

SAINT JOHN'S CN

Latitude = 47.62 N

Longitude = 52.73 W

Period of Record = 1973 to 1996

WMO No. 718010

Elevation = 459 feet

Average Pressure = 29.37 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	82	69	86	16.9	WSW
0.4% Occurrence	76	66	81	16.7	WSW
1.0% Occurrence	73	64	77	16.2	WSW
2.0% Occurrence	70	63	75	16.2	WSW
Mean Daily Range	13	-	-	-	-
97.5% Occurrence	10	8	6	16.1	W
99.0% Occurrence	7	6	6	15.4	WNW
99.6% Occurrence	3	2	4	17.6	WNW
Median of Extreme Lows	-2	-3	3	16.0	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	71	77	103	17.1	WSW
0.4% Occurrence	69	75	97	17.0	WSW
1.0% Occurrence	66	70	89	16.3	WSW
2.0% Occurrence	65	69	86	15.9	WSW
	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	105	73	0.69	15.9	WSW
0.4% Occurrence	98	72	0.65	16.7	WSW
1.0% Occurrence	92	70	0.61	16.0	WSW
2.0% Occurrence	87	67	0.57	15.6	WSW
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		0	8	1	81

Other Site Data

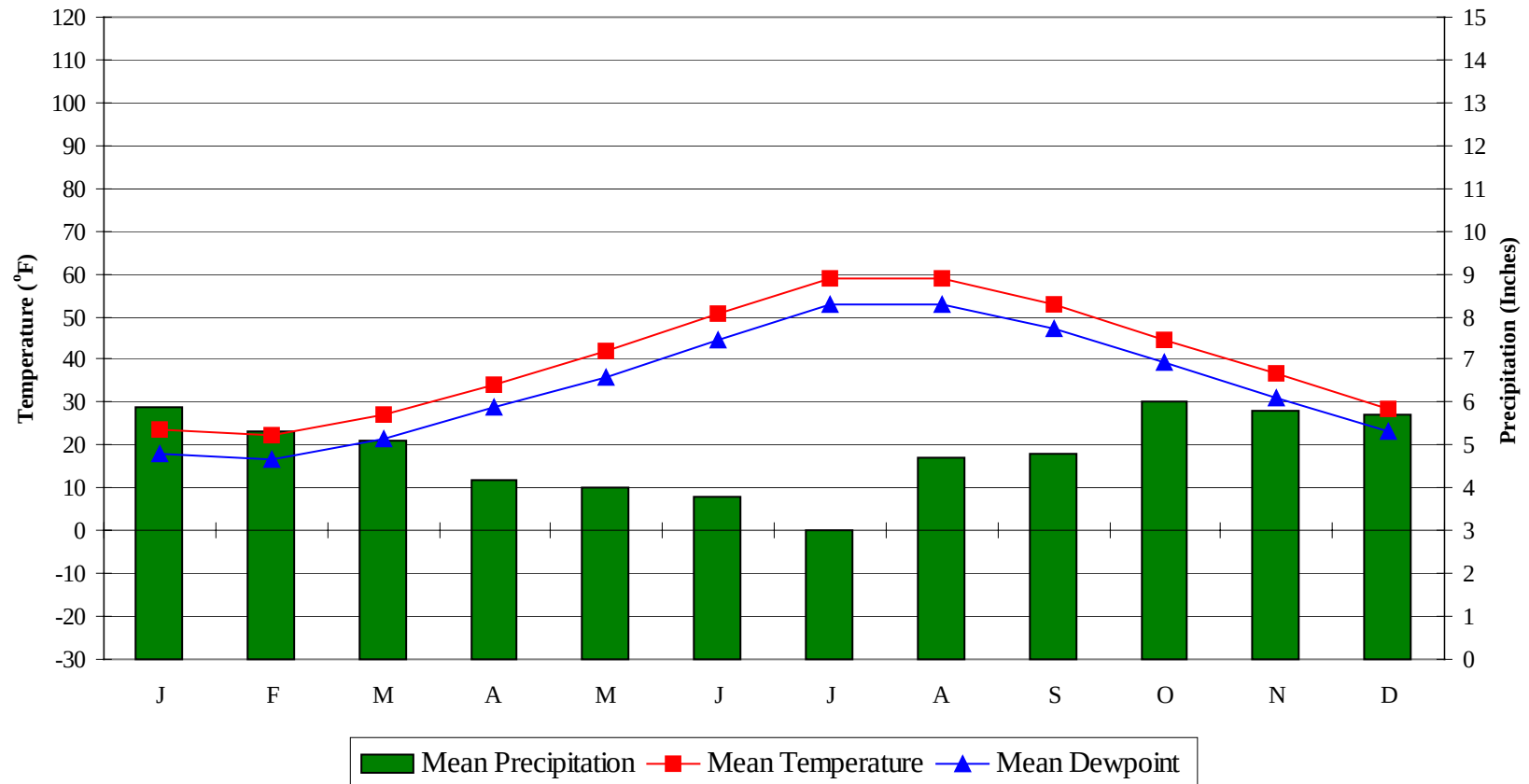
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
4	N/A	N/A	0.1 + 0.0
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
42.7	N/A	N/A	62

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

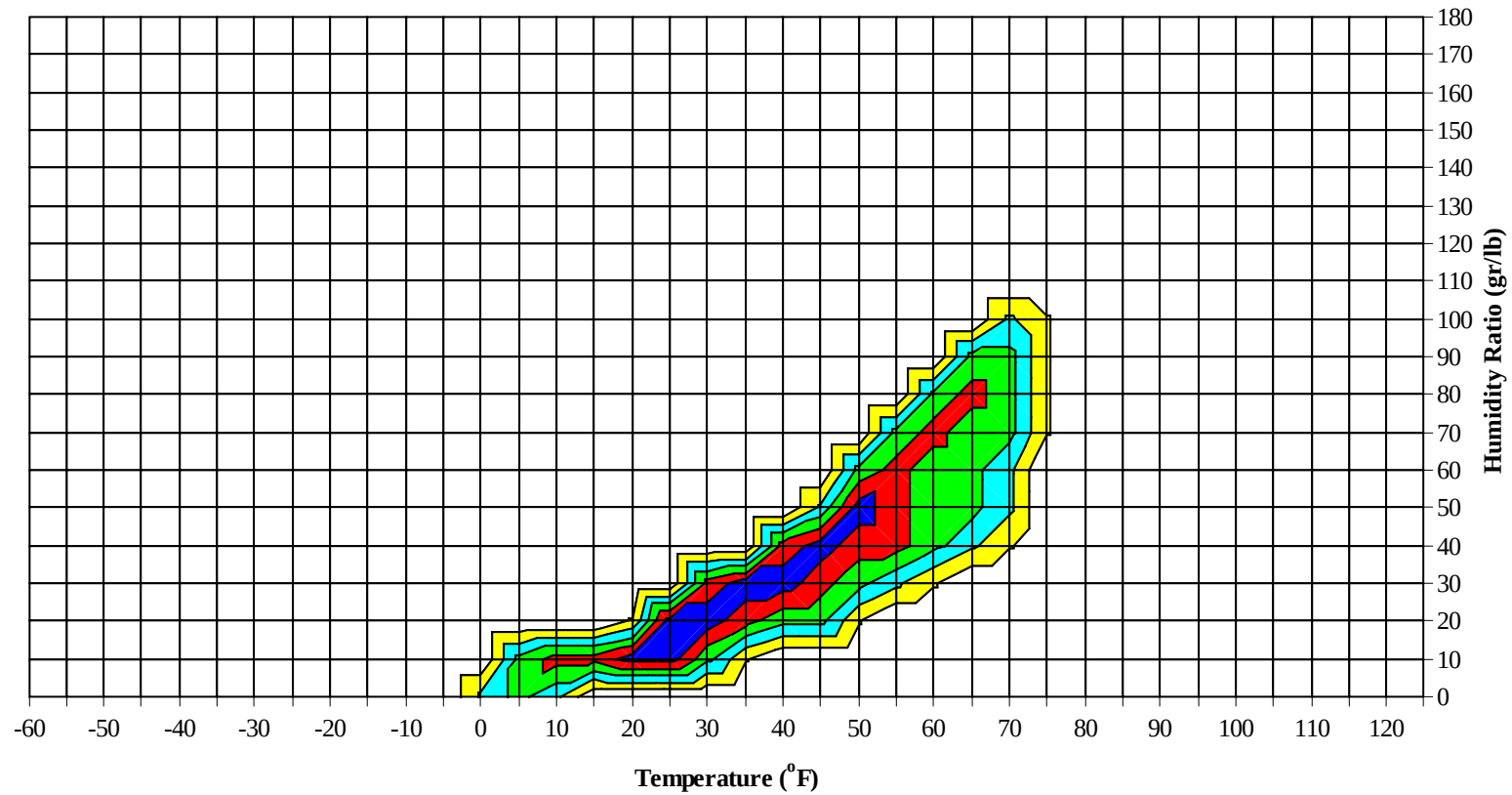
SAINT JOHN'S CN

WMO No. 718010

Average Annual Climate

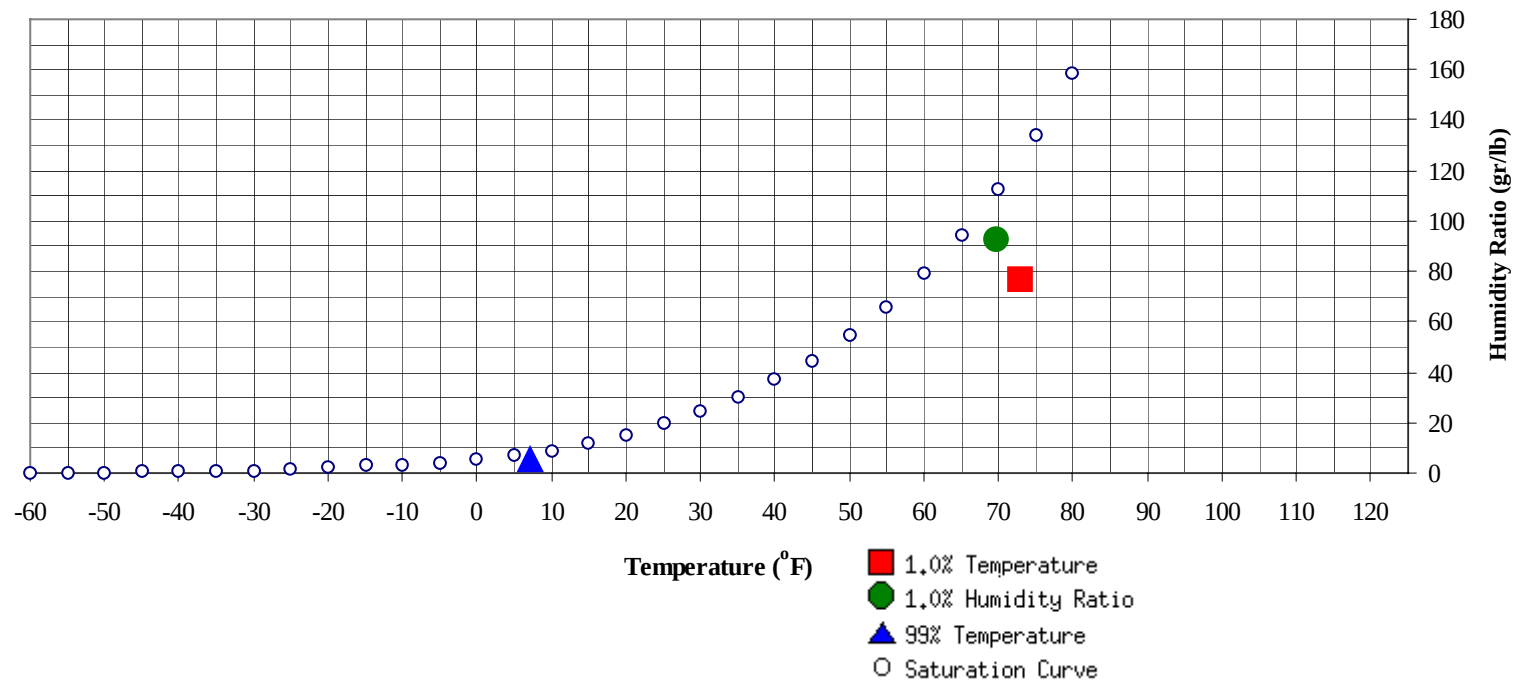


Long Term Psychrometric Summary



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

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)
	7	5.6	2.5		92.4	69.7	66.3	64.4	31.1

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	73	77.1	64.2	29.6

SAINT JOHN'S CN

WMO No. 718010

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		
85 / 89															
80 / 84															
75 / 79															
70 / 74															
65 / 69															
60 / 64							0		0	55.5					
55 / 59	0	1	0	1	53.9	0	1	0	1	53.7	0	1	0	1	51.5
50 / 54	2	1	2	5	49.9	1	1	1	3	50.2	1	4	2	7	48.5
45 / 49	5	3	5	13	45.5	2	5	4	11	45.4	3	8	6	17	44.4
40 / 44	5	4	4	13	40.9	5	6	5	16	40.9	8	12	10	30	40.1
35 / 39	14	19	14	47	35.9	11	14	11	36	35.9	18	29	20	67	35.2
30 / 34	37	46	40	123	30.6	28	37	32	97	30.5	55	73	62	190	30.4
25 / 29	50	61	57	168	25.2	44	51	49	144	25.2	59	55	66	180	25.2
20 / 24	34	36	36	106	20.6	32	32	31	95	20.6	33	29	32	94	20.5
15 / 19	42	39	45	126	16.0	35	36	41	112	16.1	36	24	34	94	16.0
10 / 14	33	22	26	81	11.0	33	24	29	86	10.9	23	8	12	43	11.1
5 / 9	21	11	15	47	6.0	18	11	13	42	6.1	8	3	3	14	6.1
0 / 4	6	3	4	13	1.4	10	5	5	20	0.9	3	1	1	5	1.0
-5 / -1	0	0	0	0	-3.3	4	1	2	7	-3.5	0	0	0	0	-3.5
-10 / -6		0		0	-6.0	2	1	1	4	-7.0	0	0		0	-8.5
-15 / -11							0		0	-11.0					

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.

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		
85 / 89															
80 / 84															
75 / 79							0		0	54.0		4	1	5	64.4
70 / 74		0	0	0	62.0	3	0	3	59.0		0	16	5	21	62.3
65 / 69		1	0	1	59.6	4	1	5	57.4		1	22	9	32	59.8
60 / 64	0	2	1	3	56.8	1	14	6	21	55.5	14	40	29	83	57.0
55 / 59	1	4	2	7	51.6	7	29	15	51	51.2	29	39	36	104	52.9
50 / 54	4	12	7	23	47.6	16	37	25	78	47.5	44	41	45	130	48.7
45 / 49	8	24	13	45	43.0	31	39	38	108	43.2	55	38	46	139	44.3
40 / 44	13	31	18	62	39.1	34	39	36	109	39.5	49	25	37	111	40.6
35 / 39	33	64	49	146	34.8	81	59	74	215	35.8	38	12	26	76	36.8
30 / 34	90	75	94	258	30.4	65	21	49	135	31.4	11	1	5	17	32.6
25 / 29	70	24	48	141	25.7	11	1	5	17	26.2	0			0	27.0
20 / 24	13	3	6	22	20.8	1		0	1	21.8					
15 / 19	6	1	2	9	16.6										
10 / 14	2		0	2	11.0										
5 / 9	0		0	0	7.5										
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															

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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		
85 / 89		0	0	0	70.7		0		0	67.7					
80 / 84		2	1	3	69.4		3	0	3	68.5		0		0	71.0
75 / 79		21	6	27	66.4	0	16	4	20	66.6		1	0	1	67.6
70 / 74	2	48	22	72	63.4	3	39	16	58	63.8		9	1	10	64.4
65 / 69	14	41	30	85	61.4	15	41	29	85	62.1	4	18	8	30	62.2
60 / 64	47	52	57	156	58.6	48	59	58	165	58.6	15	49	26	90	58.0
55 / 59	76	39	55	170	54.2	76	48	65	190	54.3	40	62	52	153	53.6
50 / 54	65	28	44	137	50.2	67	36	52	156	50.1	76	63	72	210	49.5
45 / 49	35	13	26	74	45.8	33	5	21	59	45.7	68	34	61	163	44.6
40 / 44	8	2	6	16	41.5	5	0	2	7	41.0	26	4	15	45	40.1
35 / 39	2	0	1	3	37.5	1	0	0	1	37.1	10	0	5	15	36.3
30 / 34	0			0	31.5						1		1	2	31.4
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															

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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		
85 / 89															
80 / 84															
75 / 79															
70 / 74	0	1	0	1	64.9										
65 / 69	1	3	1	5	62.6										
60 / 64	5	10	6	21	59.1	0	3	1	4	59.2					
55 / 59	10	26	14	50	54.1	6	7	6	19	55.1	0	0	0	0	53.9
50 / 54	28	47	33	108	49.1	10	13	10	33	50.0	2	3	3	8	50.0
45 / 49	57	73	64	194	44.0	18	26	20	64	44.6	10	10	9	29	45.3
40 / 44	55	48	56	159	39.9	24	37	28	89	40.0	9	10	10	29	40.9
35 / 39	60	32	54	146	35.4	60	71	63	194	35.1	27	35	23	85	35.8
30 / 34	28	8	18	54	30.3	76	57	76	209	30.0	65	74	73	212	30.6
25 / 29	5	0	3	8	25.3	31	19	26	76	24.9	58	56	58	172	25.1
20 / 24						9	5	7	21	20.0	26	26	29	81	20.4
15 / 19						5	2	3	10	16.0	29	24	27	80	16.1
10 / 14						1	0	0	1	12.1	17	8	13	38	11.0
5 / 9						0			0	7.0	5	1	2	8	6.1
0 / 4											1	0	1	2	1.0
-5 / -1												0		0	-3.0
-10 / -6															
-15 / -11															

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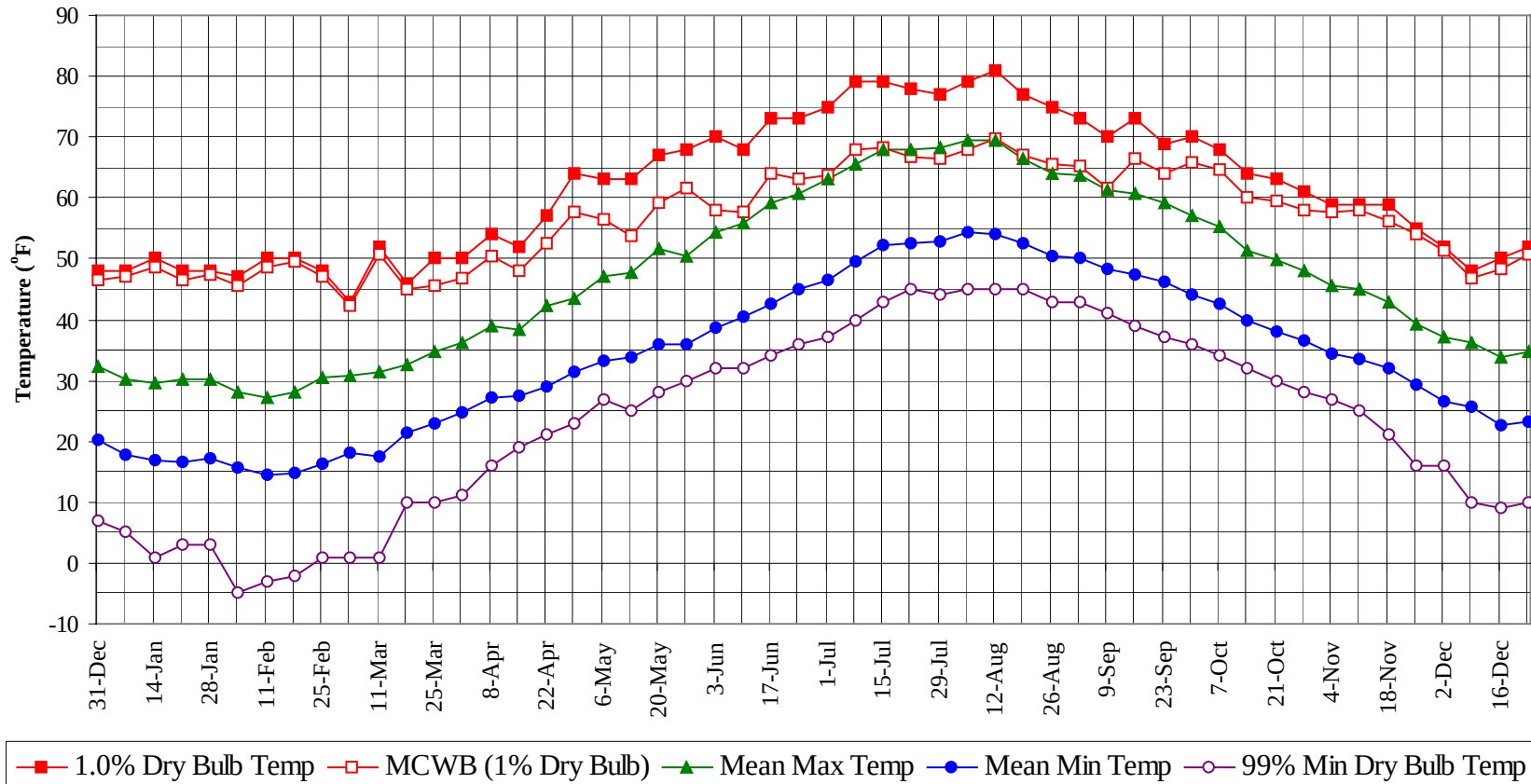
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

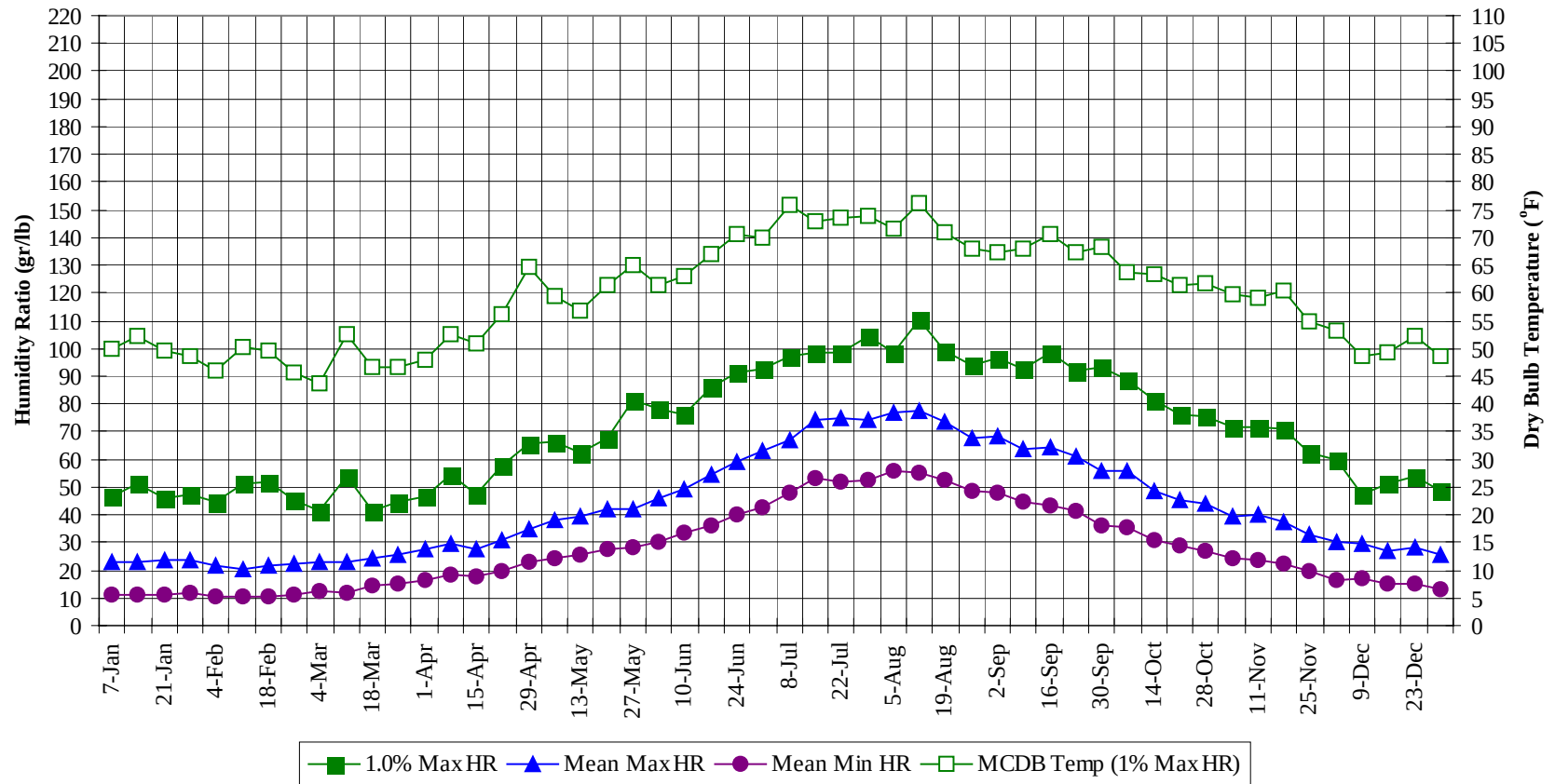
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
85 / 89		0	0	0	69.9
80 / 84		6	1	7	68.7
75 / 79	0	42	11	53	66.3
70 / 74	5	116	45	166	63.4
65 / 69	35	130	78	243	61.4
60 / 64	129	230	183	541	58.1
55 / 59	246	256	244	745	53.7
50 / 54	317	286	296	898	49.3
45 / 49	324	279	313	915	44.4
40 / 44	240	220	226	685	40.0
35 / 39	356	338	340	1033	35.5
30 / 34	457	393	449	1298	30.5
25 / 29	327	268	313	907	25.2
20 / 24	148	130	142	420	20.5
15 / 19	152	126	152	430	16.1
10 / 14	108	63	80	251	11.0
5 / 9	52	26	33	111	6.0
0 / 4	21	9	12	42	1.1
-5 / -1	4	2	2	8	-3.5
-10 / -6	2	1	1	4	-7.1
-15 / -11		0		0	-11.0

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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



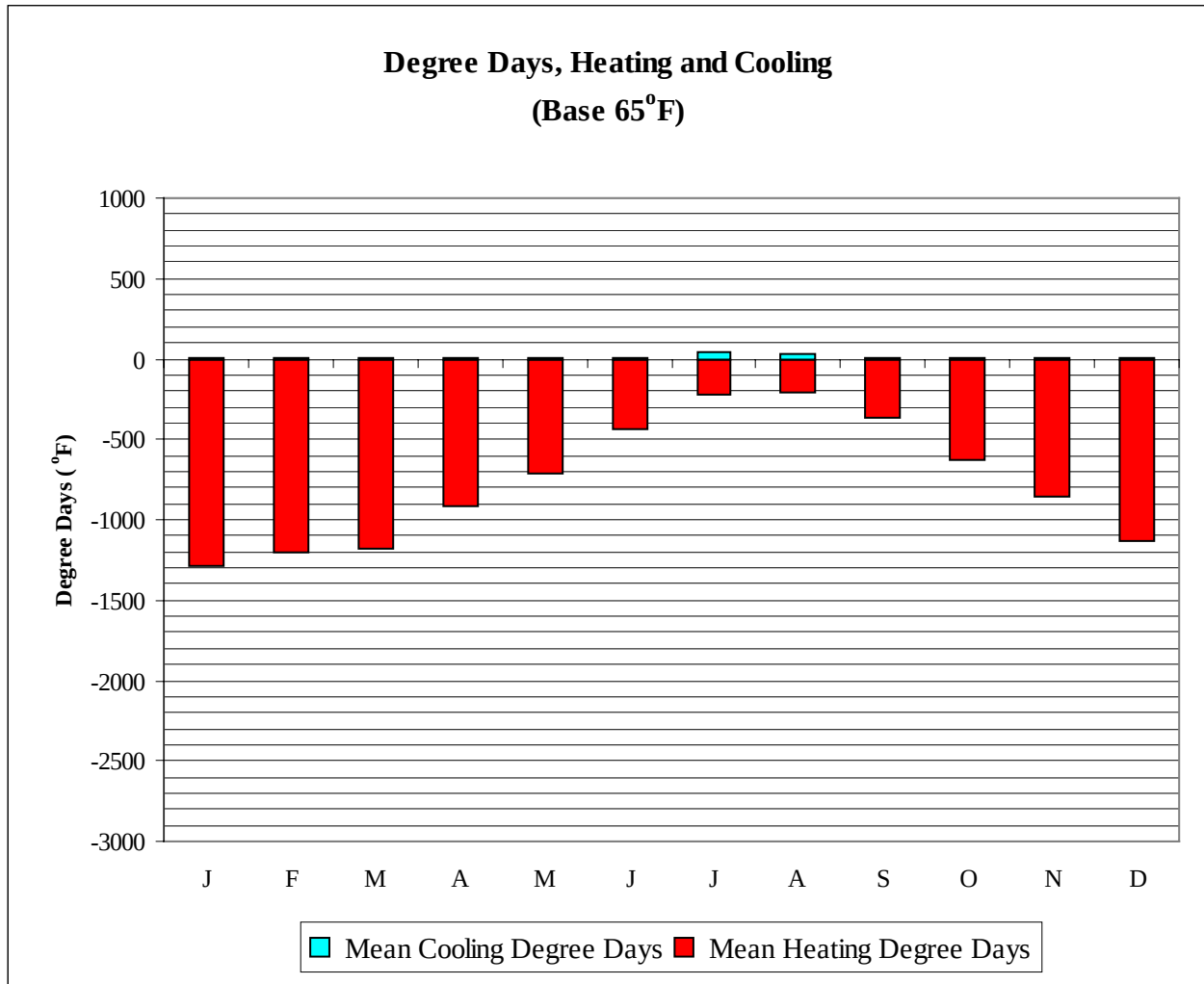
SAINT JOHN'S

CN

WMO No. 718010

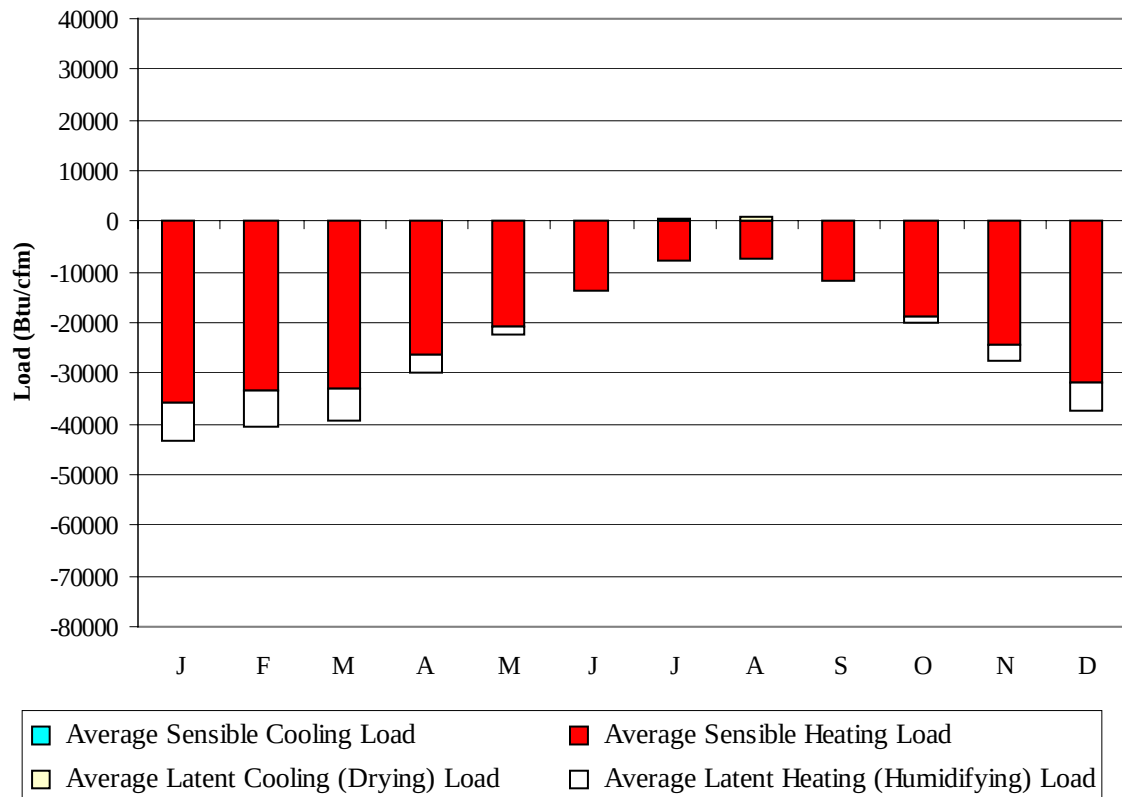
Long Term Dry Bulb Temperature and Humidity Summary

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	47.2	30.1	17.8	5.0	46.9	50.0	23.0	11.3
14-Jan	50.0	48.5	29.6	17.0	1.0	51.1	52.3	22.8	11.3
21-Jan	48.0	46.5	30.3	16.6	3.0	46.2	49.7	23.7	11.3
28-Jan	48.0	47.4	30.3	17.2	3.0	47.6	48.6	23.5	11.7
4-Feb	47.0	45.6	28.2	15.7	-5.0	44.8	46.0	21.7	10.7
11-Feb	50.0	48.5	27.1	14.4	-3.0	51.1	50.3	20.2	10.2
18-Feb	50.0	49.7	28.2	14.9	-2.0	51.8	49.6	21.5	10.2
25-Feb	48.0	47.2	30.4	16.4	1.0	45.5	45.6	22.6	11.4
4-Mar	43.0	42.2	30.7	18.1	1.0	41.3	43.8	23.1	12.2
11-Mar	52.0	50.9	31.4	17.5	1.0	53.9	52.6	23.0	11.7
18-Mar	46.0	44.9	32.5	21.5	10.0	41.3	46.8	24.1	14.2
25-Mar	50.0	45.5	34.6	23.1	10.0	44.8	46.8	25.8	15.2
1-Apr	50.0	46.7	36.4	24.9	11.0	46.9	48.1	27.3	16.5
8-Apr	54.0	50.4	38.8	27.0	16.0	54.6	52.5	29.9	18.7
15-Apr	52.0	47.9	38.3	27.3	19.0	47.6	50.9	27.9	17.6
22-Apr	57.0	52.5	42.1	29.1	21.0	58.1	56.1	30.9	19.5
29-Apr	64.0	57.6	43.6	31.4	23.0	65.8	64.8	34.6	23.2
6-May	63.0	56.6	47.1	33.3	27.0	66.5	59.4	37.8	24.2
13-May	63.0	53.9	47.8	33.8	25.0	62.3	56.9	39.3	25.5
20-May	67.0	59.3	51.6	36.1	28.0	67.9	61.5	41.9	27.5
27-May	68.0	61.6	50.4	36.0	30.0	81.2	64.9	42.1	28.1
3-Jun	70.0	57.8	54.3	38.5	32.0	78.4	61.3	46.0	30.5
10-Jun	68.0	57.7	55.7	40.3	32.0	76.3	63.1	49.0	33.2
17-Jun	73.0	64.0	59.2	42.6	34.0	86.1	66.9	54.7	36.1
24-Jun	73.0	63.0	60.8	44.9	36.0	91.0	70.5	59.4	40.4
1-Jul	75.0	63.6	63.1	46.6	37.0	92.4	69.8	62.8	42.5
8-Jul	79.0	68.0	65.6	49.4	40.0	97.3	75.8	66.8	47.9
15-Jul	79.0	68.3	67.8	52.3	43.0	98.7	73.0	74.2	53.2
22-Jul	78.0	66.7	67.9	52.5	45.0	98.7	73.6	75.1	52.0
29-Jul	77.0	66.5	68.4	52.8	44.0	104.3	73.8	74.0	52.6
5-Aug	79.0	67.9	69.4	54.5	45.0	98.7	71.7	76.5	56.1
12-Aug	81.0	69.7	69.5	54.2	45.0	110.6	76.2	77.6	55.0
19-Aug	77.0	67.1	66.4	52.6	45.0	99.4	70.9	73.8	52.6
26-Aug	75.0	65.6	64.2	50.3	43.0	93.8	68.1	67.9	48.3
2-Sep	73.0	65.2	63.7	50.1	43.0	96.6	67.3	68.3	47.8
9-Sep	70.0	61.7	61.3	48.3	41.0	92.4	67.9	63.8	44.5
16-Sep	73.0	66.6	60.7	47.3	39.0	98.7	70.7	64.1	43.3
23-Sep	69.0	64.0	59.2	46.3	37.0	91.7	67.4	61.0	41.2
30-Sep	70.0	65.9	57.2	44.1	36.0	93.1	68.4	56.0	36.4
7-Oct	68.0	64.8	55.3	42.5	34.0	88.9	63.6	55.7	35.5
14-Oct	64.0	60.1	51.2	39.9	32.0	81.2	63.5	48.7	31.2
21-Oct	63.0	59.4	49.7	38.1	30.0	76.3	61.4	45.4	28.8
28-Oct	61.0	58.0	48.0	36.6	28.0	75.6	61.8	43.9	27.2
4-Nov	59.0	57.6	45.5	34.5	27.0	71.4	59.9	39.5	24.2
11-Nov	59.0	57.8	44.9	33.5	25.0	71.4	59.2	39.9	23.5
18-Nov	59.0	56.2	42.9	32.1	21.0	70.7	60.5	37.6	22.6
25-Nov	55.0	54.2	39.3	29.2	16.0	62.3	54.8	33.2	19.6
2-Dec	52.0	51.5	37.0	26.5	16.0	59.5	53.1	30.2	16.6
9-Dec	48.0	46.8	36.2	25.6	10.0	47.6	48.5	29.6	16.8
16-Dec	50.0	48.4	33.7	22.6	9.0	51.1	49.2	26.9	15.1
23-Dec	52.0	50.6	34.7	23.3	10.0	53.9	52.1	28.0	15.0
31-Dec	48.0	46.5	32.3	20.3	7.0	48.3	48.7	25.8	13.1



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1285
FEB	0	1203
MAR	0	1174
APR	0	921
MAY	1	712
JUN	10	438
JUL	41	220
AUG	34	215
SEP	5	364
OCT	1	634
NOV	0	851
DEC	0	1129
ANN	92	9146

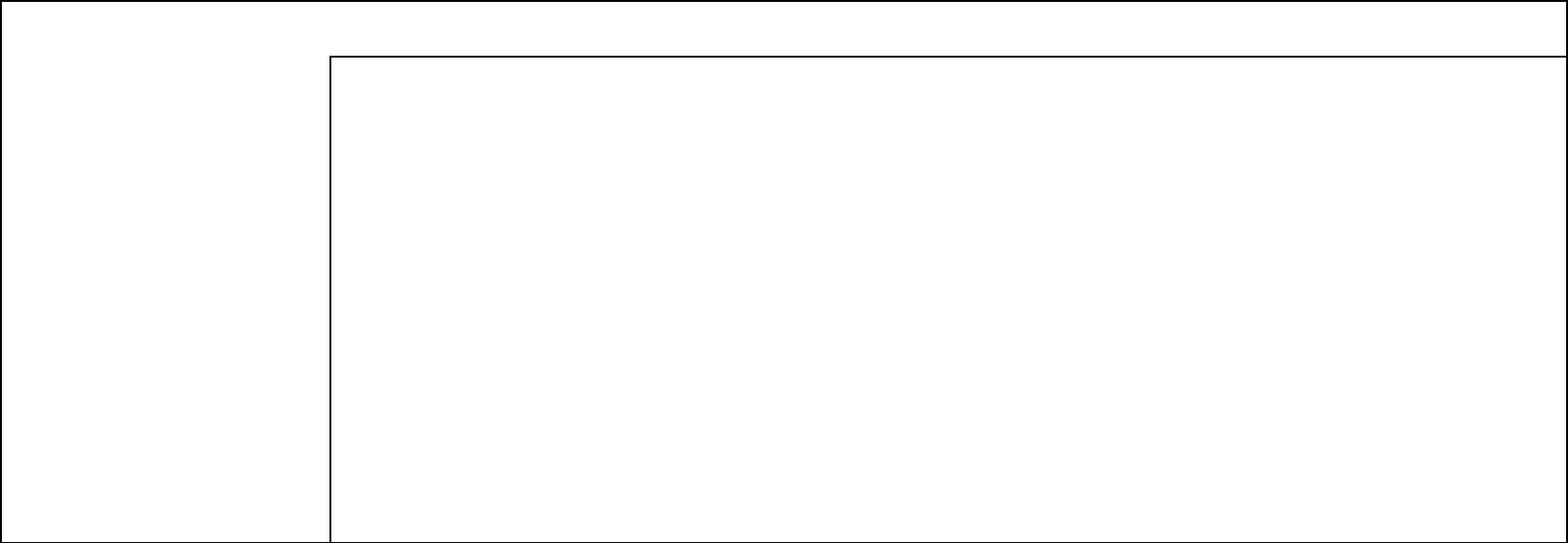
Average Ventilation and Infiltration Loads
(Outside Air vs. 75°F, 60% RH summer; 68°F, 30% RH winter)



	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	-35718	0	-7448
FEB	0	-33372	0	-7131
MAR	0	-32839	0	-6368
APR	0	-26198	0	-3709
MAY	0	-20849	4	-1525
JUN	7	-13538	110	-217
JUL	63	-7616	644	-5
AUG	55	-7539	696	-2
SEP	1	-11688	179	-104
OCT	0	-18837	34	-1012
NOV	0	-24379	1	-3212
DEC	0	-31669	0	-5706
ANN	126	-264242	1668	-36439

Average Annual Solar Radiation – Nearest Available Site
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

No Solar Radiation
Data Available

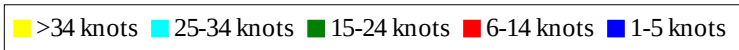
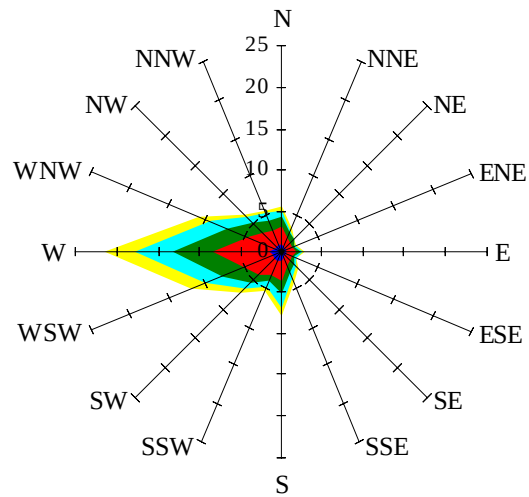


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

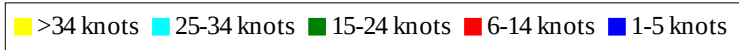
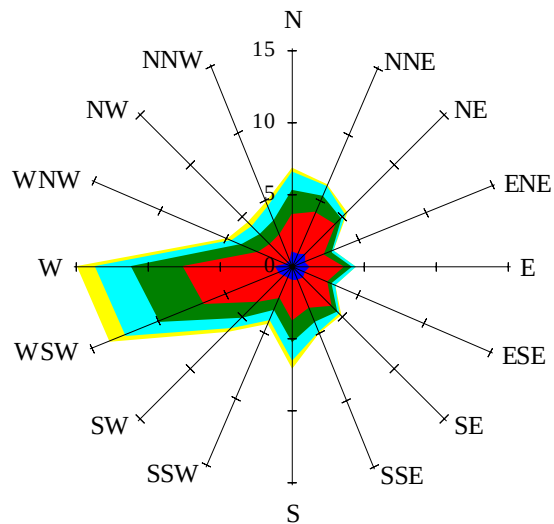
Labels of Percent Frequency on North Axis



Percent Calm = 2.03

Wind Summary - March, April, and May

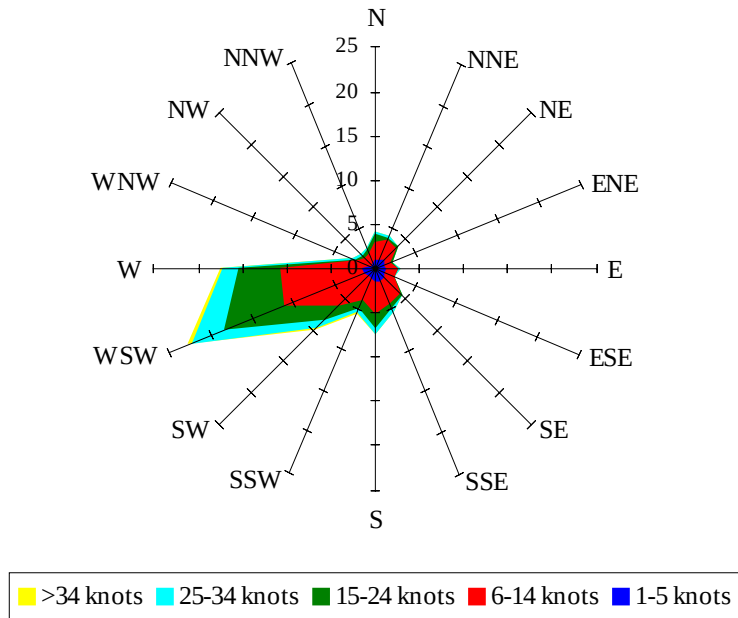
Labels of Percent Frequency on North Axis



Percent Calm = 2.52

Wind Summary - June, July, and August

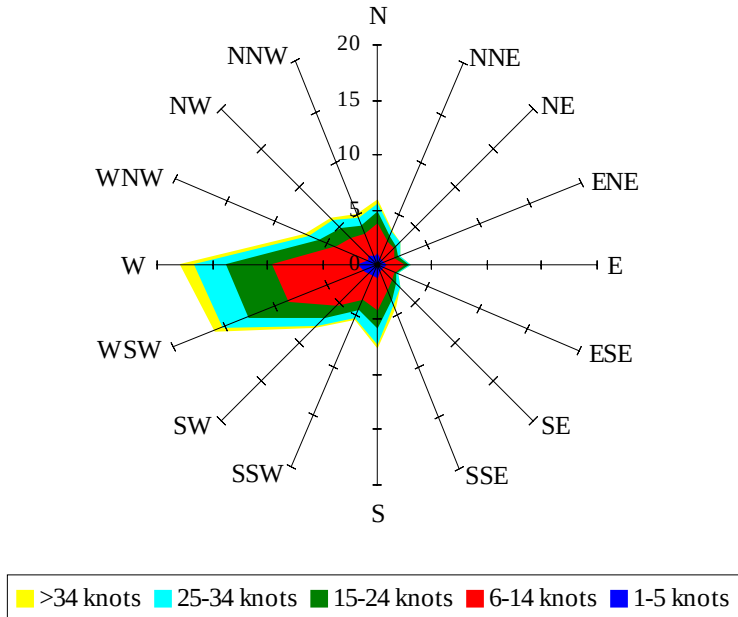
Labels of Percent Frequency on North Axis



Percent Calm = 2.54

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 2.05