

LEWISTOWN MT

Latitude = 47.05 N

Longitude = 109.40 W

Period of Record = 1973 to 1996

WMO No. 726776

Elevation = 4167 feet

Average Pressure = 25.68 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	94	62	45	9.8	W
0.4% Occurrence	89	60	46	9.6	W
1.0% Occurrence	86	60	49	9.3	E
2.0% Occurrence	83	59	50	9.4	E
Mean Daily Range	23	-	-	-	-
97.5% Occurrence	-3	-4	4	6.8	W
99.0% Occurrence	-11	-11	2	6.9	W
99.6% Occurrence	-18	-18	2	6.5	W
Median of Extreme Lows	-24	-24	1	6.9	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	68	83	93	9.9	E
0.4% Occurrence	65	82	79	8.9	E
1.0% Occurrence	63	80	70	8.9	E
2.0% Occurrence	61	79	64	8.9	E
	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	98	76	0.56	8.4	E
0.4% Occurrence	84	70	0.49	8.6	E
1.0% Occurrence	78	69	0.45	8.1	E
2.0% Occurrence	73	67	0.42	8.2	E
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		11	306	0	13

Other Site Data

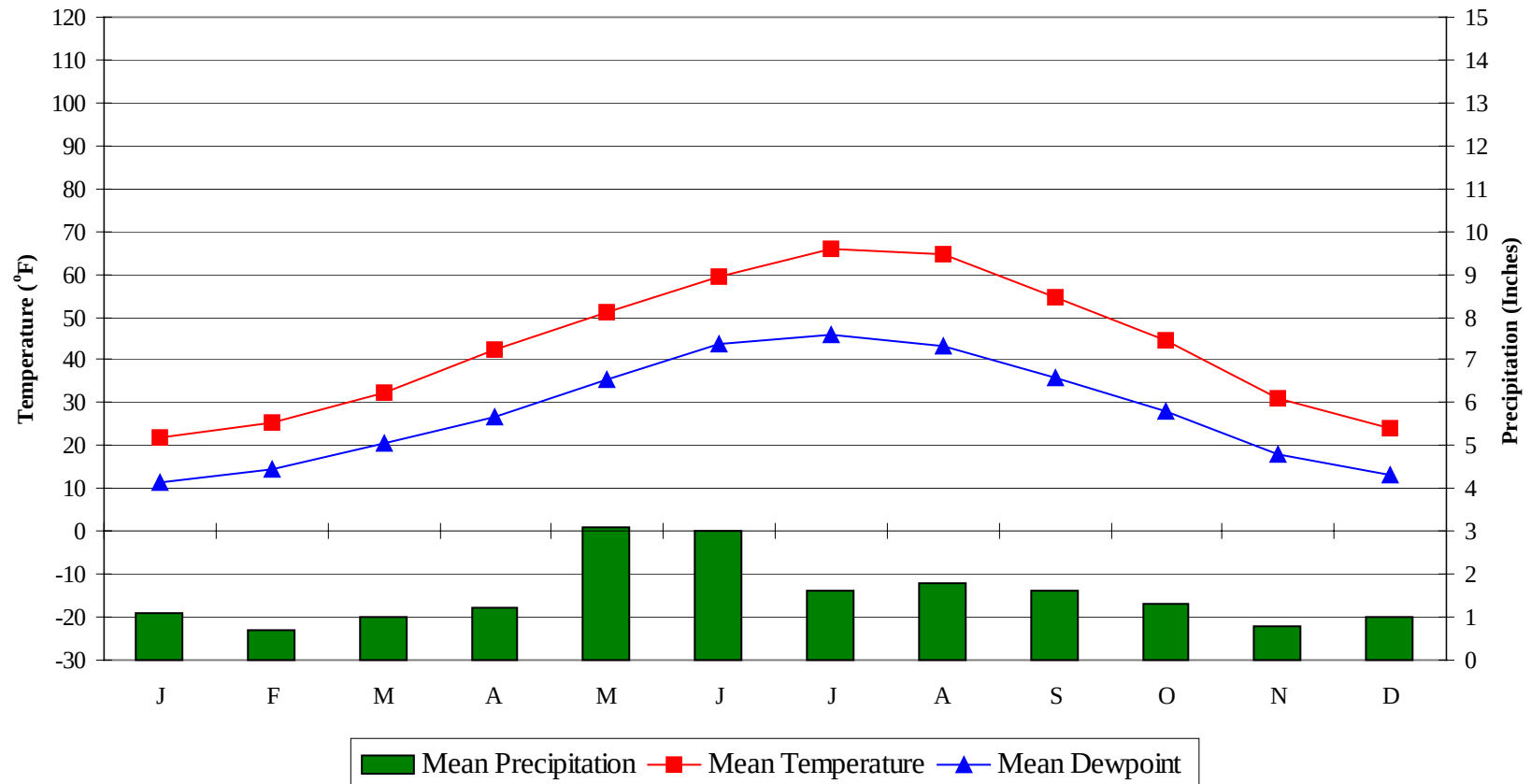
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
5	1.5	90	0.0 + 0.3
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
45.6	N/A	N/A	108

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

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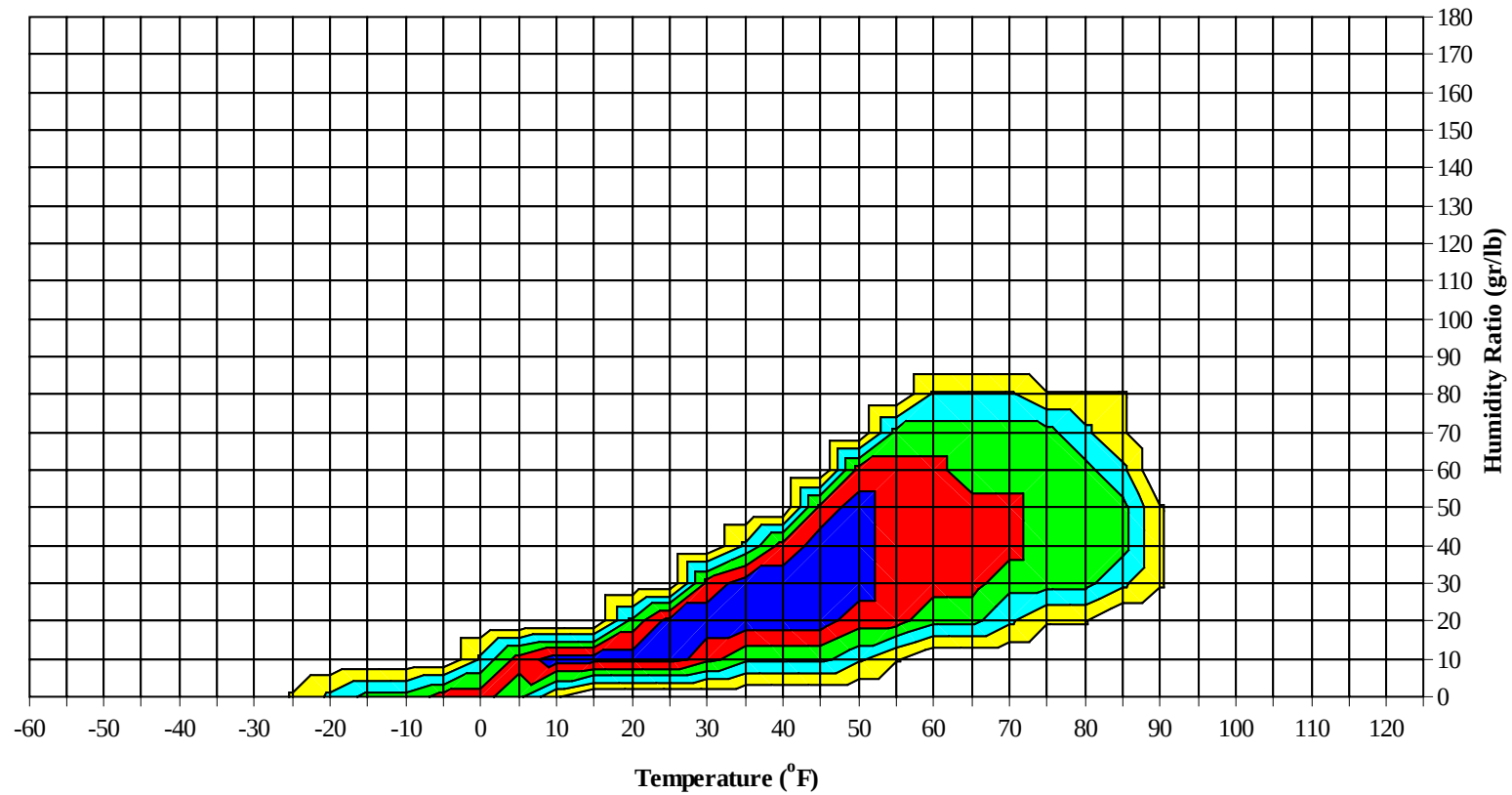
Average Annual Climate



LEWISTOWN MT

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Long Term Psychrometric Summary

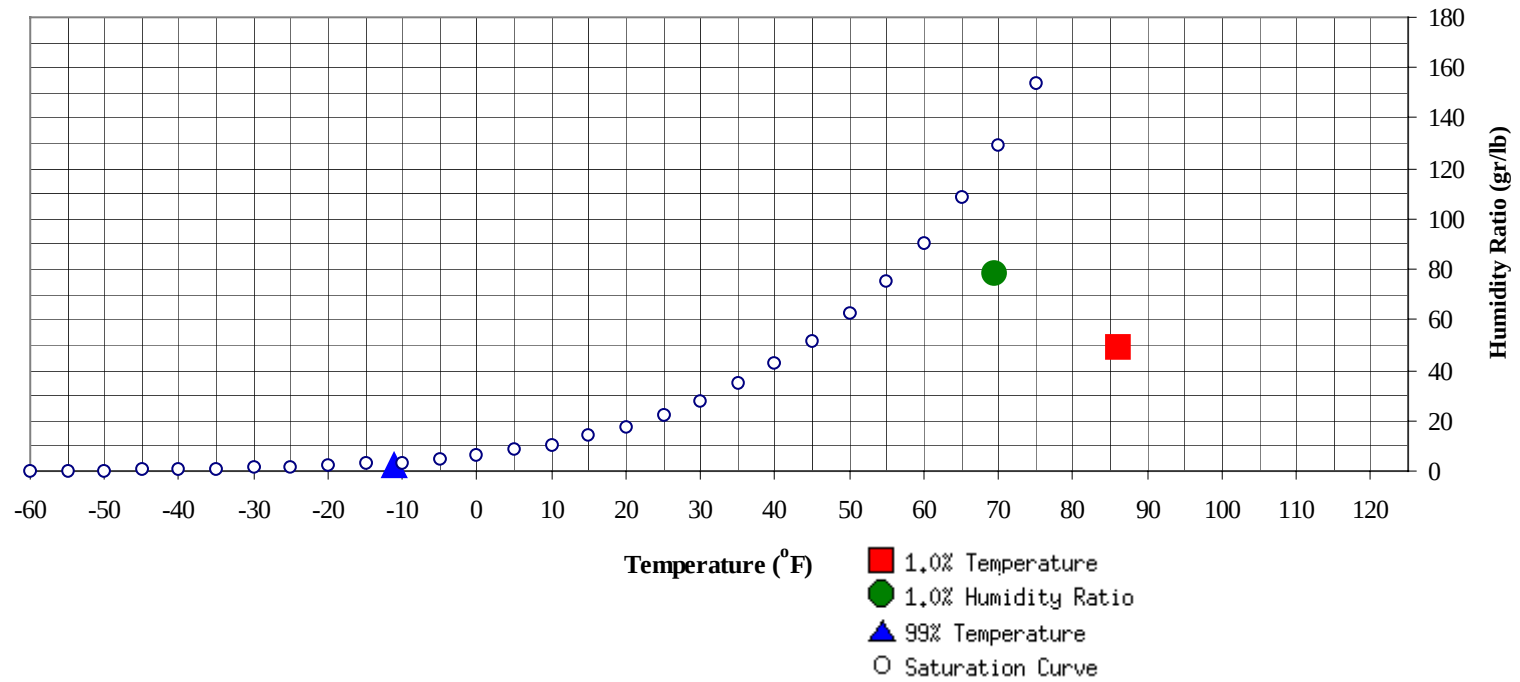


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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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)
	-11	2.2	-2.3		78.4	69.3	60.6	56	28.9

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	86	49.4	60.2	28.4

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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		
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79															
70 / 74		0		0	46.5							0		0	48.3
65 / 69		0		0	45.5		1		1	44.6		2	0	2	46.3
60 / 64		1	0	1	43.3		3	0	3	43.9		7	1	7	44.3
55 / 59		3	0	3	41.4	0	7	1	7	42.0	0	14	4	18	42.1
50 / 54	1	7	2	11	39.7	1	14	3	18	39.5	1	21	9	31	39.9
45 / 49	6	16	8	29	37.0	4	20	10	34	37.0	4	31	16	51	37.4
40 / 44	17	33	19	68	34.7	12	30	22	64	34.5	16	42	33	90	35.1
35 / 39	26	33	32	92	31.6	26	34	35	95	31.8	33	38	46	118	32.3
30 / 34	26	31	33	90	28.0	34	25	35	94	28.4	55	35	51	142	29.0
25 / 29	32	24	32	88	24.1	35	20	30	86	24.4	54	23	36	113	24.7
20 / 24	29	20	26	74	19.9	28	15	18	60	20.0	34	12	21	67	20.5
15 / 19	24	15	21	60	15.3	19	12	14	45	15.4	18	8	11	37	15.9
10 / 14	19	13	14	46	10.6	14	10	13	38	10.8	13	6	8	27	10.9
5 / 9	13	14	12	39	5.9	11	10	12	33	5.9	7	3	5	14	6.3
0 / 4	11	15	14	40	0.8	11	7	11	29	1.0	3	3	3	9	0.8
-5 / -1	15	9	13	38	-3.4	9	7	8	23	-3.4	4	3	3	10	-3.2
-10 / -6	13	9	12	34	-7.7	9	6	6	20	-7.3	2	1	1	4	-7.2
-15 / -11	8	3	6	16	-12.3	4	1	5	10	-12.4	1	0	1	2	-12.0
-20 / -16	4	2	4	10	-16.7	3	1	1	5	-16.9	1	0	0	1	-17.5
-25 / -21	2	1	2	5	-21.5	1	1	1	3	-21.9	0		0	0	-21.3
-30 / -26	1	0	0	1	-25.4	1	1	1	3	-26.8					
-35 / -31	0		0	0	-30.0	0	0	0	0	-31.0					
-40 / -36															
-45 / -41															

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.

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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		
100 / 104															
95 / 99												0		0	64.8
90 / 94												2	0	2	63.9
85 / 89							1	0	1	58.2		0	8	2	62.0
80 / 84		1	0	1	54.2		6	1	7	57.8		0	19	5	60.9
75 / 79		4	1	5	53.0	0	12	3	15	55.3	1	29	12	43	59.0
70 / 74		11	3	14	50.4	0	20	8	29	53.7	4	39	21	64	57.0
65 / 69	0	15	5	20	48.7	2	32	14	48	51.6	10	46	31	87	54.4
60 / 64	1	23	10	34	46.1	5	40	22	68	49.0	20	40	36	96	52.1
55 / 59	4	25	17	47	43.9	16	42	35	94	46.8	40	29	46	114	49.9
50 / 54	10	31	25	66	41.1	33	38	46	116	44.5	60	17	46	123	47.3
45 / 49	19	36	33	88	38.6	53	25	48	125	41.9	57	8	29	94	43.9
40 / 44	35	35	42	112	35.8	62	17	39	118	38.6	35	3	10	48	39.7
35 / 39	51	28	42	121	33.0	43	9	22	74	34.4	11	0	2	13	35.2
30 / 34	61	19	38	117	29.5	26	5	9	40	30.2	2	0	0	2	30.8
25 / 29	34	7	15	57	25.0	6	1	1	8	26.1					
20 / 24	13	4	5	22	20.6	1			1	22.4					
15 / 19	5	1	2	8	16.0										
10 / 14	3	1	2	6	12.0										
5 / 9	1	0	0	1	6.9										
0 / 4	0	0	0	0	0.6										
-5 / -1	1		0	1	-2.8										
-10 / -6	0			0	-6.0										
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															
-45 / -41															

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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		
100 / 104						0	0	0	65.2						
95 / 99		1	0	1	62.5	2	0	2	62.0		0			0	62.7
90 / 94		9	3	12	61.6	10	2	12	60.5		1	0	1	58.6	
85 / 89		24	8	32	61.1	26	7	33	59.5		8	1	9	57.0	
80 / 84	1	45	18	64	60.5	0	41	16	57	58.5	0	15	3	18	56.1
75 / 79	3	48	24	75	58.8	2	43	22	67	57.2	0	26	7	33	54.8
70 / 74	10	47	34	92	56.9	7	41	31	80	55.9	1	34	12	47	52.9
65 / 69	22	33	40	96	55.3	17	34	36	87	54.2	4	33	17	54	51.2
60 / 64	43	19	47	109	53.5	35	23	45	102	52.6	10	34	28	71	49.4
55 / 59	58	11	38	108	51.2	59	13	42	113	50.4	21	31	38	90	47.2
50 / 54	64	7	26	97	48.3	68	8	30	107	47.8	42	23	47	112	44.8
45 / 49	35	2	8	46	44.3	41	4	13	57	43.9	59	15	34	108	42.0
40 / 44	10	0	1	11	39.9	14	1	3	18	40.1	51	11	28	90	38.7
35 / 39	1			1	35.7	5	1	1	7	35.4	29	7	15	50	34.7
30 / 34						1	0	0	1	31.3	17	3	7	27	30.8
25 / 29						0			0	27.0	4	1	2	7	25.6
20 / 24											2		1	3	21.5
15 / 19											0			0	17.4
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															
-45 / -41															

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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		
100 / 104															
95 / 99															
90 / 94															
85 / 89		0		0	53.6										
80 / 84		3	0	3	53.1										
75 / 79		8	1	9	52.1		0		0	48.8					
70 / 74		18	2	20	50.3		1		1	48.2					
65 / 69	1	23	5	29	48.6		3	0	3	46.7		0		0	41.0
60 / 64	3	29	9	41	46.3	0	8	1	9	45.0		2		2	43.8
55 / 59	7	30	18	55	44.1	2	13	4	19	42.8	1	4	1	6	42.1
50 / 54	18	34	31	83	41.8	8	22	9	38	40.3	2	10	3	15	39.3
45 / 49	31	34	40	105	39.3	12	28	18	58	37.8	7	18	9	33	36.9
40 / 44	47	27	46	120	36.6	20	36	24	80	34.4	19	34	20	72	34.5
35 / 39	54	20	38	112	33.2	26	32	33	92	31.2	25	34	27	86	31.2
30 / 34	42	12	29	83	29.5	43	32	40	115	28.2	32	36	36	103	27.9
25 / 29	24	5	13	42	25.1	37	21	36	94	24.6	34	29	36	99	24.0
20 / 24	12	3	8	23	20.6	31	12	25	69	20.0	33	22	29	83	19.9
15 / 19	5	2	3	10	16.2	19	8	16	43	15.6	27	15	24	66	15.4
10 / 14	1	0	1	2	11.0	14	8	11	33	10.8	19	11	15	45	10.9
5 / 9	1	1	1	3	6.5	11	5	8	24	6.4	13	9	12	35	6.1
0 / 4	1	1	0	2	2.4	4	5	4	13	1.1	9	7	9	25	1.0
-5 / -1	0	0	1	1	-3.3	4	4	4	12	-3.2	8	4	6	17	-3.1
-10 / -6	0		0	0	-6.4	4	2	4	10	-7.2	7	4	7	17	-7.6
-15 / -11						2	1	1	4	-12.0	4	5	3	12	-12.2
-20 / -16						1	1	1	3	-16.8	4	4	5	13	-16.8
-25 / -21						0		1	1	-21.6	3	2	3	8	-21.5
-30 / -26						0		0	0	-27.0	2	0	2	4	-26.4
-35 / -31											0	0	0	0	-30.9
-40 / -36											0	0	0	0	-37.7
-45 / -41											0			0	

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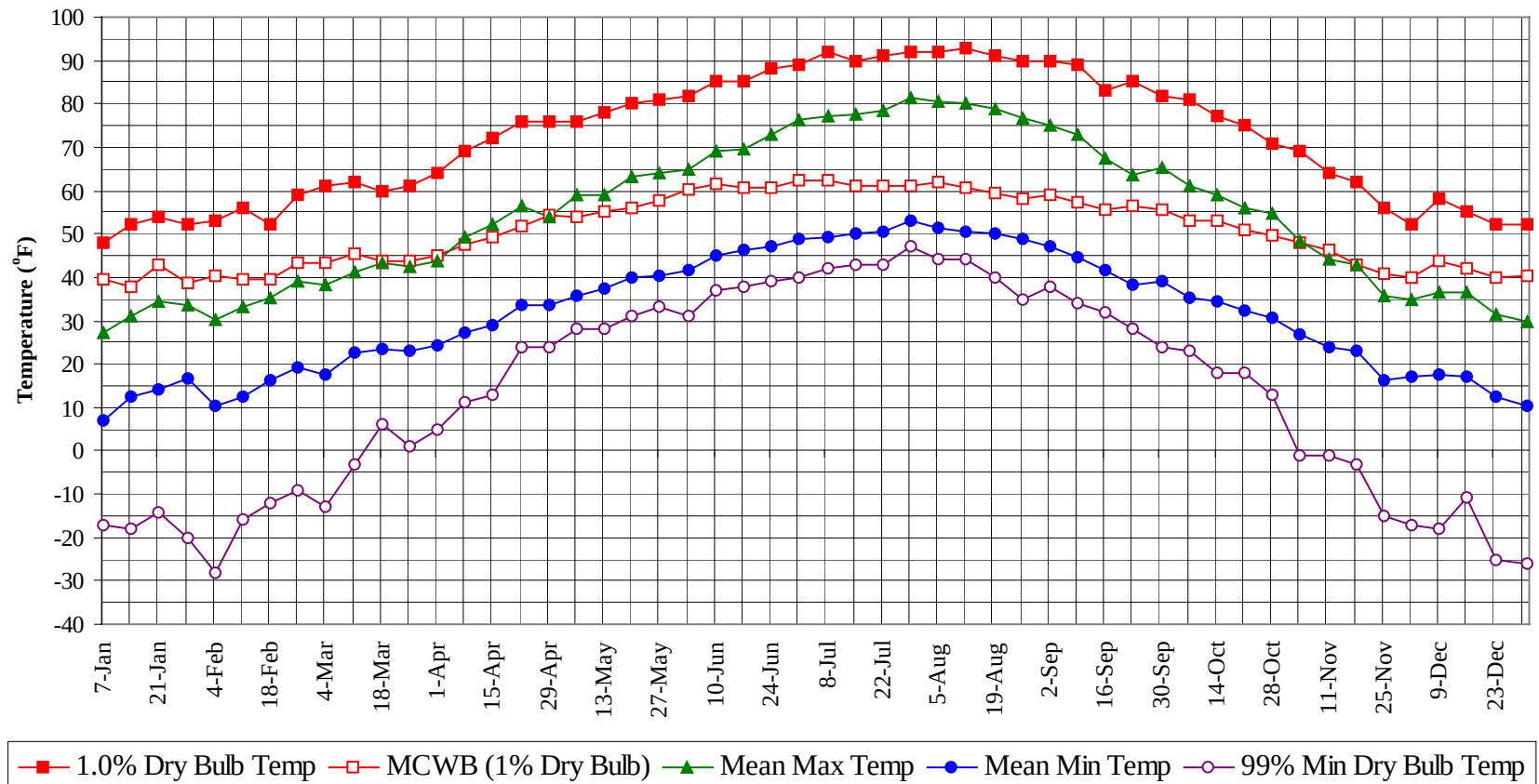
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

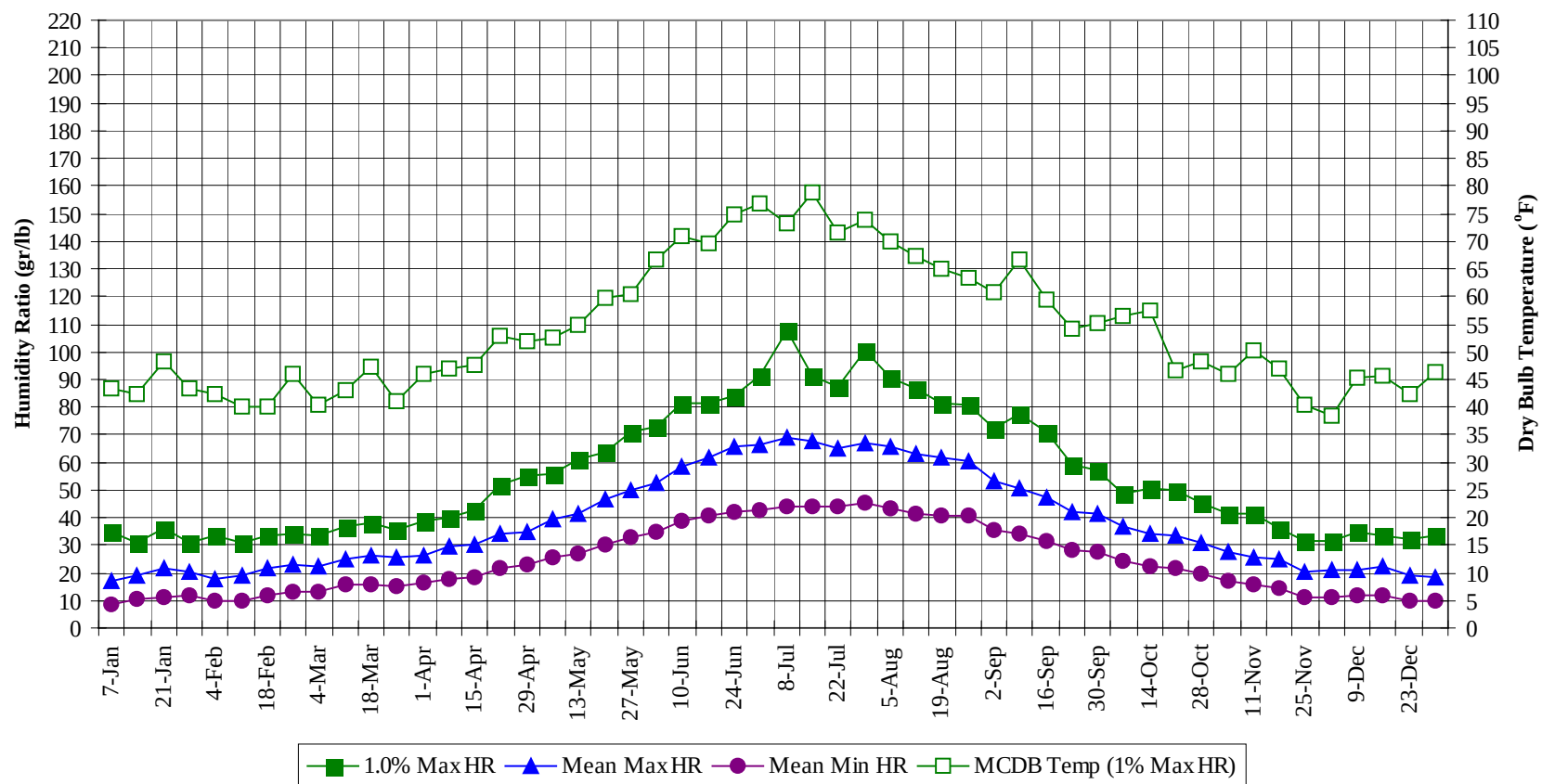
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
100 / 104		0	0	0	65.2
95 / 99		3	1	4	62.4
90 / 94		22	6	28	61.1
85 / 89	0	67	18	85	60.1
80 / 84	1	131	42	174	59.2
75 / 79	6	171	69	247	57.2
70 / 74	25	210	108	343	55.2
65 / 69	57	221	146	423	53.1
60 / 64	119	227	193	539	50.6
55 / 59	213	219	239	671	47.8
50 / 54	313	233	271	817	44.6
45 / 49	331	234	261	827	40.5
40 / 44	336	269	286	891	36.4
35 / 39	328	236	297	862	32.5
30 / 34	335	197	284	816	28.8
25 / 29	257	132	205	594	24.5
20 / 24	179	87	136	402	20.1
15 / 19	117	62	93	272	15.5
10 / 14	82	49	66	196	10.8
5 / 9	55	43	51	148	6.0
0 / 4	41	39	41	121	1.0
-5 / -1	41	26	36	103	-3.3
-10 / -6	36	21	30	88	-7.5
-15 / -11	20	10	16	47	-12.3
-20 / -16	14	6	13	34	-16.8
-25 / -21	9	4	6	18	-21.5
-30 / -26	3	1	3	7	-26.4
-35 / -31	1	0	1	2	-30.9
-40 / -36	0	0	0	0	-37.7
-45 / -41	0			0	

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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary

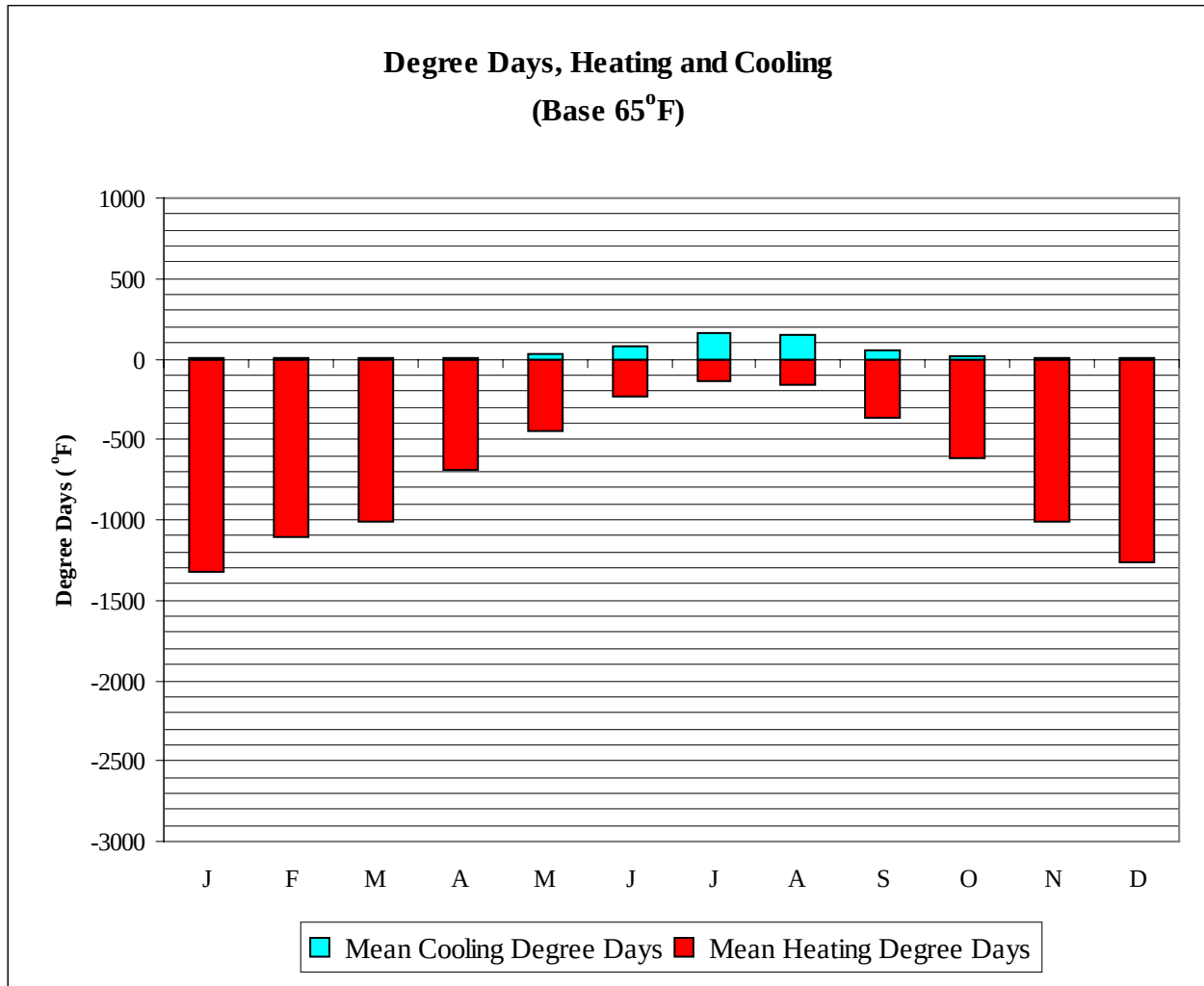


LEWISTOWN MT**WMO No. 726776****Long Term Dry Bulb Temperature and Humidity Summary**

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	48.0	39.4	27.3	7.1	-17.0	35.0	43.4	17.0	8.2
14-Jan	52.0	38.0	31.2	12.4	-18.0	30.8	42.4	19.0	10.2
21-Jan	54.0	42.9	34.5	14.0	-14.0	36.4	48.4	21.4	10.9
28-Jan	52.0	38.5	33.8	16.7	-20.0	30.8	43.2	20.6	11.7
4-Feb	53.0	40.4	30.1	10.3	-28.0	33.6	42.5	18.0	9.9
11-Feb	56.0	39.5	33.1	12.4	-16.0	30.8	40.2	19.2	9.8
18-Feb	52.0	39.4	35.1	16.2	-12.0	33.6	40.2	21.5	12.0
25-Feb	59.0	43.5	39.1	19.4	-9.0	34.3	45.9	22.7	12.9
4-Mar	61.0	43.4	38.1	17.5	-13.0	33.6	40.4	22.4	13.0
11-Mar	62.0	45.6	41.3	22.6	-3.0	37.1	43.1	25.2	15.6
18-Mar	60.0	43.6	43.5	23.3	6.0	37.8	47.3	26.5	15.7
25-Mar	61.0	43.9	42.7	22.9	1.0	35.7	41.1	25.7	15.0
1-Apr	64.0	44.9	43.7	24.5	5.0	38.5	45.8	26.2	16.5
8-Apr	69.0	47.6	49.2	27.3	11.0	39.9	46.8	29.3	17.9
15-Apr	72.0	49.1	52.0	28.7	13.0	42.7	47.8	30.2	18.3
22-Apr	76.0	51.6	56.3	33.4	24.0	51.8	52.7	34.1	21.9
29-Apr	76.0	54.3	54.0	33.4	24.0	55.3	52.0	35.0	22.8
6-May	76.0	53.8	59.1	35.7	28.0	56.0	52.6	39.2	25.4
13-May	78.0	55.0	59.1	37.3	28.0	60.9	54.7	41.4	27.1
20-May	80.0	55.9	63.1	39.9	31.0	63.7	59.9	46.5	30.5
27-May	81.0	57.6	64.0	40.5	33.0	70.7	60.5	49.7	32.9
3-Jun	82.0	60.1	65.0	41.5	31.0	72.8	66.5	52.4	34.7
10-Jun	85.0	61.6	69.1	45.1	37.0	81.2	70.9	58.4	38.6
17-Jun	85.0	60.8	69.4	46.2	38.0	81.2	69.6	61.7	40.5
24-Jun	88.0	60.7	72.9	47.3	39.0	84.0	74.9	65.4	42.0
1-Jul	89.0	62.5	76.3	48.6	40.0	91.0	76.7	66.3	42.6
8-Jul	92.0	62.3	77.3	49.4	42.0	107.8	73.1	68.8	43.8
15-Jul	90.0	61.2	77.6	50.1	43.0	91.0	78.7	67.5	44.3
22-Jul	91.0	61.0	78.5	50.6	43.0	87.5	71.5	65.0	44.2
29-Jul	92.0	61.2	81.5	52.9	47.0	100.8	73.8	67.3	45.6
5-Aug	92.0	61.8	80.7	51.3	44.0	90.3	70.0	65.5	43.6
12-Aug	93.0	60.5	80.3	50.6	44.0	86.8	67.2	63.0	41.5
19-Aug	91.0	59.5	78.8	50.2	40.0	81.2	64.9	62.0	40.9
26-Aug	90.0	58.1	76.5	48.9	35.0	80.5	63.3	60.2	40.9
2-Sep	90.0	58.9	75.2	47.2	38.0	72.1	60.7	53.4	35.4
9-Sep	89.0	57.3	72.9	44.8	34.0	77.7	66.6	50.8	34.0
16-Sep	83.0	55.4	67.3	41.7	32.0	70.7	59.5	47.3	31.4
23-Sep	85.0	56.3	63.4	38.2	28.0	58.8	54.3	41.9	28.0
30-Sep	82.0	55.4	65.3	39.2	24.0	57.4	55.1	41.2	27.5
7-Oct	81.0	53.0	61.0	35.4	23.0	48.3	56.5	36.5	24.1
14-Oct	77.0	52.9	59.1	34.5	18.0	50.4	57.5	34.1	22.7
21-Oct	75.0	50.8	56.2	32.4	18.0	49.7	46.8	33.2	21.8
28-Oct	71.0	49.6	54.7	30.8	13.0	45.5	48.3	31.2	19.7
4-Nov	69.0	47.8	48.3	26.9	-1.0	41.3	46.1	27.9	17.1
11-Nov	64.0	46.1	44.1	23.9	-1.0	41.3	50.2	25.9	15.6
18-Nov	62.0	42.8	43.1	23.1	-3.0	36.4	46.9	24.7	14.2
25-Nov	56.0	40.9	35.8	16.4	-15.0	31.5	40.5	20.3	11.3
2-Dec	52.0	39.9	34.8	16.9	-17.0	31.5	38.3	20.9	11.4
9-Dec	58.0	43.6	36.4	17.5	-18.0	35.0	45.4	21.1	11.9
16-Dec	55.0	42.3	36.5	17.1	-11.0	33.6	45.8	22.1	11.6
23-Dec	52.0	39.8	31.5	12.6	-25.0	32.2	42.2	19.1	10.1
31-Dec	52.0	40.4	29.8	10.5	-26.0	33.6	46.4	18.2	9.6

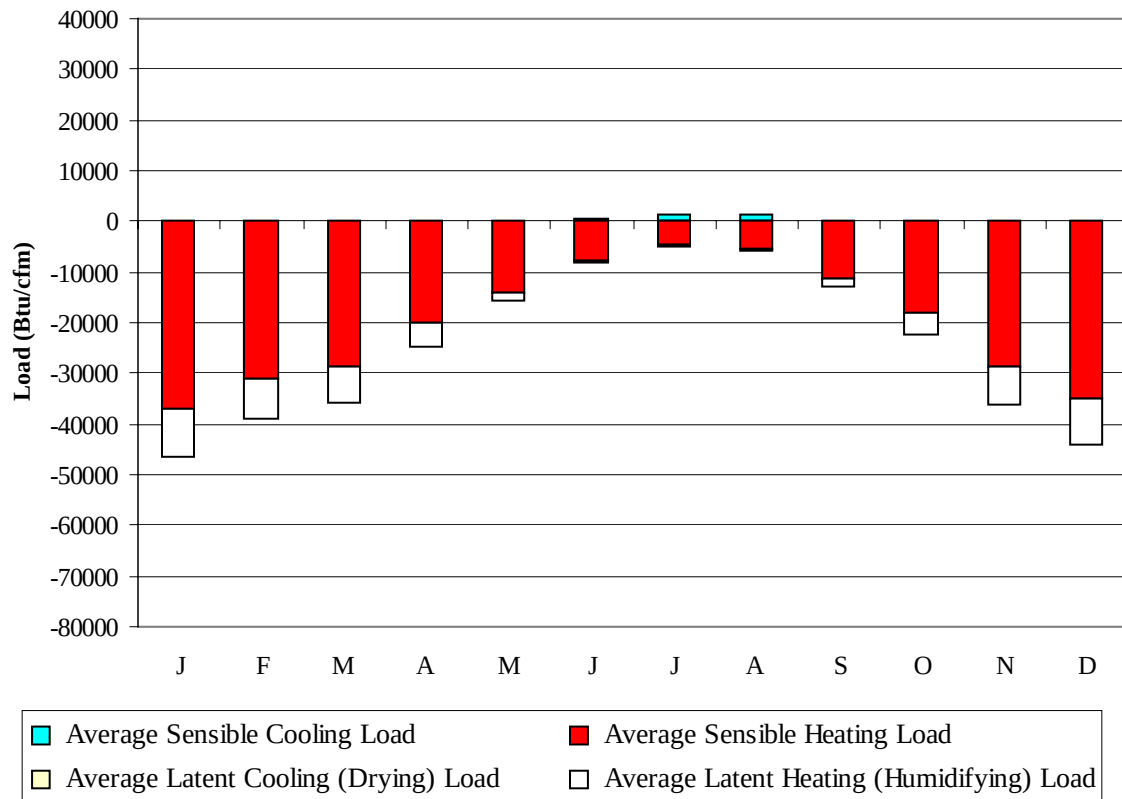
LEWISTOWN MT

WMO No. 726776



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1326
FEB	0	1113
MAR	0	1011
APR	8	684
MAY	24	453
JUN	75	233
JUL	160	134
AUG	151	160
SEP	55	361
OCT	13	615
NOV	1	1015
DEC	0	1259
ANN	487	8364

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	-36780	0	-9599
FEB	0	-31036	0	-8027
MAR	0	-28606	0	-7123
APR	12	-19978	0	-4736
MAY	82	-13923	0	-1768
JUN	412	-7757	4	-348
JUL	1192	-4780	72	-128
AUG	1183	-5529	5	-319
SEP	320	-11257	0	-1500
OCT	37	-18125	0	-4137
NOV	0	-28626	0	-7728
DEC	0	-35070	0	-9185
ANN	3238	-241467	81	-54598

Average Annual Solar Radiation – Nearest Available Site

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

City: LEWISTOWN
 State: MT
 WBAN No: 24036
 Lat(N): 47.05
 Long(W): 109.45
 Elev(ft): 4147

Stn Type: Secondary
 SHADING GEOMETRY IN DIMENSIONLESS UNITS
 Window: 1
 Overhang: 0.737
 Vert Gap: 0.328

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	460	740	1120	1510	1790	2030	2160	1830	1330	900	520	380	1230
	Std Dev	33	52	97	137	127	145	109	120	128	58	30	23	29
	Minimum	420	650	940	1220	1520	1730	1930	1620	1060	780	470	350	1180
	Maximum	560	840	1320	1880	2070	2310	2360	2070	1540	1010	580	430	1300
	Diffuse	260	380	550	690	780	770	640	570	480	360	260	210	500
Clear Day	Global	650	1010	1560	2140	2570	2730	2630	2270	1730	1150	710	540	1640
NORTH	Global	160	230	330	440	560	650	620	470	340	240	170	130	360
	Diffuse	160	230	330	420	500	520	500	430	340	240	170	130	330
Clear Day	Global	130	190	280	400	600	740	680	450	300	210	140	110	350
EAST	Global	350	520	760	980	1130	1240	1340	1190	910	650	400	300	810
	Diffuse	200	290	420	520	600	620	590	520	420	310	210	170	410
Clear Day	Global	590	820	1150	1440	1610	1660	1620	1470	1220	900	630	510	1140
SOUTH	Global	910	1110	1190	1110	980	960	1070	1180	1250	1250	970	840	1070
	Diffuse	320	410	510	560	590	590	560	530	480	400	320	280	460
Clear Day	Global	1880	2040	2010	1670	1340	1180	1240	1500	1830	2000	1880	1760	1690
WEST	Global	340	510	720	910	1030	1140	1230	1090	860	630	390	290	760
	Diffuse	200	290	420	530	600	630	600	530	430	310	210	170	410
Clear Day	Global	590	820	1150	1440	1610	1660	1620	1470	1220	900	630	510	1140

Average Annual Solar Heat and Illumination – Nearest Available Site

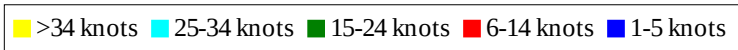
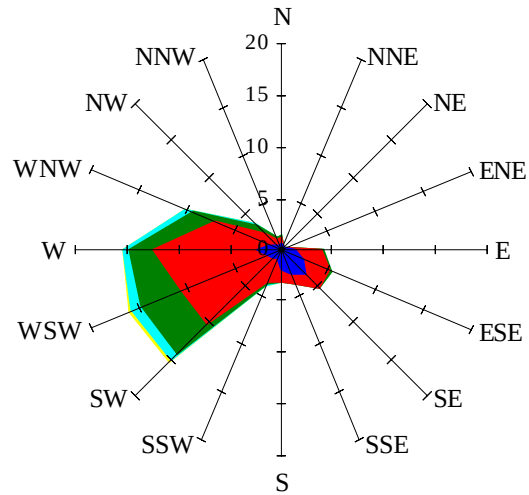
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

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	280	480	780	1070	1290	1470	1570	1310	940	600	330	230	860
	NORTH	Unshaded	110	160	230	300	370	420	400	310	230	170	120	91
	Shaded	87	130	190	250	310	360	340	270	200	140	94	73	200
EAST	Unshaded	240	360	540	700	810	890	970	860	650	450	270	200	580
	Shaded	200	310	440	570	640	700	760	690	530	380	230	170	470
SOUTH	Unshaded	690	820	850	750	630	600	660	780	870	920	740	640	740
	Shaded	660	740	630	420	340	340	330	360	550	770	700	620	540
WEST	Unshaded	230	360	510	650	730	820	880	780	620	440	270	200	540
	Shaded	200	300	420	520	580	640	690	620	500	370	230	170	440

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	29	60	70	58	27	46	78	95	93	71
	M.Cloudy	20	42	50	41	19	30	57	71	67	51
NORTH	M.Clear	8	12	13	12	8	15	14	16	16	14
	M.Cloudy	8	14	16	14	8	13	16	18	17	15
EAST	M.Clear	70	59	13	12	8	83	75	36	16	14
	M.Cloudy	29	34	16	14	8	42	50	30	17	15
SOUTH	M.Clear	37	76	90	75	35	10	37	56	54	31
	M.Cloudy	18	41	52	41	16	10	29	43	40	25
WEST	M.Clear	8	12	14	60	69	10	14	16	44	77
	M.Cloudy	8	14	16	35	28	10	16	18	35	50
M.Clear	(% hrs)	26	25	21	19	19	41	36	31	27	25
		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	22	57	75	73	48	4	26	34	21	0
	M.Cloudy	13	38	51	48	32	3	18	23	14	0
NORTH	M.Clear	7	12	14	13	10	2	7	9	6	0
	M.Cloudy	6	12	15	15	11	2	7	9	6	0
EAST	M.Clear	66	72	32	13	10	20	37	9	6	0
	M.Cloudy	23	38	24	15	11	6	17	9	6	0
SOUTH	M.Clear	19	59	82	78	49	18	71	84	60	0
	M.Cloudy	9	33	48	45	27	6	28	36	22	0
WEST	M.Clear	7	12	14	46	77	2	7	14	40	0
	M.Cloudy	6	12	15	30	38	2	7	11	16	0
M.Clear	(% hrs)	45	42	40	35	34	24	23	22	23	24

Wind Summary - December, January, and February

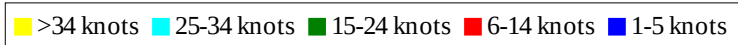
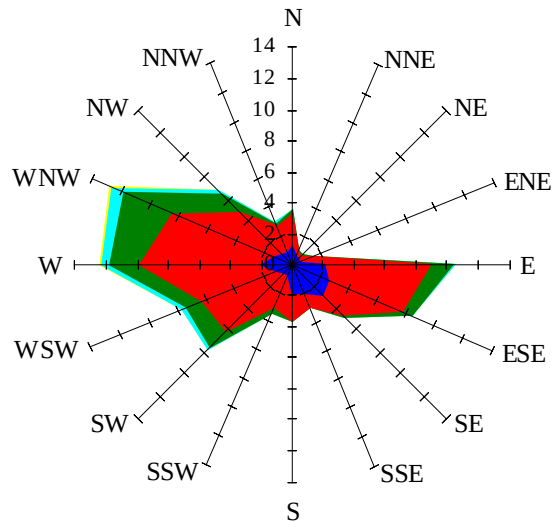
Labels of Percent Frequency on North Axis



Percent Calm = 10.87

Wind Summary - March, April, and May

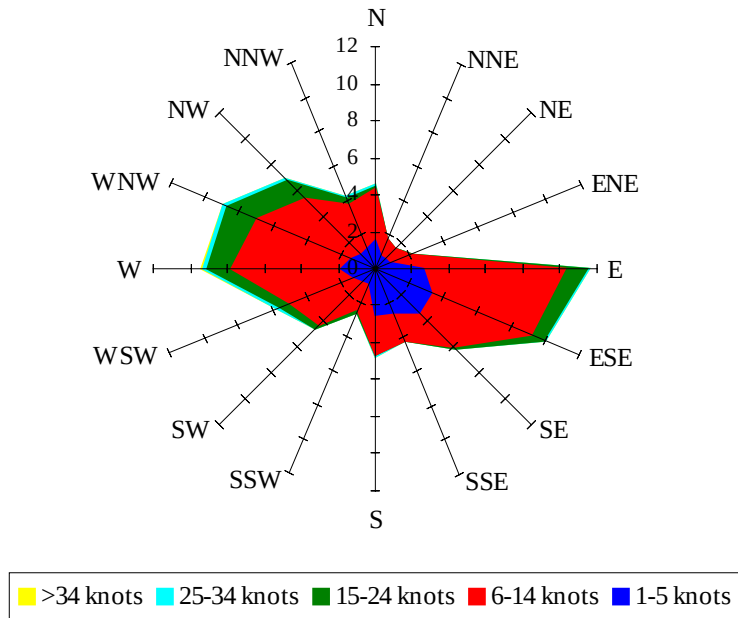
Labels of Percent Frequency on North Axis



Percent Calm = 9.68

Wind Summary - June, July, and August

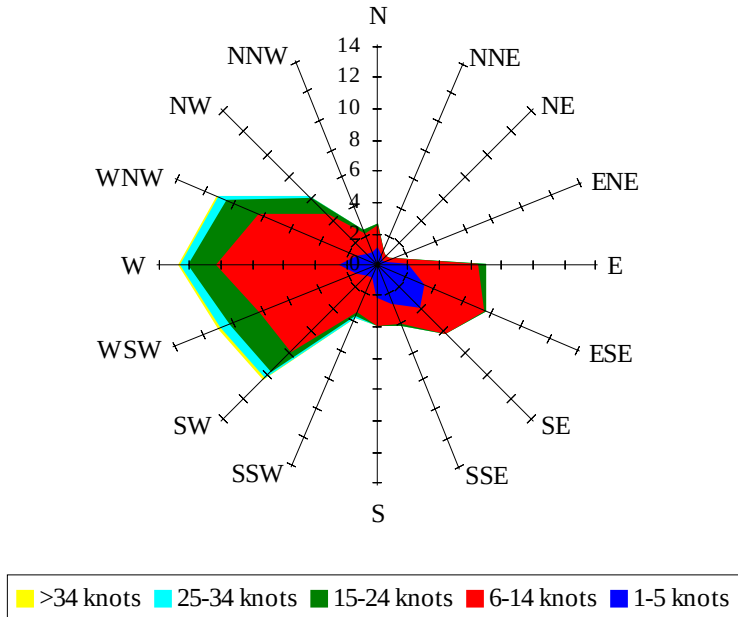
Labels of Percent Frequency on North Axis



Percent Calm = 11.12

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 10.18