

MWALIMU JULIUS K NYERERE, TZ

Latitude = 6.88 S

Longitude = 39.20 E

Period of Record = 1988 To 2017

Station ID = ICAO_HTDA

Elevation = 182 Feet

Average Pressure = 29.74 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	95	79	128	11.1	NNE
0.4% Occurrence	92	79	127	12.5	NNE
1.0% Occurrence	91	78	127	12.6	NNE
2.0% Occurrence	90	78	126	12.6	NNE
Mean Daily Range	15	-	-	-	SSW
97.5% Occurrence	67	67	97	1.9	SSW
99.0% Occurrence	66	66	94	1.7	SSW
99.6% Occurrence	64	64	88	1.3	SSW
Median of Extreme Lows	60	60	76	1.9	S

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	84	90	164	11.1	NNE
0.4% Occurrence	81	88	146	10.7	NNE
1.0% Occurrence	80	87	141	10.5	NNE
2.0% Occurrence	80	87	141	10.5	NNE

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	173	87	1.14	8.3	ENE
0.4% Occurrence	152	84	1	7.9	NNE
1.0% Occurrence	151	84	1	7.7	NNE
2.0% Occurrence	146	83	0.97	7.4	NNE

Air Conditioning/ Humid Area Criteria	Threshold	T ≥ 93 °F	T ≥ 80 °F	Twb ≥ 73 °F	Twb ≥ 67 °F
	# of Hours	21	3612	4842	7128

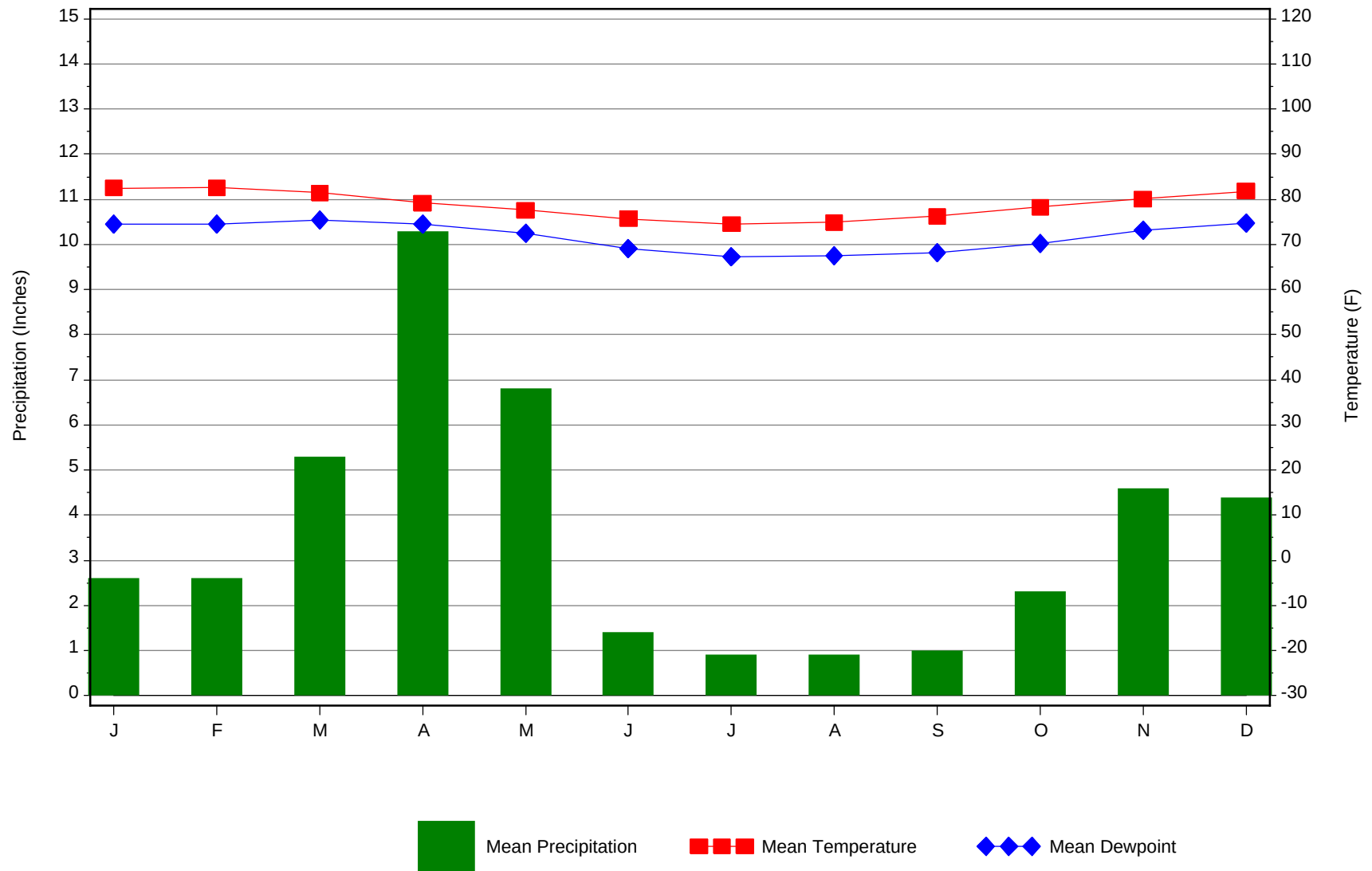
Other Site Data

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	18.3 + 3.8
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 (#)
81.2	N/A	N/A	0

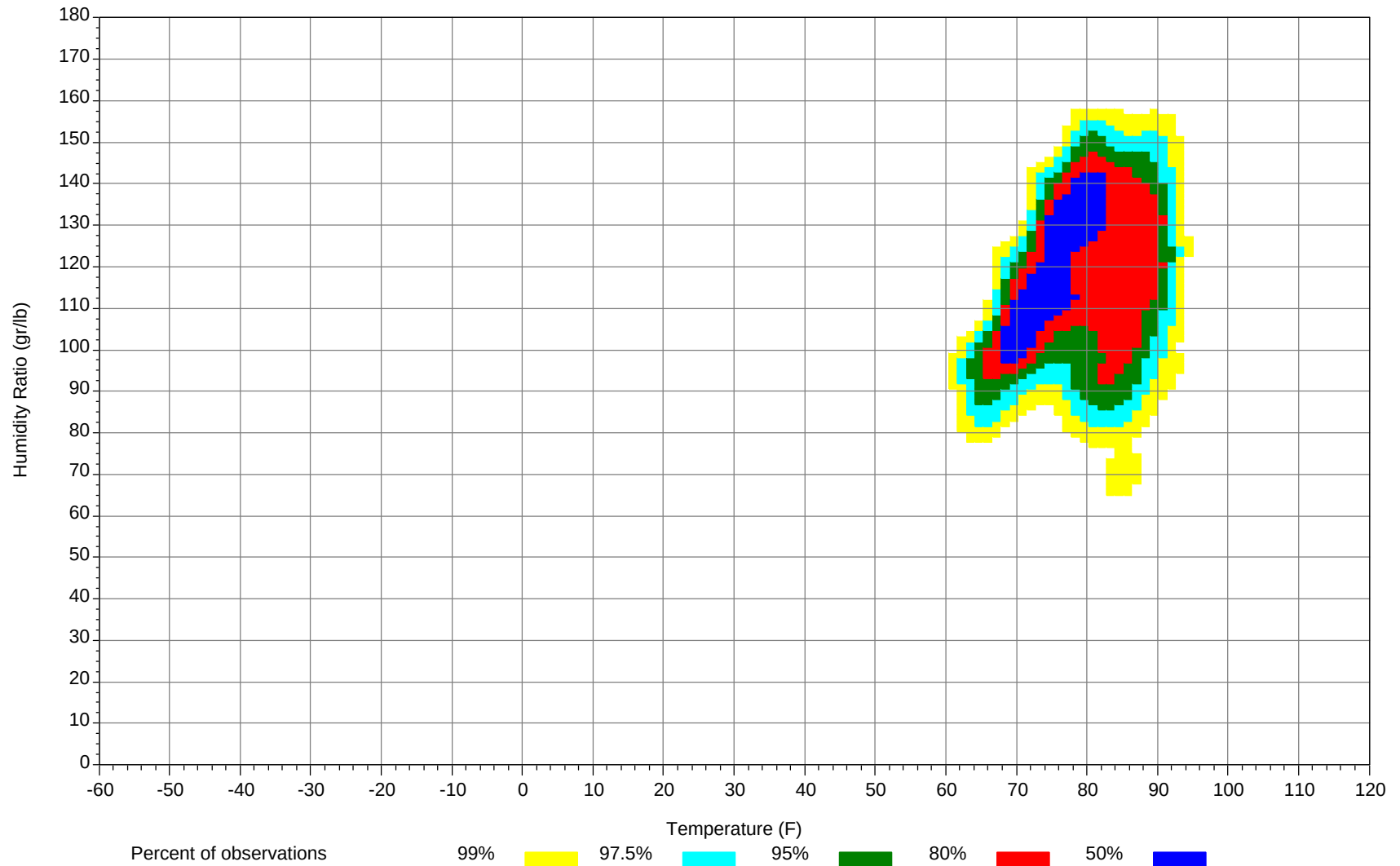
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



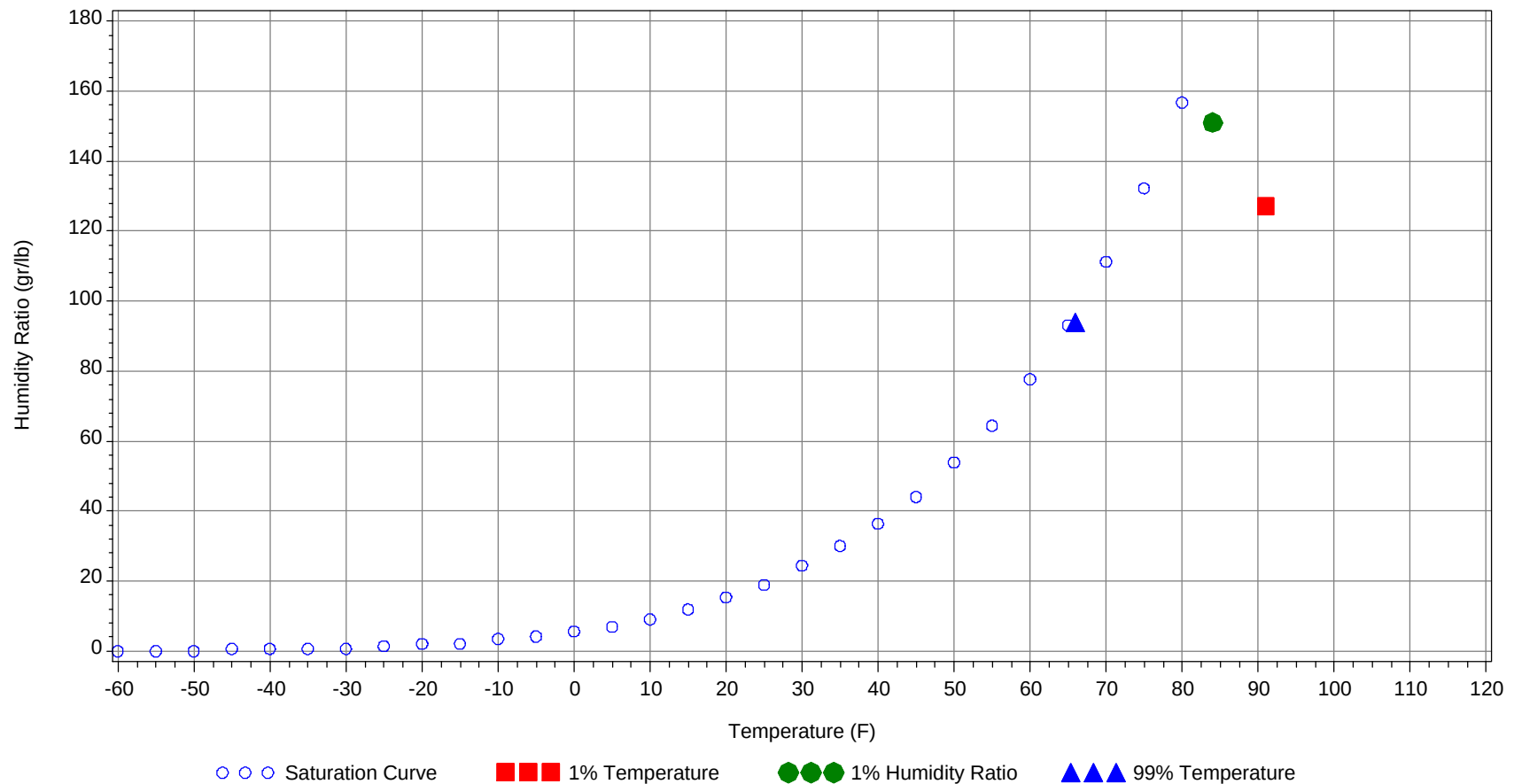
Average Annual Climate



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	91.0		78		127.0	41.9
99.0% Dry Bulb	66.0				94.0	30.4
1.0% Humidity Ratio	151.0	84.0	80.2	79.0		43.9

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		0		0	78		1	0	1	79.3		1		1	81.1
90/ 94	0	63	1	64	78.3	0	73	3	76	78.3		66	4	70	79.2
85/ 89	1	129	34	164	77.7	0	105	37	142	77.6	0	99	34	133	78.4
80/ 84	108	47	170	325	77	80	38	144	262	77	41	60	116	217	77.6
75/ 79	127	8	41	176	75.6	127	7	38	172	75.4	167	21	88	276	75.8
70/ 74	12	1	1	14	72.4	16	1	2	19	72.5	39	1	6	46	72.9
65/ 69	0	0	0	0	66.8	0	0	0	0	67.7	0	0	0	0	67.8
60/ 64			0	0	62.5										
55/ 59															

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															
95/ 99		0		0	79.7										
90/ 94	0	19	1	20	78.7	0	4	0	4	76.6	0	1	0	1	75
85/ 89	0	85	17	102	77.9	0	81	6	87	75.9	0	53	1	54	73.6
80/ 84	3	91	67	161	77.2	1	105	52	158	75.5	0	121	39	160	72.9
75/ 79	150	42	139	331	75.5	62	53	130	245	74.4	8	55	80	143	72.4
70/ 74	86	2	16	104	72.8	173	5	58	236	71.8	138	11	105	254	70.3
65/ 69	0	0	0	0	67.7	11	0	1	12	67.7	88	0	13	101	67.1
60/ 64						0		0	0	62.7	5		0	5	62.7
55/ 59											0		0	0	59

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

	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															
95/ 99															
90/ 94		0	0	0	73.8		1	0	1	73.7	0	3	0	3	73.6
85/ 89		39	1	40	72	0	53	1	54	72.2	0	91	5	96	72.7
80/ 84	1	131	35	167	71.5	0	127	38	165	71.9	0	104	46	150	72.4
75/ 79	2	58	70	130	71.2	3	54	76	133	71.4	10	40	84	134	72.1
70/ 74	76	19	110	205	69.5	81	13	109	203	69.8	102	2	94	198	70.1
65/ 69	151	1	32	184	66.7	147	0	25	172	66.8	120	0	11	131	67
60/ 64	18	0	1	19	62.7	17	0	0	17	63	7		0	7	63.3
55/ 59	0			0	57.8	0	0		0	57.5					

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.

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													0	0	81
95/ 99		0		0	75.5		0		0	77.2		0	0	0	81
90/ 94		18	0	18	75.5	0	28	1	29	77.5	0	53	1	54	78.3
85/ 89	0	129	13	142	74.4	0	139	18	157	76.5	1	132	29	162	77.7
80/ 84	3	85	54	142	74	20	59	81	160	76.2	77	49	150	276	77.1
75/ 79	55	15	123	193	73.3	121	13	125	259	75	137	12	64	213	75.6
70/ 74	142	2	55	199	70.8	93	1	15	109	71.9	33	1	4	38	72.5
65/ 69	46	0	2	48	67.4	6	0	0	6	67.7	0		0	0	67.9
60/ 64	1	0	0	1	63.1	0		0	0	63.8			0	0	63
55/ 59															

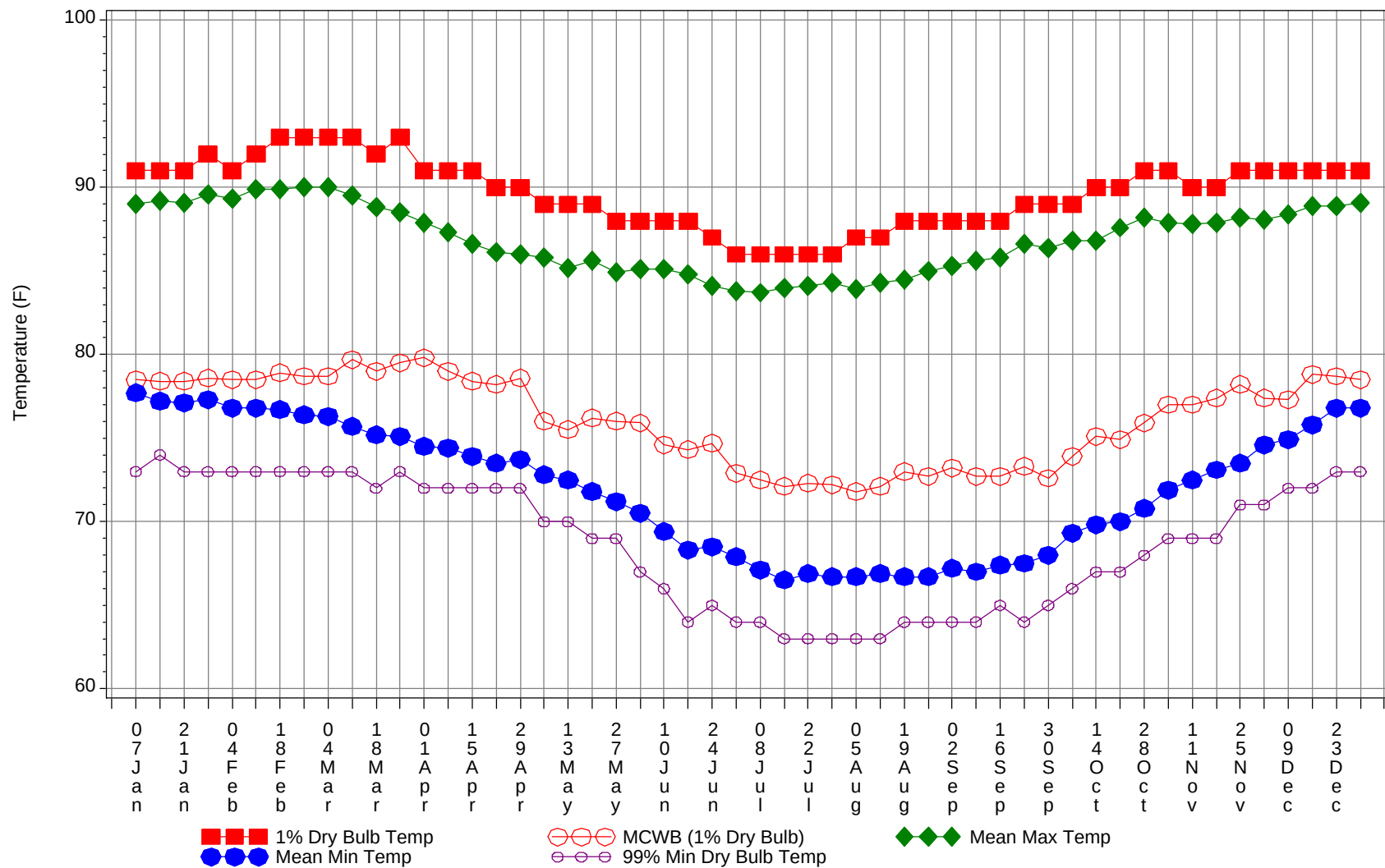
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

Dry-Bulb Temperature Hours For An Average Year

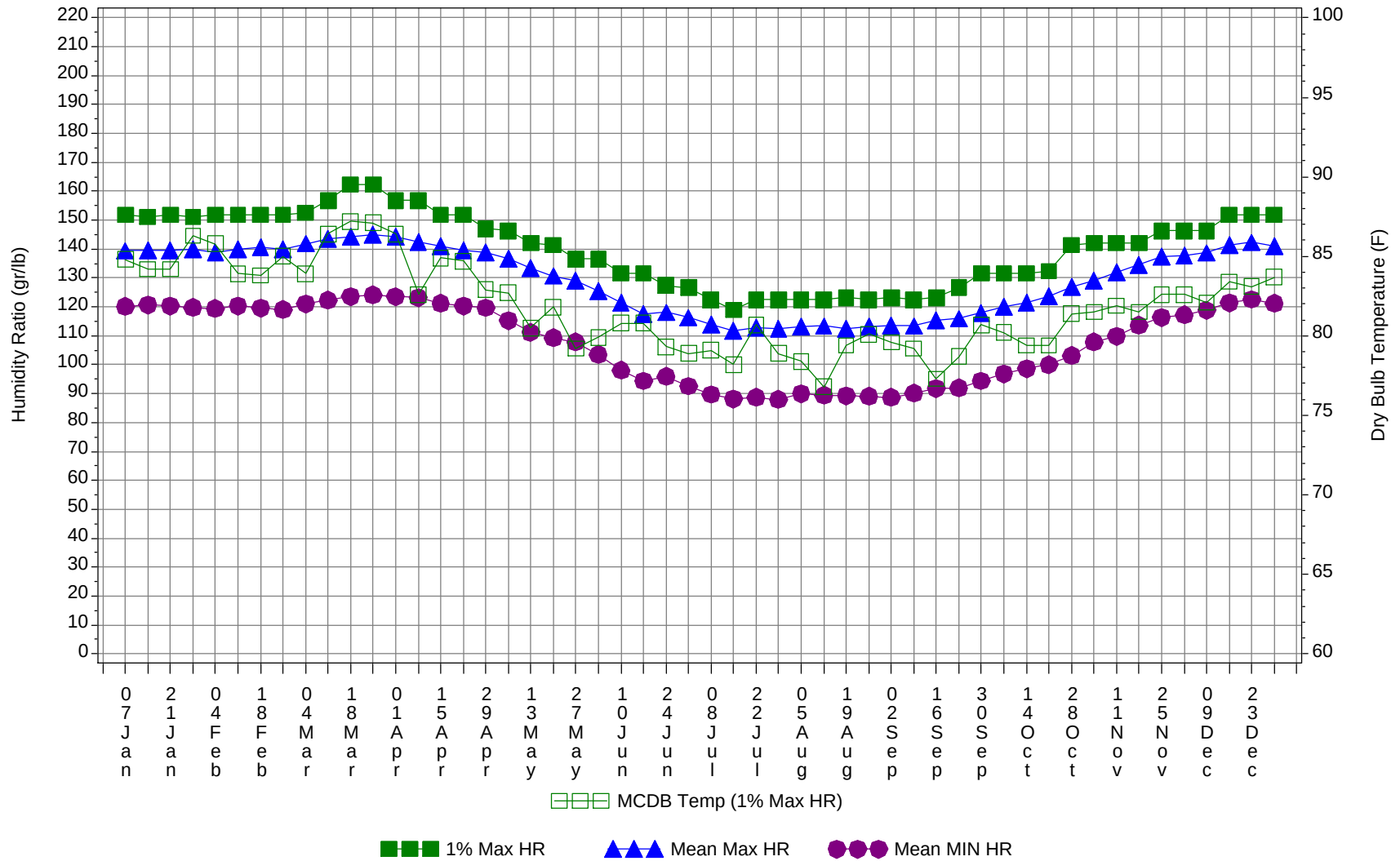
	Annual				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
100/104			0	0	81
95/ 99		2	0	2	79.8
90/ 94	1	326	10	337	78.2
85/ 89	3	1132	196	1331	76.3
80/ 84	333	1018	989	2340	75.5
75/ 79	962	380	1056	2398	74.3
70/ 74	992	60	581	1633	70.8
65/ 69	579	2	86	667	66.9
60/ 64	50	0	2	52	62.9
55/ 59	1	0	0	1	57.8

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



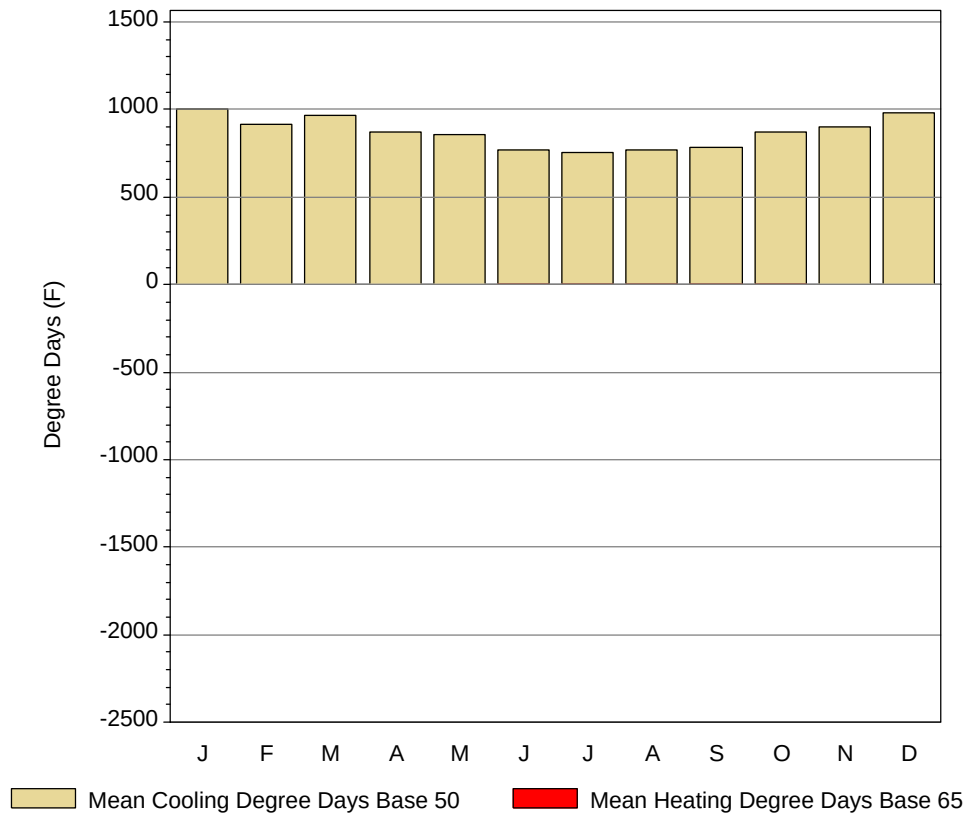
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

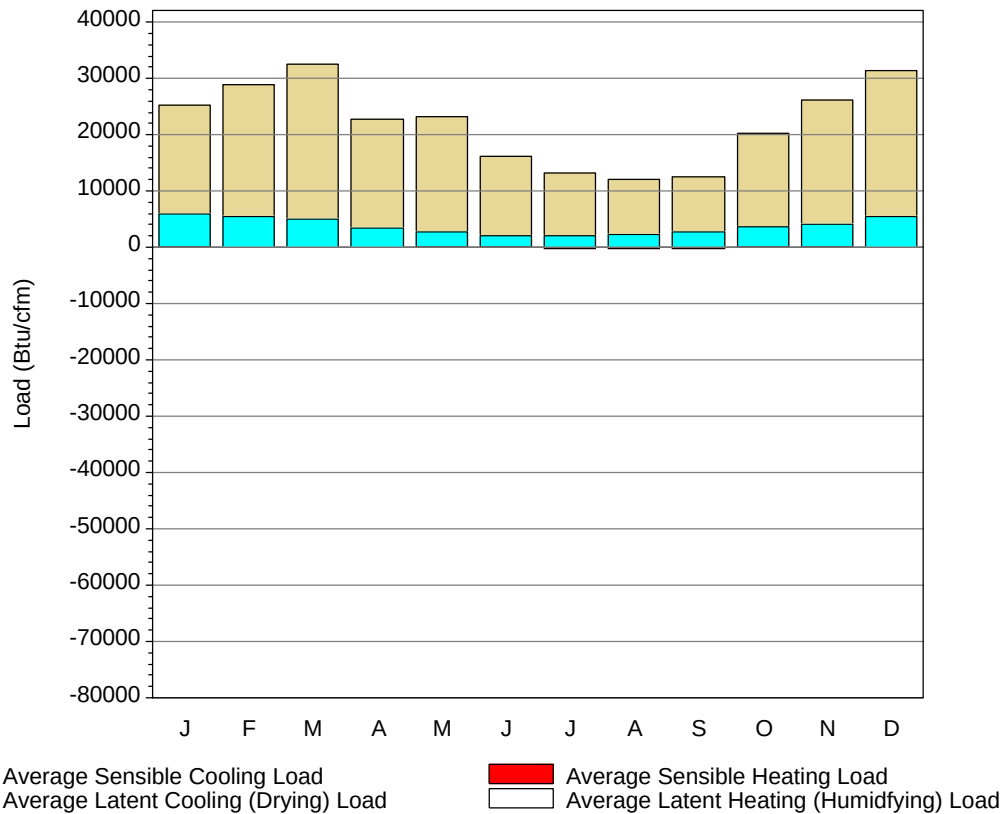
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	91	78.5	89	77.7	73	151.9	84.8	139.4	120.2
14-Jan	91	78.4	89.2	77.2	74	151.2	84.2	139.7	120.7
21-Jan	91	78.4	89.1	77.1	73	151.9	84.2	139.5	120.4
28-Jan	92	78.6	89.6	77.3	73	151.2	86.3	139.8	119.8
4-Feb	91	78.5	89.3	76.8	73	151.9	85.8	138.8	119.5
11-Feb	92	78.5	89.9	76.8	73	151.9	83.9	140	120.3
18-Feb	93	78.9	89.9	76.7	73	151.9	83.8	140.8	119.6
25-Feb	93	78.7	90	76.4	73	151.9	85	139.8	119
4-Mar	93	78.7	90	76.3	73	152.6	83.9	141.9	121
11-Mar	93	79.7	89.5	75.7	73	156.8	86.4	143.5	122.3
18-Mar	92	79	88.8	75.2	72	162.4	87.2	144.3	123.6
25-Mar	93	79.5	88.5	75.1	73	162.4	87.1	145	124.2
1-Apr	91	79.8	87.9	74.5	72	156.8	86.4	144.3	123.5
8-Apr	91	79	87.3	74.4	72	156.8	82.6	142.4	123.3
15-Apr	91	78.4	86.6	73.9	72	151.9	84.9	141.1	121.3
22-Apr	90	78.2	86.1	73.5	72	151.9	84.7	139.6	120.4
29-Apr	90	78.6	86	73.7	72	147	82.9	138.9	119.7
6-May	89	76	85.8	72.8	70	146.3	82.7	136.6	115.2
13-May	89	75.5	85.2	72.5	70	142.1	80.5	133.4	111.2
20-May	89	76.2	85.6	71.8	69	141.4	81.8	130.7	109.3
27-May	88	76	84.9	71.2	69	136.5	79.2	129.2	107.9
4-Jun	88	75.9	85.1	70.5	67	136.5	79.9	125.4	103.5
10-Jun	88	74.6	85.1	69.4	66	131.6	80.8	121.4	98.1
17-Jun	88	74.3	84.8	68.3	64	131.6	80.8	117.4	94.4
24-Jun	87	74.7	84.1	68.5	65	127.4	79.3	118.1	96
1-Jul	86	72.9	83.8	67.9	64	126.7	78.9	116.3	92.6
8-Jul	86	72.5	83.7	67.1	64	122.5	79.1	113.8	89.7
15-Jul	86	72.1	84	66.5	63	119	78.2	111.8	88.1
22-Jul	86	72.3	84.1	66.9	63	122.5	80.7	112.8	88.7
29-Jul	86	72.2	84.3	66.7	63	122.5	78.9	112.6	88
5-Aug	87	71.8	83.9	66.7	63	122.5	78.4	113.1	90
12-Aug	87	72.1	84.3	66.9	63	122.5	76.8	113.4	89.4
19-Aug	88	73	84.5	66.7	64	123.2	79.4	112.4	89.2
26-Aug	88	72.7	85	66.7	64	122.5	80.1	113.3	89.1
2-Sep	88	73.2	85.3	67.2	64	123.2	79.6	113.6	88.7
9-Sep	88	72.7	85.6	67	64	122.5	79.2	113.4	90.1
16-Sep	88	72.7	85.8	67.4	65	123.2	77.3	115.3	91.8
23-Sep	89	73.3	86.6	67.5	64	126.7	78.7	115.9	92
30-Sep	89	72.6	86.4	68	65	131.6	80.7	118	94.4
7-Oct	89	73.9	86.8	69.3	66	131.6	80.2	120.1	96.9
14-Oct	90	75.1	86.8	69.8	67	131.6	79.4	121.5	98.7
21-Oct	90	74.9	87.6	70	67	132.3	79.4	123.6	100
28-Oct	91	75.9	88.2	70.8	68	141.4	81.4	127	103.2
4-Nov	91	77	87.9	71.9	69	142.1	81.5	129.1	107.9
11-Nov	90	77	87.8	72.5	69	142.1	81.9	131.9	109.8
18-Nov	90	77.4	87.9	73.1	69	142.1	81.5	134.6	113.6
25-Nov	91	78.2	88.2	73.5	71	146.3	82.6	137.3	116.4
2-Dec	91	77.4	88.1	74.6	71	146.3	82.6	137.9	117.3
9-Dec	91	77.3	88.4	74.9	72	146.3	82.1	138.7	118.8
16-Dec	91	78.8	88.9	75.8	72	151.9	83.4	141.5	121.4
23-Dec	91	78.7	88.9	76.8	73	151.9	83.1	142.3	122.6
31-Dec	91	78.5	89.1	76.8	73	151.9	83.7	141.1	121.3

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	1004.4	539.4	0
FEB	918.1	494.1	0
MAR	968.9	503.9	0
APR	873.8	423.8	0
MAY	855	390	0
JUN	766.1	316.5	0.4
JUL	756	292.5	1.5
AUG	769.2	305.4	1.2
SEP	781.6	332.1	0.4
OCT	873.1	408.2	0.1
NOV	900.2	450.2	0
DEC	983	518	0
ANN	10449.4	4974.1	3.6

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	5978	-1	19365	0
FEB	5520	0	23399	0
MAR	5117	0	27338	0
APR	3430	0	19379	0
MAY	2797	-6	20347	0
JUN	2176	-80	13993	0
JUL	2009	-247	11188	0
AUG	2192	-222	9881	0
SEP	2644	-127	9805	0
OCT	3551	-28	16808	0
NOV	4199	-2	22053	0
DEC	5478	0	25931	0
ANN	45091	-713	219487	0

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													

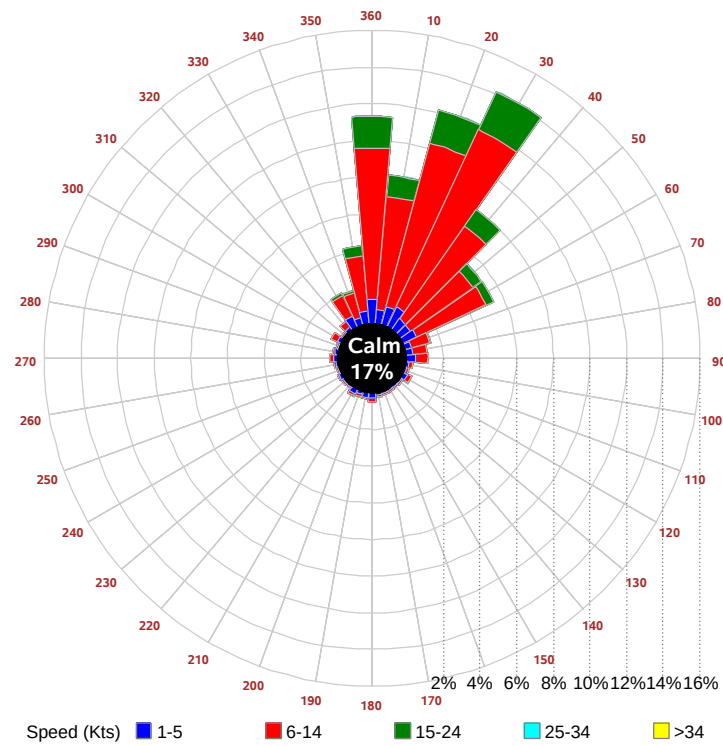
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

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													

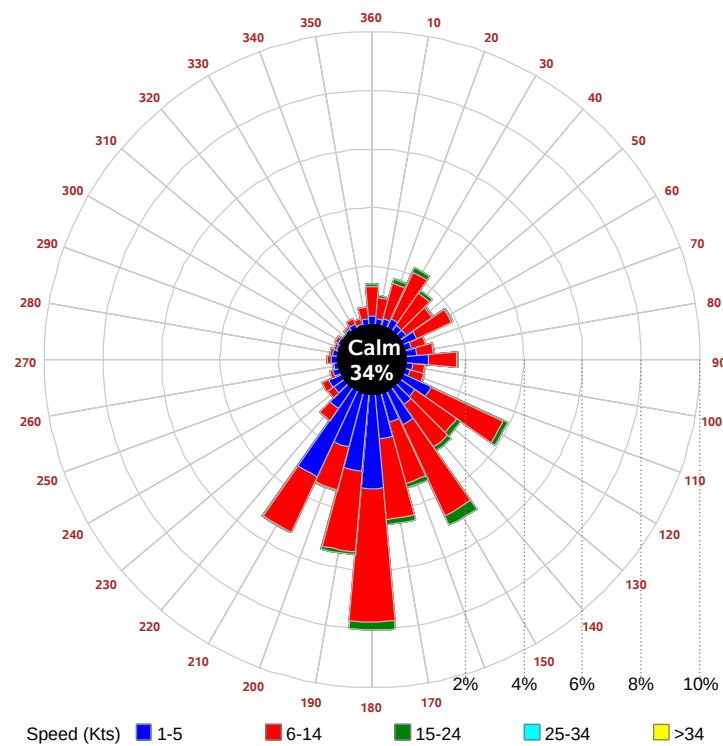
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9												
				March						June		
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm	
HORIZ.	M.Clear											
	M.Cloudy											
NORTH	M.Clear											
	M.Cloudy											
EAST	M.Clear			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

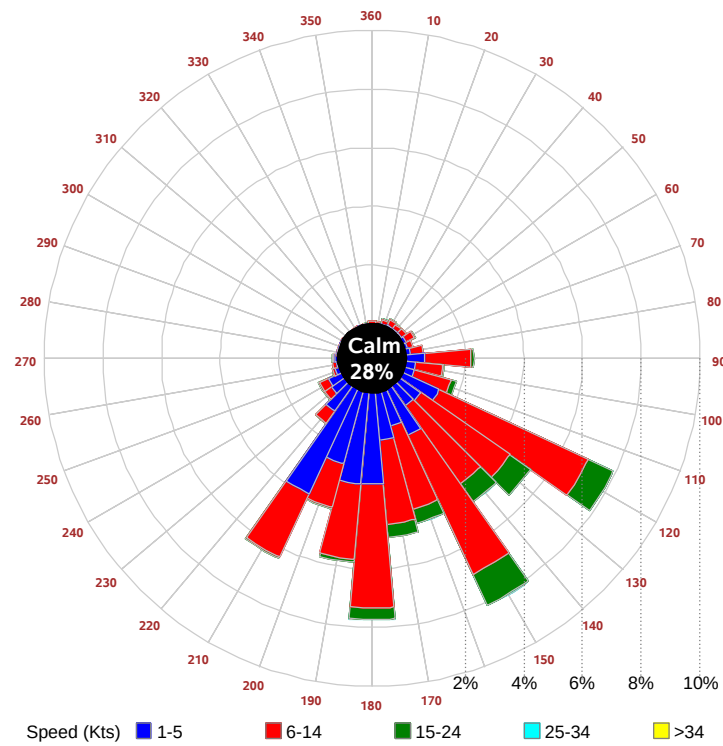
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

