

FARGO/HECTOR ND

Latitude = 46.90 N

WMO No. 727530

Longitude = 96.80 W

Elevation = 899 feet

Period of Record = 1973 to 1996

Average Pressure = 28.99 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	72	81	18.3	S
0.4% Occurrence	91	71	87	14.8	S
1.0% Occurrence	88	70	85	14.2	S
2.0% Occurrence	85	68	82	13.4	S
Mean Daily Range	19	-	-	-	-
97.5% Occurrence	-11	-11	2	9.6	NNW
99.0% Occurrence	-17	-17	1	9.4	NNW
99.6% Occurrence	-22	-22	1	8.0	S
Median of Extreme Lows	-26	-26	1	8.0	WNW
	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	78	88	131	13.5	SSE
0.4% Occurrence	75	86	117	13.1	SSE
1.0% Occurrence	73	84	108	13.1	S
2.0% Occurrence	71	81	100	12.6	SSE
	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	137	84	0.88	11.5	SSE
0.4% Occurrence	123	80	0.79	11.5	SSE
1.0% Occurrence	111	80	0.72	11.8	SSE
2.0% Occurrence	103	76	0.67	11.5	SSE
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		25	443	108	540

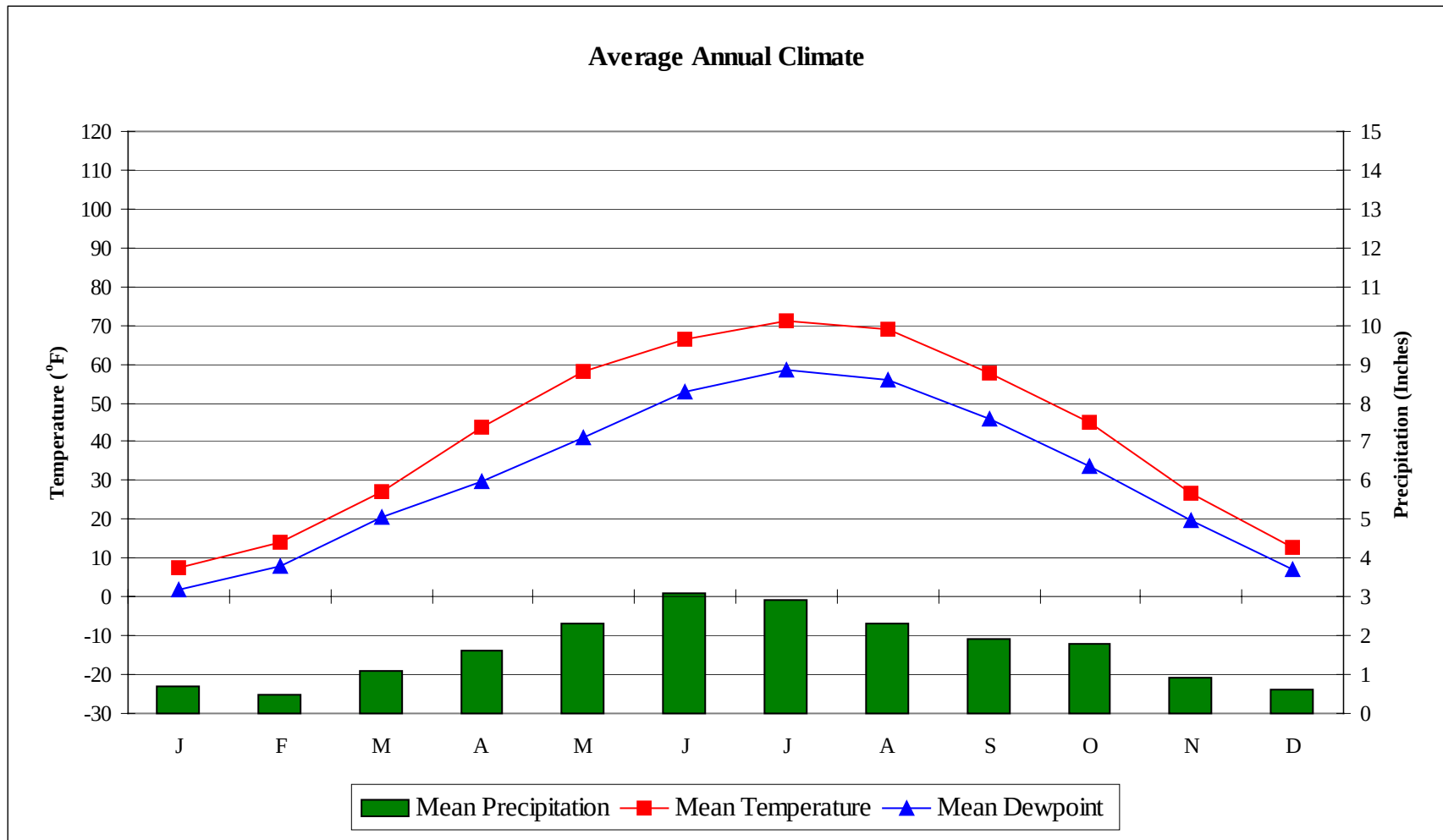
Other Site Data

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
4	3.3	90	0.6 + 0.4
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 (#)
44.2	153	41	62

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

FARGO/HECTOR ND

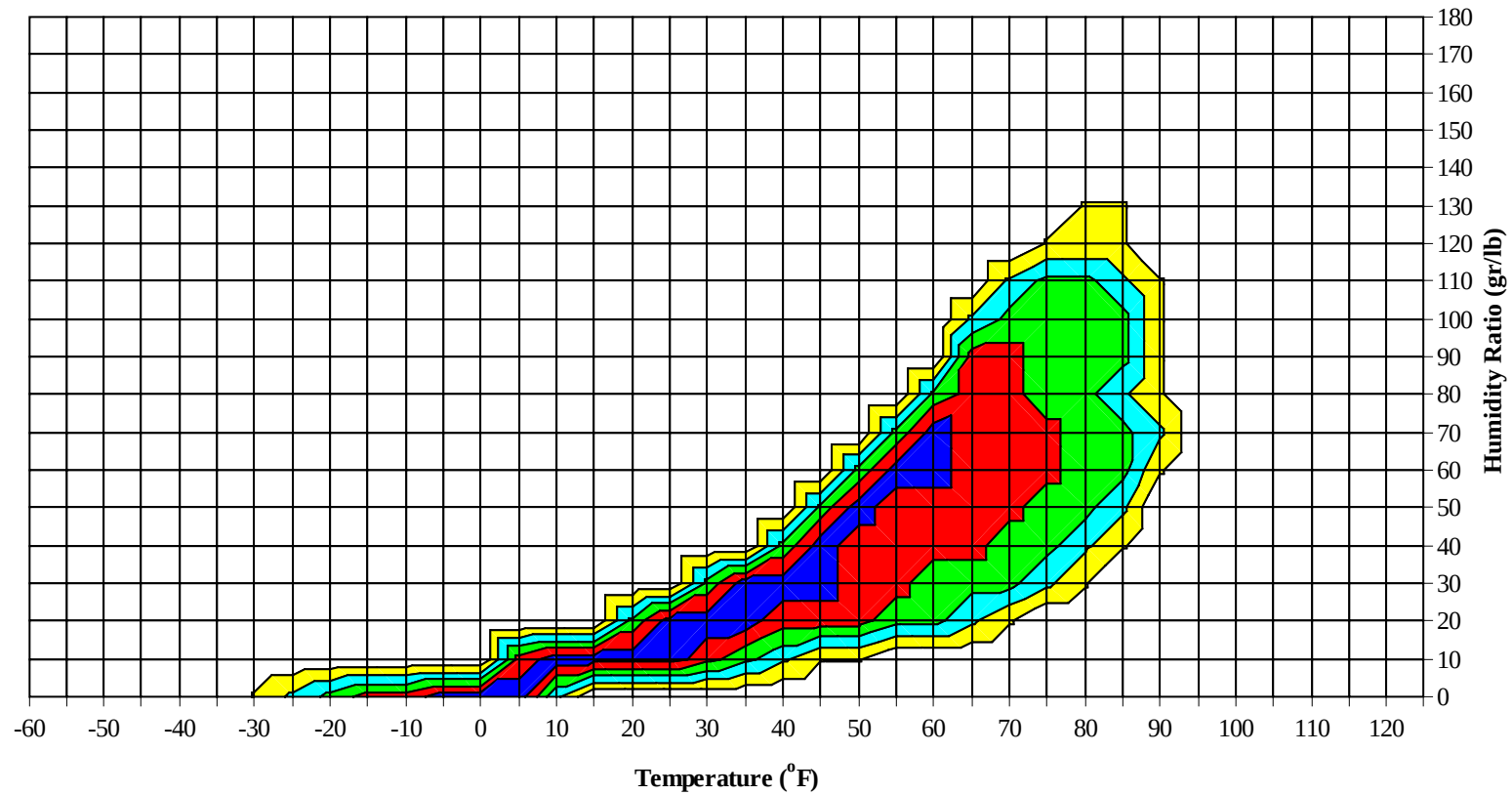
WMO No. 727530



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WMO No. 727530

Long Term Psychrometric Summary

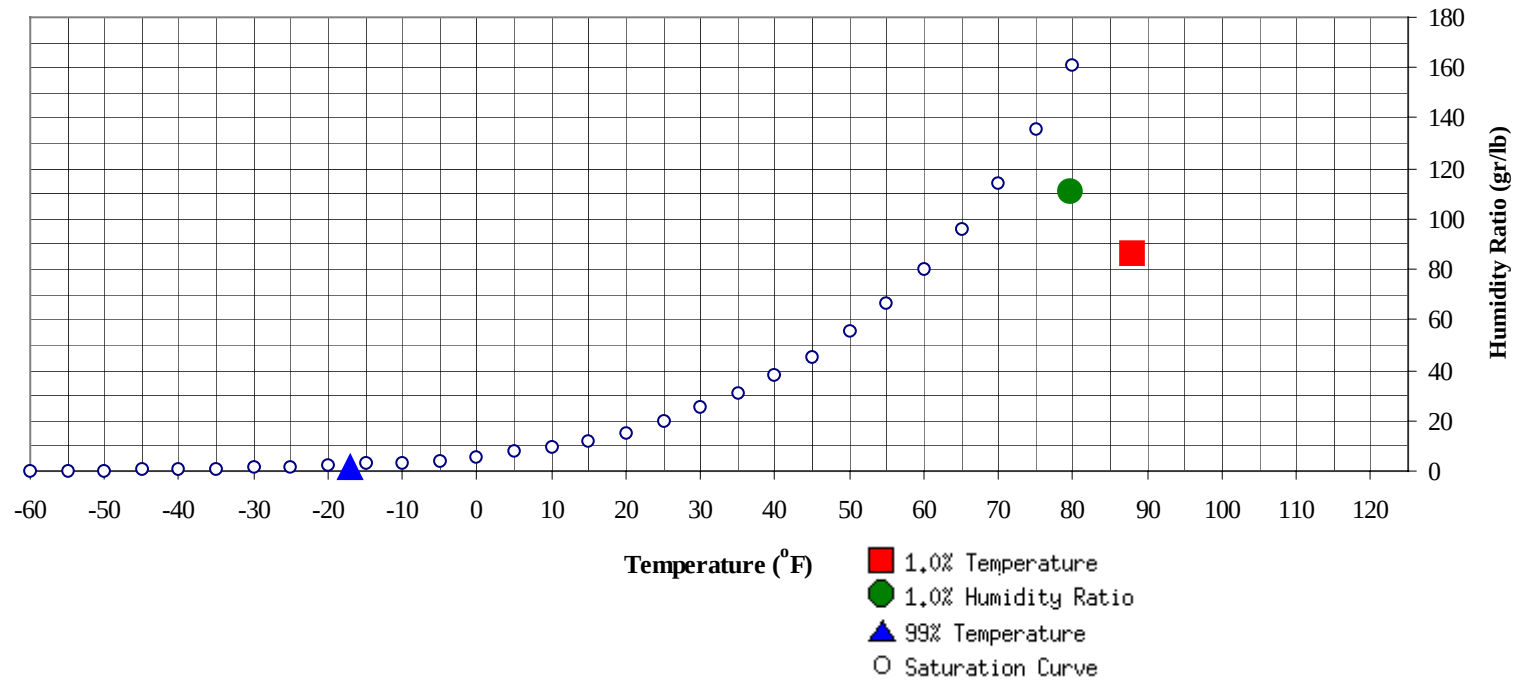


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

FARGO/HECTOR ND

WMO No. 727530

Psychrometric Summary of Peak Design Values



	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)	1.0% Humidity Ratio	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
99% Dry Bulb	-17	1.4	-3.9		111.3	79.7	72.2	69.1	36.6

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	88	86.8	70.3	34.8

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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	09	17			01	09	17			01	09	17		
	To 08	To 16	To 00			To 08	To 16	To 00			To 08	To 16	To 00		
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79											0 0 57.0				
70 / 74											0 0 55.0				
65 / 69											0 0 51.2				
60 / 64											1 1 2 49.9				
55 / 59											5 1 6 47.4				
50 / 54	0 0 45.0					1 0 1 43.8					0 7 5 12 44.7				
45 / 49	1 0 1 40.5					3 1 4 40.4					2 13 11 26 41.3				
40 / 44	1 1 2 36.7					0 7 4 11 37.4					9 28 23 60 38.2				
35 / 39	2 8 5 15 33.6					5 15 13 33 33.9					30 47 44 121 34.2				
30 / 34	10 15 15 40 30.2					20 25 29 74 30.3					57 47 55 159 30.2				
25 / 29	17 22 22 61 25.5					26 27 29 82 25.5					41 28 31 100 25.2				
20 / 24	24 27 28 79 21.0					27 25 25 77 20.8					28 23 23 74 20.4				
15 / 19	23 26 22 71 16.1					23 22 19 64 15.9					21 17 17 55 15.7				
10 / 14	30 26 26 82 11.1					18 21 20 59 10.8					17 12 13 42 10.9				
5 / 9	26 27 25 78 6.0					23 26 26 75 5.9					17 11 11 39 5.9				
0 / 4	26 24 28 78 1.2					21 21 19 61 1.1					9 5 7 21 1.1				
-5 / -1	16 15 16 47 -3.2					14 10 13 37 -3.3					5 2 3 10 -3.4				
-10 / -6	18 21 20 59 -7.8					19 10 13 42 -7.6					7 1 3 11 -7.6				
-15 / -11	20 16 19 55 -12.3					13 7 6 26 -12.2					4 1 0 5 -11.6				
-20 / -16	16 11 12 39 -16.9					8 3 4 15 -16.9					0 0 0 0 -16.3				
-25 / -21	13 5 7 25 -21.5					3 1 2 6 -21.4					0 0 -21.5				
-30 / -26	5 1 2 8 -26.2					2 1 1 4 -26.7									
-35 / -31	1 0 0 1 -31.0					1 0 0 1 -30.8									
-40 / -36						0 0 0									

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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WMO No. 727530

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												0		0	73.0
95 / 99		0	0	0	62.3							1	0	1	69.7
90 / 94		0	0	0	62.2		2	1	3	65.9		6	4	10	71.2
85 / 89		1	1	2	63.2		8	4	12	65.4		15	8	23	69.5
80 / 84		3	1	4	59.4		14	8	22	62.7	1	30	20	51	66.7
75 / 79	0	5	3	8	56.9	0	27	17	44	60.1	5	43	30	78	64.1
70 / 74	0	7	5	12	54.8	5	35	24	64	57.7	17	49	44	110	61.6
65 / 69	1	12	8	21	51.8	13	38	34	85	55.2	39	44	45	128	59.5
60 / 64	3	21	15	39	49.3	29	40	41	110	52.8	56	31	42	129	56.6
55 / 59	7	27	21	55	46.6	38	31	37	106	49.7	53	14	29	96	53.2
50 / 54	14	36	31	81	43.7	48	25	35	108	46.4	40	5	14	59	49.1
45 / 49	24	35	35	94	40.9	41	16	23	80	42.6	20	1	4	25	44.9
40 / 44	37	34	40	111	37.6	34	8	15	57	38.4	8	0	1	9	40.5
35 / 39	47	28	35	110	33.6	23	3	7	33	33.8	1		0	1	35.7
30 / 34	59	17	28	104	29.8	12	1	2	15	29.9	0			0	31.0
25 / 29	29	6	11	46	25.1	4		0	4	25.1					
20 / 24	11	3	3	17	20.3	1			1	19.9					
15 / 19	4	1	1	6	15.9										
10 / 14	2	1	1	4	10.8										
5 / 9	1	0	1	2	5.7										
0 / 4	1	0	0	1	1.5										
-5 / -1	0			0	-3.0										
-10 / -6	0			0	-6.0										
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															

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FARGO/HECTOR ND

WMO No. 727530

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		1	1	2	73.8		1	0	1	71.9					
95 / 99		3	1	4	73.4		3	1	4	72.5		1	0	1	69.7
90 / 94		10	5	15	72.5		9	4	13	71.4		2	1	3	69.4
85 / 89	0	29	18	47	70.6	0	24	12	36	69.7		7	3	10	67.3
80 / 84	2	52	35	89	68.2	1	40	26	67	67.7	0	11	6	17	65.1
75 / 79	12	61	46	119	66.2	7	52	38	97	65.4	1	21	12	34	63.0
70 / 74	34	51	51	137	64.2	24	54	51	129	63.6	6	30	19	55	60.6
65 / 69	61	29	46	137	61.8	56	36	47	139	61.1	11	37	30	78	57.8
60 / 64	70	9	31	110	58.5	62	21	37	120	57.6	24	41	39	104	55.1
55 / 59	46	2	11	59	54.8	51	7	22	80	53.7	40	42	44	126	51.7
50 / 54	18		2	20	50.6	32	1	8	41	49.5	48	28	41	117	48.0
45 / 49	4		0	4	46.6	12		1	13	45.3	47	14	26	87	43.8
40 / 44	0			0	42.8	3		0	3	41.4	33	5	13	51	39.5
35 / 39						0			0	37.0	19	1	5	25	35.1
30 / 34						0			0	32.0	8	0	1	9	30.3
25 / 29											3	0	0	3	26.2
20 / 24											0			0	23.0
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															
-40 / -36															

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FARGO/HECTOR ND

WMO No. 727530

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		0		0	64.0										
85 / 89		1		1	61.1										
80 / 84		1	0	1	60.2										
75 / 79		4	1	5	58.5										
70 / 74		8	3	11	56.3		0		0	55.0					
65 / 69	1	15	8	24	54.5		1	0	1	52.1					
60 / 64	4	23	13	40	52.1		2	0	2	50.0					
55 / 59	10	33	28	71	48.9	1	5	2	8	48.4		0		0	43.0
50 / 54	21	42	38	101	45.3	3	9	6	18	45.3	0	1		1	46.1
45 / 49	33	45	43	121	42.1	4	15	10	29	40.9	0	1	0	1	41.3
40 / 44	52	36	45	133	38.2	12	19	16	47	37.3	0	3	1	4	36.9
35 / 39	50	24	33	107	33.9	17	30	25	72	33.4	2	10	6	18	33.3
30 / 34	41	11	23	75	29.8	44	44	47	135	29.8	17	25	22	64	30.3
25 / 29	21	4	10	35	25.2	43	39	41	123	25.3	26	30	35	91	25.4
20 / 24	11	1	3	15	20.7	37	28	33	98	20.7	36	34	32	102	20.9
15 / 19	3	0	1	4	15.9	29	19	24	72	15.9	35	31	31	97	16.0
10 / 14	2	0	0	2	11.7	19	12	15	46	11.1	26	25	28	79	11.1
5 / 9	0			0	7.5	13	8	8	29	6.3	26	25	22	73	6.0
0 / 4						8	5	6	19	1.4	21	20	21	62	1.1
-5 / -1						4	2	3	9	-3.1	15	14	15	44	-3.4
-10 / -6						3	2	2	7	-7.4	18	14	16	48	-7.7
-15 / -11						2	1	1	4	-12.3	13	8	12	33	-12.2
-20 / -16						1	0	1	2	-16.4	8	5	6	19	-16.7
-25 / -21						0		0	0	-21.9	4	2	2	8	-21.6
-30 / -26											1	0	0	1	-25.9
-35 / -31											0			0	-30.0
-40 / -36															

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FARGO/HECTOR ND

WMO No. 727530

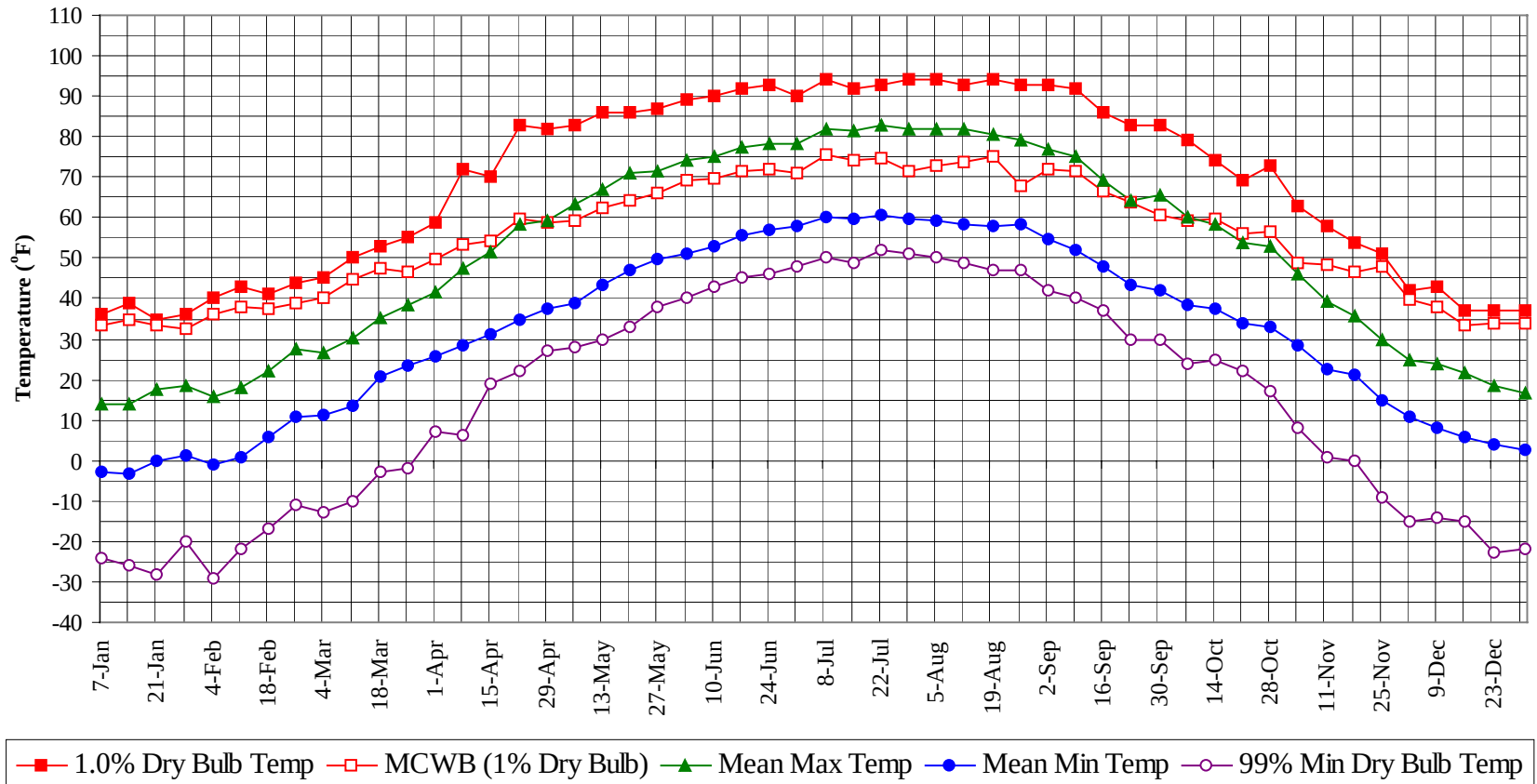
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

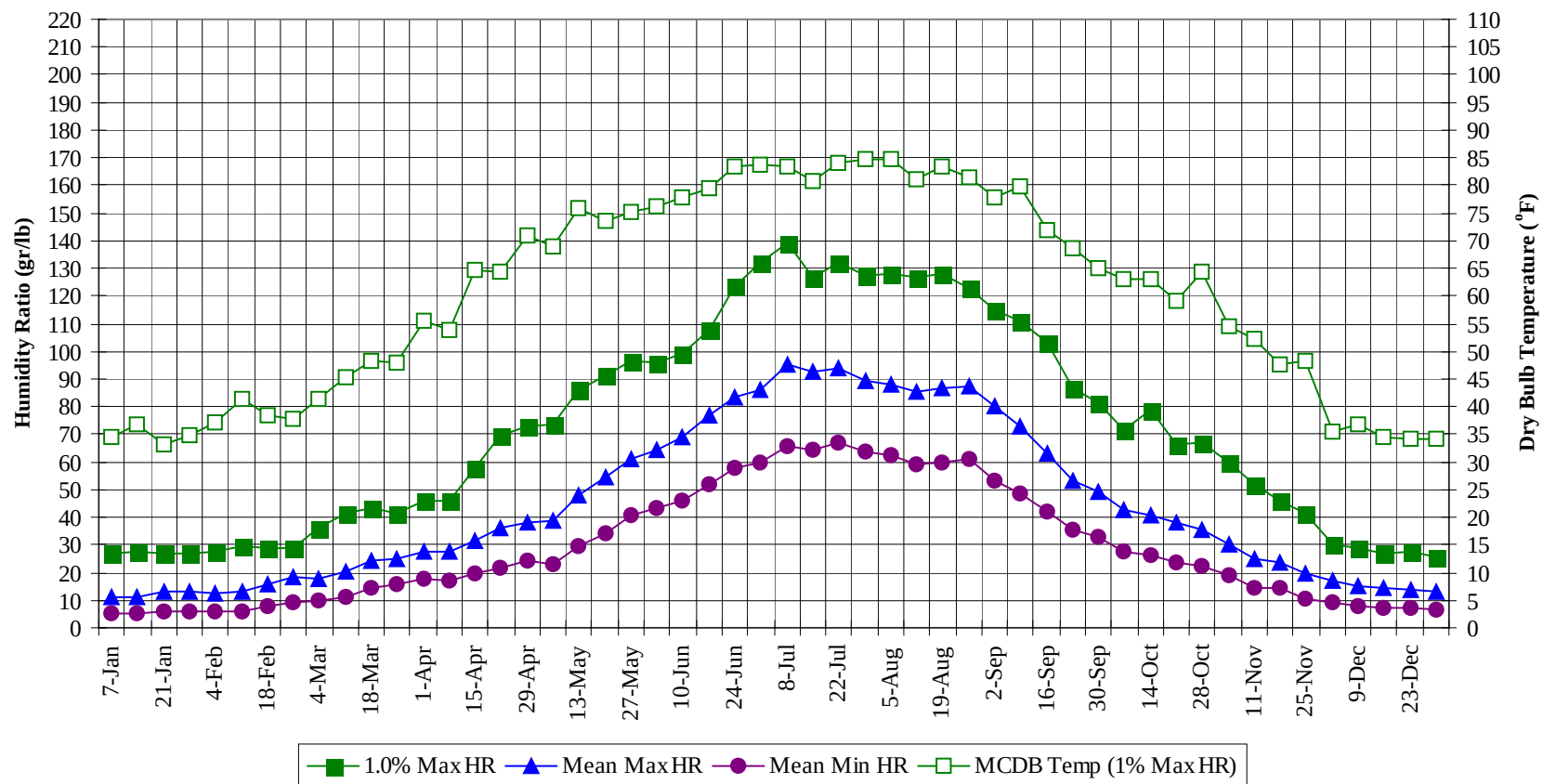
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
100 / 104		2	1	3	72.9
95 / 99		8	3	11	71.9
90 / 94		29	15	44	71.2
85 / 89	1	85	45	131	69.3
80 / 84	4	153	96	253	66.9
75 / 79	25	212	147	384	64.3
70 / 74	86	235	197	518	62.0
65 / 69	182	212	218	612	59.1
60 / 64	249	187	219	655	55.5
55 / 59	245	165	194	604	51.3
50 / 54	223	152	178	553	46.7
45 / 49	186	141	153	480	42.4
40 / 44	187	139	157	483	38.2
35 / 39	193	166	172	531	33.9
30 / 34	267	185	222	674	30.0
25 / 29	211	157	179	547	25.3
20 / 24	176	141	148	465	20.7
15 / 19	138	117	118	373	15.9
10 / 14	115	98	104	317	11.0
5 / 9	107	97	94	298	6.0
0 / 4	87	77	82	246	1.2
-5 / -1	56	45	51	152	-3.3
-10 / -6	65	49	54	168	-7.7
-15 / -11	52	32	38	122	-12.2
-20 / -16	33	20	24	77	-16.9
-25 / -21	21	8	12	41	-21.5
-30 / -26	9	3	3	15	-26.3
-35 / -31	2	0	0	2	-30.9
-40 / -36	0	0		0	

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Annual Summary of Temperatures

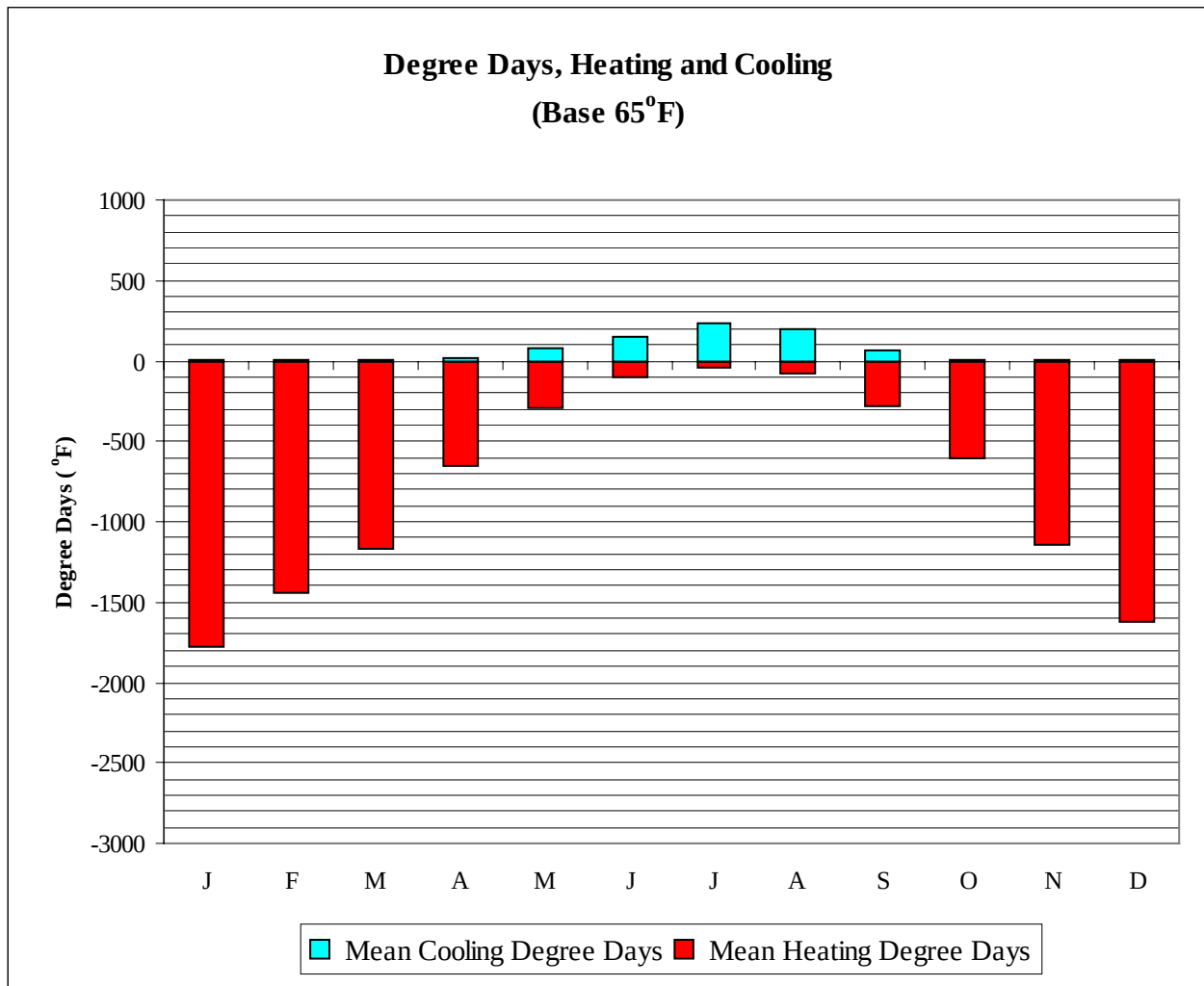


Long Term Humidity and Dry Bulb Temperature Summary



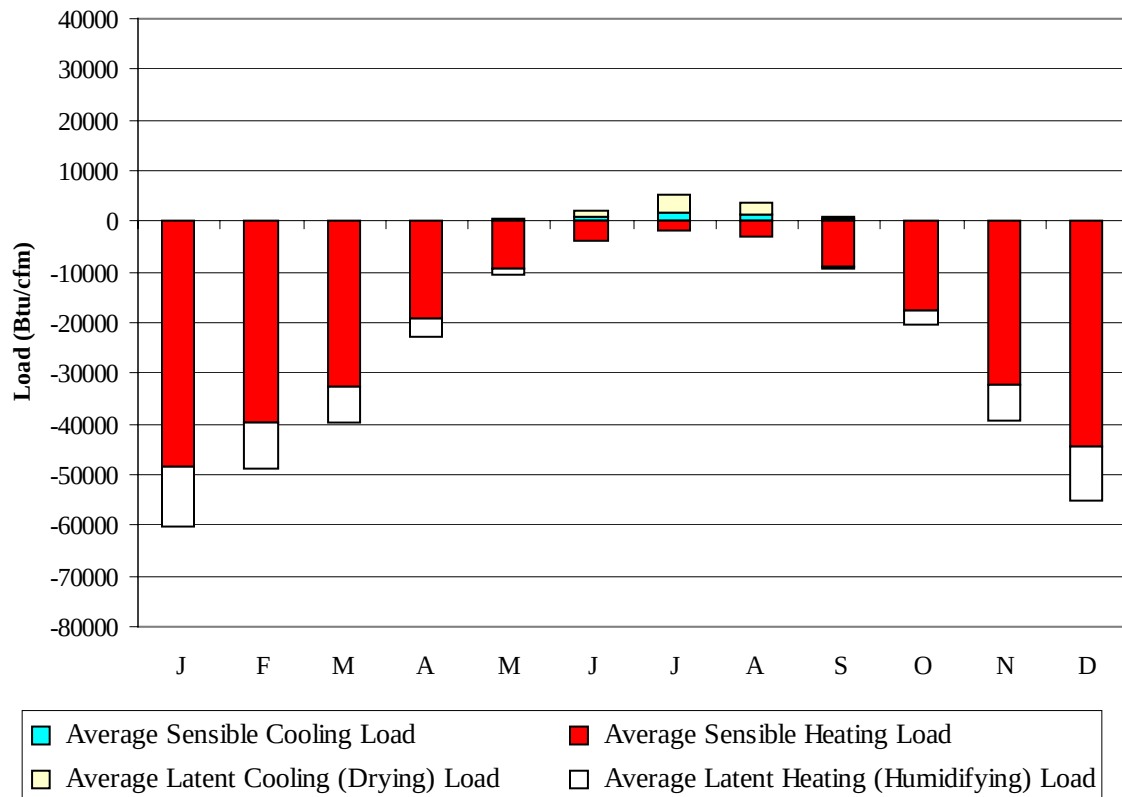
FARGO/HECTOR ND**WMO No. 727530****Long Term Dry Bulb Temperature and Humidity Summary**

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	36.0	33.3	13.8	-2.7	-24.0	26.6	34.5	11.0	5.2
14-Jan	39.0	35.0	13.9	-3.1	-26.0	27.3	36.9	11.4	5.2
21-Jan	35.0	33.3	17.6	-0.2	-28.0	26.6	33.2	13.4	5.8
28-Jan	36.0	32.6	18.6	1.1	-20.0	26.6	34.8	13.5	5.7
4-Feb	40.0	36.2	15.5	-1.0	-29.0	27.3	37.1	12.3	6.0
11-Feb	43.0	37.9	17.9	0.8	-22.0	29.4	41.2	12.8	5.9
18-Feb	41.0	37.3	22.3	6.0	-17.0	28.7	38.5	15.5	7.9
25-Feb	44.0	38.6	27.4	10.7	-11.0	28.7	37.8	18.4	9.4
4-Mar	45.0	40.2	26.8	11.0	-13.0	36.4	41.4	17.9	9.7
11-Mar	50.0	44.6	30.2	13.4	-10.0	41.3	45.3	20.6	11.3
18-Mar	53.0	47.6	35.4	20.9	-3.0	43.4	48.2	24.1	14.7
25-Mar	55.0	46.6	38.4	23.4	-2.0	41.3	47.9	25.0	15.7
1-Apr	59.0	49.6	41.4	25.8	7.0	46.2	55.3	27.9	17.7
8-Apr	72.0	53.4	47.6	28.2	6.0	46.2	53.8	27.7	17.3
15-Apr	70.0	54.3	51.5	31.1	19.0	58.1	64.6	31.8	19.9
22-Apr	83.0	59.8	58.4	34.9	22.0	69.3	64.5	36.4	21.8
29-Apr	82.0	58.7	59.4	37.4	27.0	72.8	71.1	38.1	24.2
6-May	83.0	59.4	63.3	39.0	28.0	73.5	69.1	38.7	23.2
13-May	86.0	62.6	66.7	43.5	30.0	86.1	76.0	47.8	29.5
20-May	86.0	64.4	71.0	46.9	33.0	91.0	73.4	54.5	34.4
27-May	87.0	66.1	71.3	49.6	38.0	96.6	75.1	61.3	40.5
3-Jun	89.0	69.0	74.3	51.2	40.0	95.9	76.2	64.4	43.1
10-Jun	90.0	69.9	75.1	52.8	43.0	99.4	77.8	69.1	45.9
17-Jun	92.0	71.4	77.2	55.4	45.0	107.8	79.6	76.9	52.1
24-Jun	93.0	71.9	78.1	56.8	46.0	123.2	83.2	83.2	58.0
1-Jul	90.0	70.9	78.5	57.8	48.0	132.3	83.7	86.2	59.7
8-Jul	94.0	75.4	81.7	60.4	50.0	139.3	83.3	95.1	65.5
15-Jul	92.0	74.1	81.5	59.8	49.0	126.7	80.9	92.8	64.1
22-Jul	93.0	74.6	82.7	60.7	52.0	132.3	84.1	94.2	67.3
29-Jul	94.0	71.3	81.9	59.9	51.0	127.4	84.7	89.1	63.9
5-Aug	94.0	72.9	82.0	59.3	50.0	128.1	84.8	88.0	62.5
12-Aug	93.0	73.6	81.8	58.4	49.0	126.7	81.1	85.7	59.0
19-Aug	94.0	75.0	80.7	57.9	47.0	128.1	83.4	86.6	59.8
26-Aug	93.0	67.7	79.0	58.5	47.0	122.5	81.5	87.2	61.2
2-Sep	93.0	72.0	76.7	54.9	42.0	114.8	77.9	79.8	53.3
9-Sep	92.0	71.6	75.1	52.1	40.0	111.3	79.9	73.2	48.3
16-Sep	86.0	66.5	69.3	48.0	37.0	102.9	71.8	63.3	42.0
23-Sep	83.0	63.8	64.2	43.6	30.0	86.8	68.8	53.1	35.8
30-Sep	83.0	60.8	65.5	42.0	30.0	81.2	65.0	49.4	32.6
7-Oct	79.0	59.4	60.1	38.5	24.0	71.4	63.1	42.8	27.7
14-Oct	74.0	59.6	58.2	37.4	25.0	79.1	63.0	40.5	26.3
21-Oct	69.0	56.3	53.7	33.9	22.0	66.5	59.3	37.8	23.5
28-Oct	73.0	56.7	53.0	33.0	17.0	67.2	64.3	35.5	22.1
4-Nov	63.0	48.8	46.2	28.4	8.0	59.5	54.5	30.0	18.9
11-Nov	58.0	48.2	39.3	22.6	1.0	51.8	52.2	24.9	14.7
18-Nov	54.0	46.8	35.9	21.1	0.0	46.2	47.7	23.6	14.3
25-Nov	51.0	48.0	29.6	14.7	-9.0	41.3	48.3	19.7	10.8
2-Dec	42.0	39.6	24.9	10.5	-15.0	30.1	35.3	16.9	9.3
9-Dec	43.0	38.1	23.7	8.0	-14.0	28.7	36.6	15.4	8.0
16-Dec	37.0	33.4	21.5	5.6	-15.0	26.6	34.6	14.8	7.1
23-Dec	37.0	34.0	18.3	3.8	-23.0	27.3	34.1	14.1	7.1
31-Dec	37.0	33.8	16.6	2.4	-22.0	25.9	34.2	12.9	6.7



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1782
FEB	0	1445
MAR	0	1172
APR	14	656
MAY	75	290
JUN	149	106
JUL	239	46
AUG	198	74
SEP	63	278
OCT	8	601
NOV	0	1146
DEC	0	1619
ANN	746	9215

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	-48599	0	-11540
FEB	0	-39640	0	-9268
MAR	0	-32792	0	-6759
APR	80	-19217	2	-3570
MAY	429	-9301	133	-1244
JUN	1003	-3941	1236	-35
JUL	1896	-1989	3286	0
AUG	1498	-2922	2329	-12
SEP	396	-9025	452	-435
OCT	27	-17798	7	-2570
NOV	0	-32043	0	-7114
DEC	0	-44370	0	-10596
ANN	5329	-261637	7445	-53143

Average Annual Solar Radiation – Nearest Available Site

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

City: FARGO
 State: ND
 WBAN No: 14914
 Lat(N): 46.9
 Long(W): 96.8
 Elev(ft): 899

Stn Type: Secondary

SHADING GEOMETRY IN DIMENSIONLESS UNITS

Window: 1

Overhang: 0.733

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	510	800	1160	1490	1810	1970	2040	1750	1260	840	500	400	1210
	Std Dev	37	72	110	159	184	139	102	115	109	69	43	31	37
	Minimum	420	600	930	1210	1280	1790	1840	1540	1020	700	410	320	1160
	Maximum	570	930	1410	1800	2080	2260	2250	1970	1470	990	570	460	1310
	Diffuse	280	420	590	670	760	810	730	630	520	370	280	230	520
Clear Day	Global	650	1020	1540	2100	2510	2660	2560	2200	1680	1110	690	540	1610
NORTH	Global	170	250	350	430	550	640	610	470	340	240	170	140	360
	Diffuse	170	250	350	420	490	530	510	430	340	240	170	140	340
Clear Day	Global	140	210	290	410	590	710	650	450	310	220	150	120	350
EAST	Global	380	560	770	940	1090	1150	1210	1070	820	590	360	290	770
	Diffuse	220	320	440	510	590	630	620	540	420	300	210	170	410
Clear Day	Global	570	820	1120	1380	1540	1590	1540	1390	1170	860	600	490	1090
SOUTH	Global	1030	1180	1210	1090	990	930	1020	1130	1150	1130	870	840	1050
	Diffuse	350	460	540	550	580	600	590	550	480	390	310	290	470
Clear Day	Global	1820	2020	1970	1640	1330	1170	1220	1460	1780	1900	1790	1700	1650
WEST	Global	380	560	750	910	1070	1160	1220	1080	820	580	360	300	770
	Diffuse	220	320	440	520	600	640	630	550	430	300	210	170	420
Clear Day	Global	570	820	1120	1380	1540	1590	1540	1390	1170	860	600	490	1090

Average Annual Solar Heat and Illumination – Nearest Available Site

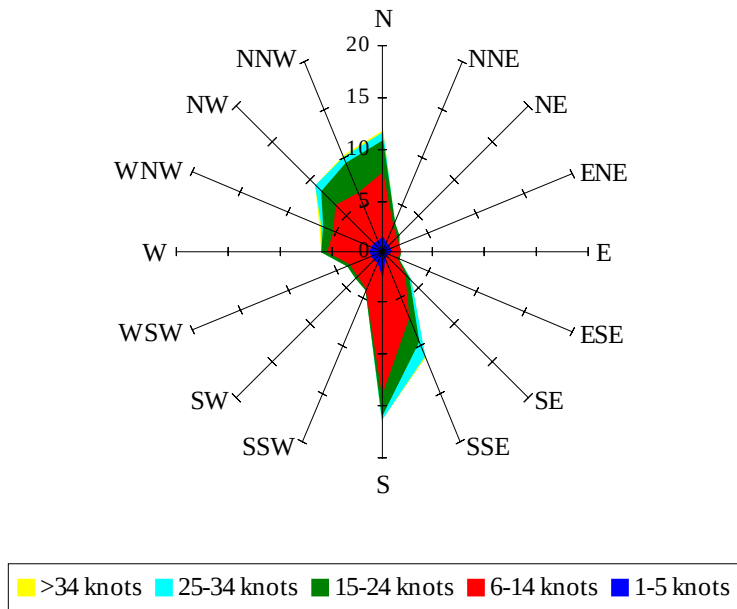
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

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	310	520	800	1060	1300	1430	1480	1260	880	560	320	240	850
NORTH	Unshaded	120	170	240	290	360	420	400	310	240	170	120	95	240
	Shaded	95	140	200	240	310	350	340	270	200	140	95	77	210
EAST	Unshaded	260	390	550	670	780	830	860	770	590	410	250	200	550
	Shaded	220	320	450	540	610	640	680	610	480	350	210	170	440
SOUTH	Unshaded	780	880	860	730	640	580	640	740	800	820	660	640	730
	Shaded	750	790	640	410	330	350	350	360	520	700	620	620	530
WEST	Unshaded	260	390	530	650	760	840	880	780	590	410	250	200	550
	Shaded	220	330	430	520	600	650	690	620	480	340	210	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	27	59	72	61	30	42	76	95	93	72
	M.Cloudy	18	41	51	42	21	27	51	64	66	52
NORTH	M.Clear	8	12	14	13	8	17	15	16	16	15
	M.Cloudy	7	14	17	15	9	13	16	18	18	16
EAST	M.Clear	67	62	17	13	8	78	77	40	16	15
	M.Cloudy	26	35	18	15	9	36	45	30	18	16
SOUTH	M.Clear	33	74	91	76	37	10	35	56	55	33
	M.Cloudy	15	39	50	40	18	10	26	39	40	26
WEST	M.Clear	8	12	14	58	67	10	15	16	42	75
	M.Cloudy	7	14	17	33	29	10	16	18	32	48
M.Clear	(% hrs)	30	28	26	25	27	38	36	32	30	34
		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	19	54	74	72	49	3	25	34	23	1
	M.Cloudy	11	32	47	47	32	3	17	23	15	0
NORTH	M.Clear	6	12	14	14	11	2	7	9	7	0
	M.Cloudy	5	12	15	15	12	1	7	9	7	0
EAST	M.Clear	56	72	36	14	11	14	37	9	7	0
	M.Cloudy	18	32	24	15	12	4	15	9	7	0
SOUTH	M.Clear	15	55	79	77	50	12	66	84	61	2
	M.Cloudy	7	26	42	43	26	3	23	33	22	1
WEST	M.Clear	6	12	14	42	72	2	7	11	39	2
	M.Cloudy	5	12	15	27	35	1	7	10	16	1
M.Clear	(% hrs)	41	41	36	35	38	28	29	27	28	34

Wind Summary - December, January, and February

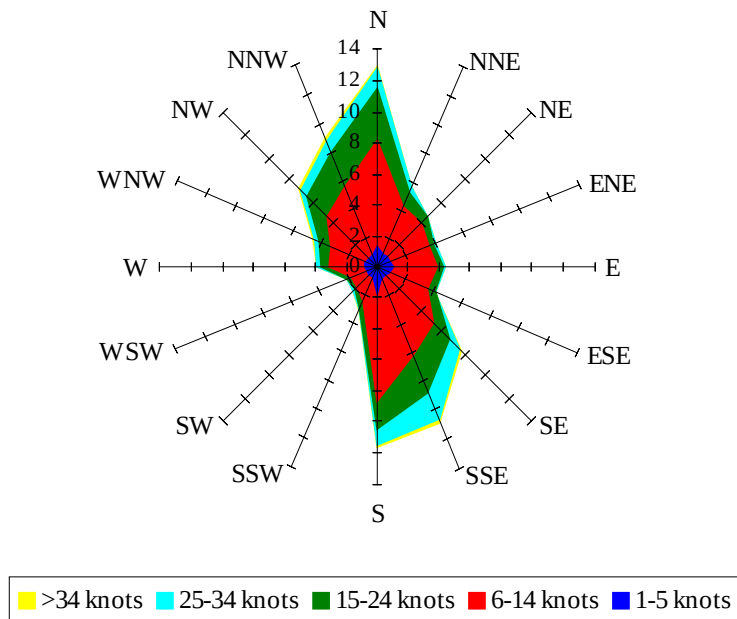
Labels of Percent Frequency on North Axis



Percent Calm = 4.44

Wind Summary - March, April, and May

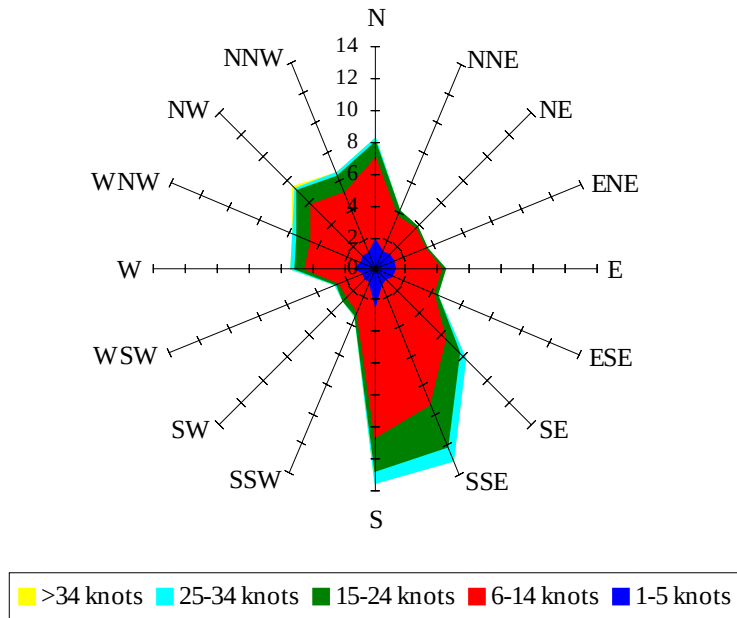
Labels of Percent Frequency on North Axis



Percent Calm = 3.30

Wind Summary - June, July, and August

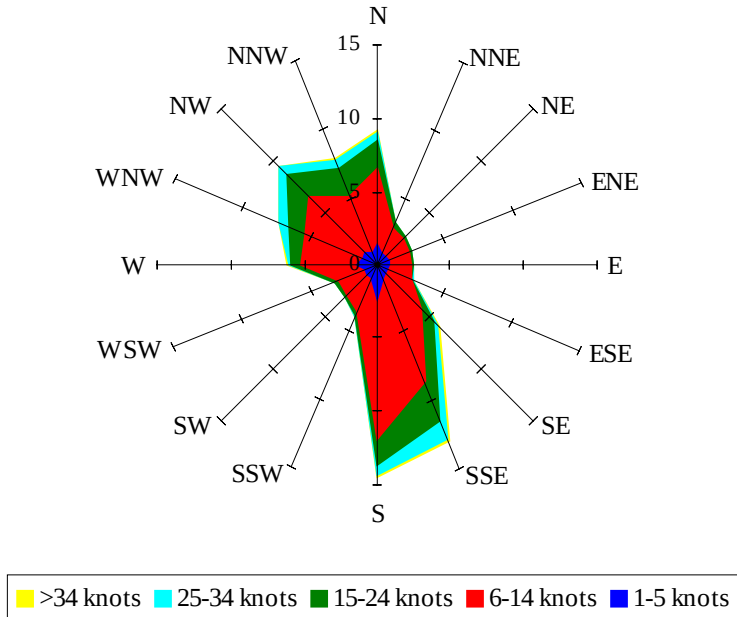
Labels of Percent Frequency on North Axis



Percent Calm = 3.76

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 3.52