

DAMASCUS INTL, SY	Station ID = ICAO_OSDI
Latitude = 33.41 N	Elevation = 2020 Feet
Longitude = 36.52 E	Average Pressure = 27.84 inches Hg
Period of Record = 1988 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	108	67	41	8.2	SW
0.4% Occurrence	104	66	44	9.8	SW
1.0% Occurrence	100	65	44	11.2	SSW
2.0% Occurrence	99	65	44	11.1	SSW
Mean Daily Range	29	-	-	-	N
97.5% Occurrence	32	30	24	3.2	N
99.0% Occurrence	28	26	18	2.8	N
99.6% Occurrence	25	23	16	2.6	N
Median of Extreme Lows	19	17	11	3.1	N

	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	74	92	103	10.8	SSW
0.4% Occurrence	71	89	91	10.9	SSW
1.0% Occurrence	69	86	84	11.1	SSW
2.0% Occurrence	68	86	80	11.2	SSW

	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	118	78	0.73	11.2	SSW
0.4% Occurrence	105	74	0.65	12.3	SSW
1.0% Occurrence	99	74	0.62	10.9	SSW
2.0% Occurrence	96	73	0.6	8.9	SSW

Air Conditioning/ Humid Area Criteria	Threshold	T ≥ 93 °F	T ≥ 80 °F	Twb ≥ 73 °F	Twb ≥ 67 °F
	# of Hours	593	1752	11	433

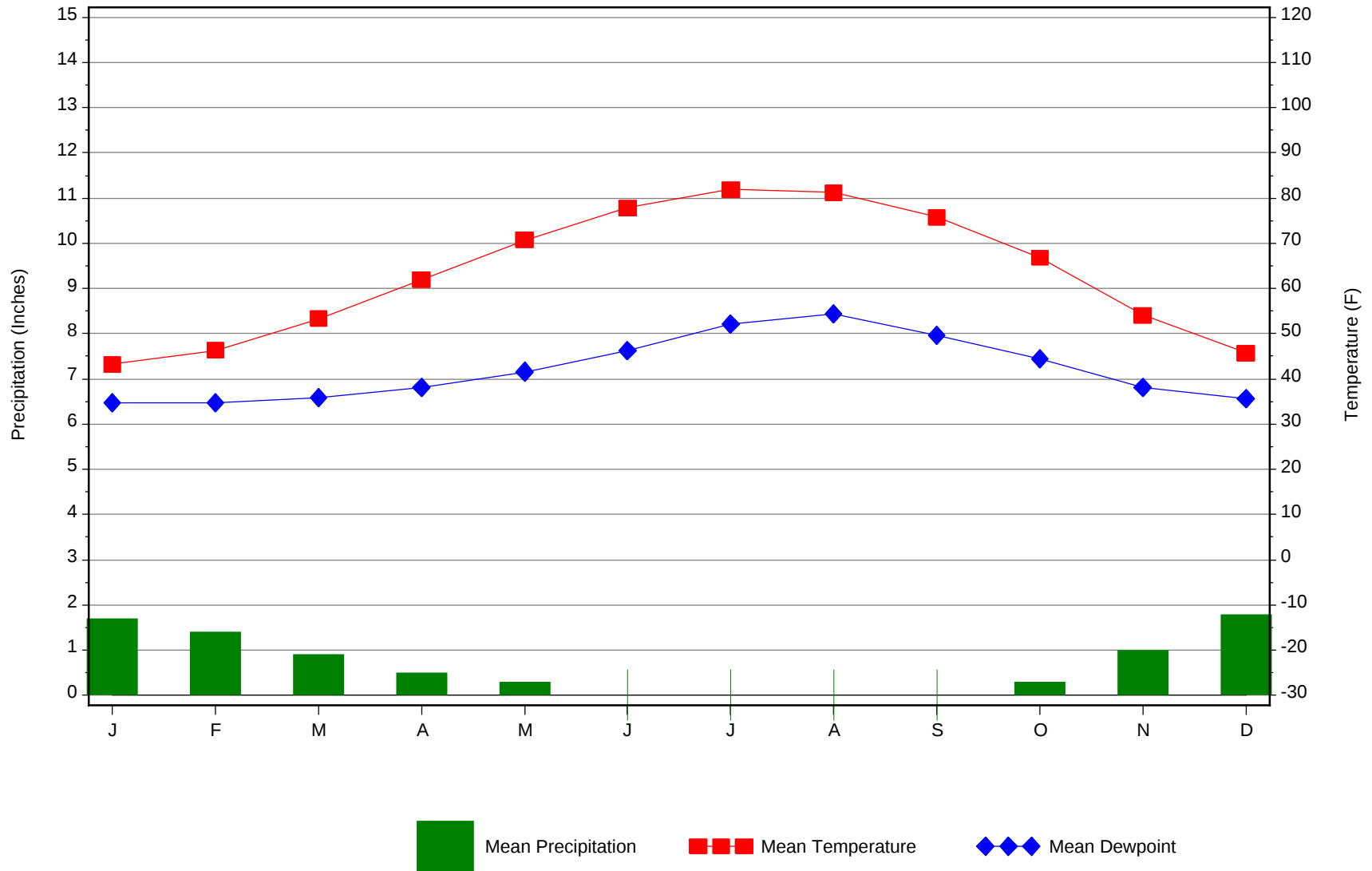
Other Site Data

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	0.2 + 2.4
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 (#)
65.8	N/A	N/A	31

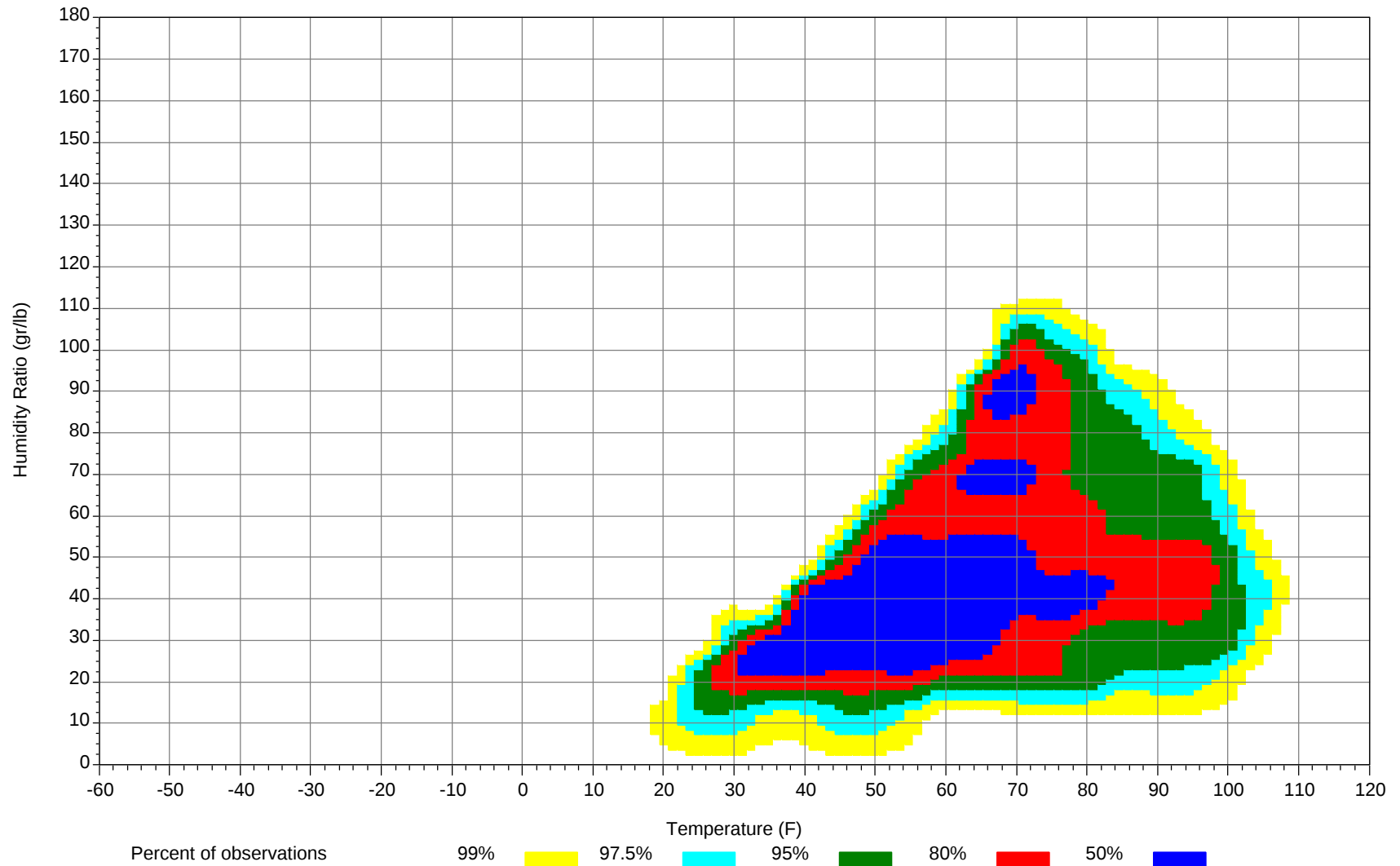
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



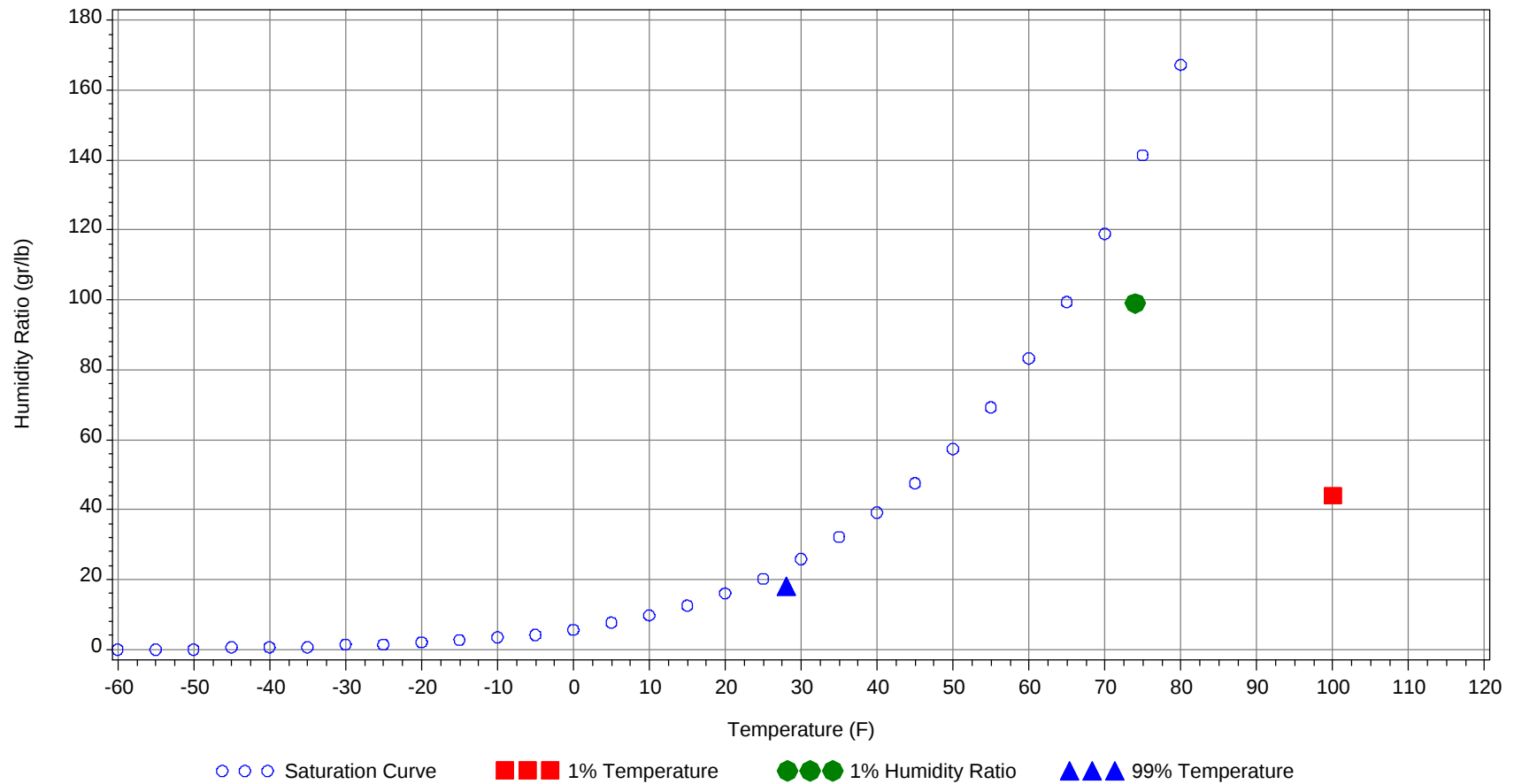
Average Annual Climate



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		65		44.0	30.7
99.0% Dry Bulb	28.0				18.0	9.6
1.0% Humidity Ratio	99.0	74.0	67.5	64.7		33.2

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)
110/114															
105/109															
100/104															
95/ 99															
90/ 94												1	0	1	57.6
85/ 89												1	0	1	58
80/ 84							0		0	56.3		5	1	6	55.8
75/ 79							2	0	2	53.8		15	3	18	54.1
70/ 74		0	0	0	51.8		5	1	6	52.4	0	29	9	38	52
65/ 69		2	0	2	51.2		11	2	13	50.3	0	35	13	48	50.6
60/ 64		15	1	16	49.7		32	8	40	48.6	3	61	30	94	49
55/ 59	0	47	8	55	47.5	1	53	19	73	46.6	13	53	46	112	47.3
50/ 54	3	68	34	105	45.3	8	54	46	108	44.8	38	32	62	132	45.2
45/ 49	31	60	76	167	42.6	39	40	64	143	42.2	72	13	57	142	42.6
40/ 44	51	29	60	140	39.3	56	18	46	120	39.1	61	3	20	84	39.2
35/ 39	69	19	44	132	35.4	62	9	27	98	35.3	42	0	7	49	35.4
30/ 34	58	6	20	84	30.8	41	1	9	51	30.8	14	0	1	15	30.8
25/ 29	26	1	5	32	25.8	13	0	2	15	25.7	3		0	3	25.6
20/ 24	7		0	7	20.8	3	0	0	3	21.2	0			0	22.7
15/ 19	2		0	2	16.1	1	0	0	1	17.1					
10/ 14	0			0	11.2	0	0		0	12.8					

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.

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)
110/114												0		0	66.8
105/109							0		0	63.5		1	0	1	65.3
100/104							2	0	2	63.1		15	3	18	63.8
95/ 99		1	0	1	60.2		15	2	17	61.6		50	12	62	62.9
90/ 94		7	1	8	58.8	0	38	8	46	60.3	0	66	23	89	61.9
85/ 89		16	4	20	57.9	0	43	14	57	59	2	43	25	70	61.1
80/ 84	0	30	9	39	56.2	3	53	25	81	58	5	40	36	81	60.5
75/ 79	1	45	17	63	54.6	7	48	36	91	56.8	17	19	45	81	59.6
70/ 74	4	48	26	78	53.2	17	31	45	93	55.4	41	5	51	97	58.9
65/ 69	9	36	30	75	52	28	12	40	80	54.3	58	1	30	89	58
60/ 64	24	35	45	104	50.5	58	6	45	109	53	80	0	13	93	56.1
55/ 59	43	15	49	107	48.5	70	1	24	95	50.7	29		1	30	52.3
50/ 54	64	5	40	109	46.3	44	0	8	52	47.6	7			7	48.1
45/ 49	58	1	16	75	43.2	16		1	17	44	1			1	44.5
40/ 44	25	0	3	28	39.6	3		0	3	40.5	0			0	41.3
35/ 39	10		1	11	36.2	1			1	36.2					
30/ 34	2		0	2	31.5	0			0	31					
25/ 29	0		0	0	26.2										
20/ 24	0			0	21.5										
15/ 19															
10/ 14															

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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)
110/114		1	0	1	67		0	0	0	67.9					
105/109		9	2	11	66.2		5	1	6	67.8		0		0	68.6
100/104		36	7	43	65.4		33	6	39	66.4		9	1	10	65.1
95/ 99	0	80	21	101	65		77	18	95	65.6		34	4	38	63.7
90/ 94	0	58	33	91	64.7	0	60	31	91	65.5		64	14	78	63.1
85/ 89	1	30	28	59	64.5	1	29	28	58	65.5	0	47	21	68	62.7
80/ 84	8	27	44	79	63.9	5	31	45	81	65.1	2	45	35	82	62.2
75/ 79	33	7	58	98	63.6	31	11	65	107	64.9	9	29	52	90	61.5
70/ 74	86	0	46	132	63	89	1	47	137	64.3	35	11	63	109	61
65/ 69	87	0	8	95	61.7	83	0	6	89	62.4	61	1	35	97	59.6
60/ 64	29	0	1	30	57.9	32	0	0	32	58.2	76	0	13	89	56.4
55/ 59	4		0	4	52	7		0	7	53.6	41		2	43	51.9
50/ 54	0			0	48.5	0			0	49.6	14		0	14	47.7
45/ 49											2			2	43.1
40/ 44											0			0	38
35/ 39											0			0	35
30/ 34															
25/ 29															
20/ 24															
15/ 19															
10/ 14															

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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)
110/114															
105/109															
100/104		0		0	64.3										
95/ 99		3	0	3	62.6										
90/ 94		17	1	18	61.2										
85/ 89	0	29	4	33	60.4		0		0	59.8					
80/ 84	0	58	12	70	59.5		6	0	6	57.5					
75/ 79	1	60	26	87	58.5		17	1	18	56		0		0	52.6
70/ 74	7	43	46	96	57.2		43	4	47	54.3		3	0	3	52.5
65/ 69	18	20	48	86	55.9	0	42	12	54	53.1		9	0	9	52.4
60/ 64	51	13	59	123	54.1	4	54	33	91	51.6	0	36	3	39	50.4
55/ 59	71	3	36	110	50.9	22	42	57	121	49.6	1	63	17	81	48.2
50/ 54	58	1	14	73	47.2	49	25	65	139	46.6	14	62	53	129	46.2
45/ 49	32	0	3	35	43	62	8	40	110	42.3	44	43	75	162	43
40/ 44	9		0	9	38.7	44	2	16	62	38.1	51	18	49	118	39.2
35/ 39	1			1	35	37	1	7	45	34.2	61	11	34	106	35.1
30/ 34	0			0	30.3	14	0	3	17	29.4	50	2	14	66	30.3
25/ 29						6	0	1	7	24.5	21	0	2	23	25.3
20/ 24						2		0	2	19.1	4		0	4	20.1
15/ 19						0			0	16.6	1			1	16.1
10/ 14															

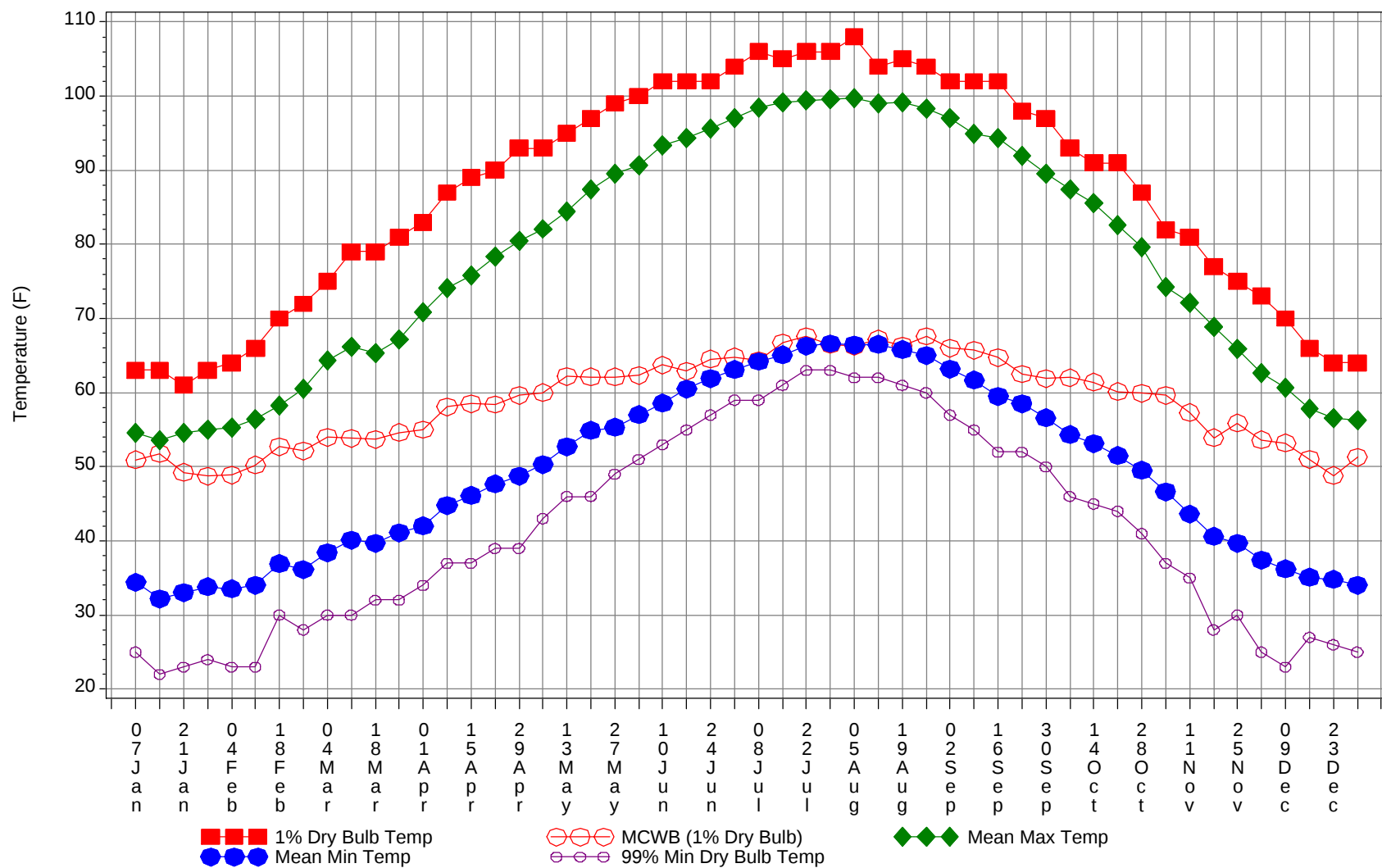
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Dry-Bulb Temperature Hours For An Average Year

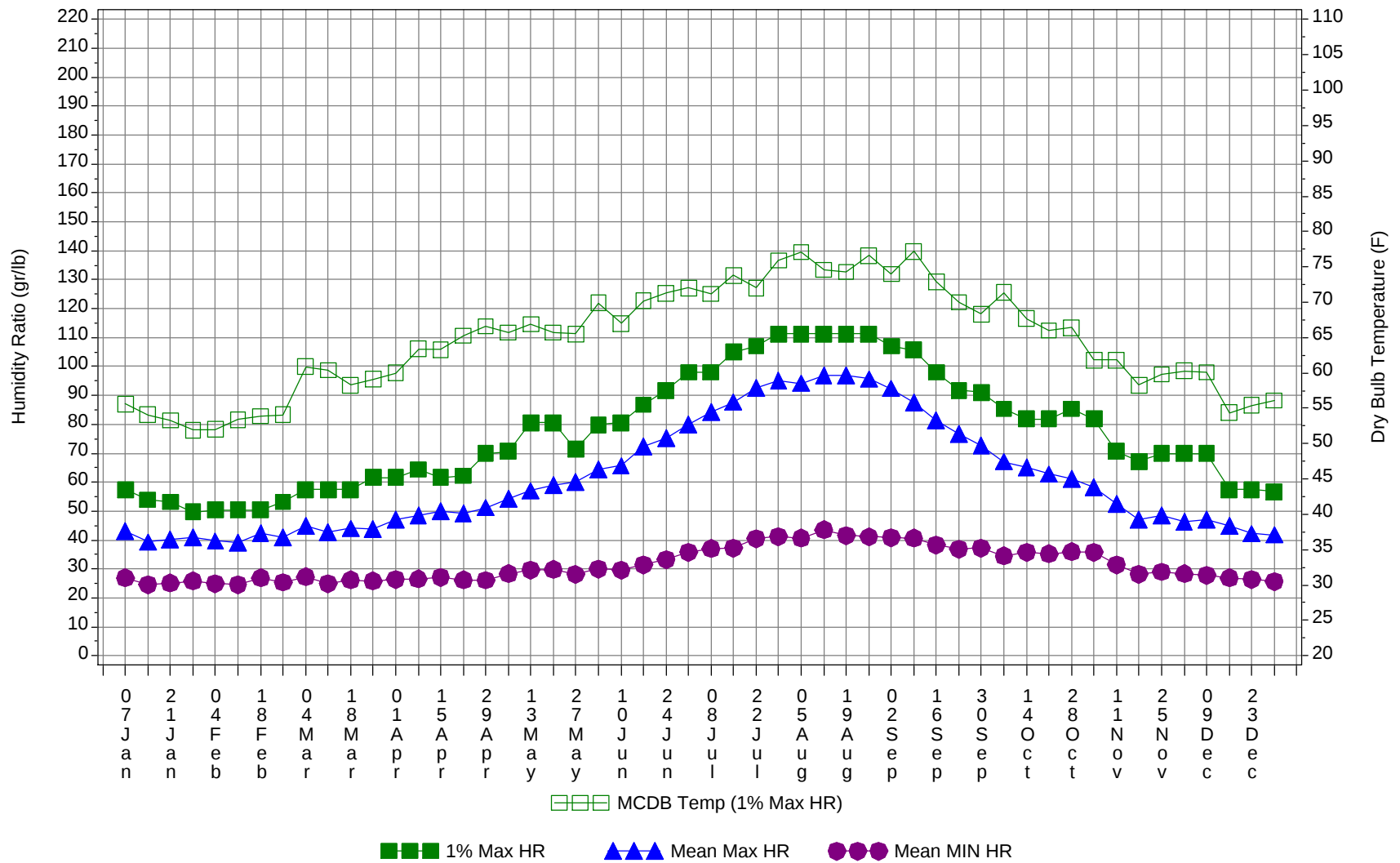
	Annual				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
110/114		2	0	2	67.1
105/109		16	3	19	66.7
100/104		94	17	111	65.4
95/ 99	0	260	58	318	64.4
90/ 94	1	309	110	420	63.3
85/ 89	4	239	123	366	62.1
80/ 84	23	293	207	523	61
75/ 79	98	254	304	656	60.1
70/ 74	278	220	338	836	59
65/ 69	345	168	224	737	56.9
60/ 64	358	253	251	862	52.9
55/ 59	301	277	261	839	49.2
50/ 54	299	247	321	867	46.1
45/ 49	357	166	332	855	42.7
40/ 44	301	70	194	565	39.1
35/ 39	285	40	119	444	35.2
30/ 34	179	9	47	235	30.6
25/ 29	71	1	10	82	25.5
20/ 24	17	0	1	18	20.6
15/ 19	4	0	0	4	16.4
10/ 14	0	0		0	11.9

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



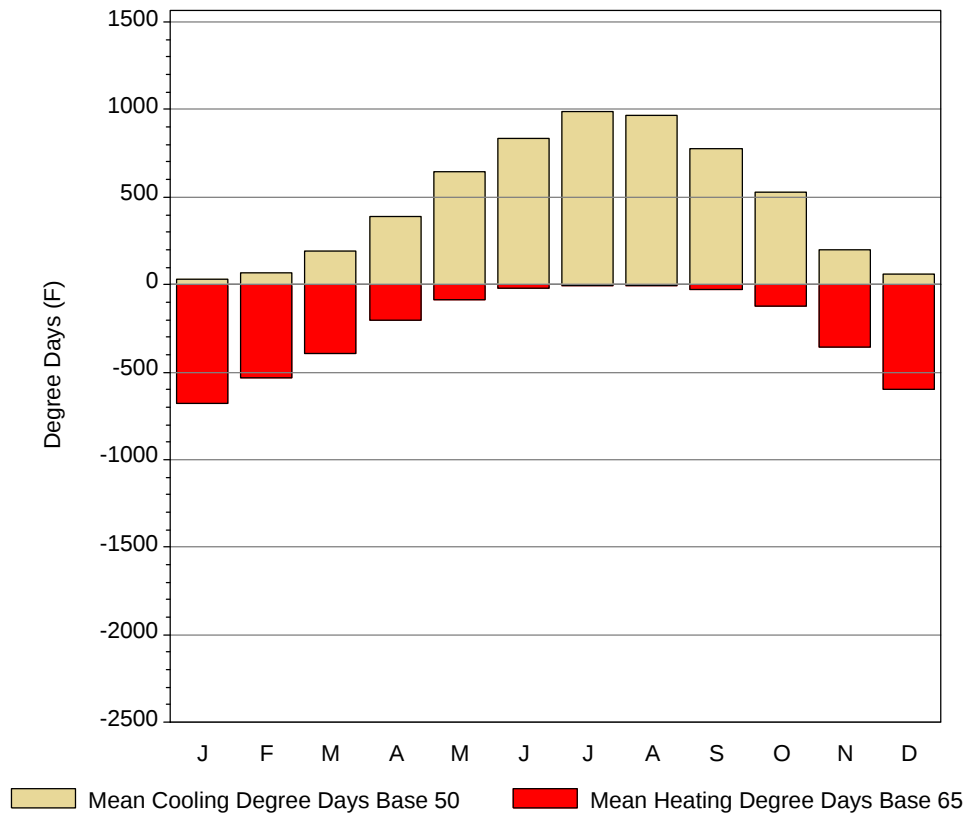
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

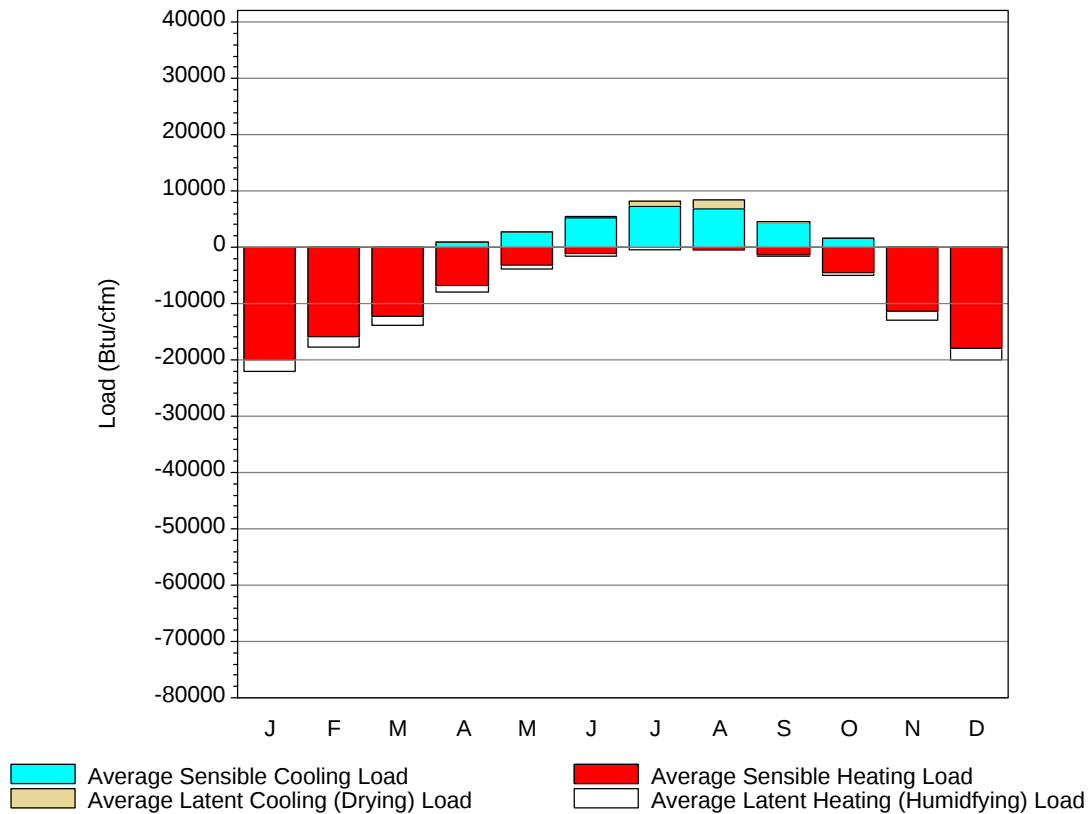
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	63	50.9	54.5	34.4	25	57.4	55.6	43.1	27
14-Jan	63	51.8	53.6	32.2	22	53.9	54.1	39.3	24.6
21-Jan	61	49.2	54.5	33	23	53.2	53.3	40.3	25.1
28-Jan	63	48.7	55	33.8	24	49.7	51.9	40.8	25.9
4-Feb	64	48.9	55.3	33.5	23	50.4	52	39.7	24.9
11-Feb	66	50.2	56.4	34	23	50.4	53.4	39	24.5
18-Feb	70	52.7	58.3	36.9	30	50.4	53.9	42.5	26.9
25-Feb	72	52.1	60.5	36.1	28	53.2	54.1	40.8	25.4
4-Mar	75	54	64.3	38.4	30	57.4	60.9	44.8	27.3
11-Mar	79	53.8	66.2	40.1	30	57.4	60.4	42.8	24.9
18-Mar	79	53.7	65.3	39.7	32	57.4	58.3	44	26.2
25-Mar	81	54.6	67.1	41.1	32	61.6	59.1	43.9	25.9
1-Apr	83	55	70.8	42	34	61.6	60	47	26.4
8-Apr	87	58.1	74.1	44.8	37	64.4	63.4	48.6	26.6
15-Apr	89	58.5	75.8	46.1	37	61.6	63.3	49.9	27.1
22-Apr	90	58.4	78.3	47.7	39	62.3	65.3	49.1	26.2
29-Apr	93	59.6	80.5	48.7	39	70	66.6	51.2	26.1
6-May	93	60	82.1	50.3	43	70.7	65.7	54.4	28.4
13-May	95	62.2	84.4	52.7	46	80.5	66.9	57	29.7
20-May	97	62.1	87.4	54.9	46	80.5	65.7	58.9	29.8
27-May	99	62.1	89.6	55.3	49	71.4	65.5	60	28.1
4-Jun	100	62.3	90.7	57	51	79.8	69.9	64.3	30
10-Jun	102	63.7	93.3	58.6	53	80.5	67	65.7	29.6
17-Jun	102	62.9	94.3	60.5	55	86.8	70.2	72.5	31.5
24-Jun	102	64.5	95.6	61.9	57	91.7	71.3	75.3	33.3
1-Jul	104	64.8	97	63.1	59	98	72	79.9	35.7
8-Jul	106	64.3	98.4	64.2	59	98	71.2	84.2	37
15-Jul	105	66.7	99.2	65.1	61	105	73.8	87.7	37.3
22-Jul	106	67.6	99.4	66.3	63	107.1	72	92.7	40.4
29-Jul	106	66.5	99.6	66.6	63	111.3	75.9	95.1	41.2
5-Aug	108	66.3	99.7	66.4	62	111.3	77.1	94.2	40.6
12-Aug	104	67.2	99	66.5	62	111.3	74.6	96.8	43.5
19-Aug	105	66.3	99.2	65.8	61	111.3	74.3	96.8	41.6
26-Aug	104	67.6	98.3	65	60	111.3	76.6	95.7	41.1
2-Sep	102	66	97.1	63.2	57	107.1	74	92.4	40.8
9-Sep	102	65.7	94.9	61.7	55	105.7	77.2	87.6	40.6
16-Sep	102	64.7	94.4	59.5	52	98	72.9	81.3	38.3
23-Sep	98	62.5	92	58.5	52	91.7	70	76.6	36.9
30-Sep	97	61.9	89.6	56.6	50	91	68.3	72.7	37.2
7-Oct	93	62	87.4	54.3	46	85.4	71.4	67.1	34.5
14-Oct	91	61.4	85.6	53.1	45	81.9	67.7	65	35.7
21-Oct	91	60.1	82.6	51.5	44	81.9	66	62.8	35.3
28-Oct	87	59.9	79.6	49.5	41	85.4	66.4	61.3	36
4-Nov	82	59.6	74.3	46.6	37	81.9	61.8	58.3	35.8
11-Nov	81	57.3	72.1	43.6	35	70.7	61.8	52.6	31.4
18-Nov	77	53.9	68.8	40.6	28	67.2	58.3	47.2	28.2
25-Nov	75	55.9	65.9	39.7	30	70	59.8	48.5	29
2-Dec	73	53.6	62.7	37.4	25	70	60.3	46.3	28.4
9-Dec	70	53.2	60.6	36.2	23	70	60.1	47	27.9
16-Dec	66	51	57.8	35.1	27	57.4	54.4	44.9	27
23-Dec	64	48.8	56.6	34.8	26	57.4	55.4	42.2	26.3
31-Dec	64	51.3	56.3	34	25	56.7	56.1	41.8	25.7

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	32.8	0.2	678.1
FEB	66.3	3.5	531.7
MAR	190.3	29.1	390.9
APR	386.5	114.8	204.5
MAY	646.2	264.3	86.4
JUN	834	406.6	22.7
JUL	987.2	525.8	3.6
AUG	968	507.9	4.9
SEP	773.6	354.5	31.2
OCT	529.5	180.7	124.3
NOV	201.8	30.2	358.8
DEC	61.6	1.6	601.2
ANN	5677.8	2419.2	3038.3

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	-19983	0	-1960
FEB	4	-15929	0	-1763
MAR	102	-12234	0	-1582
APR	842	-6802	2	-1125
MAY	2823	-3226	4	-660
JUN	5301	-1114	76	-357
JUL	7242	-288	893	-139
AUG	6801	-335	1527	-53
SEP	4243	-1394	346	-171
OCT	1520	-4454	48	-489
NOV	78	-11292	3	-1541
DEC	0	-17966	2	-1929
ANN	28956	-95017	2901	-11769

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													

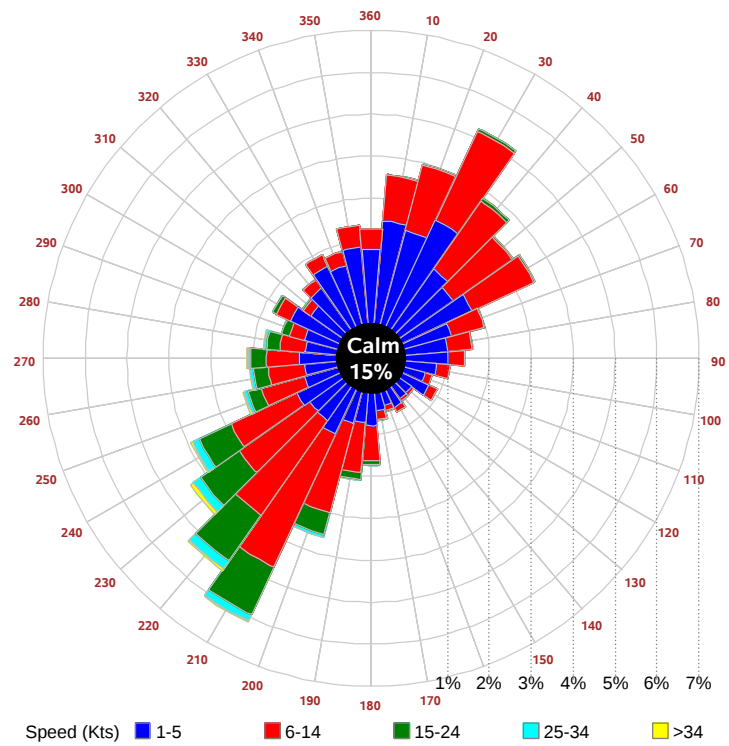
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

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													

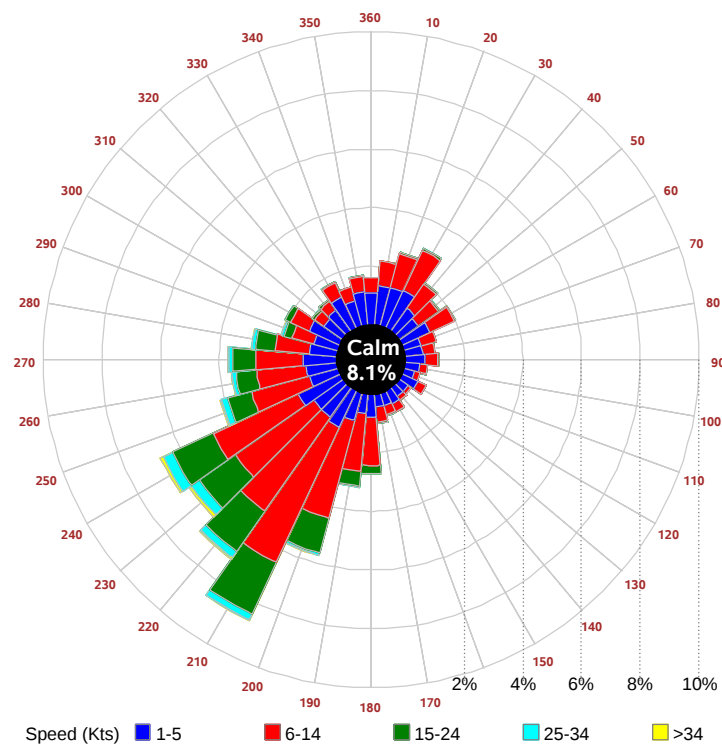
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9												
		March						June				
		9am	11am	1pm	3pm	5pm		9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear											
	M.Cloudy											
NORTH	M.Clear											
	M.Cloudy											
EAST	M.Clear			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

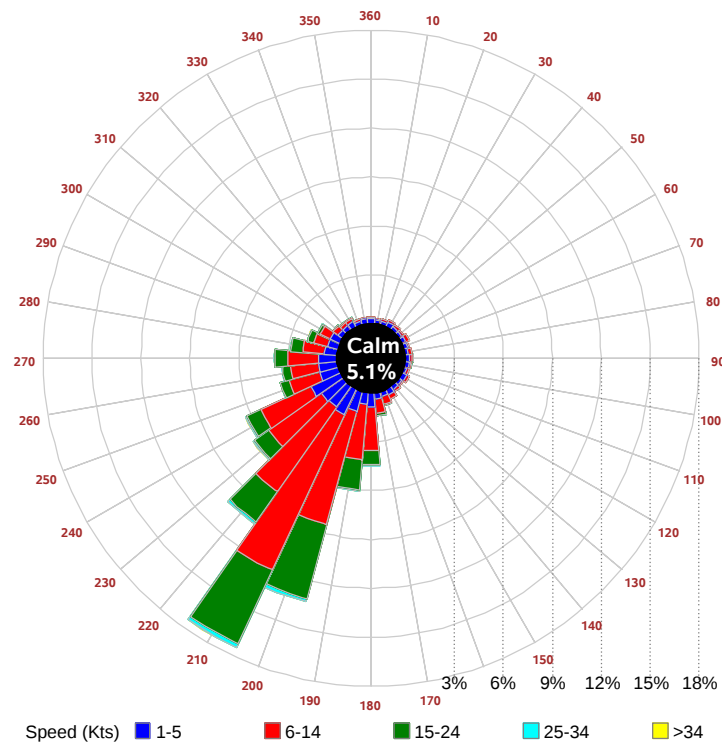
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

