

SEVILLA, SP

Latitude = 37.42 N

Longitude = 5.89 W

Period of Record = 1988 To 2017

Station ID = ICAO_LEZL

Elevation = 111 Feet

Average Pressure = 29.93 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	108	76	80	6.8	WSW
0.4% Occurrence	104	73	70	7.5	SW
1.0% Occurrence	100	71	67	7.2	SW
2.0% Occurrence	98	70	67	7.3	SW
Mean Daily Range	21	-	-	-	NE
97.5% Occurrence	42	40	33	3.8	NE
99.0% Occurrence	39	37	30	3.2	NE
99.6% Occurrence	36	35	27	2.7	NE
Median of Extreme Lows	33	31	23	2.6	NNE

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	90	90	-	9.2	SW
0.4% Occurrence	77	97	105	7.6	SW
1.0% Occurrence	75	94	98	7.6	SW
2.0% Occurrence	73	90	92	7.3	SW

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	123	86	0.82	6.6	SW
0.4% Occurrence	118	82	0.79	6.4	SW
1.0% Occurrence	110	81	0.74	5.5	SW
2.0% Occurrence	103	79	0.69	5.9	SW

Air Conditioning/ Humid Area Criteria	Threshold	$T \geq 93^{\circ}\text{F}$	$T \geq 80^{\circ}\text{F}$	$T_{wb} \geq 73^{\circ}\text{F}$	$T_{wb} \geq 67^{\circ}\text{F}$
	# of Hours	370	1334	170	1168

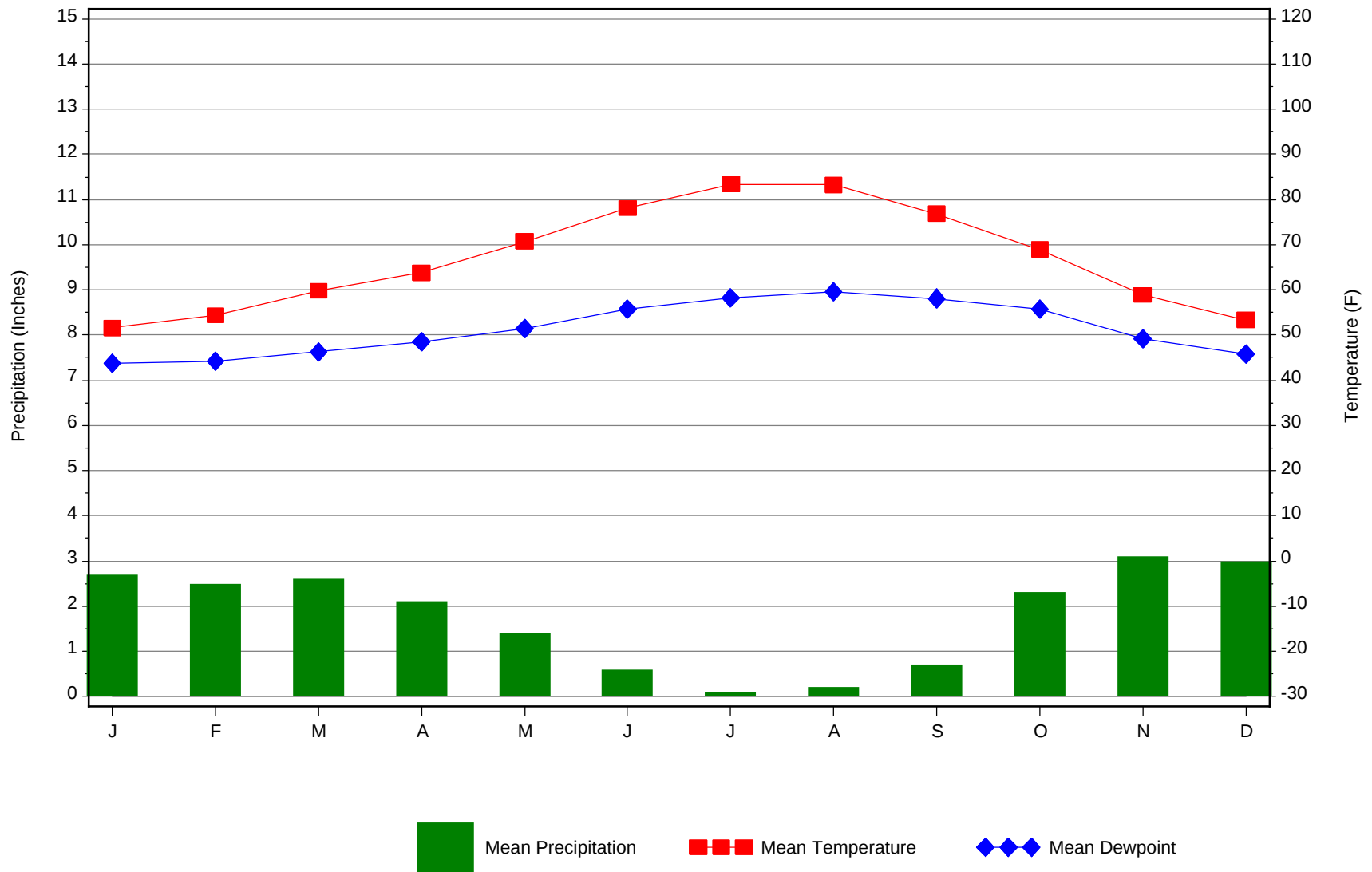
Other Site Data

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	0.8 + 2.1
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 (#)
69.4	N/A	N/A	1

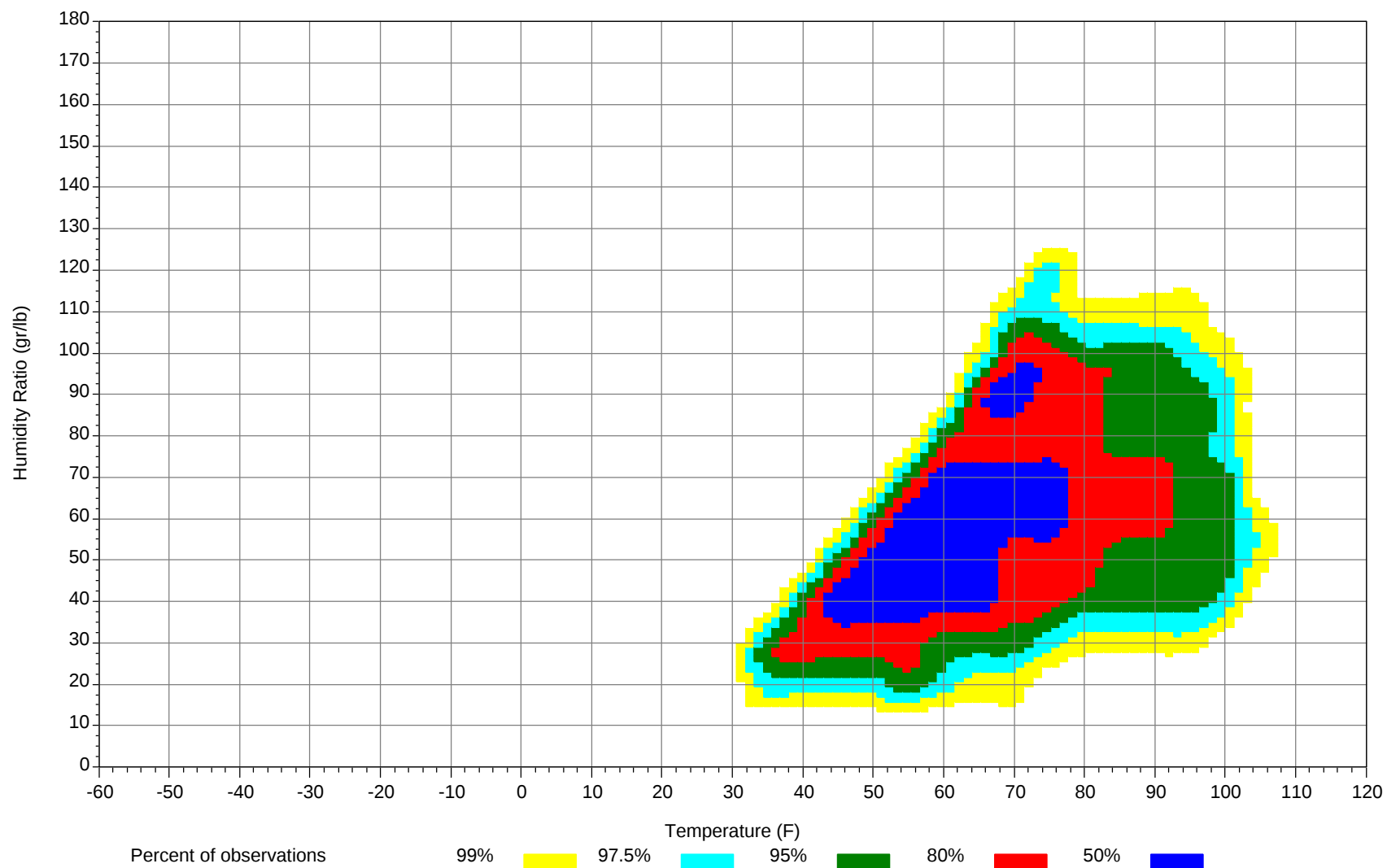
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



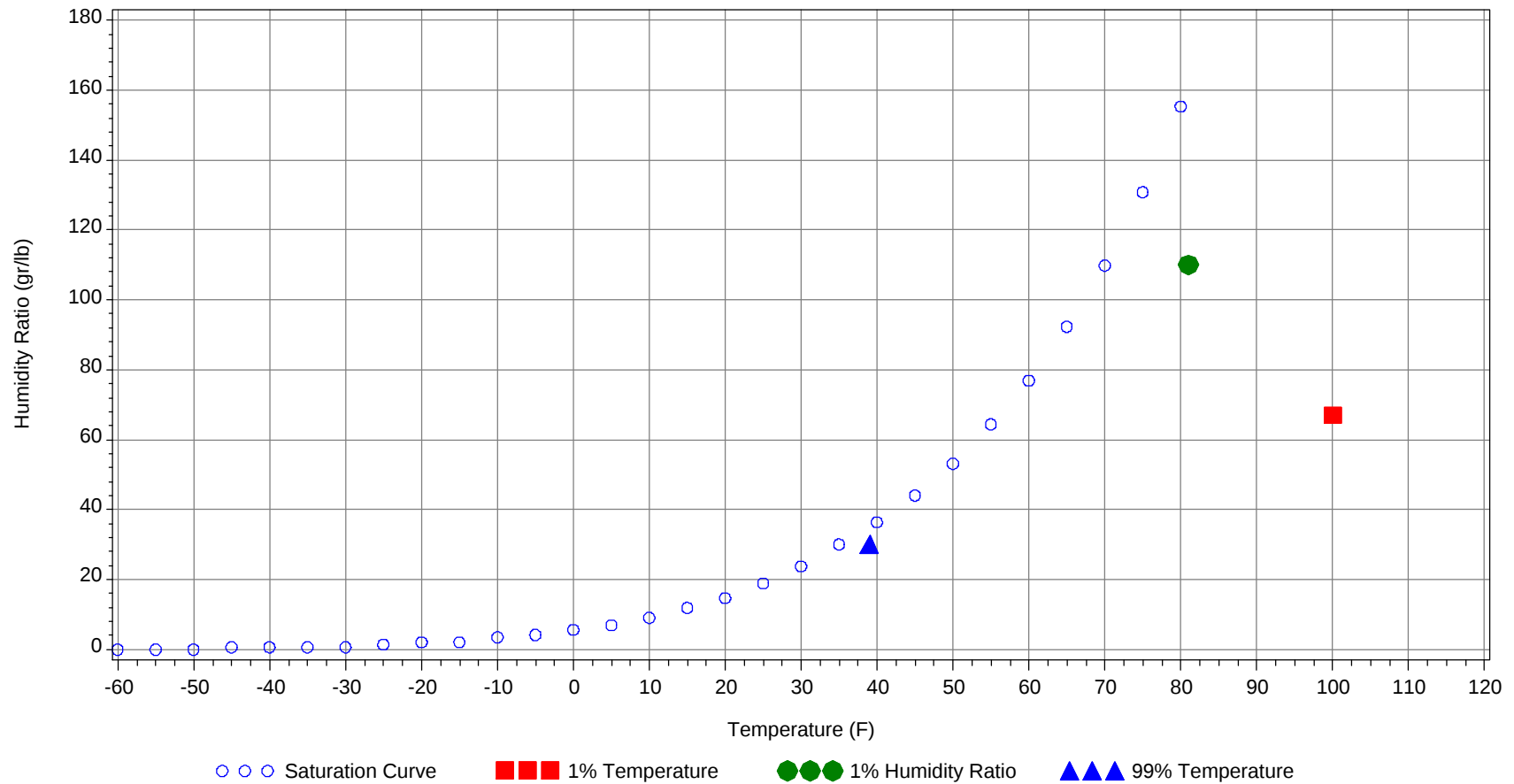
Average Annual Climate



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	100.0		71		67.0	34.7
99.0% Dry Bulb	39.0				30.0	14.0
1.0% Humidity Ratio	110.0	81.0	72.9	70.0		36.5

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)
115/119															
110/114															
105/109															
100/104															
95/ 99															
90/ 94												0	0	0	65
85/ 89												0	1	1	63.4
80/ 84							0		0	61		5	5	10	61.1
75/ 79							1	1	2	59.1		17	17	34	59.2
70/ 74		1	1	2	56.7		9	9	18	57		36	28	64	57.3
65/ 69		8	5	13	55.4	0	22	16	38	55.5	0	40	34	74	55.8
60/ 64	4	47	36	87	54.4	3	53	49	105	54.1	9	59	66	134	54.8
55/ 59	20	69	71	160	52	25	56	69	150	51.8	62	54	64	180	52.4
50/ 54	43	57	75	175	48.6	59	45	52	156	48.5	99	28	27	154	49
45/ 49	75	37	45	157	44.4	75	25	21	121	44.4	56	8	6	70	44.4
40/ 44	61	17	11	89	40.2	38	9	5	52	39.8	17	1	1	19	39.8
35/ 39	38	9	4	51	36.2	19	3	1	23	35.1	4	0	0	4	35.7
30/ 34	7	2	0	9	31.6	4	1	0	5	29.4	0	0	0	0	29.3
25/ 29	1	0	0	1	24.9	0			0	25.5	0			0	26
20/ 24	0			0	20										

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															
110/114															
105/109												1	1	2	70.9
100/104							0	0	0	68.8		6	6	12	71.3
95/ 99		0	0	0	71.5		4	4	8	67.6		21	20	41	69.5
90/ 94		1	1	2	65.6		13	12	25	65.5		36	30	66	67.8
85/ 89		5	5	10	62.7		22	19	41	64.1	0	34	30	64	66.5
80/ 84		13	12	25	61.7	0	38	30	68	62.7	3	49	45	97	65.3
75/ 79		31	25	56	59.9	2	50	43	95	61.3	21	47	46	114	64.2
70/ 74	0	46	39	85	58.1	13	54	52	119	60.1	58	31	37	126	63
65/ 69	4	47	41	92	56.8	40	37	40	117	59	74	12	18	104	61.5
60/ 64	38	59	63	160	55.8	94	24	37	155	57.5	69	3	7	79	59.2
55/ 59	91	30	42	163	53.3	75	7	11	93	54.2	15		0	15	55
50/ 54	76	8	11	95	49.4	21	0	1	22	50	0			0	51.3
45/ 49	28	1	1	30	44.9	3			3	45.3					
40/ 44	3	0		3	41.2										
35/ 39	0	0		0	36.5										
30/ 34															
25/ 29															
20/ 24															

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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							0	0	0	74.3					
110/114		0	0	0	80.1		0	0	0	76.3		0	0	0	77.5
105/109		4	4	8	76.5		4	4	8	74.7		1	0	1	71.7
100/104		20	21	41	72.4		18	17	35	72		2	2	4	71.6
95/ 99		41	37	78	70.4		39	36	75	70.5		11	10	21	69.7
90/ 94	0	51	44	95	69.2	0	51	43	94	69.7		29	23	52	68.2
85/ 89	1	42	39	82	68.1	2	43	41	86	68.9	0	37	29	66	67.1
80/ 84	13	47	48	108	67.3	13	46	48	107	68.1	2	52	46	100	66.3
75/ 79	58	30	34	122	66.2	63	32	40	135	67.1	14	51	57	122	65.6
70/ 74	100	13	18	131	64.8	103	12	18	133	65.8	69	37	51	157	65.1
65/ 69	56	1	2	59	62.4	54	1	1	56	63.1	88	16	18	122	62.8
60/ 64	17	0	0	17	59.4	13	0	0	13	59.7	54	4	4	62	58.9
55/ 59	1			1	55.2	1			1	56.3	13	0	0	13	54
50/ 54											1			1	50.3
45/ 49															
40/ 44															
35/ 39															
30/ 34															
25/ 29															
20/ 24															

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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)
115/119															
110/114															
105/109															
100/104															
95/ 99		0	0	0	66										
90/ 94		5	4	9	65.5										
85/ 89		13	8	21	65.1		0	0	0	66.5					
80/ 84		32	22	54	64.6		1	0	1	63.4					
75/ 79	0	48	38	86	63.5		10	5	15	61.7		0		0	58
70/ 74	13	57	63	133	63	1	31	18	50	60		2	1	3	58.8
65/ 69	55	44	54	153	61.9	6	44	34	84	58.5	1	17	7	25	58.3
60/ 64	92	36	42	170	59	28	62	66	156	56.5	11	59	49	119	55.9
55/ 59	64	11	13	88	54.7	60	50	67	177	53.2	32	69	76	177	52.6
50/ 54	21	2	2	25	50.2	75	28	37	140	49.2	57	53	67	177	49
45/ 49	3	0		3	45.1	50	11	11	72	44.6	73	30	37	140	44.5
40/ 44	0			0	39.3	16	2	1	19	40.4	46	11	9	66	40.3
35/ 39	0			0	39	5	1	0	6	36.5	25	5	1	31	36.6
30/ 34						0			0	34	3	1		4	31.5
25/ 29												0		0	28
20/ 24															

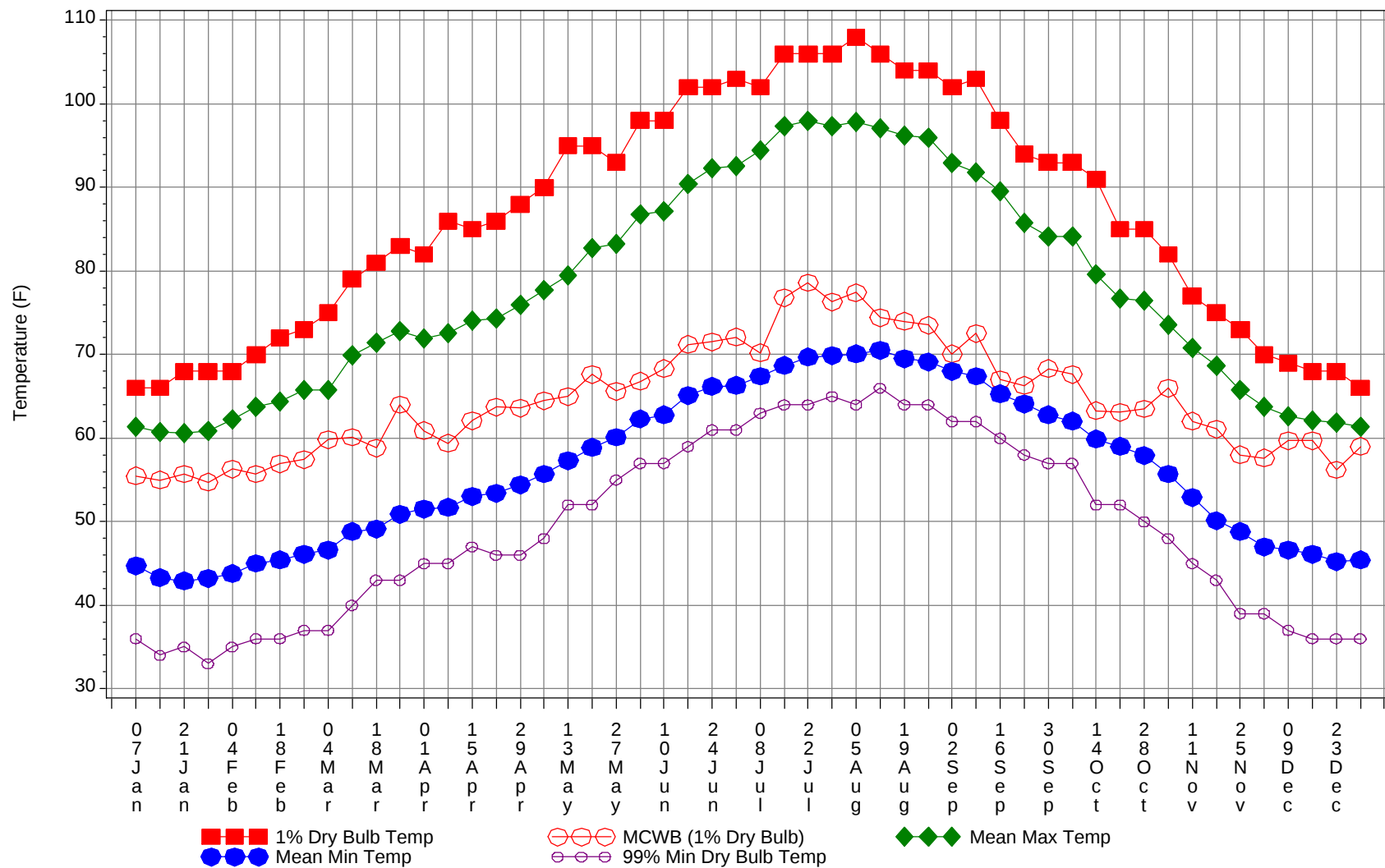
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Dry-Bulb Temperature Hours For An Average Year

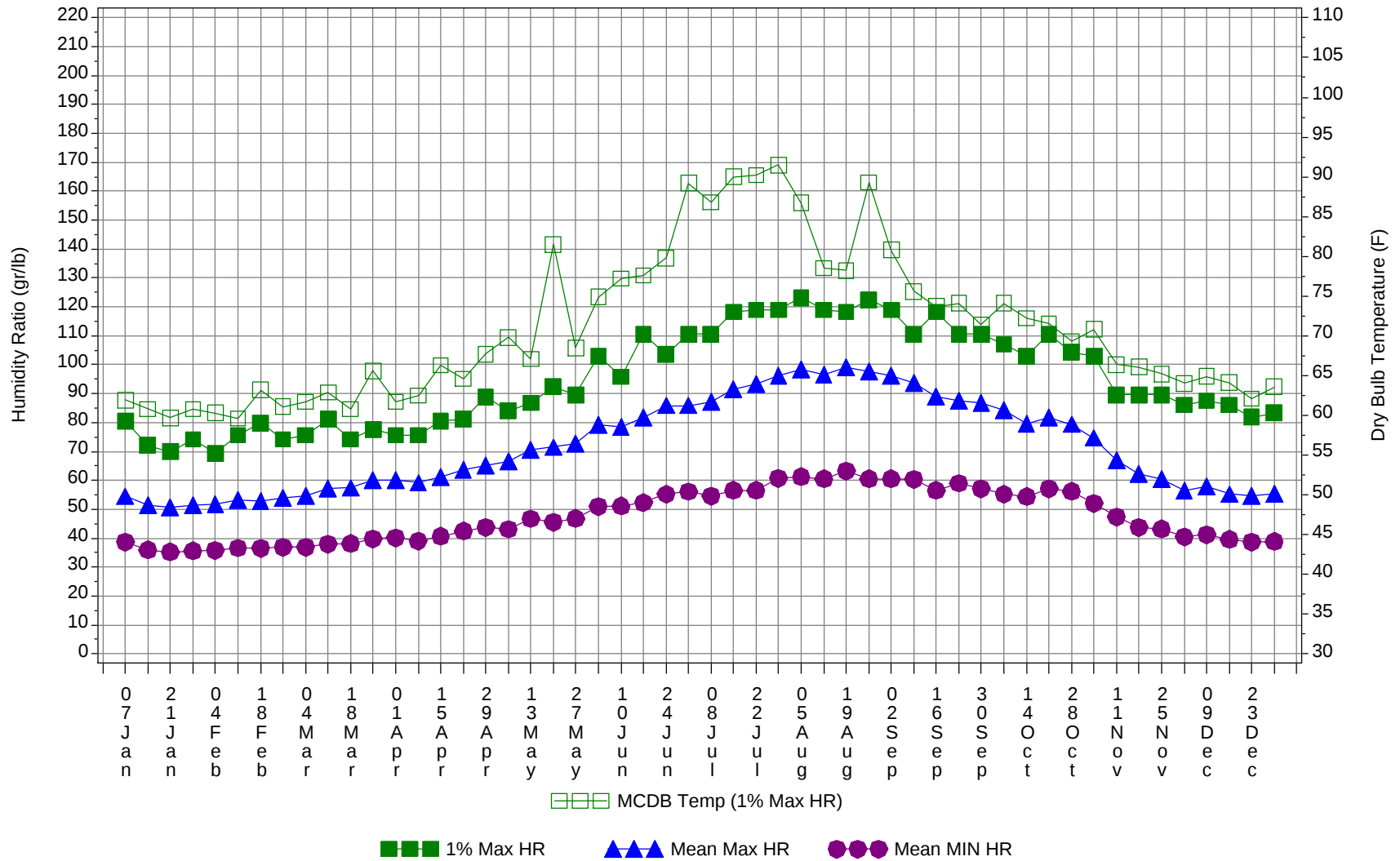
	Annual				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
115/119		0	0	0	74.3
110/114		1	1	2	78.4
105/109		10	9	19	75
100/104		46	46	92	72
95/ 99		115	106	221	70.1
90/ 94	0	184	151	335	68.5
85/ 89	3	194	167	364	67.1
80/ 84	32	281	252	565	65.7
75/ 79	160	315	302	777	64.1
70/ 74	362	328	332	1022	62.3
65/ 69	383	290	272	945	59.7
60/ 64	440	408	423	1271	56.5
55/ 59	459	349	422	1230	52.8
50/ 54	444	223	279	946	48.9
45/ 49	356	113	124	593	44.5
40/ 44	177	41	27	245	40.1
35/ 39	89	19	7	115	36
30/ 34	14	3	0	17	31
25/ 29	1	0	0	1	25.3
20/ 24	0			0	20

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



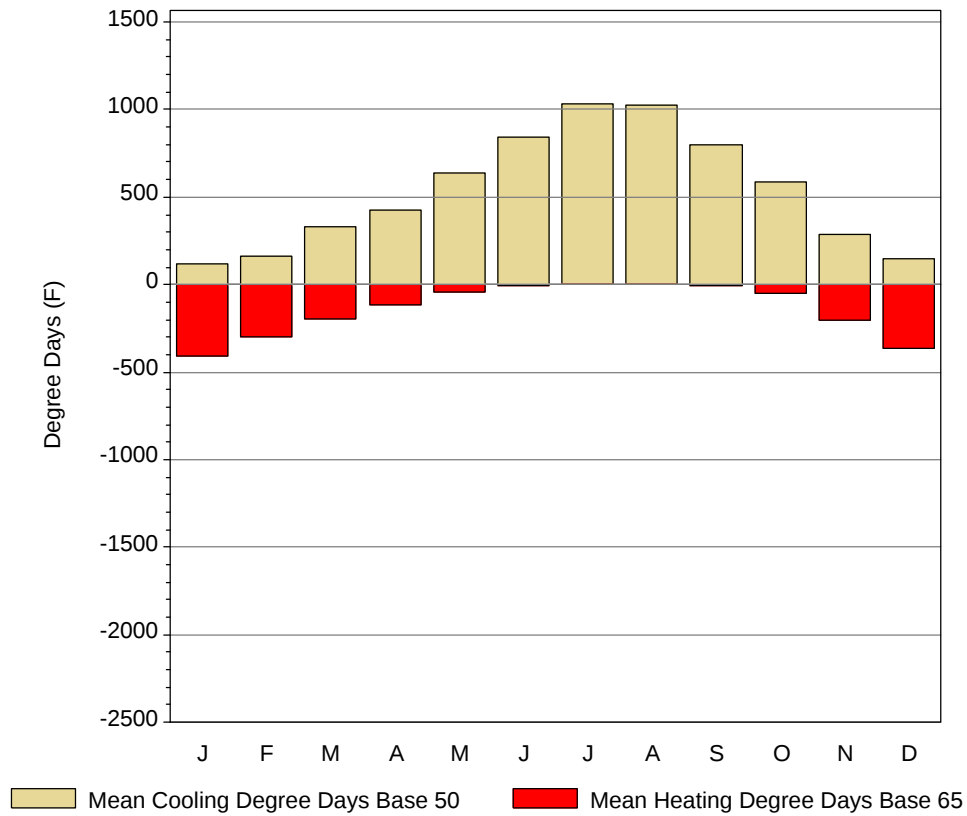
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

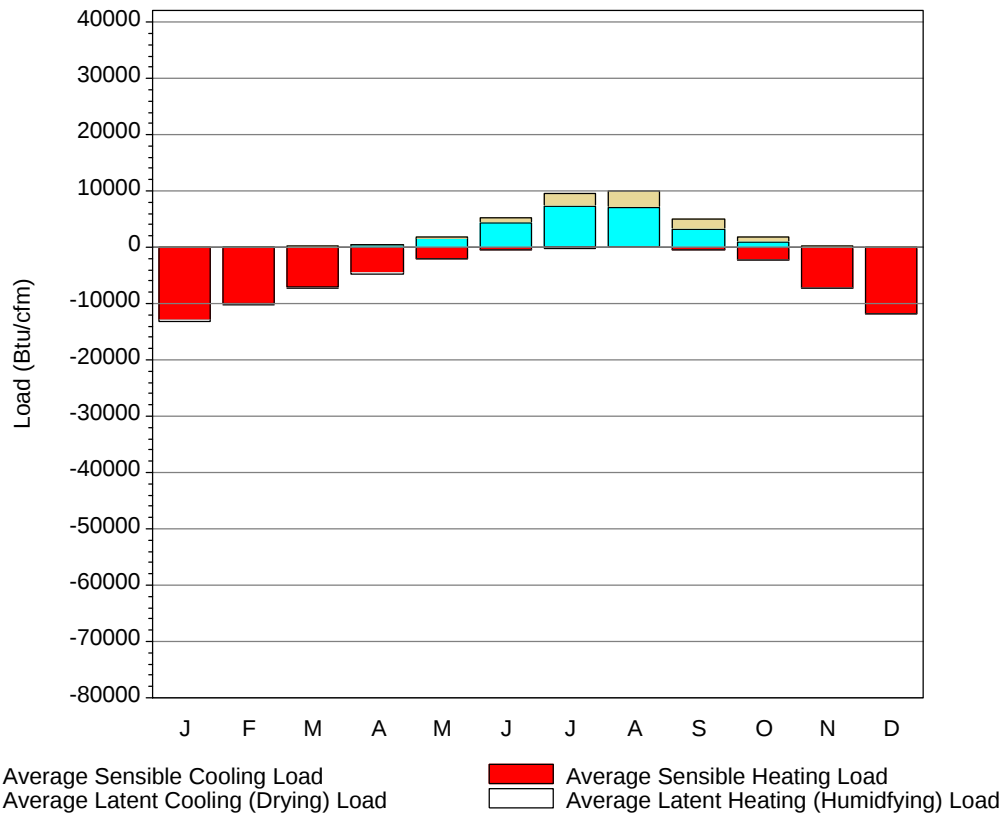
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	66	55.5	61.4	44.7	36	80.5	61.9	54.5	38.7
14-Jan	66	55	60.7	43.3	34	72.1	60.8	51.4	36
21-Jan	68	55.7	60.6	42.9	35	70	59.7	50.7	35.3
28-Jan	68	54.7	60.9	43.2	33	74.2	60.8	51.3	35.6
4-Feb	68	56.3	62.2	43.8	35	69.3	60.3	51.7	35.7
11-Feb	70	55.7	63.7	45	36	75.6	59.6	53.2	36.6
18-Feb	72	56.9	64.4	45.4	36	79.8	63.2	52.8	36.5
25-Feb	73	57.4	65.7	46.1	37	74.2	61.1	54	36.9
4-Mar	75	59.8	65.7	46.6	37	75.6	61.7	54.8	36.8
11-Mar	79	60.1	69.9	48.8	40	81.2	62.9	57.2	37.9
18-Mar	81	58.8	71.4	49.1	43	74.2	60.8	57.4	38.1
25-Mar	83	64	72.8	50.9	43	77.7	65.6	60	39.8
1-Apr	82	60.9	71.9	51.5	45	75.6	61.7	60.1	40.1
8-Apr	86	59.4	72.6	51.7	45	75.6	62.5	59.2	39.1
15-Apr	85	62.1	74.1	53	47	80.5	66.3	61.3	40.7
22-Apr	86	63.7	74.3	53.4	46	81.2	64.6	63.8	42.4
29-Apr	88	63.6	75.9	54.4	46	88.9	67.7	65.2	43.7
6-May	90	64.5	77.7	55.7	48	84	69.8	66.7	43.1
13-May	95	65	79.5	57.3	52	86.8	67.1	70.6	46.7
20-May	95	67.6	82.7	58.9	52	92.4	81.5	71.5	45.6
27-May	93	65.6	83.2	60.1	55	89.6	68.5	72.8	46.8
4-Jun	98	66.8	86.8	62.3	57	102.9	74.9	79.1	50.9
10-Jun	98	68.3	87.2	62.8	57	95.9	77.2	78.6	51.2
17-Jun	102	71.2	90.4	65.1	59	110.6	77.6	81.9	52.3
24-Jun	102	71.5	92.3	66.2	61	103.6	79.8	85.9	55.2
1-Jul	103	72.1	92.6	66.3	61	110.6	89.2	85.9	56.1
8-Jul	102	70.2	94.4	67.4	63	110.6	86.8	87.2	54.5
15-Jul	106	76.8	97.4	68.7	64	118.3	90	91.6	56.5
22-Jul	106	78.6	98	69.7	64	119	90.2	93.4	56.6
29-Jul	106	76.3	97.3	69.9	65	119	91.5	96.3	60.7
5-Aug	108	77.4	97.9	70.1	64	123.2	86.7	98.5	61.3
12-Aug	106	74.4	97.1	70.5	66	119	78.5	96.5	60.5
19-Aug	104	74	96.2	69.5	64	118.3	78.2	99	63.2
26-Aug	104	73.5	95.9	69.1	64	122.5	89.3	97.7	60.6
2-Sep	102	70.1	93	68	62	119	80.8	96.2	60.6
9-Sep	103	72.5	91.8	67.4	62	110.6	75.6	93.8	60.4
16-Sep	98	67	89.5	65.3	60	118.3	73.7	88.9	56.5
23-Sep	94	66.3	85.8	64.1	58	110.6	74.1	87.6	59
30-Sep	93	68.3	84.1	62.8	57	110.6	71.4	86.8	57.1
7-Oct	93	67.6	84.1	62	57	107.1	74.1	84.3	55.2
14-Oct	91	63.3	79.6	59.9	52	102.9	72.2	79.7	54.4
21-Oct	85	63.1	76.7	59	52	110.6	71.5	81.8	57.1
28-Oct	85	63.5	76.4	57.9	50	104.3	69.3	79.4	56.2
4-Nov	82	66	73.6	55.7	48	102.9	70.8	74.7	52.1
11-Nov	77	62	70.8	52.9	45	89.6	66.4	67	47.3
18-Nov	75	61.1	68.7	50.1	43	89.6	66.1	62.3	43.7
25-Nov	73	58	65.8	48.8	39	89.6	65.2	60.4	43.2
2-Dec	70	57.6	63.7	47	39	86.1	64	56.6	40.5
9-Dec	69	59.7	62.6	46.6	37	87.5	64.9	57.8	41.2
16-Dec	68	59.7	62.1	46.1	36	86.1	64.1	55.2	39.5
23-Dec	68	56.2	61.9	45.2	36	81.9	62.1	54.7	38.6
31-Dec	66	59	61.3	45.4	36	83.3	63.6	55.3	38.8

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	117.4	1	411.1
FEB	166	7.4	300.9
MAR	328	46.2	194.2
APR	422.6	88.5	118.7
MAY	640.1	219.9	45
JUN	845.5	402.9	7.4
JUL	1031.6	567.5	0.9
AUG	1023.5	559	0.6
SEP	795.1	351.9	6.8
OCT	583.4	164.2	46
NOV	283.8	26.3	204.8
DEC	150.2	1.9	361.6
ANN	6387.2	2436.7	1698

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	-13017	5	-254
FEB	2	-9875	10	-338
MAR	119	-6957	19	-195
APR	386	-4613	59	-71
MAY	1686	-2070	209	-36
JUN	4297	-471	935	-6
JUL	7314	-92	2251	-10
AUG	7078	-69	2866	-8
SEP	3265	-432	1863	-7
OCT	871	-2165	948	-19
NOV	27	-7247	162	-78
DEC	0	-11698	54	-155
ANN	25045	-58706	9381	-1177

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													

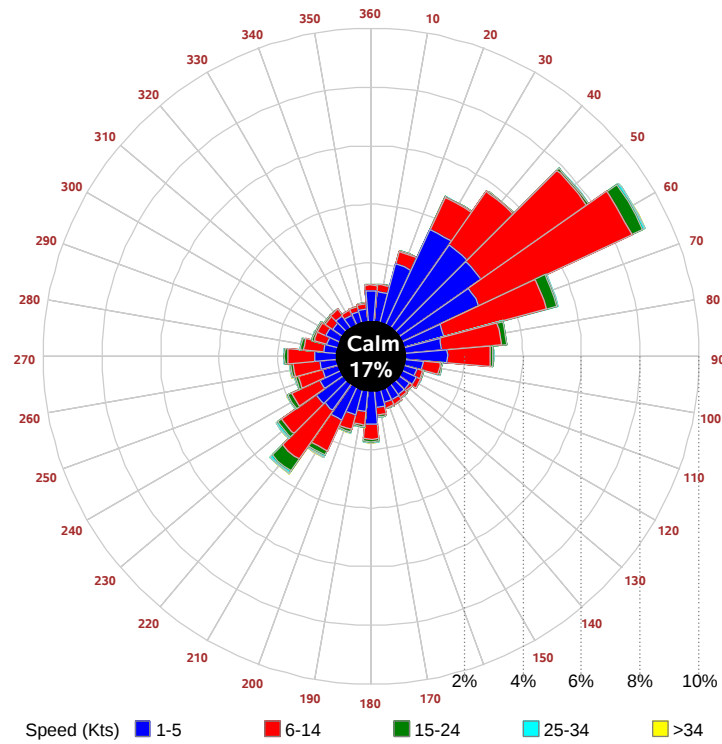
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

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													

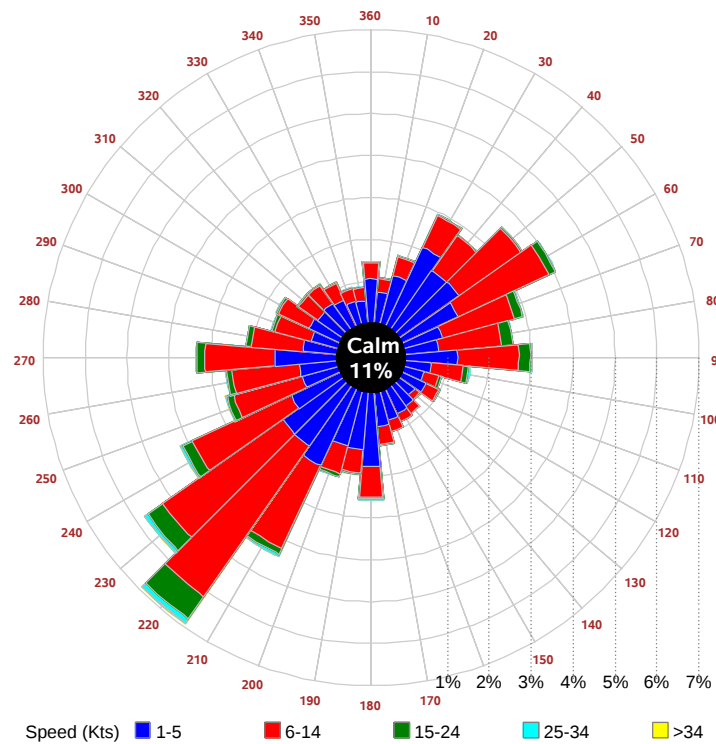
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9												
		March						June				
		9am	11am	1pm	3pm	5pm		9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear											
	M.Cloudy											
NORTH	M.Clear											
	M.Cloudy											
EAST	M.Clear			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

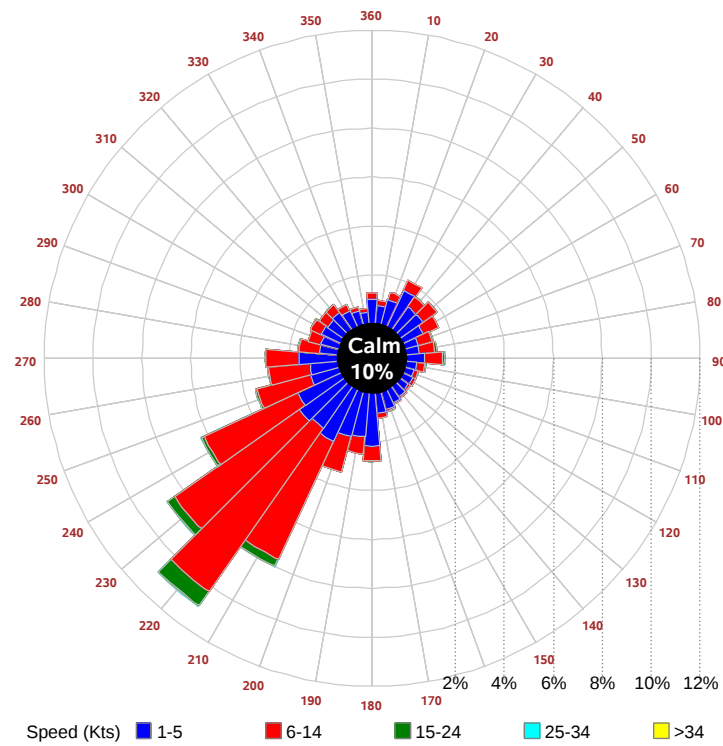
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

