

SCHOLES INTL AT GALVESTO, TX

Latitude = 29.27 N

Longitude = 94.86 W

Period of Record = 1988 To 2017

Station ID = ICAO_KGLS

Elevation = 6 Feet

Average Pressure = 29.98 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	94	79	125	10.6	S
0.4% Occurrence	91	79	133	11.9	S
1.0% Occurrence	91	79	133	11.9	S
2.0% Occurrence	90	79	133	12	S
Mean Daily Range	10	-	-	-	N
97.5% Occurrence	45	42	33	13.2	N
99.0% Occurrence	39	36	26	15.4	N
99.6% Occurrence	36	33	22	15.4	N
Median of Extreme Lows	32	30	20	16.9	N

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	83	89	155	12.4	S
0.4% Occurrence	82	88	152	12.1	S
1.0% Occurrence	81	86	148	11.6	S
2.0% Occurrence	81	86	148	11.6	S

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	162	85	1.07	11.2	S
0.4% Occurrence	161	85	1.07	11	S
1.0% Occurrence	151	85	1	11.4	S
2.0% Occurrence	151	85	1	11	S

Air Conditioning/ Humid Area Criteria	Threshold	T ≥ 93 °F	T ≥ 80 °F	Twb ≥ 73 °F	Twb ≥ 67 °F
	# of Hours	25	2889	3459	4802

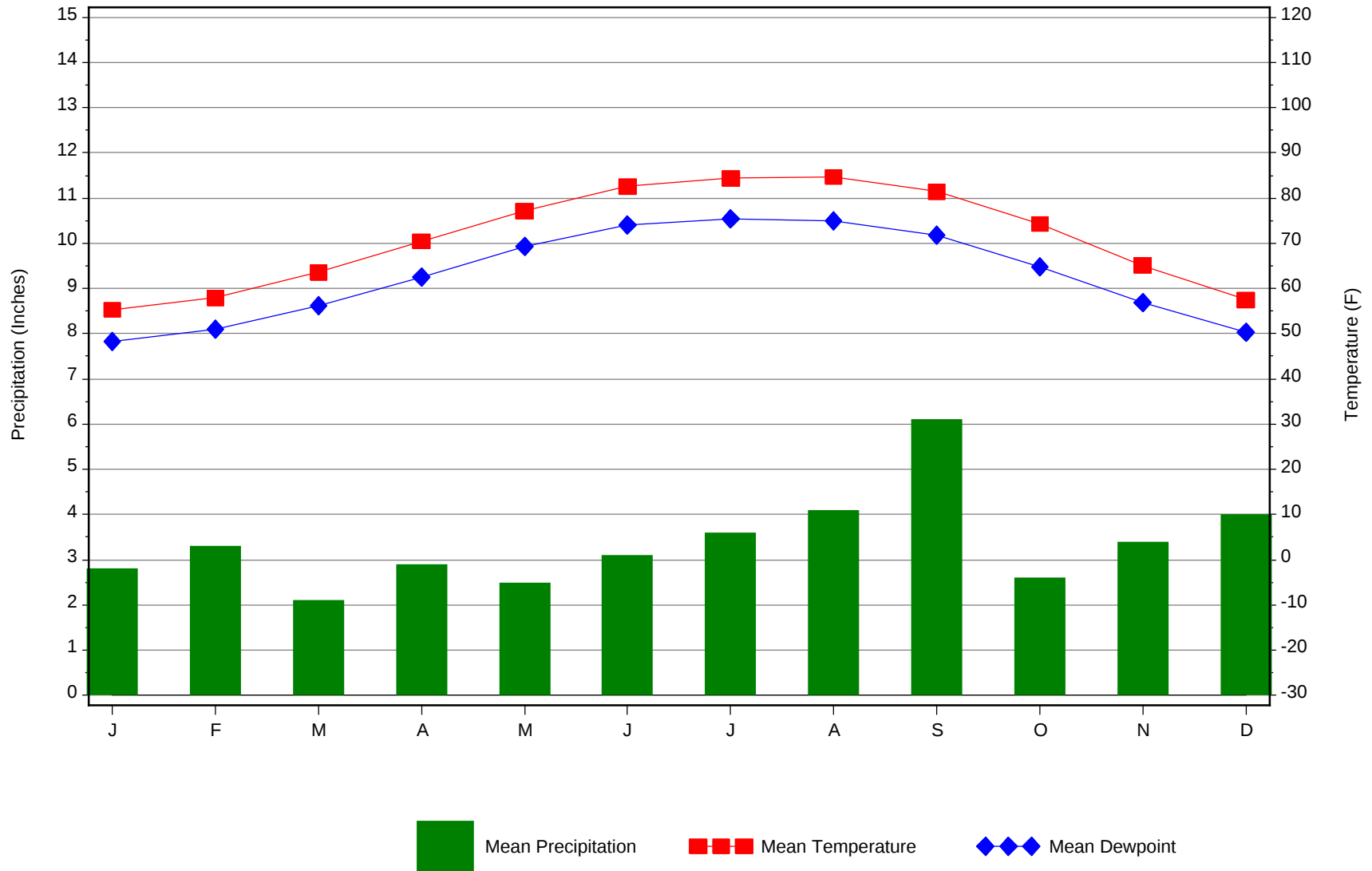
Other Site Data

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	125	12.3 + 2.6
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 (#)
73.7	0	0	1

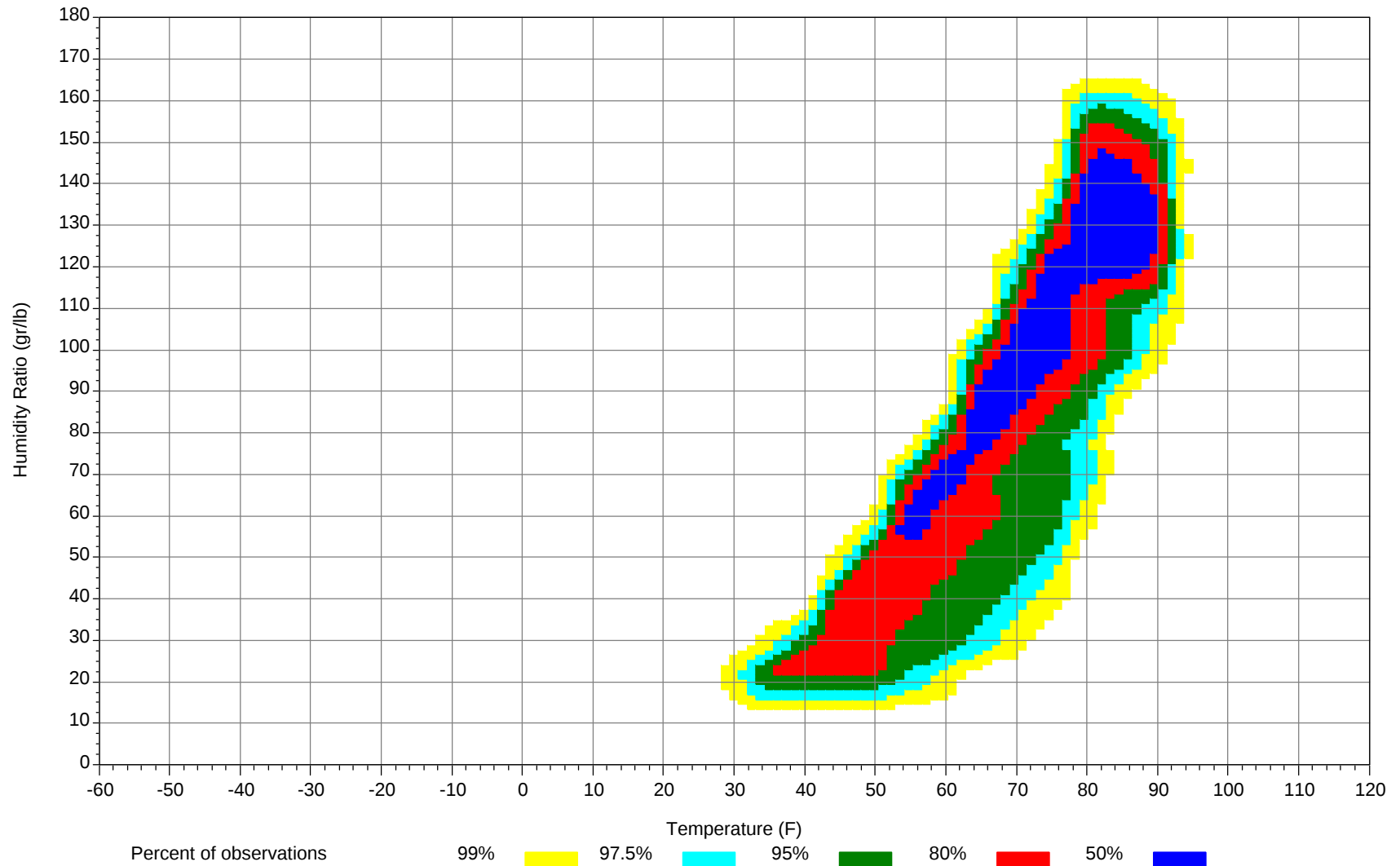
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



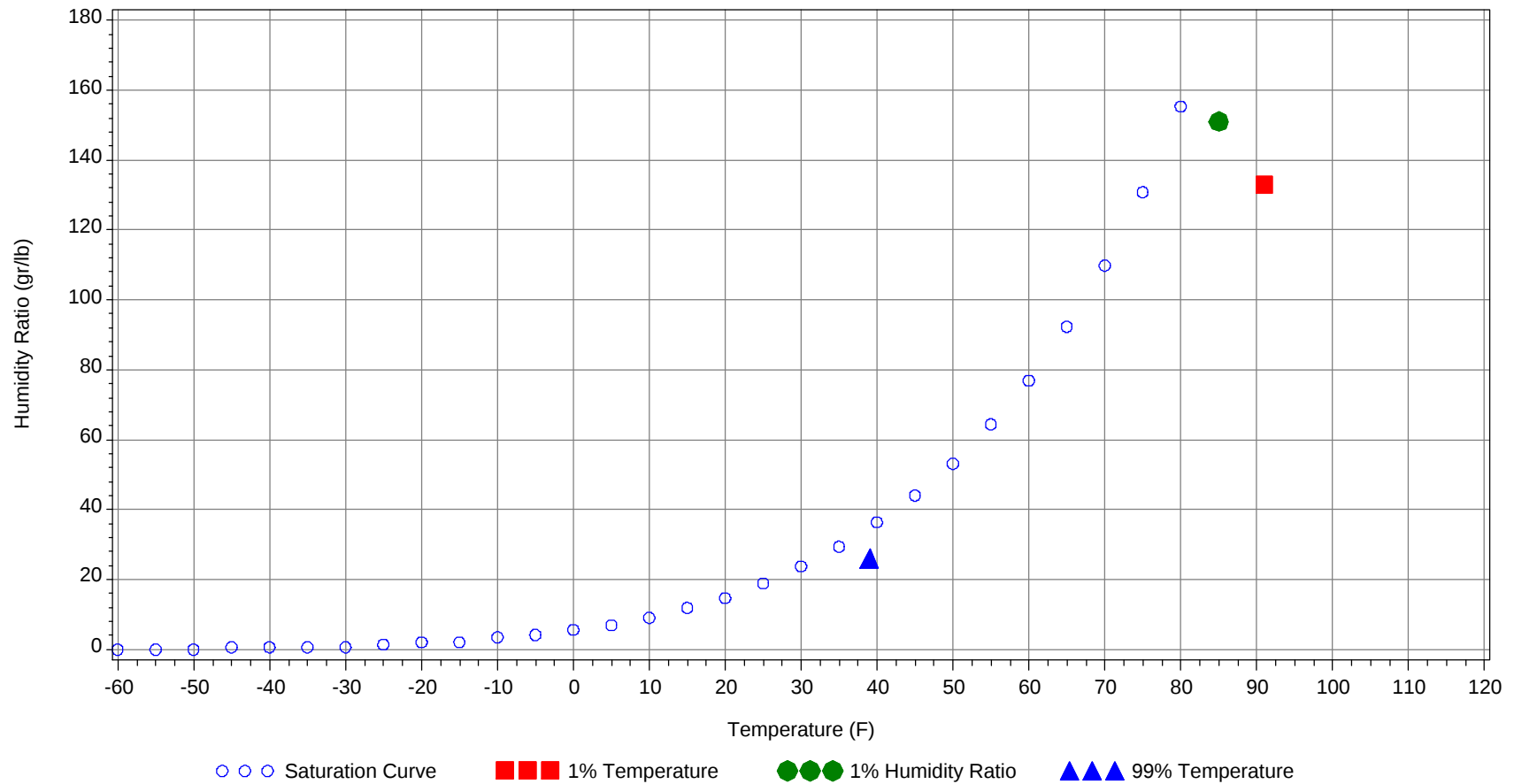
Average Annual Climate



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	91.0		79		133.0	42.7
99.0% Dry Bulb	39.0				26.0	13.3
1.0% Humidity Ratio	151.0	85.0	80.4	79.0		44.0

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															
90/ 94															
85/ 89												0		0	64.5
80/ 84							0	0	0	66		1	0	1	66.7
75/ 79		1	0	1	65.2		3	0	3	67.3	1	24	3	28	70
70/ 74	1	24	3	28	65.9	3	31	6	40	66	26	77	42	145	67.1
65/ 69	13	35	21	69	63.9	18	44	31	93	63.6	60	59	73	192	63.7
60/ 64	50	55	63	168	59.6	65	59	70	194	59.3	75	46	72	193	58.5
55/ 59	47	42	54	143	53.1	46	32	52	130	53.1	43	22	34	99	52.1
50/ 54	49	42	51	142	48.2	42	27	35	104	47.8	25	11	14	50	47.2
45/ 49	47	27	35	109	43.3	31	16	19	66	43.2	11	5	7	23	42.1
40/ 44	21	11	12	44	38.8	9	6	5	20	38.9	3	2	2	7	37.6
35/ 39	13	7	9	29	34.1	7	3	4	14	35.1	2	1	1	4	33.3
30/ 34	6	3	2	11	29.7	3	2	2	7	29.5	1	0	0	1	29.8
25/ 29	1	0	0	1	24.6	1	0	0	1	25.9	0		0	0	24.8
20/ 24															
15/ 19															

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.

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	64							1	0	1	76.2
90/ 94		0	0	0	64.5		1	0	1	73.8	0	29	2	31	78.4
85/ 89		0	0	0	68.6	0	18	1	19	77	7	119	30	156	78.3
80/ 84	0	21	2	23	72.9	23	132	52	207	75.1	161	71	171	403	76.6
75/ 79	20	90	40	150	71.1	125	72	131	328	72.6	62	16	35	113	73.5
70/ 74	98	83	112	293	67.7	76	20	54	150	67.6	9	2	2	13	69.4
65/ 69	61	25	52	138	62.8	16	4	8	28	61.6	0		0	0	67.8
60/ 64	40	14	25	79	57.1	7	1	1	9	57.2					
55/ 59	13	4	6	23	51.7	1	0	0	1	53.3					
50/ 54	6	2	2	10	47.6	0		0	0	48					
45/ 49	1	0	0	1	43.8										
40/ 44	0		0	0	40.1										
35/ 39															
30/ 34															
25/ 29															
20/ 24															
15/ 19															

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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)
100/104							0		0	76.5	0	0		0	81
95/ 99		0		0	79.6		2	0	2	78.9	0	1		1	80.2
90/ 94	0	79	6	85	79.6	0	101	12	113	79.6	0	29	2	31	78.6
85/ 89	18	122	66	206	78.7	28	98	79	205	78.6	6	90	25	121	77.7
80/ 84	209	36	167	412	77.3	187	36	143	366	77.2	129	80	148	357	76
75/ 79	21	10	9	40	74.5	30	10	13	53	73.9	71	28	48	147	72.1
70/ 74	1	1	0	2	71.2	2	1	1	4	70.4	23	9	13	45	66.2
65/ 69											8	2	3	13	61.2
60/ 64											3	1	0	4	57.8
55/ 59											0			0	52.7
50/ 54															
45/ 49															
40/ 44															
35/ 39															
30/ 34															
25/ 29															
20/ 24															
15/ 19															

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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)
100/104															
95/ 99															
90/ 94		1	0	1	77.1										
85/ 89	0	21	1	22	77.7										
80/ 84	28	87	40	155	74.9	0	11	0	11	74		0		0	73
75/ 79	73	68	91	232	71.4	12	51	16	79	71.7		8	0	8	71.1
70/ 74	70	42	67	179	65.9	58	63	69	190	67.8	12	40	18	70	68.2
65/ 69	35	15	26	76	61.1	40	34	45	119	62.7	35	38	35	108	64.5
60/ 64	26	10	18	54	56.6	48	38	52	138	57.2	50	47	56	153	59.2
55/ 59	11	2	4	17	52.2	35	22	33	90	51.6	36	42	46	124	52.4
50/ 54	4	1	2	7	46.4	26	11	15	52	47.1	40	33	46	119	47.5
45/ 49	0	0	0	0	41.9	13	6	8	27	42.2	44	24	32	100	43
40/ 44	0	0	0	0	37.5	4	2	2	8	38.8	17	9	8	34	38.9
35/ 39	0			0	36	2	1	0	3	35.2	11	5	6	22	34.4
30/ 34											1	1	1	3	29.8
25/ 29											1	0	0	1	24.8
20/ 24											0	0	0	0	19.2
15/ 19											0	0	0	0	14.2

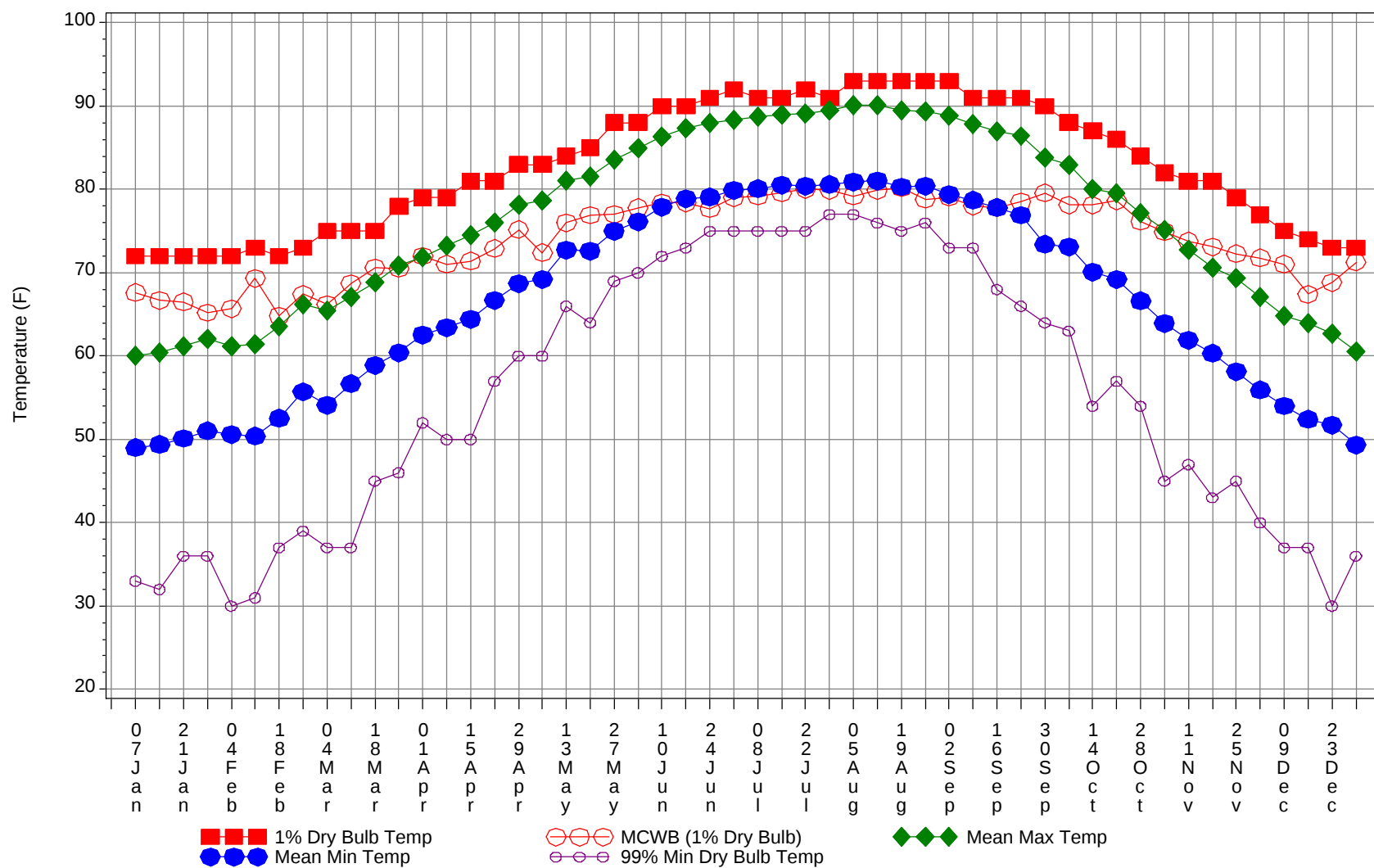
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

Dry-Bulb Temperature Hours For An Average Year

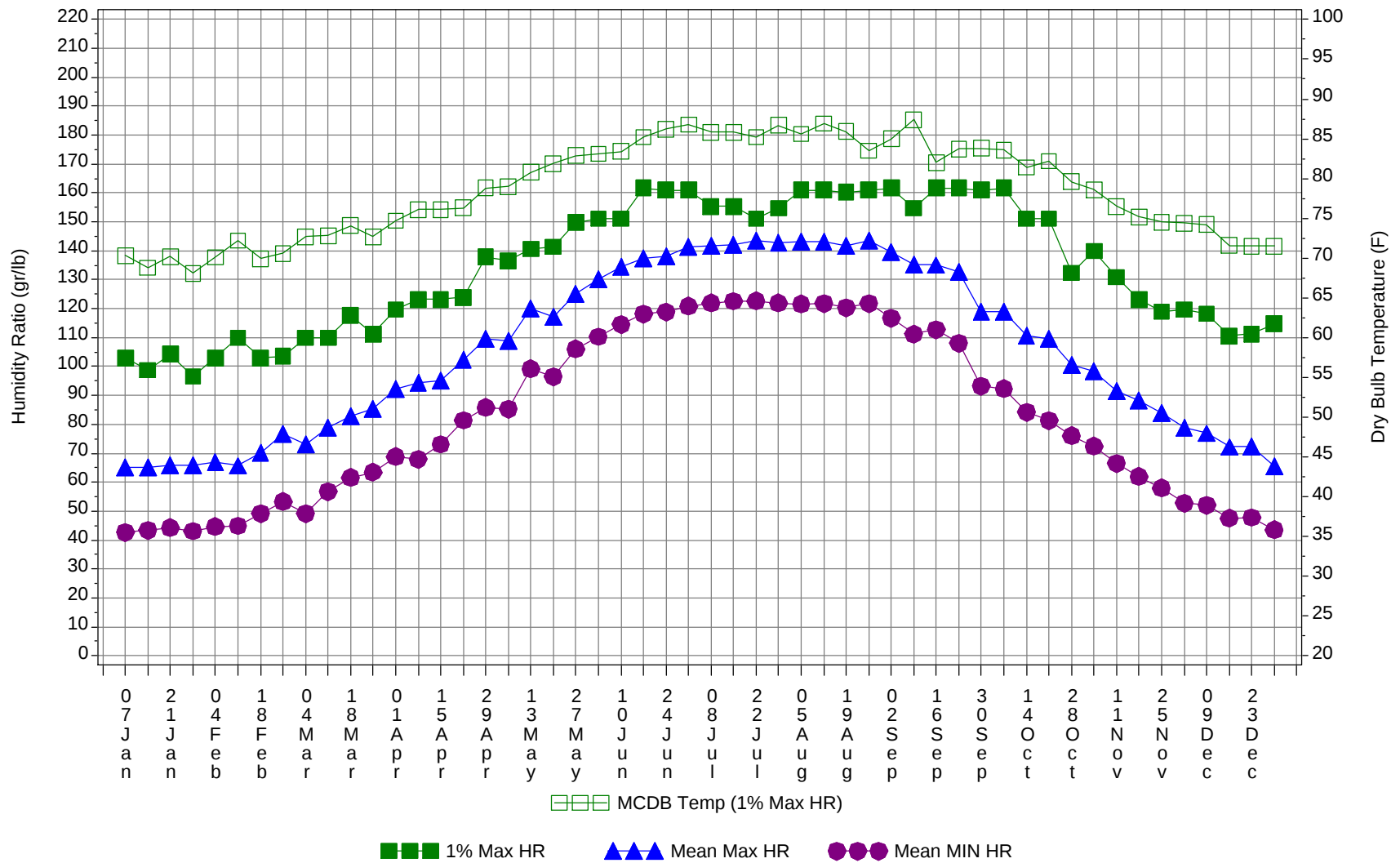
	Annual				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
100/104	0	0		0	80
95/ 99	0	4	0	4	78.6
90/ 94	1	241	23	265	79.3
85/ 89	59	470	204	733	78.3
80/ 84	736	475	724	1935	76.4
75/ 79	413	379	382	1174	72.2
70/ 74	378	392	384	1154	67.3
65/ 69	285	257	294	836	63.2
60/ 64	367	273	359	999	58.6
55/ 59	234	167	230	631	52.5
50/ 54	193	128	166	487	47.7
45/ 49	149	79	101	329	43
40/ 44	55	30	29	114	38.8
35/ 39	35	18	19	72	34.4
30/ 34	11	6	5	22	29.7
25/ 29	2	1	0	3	25.2
20/ 24	0	0	0	0	19.2
15/ 19	0	0	0	0	14.2

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Annual Summary of Temperatures



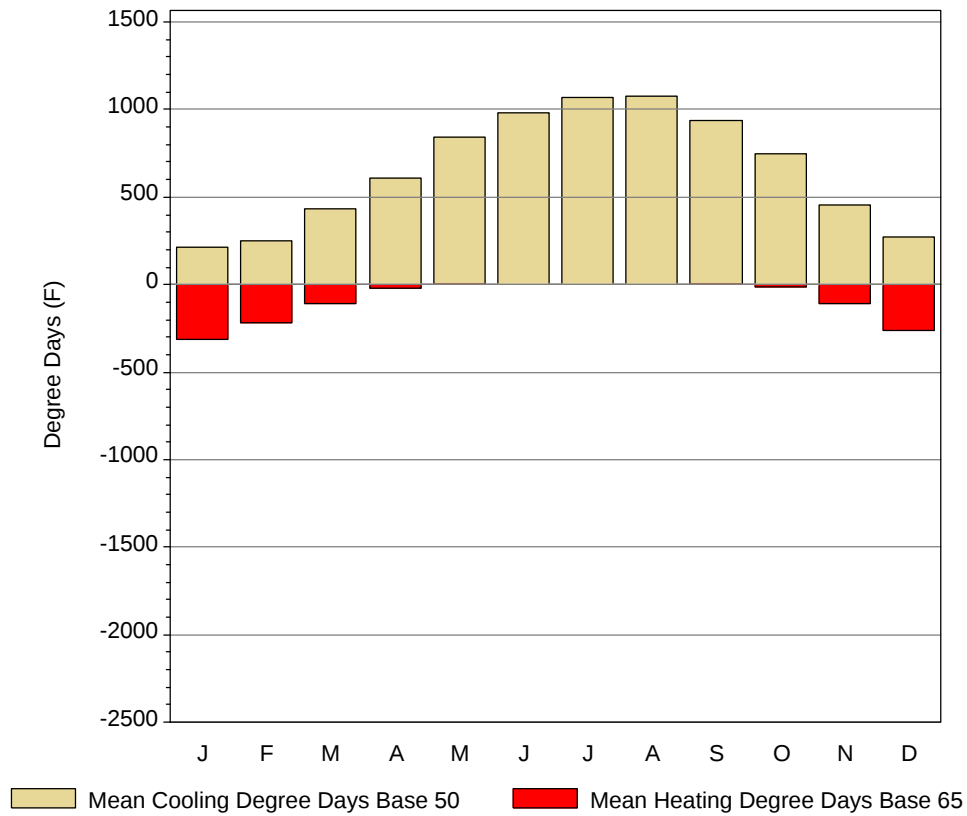
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

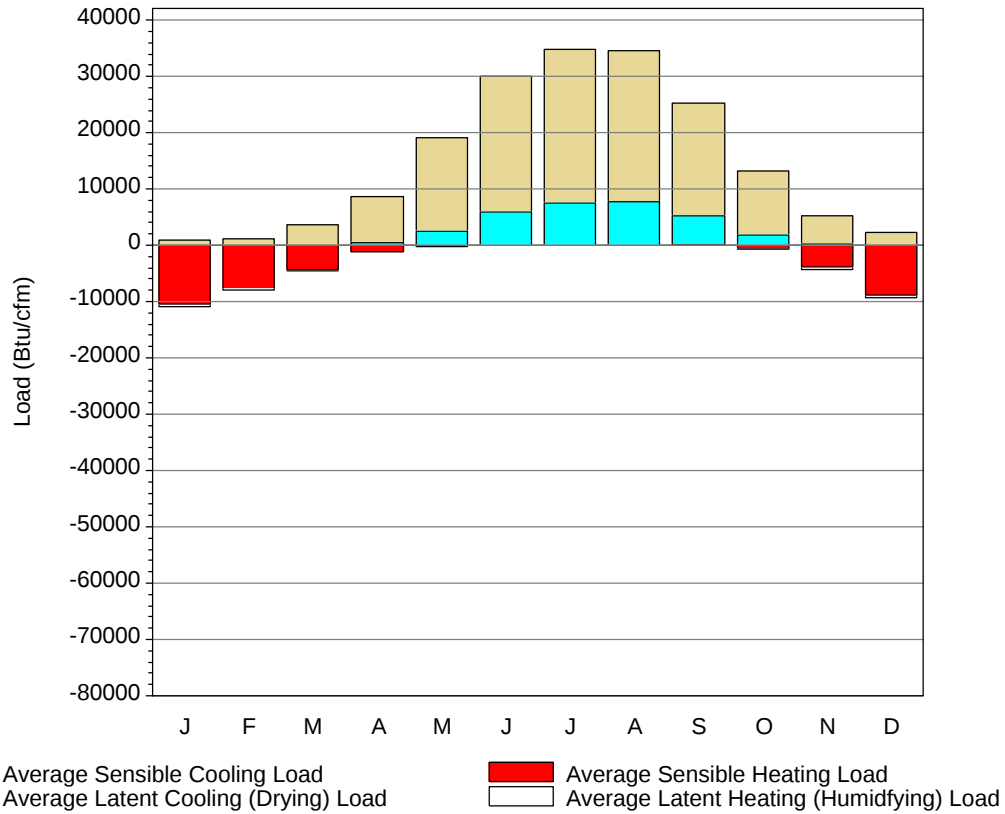
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	72	67.6	60.1	49	33	102.9	70.3	65.1	42.7
14-Jan	72	66.7	60.4	49.4	32	98.7	68.8	65	43.4
21-Jan	72	66.5	61.2	50.1	36	104.3	70.2	65.9	44.3
28-Jan	72	65.2	62	51	36	96.6	68.1	66	43.1
4-Feb	72	65.7	61.2	50.6	30	102.9	70.1	67	44.7
11-Feb	73	69.3	61.4	50.4	31	109.9	72.2	65.7	44.9
18-Feb	72	64.8	63.6	52.5	37	102.9	69.9	70.3	49.1
25-Feb	73	67.4	66.2	55.7	39	103.6	70.6	76.8	53.3
4-Mar	75	66.2	65.4	54.1	37	109.9	72.7	73.2	49.2
11-Mar	75	68.7	67.1	56.7	37	109.9	72.8	78.8	56.8
18-Mar	75	70.6	68.8	58.9	45	117.6	74.1	82.8	61.6
25-Mar	78	70.5	70.9	60.4	46	111.3	72.7	85.4	63.5
1-Apr	79	72	71.9	62.5	52	119.7	74.7	92.1	68.9
8-Apr	79	71	73.3	63.4	50	123.2	76.1	94.5	68
15-Apr	81	71.4	74.5	64.4	50	123.2	76.1	95.2	73.1
22-Apr	81	72.9	76	66.7	57	123.9	76.3	102.3	81.4
29-Apr	83	75.2	78.1	68.7	60	137.9	78.8	109.7	85.9
6-May	83	72.4	78.7	69.2	60	136.5	79	108.8	85.3
13-May	84	76	81	72.7	66	140.7	80.8	120	99.2
20-May	85	76.9	81.5	72.6	64	141.4	81.9	117.1	96.5
27-May	88	77	83.6	75	69	149.8	82.9	125.1	106.1
4-Jun	88	77.8	84.9	76.1	70	151.2	83.1	130.2	110.3
10-Jun	90	78.4	86.3	77.9	72	151.2	83.4	134.6	114.5
17-Jun	90	78.4	87.4	78.9	73	161.7	85.2	137.5	118.2
24-Jun	91	77.7	88	79.1	75	161	86.2	138.1	118.8
1-Jul	92	79	88.3	79.9	75	161	86.8	141.5	120.9
8-Jul	91	79.2	88.7	80.1	75	155.4	85.8	141.8	121.9
15-Jul	91	79.6	89	80.5	75	155.4	85.8	142.1	122.6
22-Jul	92	80	89.1	80.4	75	151.2	85.2	143.6	122.7
29-Jul	91	79.9	89.5	80.6	77	154.7	86.7	142.8	122
5-Aug	93	79.2	90.1	80.9	77	161	85.6	143.2	121.6
12-Aug	93	79.9	90.1	81	76	161	86.9	143.3	121.7
19-Aug	93	80.2	89.5	80.3	75	160.3	85.9	141.7	120.4
26-Aug	93	78.8	89.3	80.4	76	161	83.5	143.5	121.8
2-Sep	93	79.1	88.9	79.4	73	161.7	85	139.7	116.7
9-Sep	91	78	87.9	78.7	73	154.7	87.4	135.3	111.2
16-Sep	91	77.8	87	77.8	68	161.7	82	135.1	112.8
23-Sep	91	78.5	86.4	76.9	66	161.7	83.7	132.7	108
30-Sep	90	79.6	83.8	73.4	64	161	83.8	118.9	93.3
7-Oct	88	78.1	83	73.1	63	161.7	83.6	119	92.4
14-Oct	87	78.1	80	70.1	54	151.2	81.4	110.6	84.2
21-Oct	86	78.6	79.6	69.2	57	151.2	82.2	109.6	81.3
28-Oct	84	76.2	77.1	66.6	54	132.3	79.6	100.5	76.1
4-Nov	82	74.9	75.1	63.9	45	140	78.6	98.3	72.4
11-Nov	81	73.8	72.7	61.9	47	130.9	76.5	91.5	66.5
18-Nov	81	73.1	70.6	60.3	43	123.2	75.2	88.3	62
25-Nov	79	72.3	69.4	58.1	45	119	74.5	83.9	58
2-Dec	77	71.8	67.1	55.9	40	119.7	74.4	79	52.8
9-Dec	75	71	64.8	54	37	118.3	74.2	76.9	52.1
16-Dec	74	67.4	63.9	52.4	37	110.6	71.6	72.2	47.6
23-Dec	73	68.8	62.7	51.7	30	111.3	71.5	72.3	47.8
31-Dec	73	71.3	60.5	49.3	36	114.8	71.5	65.4	43.6

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	213.6	12	314.5
FEB	251.1	17.6	219.9
MAR	430.2	65.5	108.7
APR	611.9	183.5	21.9
MAY	839.9	376.3	1.3
JUN	978.8	528.8	0
JUL	1066.5	601.5	0
AUG	1074.8	609.8	0
SEP	940.2	490.6	0.4
OCT	749.7	299.4	15
NOV	457.4	105	104.7
DEC	272.2	29.6	261.9
ANN	7886.3	3319.6	1048.3

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	1	-10354	987	-542
FEB	3	-7602	1253	-323
MAR	38	-4309	3694	-211
APR	405	-1096	8306	-19
MAY	2495	-96	16527	0
JUN	5967	0	23955	0
JUL	7559	0	27324	0
AUG	7783	0	26881	0
SEP	5219	-38	20090	0
OCT	1831	-725	11388	-16
NOV	185	-3931	5027	-258
DEC	8	-8749	2278	-443
ANN	31494	-36900	147710	-1812

Station Information		Shading Geometry in Dimensionless Units	
City, State, WBAN	HOUSTON, TX 12960	Window:	1.000
Lat, Lon, Elev	29.98N 95.37W 108ft	Overhang:	0.876
Press, Stn Type	14.7psia Secondary	Vert Gap:	0.649

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	840	1080	1340	1590	1780	1910	1880	1780	1540	1330	970	790	1400
	Std.Dev.	80	93	113	152	144	156	122	126	121	128	104	54	39
	Minimum	710	880	1130	1350	1470	1620	1600	1520	1330	1040	690	690	1330
	Maximum	1000	1290	1600	2020	2030	2180	2130	2000	1790	1660	1240	930	1510
	Diffuse	420	500	630	760	830	860	860	790	680	520	430	390	640
Clear Day	Global	1300	1620	2010	2350	2520	2570	2520	2350	2060	1680	1340	1190	1960
NORTH	Global	260	310	380	450	550	630	590	500	410	340	270	240	410
	Diffuse	260	310	380	440	490	520	510	470	410	340	270	240	390
Clear Day	Global	240	290	360	430	590	700	640	490	390	320	260	230	410
EAST	Global	490	620	730	840	930	1020	1030	1010	900	780	580	470	780
	Diffuse	300	370	450	530	590	620	620	590	520	430	330	290	470
Clear Day	Global	860	1030	1200	1320	1360	1350	1330	1280	1180	1030	860	800	1130
SOUTH	Global	990	1050	950	780	630	570	610	750	960	1190	1130	1000	880
	Diffuse	390	440	490	520	520	510	520	540	540	500	420	380	480
Clear Day	Global	2000	1900	1570	1070	730	610	660	920	1340	1720	1900	1960	1360
WEST	Global	530	660	800	910	980	1030	980	950	870	800	610	490	800
	Diffuse	310	370	460	540	600	620	610	580	510	430	330	290	470
Clear Day	Global	860	1030	1200	1320	1360	1350	1330	1280	1180	1030	860	800	1130

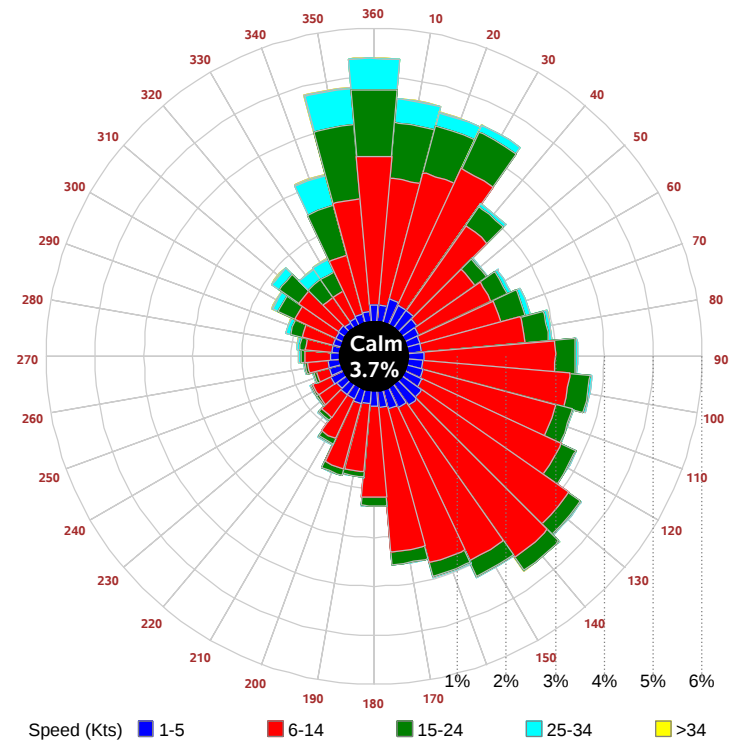
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

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	580	760	960	1150	1290	1390	1370	1290	1110	950	670	540	1010
NORTH	Unshaded	180	220	260	310	360	400	380	330	280	240	190	170	280
	Shaded	150	190	230	270	310	340	330	290	250	210	170	140	240
EAST	Unshaded	340	440	520	600	650	720	730	720	640	550	400	330	550
	Shaded	290	370	430	490	540	590	600	600	530	460	350	280	460
SOUTH	Unshaded	730	740	630	480	390	360	380	450	610	830	820	740	600
	Shaded	680	600	370	310	310	320	320	330	340	590	740	710	470
WEST	Unshaded	370	470	570	650	690	730	690	670	610	560	420	340	570
	Shaded	320	400	480	540	570	610	570	560	520	480	360	290	470

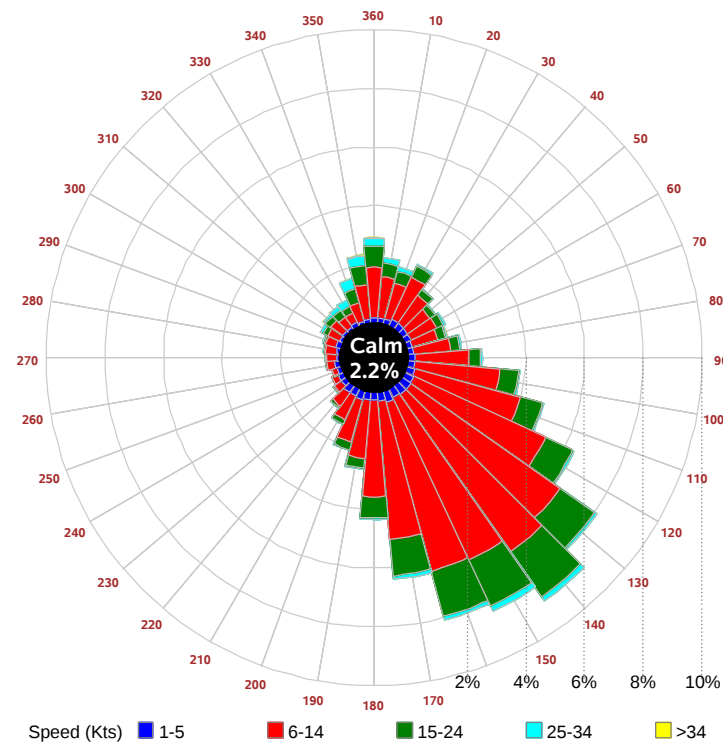
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS Percentage Uncertainty = 9												
		March					June					
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm	
HORIZ.	M.Clear	39	78	94	79	39	36	78	101	99	72	
	M.Cloudy	20	44	54	45	22	24	56	73	71	51	
NORTH	M.Clear	10	15	16	15	10	24	18	17	18	19	
	M.Cloudy	9	16	18	16	9	15	18	19	19	18	
EAST	M.Clear	77	65	16	15	10	64	74	39	18	17	
	M.Cloudy	21	31	19	16	9	31	49	32	19	17	
SOUTH	M.Clear	31	61	72	62	31	11	17	29	28	17	
	M.Cloudy	12	29	38	31	15	10	18	26	25	17	
WEST	M.Clear	10	15	16	65	76	11	17	17	46	74	
	M.Cloudy	9	16	19	32	25	10	18	19	36	47	
M.Clear	(% hrs)	28	29	30	32	36	42	31	28	30	38	

		Sept					Dec					
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm	
HORIZ.	M.Clear	23	68	92	86	56	20	54	65	48	12	
	M.Cloudy	15	46	64	61	39	10	29	36	26	7	
NORTH	M.Clear	8	15	17	17	14	7	11	13	11	5	
	M.Cloudy	7	16	19	18	14	5	12	14	11	4	
EAST	M.Clear	53	74	38	17	14	51	50	13	11	5	
	M.Cloudy	21	43	30	18	14	12	21	14	11	4	
SOUTH	M.Clear	14	45	64	60	38	40	80	91	74	26	
	M.Cloudy	8	29	43	40	24	10	28	34	25	8	
WEST	M.Clear	8	15	17	48	73	7	11	18	55	37	
	M.Cloudy	7	16	19	34	40	5	12	15	21	10	
M.Clear	(% hrs)	51	38	33	34	39	29	29	30	32	32	

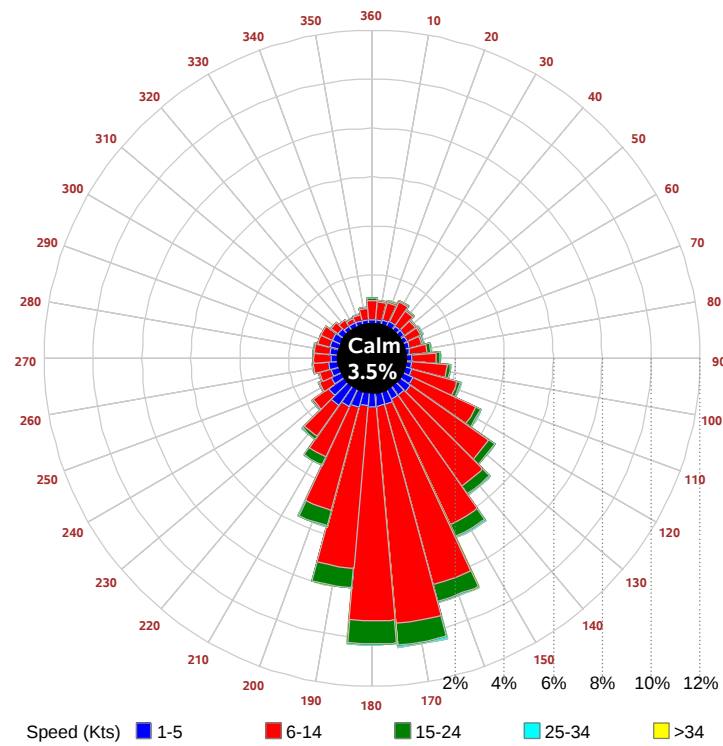
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

