

SPRINGFLD MO

Latitude = 37.23 N

Longitude = 93.38 W

Period of Record = 1973 to 1996

WMO No. 724400

Elevation = 1270 feet

Average Pressure = 28.66 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	99	74	91	10.0	SW
0.4% Occurrence	95	74	101	9.2	S
1.0% Occurrence	92	75	106	9.3	S
2.0% Occurrence	90	74	107	9.2	S
Mean Daily Range	20	-	-	-	-
97.5% Occurrence	17	15	10	9.6	N
99.0% Occurrence	9	8	6	9.3	NNW
99.6% Occurrence	2	1	4	9.2	N
Median of Extreme Lows	-5	-6	3	8.0	NNW
	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	80	90	140	9.2	S
0.4% Occurrence	78	89	130	9.4	S
1.0% Occurrence	77	88	125	9.4	S
2.0% Occurrence	75	86	118	9.3	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	142	86	0.90	9.0	S
0.4% Occurrence	134	84	0.85	9.1	S
1.0% Occurrence	129	83	0.82	8.8	S
2.0% Occurrence	124	81	0.79	8.4	S
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		80	918	578	1855

Other Site Data

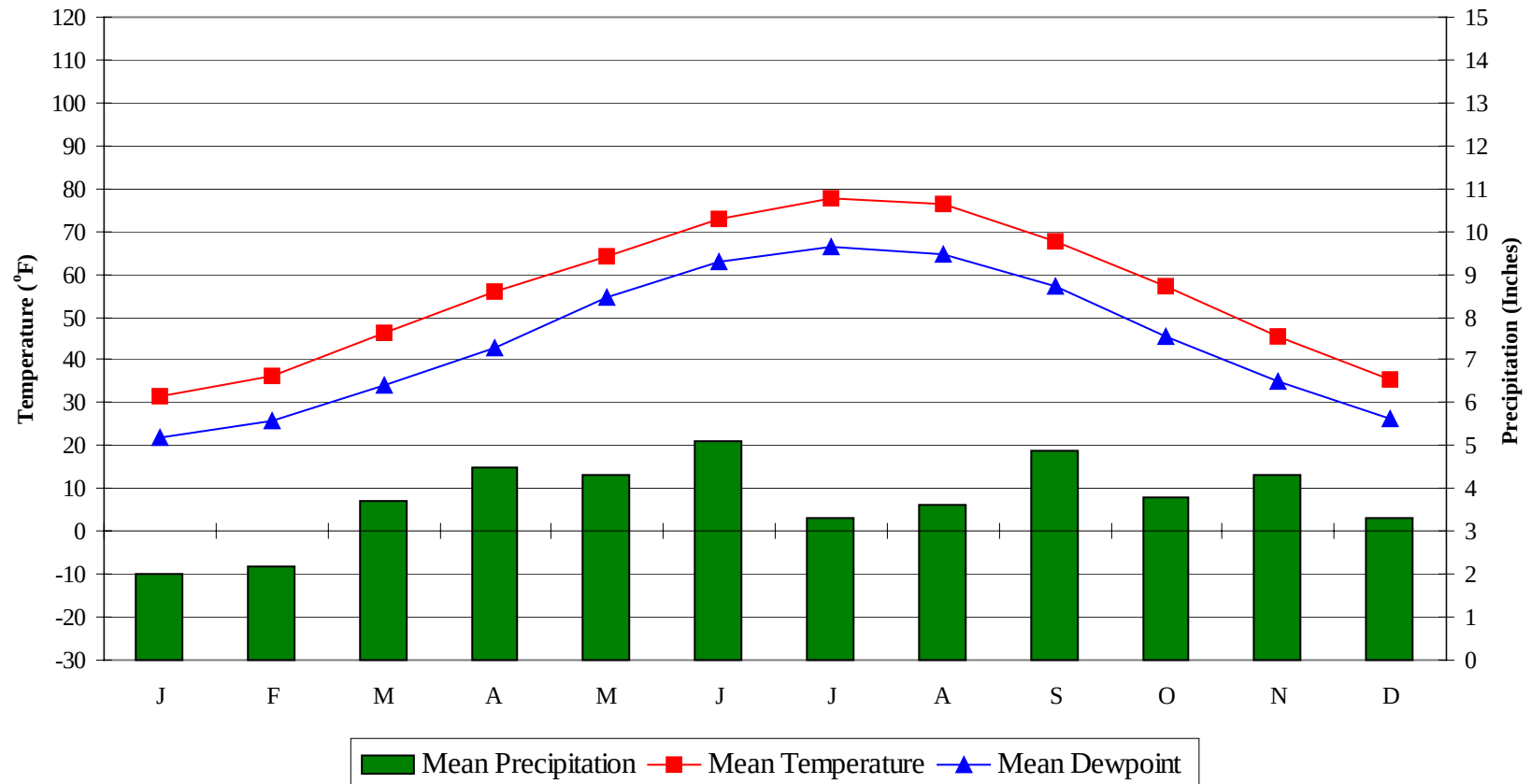
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
7	3.3	90	2.7 + 1.0
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
58.1	N/A	14	57

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

SPRINGFLD MO

WMO No. 724400

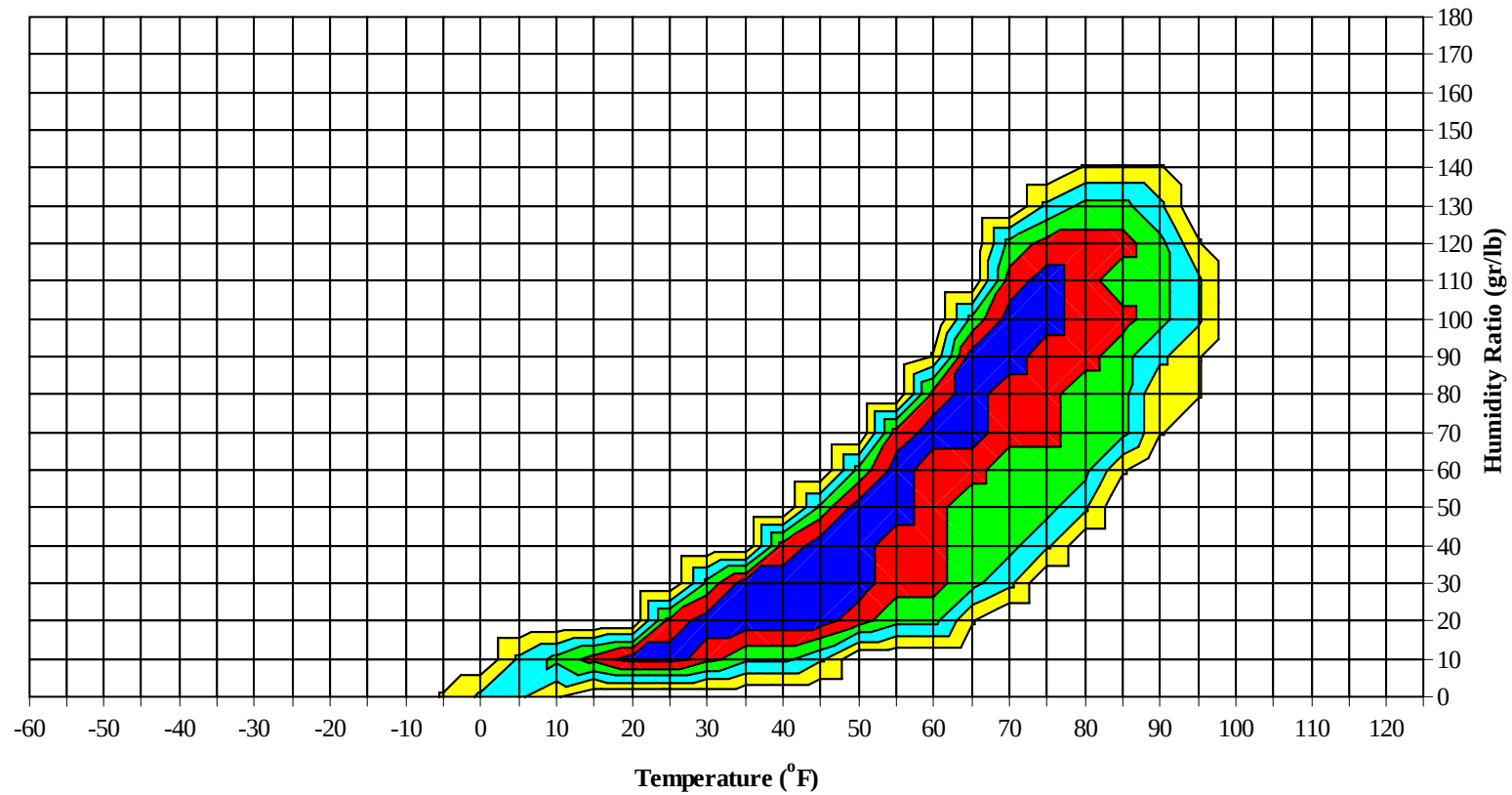
Average Annual Climate



SPRINGFLD MO

WMO No. 724400

Long Term Psychrometric Summary

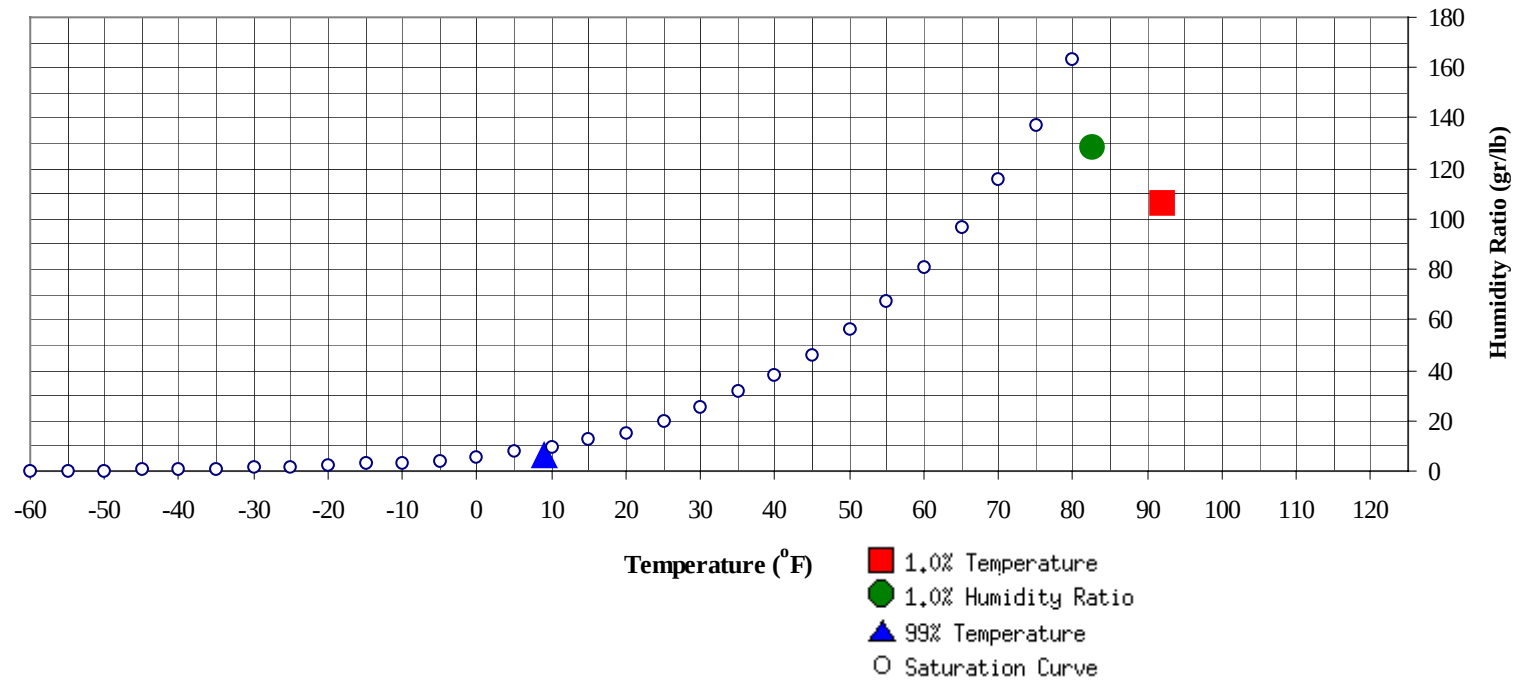


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

SPRINGFLD MO

WMO No. 724400

Psychrometric Summary of Peak Design Values



	(°F)	MCHR	Enthalpy	1.0% Humidity Ratio	(gr/lb)	MCDB	MCWB	MC Dewpt	Enthalpy
		(gr/lb)	(btu/lb)			(°F)	(°F)	(°F)	(btu/lb)
99% Dry Bulb	9	6.4	3.1		128.8	82.5	75.6	73.1	40.0

1.0% Dry Bulb	(°F)	MCHR	MCWB	Enthalpy
		(gr/lb)	(°F)	(btu/lb)
	92	106.3	74.6	38.8

SPRINGFLD MO

WMO No. 724400

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	63.3
80 / 84												1	0	1	61.9
75 / 79							1	0	1	57.5		8	2	10	60.2
70 / 74		0		0	51.3		3	0	3	56.0	0	16	6	22	58.0
65 / 69	0	2	0	2	53.7	0	9	2	11	53.1	3	23	14	40	55.9
60 / 64	0	6	1	7	51.9	1	15	7	23	51.2	8	26	21	55	53.0
55 / 59	3	10	7	20	49.3	5	17	14	36	48.8	20	30	30	80	49.7
50 / 54	5	17	10	32	44.8	10	19	17	46	45.0	24	33	32	89	45.7
45 / 49	9	25	18	52	41.0	15	23	23	61	41.3	35	32	39	106	41.7
40 / 44	20	32	31	83	37.4	25	29	32	86	37.4	42	29	38	109	38.0
35 / 39	31	37	39	107	33.3	36	31	33	100	33.7	38	23	27	88	33.5
30 / 34	49	38	46	133	29.4	41	26	35	102	29.3	36	15	23	74	29.0
25 / 29	38	27	34	99	24.7	32	20	22	74	24.8	25	6	9	40	25.1
20 / 24	32	20	21	73	20.2	23	13	17	53	20.2	11	4	5	20	20.2
15 / 19	26	15	17	58	15.6	15	9	10	34	15.4	4	1	2	7	15.9
10 / 14	13	9	10	32	10.7	10	4	6	20	10.8	2	0	1	3	10.8
5 / 9	11	5	7	23	6.0	5	2	4	11	5.9	1	0	0	1	6.3
0 / 4	6	2	4	12	1.2	4	1	2	7	1.5	0			0	2.2
-5 / -1	4	1	1	6	-3.0	2	0	0	2	-3.0					
-10 / -6	2	0	1	3	-7.0	1	0		1	-6.5					
-15 / -11	0	0	0	0	-11.1	0			0	-12.5					
-20 / -16						0			0	-15.3					

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.

SPRINGFLD MO

WMO No. 724400

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															
95 / 99												1	0	1	73.8
90 / 94							0		0	73.3		12	3	15	74.4
85 / 89		2	0	2	67.8		6	1	7	71.5	0	48	15	63	73.3
80 / 84		9	2	11	65.2		31	9	40	69.1	3	63	31	97	70.9
75 / 79	0	24	8	32	62.6	1	49	22	72	66.1	19	56	52	127	68.8
70 / 74	1	32	18	51	60.4	12	53	44	109	63.7	59	35	62	156	66.9
65 / 69	13	38	30	81	57.8	44	48	56	148	61.3	78	18	46	142	64.0
60 / 64	27	36	37	100	54.8	63	32	48	143	57.9	45	6	22	73	59.3
55 / 59	36	35	41	112	50.8	53	18	35	106	53.3	25	0	8	33	54.8
50 / 54	43	27	35	105	46.5	38	7	21	66	48.8	9		1	10	50.3
45 / 49	38	19	32	89	42.7	22	3	10	35	44.6	3		0	3	46.2
40 / 44	40	12	23	75	38.4	11	0	3	14	40.4	0			0	43.3
35 / 39	26	5	9	40	34.4	3		0	3	35.7					
30 / 34	11	1	4	16	30.1	1			1	32.4					
25 / 29	4	0	1	5	25.0										
20 / 24	1	0	0	1	21.4										
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.

SPRINGFLD MO

WMO No. 724400

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	72.8										
100 / 104		3	1	4	73.5		2	0	2	73.3					
95 / 99		11	3	14	74.7		16	3	19	74.3		2	0	2	73.2
90 / 94		48	14	62	75.1		38	11	49	74.1		9	2	11	72.4
85 / 89	1	74	30	105	73.7	0	61	23	84	72.9	0	29	6	35	71.9
80 / 84	10	60	48	118	72.0	5	58	42	105	70.9	0	46	17	63	69.5
75 / 79	49	29	68	146	70.6	37	41	62	140	69.7	7	45	34	86	67.4
70 / 74	103	16	57	175	68.4	92	22	62	176	67.9	41	38	49	128	65.8
65 / 69	60	6	21	87	64.7	67	8	31	106	64.0	53	30	44	127	62.2
60 / 64	19	1	6	26	60.4	32	2	11	45	59.5	48	22	37	107	58.1
55 / 59	6	0	1	7	55.6	12	0	3	15	55.0	37	10	24	71	53.6
50 / 54	1		0	1	51.8	3		0	3	50.7	24	7	17	48	49.2
45 / 49						1			1	46.1	16	1	7	24	44.9
40 / 44											10	0	2	12	40.5
35 / 39											3	0	1	4	36.4
30 / 34											0			0	31.7
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.

SPRINGFLD MO

WMO No. 724400

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		1		1	65.6										
85 / 89		4	0	4	66.5										
80 / 84		11	1	12	65.7										
75 / 79	1	25	5	31	63.3		4	0	4	61.3		0		0	61.5
70 / 74	3	39	16	58	61.2	0	12	1	13	59.9	0	1		1	60.6
65 / 69	13	45	32	90	59.1	2	20	7	29	58.0	1	6	1	8	57.5
60 / 64	36	43	50	129	55.9	12	26	19	57	55.6	2	11	5	18	54.6
55 / 59	44	35	43	122	51.3	17	30	28	75	51.1	5	16	8	29	50.0
50 / 54	43	23	40	106	47.1	22	32	30	84	46.2	8	20	12	40	45.4
45 / 49	39	12	28	79	42.9	31	32	33	96	42.3	14	29	25	68	41.7
40 / 44	35	6	21	62	38.9	40	32	40	112	38.0	27	42	38	107	37.7
35 / 39	24	2	9	35	34.8	41	28	39	108	33.8	43	40	46	129	33.7
30 / 34	8	1	3	12	30.4	37	14	24	75	29.4	52	34	47	133	29.5
25 / 29	3	0	0	3	25.9	19	6	12	37	25.1	39	18	27	84	24.9
20 / 24	0		0	0	20.4	11	3	5	19	20.4	23	11	16	50	20.3
15 / 19	0			0	18.0	4	0	2	6	15.6	14	7	10	31	15.7
10 / 14						1	0	1	2	11.1	8	4	6	18	10.8
5 / 9						1			1	7.0	5	3	4	12	6.0
0 / 4											3	2	2	7	1.2
-5 / -1											2	1	1	4	-3.0
-10 / -6											1	1	1	3	-7.6
-15 / -11											0	0	0	0	-12.1
-20 / -16											0			0	-15.3

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.

SPRINGFLD MO

WMO No. 724400

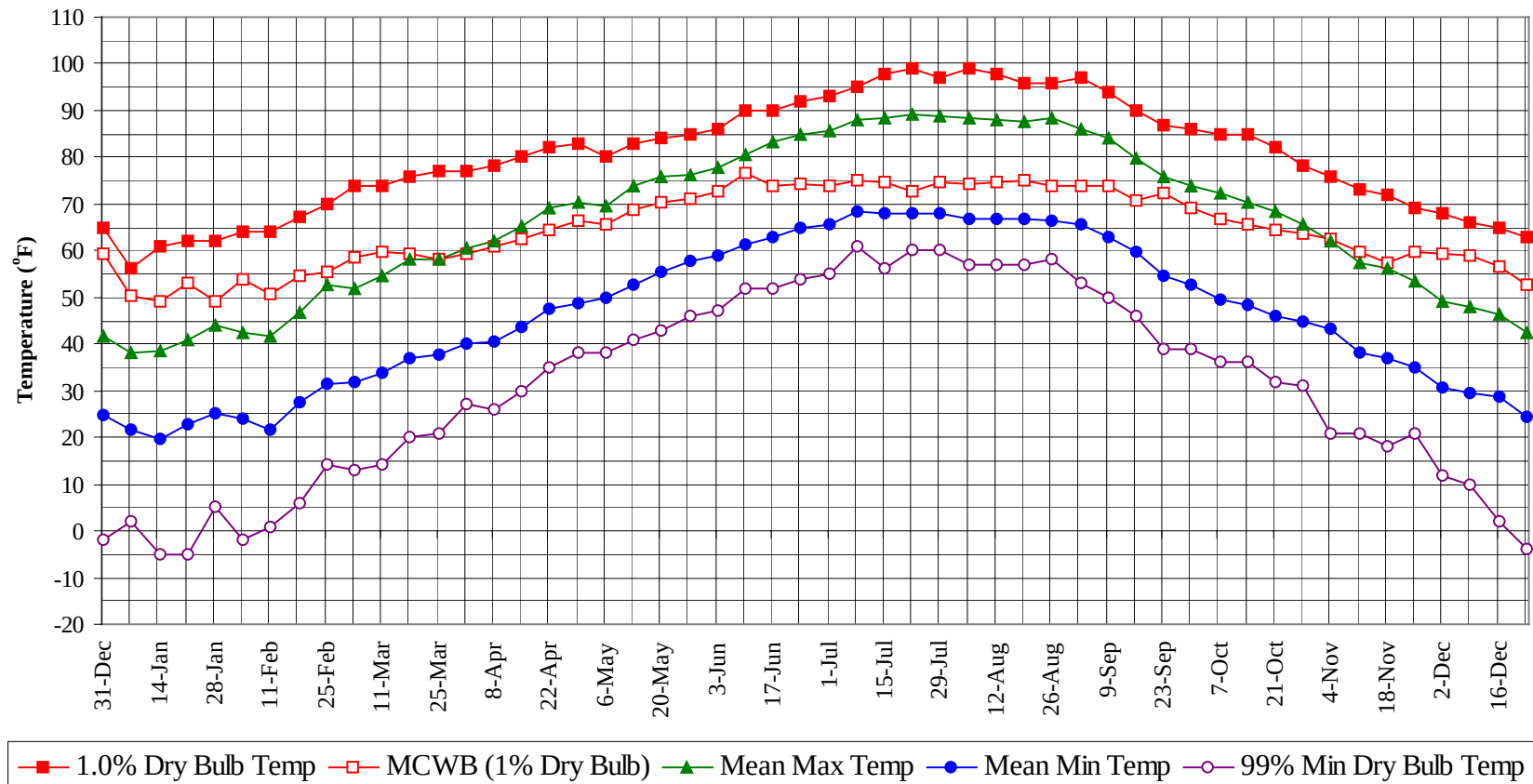
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

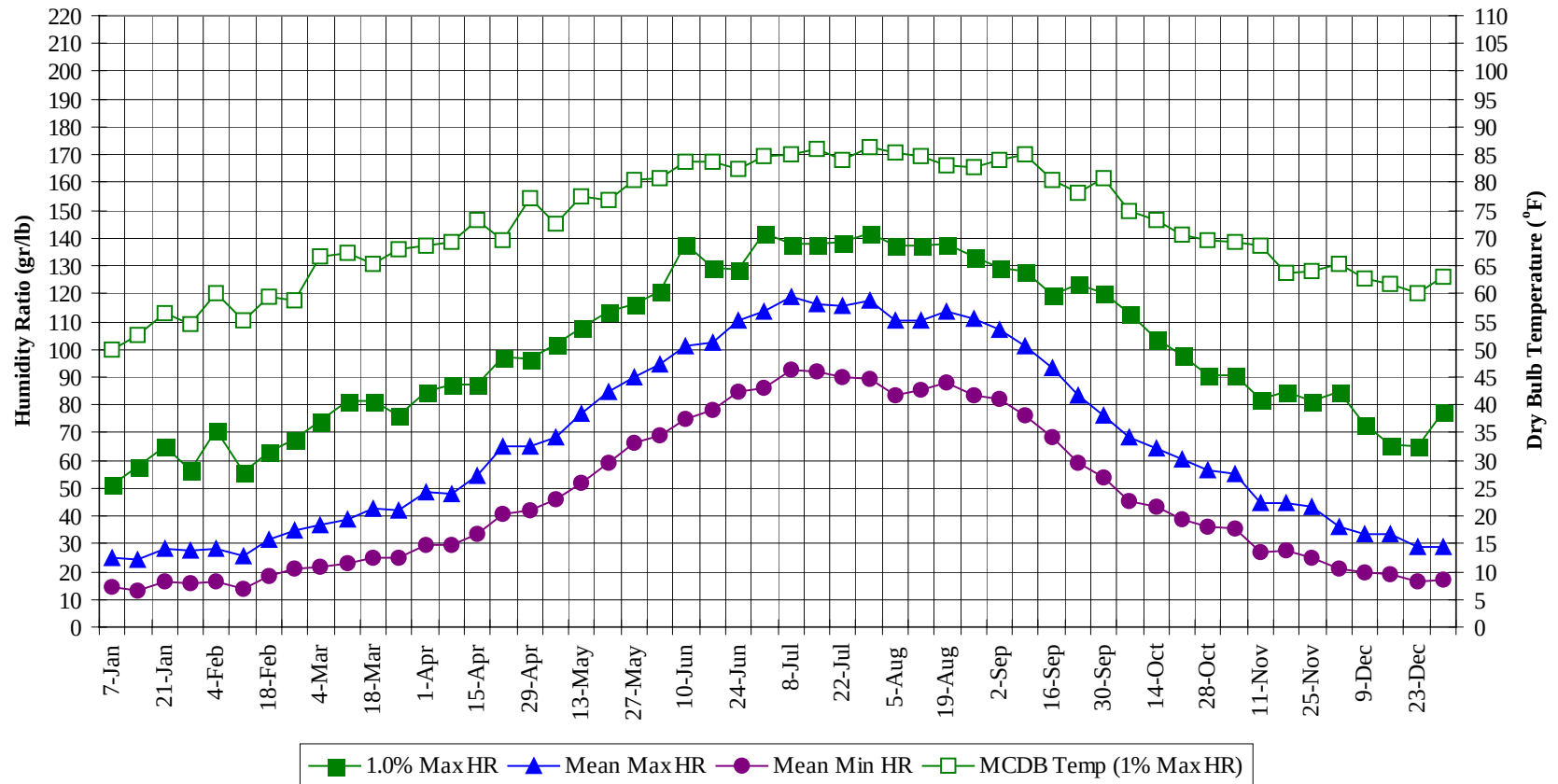
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
105 / 109		0	0	0	72.8
100 / 104		4	1	5	73.5
95 / 99		30	6	36	74.4
90 / 94		108	30	137	74.4
85 / 89	1	223	75	299	73.0
80 / 84	18	279	149	446	70.5
75 / 79	113	282	253	647	68.1
70 / 74	310	268	313	892	65.7
65 / 69	331	253	282	867	61.5
60 / 64	292	227	263	783	56.7
55 / 59	261	203	241	706	51.6
50 / 54	230	186	215	632	46.7
45 / 49	221	177	216	615	42.3
40 / 44	251	183	228	663	38.0
35 / 39	245	168	203	617	33.8
30 / 34	234	131	182	548	29.4
25 / 29	160	78	106	344	24.9
20 / 24	102	51	64	217	20.3
15 / 19	64	32	41	137	15.6
10 / 14	34	18	24	76	10.8
5 / 9	23	10	15	48	6.0
0 / 4	15	5	8	28	1.3
-5 / -1	8	2	2	12	-3.0
-10 / -6	4	1	2	7	-7.2
-15 / -11	1	0	0	1	-11.8
-20 / -16	0			0	-15.3

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

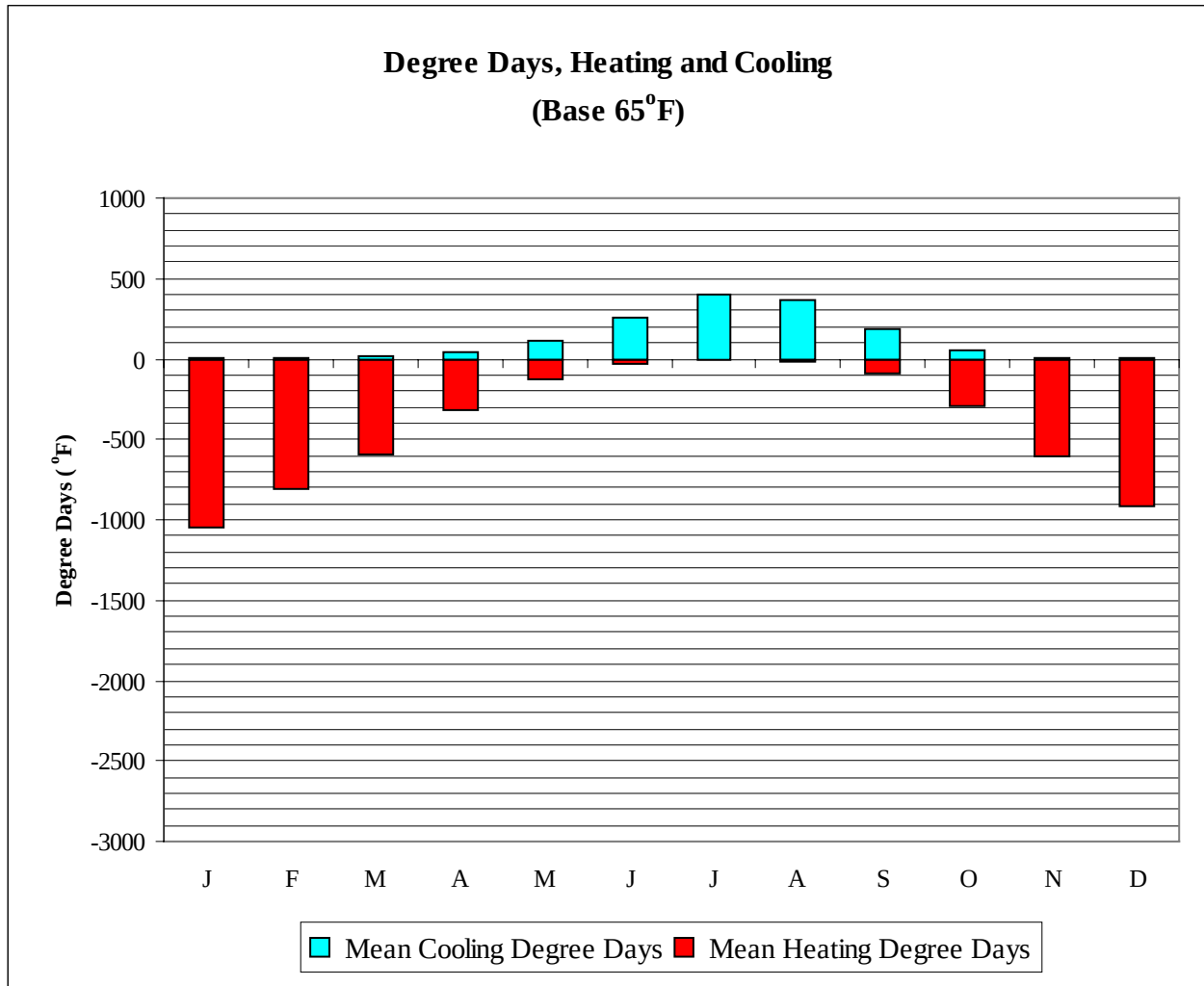


SPRINGFLD MO**WMO No. 724400****Long Term Dry Bulb Temperature and Humidity Summary**

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	56.0	50.5	38.1	21.6	2.0	51.1	50.0	24.7	14.2
14-Jan	61.0	49.0	38.5	19.7	-5.0	58.1	52.6	24.0	12.8
21-Jan	62.0	53.2	40.7	23.0	-5.0	65.1	56.5	28.3	16.2
28-Jan	62.0	49.3	44.1	25.1	5.0	56.7	54.4	27.4	15.9
4-Feb	64.0	53.8	42.4	23.9	-2.0	70.7	60.0	28.1	16.3
11-Feb	64.0	50.7	41.5	21.7	1.0	56.0	55.2	25.8	14.1
18-Feb	67.0	54.8	46.6	27.6	6.0	63.0	59.6	31.7	18.6
25-Feb	70.0	55.6	52.7	31.4	14.0	67.9	58.8	34.9	20.8
4-Mar	74.0	58.4	51.9	31.9	13.0	74.2	66.6	36.9	21.6
11-Mar	74.0	59.7	54.6	33.6	14.0	81.2	67.4	38.8	23.0
18-Mar	76.0	59.4	58.0	37.1	20.0	81.2	65.3	42.6	24.7
25-Mar	77.0	58.3	58.2	37.7	21.0	76.3	68.0	42.0	24.9
1-Apr	77.0	59.5	60.7	40.2	27.0	84.7	68.6	48.6	29.8
8-Apr	78.0	60.7	62.0	40.4	26.0	87.5	69.4	48.0	29.5
15-Apr	80.0	62.4	65.3	43.8	30.0	87.5	73.2	54.8	33.4
22-Apr	82.0	64.6	69.0	47.7	35.0	97.3	69.5	65.0	40.4
29-Apr	83.0	66.6	70.4	48.8	38.0	96.6	77.2	65.0	41.9
6-May	80.0	65.6	69.6	49.8	38.0	101.5	72.7	68.3	46.0
13-May	83.0	68.9	73.7	52.7	41.0	107.8	77.6	76.7	51.6
20-May	84.0	70.2	75.6	55.4	43.0	113.4	77.0	84.6	59.1
27-May	85.0	71.2	76.1	58.0	46.0	116.2	80.5	89.8	66.1
3-Jun	86.0	72.5	77.7	58.8	47.0	121.1	80.9	94.3	68.9
10-Jun	90.0	76.5	80.5	61.3	52.0	137.9	83.6	101.2	74.9
17-Jun	90.0	74.0	83.2	62.8	52.0	129.5	83.8	102.7	78.0
24-Jun	92.0	74.2	85.0	64.9	54.0	128.8	82.5	110.2	84.5
1-Jul	93.0	73.9	85.7	65.7	55.0	142.1	84.9	113.6	85.8
8-Jul	95.0	75.2	88.0	68.3	61.0	137.9	85.1	119.2	92.7
15-Jul	98.0	74.5	88.4	68.1	56.0	137.9	86.2	116.4	91.9
22-Jul	99.0	72.8	89.2	68.1	60.0	138.6	84.2	115.4	89.8
29-Jul	97.0	74.7	88.6	67.9	60.0	142.1	86.4	117.7	89.5
5-Aug	99.0	74.4	88.2	66.6	57.0	137.2	85.3	110.3	83.6
12-Aug	98.0	74.7	88.1	66.7	57.0	137.2	84.6	110.6	85.2
19-Aug	96.0	75.0	87.7	67.0	57.0	137.9	82.9	113.6	87.8
26-Aug	96.0	73.8	88.4	66.5	58.0	133.0	82.9	110.9	83.6
2-Sep	97.0	73.8	86.2	65.6	53.0	129.5	84.2	107.4	81.8
9-Sep	94.0	73.8	84.1	63.0	50.0	128.1	85.1	100.8	76.4
16-Sep	90.0	70.5	79.7	59.8	46.0	119.7	80.5	93.2	68.5
23-Sep	87.0	72.4	75.8	54.8	39.0	123.2	78.1	83.6	58.8
30-Sep	86.0	69.0	74.0	52.8	39.0	120.4	80.7	76.2	53.8
7-Oct	85.0	66.8	72.4	49.5	36.0	112.7	75.0	68.1	45.2
14-Oct	85.0	65.8	70.2	48.4	36.0	103.6	73.3	64.2	43.2
21-Oct	82.0	64.4	68.2	46.1	32.0	98.0	70.7	60.2	38.9
28-Oct	78.0	63.6	65.6	44.7	31.0	90.3	69.5	56.7	36.4
4-Nov	76.0	62.6	62.0	43.1	21.0	90.3	69.3	54.9	35.7
11-Nov	73.0	59.9	57.5	38.0	21.0	81.9	68.6	44.5	27.1
18-Nov	72.0	57.4	56.2	37.1	18.0	84.7	63.7	44.6	27.4
25-Nov	69.0	59.6	53.5	35.1	21.0	81.2	63.9	43.1	24.8
2-Dec	68.0	59.5	49.2	30.8	12.0	84.7	65.3	36.2	21.1
9-Dec	66.0	59.1	47.9	29.5	10.0	72.8	62.7	33.8	19.6
16-Dec	65.0	56.4	46.5	28.6	2.0	65.8	61.9	33.3	19.3
23-Dec	63.0	52.7	42.6	24.2	-4.0	65.1	60.1	28.8	16.4
31-Dec	65.0	59.4	41.7	24.6	-2.0	77.7	63.0	28.9	17.0

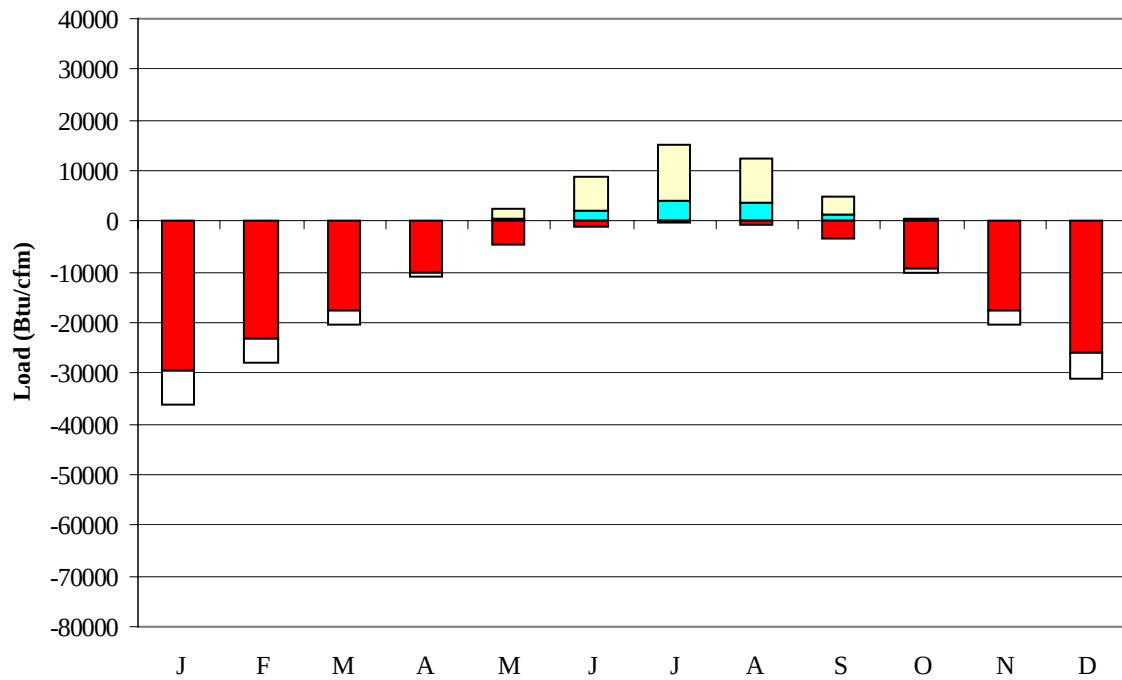
SPRINGFLD MO

WMO No. 724400



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1045
FEB	2	810
MAR	15	590
APR	46	321
MAY	112	129
JUN	262	26
JUL	404	6
AUG	364	12
SEP	180	95
OCT	50	294
NOV	7	599
DEC	1	913
ANN	1442	4840

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 (Drying) Load ■ Average Latent Heating (Humidifying) Load

	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	-29486	0	-6501
FEB	0	-23168	0	-4805
MAR	26	-17529	17	-2961
APR	158	-10193	168	-894
MAY	491	-4733	1908	-60
JUN	2001	-1216	6637	0
JUL	4050	-334	10922	0
AUG	3489	-609	8733	0
SEP	1290	-3492	3605	-30
OCT	194	-9529	426	-703
NOV	6	-17751	33	-2666
DEC	0	-26072	1	-5169
ANN	11705	-144112	32450	-23789

Average Annual Solar Radiation – Nearest Available Site

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

City: SPRINGFIELD
 State: MO
 WBAN No: 13995
 Lat(N): 37.23
 Long(W): 93.38
 Elev(ft): 1270

Stn Type: Secondary
 SHADING GEOMETRY IN DIMENSIONLESS UNITS
 Window: 1
 Overhang: 0.455
 Vert Gap: 0.304

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	750	970	1290	1640	1870	2030	2080	1870	1480	1160	780	640	1380
	Std Dev	62	56	110	113	125	131	131	111	115	126	79	52	39
	Minimum	620	880	1080	1320	1580	1800	1870	1670	1200	870	630	560	1330
	Maximum	850	1080	1490	1830	2120	2330	2380	2100	1720	1360	950	770	1460
	Diffuse	330	450	580	690	790	820	770	700	600	440	350	310	570
Clear Day	Global	1020	1360	1820	2260	2540	2630	2560	2320	1930	1460	1070	900	1820
NORTH	Global	220	280	360	440	550	630	610	490	390	300	230	190	390
	Diffuse	220	280	360	430	500	530	510	460	380	300	230	190	370
Clear Day	Global	200	260	340	430	580	680	630	470	360	280	210	180	390
EAST	Global	490	600	770	940	1030	1090	1140	1060	890	730	510	420	810
	Diffuse	260	340	440	530	600	620	620	560	480	370	280	230	440
Clear Day	Global	730	930	1150	1340	1440	1450	1420	1340	1190	970	770	670	1120
SOUTH	Global	1140	1130	1090	960	800	730	790	950	1090	1240	1090	1020	1000
	Diffuse	370	430	490	530	550	550	550	520	440	370	330	330	470
Clear Day	Global	1960	1970	1750	1330	990	840	890	1160	1550	1850	1910	1900	1500
WEST	Global	500	620	780	950	1060	1140	1180	1080	890	740	520	430	820
	Diffuse	260	350	440	530	600	630	630	570	480	370	280	240	450
Clear Day	Global	730	930	1150	1340	1440	1450	1420	1340	1190	970	770	670	1120

Average Annual Solar Heat and Illumination – Nearest Available Site

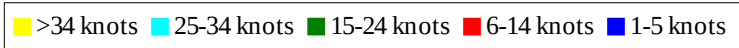
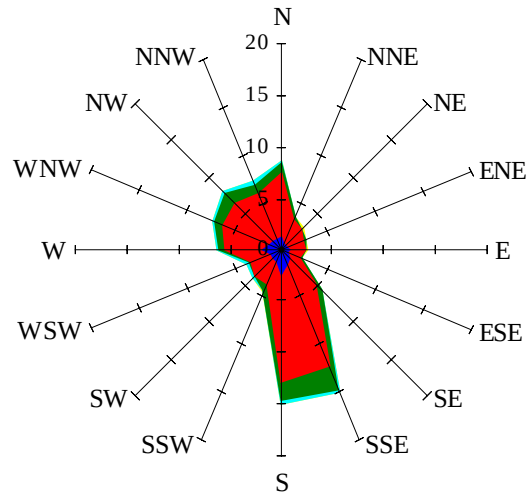
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

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	490	670	910	1190	1360	1480	1520	1360	1060	810	520	410	980
NORTH	Unshaded	150	200	250	300	360	400	390	320	270	210	160	140	260
	Shaded	140	180	230	270	330	370	350	300	240	190	140	120	240
EAST	Unshaded	340	420	540	670	730	780	820	750	630	510	350	290	570
	Shaded	310	380	480	590	640	680	720	670	560	460	320	260	510
SOUTH	Unshaded	860	820	750	620	490	440	470	580	720	890	810	770	680
	Shaded	840	760	610	430	350	350	350	390	540	790	780	750	580
WEST	Unshaded	340	440	560	680	750	810	840	770	640	520	360	300	580
	Shaded	310	400	500	600	660	710	740	680	570	470	330	270	520

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	38	73	85	70	32	44	83	102	98	71
	M.Cloudy	21	44	52	43	19	27	56	71	72	50
NORTH	M.Clear	9	14	15	14	9	21	16	17	17	16
	M.Cloudy	9	15	17	15	8	14	17	19	19	16
EAST	M.Clear	75	61	15	14	9	76	75	36	17	16
	M.Cloudy	23	31	17	15	8	33	46	29	19	16
SOUTH	M.Clear	36	70	81	67	31	11	27	42	39	20
	M.Cloudy	14	34	42	33	14	11	23	33	33	19
WEST	M.Clear	9	14	19	65	71	11	16	17	48	78
	M.Cloudy	9	15	19	33	25	11	17	19	38	48
M.Clear	(% hrs)	35	33	32	32	35	41	39	37	38	46
		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	25	66	87	82	52	14	44	52	35	4
	M.Cloudy	15	41	57	54	34	8	24	30	20	3
NORTH	M.Clear	8	14	16	16	12	5	10	11	9	2
	M.Cloudy	6	15	18	17	12	4	10	12	8	2
EAST	M.Clear	62	73	33	16	12	42	44	11	9	2
	M.Cloudy	21	36	25	17	12	10	18	12	8	2
SOUTH	M.Clear	18	53	73	68	41	36	81	91	70	12
	M.Cloudy	9	28	42	40	23	9	27	33	23	4
WEST	M.Clear	8	14	16	50	75	5	10	19	51	17
	M.Cloudy	6	15	18	32	36	4	10	14	18	5
M.Clear	(% hrs)	45	45	40	41	45	34	34	35	35	38

Wind Summary - December, January, and February

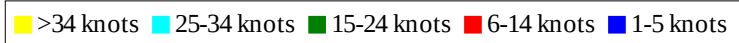
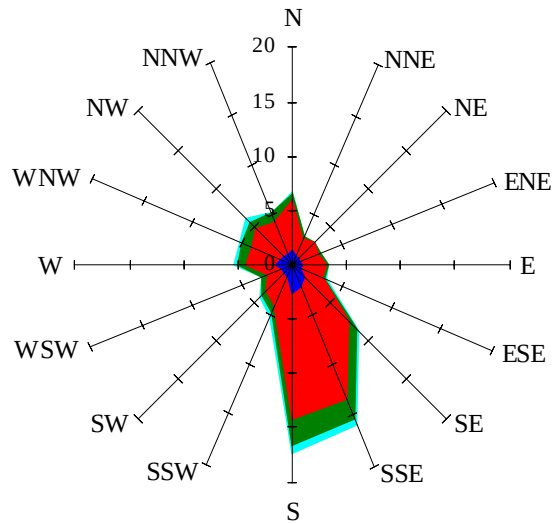
Labels of Percent Frequency on North Axis



Percent Calm = 2.64

Wind Summary - March, April, and May

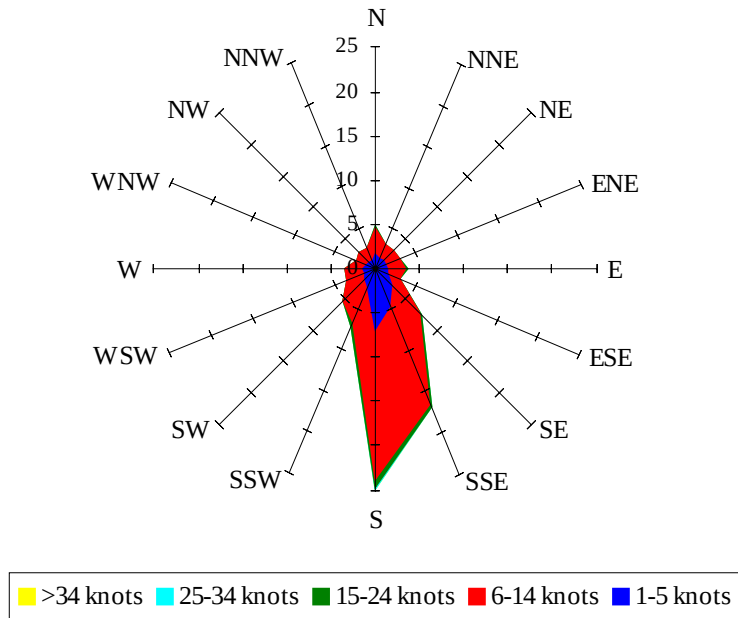
Labels of Percent Frequency on North Axis



Percent Calm = 3.12

Wind Summary - June, July, and August

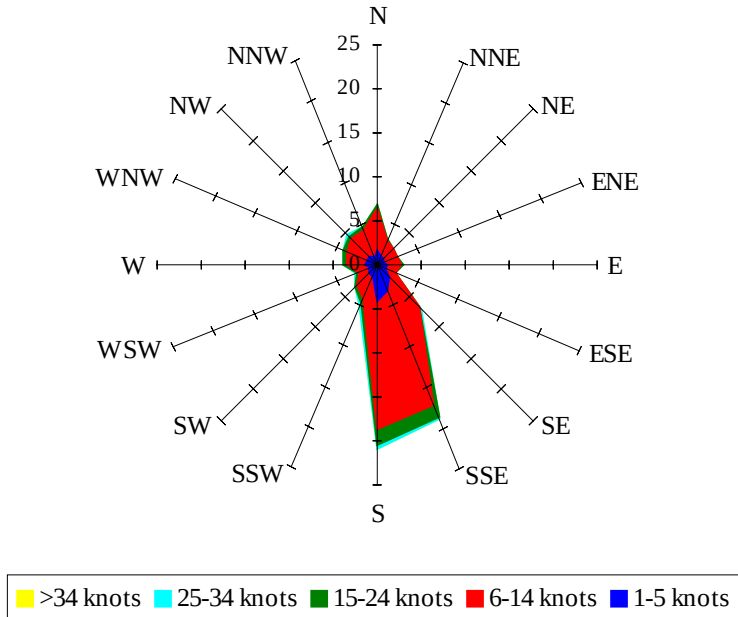
Labels of Percent Frequency on North Axis



Percent Calm = 4.98

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 3.96