

WIESBADEN (USA-AF) DL

Latitude = 50.05 N

Longitude = 8.33 E

Period of Record = 1973 to 1996

WMO No. 106330

Elevation = 463 feet

Average Pressure = 29.50 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	90	69	73	6.4	VARIABLE
0.4% Occurrence	86	68	73	6.8	E
1.0% Occurrence	82	66	69	6.5	E
2.0% Occurrence	81	65	69	6.7	E
Mean Daily Range	12	-	-	-	-
97.5% Occurrence	27	25	17	5.0	ENE
99.0% Occurrence	23	22	14	5.7	ENE
99.6% Occurrence	18	16	11	4.9	ENE
Median of Extreme Lows	19	17	11	5.2	ENE
	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	72	85	94	6.2	S
0.4% Occurrence	70	83	90	5.7	VARIABLE
1.0% Occurrence	68	81	82	5.6	E
2.0% Occurrence	66	77	79	5.3	VARIABLE
	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	99	75	0.65	4.4	S
0.4% Occurrence	93	74	0.61	5.7	SSE
1.0% Occurrence	88	69	0.57	4.7	S
2.0% Occurrence	86	71	0.57	4.2	N
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		4	195	5	161

Other Site Data

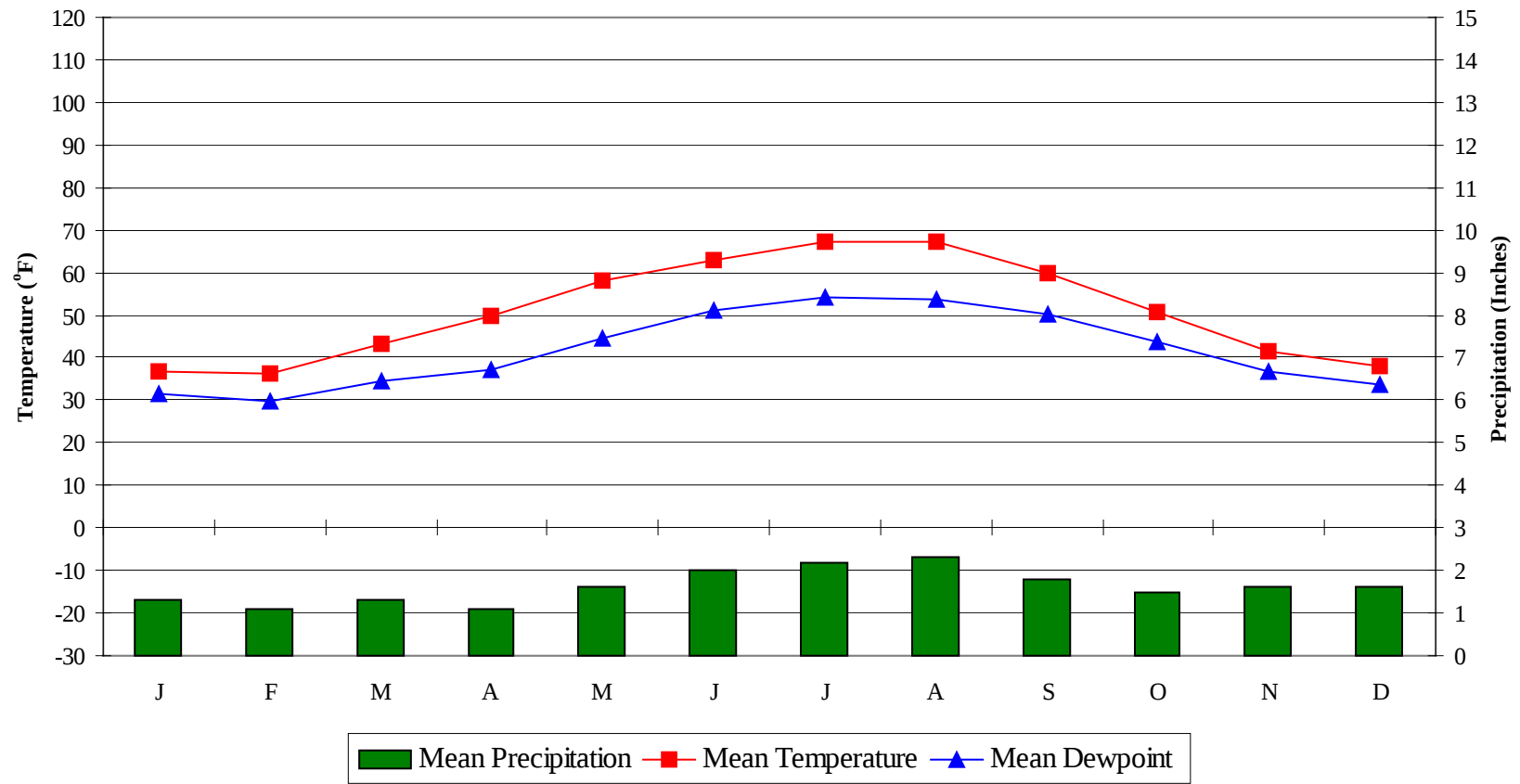
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
8	N/A	N/A	0.1 + 0.1
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
53.9	N/A	N/A	19

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

WIESBADEN (USA-AF) DL

WMO No. 106330

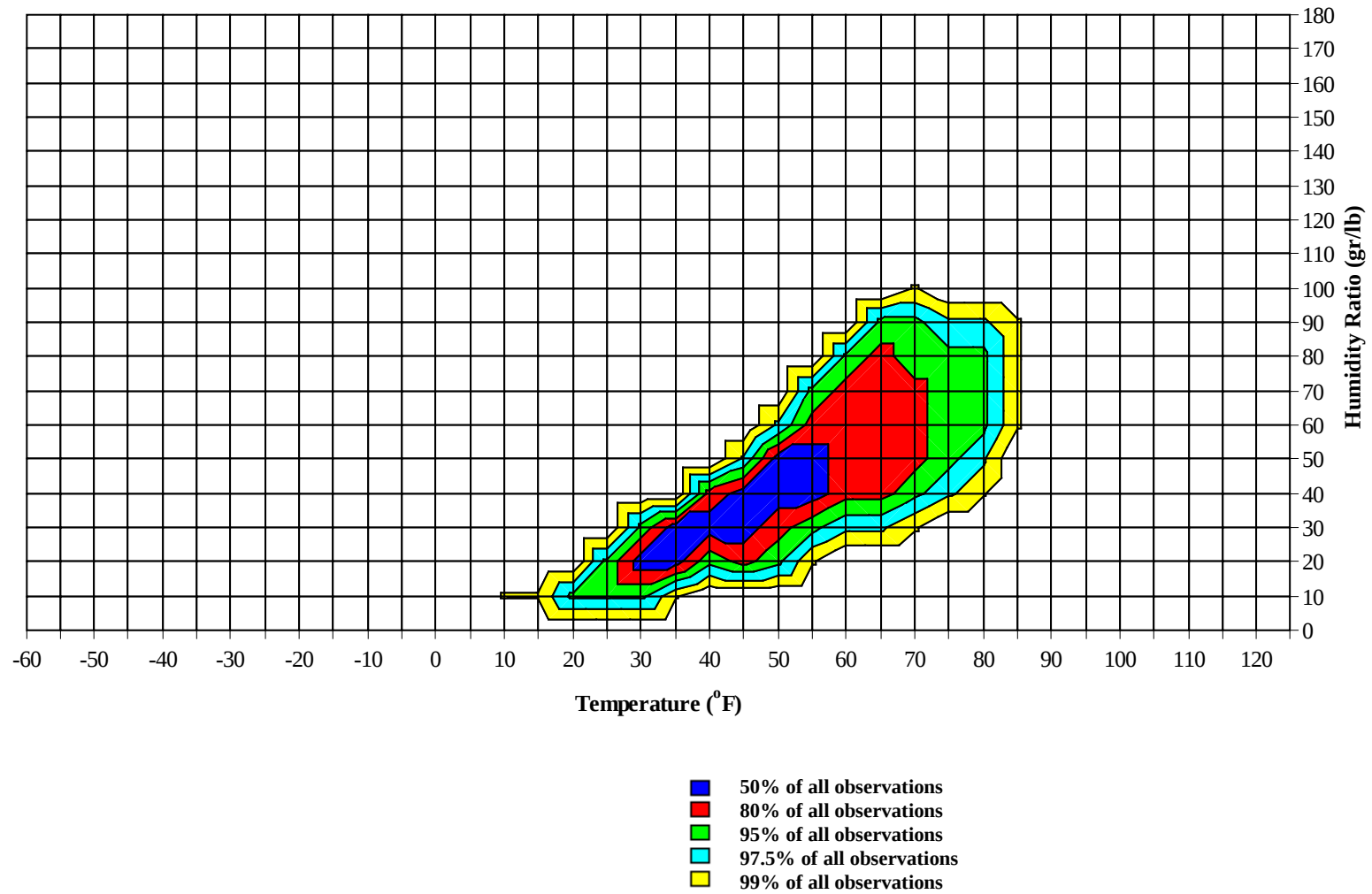
Average Annual Climate



WIESBADEN (USA-AF) DL

WMO No. 106330

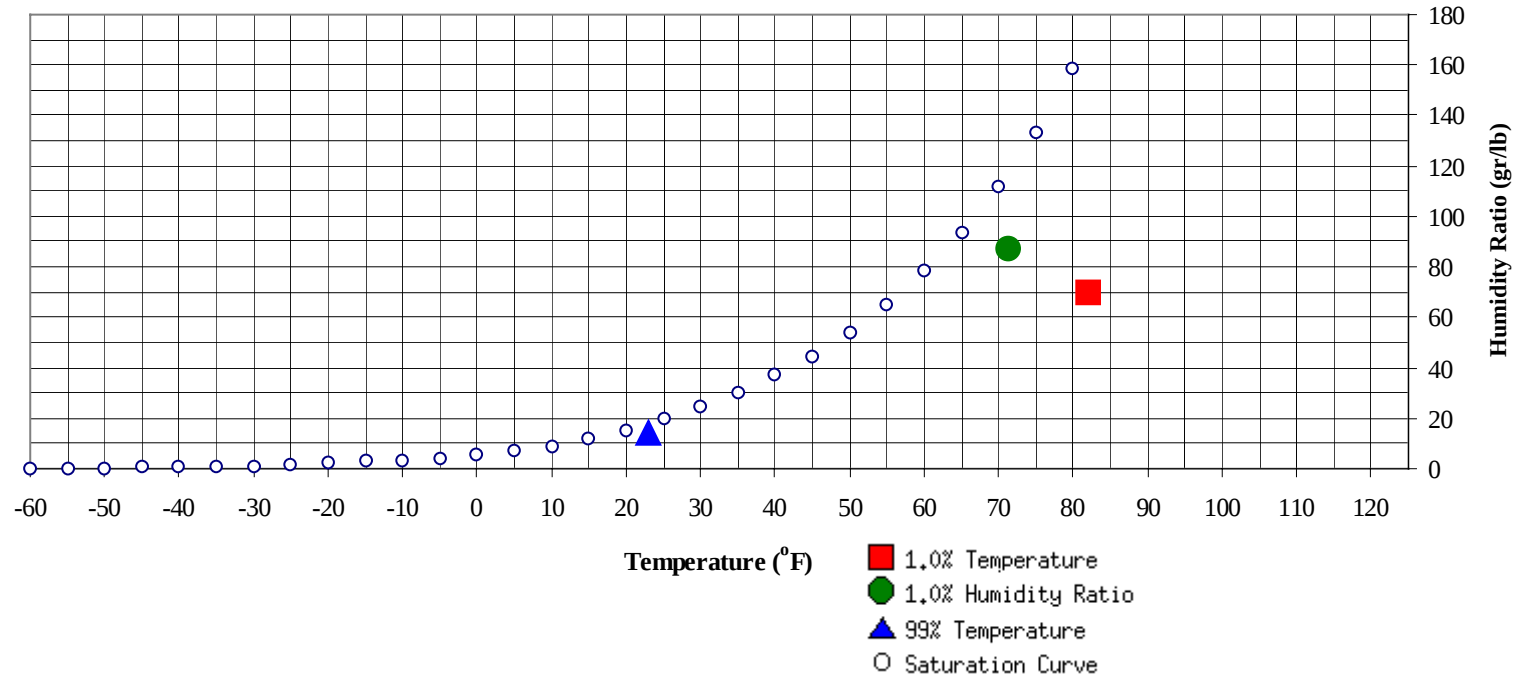
Long Term Psychrometric Summary



WIESBADEN (USA-AF) DL

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Psychrometric Summary of Peak Design Values



	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)	1.0% Humidity Ratio	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
99% Dry Bulb	23	14.1	7.7		87.5	71.2	65.6	62.6	30.7

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	82	69.4	65.7	30.6

WIESBADEN (USA-AF) DL

WMO No. 106330

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															
75 / 79															
70 / 74												1	1	2	55.2
65 / 69												2	1	3	54.8
60 / 64							1	0	1	55.2	0	10	7	16	52.5
55 / 59		2		2	51.0	1	3	3	8	49.0	2	21	16	40	49.6
50 / 54	7	10	8	25	48.0	1	11	7	18	46.5	12	43	42	97	46.3
45 / 49	30	47	39	117	43.1	9	35	26	71	42.1	50	70	62	183	42.0
40 / 44	31	37	36	104	39.3	21	37	34	91	38.9	45	38	40	124	38.6
35 / 39	65	65	75	205	35.5	80	62	76	218	34.9	73	45	55	173	34.6
30 / 34	66	51	58	175	30.9	59	41	46	146	30.3	48	13	21	82	30.2
25 / 29	29	20	17	66	25.5	35	24	24	82	25.2	15	3	3	22	24.8
20 / 24	9	5	6	21	21.1	8	6	5	19	20.7	2	1	0	3	21.2
15 / 19	5	6	3	14	16.6	6	2	2	10	16.2	0	0	0	0	18.0
10 / 14	5	4	5	13	11.6	2	2	1	5	11.1					
5 / 9	1	1	0	2	6.6	1	1		2	7.1					
0 / 4						0			0	3.0					

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.

WIESBADEN (USA-AF) DL

WMO No. 106330

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															
90 / 94															
85 / 89															
80 / 84		0	0	0	61.7		0		0	69.0		0	0	0	72.2
75 / 79		3	2	6	58.9		16	9	25	60.4		4	2	6	68.8
70 / 74		9	6	15	55.9	1	38	26	64	58.3		17	10	27	65.9
65 / 69	1	10	7	18	53.9	3	32	24	59	56.2	8	46	33	87	61.0
60 / 64	2	29	21	53	51.7	60	53	64	177	50.8	13	32	32	78	58.7
55 / 59	10	50	41	101	48.7	22	58	53	132	54.1	53	59	60	172	56.3
50 / 54	38	56	59	152	45.8	76	37	42	155	47.5	76	39	50	165	52.9
45 / 49	73	49	56	178	42.0	64	12	25	89	43.0	64	11	28	103	49.5
40 / 44	44	19	23	86	38.5	52	1	4	27	39.5	21	1	3	25	44.2
35 / 39	50	13	21	84	34.7	22					3		1	4	39.8
30 / 34	20	2	4	25	30.6	10		1	11	36.2	1		0	1	35.4
25 / 29	2		0	2	26.5	1			1	32.0	0		0	0	31.0
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															

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WIESBADEN (USA-AF) DL

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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		0	0	0	70.8		1	0	1	71.0					
90 / 94		5	3	8	68.9		4	3	7	69.0		0		0	65.5
85 / 89		11	5	17	67.8		6	4	10	67.9		1	0	1	65.8
80 / 84	0	29	16	45	66.3	0	33	19	53	65.6		3	1	4	63.8
75 / 79	3	44	30	78	64.0	2	49	32	83	63.5		13	7	20	63.6
70 / 74	15	61	51	128	61.4	14	63	55	132	61.5	0	34	20	54	61.1
65 / 69	30	36	41	107	60.2	30	35	41	105	59.8	5	37	25	66	58.8
60 / 64	80	48	64	192	57.4	93	39	59	192	57.7	36	75	72	183	56.7
55 / 59	83	13	32	128	54.0	72	15	29	117	53.6	82	56	74	212	53.0
50 / 54	32	1	4	37	50.1	31	2	5	38	50.0	73	20	34	126	49.4
45 / 49	4	0	0	4	46.1	5		0	5	45.6	35	2	8	46	45.0
40 / 44											8	0	0	8	41.0
35 / 39											1			1	37.7
30 / 34															
25 / 29															
20 / 24															
15 / 19															
10 / 14															
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.

WIESBADEN (USA-AF) DL

WMO No. 106330

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															
75 / 79		1	0	1	65.3										
70 / 74		3	2	5	61.1										
65 / 69		8	3	11	59.0										
60 / 64	2	38	19	60	56.6		0		0	53.0					
55 / 59	28	57	53	138	52.8	1	8	2	11	51.5	1	4	4	9	51.7
50 / 54	56	66	64	186	48.4	12	37	30	79	48.5	16	19	16	50	48.0
45 / 49	78	51	62	191	43.5	56	77	64	196	43.6	30	40	30	100	43.7
40 / 44	37	14	24	74	39.8	45	46	53	144	39.6	33	42	46	121	39.8
35 / 39	33	10	18	61	36.3	67	43	52	162	35.9	72	80	82	233	35.6
30 / 34	12	1	2	15	31.4	38	20	27	85	30.7	58	45	47	151	30.8
25 / 29	1			1	27.5	19	9	11	39	26.2	23	13	19	55	25.5
20 / 24						2	0	1	4	21.8	7	3	4	14	21.1
15 / 19						0	0		0	19.0	8	2	0	11	17.3
10 / 14											0	1	0	1	11.8
5 / 9															
0 / 4															

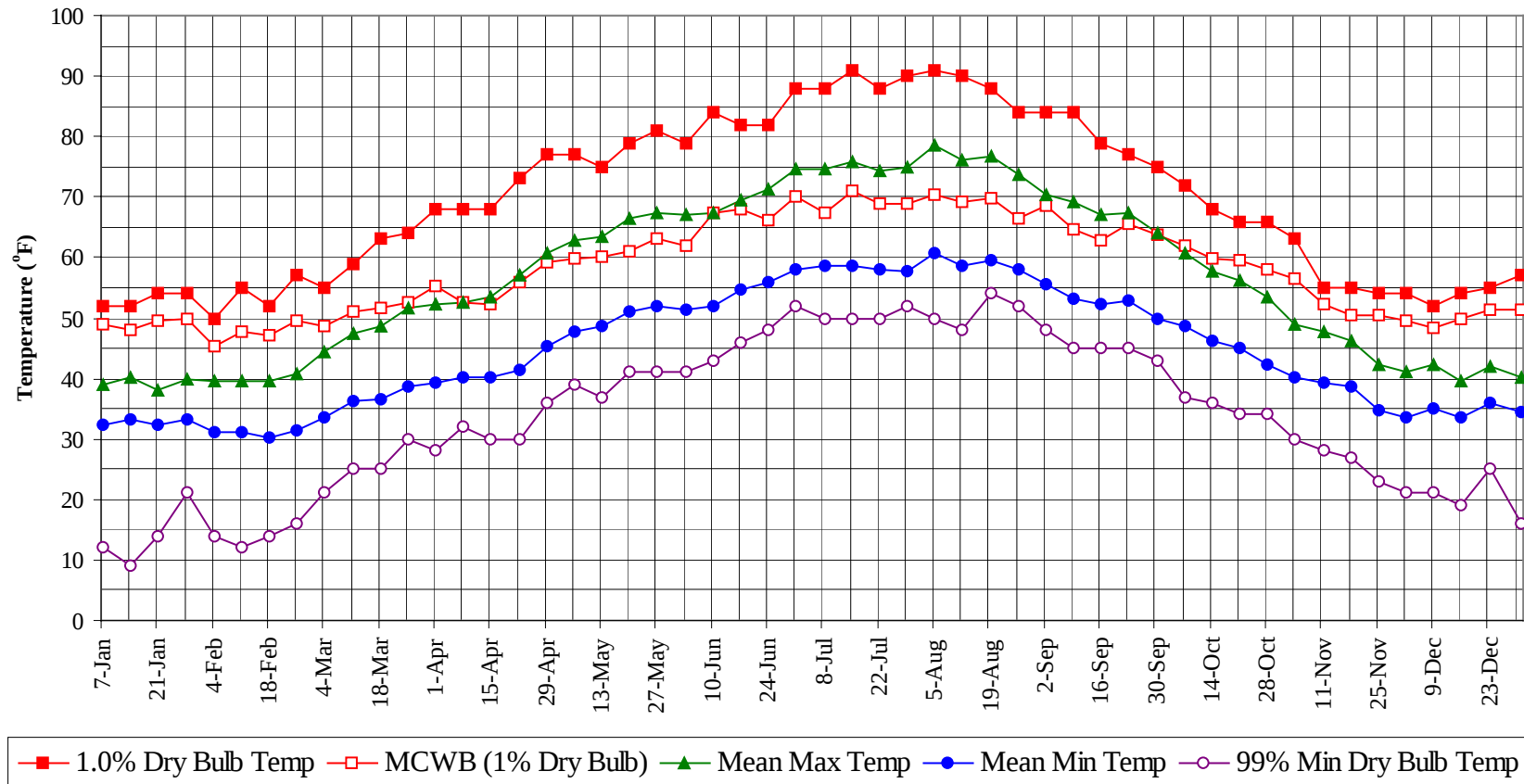
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

WIESBADEN (USA-AF) DL WMO No. 106330
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)
Period of Record = 1973 to 1996

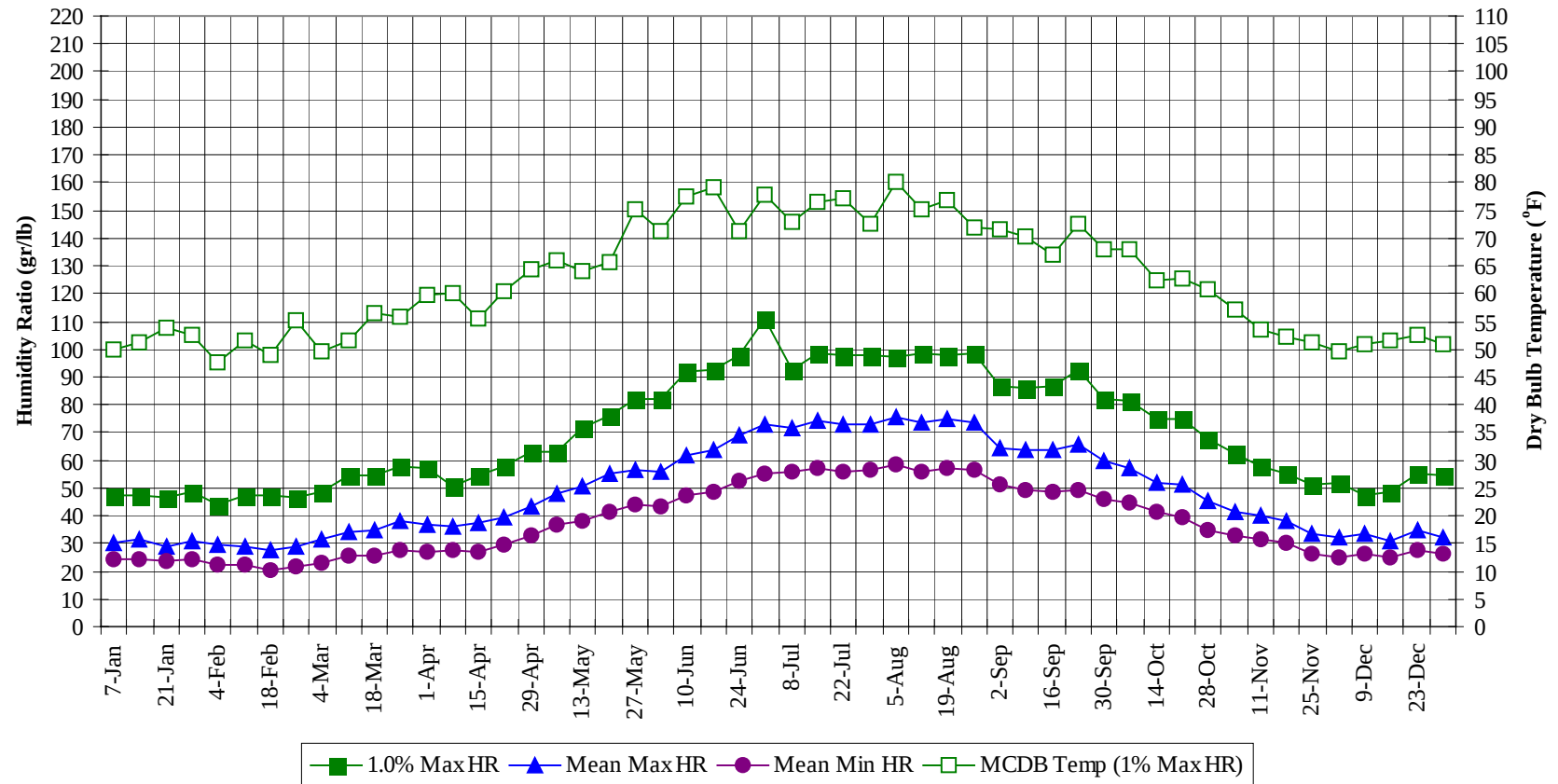
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
95 / 99		1	0	1	70.9
90 / 94		9	7	16	69.0
85 / 89		20	11	32	68.0
80 / 84	0	81	49	131	65.7
75 / 79	6	152	105	263	63.3
70 / 74	41	251	201	493	60.7
65 / 69	85	194	181	459	58.7
60 / 64	308	361	370	1039	56.2
55 / 59	442	327	382	1152	52.2
50 / 54	434	314	340	1088	48.0
45 / 49	437	383	370	1190	43.0
40 / 44	280	233	251	764	39.3
35 / 39	431	316	363	1111	35.3
30 / 34	287	174	194	654	30.6
25 / 29	115	68	71	255	25.5
20 / 24	27	16	16	59	21.0
15 / 19	17	11	6	34	16.7
10 / 14	7	7	4	18	11.5
5 / 9	2	1	0	3	6.8
0 / 4	0			0	3.0

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.

Annual Summary of Temperatures



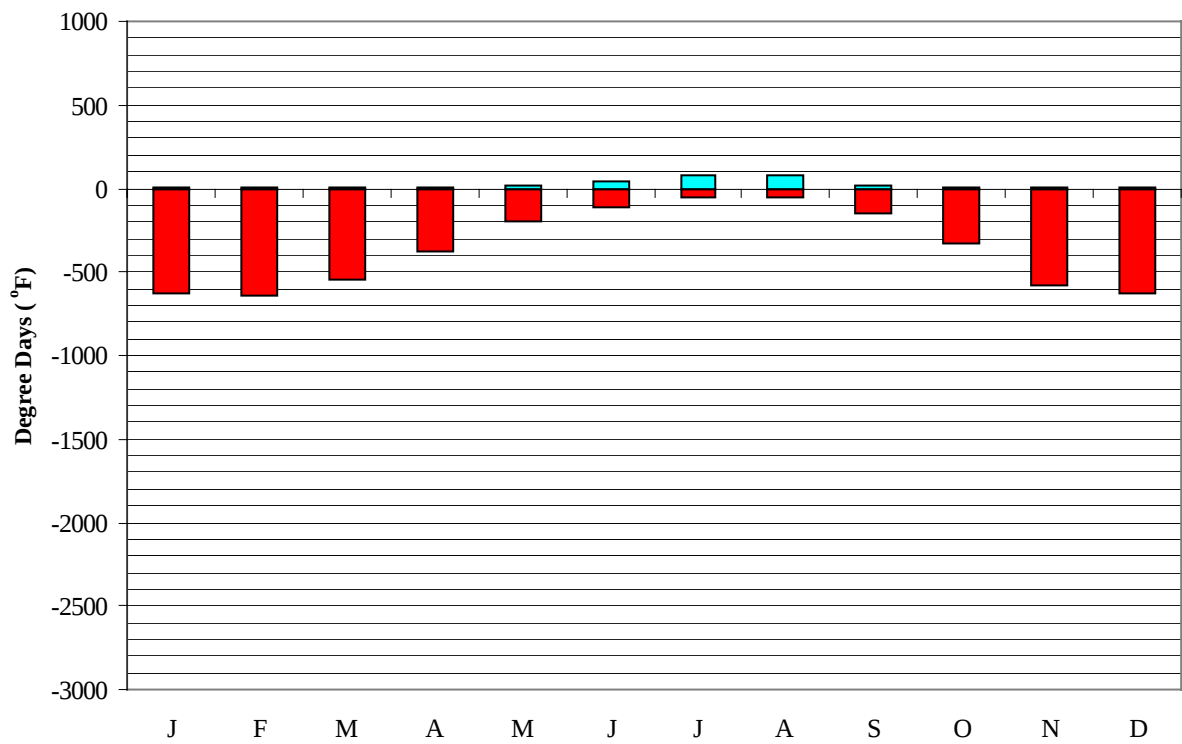
Long Term Humidity and Dry Bulb Temperature Summary



WIESBADEN (USA-AF) DL**WMO No. 106330****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	52.0	49.1	38.9	32.2	12.0	47.6	49.8	30.4	24.1
14-Jan	52.0	48.0	40.2	33.1	9.0	47.6	51.1	31.8	24.5
21-Jan	54.0	49.7	38.0	32.2	14.0	46.9	53.9	29.1	23.6
28-Jan	54.0	49.7	39.9	33.3	21.0	48.3	52.4	30.8	24.1
4-Feb	50.0	45.3	39.7	31.2	14.0	44.1	47.7	29.3	22.3
11-Feb	55.0	47.7	39.5	31.2	12.0	47.6	51.6	28.7	22.1
18-Feb	52.0	47.1	39.5	30.1	14.0	47.6	48.9	27.8	20.5
25-Feb	57.0	49.5	40.9	31.3	16.0	46.9	55.2	29.0	21.9
4-Mar	55.0	48.6	44.5	33.4	21.0	48.3	49.6	31.2	23.1
11-Mar	59.0	51.2	47.4	36.1	25.0	54.6	51.6	34.2	25.9
18-Mar	63.0	51.7	48.5	36.6	25.0	54.6	56.4	35.0	25.6
25-Mar	64.0	52.4	51.6	38.7	30.0	58.1	55.9	38.0	27.9
1-Apr	68.0	55.4	52.4	39.4	28.0	57.4	59.6	37.0	27.2
8-Apr	68.0	52.6	52.6	40.3	32.0	50.4	60.2	36.1	27.4
15-Apr	68.0	52.2	53.6	40.2	30.0	54.6	55.5	37.1	27.1
22-Apr	73.0	55.8	57.1	41.4	30.0	58.1	60.3	39.2	29.4
29-Apr	77.0	59.1	60.9	45.4	36.0	63.0	64.5	43.4	32.5
6-May	77.0	59.9	63.0	47.8	39.0	63.0	66.1	48.1	36.6
13-May	75.0	60.1	63.4	48.6	37.0	71.4	64.0	50.5	38.2
20-May	79.0	61.2	66.6	51.1	41.0	76.3	65.7	55.2	41.5
27-May	81.0	63.0	67.3	51.9	41.0	81.9	75.1	56.7	43.7
3-Jun	79.0	62.0	67.0	51.3	41.0	81.9	71.3	55.8	43.2
10-Jun	84.0	67.3	67.5	52.1	43.0	91.7	77.4	61.6	47.2
17-Jun	82.0	68.0	69.5	54.6	46.0	92.4	79.1	63.6	48.6
24-Jun	82.0	66.2	71.2	55.9	48.0	98.0	71.3	68.7	52.4
1-Jul	88.0	70.0	74.7	57.9	52.0	111.3	77.9	73.1	55.2
8-Jul	88.0	67.4	74.5	58.7	50.0	92.4	72.8	71.5	55.8
15-Jul	91.0	70.9	75.8	58.7	50.0	98.7	76.7	74.3	57.0
22-Jul	88.0	69.0	74.2	58.0	50.0	98.0	77.2	72.9	56.1
29-Jul	90.0	68.9	75.0	57.8	52.0	98.0	72.5	73.1	56.3
5-Aug	91.0	70.3	78.7	60.7	50.0	97.3	80.3	75.5	58.2
12-Aug	90.0	69.1	76.1	58.8	48.0	98.7	75.1	73.9	55.7
19-Aug	88.0	69.7	76.8	59.6	54.0	98.0	76.9	74.9	57.0
26-Aug	84.0	66.5	73.6	57.9	52.0	98.7	72.0	73.2	56.5
2-Sep	84.0	68.6	70.4	55.6	48.0	86.8	71.7	64.4	51.1
9-Sep	84.0	64.6	69.1	53.3	45.0	86.1	70.3	63.5	49.0
16-Sep	79.0	62.9	67.2	52.4	45.0	86.8	67.1	63.5	48.3
23-Sep	77.0	65.5	67.5	52.9	45.0	92.4	72.5	65.7	49.5
30-Sep	75.0	63.7	63.9	49.9	43.0	81.9	67.9	60.0	46.0
7-Oct	72.0	61.9	60.8	48.7	37.0	81.2	68.1	57.5	44.9
14-Oct	68.0	59.8	57.8	46.3	36.0	74.9	62.3	51.8	41.4
21-Oct	66.0	59.6	56.1	45.1	34.0	74.9	62.6	50.9	39.7
28-Oct	66.0	58.1	53.6	42.4	34.0	67.9	60.8	45.3	34.8
4-Nov	63.0	56.5	48.8	40.2	30.0	62.3	57.2	41.3	32.6
11-Nov	55.0	52.1	47.7	39.1	28.0	58.1	53.6	39.8	31.5
18-Nov	55.0	50.3	46.3	38.6	27.0	55.3	52.2	38.3	30.3
25-Nov	54.0	50.4	42.2	34.6	23.0	51.1	51.1	33.4	26.1
2-Dec	54.0	49.6	41.1	33.5	21.0	51.8	49.6	32.1	25.2
9-Dec	52.0	48.5	42.3	35.0	21.0	47.6	50.8	33.6	26.4
16-Dec	54.0	49.9	39.6	33.5	19.0	48.3	51.7	30.7	24.7
23-Dec	55.0	51.4	41.9	35.9	25.0	55.3	52.4	34.6	27.4
31-Dec	57.0	51.3	40.3	34.5	16.0	54.6	51.0	31.9	26.4

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



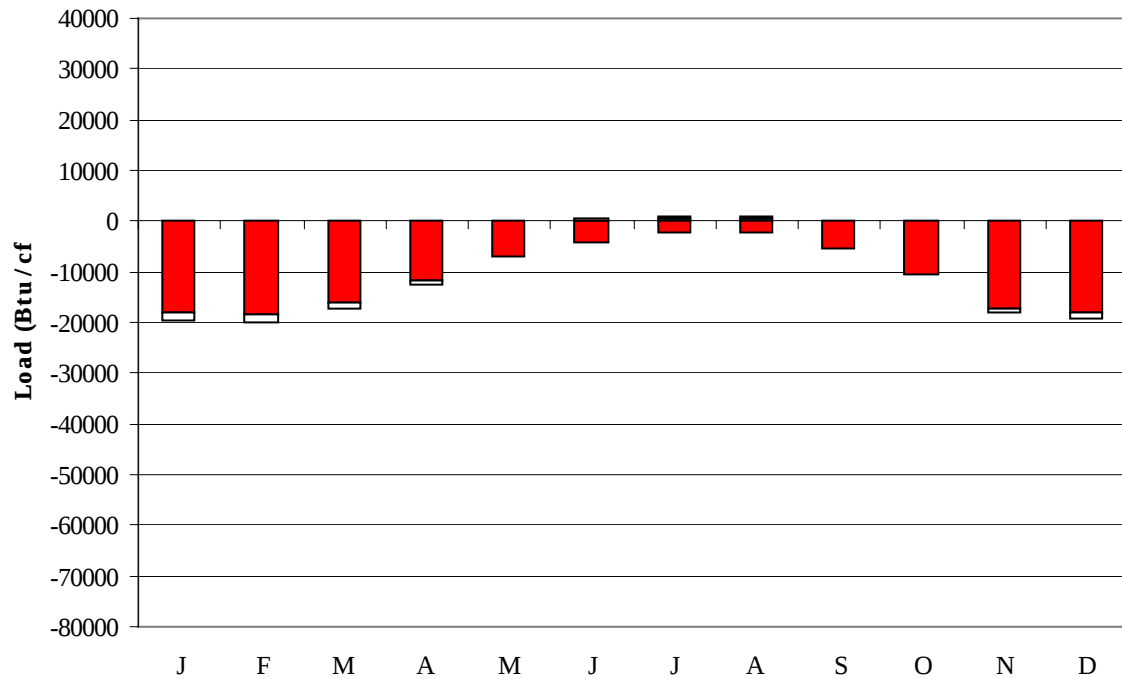
Mean Cooling Degree Days Mean Heating Degree Days

	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	634
FEB	0	640
MAR	0	549
APR	4	382
MAY	18	202
JUN	46	110
JUL	74	53
AUG	74	53
SEP	19	151
OCT	2	330
NOV	0	586
DEC	0	625
ANN	239	4315

WIESBADEN (USA-AF) DL

WMO No. 106330

Average Ventilation and Infiltration Loads
(Outside Air vs. 75°F, 60% RH summer; 68°F, 30% RH winter)

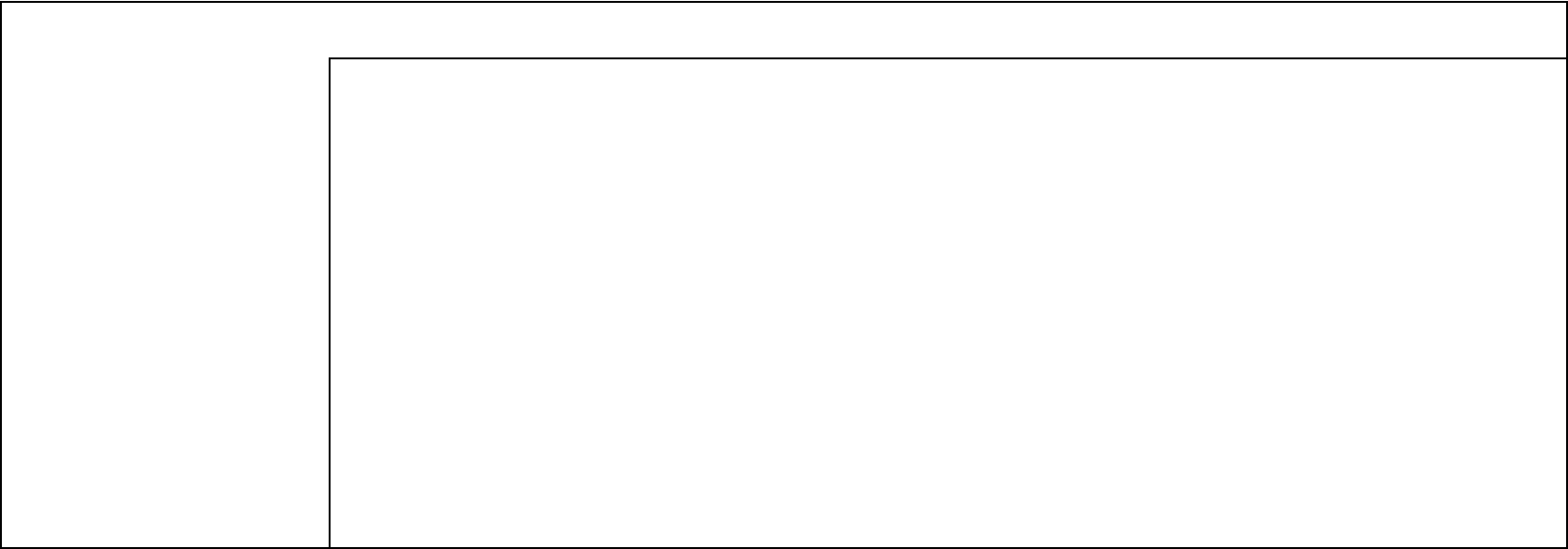


■ Average Sensible Cooling Load	■ Average Sensible Heating Load
■ Average Latent Cooling (Drying) Load	■ Average Latent Heating (Humidifying) Load

	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	-18145	0	-1346
FEB	0	-18278	0	-1754
MAR	0	-16199	0	-1232
APR	13	-11692	0	-686
MAY	44	-6897	5	-88
JUN	273	-4105	191	-10
JUL	588	-2292	266	0
AUG	543	-2318	250	0
SEP	59	-5497	61	-2
OCT	1	-10338	4	-167
NOV	0	-17119	0	-727
DEC	0	-17969	0	-1089
ANN	1521	-130849	777	-7101

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

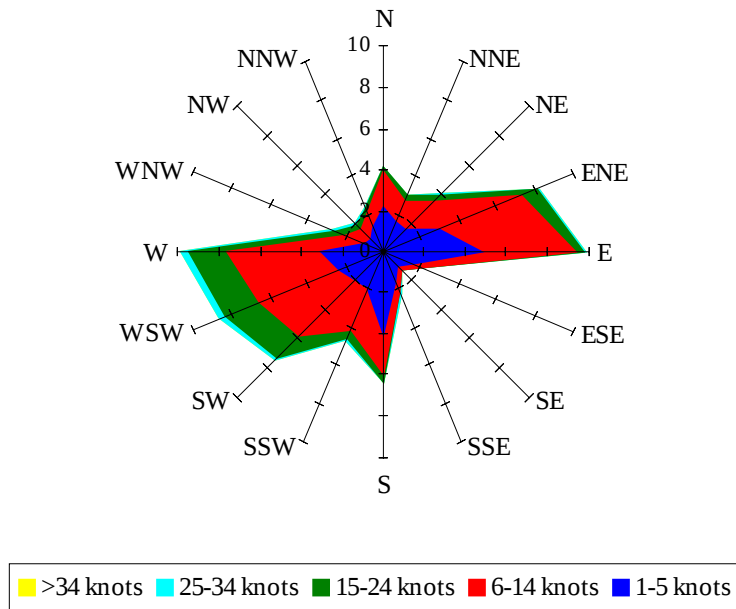
No Solar Radiation
Data Available



Average Annual Solar Heat and Illumination – Nearest Available Site

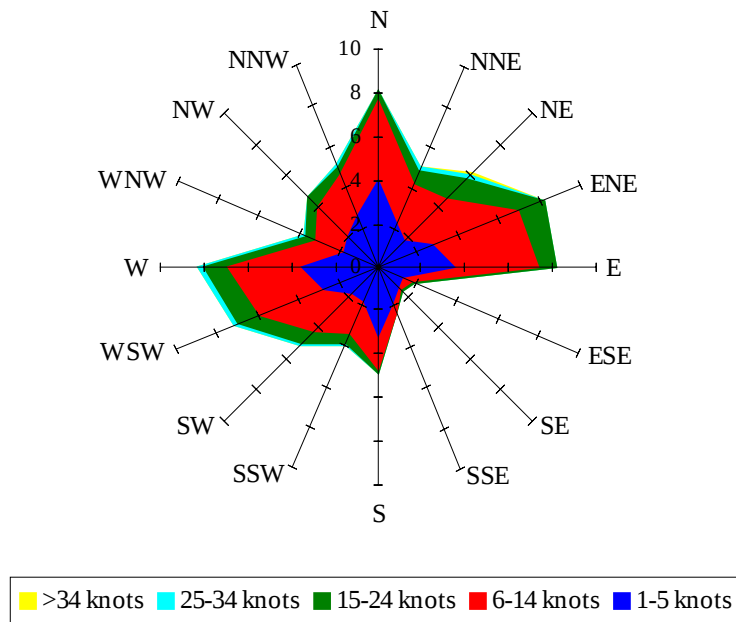
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

Wind Summary - December, January, and February **Labels of Percent Frequency on North Axis**



Percent Calm = 22.03

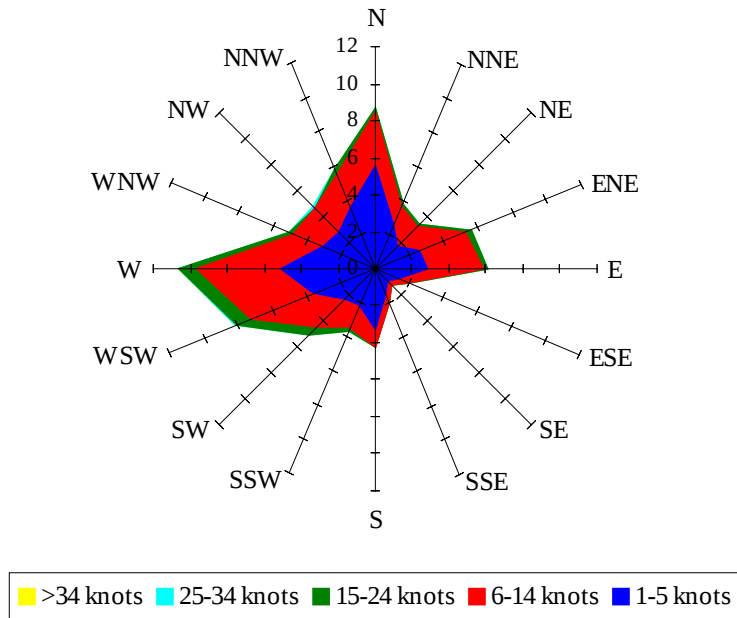
Wind Summary - March, April, and May **Labels of Percent Frequency on North Axis**



Percent Calm = 16.38

Wind Summary - June, July, and August

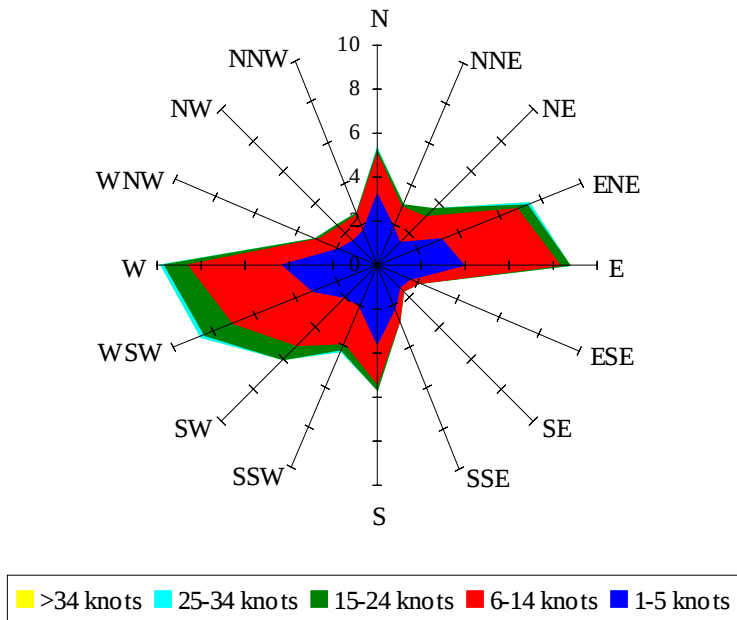
Labels of Percent Frequency on North Axis



Percent Calm = 20.37

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 22.82