

MUKHINO, RS	Station ID = ICAO_UIUU
Latitude = 51.81 N	Elevation = 1690 Feet
Longitude = 107.44 E	Average Pressure = 28.25 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	96	66	54	7	VRB
0.4% Occurrence	90	64	56	7.1	VRB
1.0% Occurrence	85	64	60	7.6	VRB
2.0% Occurrence	82	62	60	8	NW
Mean Daily Range	22	-	-	-	E
97.5% Occurrence	-24	-24	1	1.4	E
99.0% Occurrence	-29	-29	1	1.2	E
99.6% Occurrence	-33	-33	1	1.2	E
Median of Extreme Lows	-38	-38	1	1.2	E

	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	72	87	97	6.5	NW
0.4% Occurrence	68	81	86	7	N
1.0% Occurrence	66	79	81	7	NW
2.0% Occurrence	65	77	78	7	NW

	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	108	76	0.67	4.2	W
0.4% Occurrence	94	73	0.59	4.5	E
1.0% Occurrence	88	71	0.55	4.8	E
2.0% Occurrence	83	70	0.52	5.3	E

Air Conditioning/ Humid Area Criteria	Threshold	T ≥ 93 °F	T ≥ 80 °F	Twb ≥ 73 °F	Twb ≥ 67 °F
	# of Hours	17	237	2	81

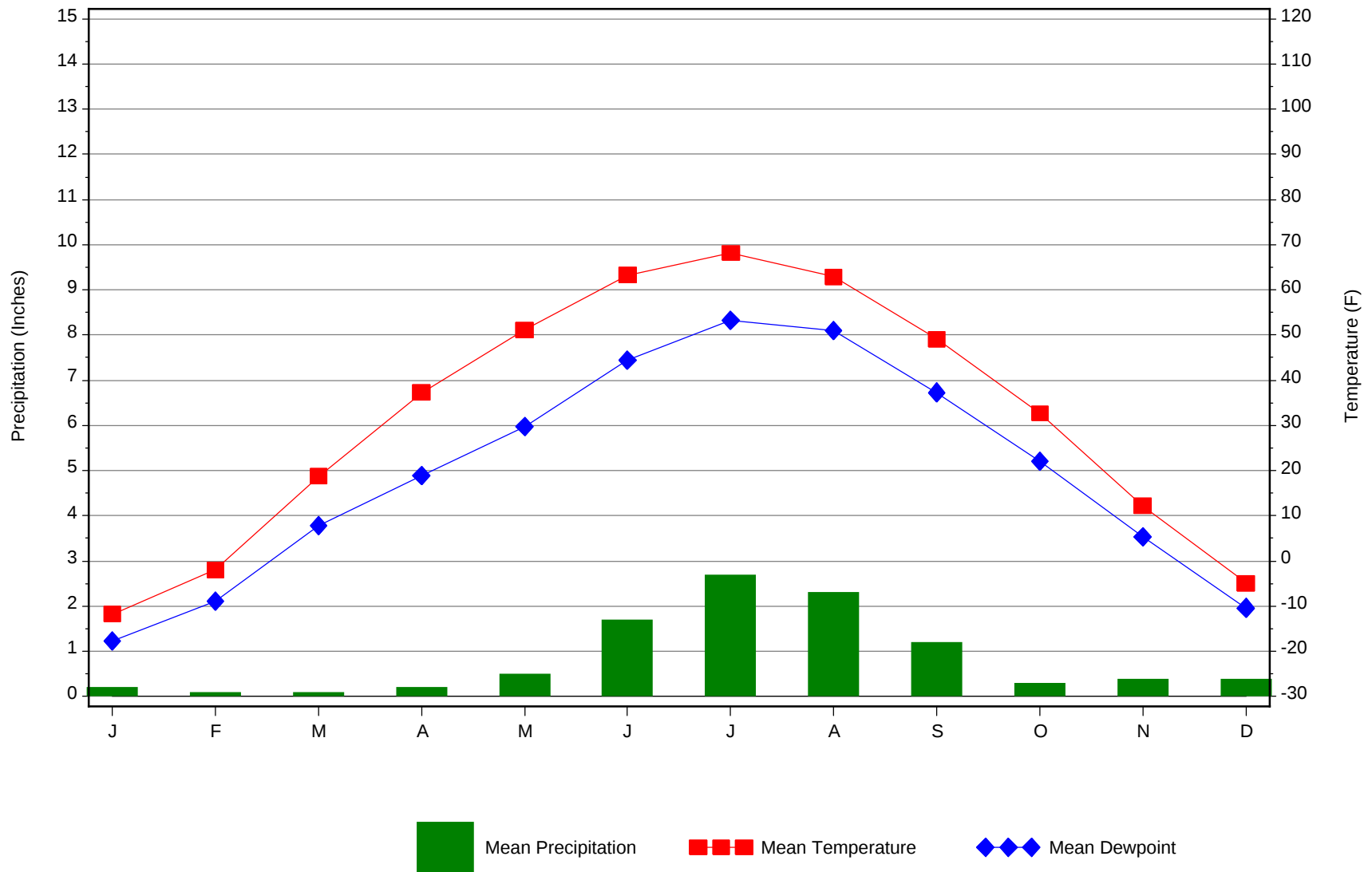
Other Site Data

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
3	N/A	N/A	0.1 + 0.2
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 (#)
34.1	N/A	N/A	79

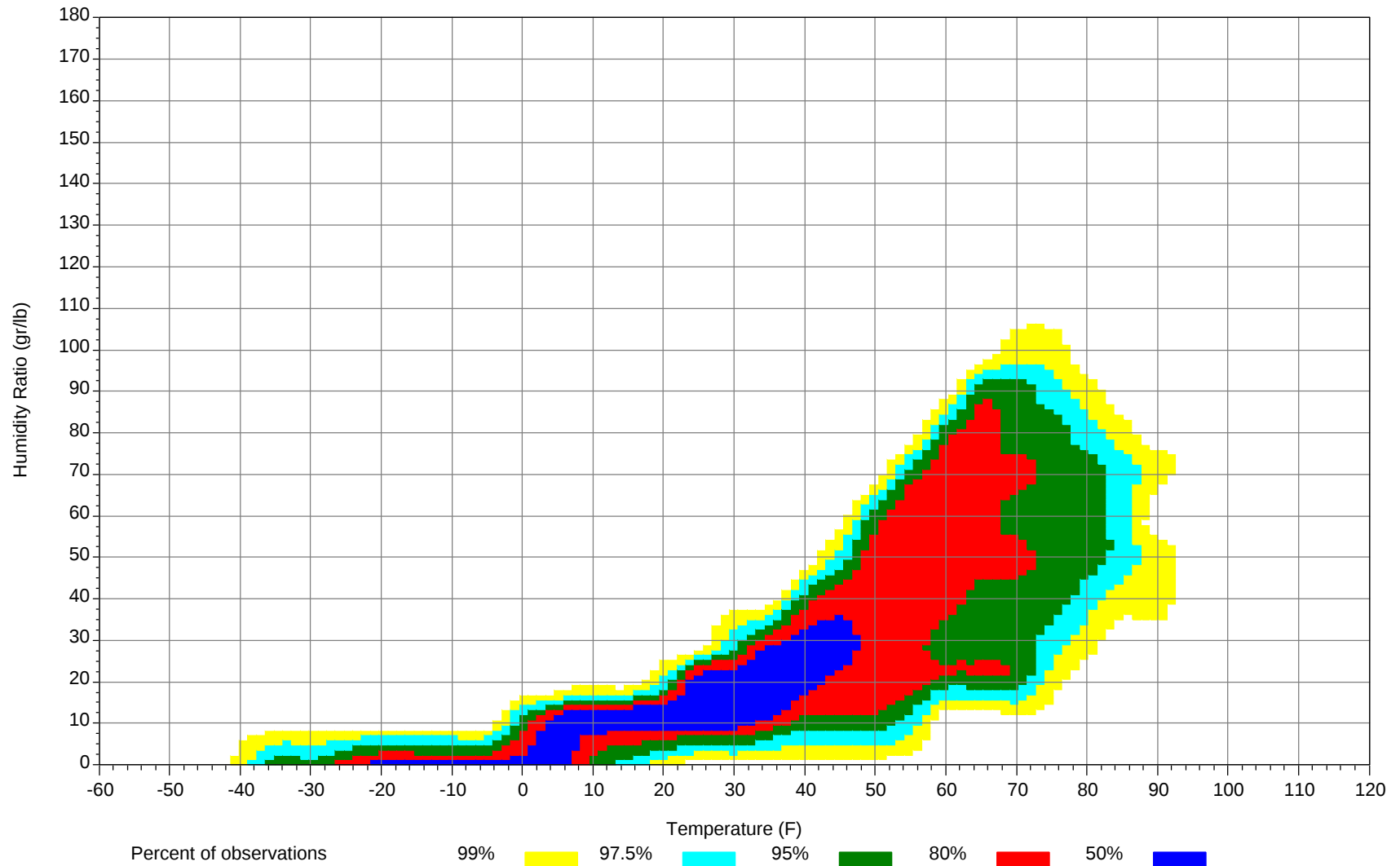
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



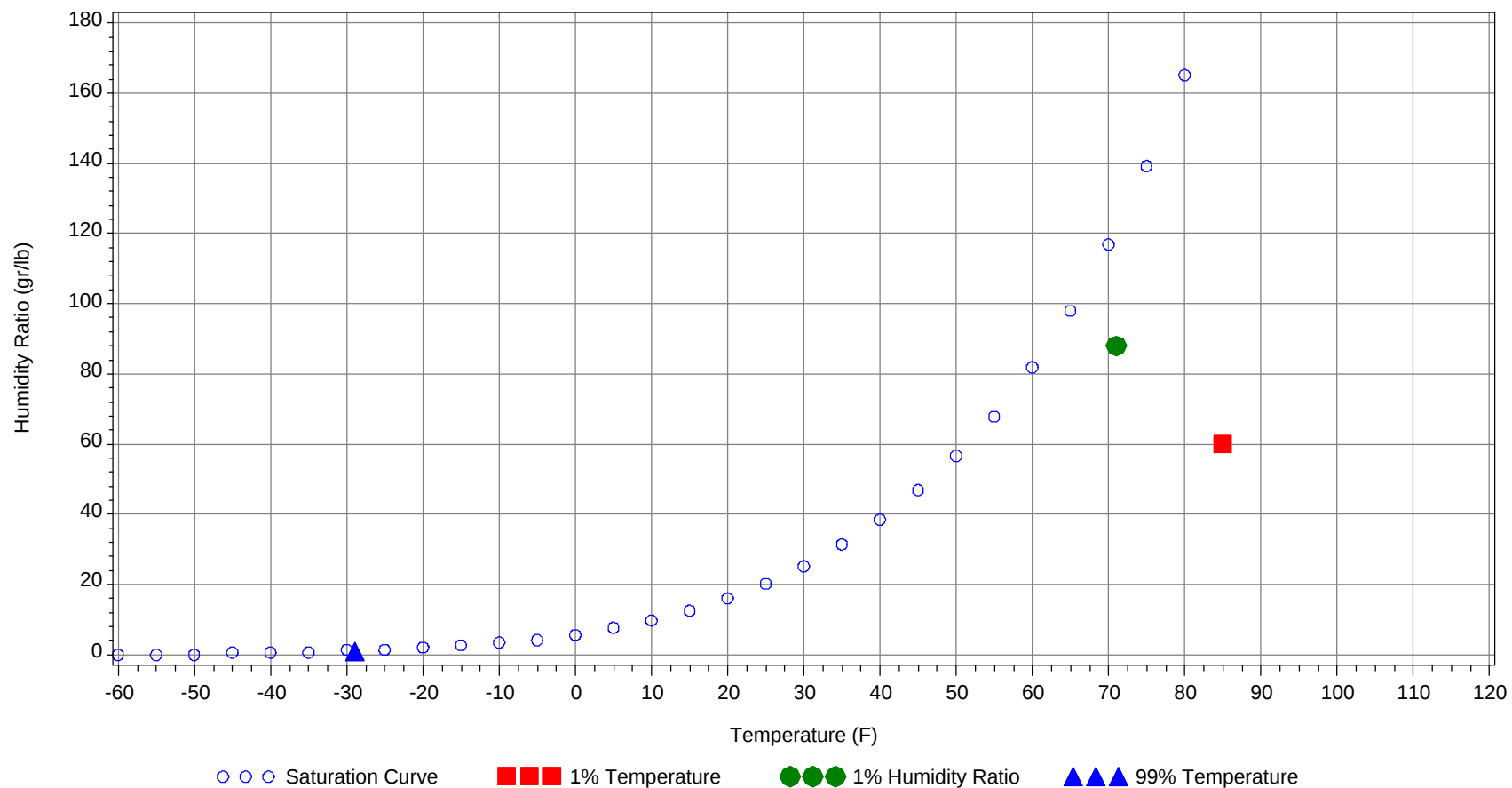
Average Annual Climate



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	85.0		64		60.0	30.3
99.0% Dry Bulb	-29.0				1.0	-6.9
1.0% Humidity Ratio	88.0	71.0	64.9	61.7		30.9

Dry-Bulb Temperature Hours For An Average Year

Temperature Range (°F)	January					February					March				
	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															
85/ 89															
80/ 84															
75/ 79															
70/ 74															
65/ 69															
60/ 64												0	0	0	44.5
55/ 59												1	1	2	42.5
50/ 54												2	2	4	39.3
45/ 49											0	8	5	13	36.1
40/ 44											1	12	10	23	33.4
35/ 39							0	0	0	30	2	26	22	50	30.4
30/ 34		0		0	26	0	1	1	2	27.3	11	33	36	80	27.2
25/ 29	0	0	1	1	23.2	1	5	3	9	22.6	25	35	43	103	23.4
20/ 24	1	2	1	4	19.3	2	10	8	20	18.9	31	30	31	92	19.4
15/ 19	1	4	3	8	14.8	4	19	15	38	14.6	34	33	31	98	15.2
10/ 14	4	9	7	20	10.1	10	28	28	66	10.1	34	27	27	88	10.5
5/ 9	9	18	15	42	5.3	17	32	37	86	5.5	31	18	19	68	5.8
0/ 4	16	29	24	69	0.6	25	36	39	100	0.7	25	11	12	48	0.9
-5/ -1	18	26	26	70	-3.6	21	21	26	68	-3.5	17	5	5	27	-3.5
-10/ -6	27	40	41	108	-7.9	36	26	29	91	-7.8	18	4	3	25	-7.6
-15/-11	29	31	37	97	-12.6	33	17	17	67	-12.4	11	2	1	14	-12.3
-20/-16	39	34	38	111	-17.1	33	14	12	59	-16.9	6	1	0	7	-16.5
-25/-21	41														

Dry-Bulb Temperature Hours For An Average Year

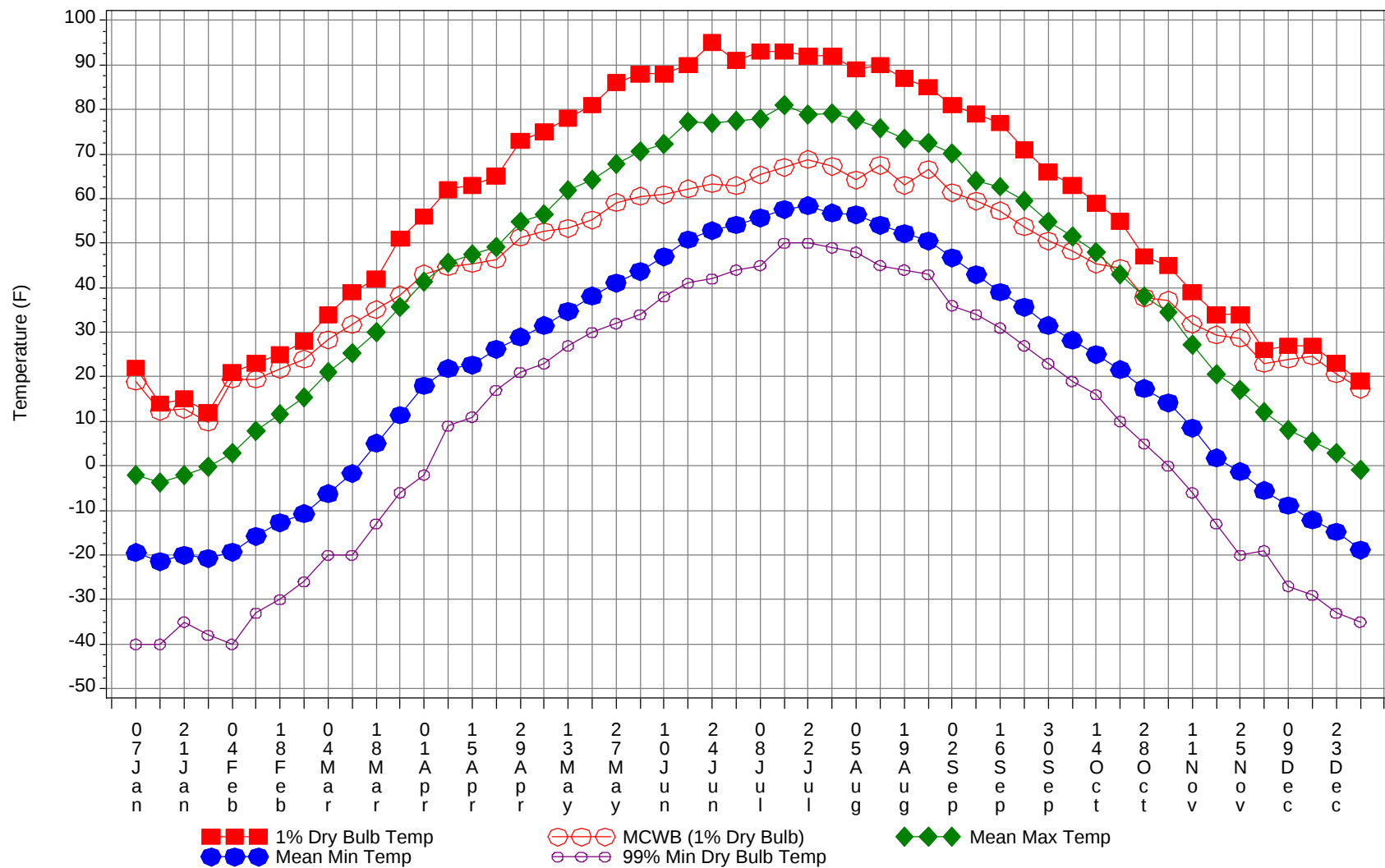
Temperature Range (°F)	October					November					December				
	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
100/104															
95/ 99															
90/ 94															
85/ 89															
80/ 84															
75/ 79															
70/ 74		0	0	0	53.2										
65/ 69		1	0	1	50.9										
60/ 64		3	1	4	48										
55/ 59	0	11	5	16	44.6										
50/ 54	0	18	9	27	41.8		0		0	40.3					
45/ 49	3	33	20	56	39	0	1	0	1	36.5					
40/ 44	10	39	32	81	36	0	3	1	4	34.3					
35/ 39	32	51	51	134	32.8	1	9	4	14	31.2		0	0	0	31.5
30/ 34	48	42	53	143	28.7	7	19	13	39	27.9	0	1	0	1	27.1
25/ 29	59	26	40	125	24.6	14	30	24	68	23.9	2	3	2	7	23.8
20/ 24	42	13	19	74	20.4	23	32	30	85	19.9	3	6	4	13	19.7
15/ 19	31	8	11	50	16.2	35	37	38	110	15.6	7	13	12	32	15.3
10/ 14	15	3	5	23	11.1	34	35	37	106	10.8	15	22	20	57	10.6
5/ 9	6	1	2	9	6.4	34	29	33	96	6	21	29	24	74	5.6
0/ 4	2	0	0	2	1.5	33	20	28	81	1.1	27	37	34	98	0.9
-5/ -1	0	0	0	0	-2.9	18	10	16	44	-3.3	21	29	28	78	-3.5
-10/ -6	0	0		0	-6.9	22	9	11	42	-7.6	34	38	39	111	-7.8
-15/-11	0			0	-10	12	3	4	19	-12.3	3				

Dry-Bulb Temperature Hours For An Average Year

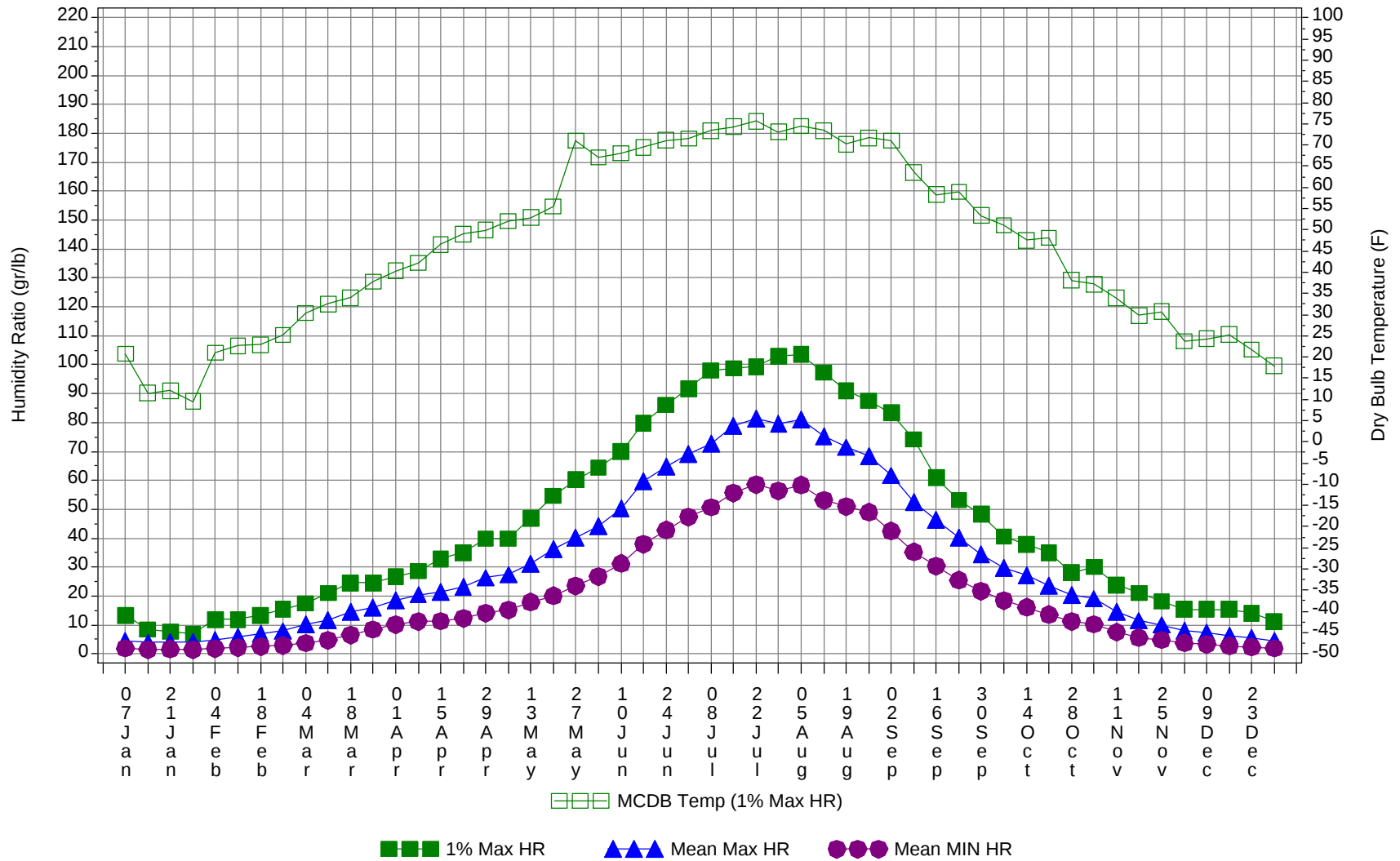
	Annual				
Temperature Range (° F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (° F)
100/104		0	1	1	67.2
95/ 99		4	4	8	66.1
90/ 94		15	14	29	64.8
85/ 89	0	32	27	59	64.1
80/ 84	0	81	61	142	62.6
75/ 79	2	135	101	238	60.7
70/ 74	18	181	143	342	58.6
65/ 69	67	169	161	397	56.9
60/ 64	178	196	200	574	54.4
55/ 59	226	191	192	609	50.2
50/ 54	213	166	166	545	45.6
45/ 49	180	169	161	510	40.7
40/ 44	157	138	143	438	36.5
35/ 39	185	150	164	499	32.5
30/ 34	192	132	157	481	28.3
25/ 29	189	113	138	440	24
20/ 24	142	96	102	340	19.8
15/ 19	134	116	113	363	15.4
10/ 14	122	124	126	372	10.6
5/ 9	122	127	130	379	5.7
0/ 4	129	133	138	400	0.9
-5/ -1	94	90	101	285	-3.5
-10/ -6	137	116	122	375	-7.8
-15/-11	118	78	90	286	-12.5
-20/-16	117	73	78	268	-17
-25/-21	92	46	51	189	-22.1
-30/-26	62	29	26	117	-27.2
-35/-31	25	11	8	44	-31.8
-40/-36	13	6	4	23	-36.4
-45/-41	5	2	0	7	-41.5
-50/-46	1	0		1	-46

Caution: This summary reflects the typical distribtion of temperature in a typical year. It does not reflect the typical mositure 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



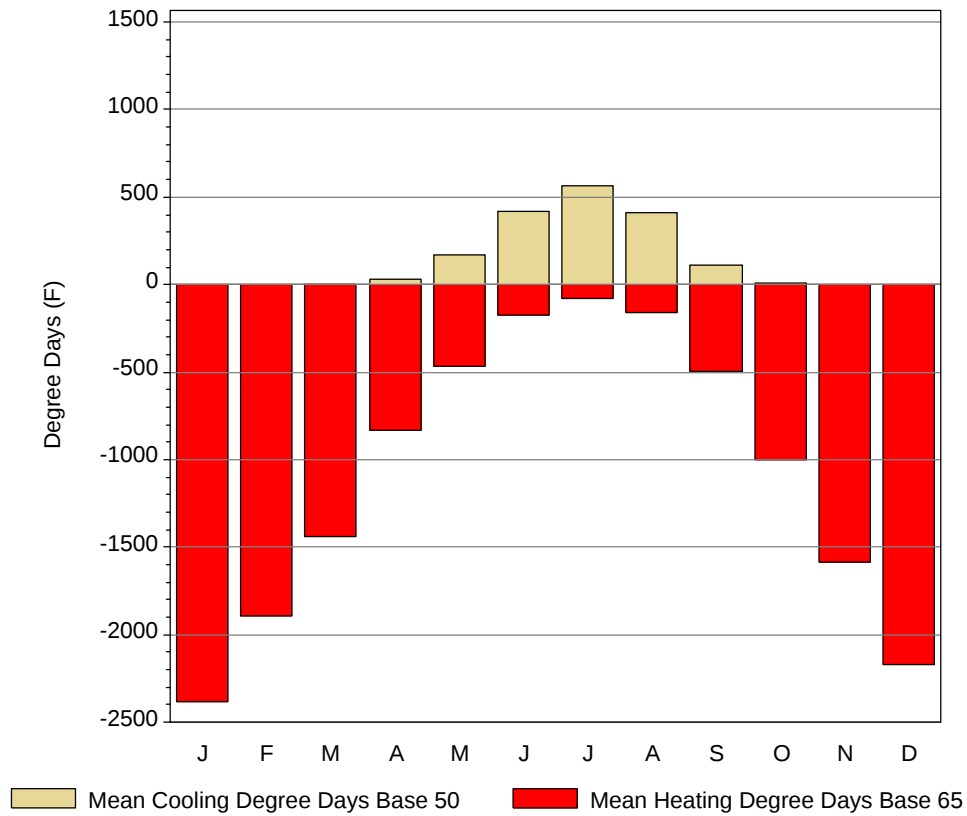
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

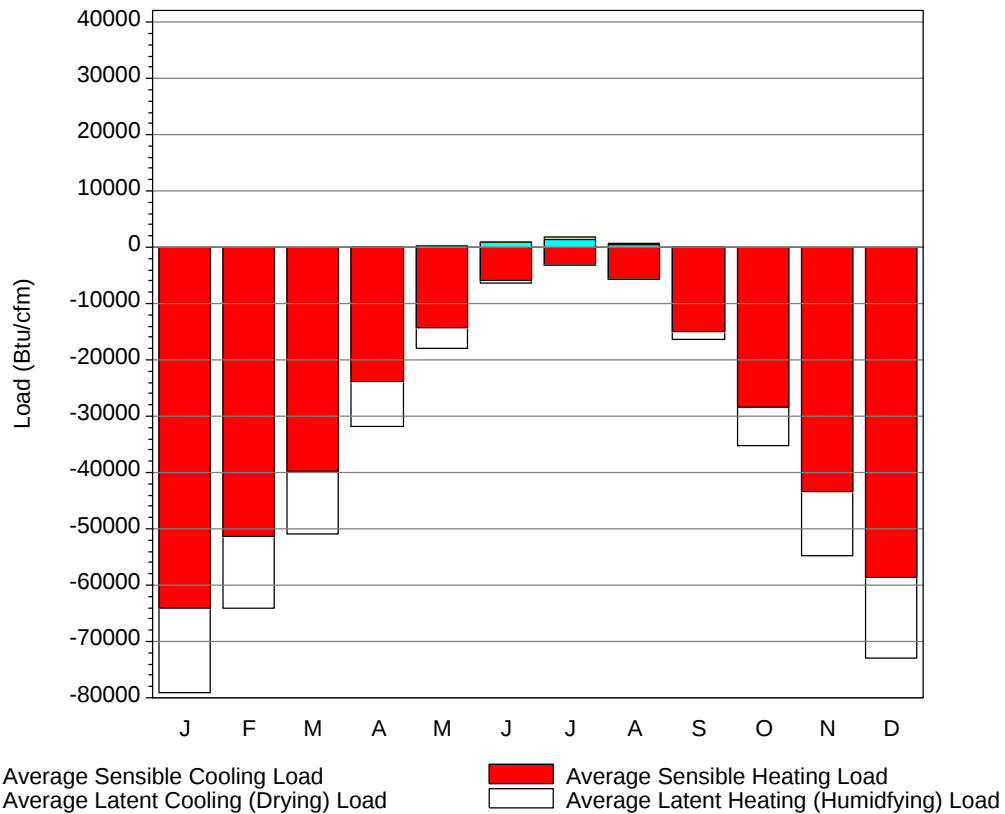
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	22	19	-2.1	-19.4	-40	13.3	20.8	4.5	1.9
14-Jan	14	12.3	-3.6	-21.5	-40	8.4	11.5	3.9	1.5
21-Jan	15	12.7	-2	-20	-35	7.7	12.1	4	1.6
28-Jan	12	9.8	-0.1	-20.7	-38	7	9.5	4	1.5
4-Feb	21	19.5	2.9	-19.3	-40	11.9	21	4.7	1.8
11-Feb	23	19.5	7.9	-15.8	-33	11.9	22.7	6	2.2
18-Feb	25	21.7	11.6	-12.7	-30	13.3	22.9	7	2.6
25-Feb	28	24	15.3	-10.7	-26	15.4	25.2	7.9	2.9
4-Mar	34	28.3	21.1	-6.2	-20	17.5	30.4	10.1	3.7
11-Mar	39	31.7	25.2	-1.7	-20	21	32.5	11.8	4.7
18-Mar	42	35.1	30.1	5.1	-13	24.5	34	14.5	6.5
25-Mar	51	38.4	35.7	11.4	-6	24.5	37.8	15.9	8.4
1-Apr	56	43.1	41.3	18	-2	26.6	40.3	18.5	10.1
8-Apr	62	44.7	45.5	21.8	9	28.7	42.2	20.5	11.2
15-Apr	63	45.4	47.6	22.7	11	32.9	46.6	21.3	11.3
22-Apr	65	46.4	49.1	26.2	17	35	49	23.1	12.3
29-Apr	73	51.3	54.8	28.9	21	39.9	49.9	26.3	14.1
6-May	75	52.6	56.5	31.5	23	39.9	52.1	27.4	15.2
13-May	78	53.3	61.9	34.7	27	46.9	52.9	31.2	17.9
20-May	81	55.2	64.2	38.1	30	54.6	55.5	36.1	20.1
27-May	86	59.1	67.7	41.1	32	60.2	71	40.2	23.5
4-Jun	88	60.5	70.5	43.7	34	64.4	67.1	44.3	26.7
10-Jun	88	60.9	72.2	47	38	70	68.1	50.2	31.2
17-Jun	90	62.2	77.3	50.8	41	79.8	69.5	59.6	38
24-Jun	95	63.4	76.9	52.8	42	86.1	71.1	64.8	42.9
1-Jul	91	62.9	77.5	54.1	44	91.7	71.5	69	47.4
8-Jul	93	65.3	77.9	55.7	45	98	73.4	72.8	50.7
15-Jul	93	67	81	57.6	50	98.7	74.3	78.9	55.6
22-Jul	92	68.8	78.9	58.4	50	99.4	75.6	81.3	58.5
29-Jul	92	67.3	79	56.8	49	102.9	73.1	79.7	56.4
5-Aug	89	64.2	77.7	56.4	48	103.6	74.5	80.9	58.4
12-Aug	90	67.5							

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	0	0	2381.3
FEB	0	0	1891.8
MAR	1	0	1437.2
APR	31.1	2.2	834.5
MAY	172.9	34	466.2
JUN	417.2	121.8	171.7
JUL	565.2	176.2	77.8
AUG	412.1	96.1	158.9
SEP	114.6	13.2	492.3
OCT	9.1	0.1	1002.2
NOV	0	0	1584.4
DEC	0	0	2167.7
ANN	1723.2	443.6	12666

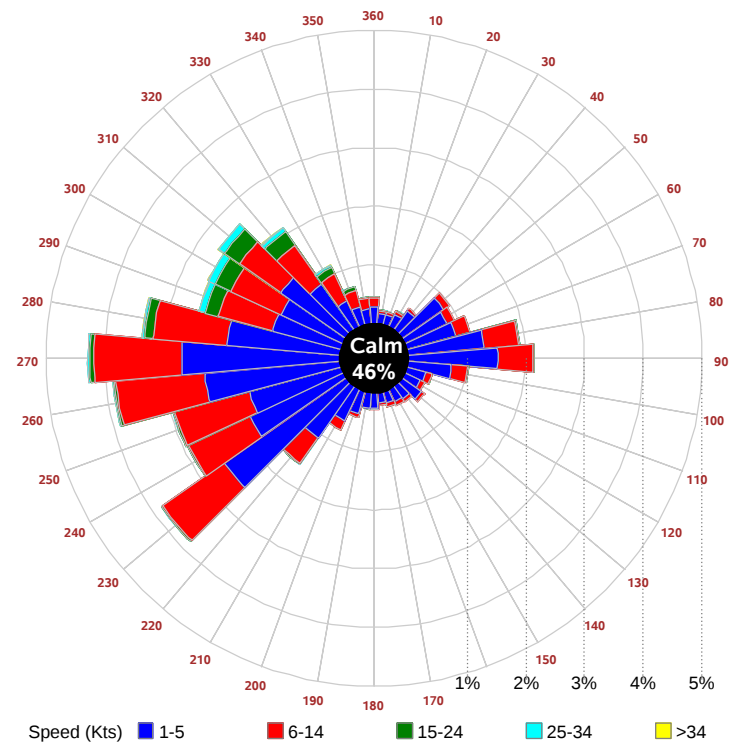
Average Ventilation and Infiltration Loads (Outside Air vs 75F, 60% RH summer; 68F, 30% RH winter)



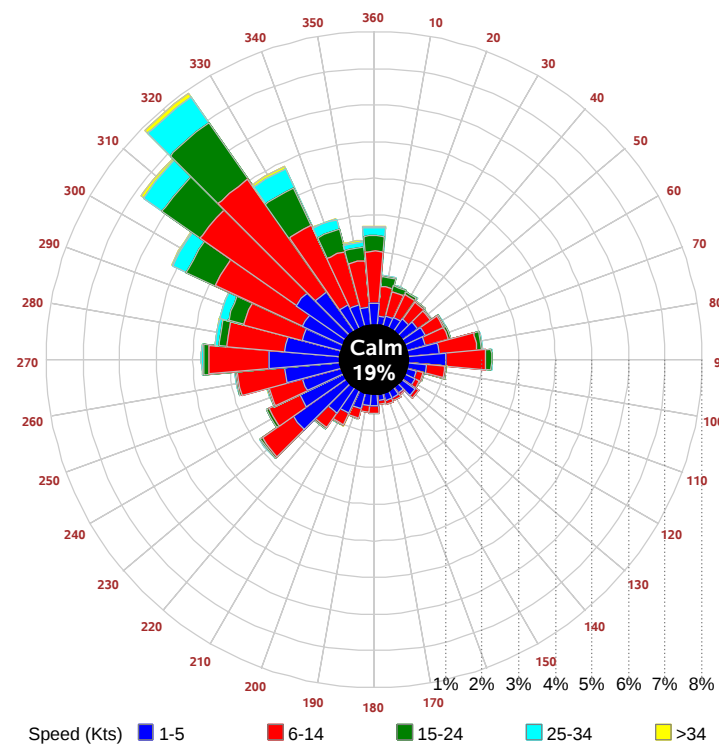
Month	Average Sensible Cooling Load (Btu/cfm)	Average Sensible Heating Load (Btu/cfm)	Average Latent Cooling Load (Btu/cfm)	Average Latent Heating Load (Btu/cfm)
JAN	0	-64132	0	-14916
FEB	0	-51234	0	-12884
MAR	0	-39663	0	-11235
APR	4	-23935	0	-7761
MAY	164	-14186	0	-3861
JUN	913	-5905	38	-419
JUL	1321	-3154	427	-12
AUG	547	-5710	200	-39
SEP	36	-14941	2	-1411
OCT	0	-28384	0	-6873
NOV	0	-43401	0	-11466
DEC	0	-58598	0	-14231
ANN	2985	-353243	667	-85108

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

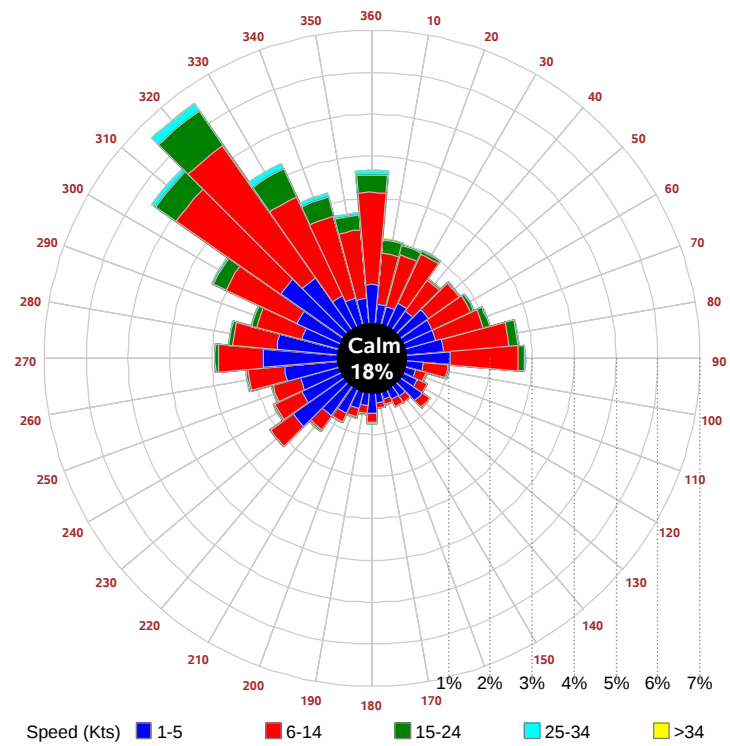
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

