

ST. LOUIS/LAMBERT MO

Latitude = 38.75 N

WMO No. 724340

Longitude = 90.37 W

Elevation = 564 feet

Period of Record = 1973 to 1996

Average Pressure = 29.41 inches Hg

Design Criteria Data

	Design Value	Mean Coincident (Average) Values			
		Wet Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Dry Bulb Temperature (T)	(°F)				
Median of Extreme Highs	98	77	110	10.8	WSW
0.4% Occurrence	96	77	110	10.7	WSW
1.0% Occurrence	93	76	110	10.5	S
2.0% Occurrence	91	75	108	10.4	S
Mean Daily Range	18	-	-	-	-
97.5% Occurrence	14	13	8	10.3	WNW
99.0% Occurrence	8	7	6	11.1	WNW
99.6% Occurrence	1	0	4	11.9	WNW
Median of Extreme Lows	-6	-6	3	11.9	W
	Design Value	Mean Coincident (Average) Values			
		Dry Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Wet Bulb Temperature (T_{wb})	(°F)				
Median of Extreme Highs	81	92	141	10.0	S
0.4% Occurrence	79	90	132	9.8	S
1.0% Occurrence	78	88	128	9.7	S
2.0% Occurrence	77	87	124	9.6	S
	Design Value	Mean Coincident (Average) Values			
		Dry Bulb Temperature (°F)	Vapor Pressure (in. Hg)	Wind Speed (mph)	Prevailing Direction (NSEW)
Humidity Ratio (HR)	(gr/lb)				
Median of Extreme Highs	153	88	1.00	9.1	S
0.4% Occurrence	139	85	0.90	8.9	S
1.0% Occurrence	134	84	0.88	8.8	S
2.0% Occurrence	129	83	0.85	8.5	S
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		104	1172	839	1978

Other Site Data

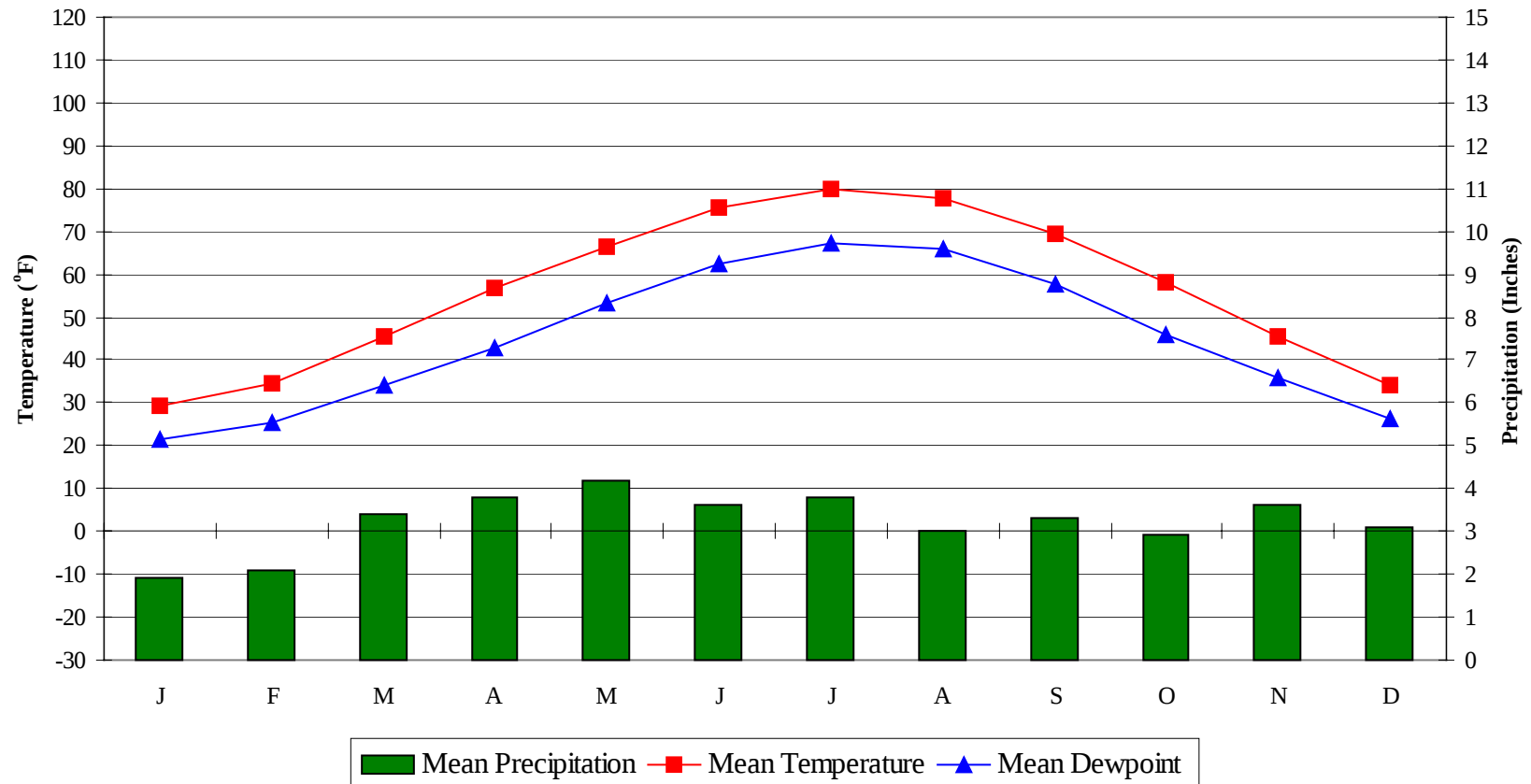
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
7	3.3	90	3.1 + 1.2
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
58.6	38	21	46

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

ST. LOUIS/LAMBERT MO

WMO No. 724340

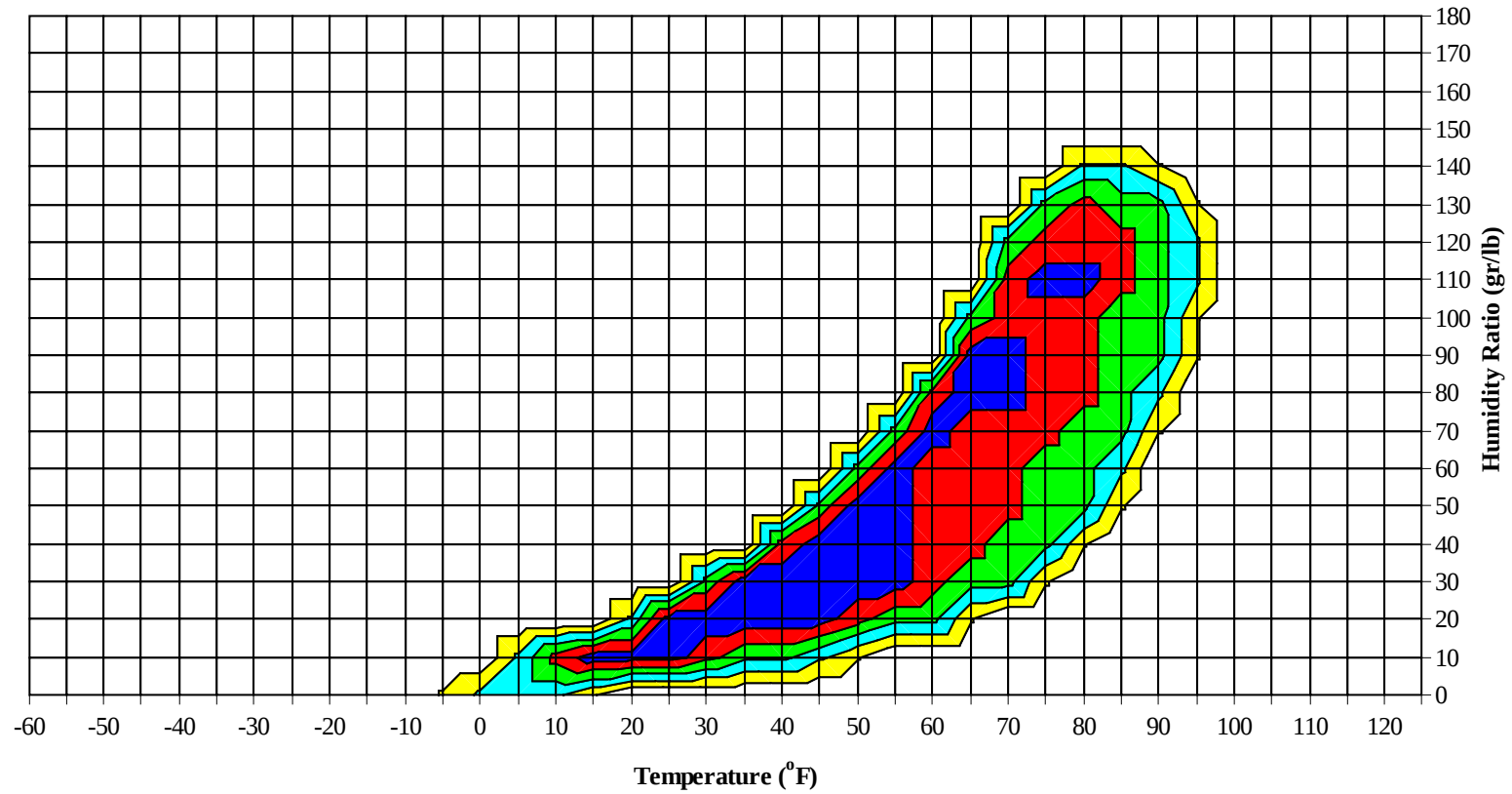
Average Annual Climate



ST. LOUIS/LAMBERT MO

WMO No. 724340

Long Term Psychrometric Summary

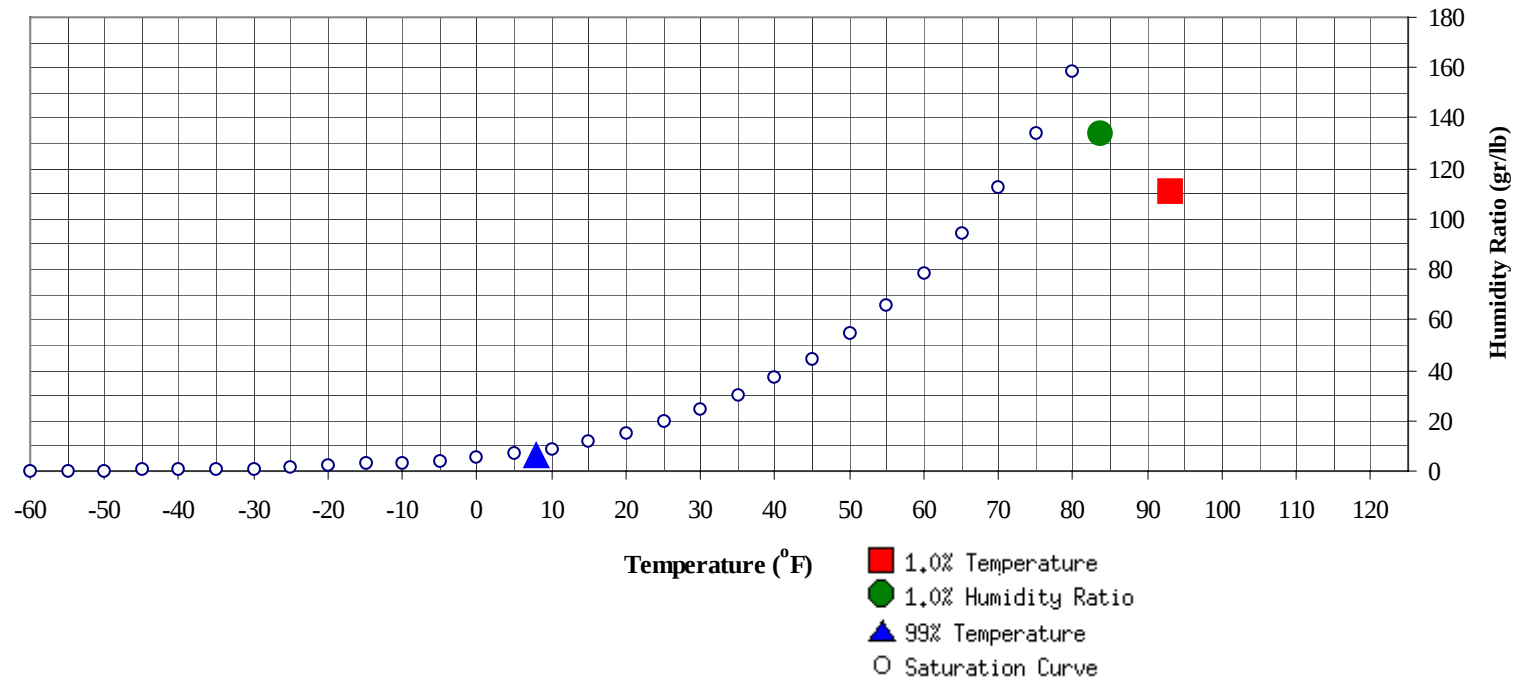


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

ST. LOUIS/LAMBERT MO

WMO No. 724340

Psychrometric Summary of Peak Design Values



99% Dry Bulb	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)	1.0% Humidity Ratio	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
	8	6	2.8		133.7	83.7	77.3	75	41.1

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	93	111.3	76.2	39.8

ST. LOUIS/LAMBERT MO

WMO No. 724340

Dry-Bulb Temperature Hours For An Average Year (Sheet 1 of 5)

Period of Record = 1973 to 1996

Temperature Range (°F)	January					February					March				
	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00		
105 / 109															
100 / 104															
95 / 99															
90 / 94															
85 / 89												0	0	0	63.0
80 / 84												3	1	4	62.5
75 / 79							1	0	1	57.7		8	3	11	60.7
70 / 74		0	0	0	54.2		3	1	4	56.9	1	12	9	22	59.1
65 / 69	0	2	0	2	56.3	0	6	2	8	53.7	5	15	15	35	56.6
60 / 64	1	4	2	7	52.7	2	9	6	17	51.5	10	21	18	49	53.2
55 / 59	3	7	5	15	50.2	5	12	11	28	49.7	14	27	25	66	49.8
50 / 54	4	11	8	23	45.7	7	16	15	38	45.3	22	32	31	86	46.0
45 / 49	5	18	14	37	41.3	13	20	19	52	41.6	36	34	38	109	42.3
40 / 44	18	24	25	67	38.2	22	27	27	76	38.0	39	34	35	109	38.4
35 / 39	31	38	38	107	34.0	34	34	35	104	34.1	36	26	29	91	33.9
30 / 34	52	43	50	144	30.0	42	31	36	110	29.9	39	21	25	85	29.8
25 / 29	36	32	30	98	25.0	33	24	27	84	25.0	24	10	14	48	25.0
20 / 24	28	23	26	77	20.2	20	16	16	52	20.3	14	3	4	21	20.6
15 / 19	24	19	20	63	15.7	14	11	12	37	15.5	4	1	1	6	15.6
10 / 14	20	14	15	49	10.9	16	7	11	34	11.0	1	0	1	2	10.9
5 / 9	12	6	8	26	6.2	9	3	4	16	6.4	1	0	0	1	6.3
0 / 4	8	3	4	15	1.3	4	1	2	7	1.5	1	0		1	2.1
-5 / -1	4	1	2	7	-3.0	1	0	0	1	-2.8	0			0	-1.0
-10 / -6	2	1	1	4	-6.9	1	0	0	1	-7.0					
-15 / -11	1	0	0	1	-12.1	0			0	-11.7					
-20 / -16	0			0	-16.6										

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.

ST. LOUIS/LAMBERT MO

WMO No. 724340

Dry-Bulb Temperature Hours For An Average Year (Sheet 2 of 5)

Period of Record = 1973 to 1996

Temperature Range (°F)	April					May					June				
	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00		
105 / 109															
100 / 104												0	0	0	75.4
95 / 99												3	1	4	75.2
90 / 94		1	0	1	68.8		3	1	4	72.8		25	8	33	74.6
85 / 89		4	1	5	65.9		17	5	22	70.4		1	53	29	83
80 / 84		13	6	19	64.6	1	33	17	51	68.0	13	62	50	125	70.2
75 / 79	0	22	12	34	62.7	7	46	34	87	65.1	47	49	59	154	68.3
70 / 74	7	27	23	57	60.3	26	51	47	124	63.1	68	30	49	147	66.1
65 / 69	19	31	29	79	57.4	50	41	50	141	60.3	54	11	29	93	62.4
60 / 64	29	36	35	100	54.0	54	31	44	129	56.6	36	6	12	54	58.6
55 / 59	33	35	38	106	50.1	47	16	29	92	52.6	17	1	4	22	54.6
50 / 54	40	30	36	106	46.6	35	7	14	56	48.4	5	0	0	5	50.2
45 / 49	42	22	28	92	42.8	19	2	6	27	44.3	0			0	48.0
40 / 44	36	15	20	71	38.7	8	0	2	10	40.2					
35 / 39	21	4	8	33	34.2	2		0	2	35.5					
30 / 34	10	2	4	16	30.0	0			0	31.0					
25 / 29	3	0	0	3	25.3										
20 / 24	0			0	22.7										
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															

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ST. LOUIS/LAMBERT MO

WMO No. 724340

Dry-Bulb Temperature Hours For An Average Year (Sheet 3 of 5)

Period of Record = 1973 to 1996

Temperature Range (°F)	July					August					September				
	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00		
105 / 109		0	0	0	78.0		0		0	78.0					
100 / 104		3	1	4	78.5		3	1	4	76.7		0	0	0	73.8
95 / 99	0	17	5	22	77.3		13	4	17	77.2		2	0	2	74.8
90 / 94	0	51	23	74	75.9	0	34	14	48	75.7		11	3	14	74.7
85 / 89	6	71	47	124	74.0	4	57	35	96	73.9	0	28	10	38	72.0
80 / 84	38	58	65	161	72.3	26	63	53	141	72.1	5	41	25	71	69.7
75 / 79	77	31	57	165	70.8	56	46	60	162	70.3	21	47	42	110	68.0
70 / 74	75	14	37	126	67.9	75	23	52	151	67.7	43	43	50	136	65.3
65 / 69	36	3	10	49	63.7	53	7	21	81	63.7	42	30	40	112	61.2
60 / 64	14	0	2	16	59.7	26	1	8	35	59.8	50	20	35	105	57.4
55 / 59	2		1	3	56.8	8	0	0	8	56.0	38	12	20	70	53.4
50 / 54	0			0	53.0	1			1	49.3	24	4	11	39	49.4
45 / 49											12	1	3	16	45.0
40 / 44											5	0	1	6	40.6
35 / 39											1			1	37.9
30 / 34															
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															

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.

ST. LOUIS/LAMBERT MO

WMO No. 724340

Dry-Bulb Temperature Hours For An Average Year (Sheet 4 of 5)

Period of Record = 1973 to 1996

Temperature Range (°F)	October					November					December				
	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00		
105 / 109															
100 / 104															
95 / 99															
90 / 94		0		0	68.5										
85 / 89		4	0	4	67.1										
80 / 84		10	2	12	66.1		1		1	60.7					
75 / 79	1	26	9	36	64.3		4	0	4	62.1					
70 / 74	6	37	26	69	62.2	0	10	4	14	60.6	0	1	0	1	64.3
65 / 69	22	40	36	98	59.4	4	16	12	32	58.9	1	4	1	6	58.8
60 / 64	33	39	42	114	55.2	15	23	20	58	56.4	2	8	4	14	55.4
55 / 59	41	40	44	125	51.1	19	26	24	69	50.9	7	11	9	27	51.5
50 / 54	43	28	38	109	47.0	20	27	29	76	46.6	9	17	11	37	45.7
45 / 49	40	15	29	84	43.2	31	36	32	99	42.6	13	24	23	60	42.1
40 / 44	36	6	17	59	39.5	38	37	41	116	38.5	24	35	32	91	38.3
35 / 39	19	1	5	25	35.3	44	30	38	112	34.0	41	47	48	135	34.3
30 / 34	6	0	1	7	31.1	38	18	26	82	29.6	57	42	47	145	29.9
25 / 29	1		0	1	27.2	18	6	10	34	25.1	33	22	28	83	25.0
20 / 24	0			0	24.0	7	2	4	13	20.5	22	15	17	54	20.4
15 / 19						3	1	2	6	15.8	15	9	13	37	15.7
10 / 14						1	0	0	1	11.3	11	6	7	24	10.9
5 / 9						1	0		1	7.8	7	4	4	15	6.3
0 / 4											4	2	3	9	1.2
-5 / -1											2	1	1	4	-2.9
-10 / -6											1	1	1	3	-7.4
-15 / -11											1	0	0	1	-11.8
-20 / -16											0			0	-15.6

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.

ST. LOUIS/LAMBERT MO

WMO No. 724340

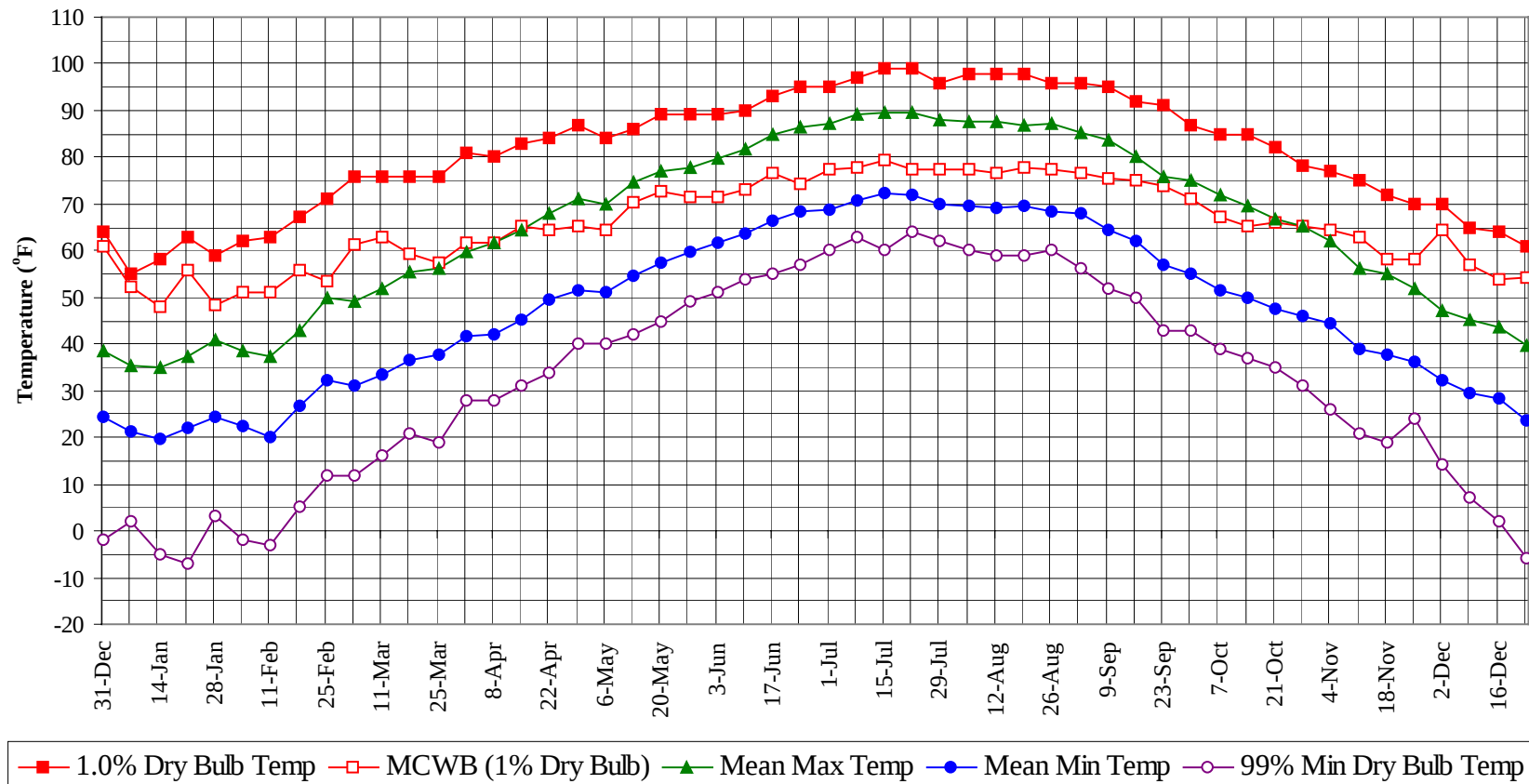
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

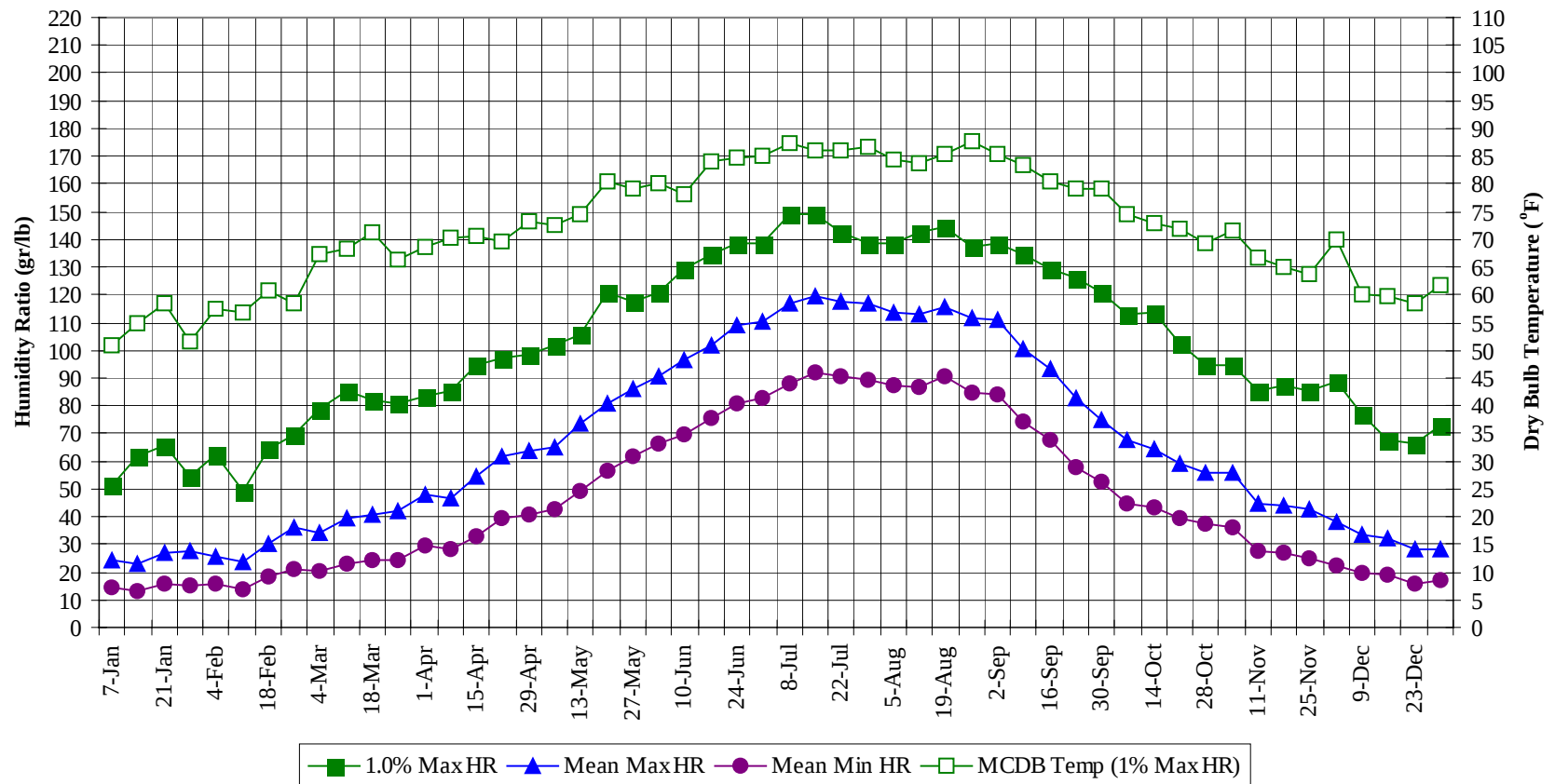
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
105 / 109		0	0	0	78.0
100 / 104		7	2	9	77.4
95 / 99	0	36	11	47	76.9
90 / 94	0	123	49	172	75.4
85 / 89	11	233	128	371	73.0
80 / 84	82	280	216	578	70.6
75 / 79	208	280	273	761	68.2
70 / 74	301	252	296	849	65.1
65 / 69	285	207	245	737	60.5
60 / 64	269	199	227	695	56.1
55 / 59	233	188	208	629	51.4
50 / 54	210	173	194	577	46.8
45 / 49	211	173	192	576	42.6
40 / 44	228	181	200	609	38.5
35 / 39	230	182	200	612	34.1
30 / 34	245	157	188	590	29.9
25 / 29	149	95	109	353	25.0
20 / 24	92	60	67	219	20.3
15 / 19	60	41	49	150	15.6
10 / 14	49	27	34	110	10.9
5 / 9	29	14	16	59	6.3
0 / 4	17	7	8	32	1.3
-5 / -1	7	3	3	13	-2.9
-10 / -6	5	2	2	9	-7.1
-15 / -11	2	1	1	4	-11.9
-20 / -16	1			1	-16.2

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

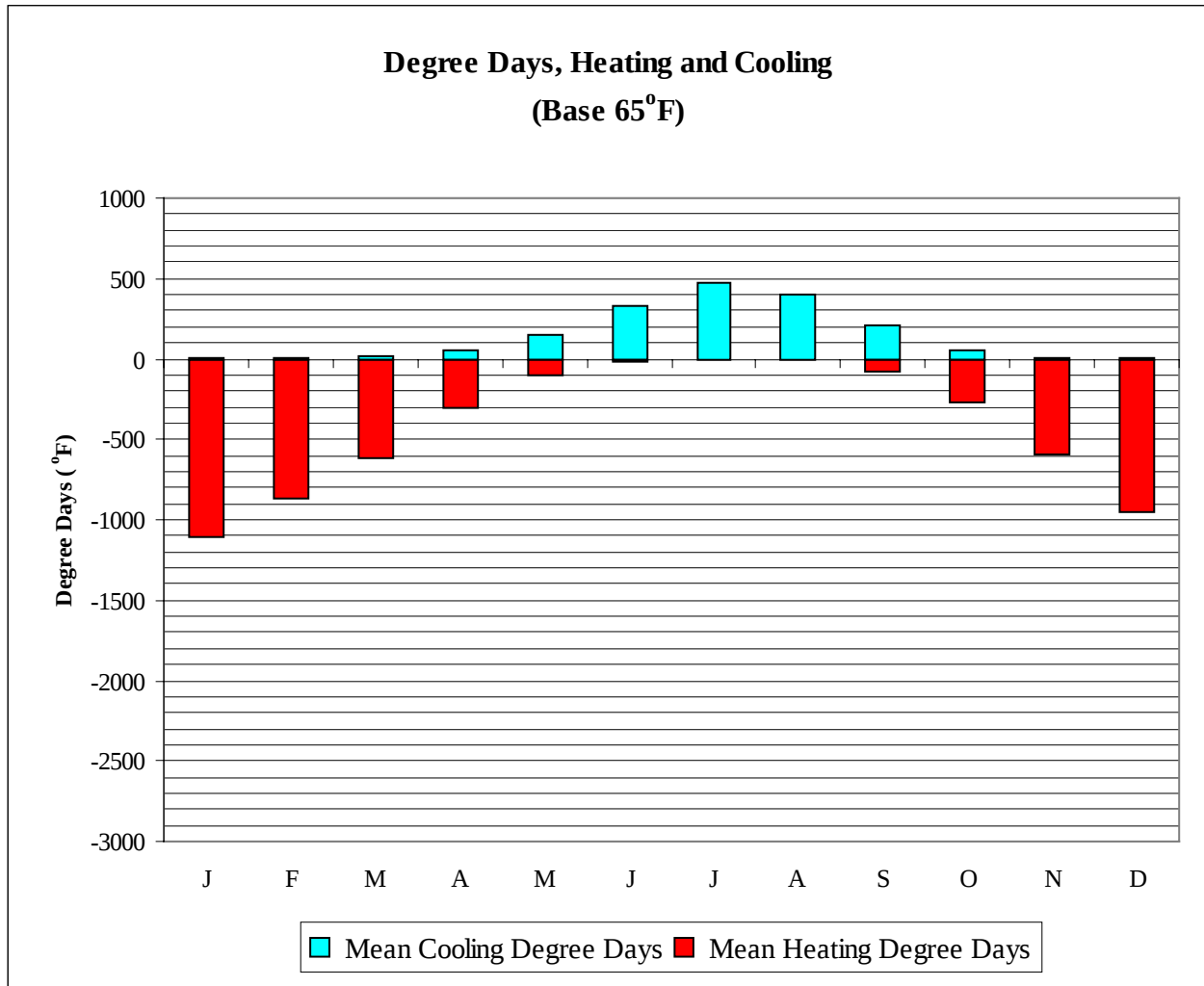


Long Term Humidity and Dry Bulb Temperature Summary



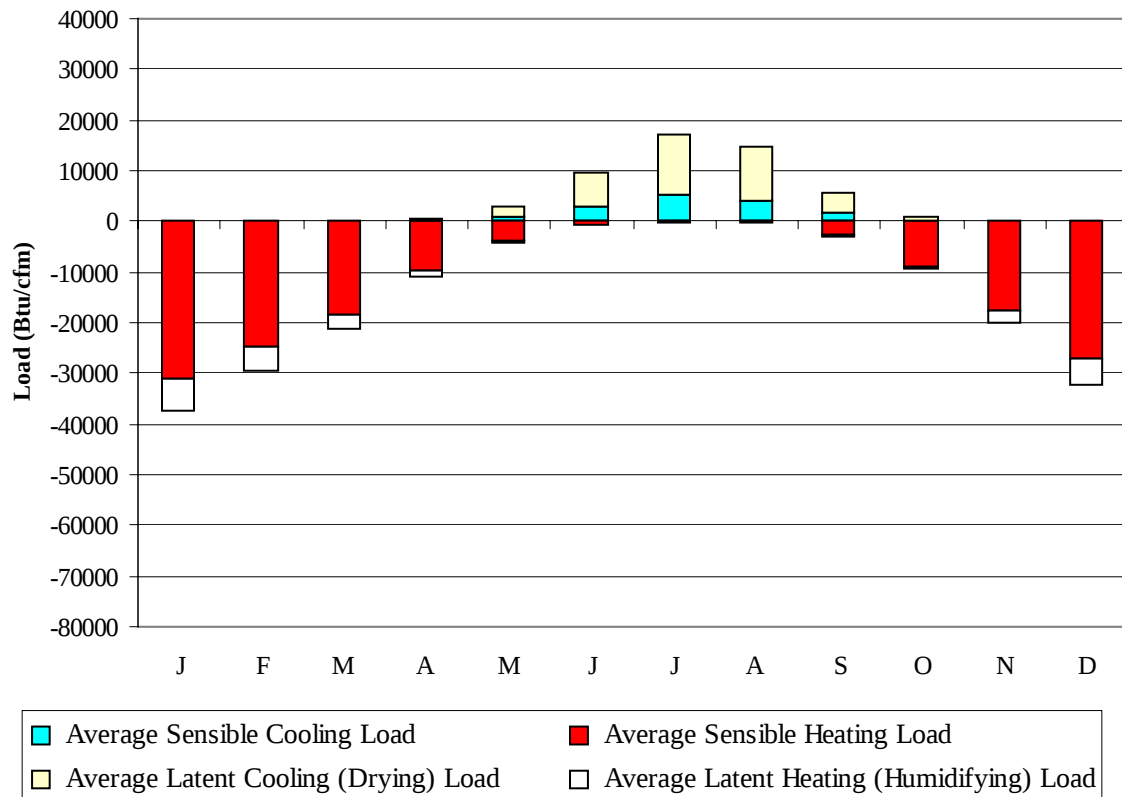
ST. LOUIS/LAMBERT MO**WMO No. 724340****Long Term Dry Bulb Temperature and Humidity Summary**

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	55.0	52.3	35.2	21.4	2.0	51.1	50.8	24.0	14.3
14-Jan	58.0	47.8	34.8	19.7	-5.0	61.6	55.0	23.2	12.8
21-Jan	63.0	55.7	37.5	22.0	-7.0	65.8	58.6	26.8	15.8
28-Jan	59.0	48.4	40.9	24.4	3.0	54.6	51.4	27.3	15.4
4-Feb	62.0	51.3	38.4	22.6	-2.0	62.3	57.6	25.9	15.7
11-Feb	63.0	50.9	37.4	20.2	-3.0	49.0	56.8	24.0	13.5
18-Feb	67.0	55.8	43.0	26.7	5.0	64.4	60.8	30.2	18.1
25-Feb	71.0	53.3	50.0	32.1	12.0	69.3	58.6	35.9	21.2
4-Mar	76.0	61.1	49.0	31.0	12.0	79.1	67.5	34.4	20.3
11-Mar	76.0	62.7	51.8	33.4	16.0	85.4	68.2	39.2	23.2
18-Mar	76.0	59.4	55.2	36.5	21.0	81.9	71.2	40.7	24.5
25-Mar	76.0	57.4	56.2	37.9	19.0	80.5	66.5	42.0	24.6
1-Apr	81.0	61.5	59.6	41.7	28.0	83.3	68.6	48.0	29.8
8-Apr	80.0	61.7	61.7	42.1	28.0	85.4	70.2	46.5	28.2
15-Apr	83.0	65.3	64.6	45.1	31.0	94.5	70.5	54.2	33.0
22-Apr	84.0	64.3	68.1	49.3	34.0	97.3	69.5	61.6	39.2
29-Apr	87.0	65.4	71.1	51.4	40.0	98.7	73.1	63.4	40.7
6-May	84.0	64.6	70.1	51.2	40.0	101.5	72.7	65.1	42.4
13-May	86.0	70.3	74.6	54.8	42.0	105.7	74.6	73.8	49.0
20-May	89.0	72.6	77.0	57.5	45.0	121.1	80.6	80.7	56.4
27-May	89.0	71.5	77.9	59.7	49.0	117.6	79.0	85.9	61.7
3-Jun	89.0	71.6	79.9	61.7	51.0	121.1	80.2	90.5	66.4
10-Jun	90.0	73.2	81.6	63.9	54.0	129.5	78.3	96.6	69.8
17-Jun	93.0	76.5	85.0	66.4	55.0	134.4	84.2	101.8	75.2
24-Jun	95.0	74.1	86.5	68.2	57.0	138.6	84.7	108.9	80.9
1-Jul	95.0	77.6	87.3	68.6	60.0	138.6	85.0	110.6	82.7
8-Jul	97.0	78.0	89.2	70.7	63.0	149.1	87.5	117.0	87.9
15-Jul	99.0	79.3	89.7	72.2	60.0	149.1	86.2	119.4	92.2
22-Jul	99.0	77.5	89.7	71.8	64.0	142.8	86.2	117.3	90.5
29-Jul	96.0	77.5	88.1	70.1	62.0	138.6	86.8	117.2	89.6
5-Aug	98.0	77.3	87.5	69.6	60.0	138.6	84.5	113.9	87.0
12-Aug	98.0	76.7	87.5	69.0	59.0	142.8	83.8	113.1	86.7
19-Aug	98.0	77.8	87.0	69.5	59.0	144.2	85.4	115.6	90.9
26-Aug	96.0	77.3	87.3	68.3	60.0	137.2	87.5	111.7	85.0
2-Sep	96.0	76.6	85.4	67.9	56.0	138.6	85.3	111.2	84.0
9-Sep	95.0	75.5	83.8	64.6	52.0	134.4	83.3	100.5	74.0
16-Sep	92.0	75.1	80.1	62.2	50.0	129.5	80.5	93.2	67.8
23-Sep	91.0	73.8	76.0	57.1	43.0	126.0	79.1	82.8	57.9
30-Sep	87.0	71.2	74.9	54.9	43.0	121.1	79.3	74.8	52.3
7-Oct	85.0	67.2	72.0	51.4	39.0	112.7	74.4	67.8	44.5
14-Oct	85.0	65.3	69.7	50.0	37.0	113.4	72.9	64.6	43.6
21-Oct	82.0	65.8	66.9	47.7	35.0	102.2	71.8	59.2	39.2
28-Oct	78.0	65.3	65.1	46.1	31.0	94.5	69.4	56.0	37.7
4-Nov	77.0	64.5	62.0	44.6	26.0	94.5	71.6	55.6	36.0
11-Nov	75.0	62.9	56.2	38.9	21.0	85.4	66.8	44.8	27.7
18-Nov	72.0	58.3	55.0	37.9	19.0	87.5	65.2	43.9	26.9
25-Nov	70.0	58.0	51.8	36.1	24.0	85.4	63.8	42.4	24.9
2-Dec	70.0	64.6	47.3	32.4	14.0	88.9	69.9	37.9	22.3
9-Dec	65.0	56.9	45.2	29.5	7.0	77.0	60.2	33.3	19.6
16-Dec	64.0	53.8	43.8	28.4	2.0	67.9	59.6	32.3	19.1
23-Dec	61.0	54.3	39.6	23.6	-6.0	66.5	58.5	28.2	16.0
31-Dec	64.0	61.1	38.5	24.3	-2.0	72.8	61.7	28.0	17.3



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1103
FEB	2	868
MAR	17	618
APR	57	308
MAY	148	106
JUN	332	15
JUL	468	2
AUG	401	7
SEP	206	73
OCT	56	274
NOV	9	595
DEC	1	954
ANN	1697	4923

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



	Average Sensible Cooling Load	Average Sensible Heating Load	Average Latent Cooling Load	Average Latent Heating Load
	(Btu/cfm)	(Btu/cfm)	(Btu/cfm)	(Btu/cfm)
JAN	0	-30990	1	-6375
FEB	2	-24662	1	-4819
MAR	50	-18251	27	-2869
APR	272	-9806	222	-961
MAY	869	-3963	2098	-115
JUN	2952	-766	6607	-1
JUL	5078	-165	12163	0
AUG	3977	-398	10615	0
SEP	1523	-2798	4291	-32
OCT	202	-8948	710	-555
NOV	11	-17644	84	-2435
DEC	0	-27136	16	-4990
ANN	14936	-145527	36835	-23152

Average Annual Solar Radiation – Nearest Available Site

(Source: National Renewable Energy Laboratory, Golden CO, 1995)

City: ST. LOUIS
 State: MO
 WBAN No: 13994
 Lat(N): 38.75
 Long(W): 90.38
 Elev(ft): 564

Stn Type: Secondary

SHADING GEOMETRY IN DIMENSIONLESS UNITS

Window: 1

Overhang: 0.498

Vert Gap: 0.314

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	690	930	1230	1590	1860	2030	2020	1800	1460	1100	720	580	1340
	Std Dev	56	69	98	135	138	114	120	110	112	98	69	57	42
	Minimum	550	800	1060	1370	1550	1830	1750	1570	1190	870	590	490	1280
	Maximum	780	1070	1430	1930	2180	2350	2240	1960	1690	1250	870	710	1480
	Diffuse	340	460	590	710	810	840	810	730	600	430	350	300	580
Clear Day	Global	950	1300	1760	2230	2520	2630	2550	2290	1870	1400	1000	840	1780
NORTH	Global	210	280	360	440	550	630	600	490	380	290	220	190	390
	Diffuse	210	280	360	430	500	530	520	460	380	290	220	190	370
Clear Day	Global	190	250	330	430	580	680	630	470	360	270	200	170	380
EAST	Global	460	590	750	920	1060	1140	1130	1050	880	710	470	390	800
	Diffuse	260	340	440	530	600	640	620	570	470	360	270	230	440
Clear Day	Global	710	910	1150	1340	1440	1460	1430	1340	1170	940	730	640	1110
SOUTH	Global	1080	1110	1060	970	830	780	820	950	1110	1220	1020	940	990
	Diffuse	370	440	500	540	560	570	570	560	520	440	360	330	480
Clear Day	Global	1930	1970	1770	1380	1040	890	950	1210	1580	1840	1870	1860	1520
WEST	Global	470	600	740	920	1040	1110	1120	1030	880	700	480	390	790
	Diffuse	260	340	440	530	610	650	630	580	480	360	270	230	450
Clear Day	Global	710	910	1150	1340	1440	1460	1430	1340	1170	940	730	640	1110

Average Annual Solar Heat and Illumination – Nearest Available Site

(Source: National Renewable Energy Laboratory, Golden CO, 1995)

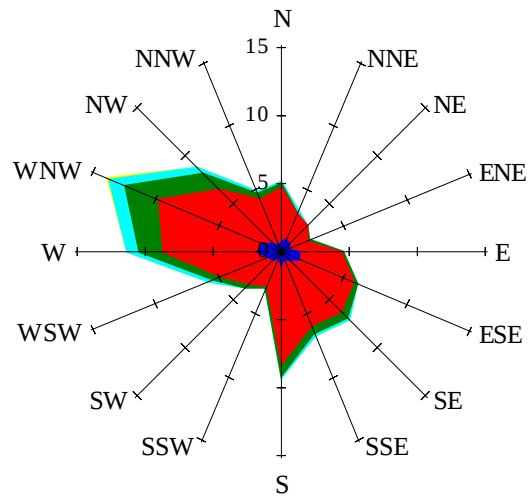
AVERAGE TRANSMITTED SOLAR RADIATION (Btu/sq.ft./day) FOR DOUBLE GLAZING, Percentage Uncertainty = 9		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
HORIZ	Unshaded	450	640	870	1150	1350	1480	1470	1300	1040	770	480	370	950
NORTH	Unshaded	150	190	250	300	370	410	390	330	260	200	150	130	260
	Shaded	130	170	220	270	330	370	350	300	240	180	140	110	230
EAST	Unshaded	320	410	530	660	750	810	810	750	620	500	320	270	560
	Shaded	290	370	470	570	650	700	700	650	550	450	290	240	490
SOUTH	Unshaded	810	810	740	630	510	470	490	600	750	870	760	700	680
	Shaded	790	750	590	420	350	360	360	390	550	770	730	680	560
WEST	Unshaded	320	420	520	650	740	790	800	740	620	490	330	270	560
	Shaded	290	370	460	570	640	680	690	640	550	440	300	240	490

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	40	73	82	64	26	48	84	101	96	67
	M.Cloudy	23	45	52	40	16	32	61	76	71	49
NORTH	M.Clear	10	14	15	13	8	19	16	17	17	15
	M.Cloudy	9	16	17	14	7	15	18	19	19	16
EAST	M.Clear	75	56	15	13	8	78	72	31	17	15
	M.Cloudy	25	30	17	14	7	40	49	27	19	16
SOUTH	M.Clear	40	73	82	64	26	12	31	45	41	19
	M.Cloudy	17	36	43	32	12	12	26	37	33	18
WEST	M.Clear	10	14	24	67	64	12	16	17	53	78
	M.Cloudy	9	16	21	33	22	12	18	19	41	50
M.Clear	(% hrs)	32	28	27	28	29	43	39	32	29	34

		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	29	68	86	78	47	16	42	48	30	2
	M.Cloudy	17	42	58	53	31	9	25	28	17	2
NORTH	M.Clear	9	14	16	15	12	6	10	11	8	1
	M.Cloudy	7	15	18	17	12	4	10	11	7	1
EAST	M.Clear	65	70	28	15	12	42	39	11	8	1
	M.Cloudy	23	36	23	17	12	11	18	11	7	1
SOUTH	M.Clear	21	57	75	67	37	39	82	88	63	6
	M.Cloudy	11	31	45	41	21	10	29	32	20	2
WEST	M.Clear	9	14	16	54	74	6	10	22	50	9
	M.Cloudy	7	15	18	35	35	4	10	14	17	2
M.Clear	(% hrs)	47	47	41	41	43	31	30	30	30	32

Wind Summary - December, January, and February

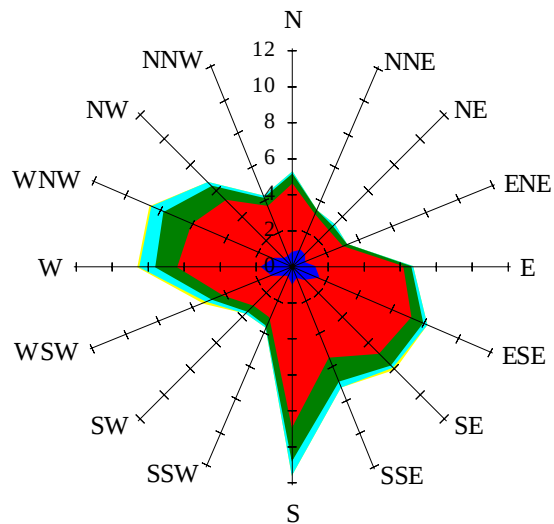
Labels of Percent Frequency on North Axis



Percent Calm = 3.06

Wind Summary - March, April, and May

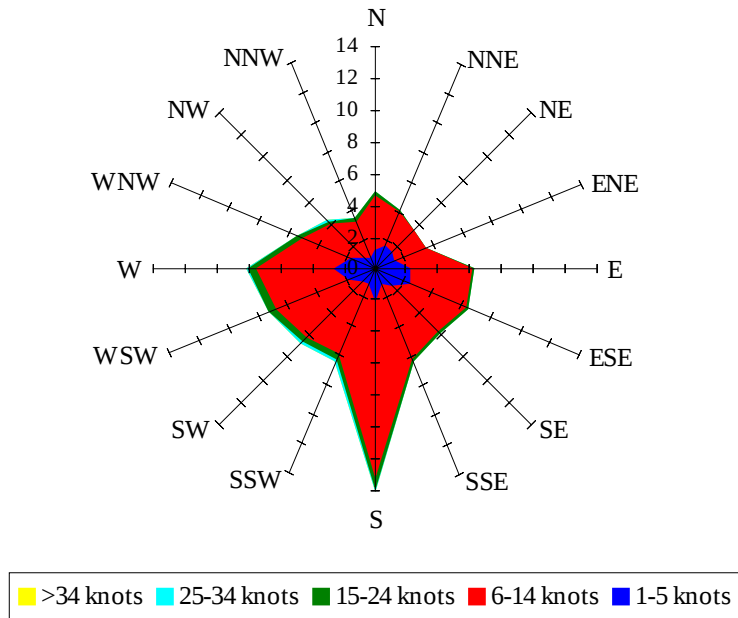
Labels of Percent Frequency on North Axis



Percent Calm = 4.07

Wind Summary - June, July, and August

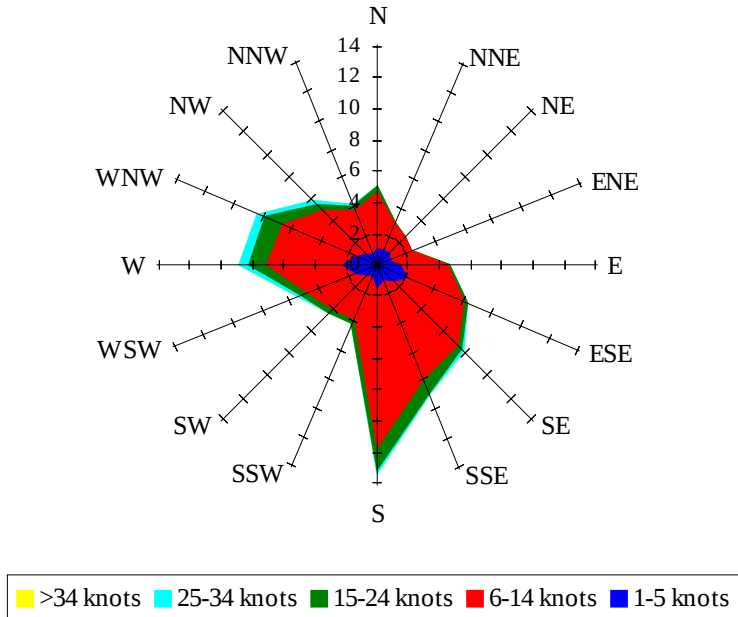
Labels of Percent Frequency on North Axis



Percent Calm = 4.99

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 5.85