

OVDA, IS	
Latitude = 29.94 N	Station ID = ICAO_LLOV
Longitude = 34.94 E	Elevation = 1492 Feet
Period of Record = 1988 To 2017	Average Pressure = 28.41 inches Hg

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	106	67	42	8.9	NNE
0.4% Occurrence	101	66	43	9.5	NNE
1.0% Occurrence	99	65	44	9.6	NNE
2.0% Occurrence	97	65	46	9.8	NNE
Mean Daily Range	22	-	-	-	SW
97.5% Occurrence	41	38	30	5.6	SW
99.0% Occurrence	39	36	28	5.4	SW
99.6% Occurrence	36	34	25	5	SW
Median of Extreme Lows	33	30	22	4.5	SW

	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	75	92	107	9.4	NNE
0.4% Occurrence	72	88	95	8.3	N
1.0% Occurrence	71	87	92	8.2	N
2.0% Occurrence	70	86	88	8.1	N

	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	123	83	0.78	9.5	W
0.4% Occurrence	109	79	0.69	7.2	W
1.0% Occurrence	102	77	0.65	7.2	W
2.0% Occurrence	96	76	0.61	6.6	W

Air Conditioning/ Humid Area Criteria	Threshold	T ≥ 93 °F	T ≥ 80 °F	Twb ≥ 73 °F	Twb ≥ 67 °F
	# of Hours	486	1943	26	598

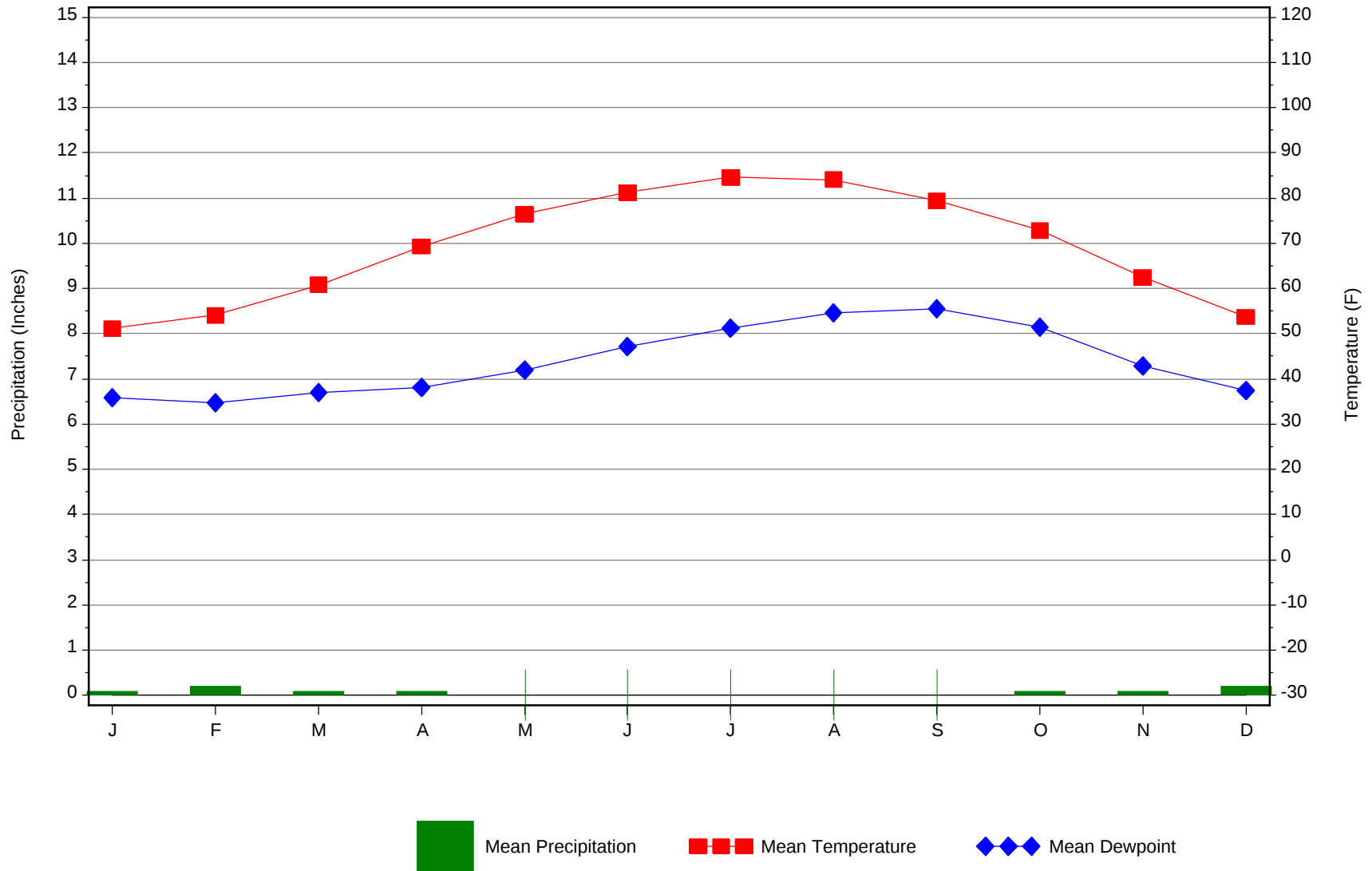
Other Site Data

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	0.3 + 3.0
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 (#)
71.3	N/A	N/A	1

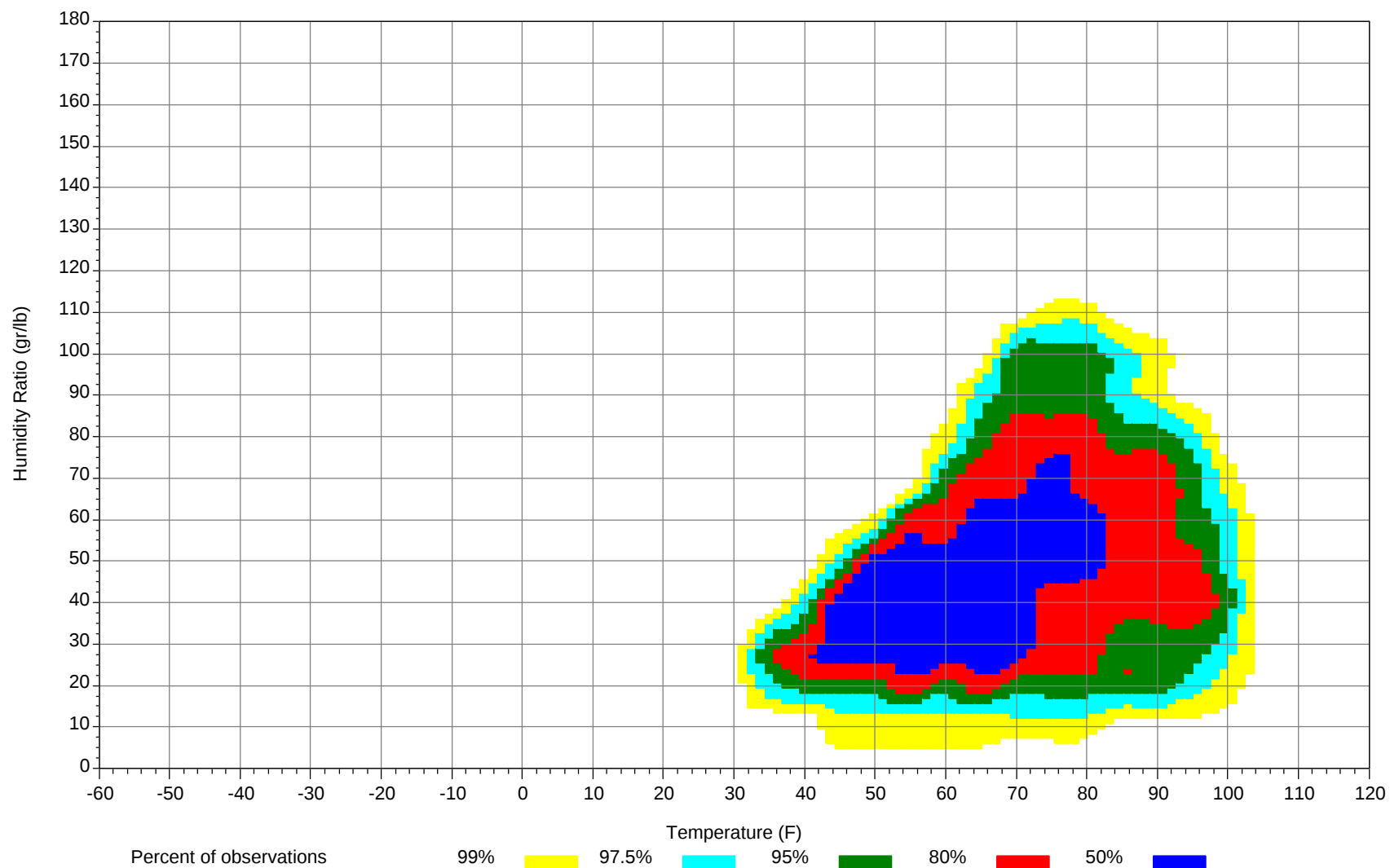
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



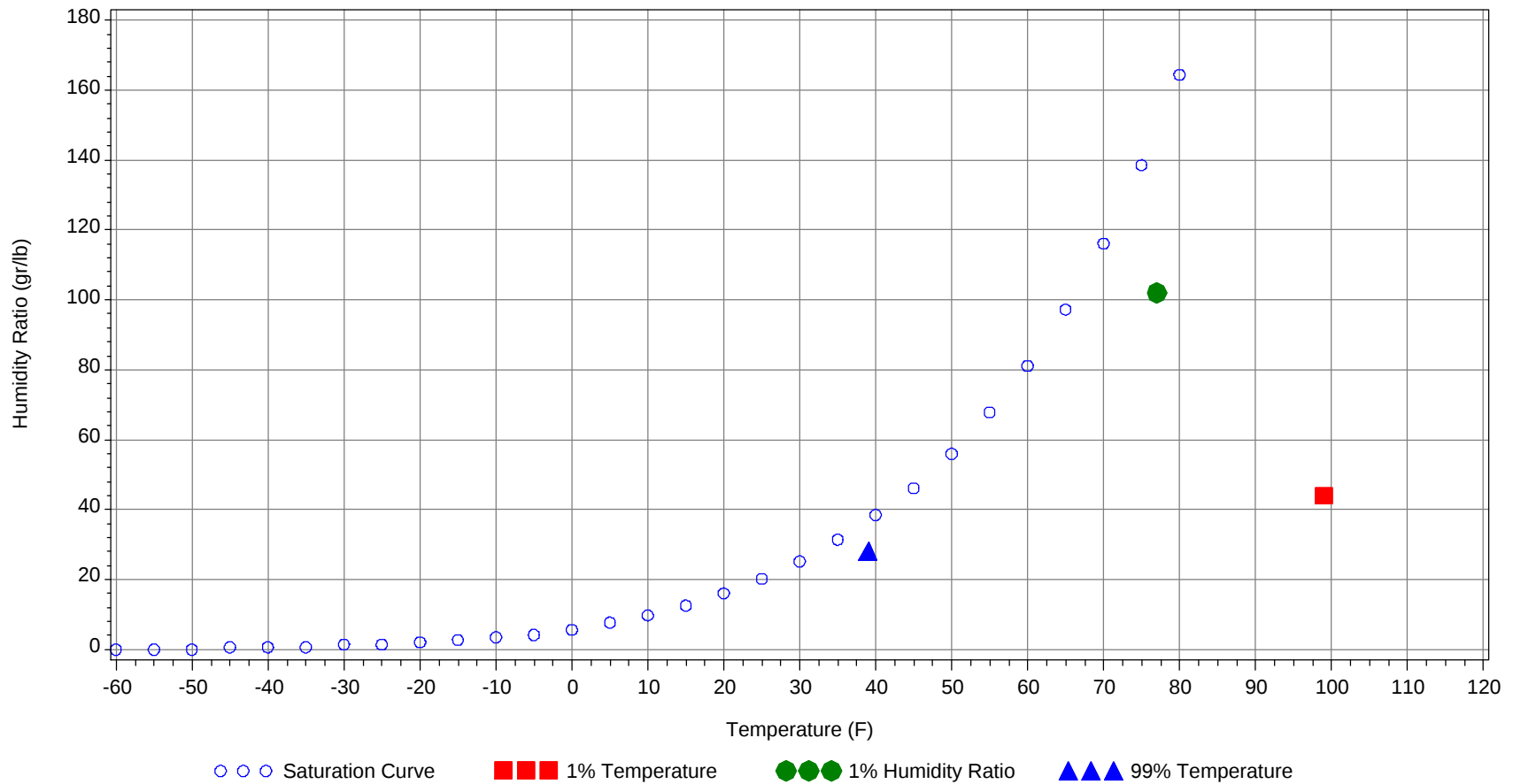
Average Annual Climate



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	99.0		65		44.0	30.8
99.0% Dry Bulb	39.0				28.0	13.7
1.0% Humidity Ratio	102.0	77.0	69.7	66.2		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)
105/109															
100/104															
95/ 99												1	0	1	58.4
90/ 94							0		0	61.2		3	0	3	58.2
85/ 89							1	0	1	60.6		6	2	8	57.5
80/ 84		0		0	52.4		3	1	4	56.4	0	17	6	23	56.3
75/ 79		3	0	3	53.5	0	10	2	12	53.9	2	25	16	43	54.6
70/ 74	0	9	2	11	52.7	1	18	8	27	52.1	5	38	27	70	52.8
65/ 69	1	15	5	21	50.8	2	23	13	38	50.5	7	41	34	82	51.1
60/ 64	2	58	20	80	49.2	4	54	34	92	48.5	19	58	60	137	49.8
55/ 59	6	78	53	137	47.2	11	60	58	129	46.8	42	42	61	145	48.1
50/ 54	27	54	84	165	44.9	40	40	63	143	44.7	87	15	35	137	46
45/ 49	79	24	60	163	42.1	78	12	34	124	41.6	69	1	7	77	42.7
40/ 44	74	5	19	98	38.9	54	2	9	65	38.4	16	0	0	16	39.3
35/ 39	50	1	5	56	35.2	28	0	2	30	35.1	2			2	36.1
30/ 34	8		0	8	30	3		0	3	30.7					
25/ 29	1		0	1	23.1	0			0	25					
20/ 24	0			0	20.2										

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)
105/109							0	0	0	64.7		1	0	1	65.5
100/104		1	0	1	65.1		6	1	7	63.8		12	4	16	64.7
95/ 99		8	2	10	61.4	0	21	8	29	62.5	0	36	20	56	63.8
90/ 94	0	20	7	27	59.4	1	43	22	66	61	0	63	45	108	62.9
85/ 89	1	20	11	32	58.3	2	38	29	69	59.8	1	46	42	89	62
80/ 84	4	35	25	64	57	7	54	52	113	58.8	11	47	58	116	61.4
75/ 79	9	45	40	94	55.4	22	46	58	126	57.5	47	27	50	124	60.7
70/ 74	17	48	51	116	53.7	55	26	46	127	56.2	98	8	20	126	59.6
65/ 69	22	29	39	90	52.6	60	10	21	91	55.2	61	1	2	64	58.5
60/ 64	52	24	43	119	51.4	68	3	11	82	53.6	21		0	21	56.7
55/ 59	81	7	18	106	49.8	32	0	1	33	51.3	0			0	52.5
50/ 54	46	1	3	50	47	3	0		3	48.7					
45/ 49	6	0	1	7	42.4										
40/ 44	1			1	38.5										
35/ 39	0			0	32.5										
30/ 34															
25/ 29															
20/ 24															

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)
105/109		1	1	2	67		1	0	1	69.1		0		0	66
100/104		20	9	29	65.8		14	5	19	67.3		3	0	3	65.6
95/ 99	0	63	42	105	65.3		59	34	93	66.1		20	6	26	66.1
90/ 94	0	73	61	134	64.8	0	76	65	141	65.9	0	53	27	80	65.8
85/ 89	3	41	47	91	64.6	2	41	48	91	65.9	0	55	42	97	65.2
80/ 84	28	35	60	123	64.3	24	41	68	133	65.9	5	58	69	132	64.9
75/ 79	99	13	26	138	63.4	102	15	28	145	65.3	37	40	69	146	64.7
70/ 74	102	1	2	105	62.3	107	1	1	109	63.9	117	11	25	153	63.6
65/ 69	15	0	0	15	61.4	12	0	0	12	62	67	0	1	68	61.7
60/ 64	1			1	58.3	0			0	57	15			15	59.2
55/ 59															
50/ 54															
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)
105/109															
100/104		1		1	63.6										
95/ 99		6	1	7	63.1										
90/ 94		19	4	23	63.2		1		1	60.4					
85/ 89		29	10	39	63.2		4	0	4	60.4		0		0	56.9
80/ 84	1	62	35	98	62.7		16	2	18	59.4		2	0	2	56.6
75/ 79	6	69	65	140	61.4	0	40	10	50	57.8		7	1	8	54.8
70/ 74	38	46	75	159	60.4	2	67	30	99	56.3	0	18	3	21	53.5
65/ 69	73	13	37	123	59.3	8	51	44	103	54.6	1	31	8	40	52.2
60/ 64	93	3	18	114	57	36	42	72	150	53	3	82	31	116	50.6
55/ 59	33	0	2	35	52.8	72	16	52	140	50.1	12	63	68	143	48.2
50/ 54	5		0	5	49.6	76	3	23	102	46.7	51	34	78	163	45.6
45/ 49						35	1	5	41	42.6	93	11	46	150	42.1
40/ 44						8	0	1	9	37.9	56	1	11	68	38.7
35/ 39						2		0	2	33.5	28	0	2	30	35
30/ 34						0			0	30	3		0	3	30.7
25/ 29											0			0	28
20/ 24															

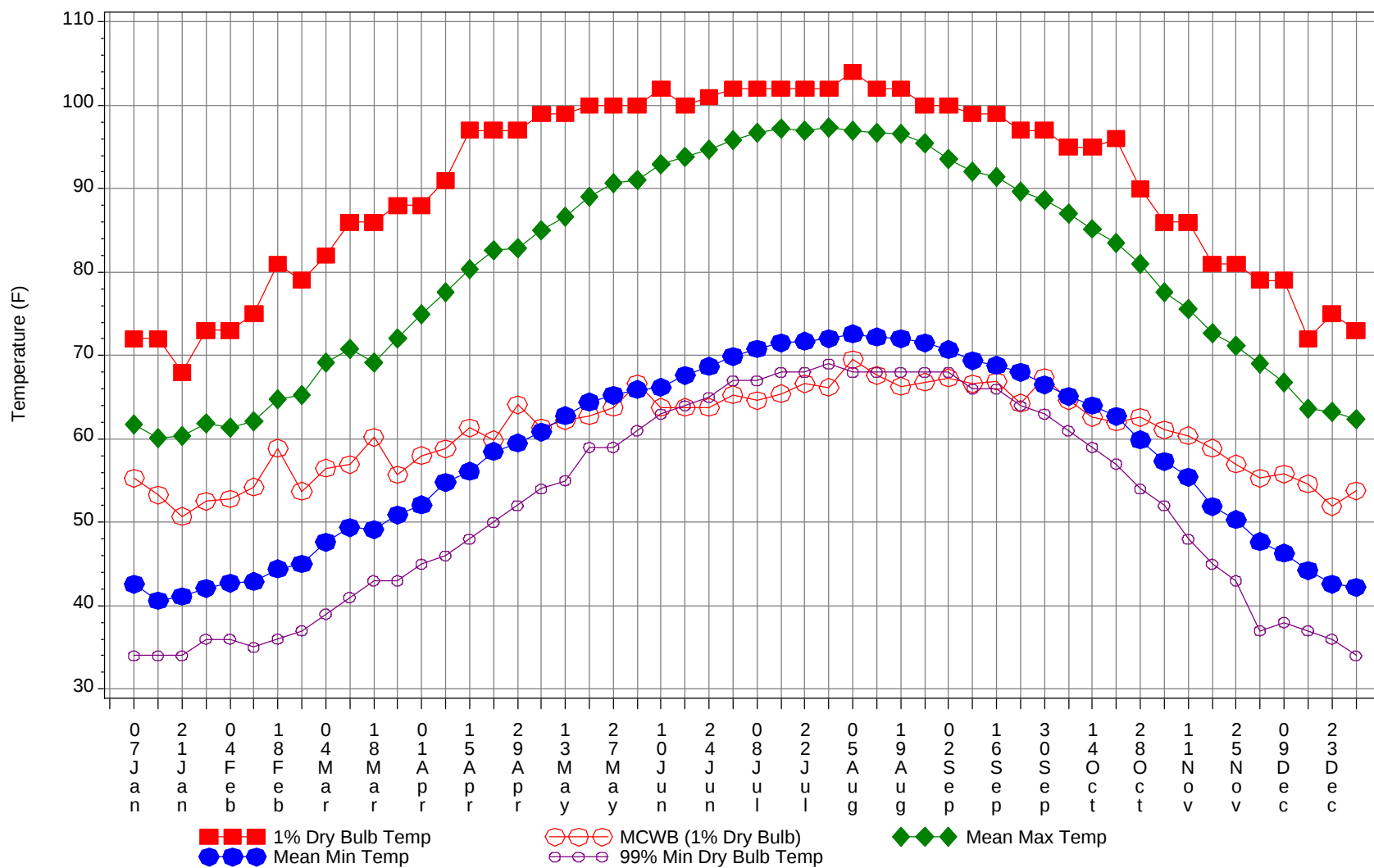
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Dry-Bulb Temperature Hours For An Average Year

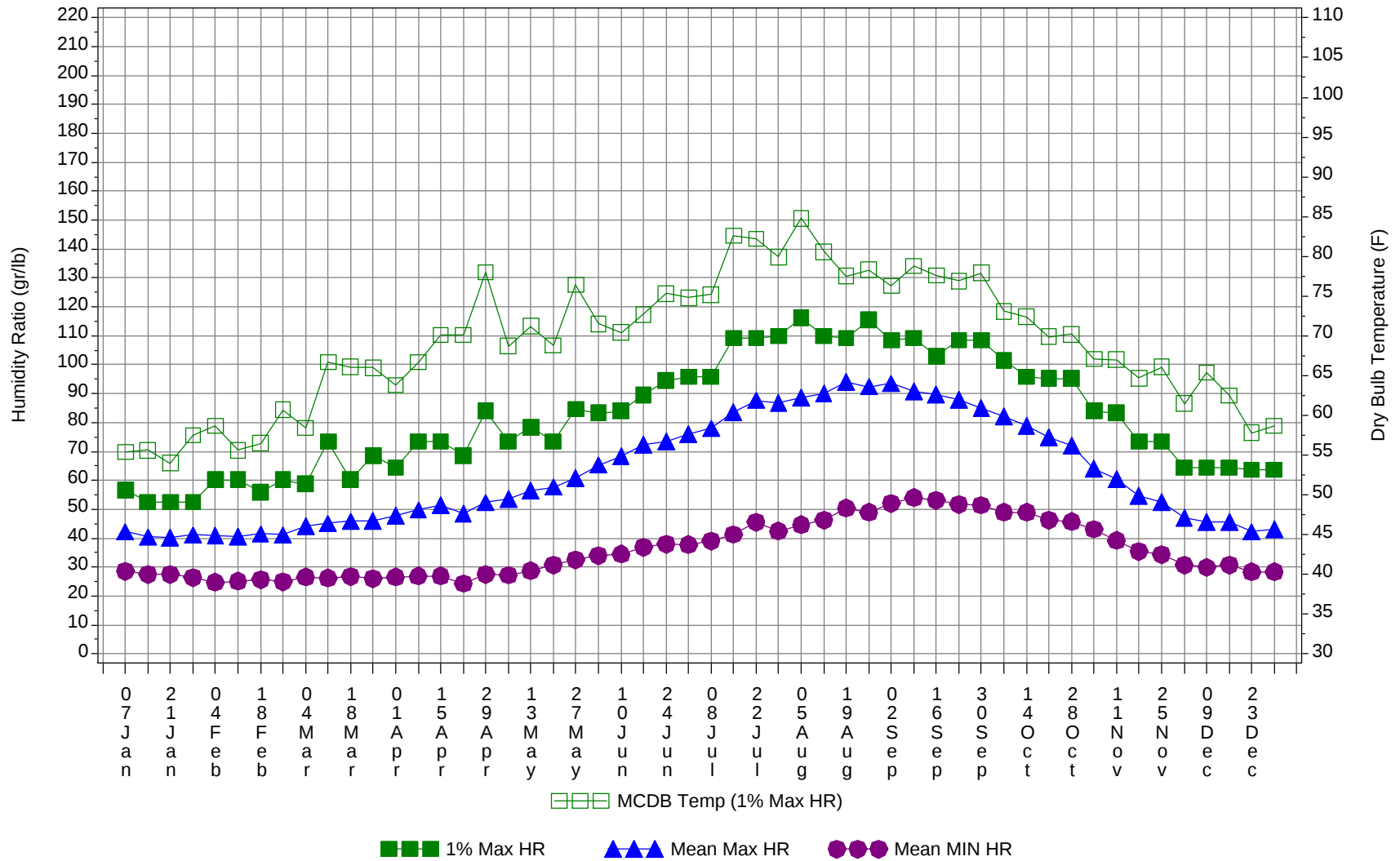
	Annual				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
105/109		4	1	5	67
100/104		52	19	71	65.7
95/ 99	0	202	106	308	64.9
90/ 94	2	334	218	554	64
85/ 89	8	269	219	496	63.2
80/ 84	78	359	361	798	62.3
75/ 79	315	339	354	1008	60.9
70/ 74	529	299	291	1119	58.7
65/ 69	322	224	208	754	55.5
60/ 64	315	342	301	958	51.9
55/ 59	297	280	328	905	48.6
50/ 54	343	154	299	796	45.6
45/ 49	368	51	160	579	42.1
40/ 44	214	9	42	265	38.7
35/ 39	113	1	10	124	35.1
30/ 34	15		0	15	30.3
25/ 29	1		0	1	23.3
20/ 24	0			0	20.2

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



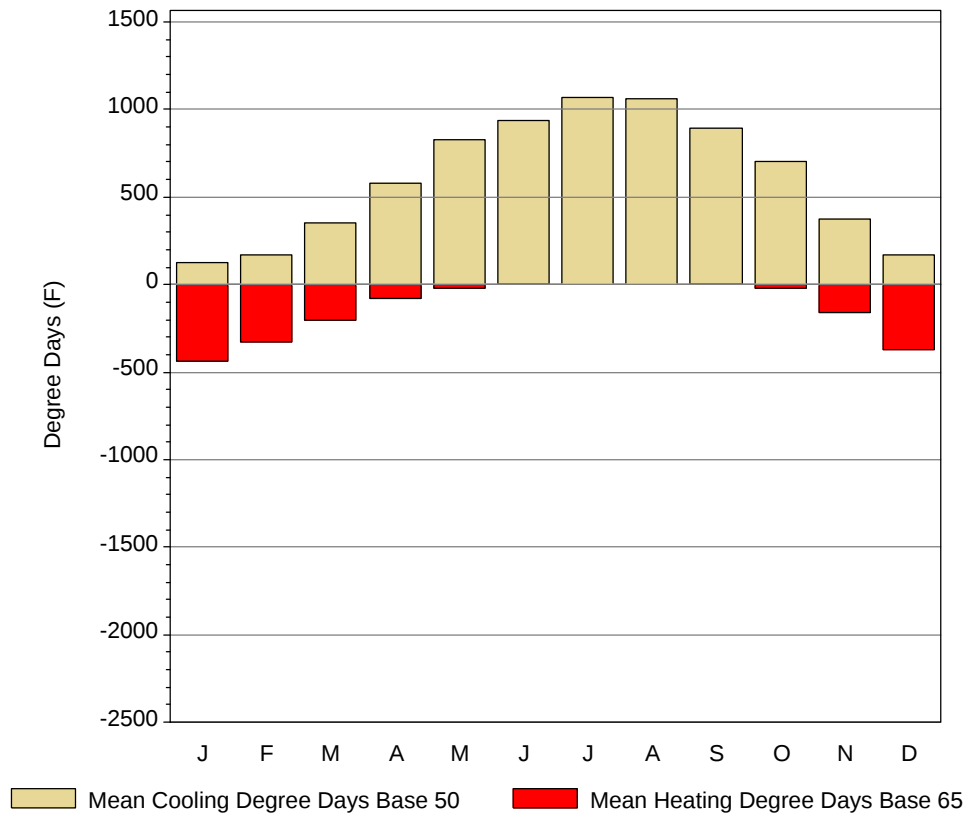
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

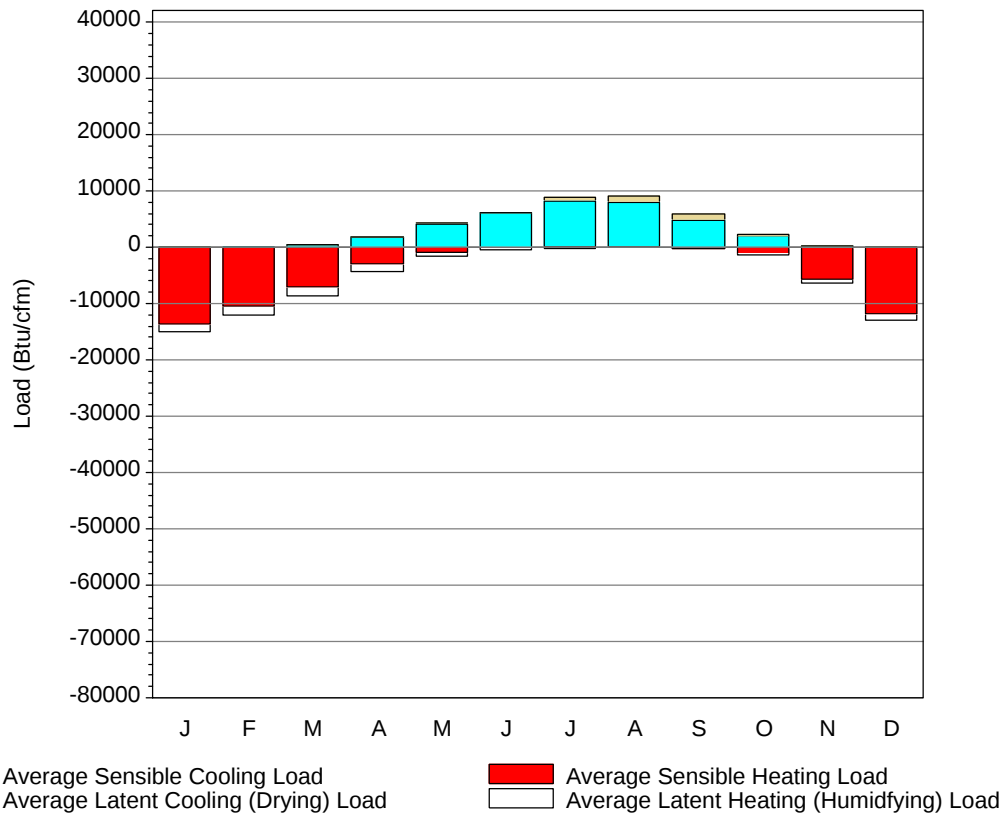
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	72	55.3	61.7	42.6	34	56.7	55.4	42.2	28.5
14-Jan	72	53.3	60.1	40.6	34	52.5	55.6	40.4	27.4
21-Jan	68	50.7	60.3	41.1	34	52.5	54	40.3	27.5
28-Jan	73	52.5	61.8	42.1	36	52.5	57.5	41.1	26.4
4-Feb	73	52.8	61.4	42.7	36	60.2	58.7	41	24.7
11-Feb	75	54.2	62.1	42.9	35	60.2	55.6	40.6	25.1
18-Feb	81	58.9	64.7	44.4	36	56	56.5	41.5	25.6
25-Feb	79	53.7	65.3	45	37	60.2	60.7	41.1	25
4-Mar	82	56.5	69.1	47.6	39	58.8	58.4	44.3	26.6
11-Mar	86	56.9	70.8	49.4	41	73.5	66.7	45.1	26.2
18-Mar	86	60.2	69.2	49.1	43	60.2	66.1	45.8	26.7
25-Mar	88	55.7	72	50.9	43	68.6	66	45.9	26
1-Apr	88	58	75	52.1	45	64.4	63.8	47.7	26.5
8-Apr	91	58.8	77.6	54.8	46	73.5	66.7	49.8	26.9
15-Apr	97	61.3	80.4	56.1	48	73.5	70.1	51.5	27
22-Apr	97	59.9	82.6	58.5	50	68.6	70.1	48.4	24.3
29-Apr	97	64.1	82.9	59.5	52	84	78	52.3	27.5
6-May	99	61.3	85	60.8	54	73.5	68.7	53.5	27.2
13-May	99	62.2	86.6	62.8	55	78.4	71.2	56.5	28.8
20-May	100	62.8	89.1	64.4	59	73.5	68.8	57.7	30.7
27-May	100	63.8	90.7	65.2	59	84.7	76.4	60.9	32.5
4-Jun	100	66.6	91.1	65.9	61	83.3	71.5	65.3	33.9
10-Jun	102	63.8	92.9	66.2	63	84	70.4	68.4	34.5
17-Jun	100	63.8	93.8	67.6	64	89.6	72.7	72.3	36.8
24-Jun	101	63.8	94.7	68.7	65	94.5	75.3	73.4	38
1-Jul	102	65.3	95.8	69.9	67	95.9	74.8	76	37.7
8-Jul	102	64.6	96.7	70.8	67	95.9	75.2	78	39.1
15-Jul	102	65.4	97.2	71.5	68	109.2	82.6	83.6	41.3
22-Jul	102	66.6	97	71.7	68	109.2	82.2	87.7	45.5
29-Jul	102	66.2	97.4	72	69	109.9	79.9	86.8	42.5
5-Aug	104	69.5	97	72.6	68	116.2	84.8	88.6	44.6
12-Aug	102	67.6	96.7	72.2	68	109.9	80.6	90.2	46.3
19-Aug	102	66.3	96.6	72	68	109.2	77.5	94.1	50.4
26-Aug	100	66.8	95.5	71.5	68	115.5	78.3	92.4	49
2-Sep	100	67.3	93.6	70.7	68	108.5	76.3	93.5	52.1
9-Sep	99	66.6	92.1	69.4	66	109.2	78.8	90.9	54
16-Sep	99	66.9	91.4	68.8	66	102.9	77.6	89.6	53.2
23-Sep	97	64.3	89.7	68	64	108.5	76.9	87.8	51.7
30-Sep	97	67.4	88.6	66.5	63	108.5	77.9	84.9	51.4
7-Oct	95	64.6	87	65.1	61	101.5	73.1	82.2	49
14-Oct	95	62.6	85.2	64	59	95.9	72.4	79	48.9
21-Oct	96	62	83.5	62.7	57	95.2	69.9	75	46.3
28-Oct	90	62.6	81	59.9	54	95.2	70.2	71.9	45.7
4-Nov	86	61.1	77.6	57.3	52	84	67.1	64	43.1
11-Nov	86	60.4	75.6	55.4	48	83.3	67	60.5	39.2
18-Nov	81	58.9	72.7	51.9	45	73.5	64.7	54.7	35.4
25-Nov	81	57	71.2	50.3	43	73.5	66.1	52.5	34.3
2-Dec	79	55.3	69	47.7	37	64.4	61.5	47	30.7
9-Dec	79	55.8	66.8	46.3	38	64.4	65.4	45.7	29.9
16-Dec	72	54.6	63.6	44.2	37	64.4	62.5	45.6	30.7
23-Dec	75	51.9	63.3	42.6	36	63.7	57.8	42.2	28.3
31-Dec	73	53.8	62.4	42.2	34	63.7	58.7	43.1	28.3

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	123.6	6.3	436.4
FEB	171.1	18.9	326.5
MAR	350.3	76.3	206.1
APR	580.5	206.7	77.2
MAY	826.6	379.3	17.8
JUN	939.7	491.2	1.5
JUL	1072.1	607.1	0
AUG	1063.7	598.7	0
SEP	890.2	441	0.7
OCT	706.5	264.7	23.2
NOV	378.1	77.1	157.9
DEC	172.5	13.8	367.9
ANN	7274.9	3181.1	1615.2

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	6	-13630	1	-1452
FEB	54	-10442	0	-1666
MAR	422	-7079	2	-1447
APR	1810	-3000	31	-1366
MAY	4196	-909	31	-718
JUN	6120	-154	91	-251
JUL	8153	-8	724	-102
AUG	7897	-4	1321	-39
SEP	4846	-111	1163	-30
OCT	2094	-1218	292	-86
NOV	285	-5649	9	-617
DEC	28	-11767	3	-1216
ANN	35911	-53971	3668	-8990

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													

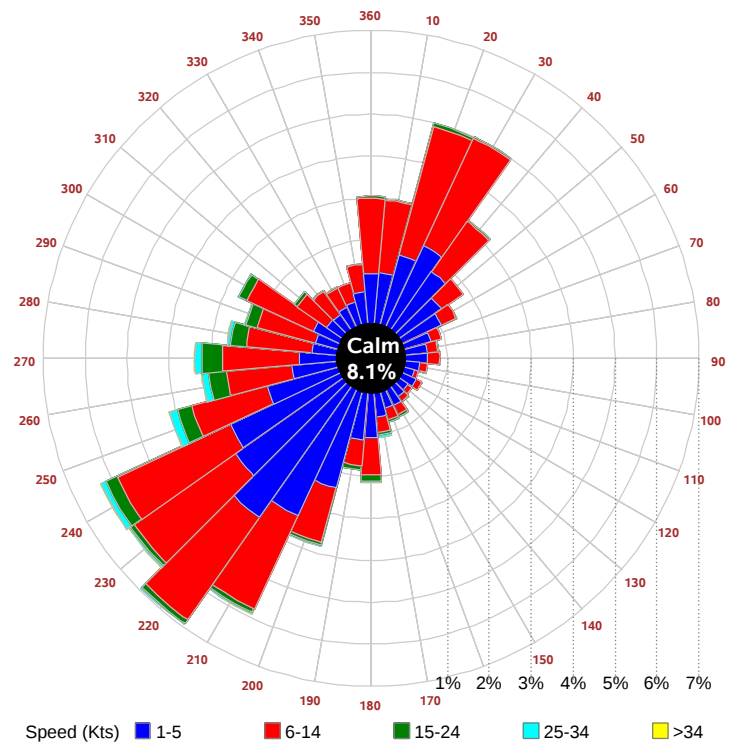
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

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													

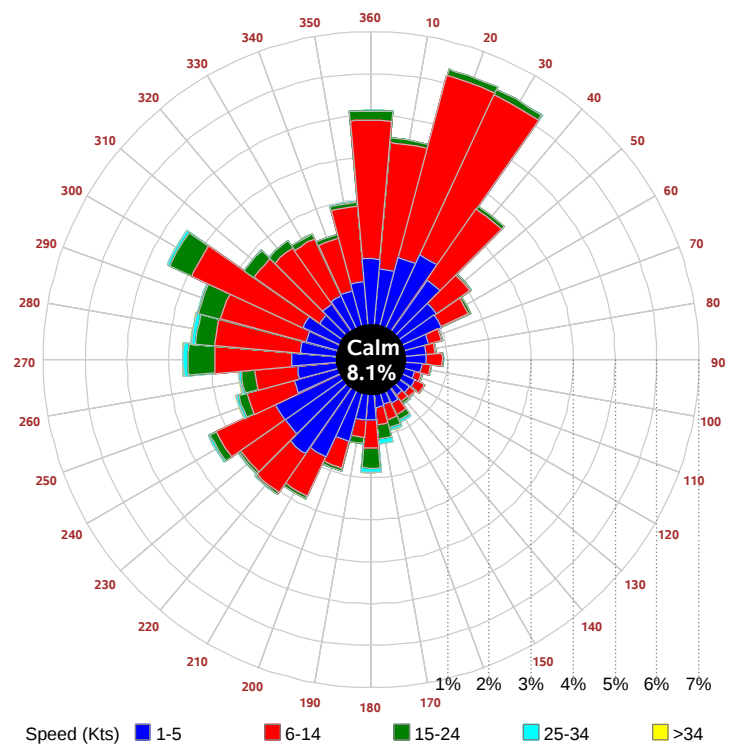
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9												
		March						June				
		9am	11am	1pm	3pm	5pm		9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear											
	M.Cloudy											
NORTH	M.Clear											
	M.Cloudy											
EAST	M.Clear			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

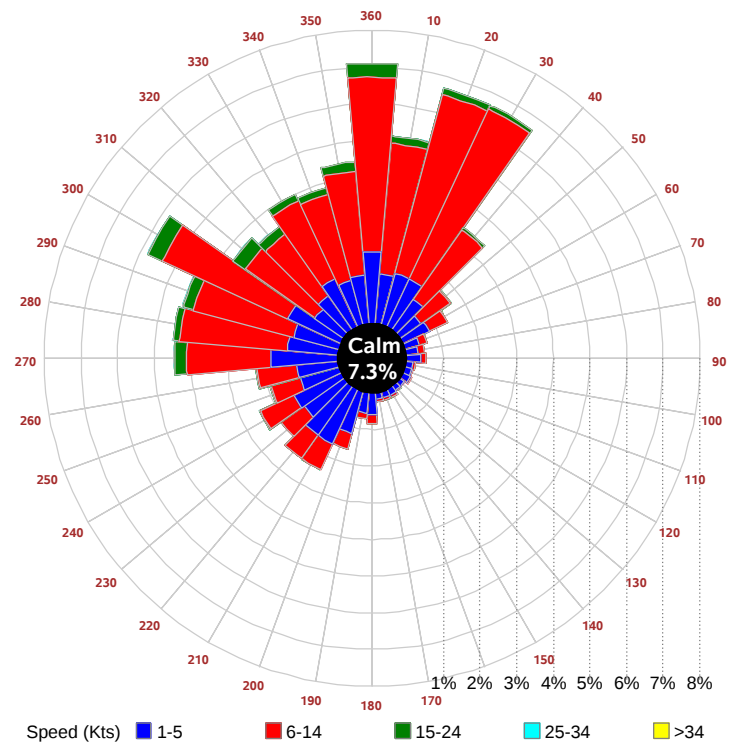
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

