

BAGRAM, AF	Station ID = ICAO_OAIX
Latitude = 34.95 N	Elevation = 4895 Feet
Longitude = 69.26 E	Average Pressure = 25.10 inches Hg
Period of Record = 2002 To 2017	

Design Criteria Data

	Mean Coincident (Average) Values				
Dry Bulb Temperature (T)	Design Value (°F)	Wet Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	102	62	36	10	N
0.4% Occurrence	99	61	36	11.4	N
1.0% Occurrence	97	60	36	12.2	N
2.0% Occurrence	95	60	37	12	N
Mean Daily Range	24	-	-	-	VRB
97.5% Occurrence	27	24	17	2.5	VRB
99.0% Occurrence	21	19	13	2.7	VRB
99.6% Occurrence	18	16	11	3.3	VRB
Median of Extreme Lows	14	12	9	2.9	VRB

	Design Value (°F)	Dry Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Wet Bulb Temperature (T _{wb})					
Median of Extreme Highs	72	86	114	8.8	E
0.4% Occurrence	69	84	101	7.9	E
1.0% Occurrence	68	84	97	7.5	VRB
2.0% Occurrence	66	83	87	6.8	VRB

	Design Value (gr/lb)	Dry Bulb Temperature (°F)	Vapor Pressure (in. Hg)	Wind Speed (mph)	Prevailing Direction (NSEW)
Humidity Ratio (HR)					
Median of Extreme Highs	120	81	0.67	7.7	E
0.4% Occurrence	109	78	0.61	7.6	E
1.0% Occurrence	102	78	0.57	6.8	VRB
2.0% Occurrence	90	77	0.5	6.4	VRB

Air Conditioning/ Humid Area Criteria	Threshold	T ≥ 93 °F	T ≥ 80 °F	Twb ≥ 73 °F	Twb ≥ 67 °F
	# of Hours	328	1930	5	131

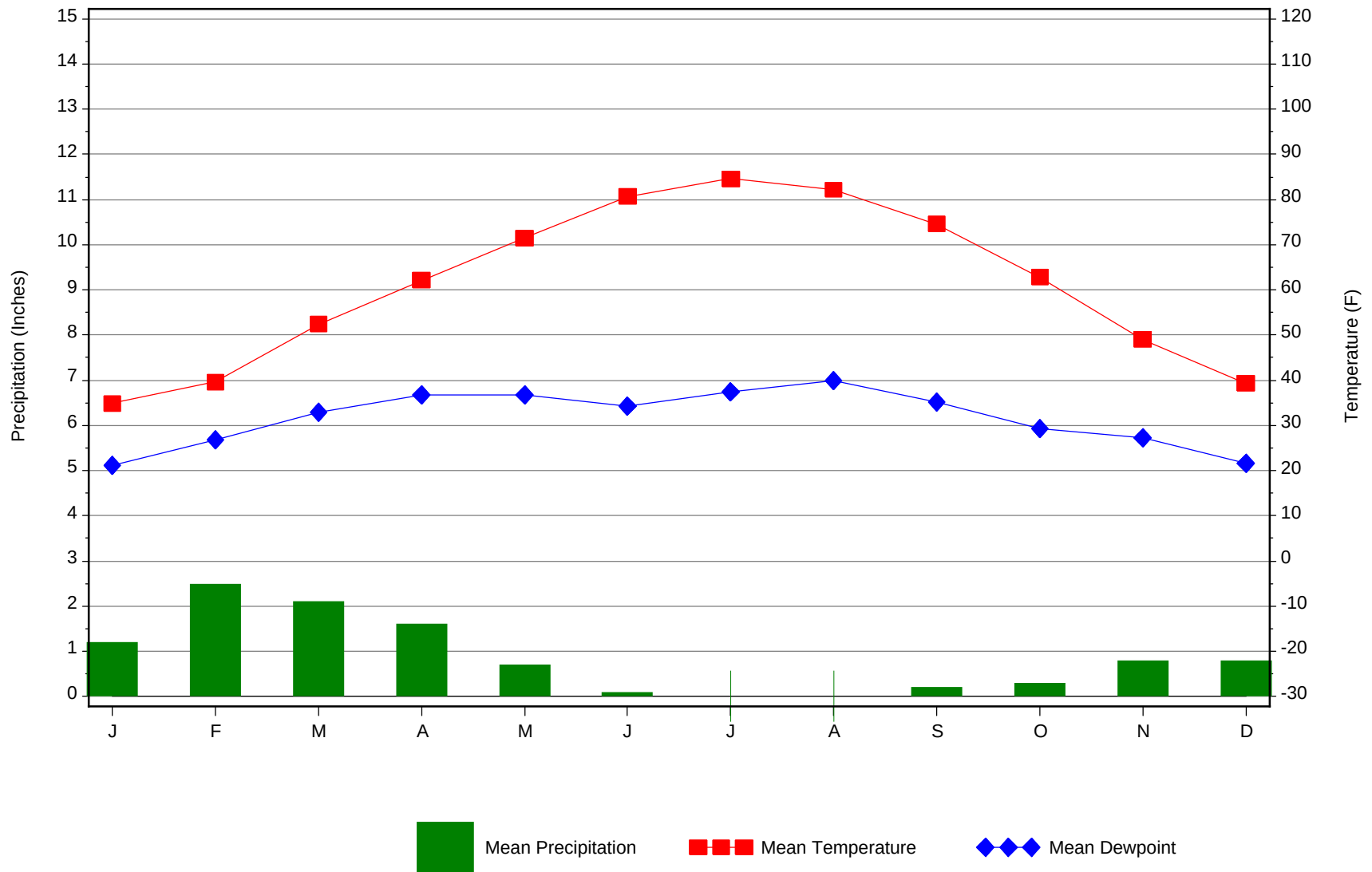
Other Site Data

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
11	N/A	N/A	0.1 + 2.2
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 (#)
63.8	N/A	N/A	55

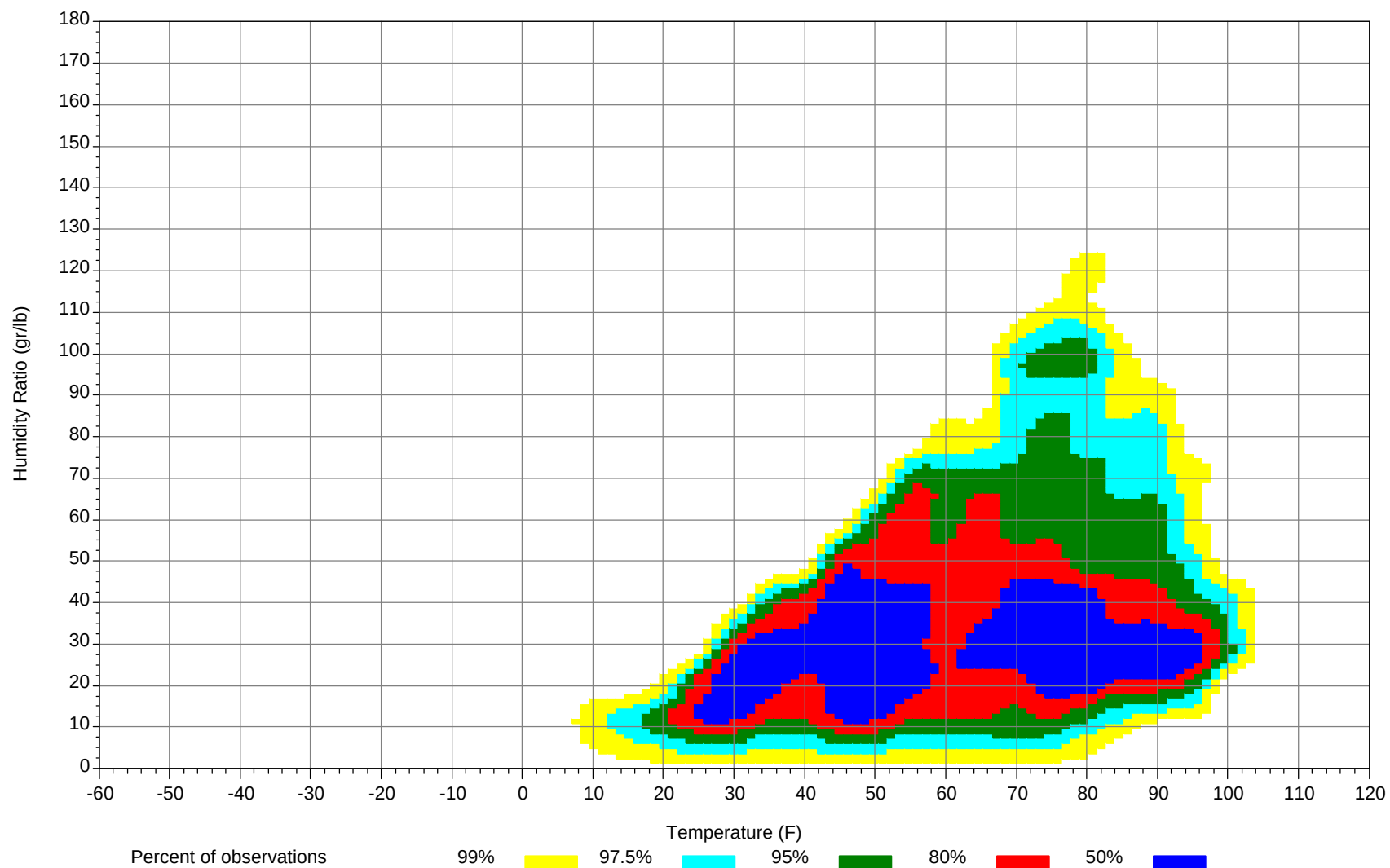
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



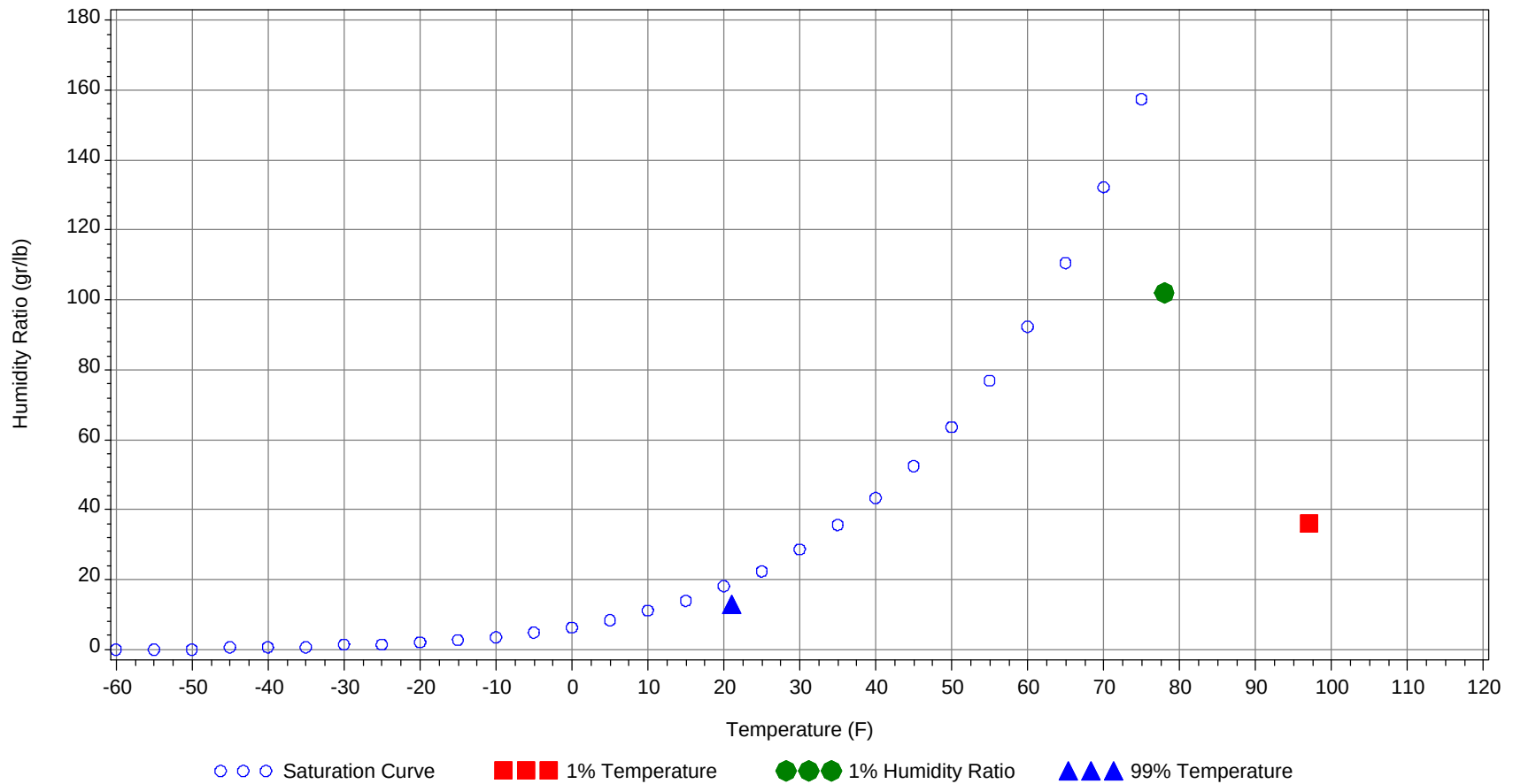
Average Annual Climate



Long Term Psychrometric Summary



Psychrometric Summary of Peak Design Values



	(° F) / (gr/lb)	MCDB (° F)	MCWB (° F)	MCDP (° F)	MCHR (gr/lb)	Enthalpy (btu/lb)
1.0% Dry Bulb	97.0		60		36.0	28.8
99.0% Dry Bulb	21.0				13.0	7.0
1.0% Humidity Ratio	102.0	78.0	66.9	62.6		34.5

Dry-Bulb Temperature Hours For An Average Year

	January					February					March				
Temperature Range (° F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (° F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (° F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (° F)
100/104															
95/ 99															
90/ 94															
85/ 89															
80/ 84												0	0	0	53.4
75/ 79							0	0	0	47		9	2	11	50.9
70/ 74							1	1	2	46		23	12	35	49.6
65/ 69							2	1	3	45.5	0	26	16	42	48.3
60/ 64		1	0	1	41.1		7	3	10	44.4	3	48	38	89	47
55/ 59		12	2	14	39.8	0	20	11	31	43.2	16	50	54	120	45.8
50/ 54		31	10	41	37.3	2	34	25	61	41	46	41	57	144	44.1
45/ 49	1	37	27	65	36.3	16	46	43	105	39.3	78	31	39	148	41.7
40/ 44	8	35	35	78	35.2	21	33	38	92	36.8	51	10	17	78	38.1
35/ 39	36	59	71	166	32.8	58	42	46	146	33.8	37	8	10	55	34.2
30/ 34	85	47	62	194	29.1	75	28	43	146	29.9	15	2	2	19	29.9
25/ 29	62	16	26	104	23.8	32	6	11	49	24.3	2		0	2	23.1
20/ 24	24	6	9	39	19.6	9	2	3	14	19.9	0			0	17.7
15/ 19	20	3	5	28	15.8	8	1	1	10	15.7					
10/ 14	10	1	1	12	11.1	3	0	0	3	10.7					
5/ 9	1	0	0	1	6.3	1			1	6.1					
0/ 4	1	0		1	0.4										
-5/ -1	0			0	-2										
-10/ -6	0			0	-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.

Dry-Bulb Temperature Hours For An Average Year

	April					May					June				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
100/104												3	0	3	60.5
95/ 99							1	0	1	59		31	6	37	59.3
90/ 94		1	0	1	56.2		20	3	23	57.3	0	73	27	100	58
85/ 89		5	1	6	55.6		38	11	49	56.3	2	57	45	104	56.6
80/ 84		21	7	28	54.6	1	66	36	103	55.1	30	52	76	158	55.1
75/ 79	0	39	20	59	53.2	13	61	59	133	53.7	77	18	58	153	53.7
70/ 74	2	54	37	93	51.5	39	34	60	133	52.4	62	5	21	88	52.8
65/ 69	8	39	36	83	50.3	43	14	33	90	51.7	31	1	5	37	52.4
60/ 64	28	40	57	125	49.2	64	9	28	101	51.1	28	0	2	30	51.1
55/ 59	69	25	47	141	48.3	59	5	14	78	50.2	9	0	1	10	49.5
50/ 54	82	14	26	122	46.5	22	0	3	25	47	1		0	1	49
45/ 49	39	3	8	50	42.6	5		1	6	40.9	0			0	47
40/ 44	8	0	1	9	36.6	1			1	37.3					
35/ 39	3			3	32	0			0	33.7					
30/ 34	1			1	28.5										
25/ 29															
20/ 24															
15/ 19															
10/ 14															
5/ 9															
0/ 4															
-5/ -1															
-10/ -6															

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Dry-Bulb Temperature Hours For An Average Year

	July					August					September				
Temperature Range (° F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (° F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (° F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (° F)
100/104		10	1	11	62		5	1	6	61.2					
95/ 99		66	17	83	60.5		43	9	52	60.7		3	0	3	58
90/ 94	0	94	52	146	59.1	0	87	39	126	59.6		40	8	48	57.7
85/ 89	11	48	73	132	58.1	3	57	57	117	58.8		54	20	74	56.9
80/ 84	70	26	78	174	56.7	32	43	90	165	57.9	1	70	59	130	55.6
75/ 79	91	4	22	117	56.7	84	12	45	141	57.9	19	43	75	137	54.2
70/ 74	49	0	4	53	55.9	71	1	7	79	57.3	46	21	48	115	53.2
65/ 69	19		1	20	54.1	36	0	1	37	54.2	44	7	16	67	52.4
60/ 64	7			7	50.4	20	0	0	20	51	67	2	12	81	50.1
55/ 59	1			1	45	2			2	48.8	46	0	3	49	46.6
50/ 54											15		0	15	42.3
45/ 49											3			3	38.5
40/ 44															
35/ 39															
30/ 34															
25/ 29															
20/ 24															
15/ 19															
10/ 14															
5/ 9															
0/ 4															
-5/ -1															
-10/ -6															

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Dry-Bulb Temperature Hours For An Average Year

	October					November					December				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
100/104															
95/ 99		0		0	55.5										
90/ 94		3	0	3	54.3										
85/ 89		11	1	12	55.2										
80/ 84		29	8	37	53.4		0		0	49					
75/ 79	1	51	25	77	51.2		4	0	4	49.2					
70/ 74	6	66	43	115	49.4	0	15	3	18	47.6		0		0	48
65/ 69	11	33	45	89	48.2	0	25	6	31	46.1		2	0	2	45.5
60/ 64	29	29	52	110	47.2	0	50	21	71	44.5		9	1	10	43.1
55/ 59	46	16	36	98	45.6	4	49	38	91	43.2	1	29	7	37	40.5
50/ 54	59	8	25	92	42.8	15	42	57	114	41.9	2	54	23	79	38.5
45/ 49	63	1	10	74	38.9	49	32	58	139	39.8	6	50	45	101	36.7
40/ 44	25	0	1	26	35.2	54	15	35	104	36.6	19	35	48	102	35.2
35/ 39	9			9	31.9	72	7	20	99	32.5	54	39	62	155	32.6
30/ 34	1			1	28.7	39	1	3	43	29	85	22	43	150	28.6
25/ 29						6	0		6	25.2	56	7	14	77	23.9
20/ 24						0			0	22	16	1	3	20	19.9
15/ 19											7	1	2	10	16.2
10/ 14											2	0		2	12
5/ 9											0			0	8
0/ 4															
-5/ -1															
-10/ -6															

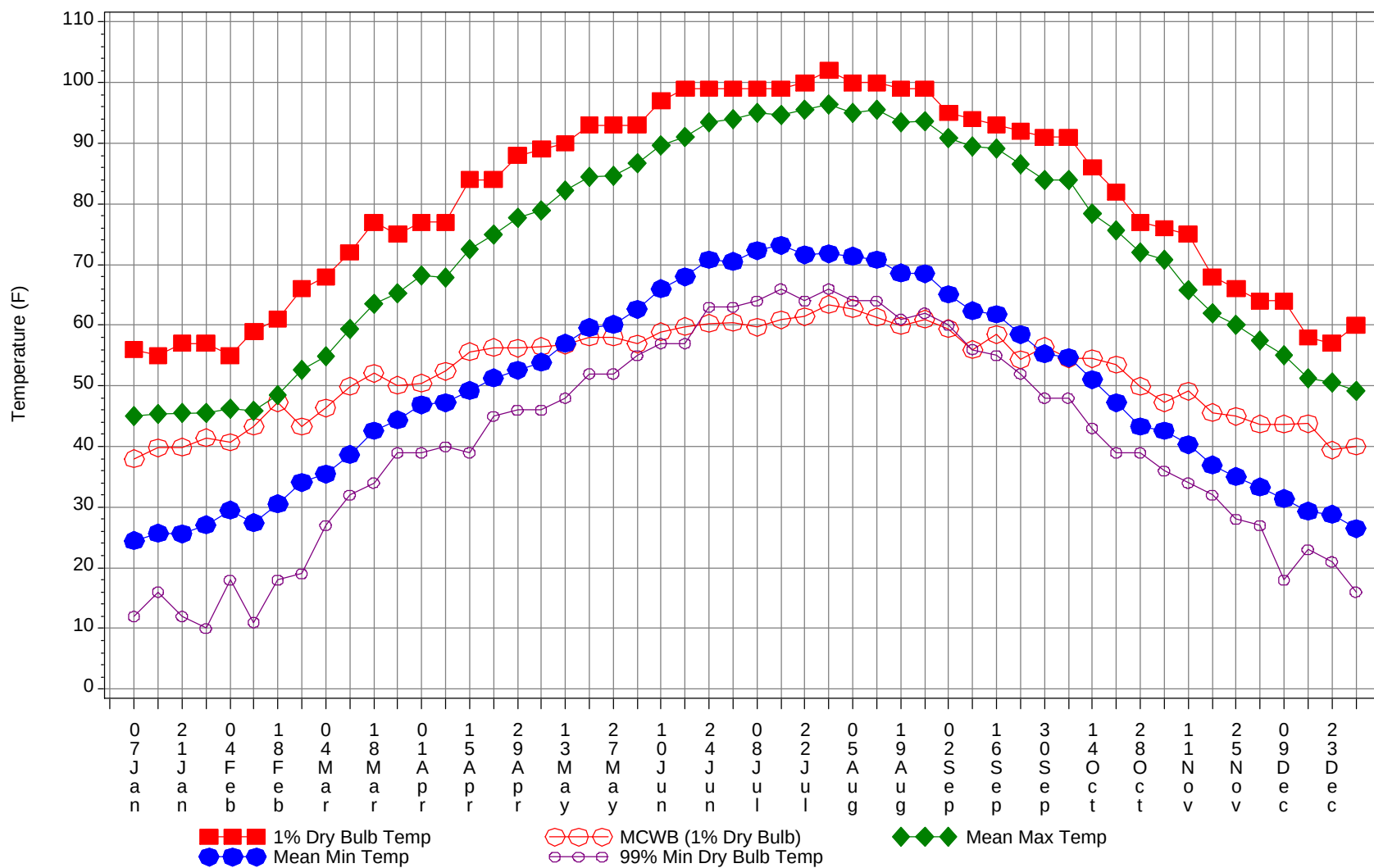
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

Dry-Bulb Temperature Hours For An Average Year

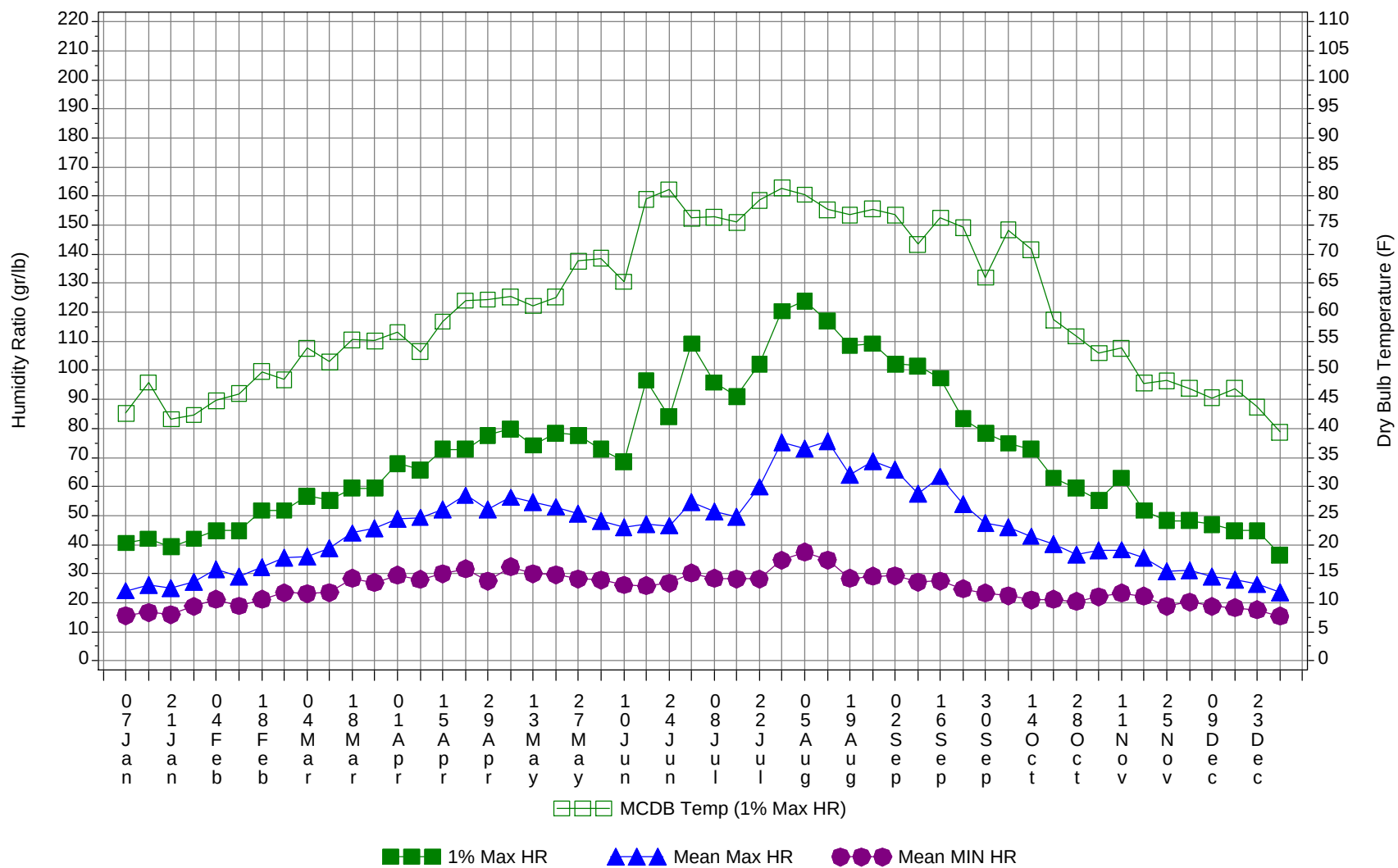
	Annual				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
100/104		18	2	20	61.5
95/ 99		146	31	177	60.2
90/ 94	1	317	129	447	58.7
85/ 89	17	270	208	495	57.5
80/ 84	134	308	355	797	56
75/ 79	285	243	307	835	54.6
70/ 74	276	221	234	731	52.5
65/ 69	193	148	160	501	50.6
60/ 64	246	195	215	656	48.4
55/ 59	251	206	212	669	46
50/ 54	244	224	226	694	42.8
45/ 49	261	200	231	692	39.5
40/ 44	187	128	176	491	36.3
35/ 39	268	153	207	628	33
30/ 34	300	99	152	551	29.2
25/ 29	157	29	50	236	24
20/ 24	49	9	14	72	19.7
15/ 19	35	5	7	47	15.9
10/ 14	14	1	1	16	11.1
5/ 9	2	0	0	2	6.4
0/ 4	1	0		1	0.4
-5/ -1	0			0	-2
-10/ -6	0			0	-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.

Annual Summary of Temperatures



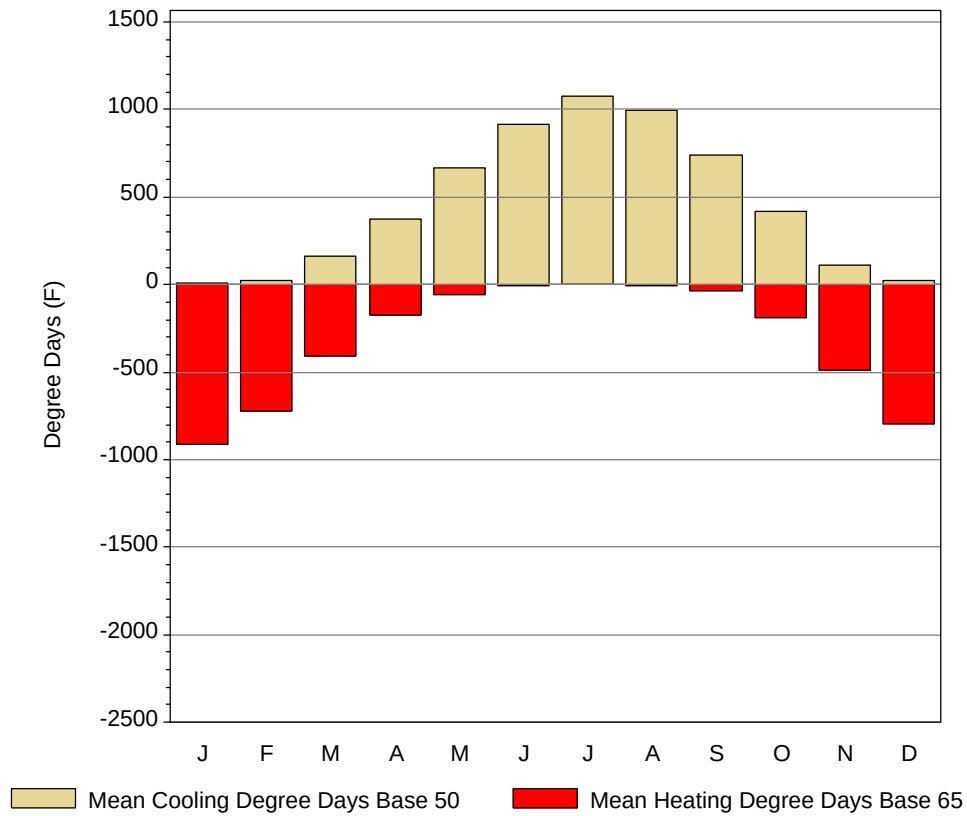
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

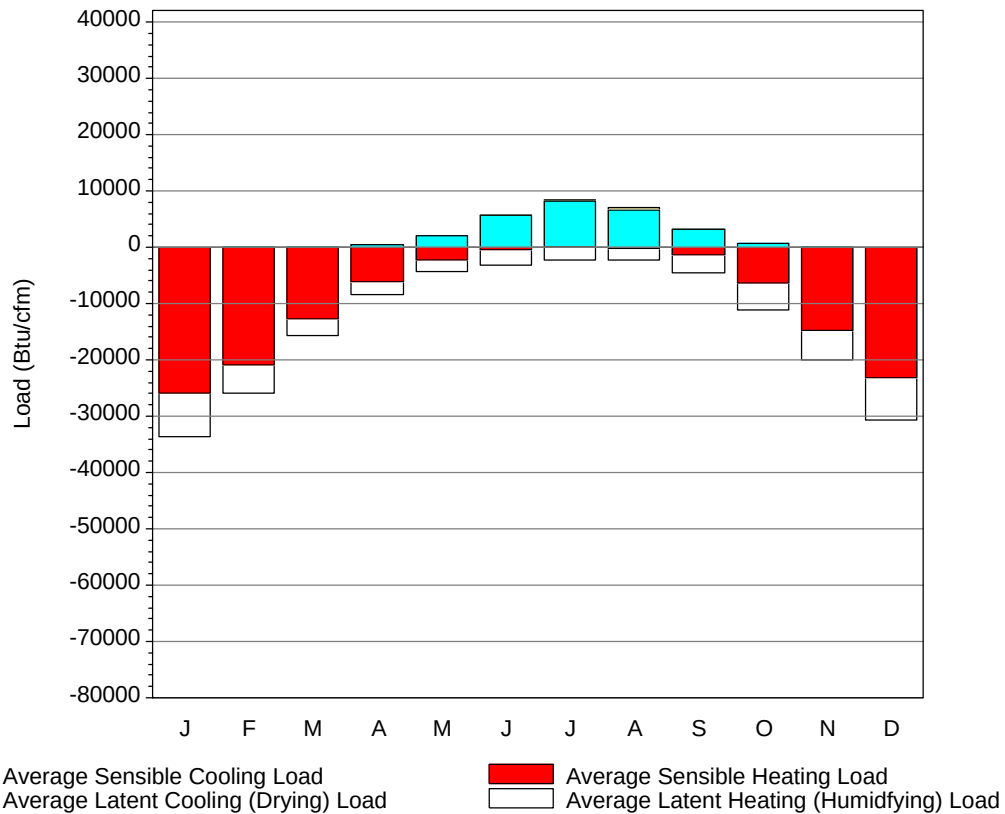
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	56	38	45.1	24.5	12	40.6	42.6	24.1	15.6
14-Jan	55	39.8	45.4	25.7	16	42	47.9	26	16.7
21-Jan	57	39.9	45.5	25.6	12	39.2	41.6	24.9	15.9
28-Jan	57	41.4	45.6	27.1	10	42	42.3	27.2	18.7
4-Feb	55	40.7	46.3	29.5	18	44.8	44.8	31.5	21.2
11-Feb	59	43.3	45.8	27.4	11	44.8	46	29	18.9
18-Feb	61	47.2	48.4	30.5	18	51.8	49.8	32.3	21.2
25-Feb	66	43.3	52.7	34.1	19	51.8	48.4	35.6	23.4
4-Mar	68	46.4	54.8	35.5	27	56.7	53.8	35.8	23.2
11-Mar	72	49.9	59.3	38.7	32	55.3	51.5	38.9	23.5
18-Mar	77	52.1	63.6	42.6	34	59.5	55.3	44	28.4
25-Mar	75	50.1	65.3	44.4	39	59.5	55.1	45.7	26.9
1-Apr	77	50.4	68.2	46.9	39	67.9	56.6	49	29.5
8-Apr	77	52.4	67.8	47.2	40	65.8	53.2	49.4	28
15-Apr	84	55.6	72.6	49.2	39	72.8	58.4	52.1	30
22-Apr	84	56.3	75	51.3	45	72.8	62	57	31.6
29-Apr	88	56.2	77.8	52.6	46	77.7	62.2	52.1	27.5
6-May	89	56.5	78.9	53.9	46	79.8	62.7	56.3	32.3
13-May	90	56.7	82.2	57	48	74.2	61.1	54.8	30
20-May	93	58	84.5	59.6	52	78.4	62.6	53	29.7
27-May	93	58	84.6	60.1	52	77.7	68.8	50.8	28.2
4-Jun	93	56.9	86.7	62.6	55	72.8	69.3	48.2	27.9
10-Jun	97	58.9	89.6	66	57	68.6	65.3	46.1	26.1
17-Jun	99	59.8	91.1	68	57	96.6	79.5	47	25.8
24-Jun	99	60.3	93.4	70.8	63	84	81.2	46.5	26.8
1-Jul	99	60.5	93.9	70.5	63	109.2	76.2	54.8	30.2
8-Jul	99	59.7	95	72.3	64	95.9	76.4	51.5	28.3
15-Jul	99	60.9	94.7	73.2	66	91	75.5	49.5	28.2
22-Jul	100	61.4	95.5	71.6	64	102.2	79.3	59.9	28.1
29-Jul	102	63.4	96.4	71.8	66	120.4	81.4	75.2	34.6
5-Aug	100	62.7	95.1	71.4	64	123.9	80.3	73.2	37.4
12-Aug	100	61.3	95.6	70.8	64	116.9	77.7	75.6	34.7
19-Aug	99	59.9	93.5	68.6	61	108.5	76.8	64	28.3
26-Aug	99	61	93.6	68.5	62	109.2	77.8	68.8	29.1
2-Sep	95	59.4	90.9	65.1	60	102.2	76.8	65.9	29.2
9-Sep	94	56	89.4	62.4	56	101.5	71.7	57.6	27.1
16-Sep	93	58.5	89.1	61.8	55	97.3	76.3	63.5	27.4
23-Sep	92	54.3	86.5	58.5	52	83.3	74.6	53.9	24.7
30-Sep	91	56.5	83.9	55.3	48	78.4	66	47.5	23.3
7-Oct	91	54.5	83.9	54.7	48	74.9	74.2	46	22.4
14-Oct	86	54.5	78.4	51	43	72.8	70.8	42.9	21
21-Oct	82	53.5	75.6	47.2	39	63	58.7	40.2	21.1
28-Oct	77	49.9	72	43.3	39	59.5	55.9	36.5	20.4
4-Nov	76	47.2	70.8	42.6	36	55.3	53	38	22.1
11-Nov	75	49.1	65.8	40.3	34	63	53.8	38.2	23.3
18-Nov	68	45.6	62	36.9	32	51.8	47.8	35.5	22.3
25-Nov	66	45	60	35	28	48.3	48.2	30.9	18.8
2-Dec	64	43.7	57.4	33.3	27	48.3	46.9	31.2	20.3
9-Dec	64	43.7	55	31.4	18	46.9	45.3	29	18.7
16-Dec	58	43.8	51.2	29.3	23	44.8	46.9	27.9	18.2
23-Dec	57	39.4	50.5	28.8	21	44.8	43.7	26.3	17.5
31-Dec	60	40	49.1	26.5	16	36.4	39.4	23.6	15.3

Degree Days, Heating and Cooling (Base 65 F) & Cooling (Base 50F)



Month	Mean Cooling Degree Days (°F) Base 50	Mean Cooling Degree Days (°F) Base 65	Mean Heating Degree Days (°F) Base 65
JAN	6.5	0	910.2
FEB	22	0.9	719
MAR	165.7	18.4	408.5
APR	372.3	87.4	176.6
MAY	668	256.1	54.2
JUN	918.8	475.3	6.5
JUL	1073.2	608.9	0.7
AUG	999.2	536.6	2.3
SEP	738.6	322.2	33.9
OCT	420.7	118.1	185.9
NOV	114.2	9.3	488.7
DEC	22	0.1	798.3
ANN	5521.2	2433.3	3784.8

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



Month	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	-25945	0	-7602
FEB	1	-20820	0	-5047
MAR	16	-12759	0	-2986
APR	417	-6131	0	-2226
MAY	2116	-2181	0	-2223
JUN	5592	-337	56	-2740
JUL	8171	-61	299	-2285
AUG	6690	-171	470	-2125
SEP	3132	-1427	32	-3141
OCT	634	-6244	0	-4792
NOV	6	-14862	0	-5151
DEC	0	-23099	0	-7490
ANN	26775	-114037	857	-47808

Station Information		Shading Geometry in Dimensionless Units	
City, State, WBAN	N/A	N/A	N/A
Lat, Lon, Elev	N/A	N/A	N/A
Press Stn Type	N/A	N/A	N/A

AVERAGE INCIDENT SOLAR RADIATION (Btu/sq.ft./day), Percentage Uncertainty = 9														
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
HORIZ.	Global													
	Std.Dev.													
	Minimum													
	Maximum													
	Diffuse													
Clear Day	Global													
NORTH	Global													
	Diffuse													
Clear Day	Global													
EAST	Global													
	Diffuse													
Clear Day	Global													
SOUTH	Global													
	Diffuse													
Clear Day	Global													
WEST	Global													
	Diffuse													
Clear Day	Global													

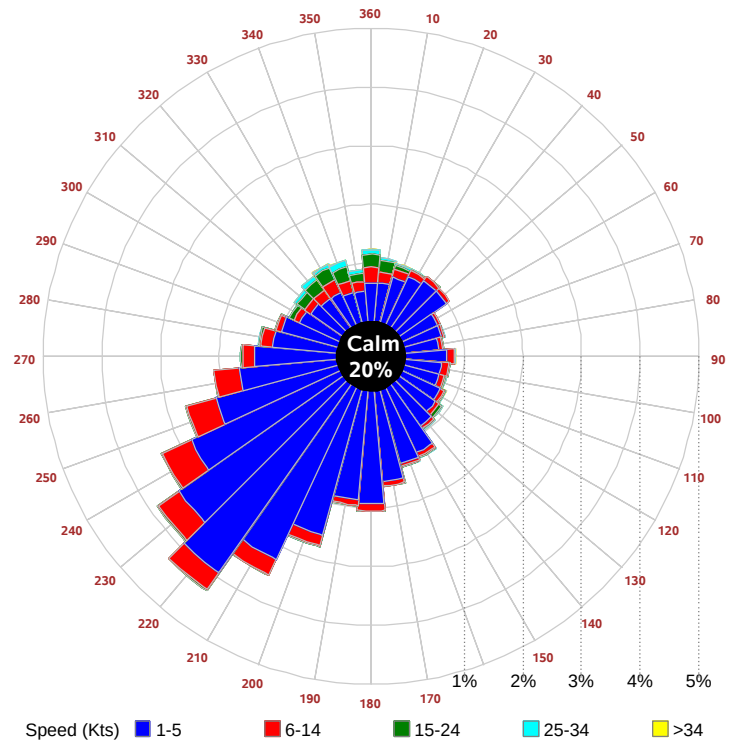
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

AVERAGE TRANSMITTED SOLAR RADIATION (Btu/sq.ft./day) FOR DOUBLE GLAZING, Percentage Uncertainty = 9														
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
HORIZ.	Unshaded													
NORTH	Unshaded													
	Shaded													
EAST	Unshaded													
	Shaded													
SOUTH	Unshaded													
	Shaded													
WEST	Unshaded													
	Shaded													

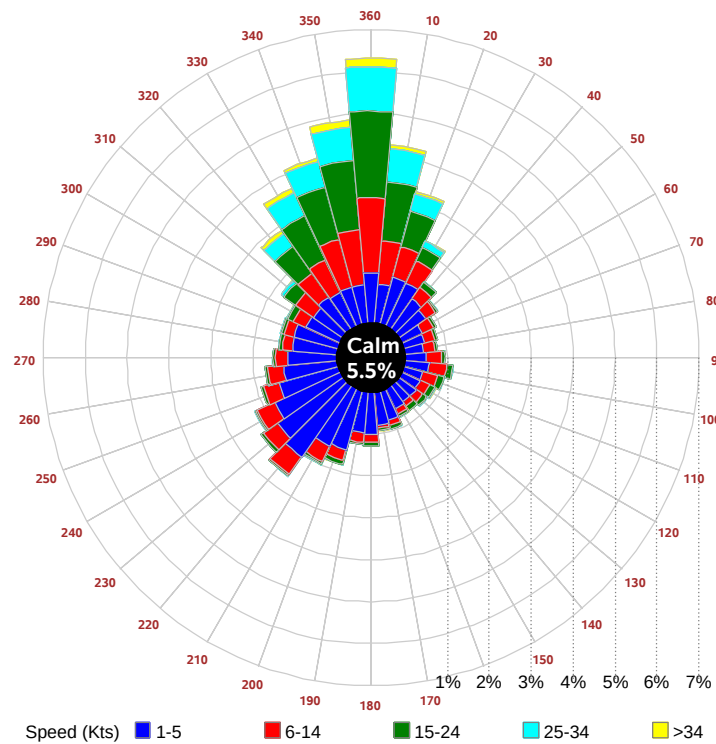
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9												
		March						June				
		9am	11am	1pm	3pm	5pm		9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear											
	M.Cloudy											
NORTH	M.Clear											
	M.Cloudy											
EAST	M.Clear											
	M.Cloudy											
SOUTH	M.Clear											
	M.Cloudy											
WEST	M.Clear											
	M.Cloudy											
M.Clear	(% hrs)											

		Sept						Dec				
		9am	11am	1pm	3pm	5pm		9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear											
	M.Cloudy											
NORTH	M.Clear											
	M.Cloudy											
EAST	M.Clear											
	M.Cloudy											
SOUTH	M.Clear											
	M.Cloudy											
WEST	M.Clear											
	M.Cloudy											
M.Clear	(% hrs)											

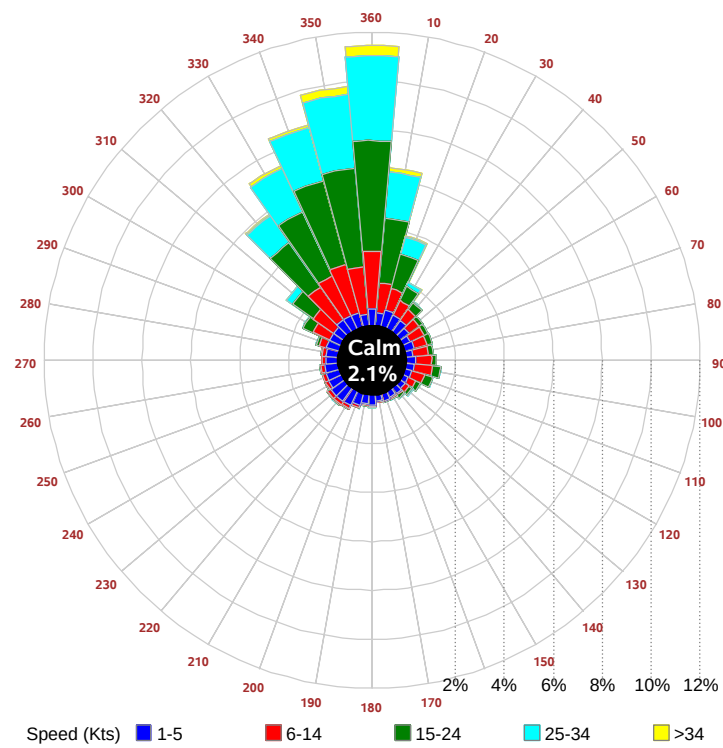
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

