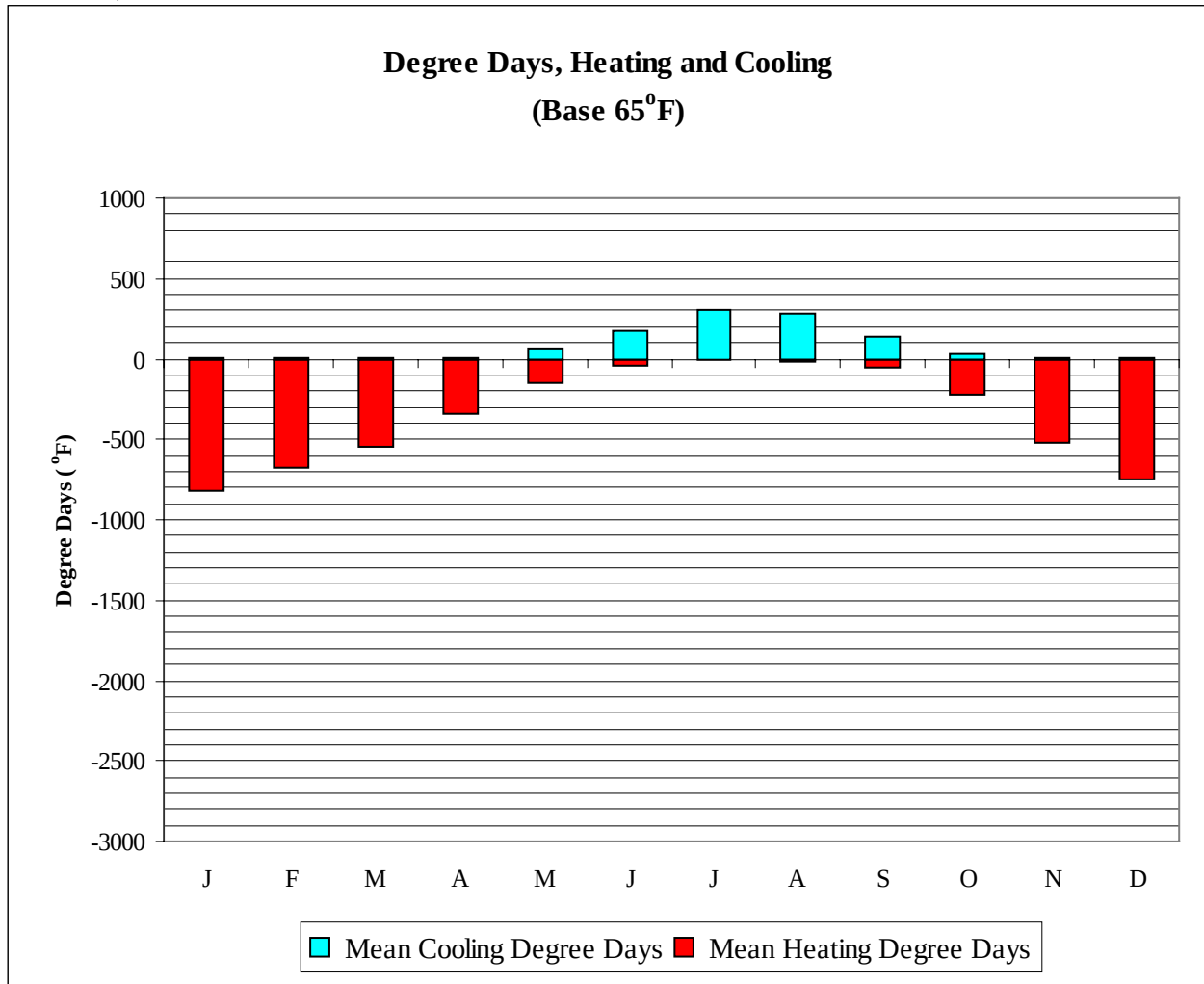
WMO No. 161490

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	57.0	50.6	44.8	32.4	21.0	47.6	53.3	34.3	24.2
14-Jan	54.0	47.9	43.5	31.5	14.0	53.9	50.2	33.9	24.6
21-Jan	56.0	50.8	44.8	33.1	25.0	46.9	49.9	34.8	25.1
28-Jan	61.0	53.2	47.1	33.4	25.0	51.8	60.4	37.3	25.7
4-Feb	57.0	49.2	48.7	34.0	25.0	50.4	54.7	36.4	25.1
11-Feb	59.0	51.3	47.2	33.7	24.0	53.9	54.0	38.1	26.4
18-Feb	59.0	49.8	47.2	35.1	25.0	53.9	51.8	37.4	26.6
25-Feb	61.0	52.9	48.6	34.8	25.0	53.9	54.4	37.6	25.7
4-Mar	63.0	51.8	50.6	35.9	28.0	53.9	52.3	40.2	26.6
11-Mar	59.0	50.9	51.4	36.8	27.0	54.6	52.6	42.3	29.2
18-Mar	63.0	52.5	55.0	39.2	28.0	57.4	55.3	46.2	31.3
25-Mar	67.0	55.0	58.0	41.5	32.0	62.3	55.4	50.0	32.9
1-Apr	68.0	56.1	58.5	43.0	35.0	65.8	59.1	51.7	34.9
8-Apr	70.0	56.8	61.1	44.9	37.0	70.0	60.7	56.3	38.1
15-Apr	68.0	56.9	60.2	44.4	37.0	70.7	60.9	54.5	35.2
22-Apr	68.0	57.6	61.4	44.3	37.0	74.9	62.9	55.3	36.1
29-Apr	70.0	58.1	63.6	46.9	39.0	79.8	62.5	62.1	40.9
6-May	75.0	61.0	66.6	50.1	41.0	85.4	65.5	68.1	45.3
13-May	75.0	62.3	68.3	51.7	46.0	90.3	69.1	72.7	48.5
20-May	79.0	66.2	71.0	53.0	46.0	102.9	73.7	78.2	51.9
27-May	81.0	66.8	72.6	54.8	48.0	107.8	78.0	82.0	53.4
3-Jun	82.0	68.6	74.9	56.0	48.0	104.3	74.6	85.4	55.8
10-Jun	84.0	69.9	76.2	58.6	50.0	123.2	82.8	91.4	58.8
17-Jun	86.0	71.1	77.4	59.5	54.0	124.6	81.2	93.4	60.4
24-Jun	86.0	70.6	77.6	60.1	54.0	124.6	78.4	96.7	62.5
1-Jul	86.0	70.8	79.8	61.9	55.0	131.6	80.6	101.6	66.4
8-Jul	88.0	72.9	81.8	64.2	57.0	139.3	78.5	108.4	70.0
15-Jul	90.0	72.7	82.4	64.4	57.0	140.7	81.9	112.5	72.0
22-Jul	90.0	73.0	83.1	65.1	59.0	141.4	82.4	115.0	72.2
29-Jul	91.0	74.7	82.9	65.0	59.0	156.1	81.0	116.2	75.0
5-Aug	91.0	73.1	84.4	65.8	59.0	149.8	82.2	120.2	76.0
12-Aug	90.0	75.4	82.8	64.8	59.0	142.8	83.3	117.2	75.9
19-Aug	88.0	74.8	82.2	64.7	59.0	140.7	82.3	115.1	75.8
26-Aug	90.0	73.4	81.4	63.4	56.0	140.7	82.5	111.5	71.9
2-Sep	86.0	73.7	78.4	62.0	55.0	132.3	80.8	103.0	69.4
9-Sep	84.0	67.4	77.0	59.5	52.0	117.6	77.0	95.9	63.9
16-Sep	82.0	70.6	76.7	59.1	53.0	124.6	78.4	98.7	63.5
23-Sep	83.0	71.9	75.4	58.6	50.0	123.9	79.2	98.0	65.0
30-Sep	81.0	69.0	73.1	57.1	48.0	116.2	74.0	90.4	60.1
7-Oct	77.0	66.5	70.8	55.3	46.0	108.5	72.3	84.0	57.5
14-Oct	75.0	63.2	68.7	53.2	46.0	101.5	70.8	79.0	53.5
21-Oct	75.0	64.4	66.4	51.8	43.0	98.0	68.6	74.5	51.1
28-Oct	68.0	61.4	61.9	47.8	41.0	84.7	64.5	62.5	43.9
4-Nov	69.0	62.0	59.8	46.9	36.0	79.8	64.7	61.0	43.7
11-Nov	66.0	59.0	56.4	44.0	34.0	71.4	61.5	55.2	39.4
18-Nov	66.0	59.8	55.4	42.2	32.0	71.4	61.7	53.0	36.4
25-Nov	63.0	53.6	51.7	39.1	30.0	61.6	55.5	45.2	32.0
2-Dec	59.0	54.0	49.7	37.8	28.0	60.9	54.7	43.4	30.2
9-Dec	61.0	53.7	48.1	35.6	27.0	57.4	55.4	39.5	28.2
16-Dec	59.0	50.6	47.8	35.1	27.0	57.4	53.2	39.2	27.1
23-Dec	64.0	54.8	49.2	35.8	27.0	61.6	61.1	41.5	28.8
31-Dec	61.0	55.2	45.6	33.1	23.0	58.8	59.8	36.1	25.4

RIMINI, ITALY

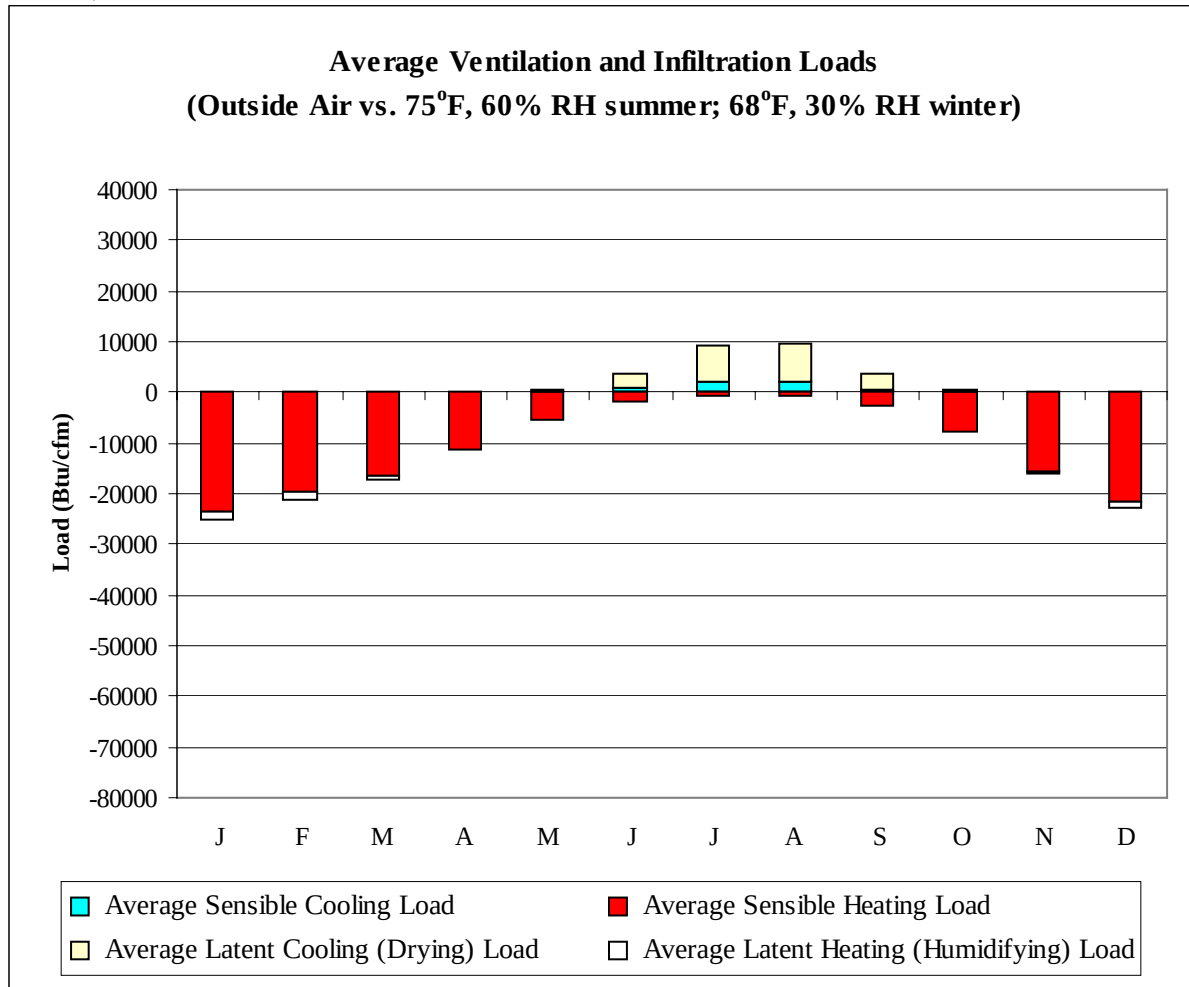
WMO No. 161490



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	816
FEB	0	674
MAR	1	547
APR	4	344
MAY	61	149
JUN	175	43
JUL	310	11
AUG	285	14
SEP	132	58
OCT	26	218
NOV	1	520
DEC	0	745
ANN	995	4139

RIMINI, ITALY

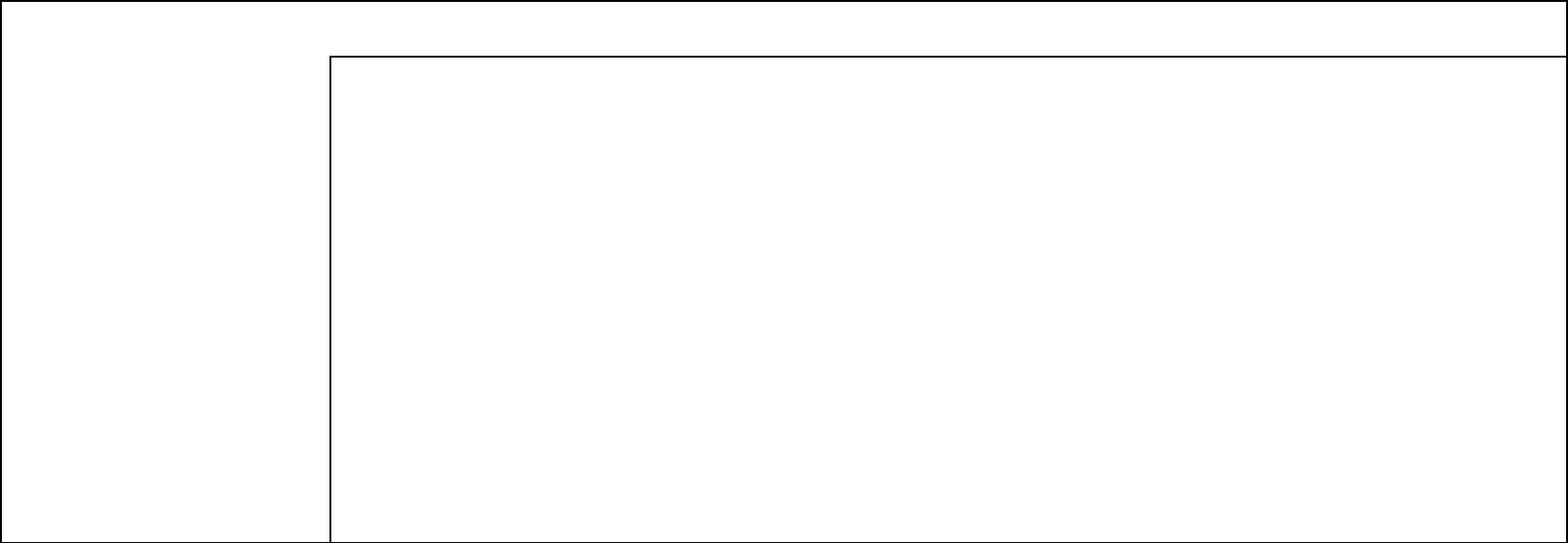
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	Average Sensible Cooling Load	Average Sensible Heating Load	Average Latent Cooling Load	Average Latent Heating Load
	(Btu/cfm)	(Btu/cfm)	(Btu/cfm)	(Btu/cfm)
JAN	0	-23553	0	-1666
FEB	0	-19675	0	-1324
MAR	0	-16584	0	-598
APR	2	-11180	8	-133
MAY	98	-5515	559	-4
JUN	795	-1944	2700	0
JUL	2283	-649	7124	0
AUG	2013	-799	7600	0
SEP	384	-2557	3205	-4
OCT	19	-7687	543	-12
NOV	0	-15789	4	-361
DEC	0	-21704	0	-1187
ANN	5594	-127636	21743	-5289

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

No Solar Radiation
Data Available

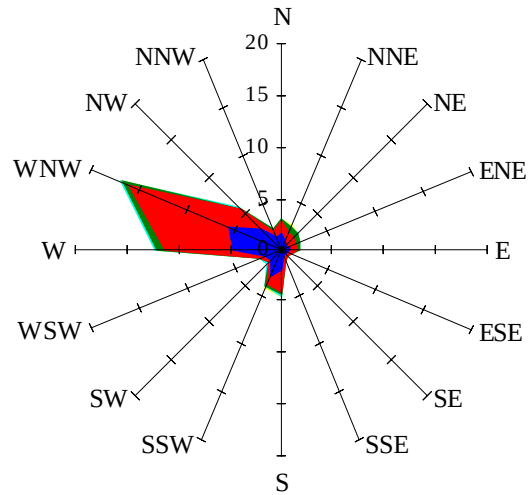


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

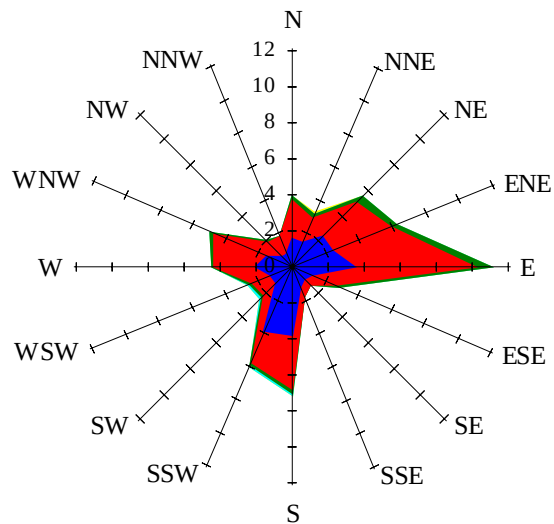
Labels of Percent Frequency on North Axis



Percent Calm = 36.10

Wind Summary - March, April, and May

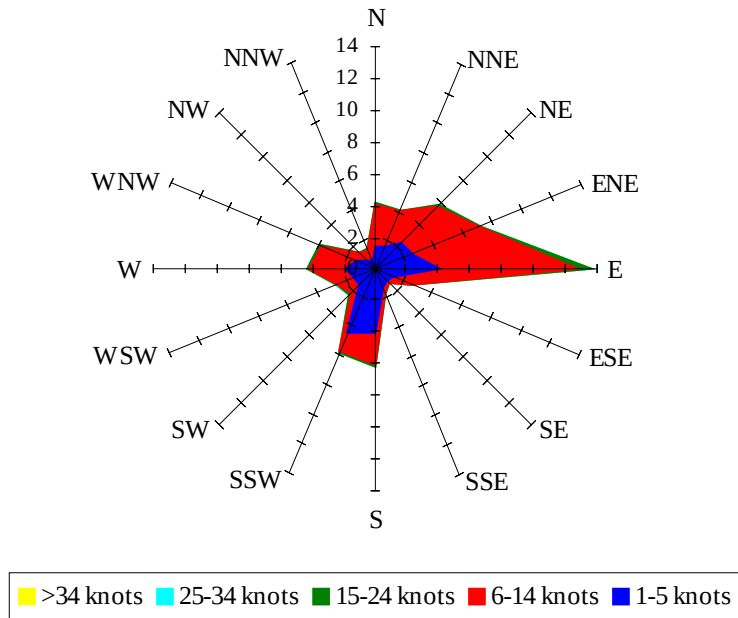
Labels of Percent Frequency on North Axis



Percent Calm = 33.43

Wind Summary - June, July, and August

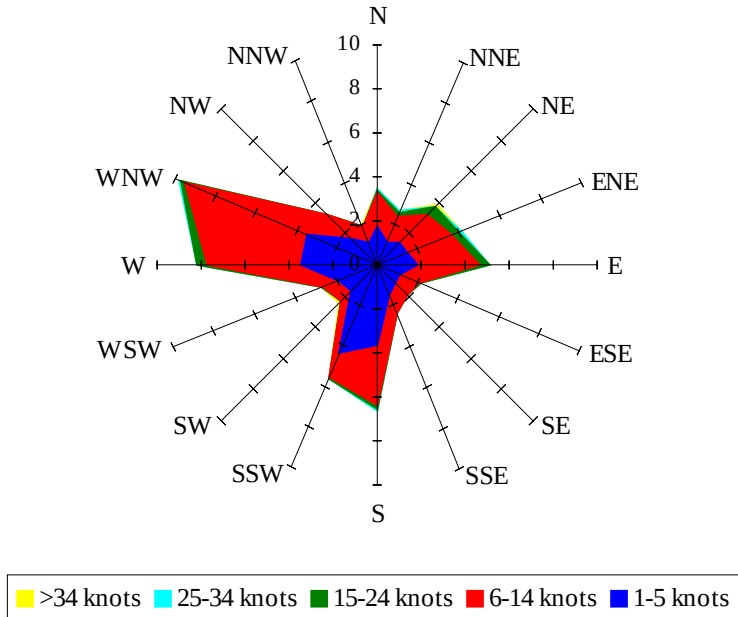
Labels of Percent Frequency on North Axis



Percent Calm = 31.79

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 34.00