

DJIBOUTI AMBOULI, DJ

Latitude = 11.55 N

Longitude = 43.16 E

Period of Record = 1988 To 2017

Station ID = ICAO_HDAM

Elevation = 49 Feet

Average Pressure = 29.77 inches Hg

Design Criteria Data

Dry Bulb Temperature (T)	Mean Coincident (Average) Values				
	Design Value (°F)	Wet Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	113	74	70	8.7	WNW
0.4% Occurrence	111	75	76	8.3	WNW
1.0% Occurrence	109	76	83	9	W
2.0% Occurrence	107	76	89	9.4	W
Mean Daily Range	11	-	-	-	WSW
97.5% Occurrence	73	68	96	1.7	WSW
99.0% Occurrence	72	68	94	1.8	WSW
99.6% Occurrence	70	66	87	1.7	WSW
Median of Extreme Lows	68	64	84	2.1	WSW

Wet Bulb Temperature (T _{wb})	Design Value (°F)	Dry Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	88	98	183	10.1	E
0.4% Occurrence	85	93	166	8.3	E
1.0% Occurrence	85	93	166	8.3	E
2.0% Occurrence	84	93	161	7.6	E

Humidity Ratio (HR)	Design Value (gr/lb)	Dry Bulb Temperature (°F)	Vapor Pressure (in. Hg)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	192	93	1.25	8.5	E
0.4% Occurrence	177	90	1.16	6.9	E
1.0% Occurrence	171	91	1.12	7.3	E
2.0% Occurrence	165	89	1.08	4.6	E

Air Conditioning/ Humid Area Criteria	Threshold	T ≥ 93 °F	T ≥ 80 °F	Twb ≥ 73 °F	Twb ≥ 67 °F
	# of Hours	1484	4682	4439	5724

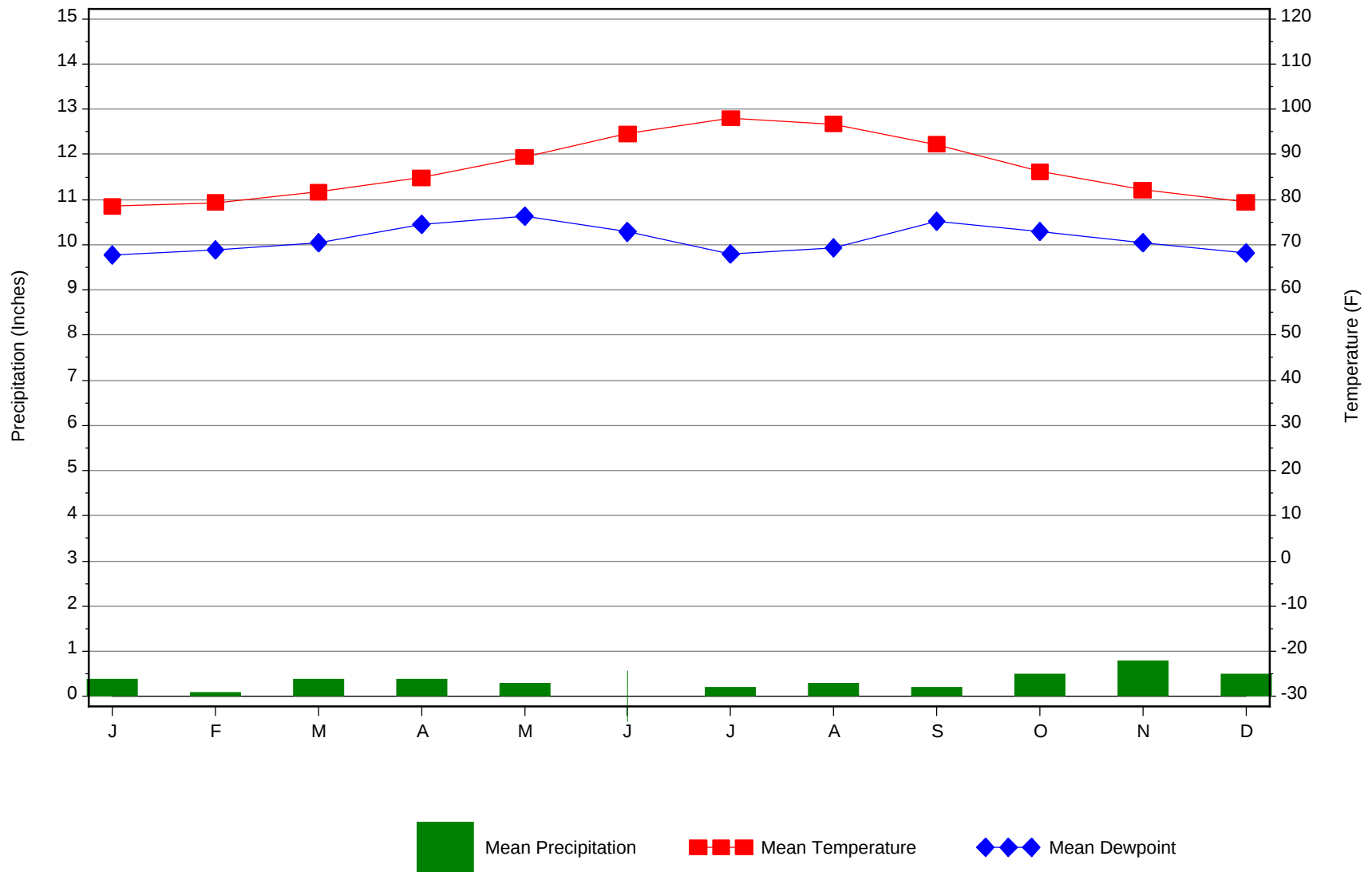
Other Site Data

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
10	N/A	N/A	18.6 + 9.0
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 (#)
89.3	N/A	N/A	0

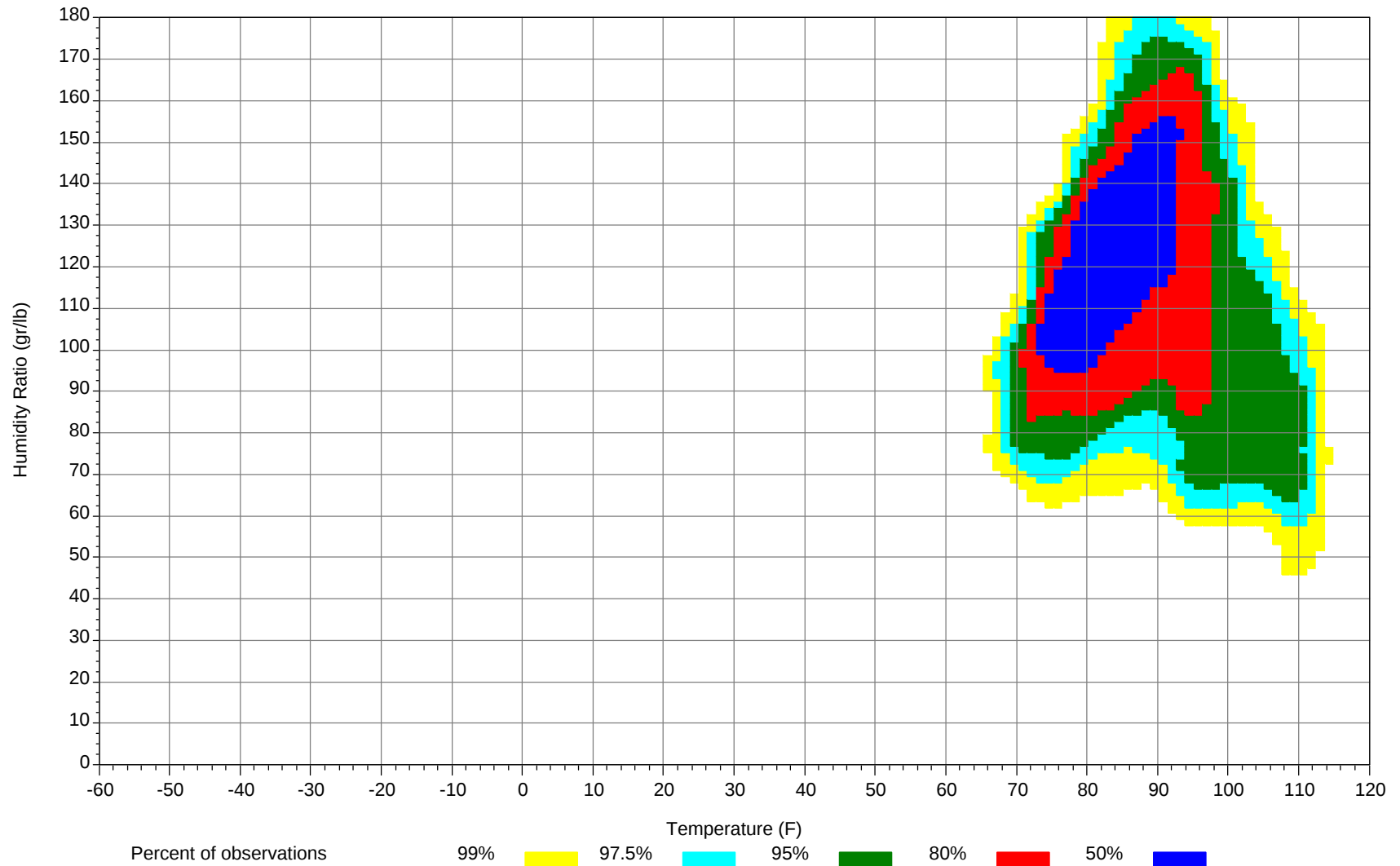
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



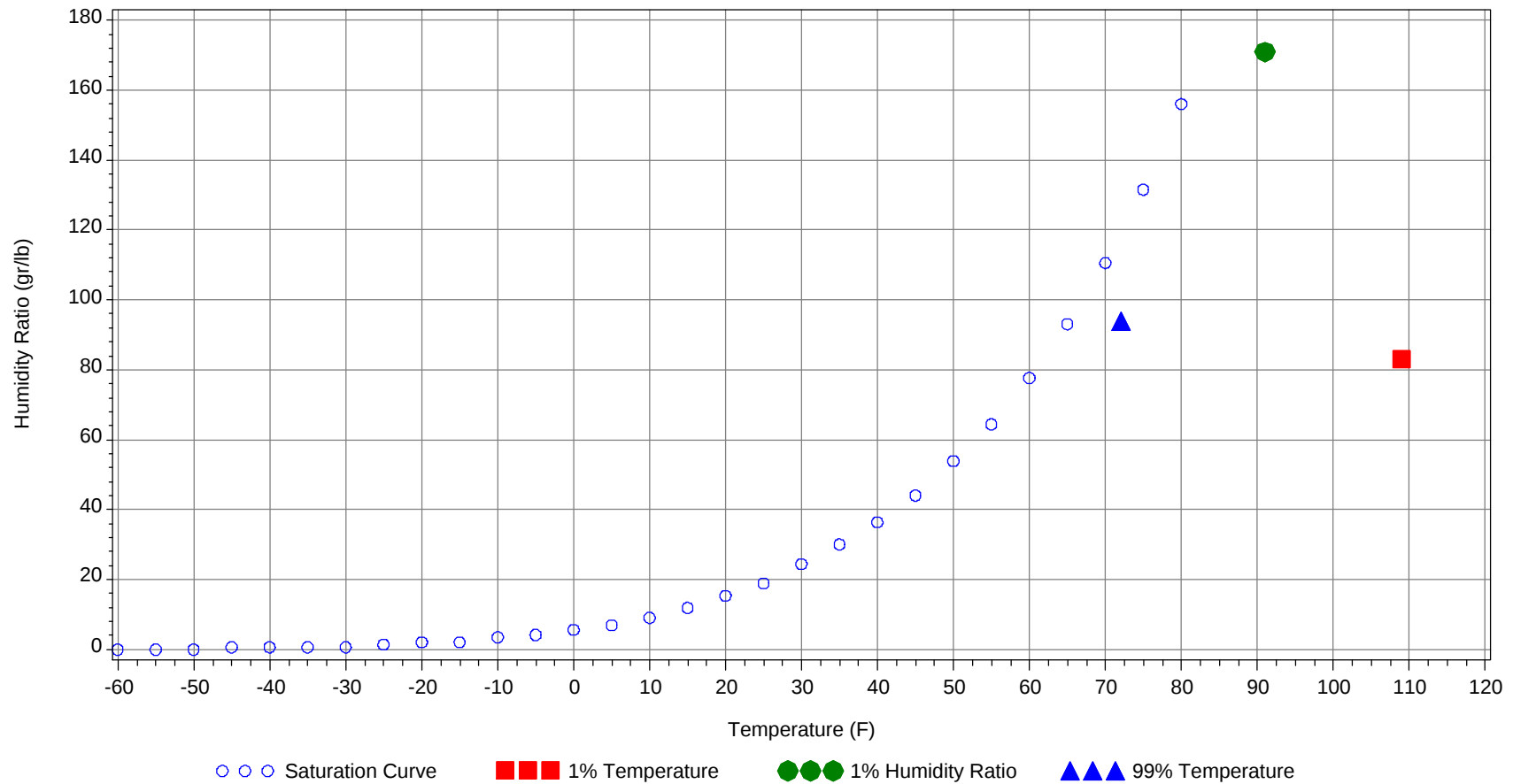
Average Annual Climate



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	109.0		76		83.0	38.9
99.0% Dry Bulb	72.0				94.0	31.7
1.0% Humidity Ratio	171.0	91.0	84.5	82.4		48.8

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)
115/119															
110/114															
105/109															
100/104															
95/ 99															
90/ 94		0		0	75.4		1		1	77.7		10	0	10	76.1
85/ 89		19	0	19	73.8	0	33	2	35	75.1	1	134	12	147	75.9
80/ 84	7	209	63	279	72.4	14	179	72	265	73.1	87	101	166	354	74.5
75/ 79	129	19	169	317	71.1	142	10	145	297	71.6	128	2	67	197	71.7
70/ 74	103	1	15	119	67.9	65	0	6	71	67.9	31	0	2	33	66.6
65/ 69	8	0	0	8	64.6	3		0	3	64.9	1			1	60.3
60/ 64	0			0	62										

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)
115/119												0		0	72.8
110/114												12	0	12	74.1
105/109							1		1	74.1	0	27	3	30	75.2
100/104						0	9	0	9	78	5	46	16	67	77.5
95/ 99		3	0	3	77.2	2	75	10	87	80.3	44	118	67	229	79.2
90/ 94	1	86	6	93	78.9	32	144	82	258	80.6	93	37	118	248	79.4
85/ 89	24	137	87	248	78.2	119	17	142	278	79.8	83	0	35	118	79.6
80/ 84	173	12	140	325	76.7	90	1	14	105	78	14	0	1	15	78.5
75/ 79	40	3	7	50	73.7	5	0	0	5	75.3	0			0	79
70/ 74	2		0	2	70.6	0			0	71.5					
65/ 69															
60/ 64															

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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)
115/119		1		1	75			0	0	77					
110/114		23	2	25	75		11	1	12	75.7	0	2	0	2	74.9
105/109	0	77	15	92	76.2	0	67	15	82	76.6	0	17	1	18	76.5
100/104	9	70	42	121	76.8	2	71	20	93	77.3	1	40	4	45	78.1
95/ 99	115	61	107	283	76.7	64	75	101	240	77.3	20	99	30	149	79.7
90/ 94	96	15	66	177	77.5	129	21	100	250	77.6	78	76	107	261	80.2
85/ 89	25	1	15	41	78.9	48	3	10	61	77.9	118	5	90	213	80.3
80/ 84	2	0	1	3	78.1	4	1	0	5	76.7	23	0	7	30	78.8
75/ 79						0		0	0	75	1	0	0	1	74.9
70/ 74															
65/ 69															
60/ 64															

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

	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)
115/119															
110/114															
105/109															
100/104		0		0	76.7										
95/ 99	0	18	1	19	78.8	0	0		0	75.9					
90/ 94	5	157	22	184	78.5	0	27	1	28	77		0		0	75.9
85/ 89	58	67	125	250	77.3	3	168	20	191	75.3	0	70	0	70	74
80/ 84	137	5	94	236	75.4	77	41	159	277	74.3	19	170	99	288	72.8
75/ 79	46	1	6	53	71.8	137	3	57	197	72.2	134	7	138	279	71.3
70/ 74	2		1	3	67.3	22	0	2	24	68.5	89	0	11	100	68.1
65/ 69						0		0	0	64.4	6		0	6	64.1
60/ 64															

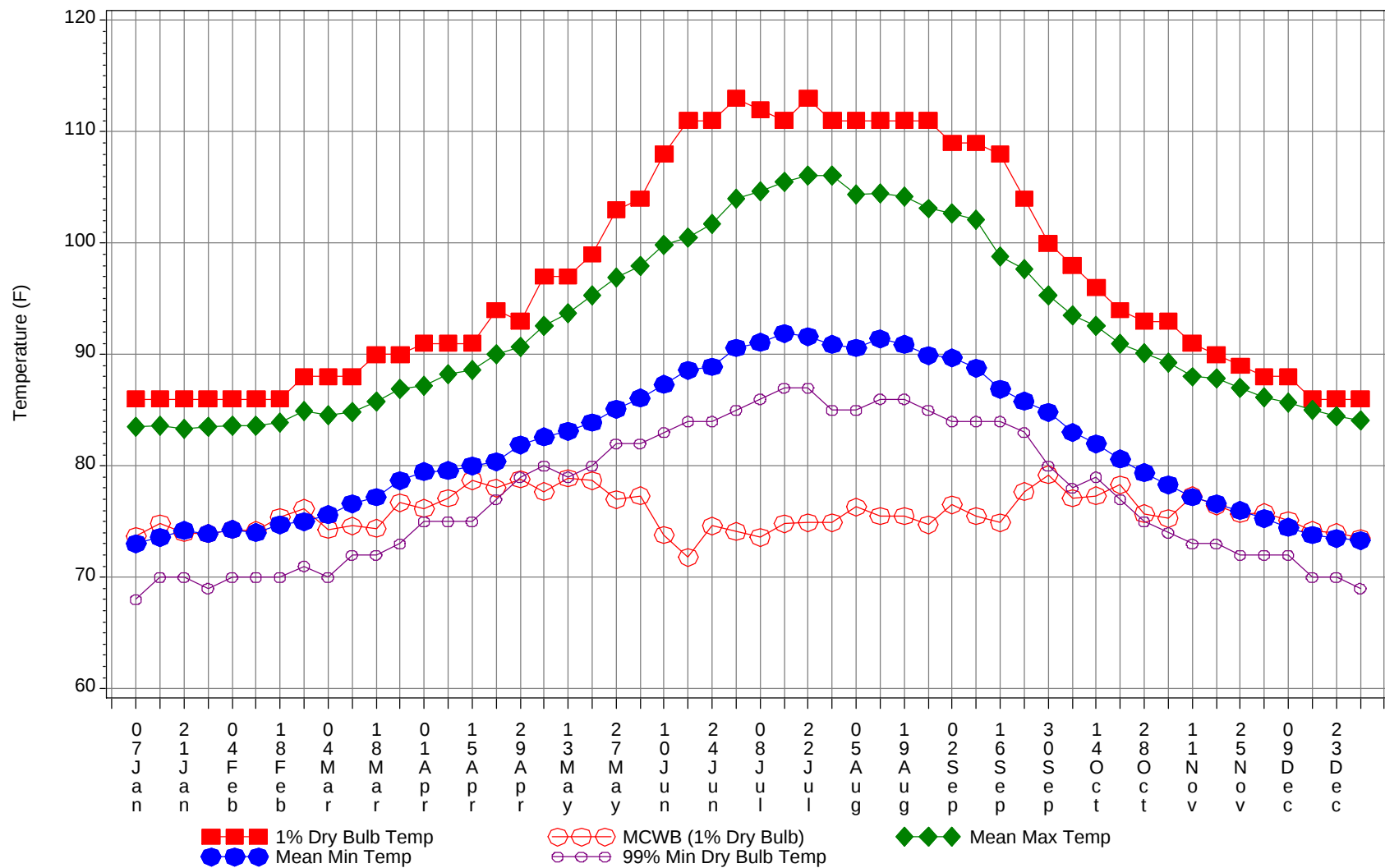
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

Dry-Bulb Temperature Hours For An Average Year

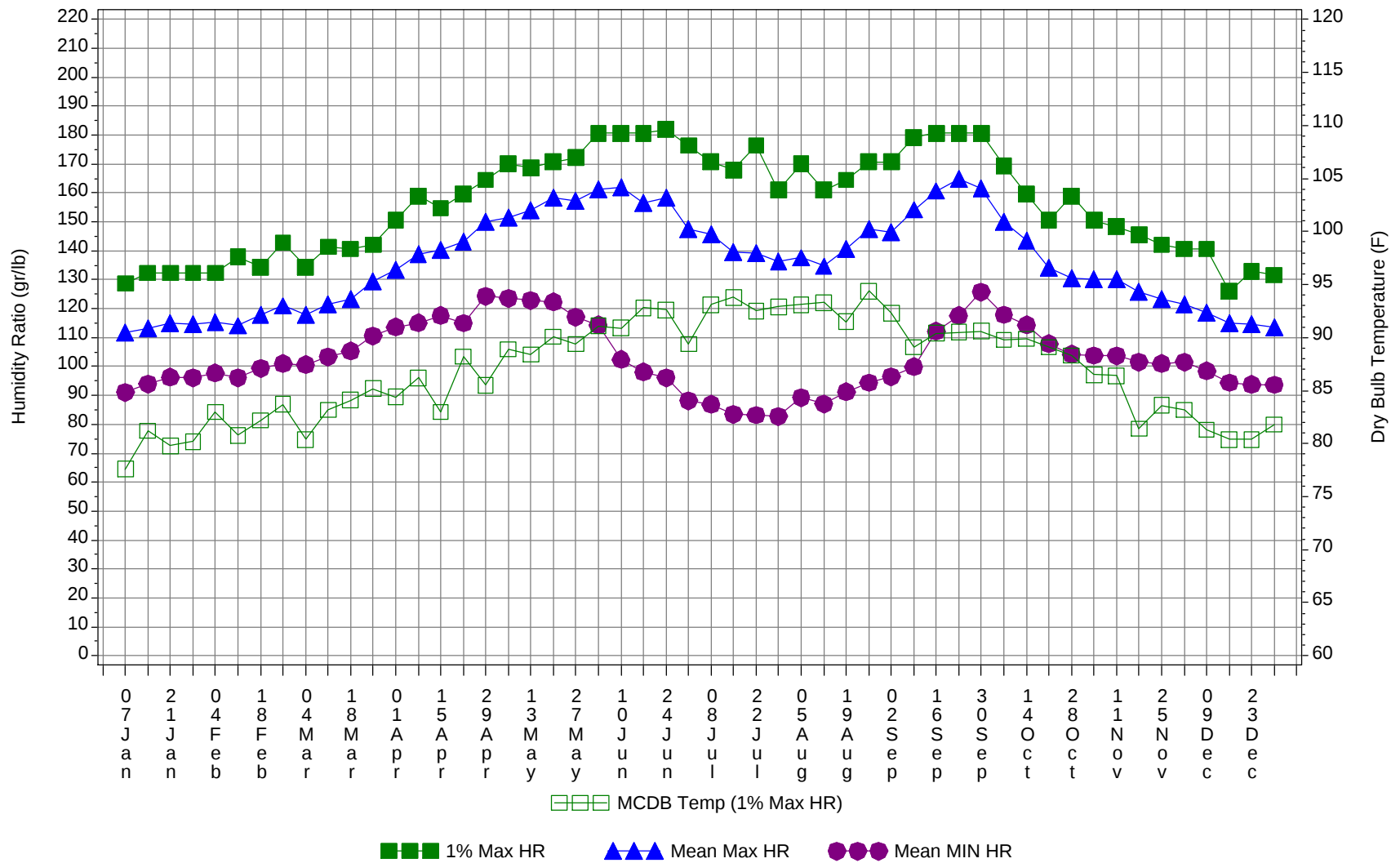
	Annual				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
115/119		1	0	1	74.3
110/114	0	47	3	50	74.9
105/109	0	189	31	220	76.2
100/104	17	236	79	332	77.3
95/ 99	237	448	293	978	78.3
90/ 94	420	576	488	1484	79.1
85/ 89	485	647	554	1686	77.8
80/ 84	648	727	815	2190	74.4
75/ 79	772	47	617	1436	71.6
70/ 74	323	2	39	364	67.9
65/ 69	20	0	0	20	64.2
60/ 64	0			0	62

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



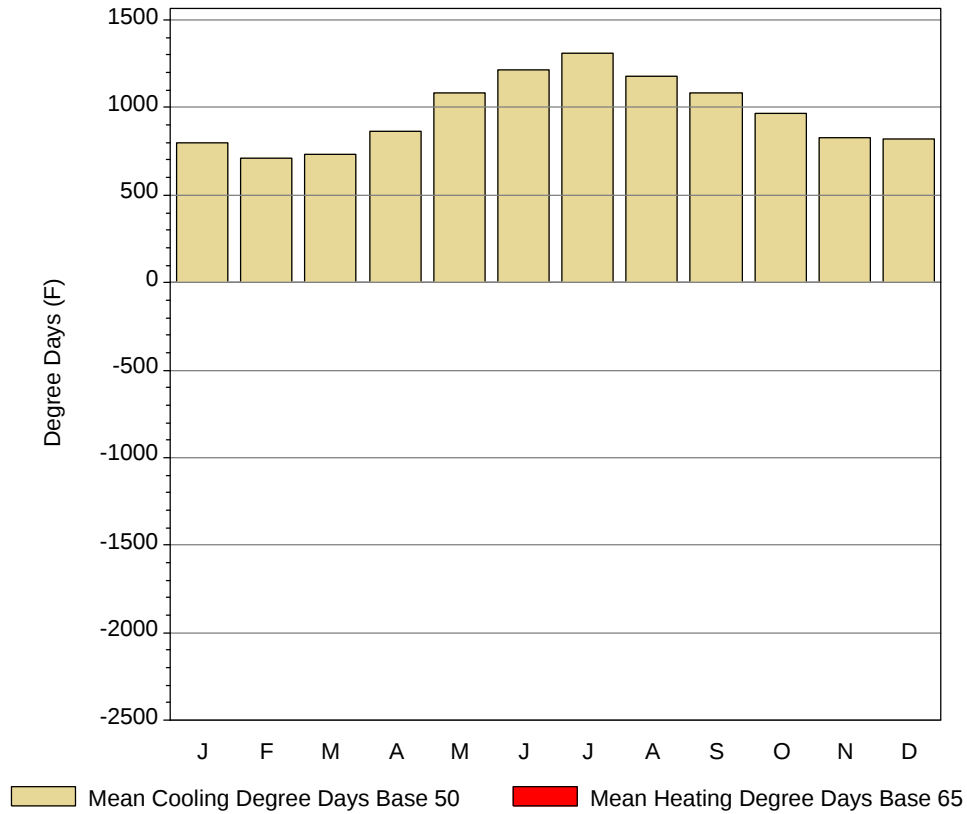
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

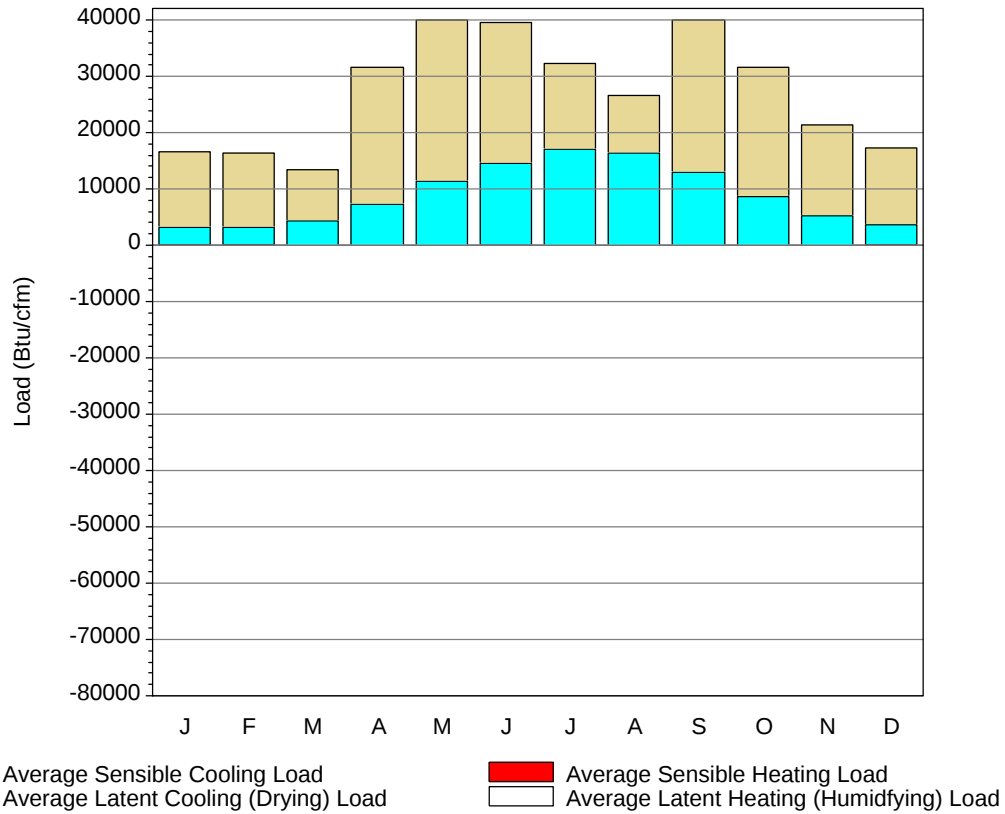
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	86	73.7	83.5	73	68	128.8	77.6	111.7	91
14-Jan	86	74.8	83.6	73.6	70	132.3	81.2	113.2	93.9
21-Jan	86	74	83.3	74.2	70	132.3	79.8	115.1	96.3
28-Jan	86	73.9	83.5	73.9	69	132.3	80.2	114.6	96.2
4-Feb	86	74.3	83.6	74.3	70	132.3	83	115.5	97.8
11-Feb	86	74.2	83.6	74	70	137.9	80.8	114.1	96.2
18-Feb	86	75.4	83.9	74.7	70	134.4	82.2	117.9	99.3
25-Feb	88	76.2	84.9	75	71	142.8	83.7	121	101
4-Mar	88	74.3	84.6	75.6	70	134.4	80.4	117.8	100.6
11-Mar	88	74.6	84.8	76.6	72	141.4	83.2	121.4	103.4
18-Mar	90	74.4	85.8	77.2	72	140.7	84.1	123.3	105.4
25-Mar	90	76.7	86.9	78.7	73	142.1	85.2	129.6	110.5
1-Apr	91	76.2	87.2	79.5	75	150.5	84.4	133.5	113.7
8-Apr	91	77.1	88.2	79.6	75	158.9	86.2	138.8	115.1
15-Apr	91	78.7	88.6	80	75	154.7	83	140.4	117.6
22-Apr	94	78	90	80.4	77	159.6	88.2	143.1	115
29-Apr	93	78.8	90.7	81.9	79	164.5	85.5	150.1	124.3
6-May	97	77.7	92.6	82.6	80	170.1	88.9	151.5	123.6
13-May	97	78.9	93.7	83.1	79	168.7	88.4	153.9	122.8
20-May	99	78.7	95.3	83.9	80	170.8	90.1	158.3	122.3
27-May	103	77	96.9	85.1	82	172.2	89.4	157.4	117
4-Jun	104	77.3	98	86.1	82	180.6	91.1	161.4	114.3
10-Jun	108	73.8	99.8	87.3	83	180.6	90.9	161.9	102.4
17-Jun	111	71.8	100.5	88.6	84	180.6	92.8	156.6	98.1
24-Jun	111	74.6	101.7	88.9	84	182	92.6	158.3	96.2
1-Jul	113	74.1	104	90.6	85	176.4	89.4	147.4	88.1
8-Jul	112	73.6	104.7	91.1	86	170.8	93.1	145.7	86.9
15-Jul	111	74.8	105.5	91.9	87	168	93.8	139.6	83.4
22-Jul	113	74.9	106.1	91.6	87	176.4	92.5	139.2	83.2
29-Jul	111	74.9	106.1	90.9	85	161	92.9	136.2	82.8
5-Aug	111	76.3	104.4	90.6	85	170.1	93.1	137.6	89.3
12-Aug	111	75.5	104.5	91.4	86	161	93.3	134.7	87
19-Aug	111	75.5	104.2	90.9	86	164.5	91.5	140.8	91.2
26-Aug	111	74.7	103.1	89.9	85	170.8	94.4	147.5	94.4
2-Sep	109	76.5	102.7	89.7	84	170.8	92.3	146.4	96.5
9-Sep	109	75.5	102.1	88.8	84	179.2	89.1	154.2	99.9
16-Sep	108	74.9	98.8	86.9	84	180.6	90.4	160.7	112.2
23-Sep	104	77.7	97.7	85.8	83	180.6	90.5	165	117.7
30-Sep	100	79.2	95.3	84.8	80	180.6	90.6	161.7	125.7
7-Oct	98	77.1	93.5	83	78	169.4	89.8	150	117.9
14-Oct	96	77.3	92.6	82	79	159.6	89.9	143.5	114.4
21-Oct	94	78.3	91	80.6	77	150.5	89.1	134.3	107.8
28-Oct	93	75.7	90.1	79.4	75	158.9	88.3	130.5	104.2
4-Nov	93	75.3	89.3	78.3	74	150.5	86.5	130.2	103.8
11-Nov	91	77.3	88	77.2	73	148.4	86.4	130.3	103.7
18-Nov	90	76.4	87.9	76.6	73	145.6	81.4	125.8	101.5
25-Nov	89	75.7	87	76	72	142.1	83.6	123.2	101
2-Dec	88	75.8	86.2	75.3	72	140.7	83.2	121.6	101.5
9-Dec	88	75.1	85.7	74.5	72	140.7	81.3	118.6	98.4
16-Dec	86	74.2	85	73.8	70	126	80.4	115.1	94.4
23-Dec	86	74	84.5	73.5	70	133	80.4	114.7	93.8
31-Dec	86	73.5	84.1	73.3	69	131.6	81.8	113.5	93.7

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	798	379.6	0
FEB	709.3	343.3	0
MAR	735.4	388.4	0
APR	866.9	492.4	0
MAY	1081.9	668.4	0
JUN	1215.7	802.7	0
JUL	1307.6	894.1	0
AUG	1176.6	798.1	0
SEP	1080.8	691.8	0
OCT	964	561	0
NOV	831.5	439	0
DEC	817.1	398.6	0
ANN	11584.8	6857.4	0

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	3224	-2	13391	0
FEB	3159	-1	13256	0
MAR	4392	0	9121	0
APR	7265	0	24252	0
MAY	11312	0	31849	0
JUN	14644	0	24901	-2
JUL	17174	0	15107	0
AUG	16291	0	10257	0
SEP	12938	0	27882	0
OCT	8748	0	22943	0
NOV	5173	0	16171	0
DEC	3744	-2	13591	0
ANN	108064	-5	222721	-2

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													

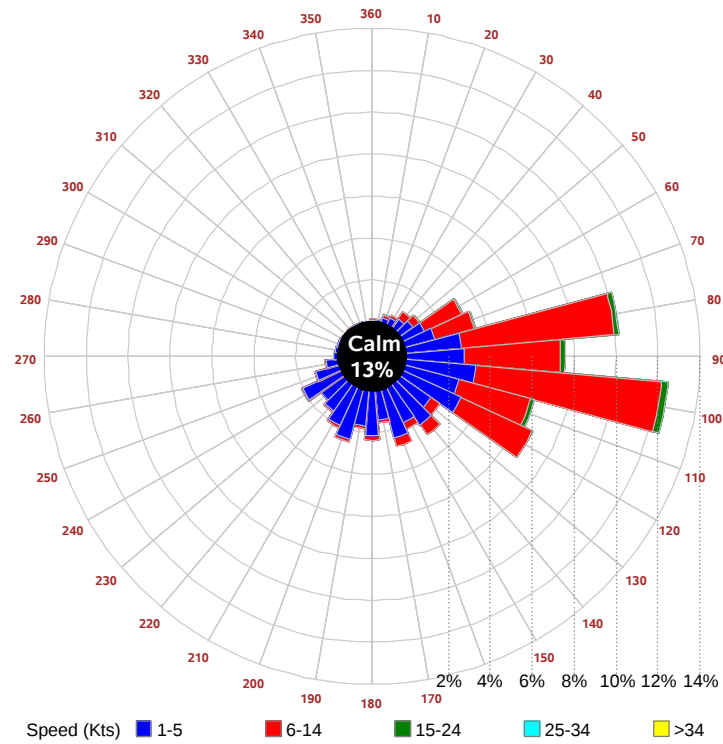
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

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													

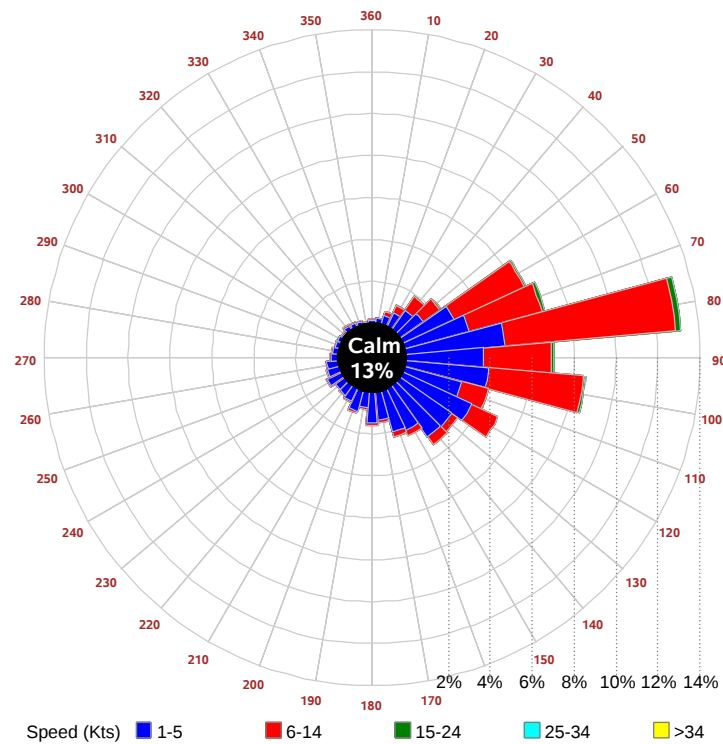
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9												
		March						June				
		9am	11am	1pm	3pm	5pm		9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear											
	M.Cloudy											
NORTH	M.Clear											
	M.Cloudy											
EAST	M.Clear			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

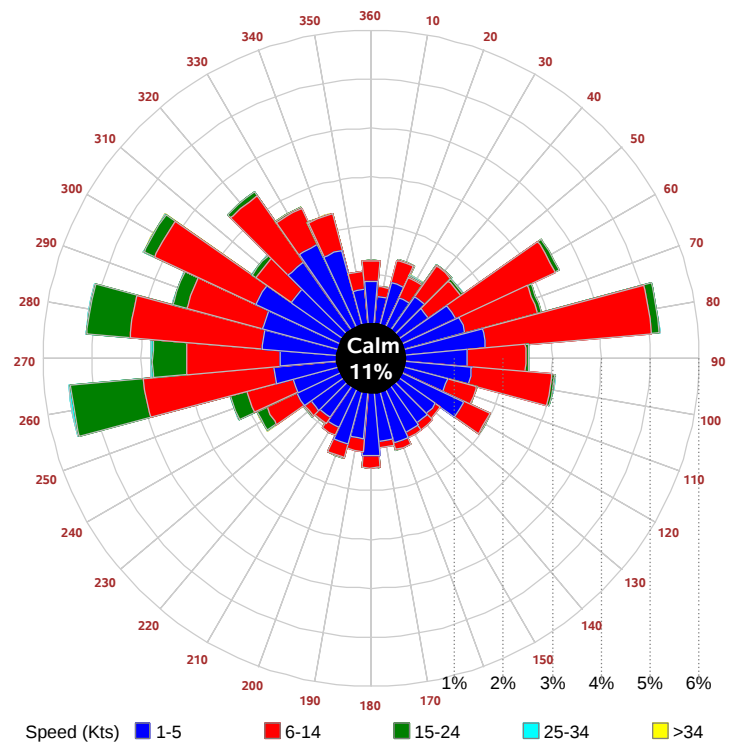
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

