

MILES CITY MT

Latitude = 46.43 N

Longitude = 105.80 W

Period of Record = 1973 to 1996

WMO No. 742300

Elevation = 2628 feet

Average Pressure = 27.19 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	103	67	52	10.5	S
0.4% Occurrence	97	66	55	10.8	SSE
1.0% Occurrence	94	65	56	10.5	SSE
2.0% Occurrence	90	64	58	10.4	SE
Mean Daily Range	23	-	-	-	-
97.5% Occurrence	-5	-6	3	9.0	NW
99.0% Occurrence	-13	-13	2	7.7	NW
99.6% Occurrence	-19	-19	1	7.6	WNW
Median of Extreme Lows	-25	-25	1	7.4	SSE
	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	74	92	107	10.1	E
0.4% Occurrence	70	89	88	10.7	SSE
1.0% Occurrence	68	87	81	10.4	SE
2.0% Occurrence	66	85	74	10.5	SE
	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	114	81	0.69	10.8	ENE
0.4% Occurrence	96	77	0.58	10.0	SSE
1.0% Occurrence	89	76	0.54	10.4	SE
2.0% Occurrence	83	74	0.50	10.0	SSE
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		116	689	7	147

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	2.0	90	0.0 + 0.8
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 (#)
48.6	N/A	N/A	88

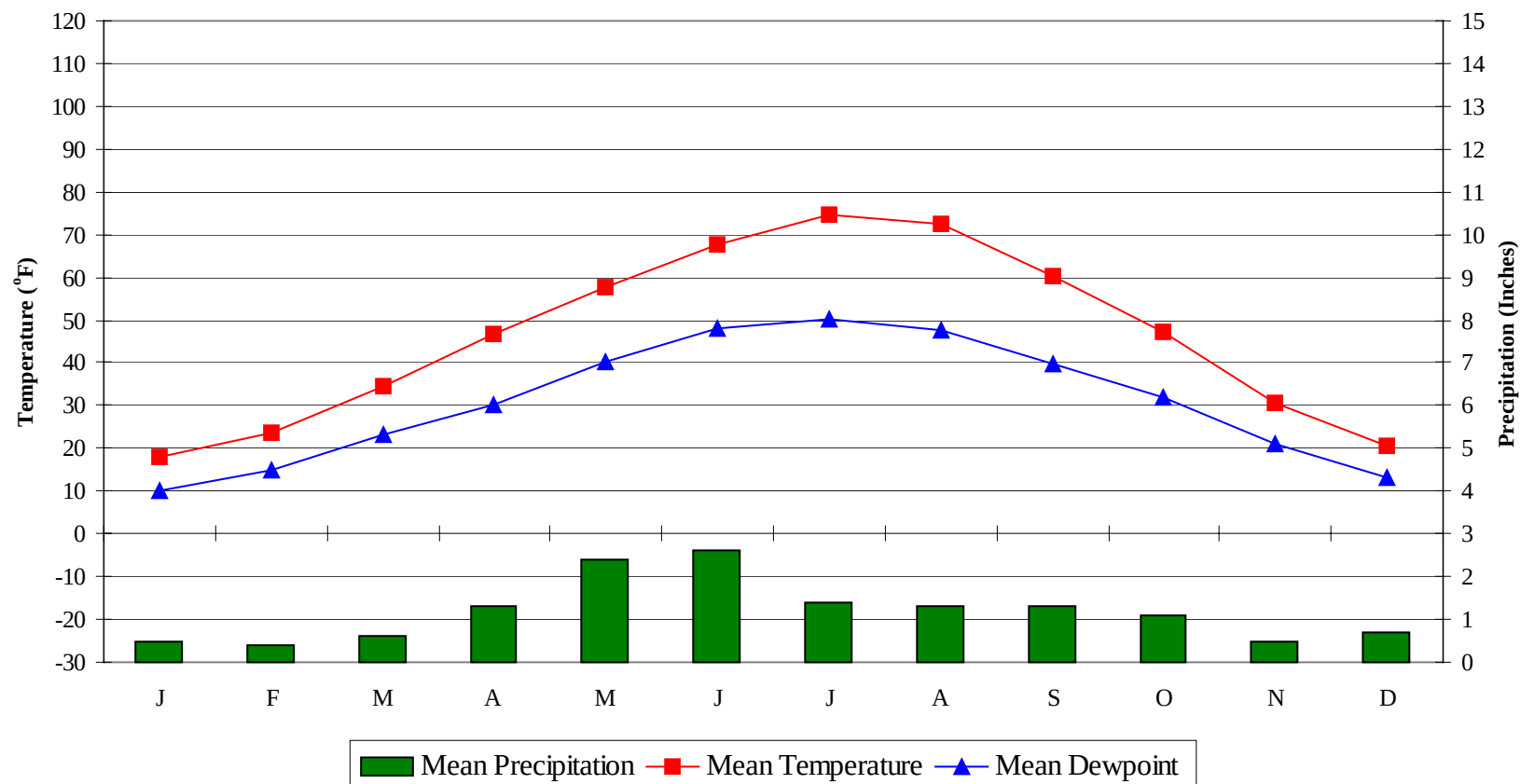
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.

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Average Annual Climate

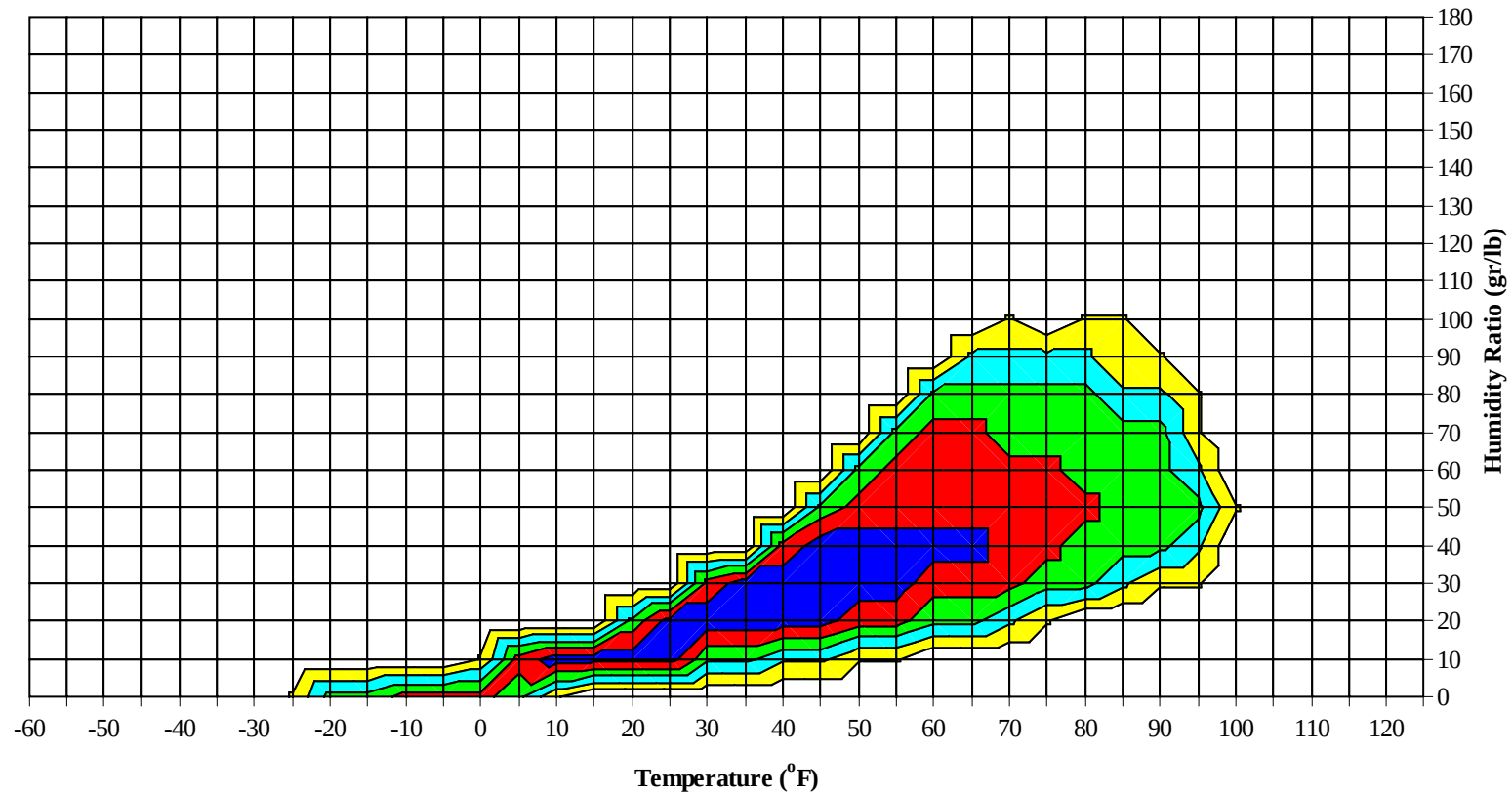


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Long Term Psychrometric Summary



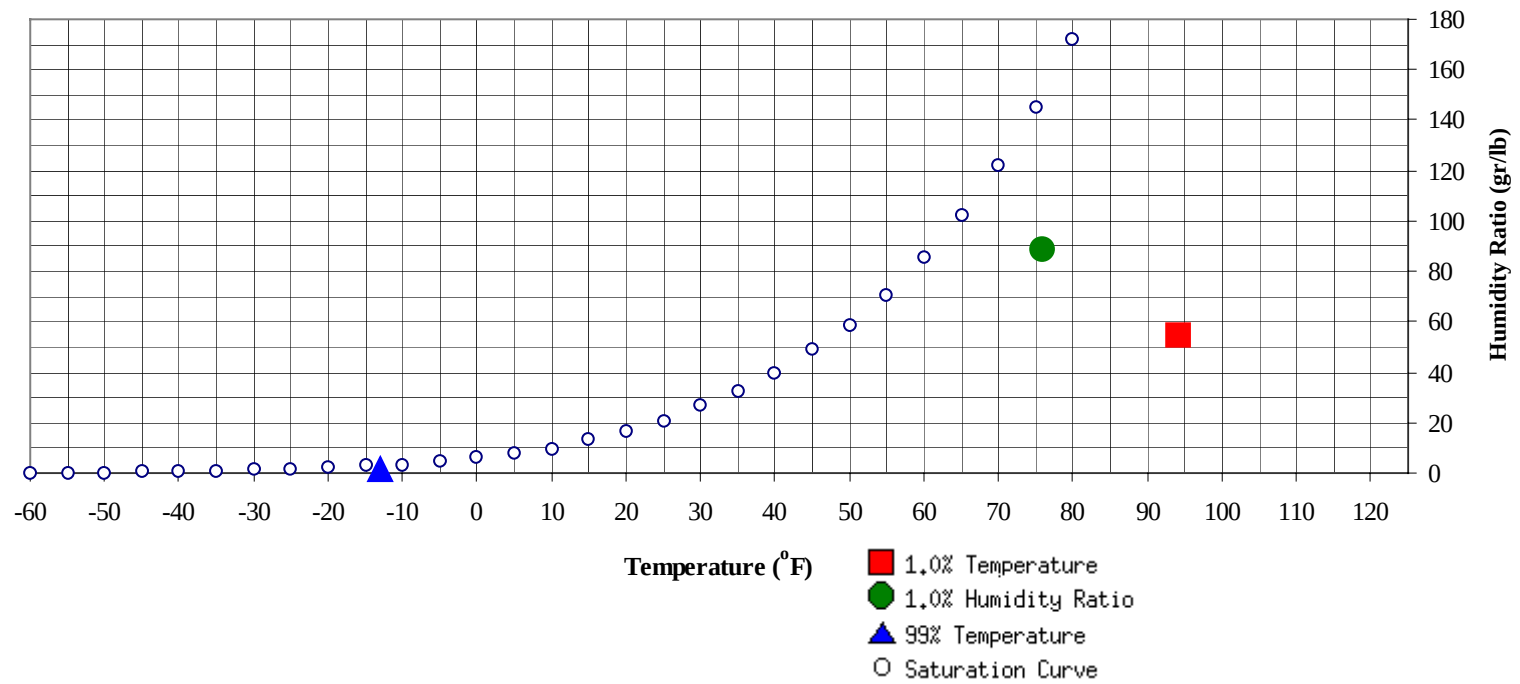
- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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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)
	-13	1.9	-2.8		88.9	75.8	65.7	61	32.1

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	94	55.1	65	31.2

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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		
105 / 109															
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84												0		0	54.0
75 / 79												1	0	1	53.7
70 / 74		0		0	47.0		0	0	0	48.6		1	0	1	51.6
65 / 69		0		0	44.5		1	0	1	47.9		5	1	6	48.9
60 / 64		0	0	0	42.5		2	0	2	45.2		10	4	14	46.9
55 / 59		1	0	1	42.0		6	1	7	43.2	0	17	9	26	44.2
50 / 54	0	4	0	4	40.7	0	12	4	16	41.2	1	29	17	47	41.6
45 / 49	1	9	3	13	38.7	1	20	10	31	38.6	6	32	26	64	38.9
40 / 44	5	19	12	36	35.8	7	26	21	54	35.9	17	38	38	93	36.3
35 / 39	14	29	26	69	32.8	19	30	34	83	32.9	38	38	46	122	33.2
30 / 34	26	32	34	92	29.2	37	24	36	97	29.3	67	29	39	135	29.7
25 / 29	33	27	34	93	25.0	37	18	23	78	25.1	48	18	28	94	25.1
20 / 24	34	25	26	84	20.5	25	18	19	62	20.4	28	11	14	53	20.6
15 / 19	24	18	19	61	15.8	20	16	16	52	15.5	13	7	9	29	15.7
10 / 14	20	19	16	55	10.9	18	16	16	50	10.7	10	5	6	21	10.6
5 / 9	16	17	19	52	6.0	17	13	11	41	5.9	7	3	4	14	6.2
0 / 4	18	17	16	51	1.0	12	8	11	31	1.1	4	3	3	10	1.1
-5 / -1	13	14	13	40	-3.3	7	6	7	20	-3.1	4	1	1	6	-3.1
-10 / -6	15	10	13	38	-7.5	8	4	7	19	-7.4	2	0	1	3	-7.2
-15 / -11	12	6	11	29	-12.2	6	2	3	11	-12.0	1	0	1	2	-12.1
-20 / -16	10	3	5	18	-16.8	4	1	2	7	-17.2	1	0	0	1	-16.7
-25 / -21	4	1	1	6	-21.6	2	1	1	4	-21.8	0			0	-21.5
-30 / -26	1	0	0	1	-26.4	1	0	1	2	-27.1	0			0	-28.0
-35 / -31	0	0		0		1	0	0	1	-31.3					
-40 / -36	0			0		0			0	-36.3					
-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		
105 / 109												0		0	67.9
100 / 104							0		0	62.0		2	1	3	66.7
95 / 99							1	0	1	62.7		5	2	7	66.6
90 / 94		0		0	55.8		2	0	2	63.4		15	7	22	65.4
85 / 89		1	0	1	58.9		9	3	12	60.6	0	23	12	35	64.2
80 / 84		4	2	6	57.0	0	15	7	22	59.6	1	32	20	54	62.3
75 / 79		9	4	13	54.3	1	24	13	38	57.6	6	43	31	81	60.1
70 / 74	0	15	7	22	52.3	1	32	19	52	55.3	14	41	36	92	58.1
65 / 69	0	21	12	33	50.2	8	39	30	77	53.3	37	37	39	113	56.1
60 / 64	3	26	19	48	47.7	18	39	38	95	51.2	55	23	38	116	54.4
55 / 59	7	32	25	64	45.2	40	35	43	119	49.1	58	13	31	102	51.8
50 / 54	19	37	35	91	42.7	58	25	41	124	46.5	44	4	17	65	48.5
45 / 49	35	30	37	102	40.1	54	17	32	102	43.2	19	2	4	25	44.5
40 / 44	48	27	37	112	37.2	38	6	15	59	39.1	5	0	1	6	40.8
35 / 39	52	19	31	102	33.8	21	3	6	30	35.1	0	0	0	0	38.1
30 / 34	43	12	19	74	29.9	6	1	1	8	30.8					
25 / 29	20	4	9	33	25.5	2	0	0	2	26.4					
20 / 24	9	2	2	13	21.0	0		0	0	23.0					
15 / 19	2	1	1	4	16.0										
10 / 14	1	0	0	1	11.3										
5 / 9	1			1	6.7										
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 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	69.4		0		0	66.2					
100 / 104		6	2	8	67.3		3	1	4	65.9		0	0	0	63.8
95 / 99		18	8	26	66.8		16	6	22	65.0		2	0	2	63.0
90 / 94		32	17	49	65.6	0	27	13	40	64.0		7	3	10	61.6
85 / 89	1	44	29	75	64.0	0	37	22	60	63.0		12	4	16	60.4
80 / 84	4	51	39	95	62.4	2	48	34	85	61.6	0	22	11	33	58.8
75 / 79	19	44	43	107	60.9	11	42	41	95	59.9	1	30	17	48	57.0
70 / 74	43	28	41	111	59.3	35	33	45	114	58.3	5	35	26	66	54.9
65 / 69	64	13	33	110	57.6	58	22	38	118	56.6	11	33	32	77	53.1
60 / 64	60	9	22	91	55.7	64	13	26	103	54.3	25	31	37	94	51.0
55 / 59	43	3	11	57	53.0	46	6	14	66	51.5	43	29	39	110	48.7
50 / 54	13	0	2	15	49.5	24	1	5	30	47.9	58	19	34	111	46.0
45 / 49	2		0	2	46.3	7	0	1	8	44.1	47	12	19	78	42.7
40 / 44						1		0	1	40.1	27	6	11	44	38.9
35 / 39						0			0	37.0	14	2	5	21	34.9
30 / 34											6	1	2	9	30.2
25 / 29											2	0	0	2	27.0
20 / 24											0			0	20.8
15 / 19											0			0	18.0
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		
105 / 109															
100 / 104															
95 / 99															
90 / 94		0		0	59.2										
85 / 89		2	0	2	57.1										
80 / 84		4	1	5	56.2										
75 / 79		8	2	10	54.9										
70 / 74		15	5	20	52.7		0		0	52.0					
65 / 69	0	24	10	34	50.7		4	0	4	50.2		0		0	46.7
60 / 64	2	29	17	48	48.5		6	1	7	47.3		1	0	1	46.6
55 / 59	7	33	31	71	46.0	1	11	4	16	44.9	0	2	1	3	43.0
50 / 54	21	39	40	100	43.8	2	18	9	29	41.8	0	4	1	5	40.6
45 / 49	45	38	46	130	41.1	8	30	19	57	39.0	2	10	4	16	38.3
40 / 44	60	24	40	124	37.9	15	30	30	75	36.0	3	21	9	33	35.2
35 / 39	48	14	28	90	33.9	31	38	40	109	32.9	15	33	27	75	32.5
30 / 34	34	10	17	61	30.1	49	34	42	125	29.4	25	38	37	99	29.0
25 / 29	22	4	8	34	25.8	42	22	30	94	25.1	38	34	41	113	24.8
20 / 24	5	1	2	8	21.2	29	16	21	66	20.5	40	26	33	99	20.5
15 / 19	2	1	1	4	15.6	22	11	17	50	16.0	36	20	25	81	15.8
10 / 14	1	1	1	3	10.6	16	7	10	33	11.1	26	17	19	61	11.0
5 / 9	0	0	1	1	6.0	9	6	6	21	6.1	20	12	15	47	6.2
0 / 4	0	0	0	0	1.1	5	4	5	14	1.3	11	9	10	30	1.2
-5 / -1	0	0	0	0	-2.6	3	2	3	8	-3.0	7	7	6	20	-3.2
-10 / -6	0			0	-6.8	3	2	3	8	-7.6	9	6	8	23	-7.5
-15 / -11						3	1	1	5	-11.9	6	4	4	14	-12.2
-20 / -16						2	0	0	2	-16.2	3	3	3	9	-16.8
-25 / -21						0		0	0	-21.7	3	2	3	8	-21.6
-30 / -26						0			0	-25.0	2	1	1	4	-26.6
-35 / -31											1	0	1	2	-31.9
-40 / -36											0	0	0	0	-36.4
-45 / -41											0			0	-40.0

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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		
105 / 109		1	0	1	68.4
100 / 104		11	4	15	66.8
95 / 99		41	17	58	65.9
90 / 94	0	81	39	120	64.7
85 / 89	1	127	71	199	63.1
80 / 84	7	176	113	296	61.3
75 / 79	37	200	149	386	59.3
70 / 74	97	202	177	476	57.2
65 / 69	175	199	195	569	54.9
60 / 64	224	188	202	614	52.3
55 / 59	243	187	207	637	48.9
50 / 54	240	192	205	637	45.0
45 / 49	226	200	201	626	41.0
40 / 44	226	196	214	635	37.1
35 / 39	255	206	247	708	33.3
30 / 34	296	181	229	706	29.5
25 / 29	246	127	174	546	25.1
20 / 24	171	98	117	386	20.5
15 / 19	121	74	89	285	15.8
10 / 14	93	64	69	226	10.9
5 / 9	72	50	56	178	6.1
0 / 4	51	41	46	137	1.1
-5 / -1	35	31	31	97	-3.2
-10 / -6	37	23	32	92	-7.5
-15 / -11	28	13	19	60	-12.1
-20 / -16	20	7	11	38	-16.8
-25 / -21	11	4	5	20	-21.6
-30 / -26	4	1	2	7	-26.7
-35 / -31	2	0	1	3	-31.8
-40 / -36	1	0	0	1	-36.4
-45 / -41	0			0	-40.0

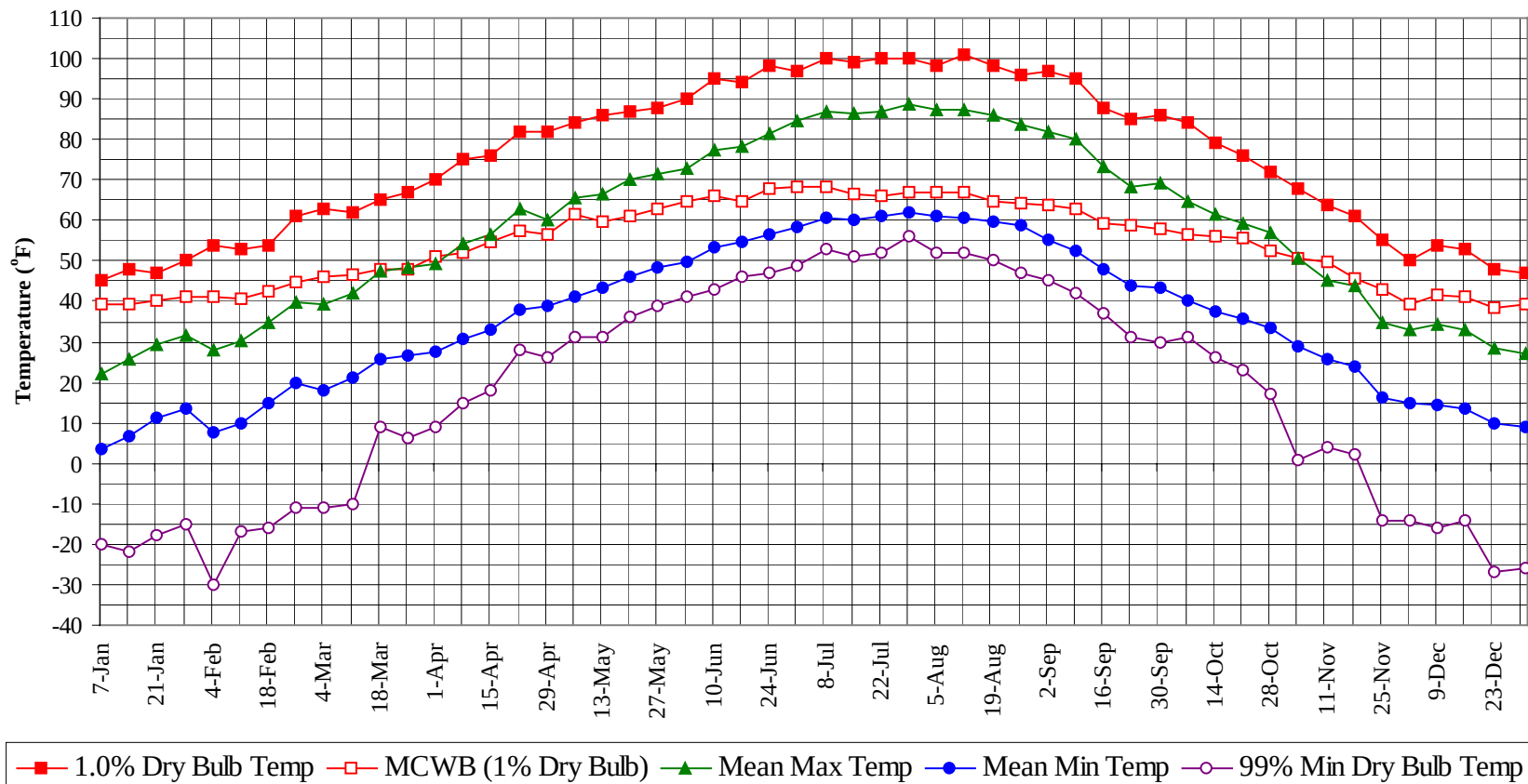
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Annual Summary of Temperatures

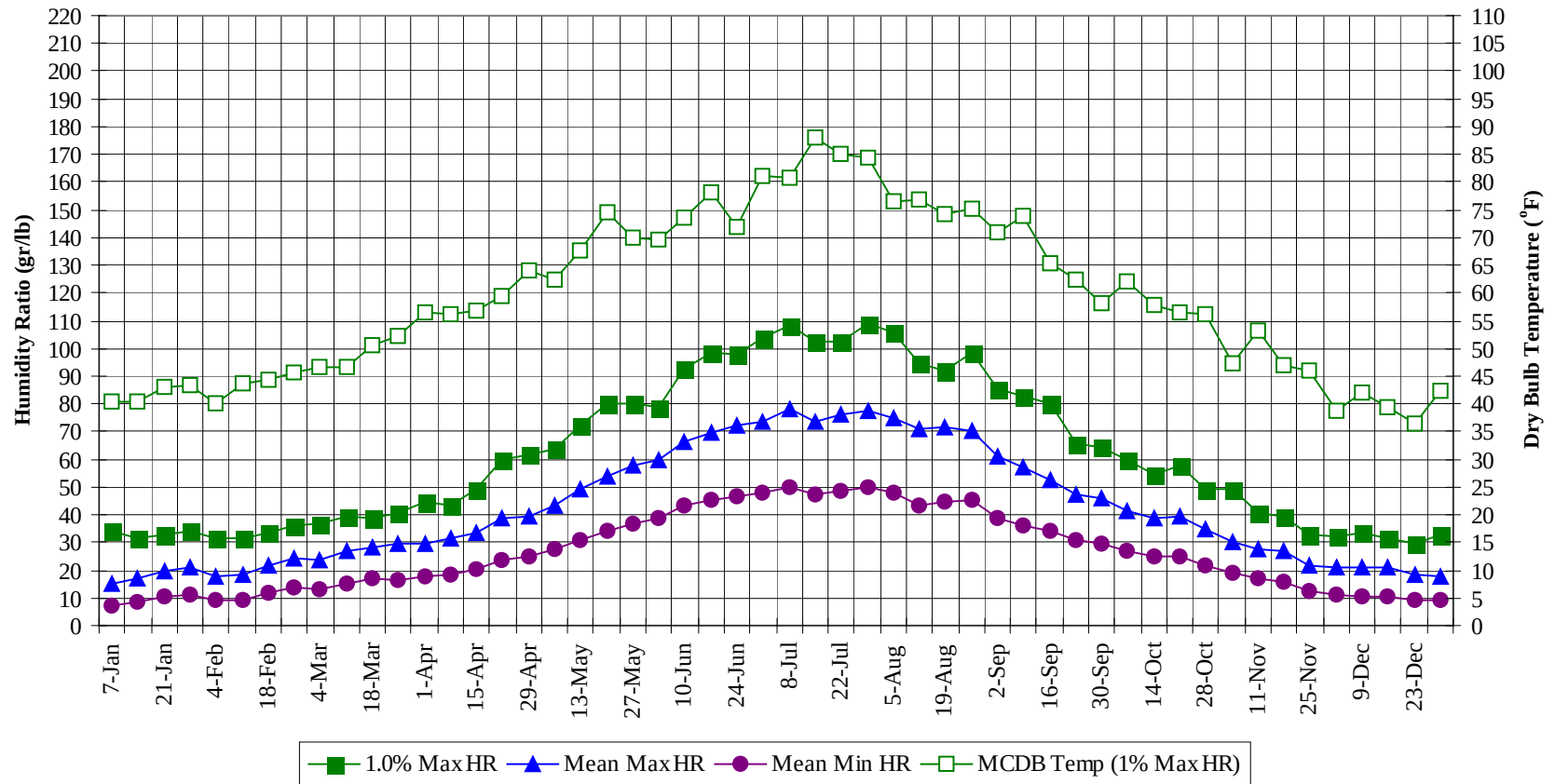


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Long Term Humidity and Dry Bulb Temperature Summary



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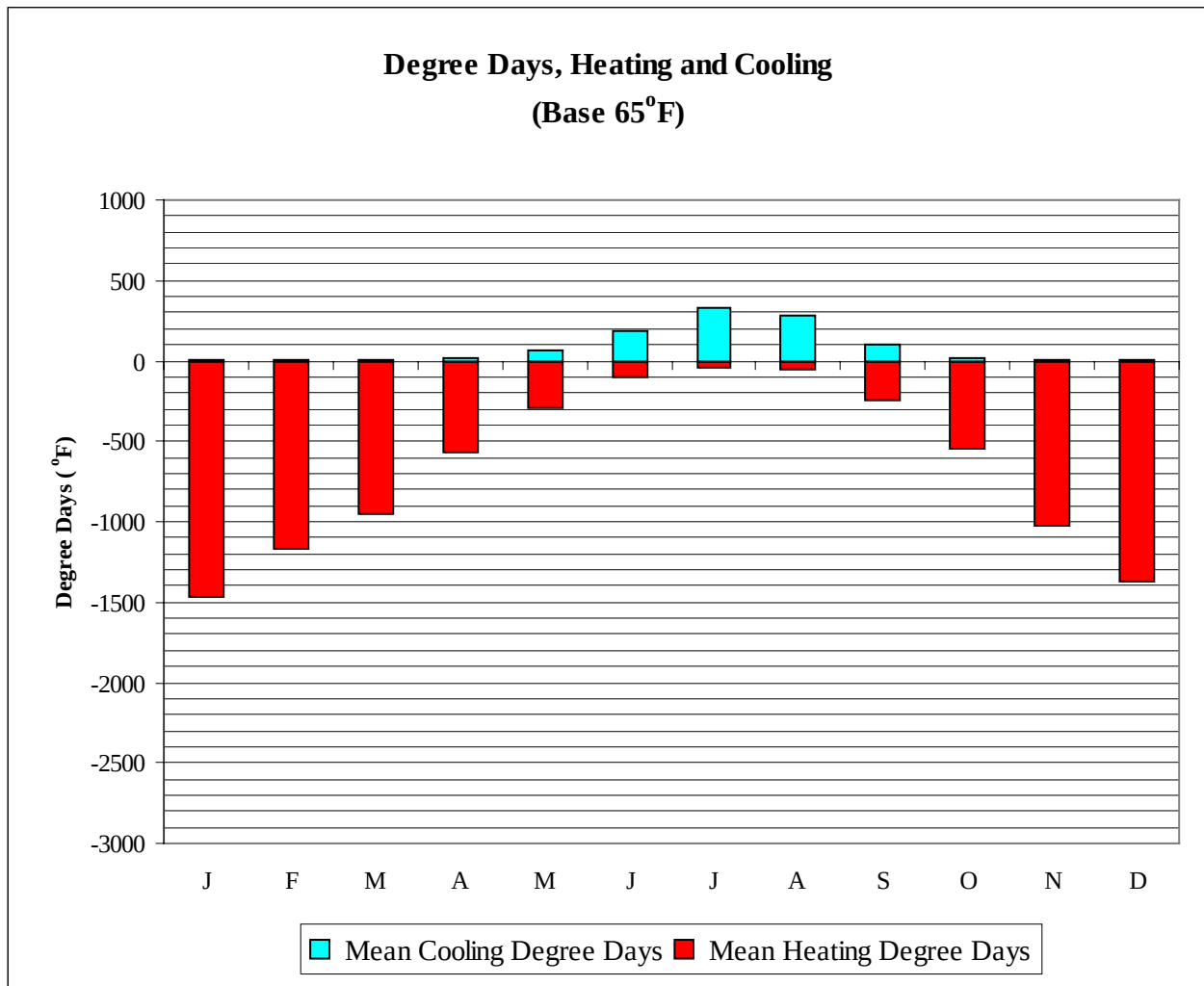
Long Term Dry Bulb Temperature and Humidity Summary

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	45.0	39.5	22.0	3.6	-20.0	34.3	40.3	15.4	7.4
14-Jan	48.0	39.5	25.7	6.9	-22.0	31.5	40.2	17.4	8.7
21-Jan	47.0	40.0	29.3	11.3	-18.0	32.9	43.0	19.5	10.2
28-Jan	50.0	41.0	31.8	13.5	-15.0	34.3	43.5	20.8	10.9
4-Feb	54.0	41.3	27.9	7.6	-30.0	31.5	40.0	17.9	9.2
11-Feb	53.0	40.5	30.4	9.7	-17.0	31.5	43.8	18.4	9.3
18-Feb	54.0	42.5	34.6	14.9	-16.0	33.6	44.5	21.6	12.0
25-Feb	61.0	44.6	39.9	19.8	-11.0	36.4	45.7	24.3	14.1
4-Mar	63.0	46.3	39.2	18.1	-11.0	37.1	46.5	23.5	13.3
11-Mar	62.0	46.5	42.2	21.1	-10.0	39.2	46.7	26.7	15.0
18-Mar	65.0	47.7	47.4	25.9	9.0	38.5	50.4	28.0	17.0
25-Mar	67.0	47.9	48.2	26.6	6.0	40.6	52.2	29.3	16.6
1-Apr	70.0	51.2	49.4	27.5	9.0	44.8	56.4	29.8	17.7
8-Apr	75.0	52.0	54.3	30.9	15.0	43.4	56.1	31.3	18.5
15-Apr	76.0	54.7	56.6	33.1	18.0	49.0	56.8	33.8	20.1
22-Apr	82.0	57.3	62.7	38.0	28.0	59.5	59.5	38.5	23.6
29-Apr	82.0	56.6	60.3	38.8	26.0	61.6	64.1	39.6	25.2
6-May	84.0	61.3	65.5	41.1	31.0	63.7	62.2	43.6	27.4
13-May	86.0	59.6	66.6	43.3	31.0	72.1	67.5	49.3	30.6
20-May	87.0	61.3	70.3	46.2	36.0	79.8	74.5	54.0	34.2
27-May	88.0	62.8	71.5	48.6	39.0	79.8	69.9	57.6	36.6
3-Jun	90.0	64.8	72.7	49.9	41.0	79.1	69.6	59.5	39.0
10-Jun	95.0	66.0	77.5	53.5	43.0	92.4	73.4	66.4	43.2
17-Jun	94.0	64.8	78.3	54.7	46.0	98.7	78.0	69.8	45.3
24-Jun	98.0	67.9	81.7	56.3	47.0	98.0	71.9	72.5	46.8
1-Jul	97.0	68.2	84.5	58.2	49.0	103.6	81.0	73.9	47.6
8-Jul	100.0	68.5	87.0	60.6	53.0	108.5	80.8	78.5	50.1
15-Jul	99.0	66.3	86.6	60.1	51.0	102.2	87.9	73.6	47.0
22-Jul	100.0	66.1	87.0	61.1	52.0	102.2	85.2	76.1	48.3
29-Jul	100.0	66.9	88.8	62.1	56.0	109.2	84.3	77.3	49.6
5-Aug	98.0	66.8	87.2	61.1	52.0	105.7	76.5	74.6	47.8
12-Aug	101.0	67.0	87.5	60.6	52.0	94.5	77.0	70.9	43.7
19-Aug	98.0	64.8	86.0	59.6	50.0	91.7	74.4	71.9	44.8
26-Aug	96.0	64.3	83.9	58.7	47.0	98.7	75.1	70.2	45.4
2-Sep	97.0	63.9	81.9	55.3	45.0	85.4	71.1	61.1	38.6
9-Sep	95.0	62.8	80.1	52.7	42.0	82.6	73.8	57.2	35.9
16-Sep	88.0	59.1	73.2	48.0	37.0	79.8	65.2	52.8	34.2
23-Sep	85.0	58.8	68.5	43.7	31.0	65.8	62.5	47.1	30.7
30-Sep	86.0	57.9	69.2	43.3	30.0	64.4	58.1	45.8	29.2
7-Oct	84.0	56.6	64.7	40.2	31.0	59.5	61.9	41.4	26.7
14-Oct	79.0	55.9	61.7	37.6	26.0	54.6	57.9	38.6	25.1
21-Oct	76.0	55.4	59.0	35.6	23.0	58.1	56.6	39.4	25.2
28-Oct	72.0	52.4	57.1	33.3	17.0	49.0	56.3	34.6	21.9
4-Nov	68.0	50.8	50.8	29.1	1.0	49.0	47.4	30.3	18.9
11-Nov	64.0	49.6	45.0	25.6	4.0	40.6	53.1	27.8	16.8
18-Nov	61.0	45.6	43.9	23.8	2.0	39.2	47.1	27.2	15.7
25-Nov	55.0	42.8	34.6	16.4	-14.0	32.9	46.0	21.4	12.4
2-Dec	50.0	39.4	33.1	14.7	-14.0	32.2	38.6	21.0	11.0
9-Dec	54.0	41.6	34.5	14.5	-16.0	33.6	42.2	21.3	10.8
16-Dec	53.0	41.3	32.8	13.6	-14.0	31.5	39.4	20.7	10.5
23-Dec	48.0	38.2	28.3	10.0	-27.0	29.4	36.5	18.6	9.3
31-Dec	47.0	39.4	26.9	8.7	-26.0	32.9	42.2	17.9	9.1

MILES CITY

MT

WMO No. 742300



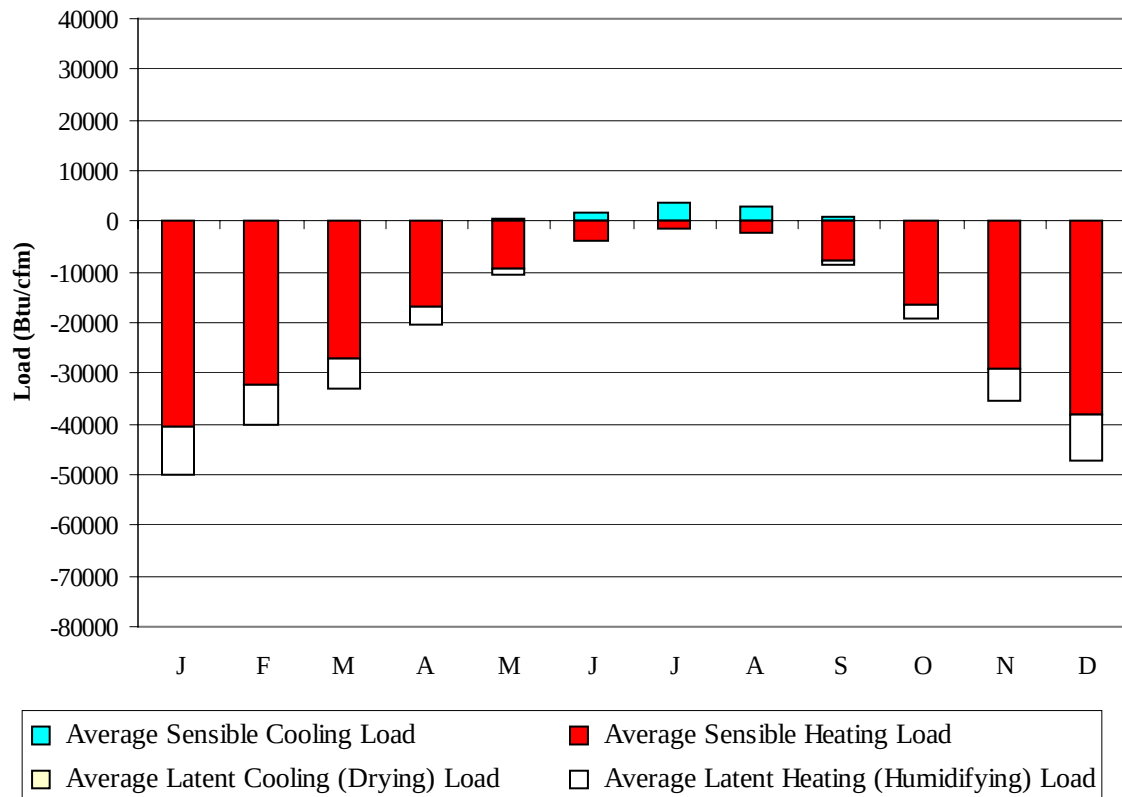
	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1463
FEB	0	1165
MAR	2	948
APR	20	568
MAY	66	294
JUN	181	103
JUL	330	36
AUG	282	54
SEP	99	243
OCT	16	548
NOV	0	1025
DEC	0	1372
ANN	997	7819

MILES CITY

MT

WMO No. 742300

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	-40333	0	-9791
FEB	0	-32381	0	-7927
MAR	3	-26971	0	-6211
APR	79	-16863	0	-3492
MAY	420	-9447	7	-896
JUN	1592	-3826	126	-105
JUL	3538	-1566	339	-50
AUG	2841	-2203	108	-115
SEP	755	-7923	4	-816
OCT	70	-16362	0	-2676
NOV	0	-28899	0	-6618
DEC	0	-37980	0	-9240
ANN	9298	-224754	584	-47937

Average Annual Solar Radiation – Nearest Available Site

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

City: MILES CITY
 State: MT
 WBAN No: 24037
 Lat(N): 46.43
 Long(W): 105.87
 Elev(ft): 2635

Stn Type: Secondary
 SHADING GEOMETRY IN DIMENSIONLESS UNITS
 Window: 1
 Overhang: 0.72
 Vert Gap: 0.329

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	520	810	1190	1560	1860	2150	2210	1920	1400	940	560	430	1300
	Std Dev	36	50	80	138	145	149	91	101	121	55	33	28	32
	Minimum	440	730	1040	1310	1560	1730	1970	1740	1120	810	470	380	1210
	Maximum	610	890	1320	1820	2130	2420	2390	2100	1590	1030	620	480	1380
	Diffuse	280	400	550	660	740	720	620	540	460	350	270	230	490
Clear Day	Global	670	1040	1580	2150	2560	2720	2620	2260	1740	1160	730	570	1650
NORTH	Global	170	240	340	440	560	650	620	470	340	250	170	140	370
	Diffuse	170	240	340	420	490	520	490	430	340	250	170	140	330
Clear Day	Global	140	200	290	400	590	730	660	460	310	220	150	120	360
EAST	Global	390	560	790	1010	1140	1290	1340	1200	940	670	420	330	840
	Diffuse	220	310	430	520	590	620	590	530	420	310	220	180	410
Clear Day	Global	600	840	1160	1440	1590	1650	1600	1470	1220	910	630	530	1140
SOUTH	Global	1040	1210	1270	1140	1000	980	1070	1230	1320	1310	1040	950	1130
	Diffuse	360	450	520	550	580	580	550	530	480	410	340	310	470
Clear Day	Global	1880	2050	2000	1650	1310	1150	1210	1470	1810	1970	1870	1770	1680
WEST	Global	390	570	790	970	1090	1230	1290	1180	930	660	410	330	820
	Diffuse	220	320	430	530	600	630	600	530	430	320	220	180	420
Clear Day	Global	600	840	1160	1440	1590	1650	1600	1470	1220	910	630	530	1140

Average Annual Solar Heat and Illumination – Nearest Available Site

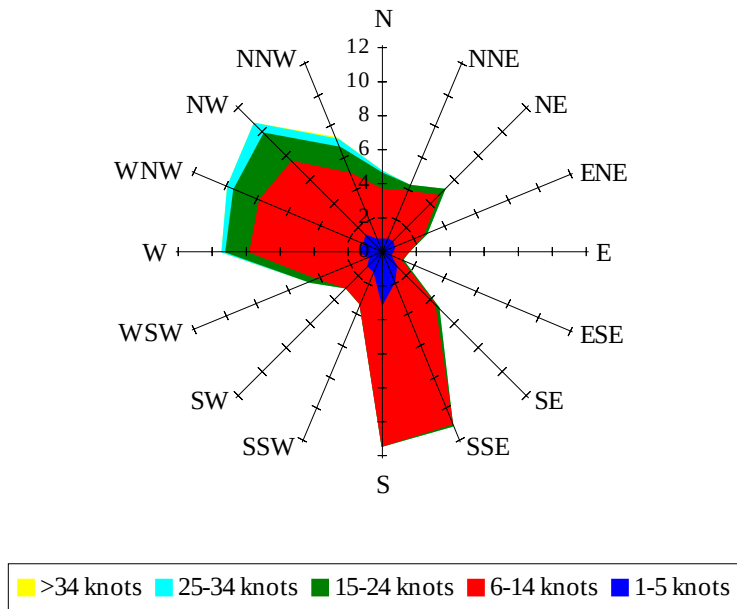
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

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	320	530	830	1110	1340	1560	1610	1380	990	630	350	250	910
NORTH	Unshaded	120	170	230	300	370	420	400	310	230	170	120	98	240
	Shaded	96	140	200	250	310	360	350	270	200	150	100	81	210
EAST	Unshaded	260	390	560	720	820	930	960	860	670	470	290	220	600
	Shaded	230	330	460	580	650	730	760	690	550	400	250	190	490
SOUTH	Unshaded	790	900	900	770	640	610	660	800	910	960	790	720	790
	Shaded	760	810	670	430	340	340	330	370	590	820	750	700	570
WEST	Unshaded	270	400	560	690	780	880	930	850	660	460	280	230	580
	Shaded	230	330	460	560	620	690	730	680	540	390	240	200	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	34	64	71	56	24	50	82	97	92	68
	M.Cloudy	24	46	53	42	17	34	61	73	69	52
NORTH	M.Clear	9	13	14	12	7	13	15	16	15	13
	M.Cloudy	9	15	16	14	7	12	17	18	17	15
EAST	M.Clear	73	55	14	12	7	84	72	30	15	13
	M.Cloudy	33	34	16	14	7	45	50	27	17	15
SOUTH	M.Clear	42	79	89	71	29	11	40	57	51	27
	M.Cloudy	21	46	54	42	15	11	32	45	41	23
WEST	M.Clear	9	13	21	64	65	11	15	16	50	80
	M.Cloudy	9	15	20	39	28	11	17	18	40	55
M.Clear	(% hrs)	27	27	25	25	28	48	45	42	35	32
		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	27	61	77	72	45	7	29	35	19	0
	M.Cloudy	16	41	55	49	30	6	21	25	14	0
NORTH	M.Clear	8	12	14	13	10	3	8	9	6	0
	M.Cloudy	7	13	16	15	11	3	8	9	6	0
EAST	M.Clear	70	69	27	13	10	29	35	9	6	0
	M.Cloudy	26	39	22	15	11	10	18	9	6	0
SOUTH	M.Clear	24	63	82	75	43	27	76	85	56	0
	M.Cloudy	12	37	52	46	26	9	33	40	23	0
WEST	M.Clear	8	12	14	52	77	3	8	19	41	0
	M.Cloudy	7	13	16	34	41	3	8	13	18	0
M.Clear	(% hrs)	49	47	45	43	43	27	28	26	26	29

Wind Summary - December, January, and February

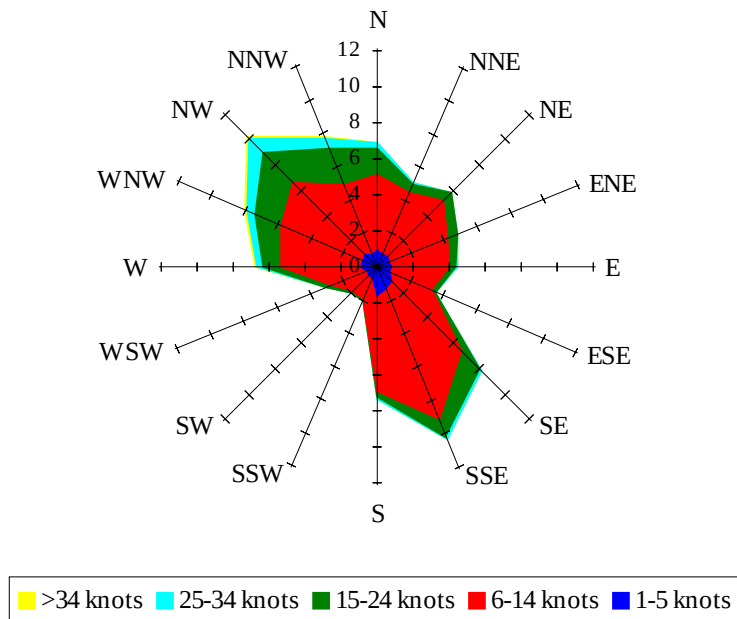
Labels of Percent Frequency on North Axis



Percent Calm = 5.73

Wind Summary - March, April, and May

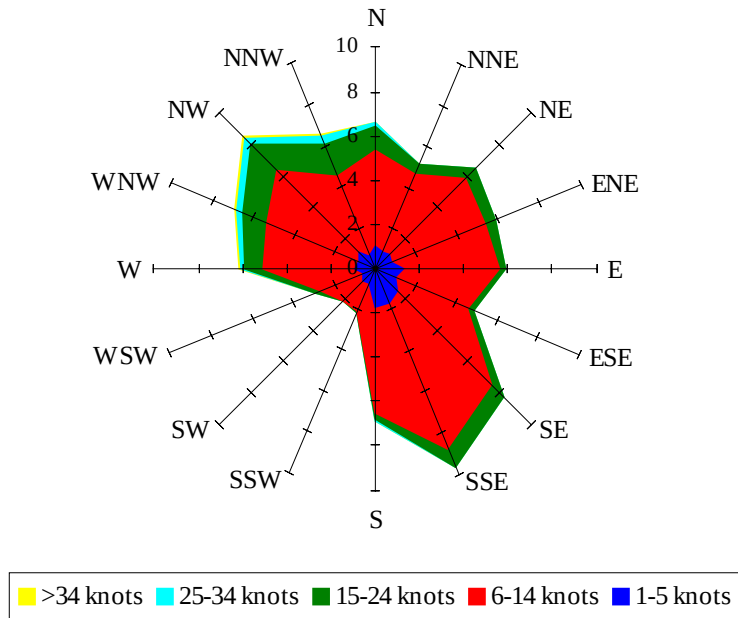
Labels of Percent Frequency on North Axis



Percent Calm = 4.53

Wind Summary - June, July, and August

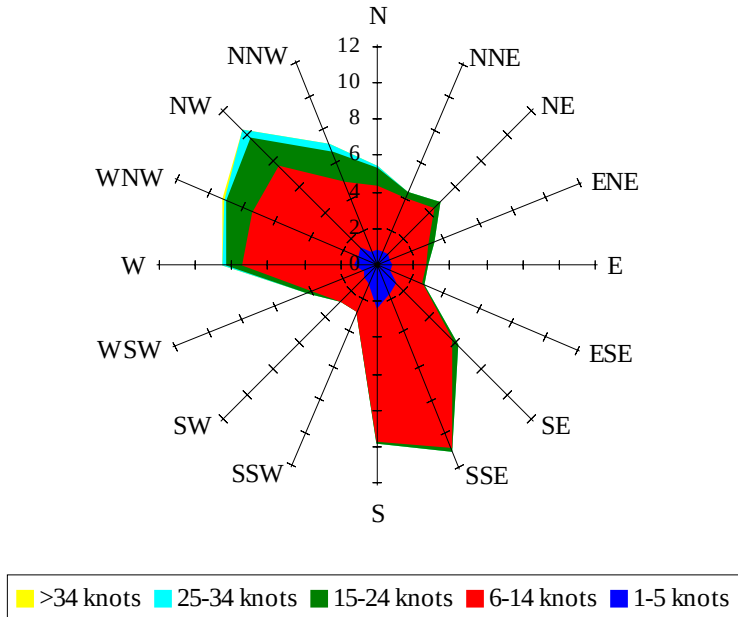
Labels of Percent Frequency on North Axis



Percent Calm = 5.64

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 5.52