

WELLINGTON NZ

Latitude = 41.30 S

Longitude = 174.80 E

Period of Record = 1989 to 1996

WMO No. 934360

Elevation = 23 feet

Average Pressure = 29.84 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	77	65	72	21.6	N
0.4% Occurrence	74	63	70	19.4	N
1.0% Occurrence	72	63	71	20.0	N
2.0% Occurrence	70	62	72	21.7	N
Mean Daily Range	10	-	-	-	-
97.5% Occurrence	36	36	28	13.8	N
99.0% Occurrence	36	36	28	13.8	N
99.6% Occurrence	34	33	26	14.3	N
Median of Extreme Lows	34	33	26	14.3	N
	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	71	96	23.0	N
0.4% Occurrence	66	70	86	22.6	N
1.0% Occurrence	65	70	83	22.0	N
2.0% Occurrence	63	67	78	19.8	N
	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	99	71	0.66	28.0	N
0.4% Occurrence	91	68	0.61	23.3	N
1.0% Occurrence	85	67	0.57	19.1	N
2.0% Occurrence	81	66	0.54	18.2	N
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		0	0	0	22

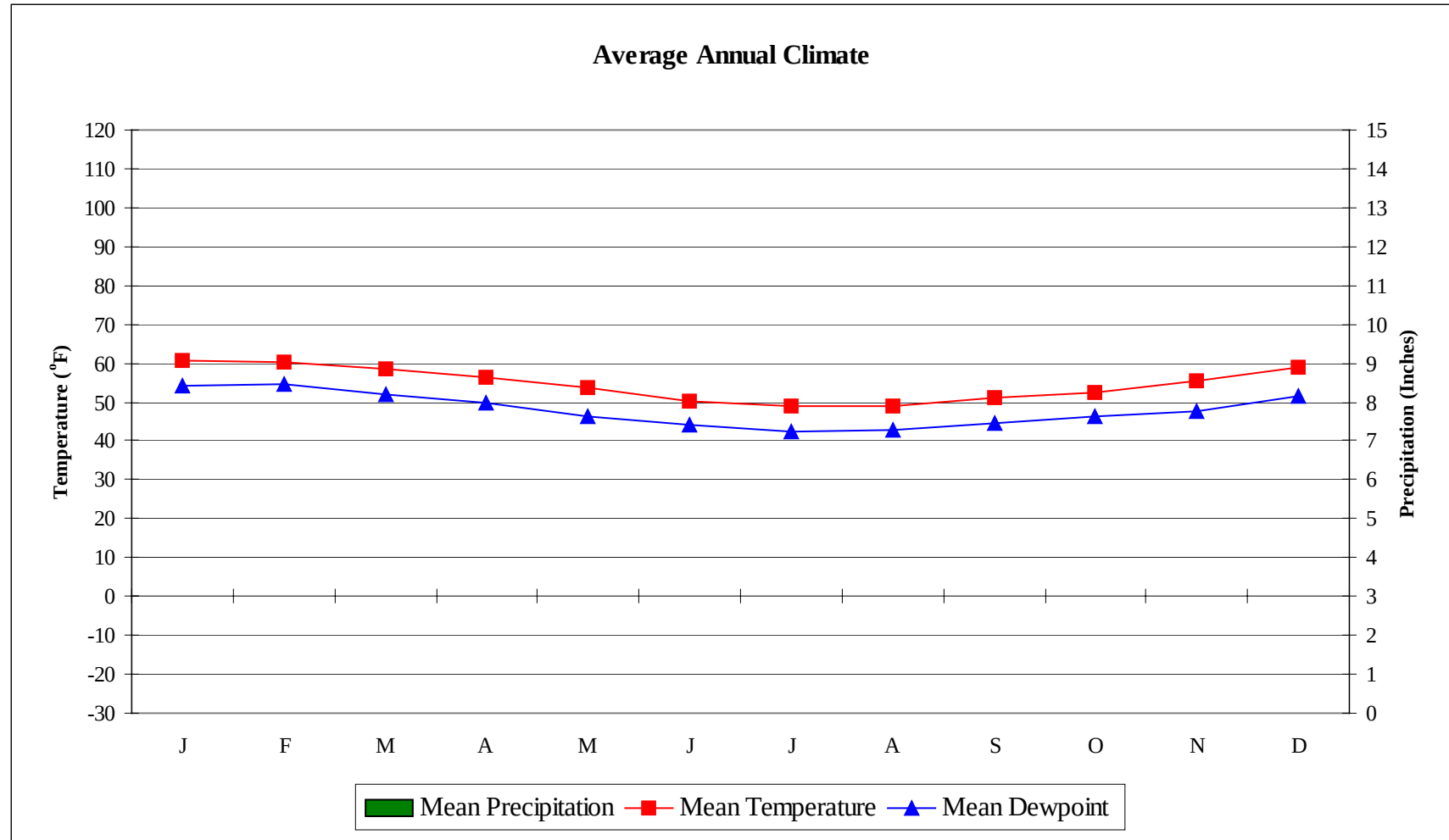
Other Site Data

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
8	N/A	N/A	0.0 + 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 (#)
56.9	N/A	N/A	0

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

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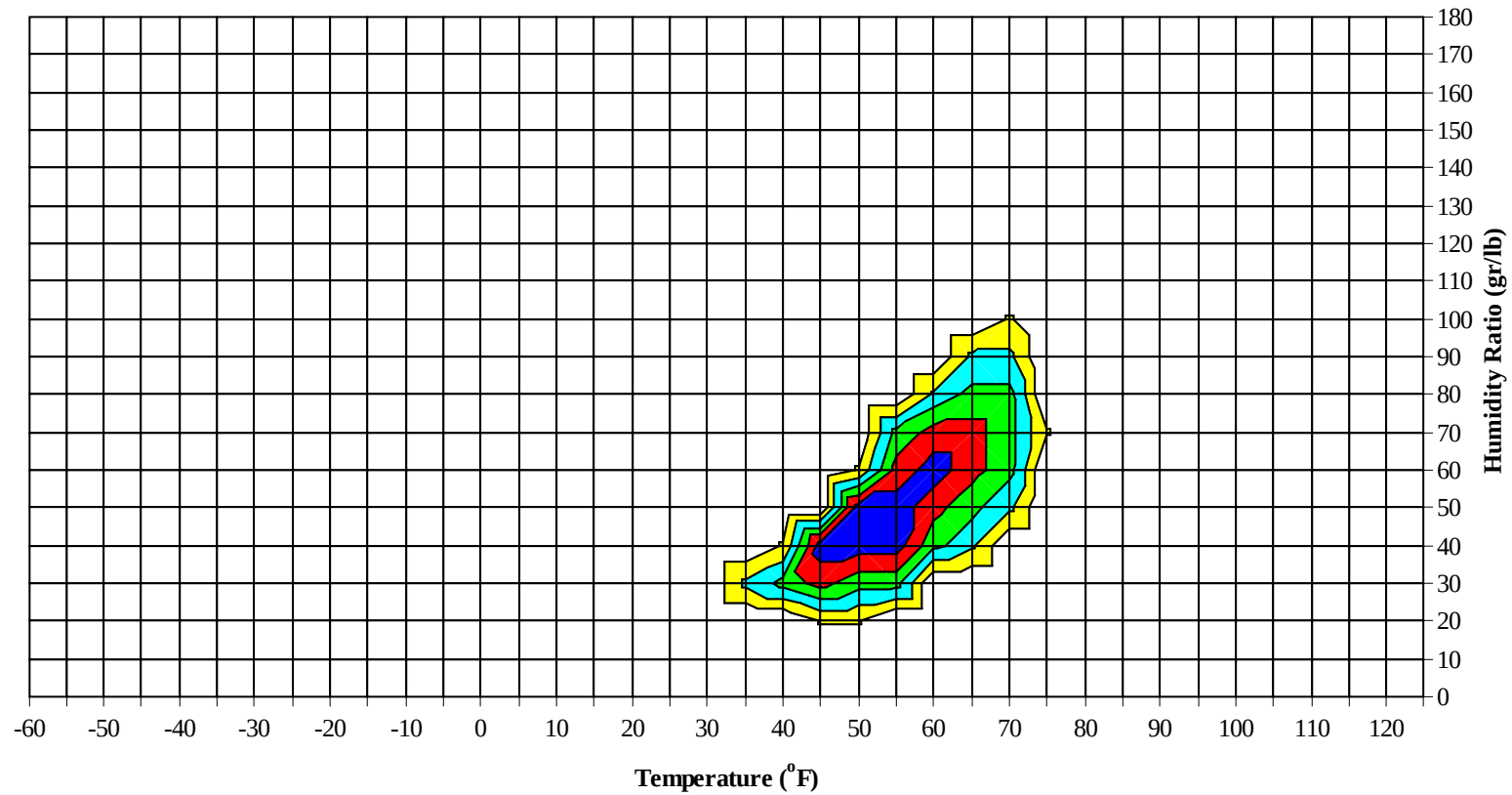


No Precipitation Data Available

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Long Term Psychrometric Summary

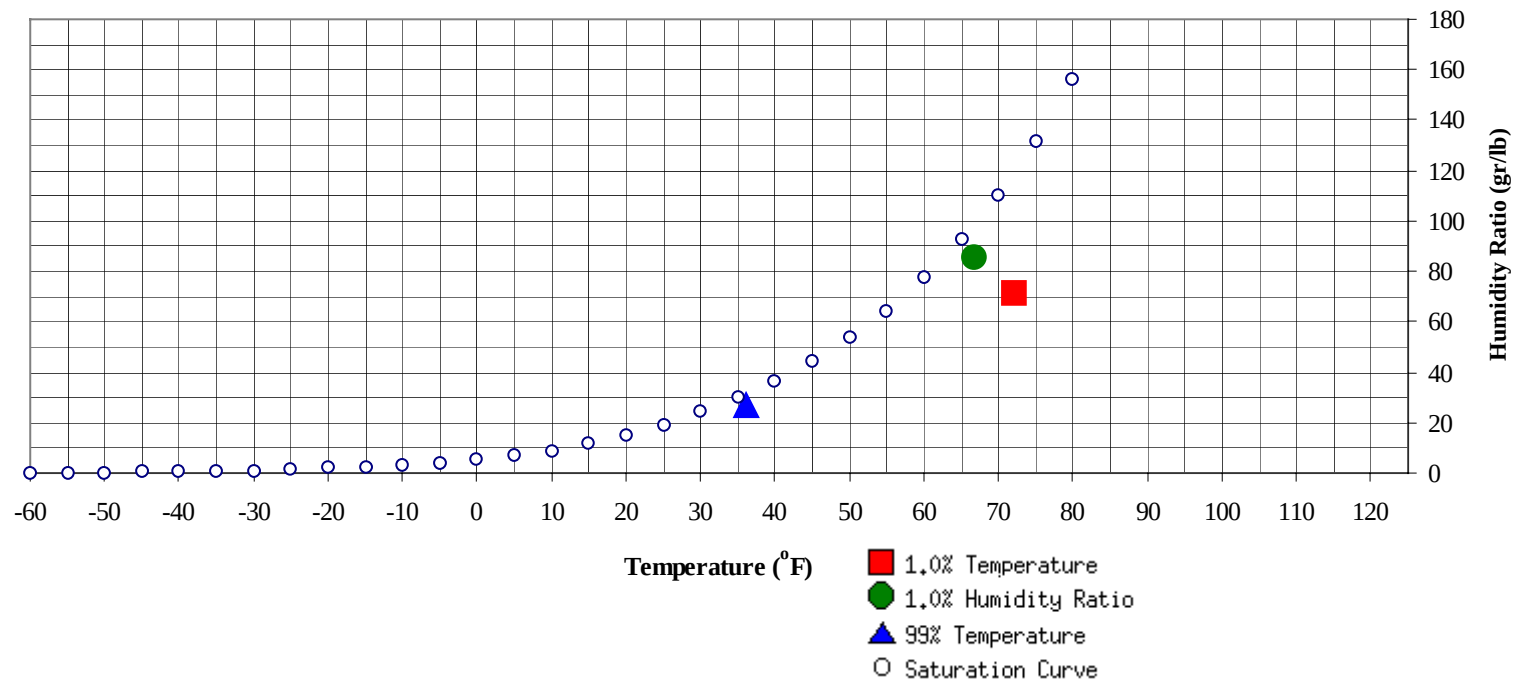


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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Psychrometric Summary of Peak Design Values



	(°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	36	26.9	12.8		85.4	66.8	64.2	62.6	29.3

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	72	71.7	63.1	28.5

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Dry-Bulb Temperature Hours For An Average Year (Sheet 1 of 5)

Period of Record = 1989 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		9	1	10	64.0	0	10	2	12	65.0	1	3	1	5	64.3
70 / 74	2	47	15	64	62.5	3	42	15	59	63.4	2	20	4	27	62.9
65 / 69	27	67	52	145	60.9	32	51	44	127	61.6	11	53	21	86	60.5
60 / 64	102	70	103	275	58.0	77	73	89	239	58.1	70	92	89	251	57.3
55 / 59	82	27	49	158	53.7	68	24	46	139	53.8	97	55	92	244	53.2
50 / 54	18	2	8	28	49.5	22	2	6	30	49.1	38	5	19	62	48.9
45 / 49	0	0	0	0		2	0	0	2	45.3	11	0	1	12	45.3
40 / 44	4	10	6	20		4	4	4	12		4	6	5	15	42.0
35 / 39	12	13	12	37		14	15	15	44		11	11	12	34	
30 / 34	2	3	2	7		2	3	3	8		3	2	3	8	

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 = 1989 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															
90 / 94															
85 / 89															
80 / 84															
75 / 79															
70 / 74	0	2	0	2	63.1										
65 / 69	1	32	6	39	60.6		1	0	1	62.0					
60 / 64	51	67	57	175	57.7	7	47	14	68	56.3	1	7	1	9	56.1
55 / 59	66	86	84	235	53.2	69	109	88	266	52.3	27	65	38	131	52.3
50 / 54	83	40	75	198	48.5	101	74	103	278	48.7	84	102	95	281	48.3
45 / 49	24	3	8	35	44.7	50	16	35	100	44.2	96	62	89	248	44.4
40 / 44	4	2	2	8	41.0	17	2	7	26	40.4	22	4	15	41	40.4
35 / 39	9	8	6	23		4	0	1	5	37.7	9	0	1	10	36.8
30 / 34	2	0	2	4		0	0		0		0			0	34.0

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Dry-Bulb Temperature Hours For An Average Year (Sheet 3 of 5)

Period of Record = 1989 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											
95 / 99	0			0											
90 / 94	0			0											
85 / 89	0			0											
80 / 84	0			0											
75 / 79	0			0									1	1	2
70 / 74	0	0	1	1		0	0		0			1	0	1	58.8
65 / 69	0	0	0	0		0	0		0			1	0	1	57.4
60 / 64	0	0	0	0	53.0	0	3	0	3	52.0	0	17	2	19	55.2
55 / 59	11	49	15	75	51.2	13	62	26	101	51.4	26	99	51	176	51.9
50 / 54	88	119	104	311	48.0	88	119	110	317	47.9	109	79	115	304	48.5
45 / 49	95	64	96	256	43.7	85	42	76	203	43.8	64	27	52	143	43.9
40 / 44	30	9	20	59	40.3	26	7	15	48	40.0	20	4	7	31	40.4
35 / 39	21	6	10	37	36.7	30	13	18	61	36.6	17	8	10	35	37.0
30 / 34	3	1	1	5	32.8	4	3	3	10	31.4	3	3	2	8	

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 4 of 5)

Period of Record = 1989 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															
80 / 84															
75 / 79							0		0		0	3	1	4	63.6
70 / 74	1	1	1	3	59.0	0	4	1	5	60.8	1	25	7	33	61.1
65 / 69	0	7	1	8	57.8	0	19	4	23	57.8	9	58	24	91	59.8
60 / 64	3	45	11	59	55.3	17	83	36	136	55.3	78	86	97	261	57.6
55 / 59	64	99	91	255	52.6	104	78	117	299	52.6	95	45	75	215	53.2
50 / 54	97	56	87	240	48.6	80	36	59	174	48.4	42	12	25	79	49.0
45 / 49	52	15	34	101	43.8	21	1	7	29	44.2	5	0	2	7	45.2
40 / 44	15	10	8	33	40.1	4	4	3	11	40.6	4	5	4	13	
35 / 39	14	12	11	37	37.3	11	11	12	34		10	13	10	33	
30 / 34	2	4	3	9		3	4	1	8		4	2	2	8	

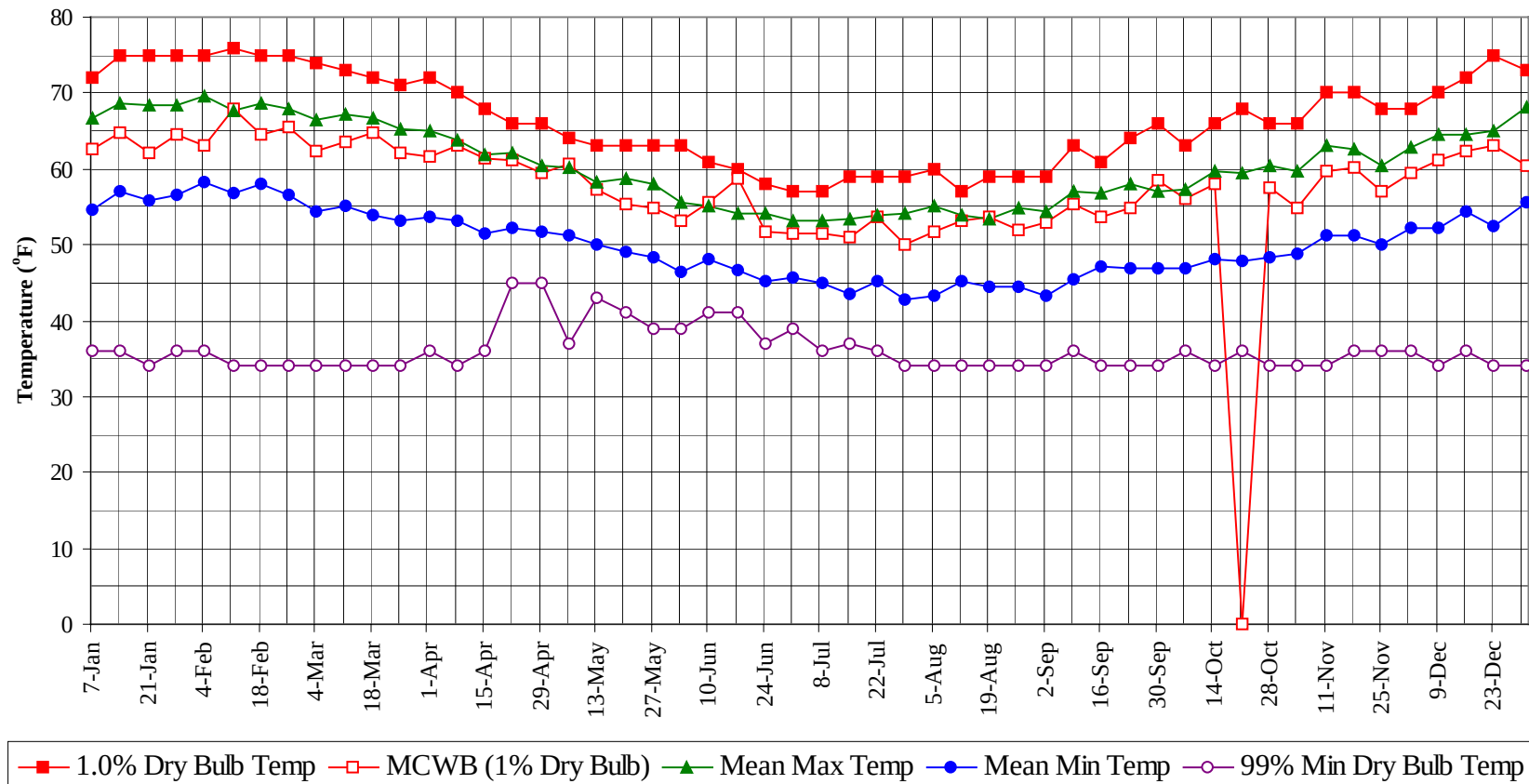
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

WMO No. 934360

Period of Record = 1989 to 1996

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

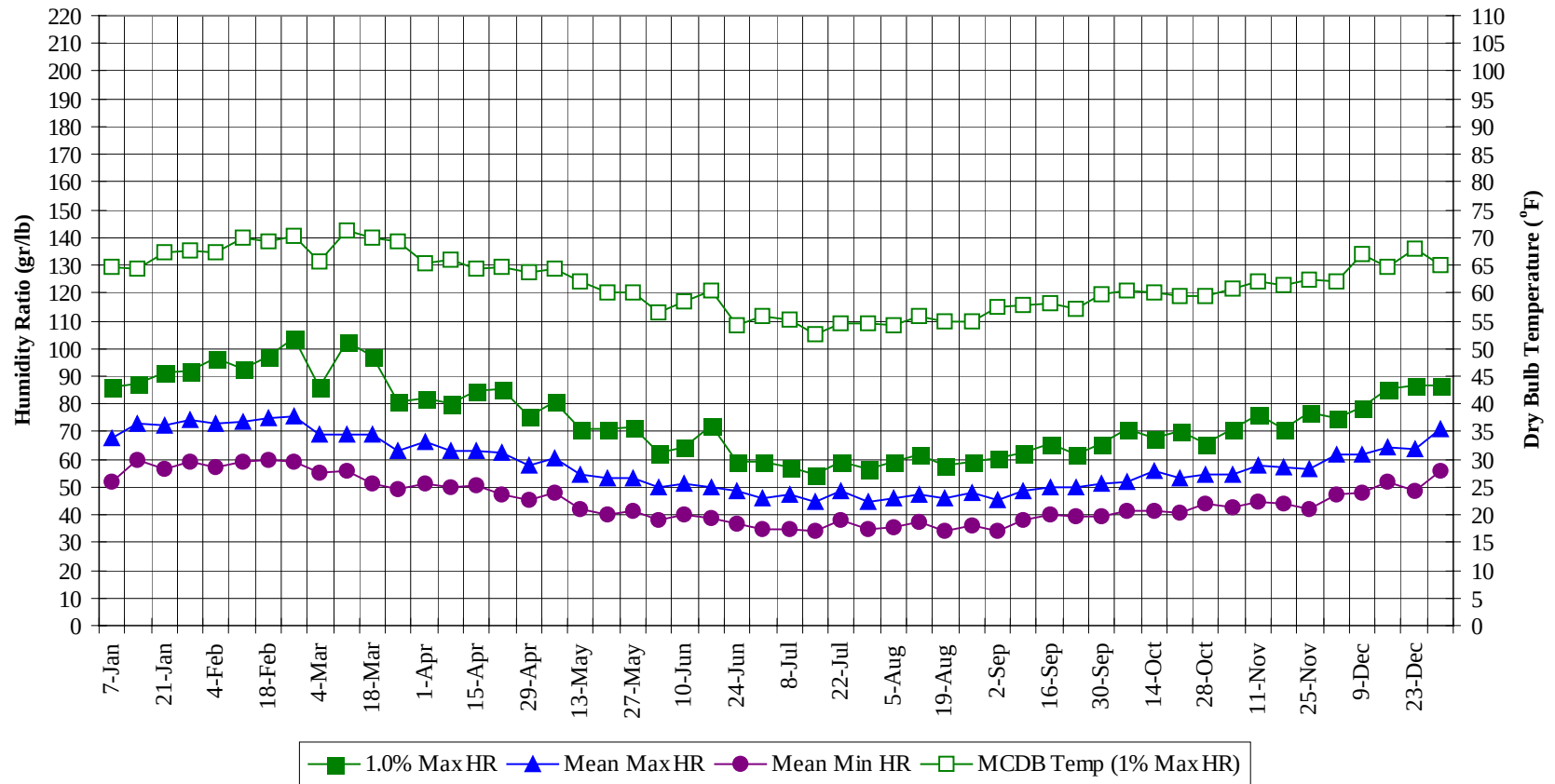


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Long Term Humidity and Dry Bulb Temperature Summary



WELLINGTON NZ**WMO No. 934360****Long Term Dry Bulb Temperature and Humidity Summary**

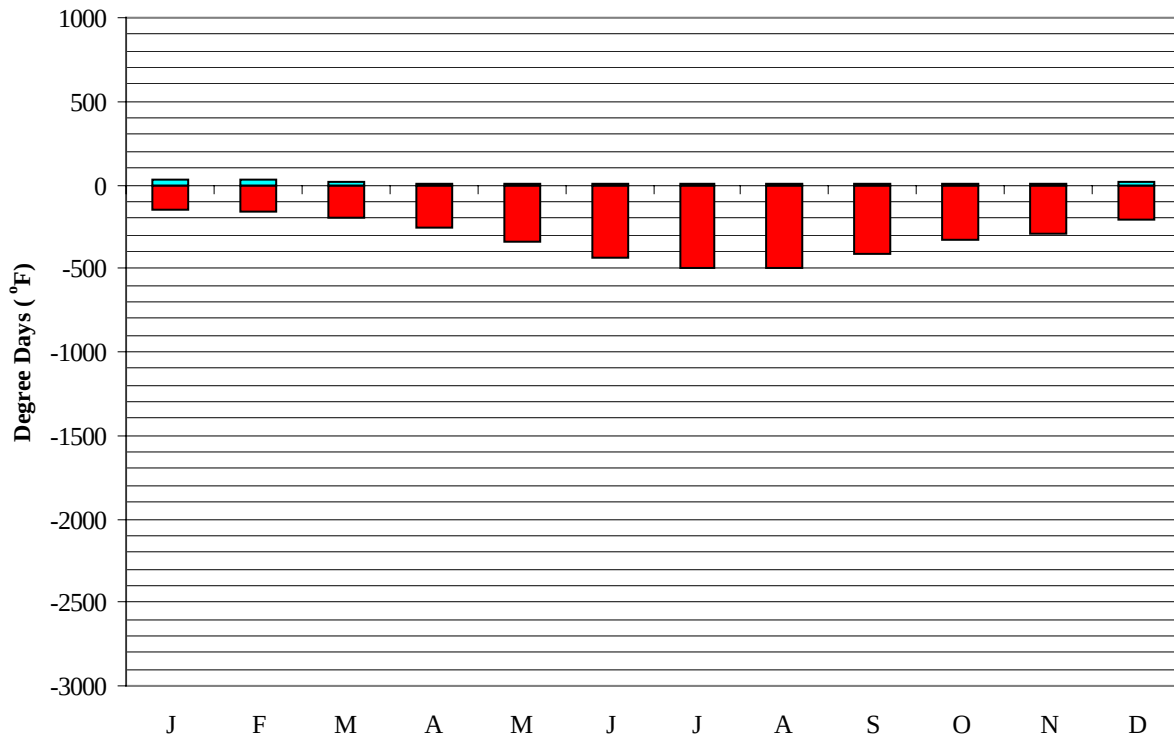
Week Ending	1.0% Temp (°F)	MCWB @ 1% Temp (°F)	Mean Max Temp (°F)	Mean Min Temp (°F)	99% Temp (°F)	1.0% HR (gr/lb)	MCDB @ 1% HR (°F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	72.0	62.6	66.6	54.6	36.0	86.1	64.6	67.4	52.0
14-Jan	75.0	64.8	68.8	57.1	36.0	87.5	64.5	73.1	59.9
21-Jan	75.0	62.1	68.3	55.9	34.0	91.0	67.2	72.5	56.5
28-Jan	75.0	64.4	68.3	56.6	36.0	91.7	67.7	74.1	59.1
4-Feb	75.0	63.1	69.6	58.2	36.0	96.6	67.4	73.0	57.1
11-Feb	76.0	68.0	67.6	56.8	34.0	92.4	70.0	73.3	58.8
18-Feb	75.0	64.6	68.7	58.0	34.0	97.3	69.3	74.8	59.8
25-Feb	75.0	65.5	68.0	56.7	34.0	103.6	70.3	75.6	59.4
4-Mar	74.0	62.3	66.6	54.4	34.0	86.1	65.8	68.8	55.0
11-Mar	73.0	63.6	67.1	55.1	34.0	102.2	71.3	69.1	55.9
18-Mar	72.0	64.8	66.7	54.0	34.0	97.3	70.0	68.8	51.4
25-Mar	71.0	62.0	65.3	53.3	34.0	80.5	69.4	63.3	49.3
1-Apr	72.0	61.8	65.0	53.7	36.0	81.9	65.5	66.1	51.2
8-Apr	70.0	63.0	63.7	53.2	34.0	79.8	66.1	63.3	49.7
15-Apr	68.0	61.4	61.9	51.6	36.0	84.7	64.4	63.0	50.6
22-Apr	66.0	61.0	62.1	52.3	45.0	85.4	64.7	62.6	47.4
29-Apr	66.0	59.4	60.3	51.7	45.0	75.6	63.6	57.6	45.6
6-May	64.0	60.6	60.2	51.1	37.0	80.5	64.4	60.3	47.6
13-May	63.0	57.2	58.1	50.1	43.0	70.7	61.9	54.7	42.1
20-May	63.0	55.3	58.7	49.1	41.0	70.7	60.3	53.2	40.1
27-May	63.0	54.8	58.0	48.4	39.0	71.4	60.0	53.4	41.2
3-Jun	63.0	53.1	55.6	46.3	39.0	62.3	56.6	49.6	37.8
10-Jun	61.0	55.6	55.1	48.1	41.0	64.4	58.5	51.4	40.2
17-Jun	60.0	58.7	54.0	46.7	41.0	72.1	60.5	50.2	38.9
24-Jun	58.0	51.7	54.1	45.2	37.0	58.8	54.2	48.5	36.8
1-Jul	57.0	51.6	53.1	45.8	39.0	58.8	55.8	46.2	34.7
8-Jul	57.0	51.5	53.1	44.9	36.0	57.4	55.1	47.0	35.0
15-Jul	59.0	51.1	53.5	43.6	37.0	54.6	52.5	44.7	34.1
22-Jul	59.0	53.7	53.9	45.3	36.0	58.8	54.4	48.4	37.8
29-Jul	59.0	50.0	54.1	42.7	34.0	56.7	54.4	44.9	34.9
5-Aug	60.0	51.7	55.1	43.2	34.0	58.8	54.1	46.3	35.7
12-Aug	57.0	53.3	53.8	45.1	34.0	61.6	55.8	47.4	37.1
19-Aug	59.0	53.6	53.5	44.5	34.0	58.1	54.9	46.3	34.5
26-Aug	59.0	52.0	54.9	44.6	34.0	58.8	54.8	47.7	36.0
2-Sep	59.0	52.9	54.4	43.2	34.0	60.2	57.3	45.5	34.4
9-Sep	63.0	55.3	57.1	45.5	36.0	62.3	57.9	48.8	38.1
16-Sep	61.0	53.6	56.8	47.0	34.0	65.8	58.2	50.0	40.0
23-Sep	64.0	54.9	58.0	46.9	34.0	61.6	57.0	50.2	39.2
30-Sep	66.0	58.5	57.0	47.0	34.0	65.8	59.7	51.2	39.6
7-Oct	63.0	56.2	57.2	46.8	36.0	70.7	60.5	52.1	41.4
14-Oct	66.0	58.0	59.8	48.0	34.0	67.9	60.3	55.6	41.1
21-Oct	68.0	.	59.4	47.7	36.0	70.0	59.5	53.4	40.8
28-Oct	66.0	57.5	60.4	48.4	34.0	65.8	59.3	54.6	44.1
4-Nov	66.0	54.9	59.6	48.7	34.0	70.7	60.7	54.8	42.7
11-Nov	70.0	59.8	63.2	51.1	34.0	76.3	62.2	57.9	44.9
18-Nov	70.0	60.1	62.6	51.2	36.0	70.7	61.6	57.5	43.9
25-Nov	68.0	57.0	60.5	50.0	36.0	77.0	62.3	56.7	42.0
2-Dec	68.0	59.5	62.8	52.3	36.0	74.9	62.1	61.5	47.2
9-Dec	70.0	61.2	64.6	52.3	34.0	79.1	67.1	61.7	47.7
16-Dec	72.0	62.3	64.6	54.4	36.0	85.4	64.8	64.1	51.8
23-Dec	75.0	63.0	65.1	52.3	34.0	86.8	68.0	63.4	48.4
31-Dec	73.0	60.4	68.2	55.5	34.0	86.8	65.1	70.8	56.1

WELLINGTON

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Degree Days, Heating and Cooling (Base 65°F)



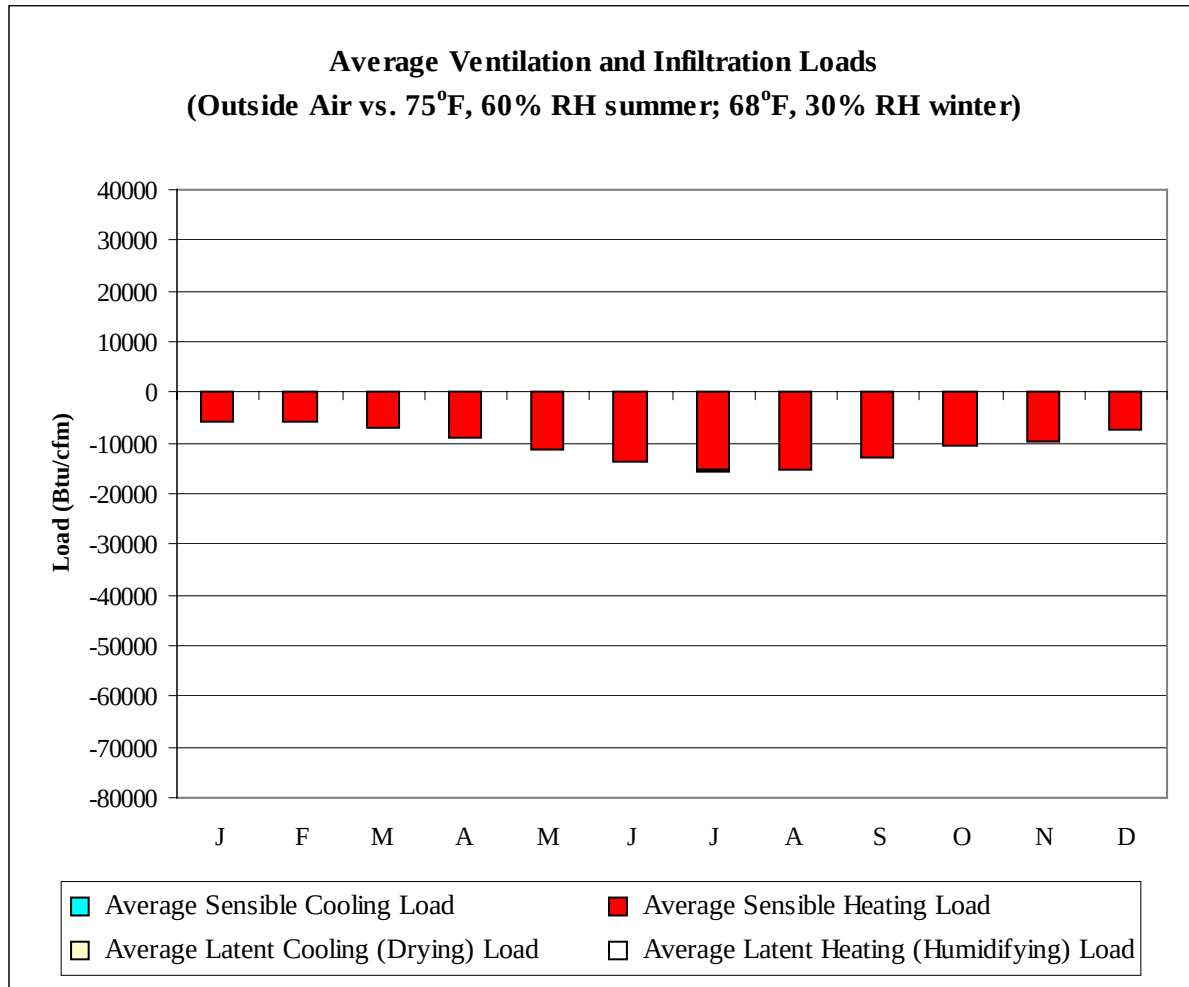
■ Mean Cooling Degree Days
 ■ Mean Heating Degree Days

	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	26	149
FEB	31	160
MAR	18	197
APR	2	256
MAY	0	343
JUN	0	435
JUL	1	502
AUG	0	493
SEP	1	411
OCT	1	327
NOV	2	288
DEC	14	205
ANN	96	3766

WELLINGTON

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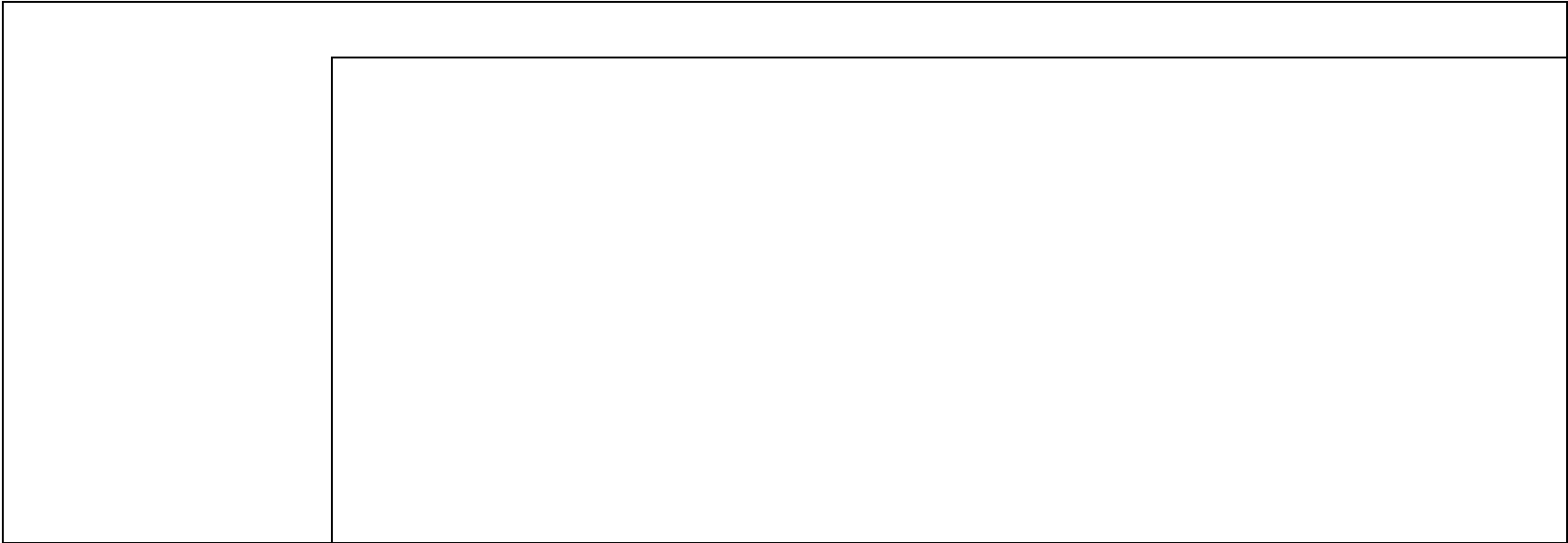
WMO No. 934360



	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	5	-5674	112	0
FEB	8	-5829	217	0
MAR	4	-7167	96	-2
APR	0	-8886	24	-3
MAY	0	-11278	4	-24
JUN	0	-13607	0	-54
JUL	12	-15387	0	-143
AUG	0	-15174	0	-113
SEP	3	-12967	0	-48
OCT	0	-10555	0	-11
NOV	0	-9759	2	-23
DEC	4	-7457	49	-4
ANN	36	-123740	504	-425

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

No Solar Radiation
Data Available

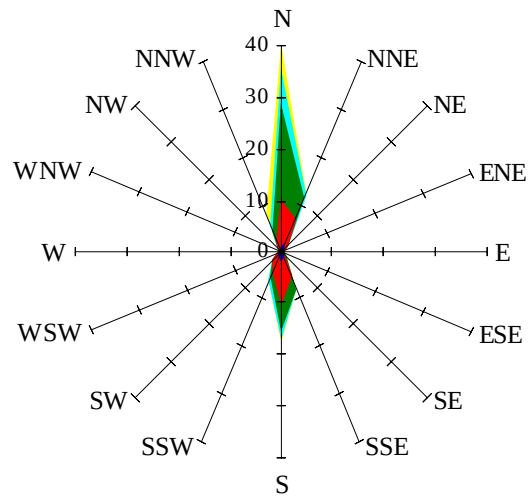


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

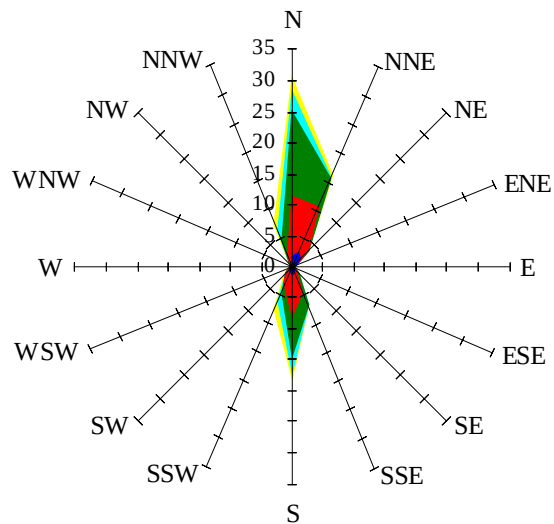
Labels of Percent Frequency on North Axis



Percent Calm = 3.99

Wind Summary - March, April, and May

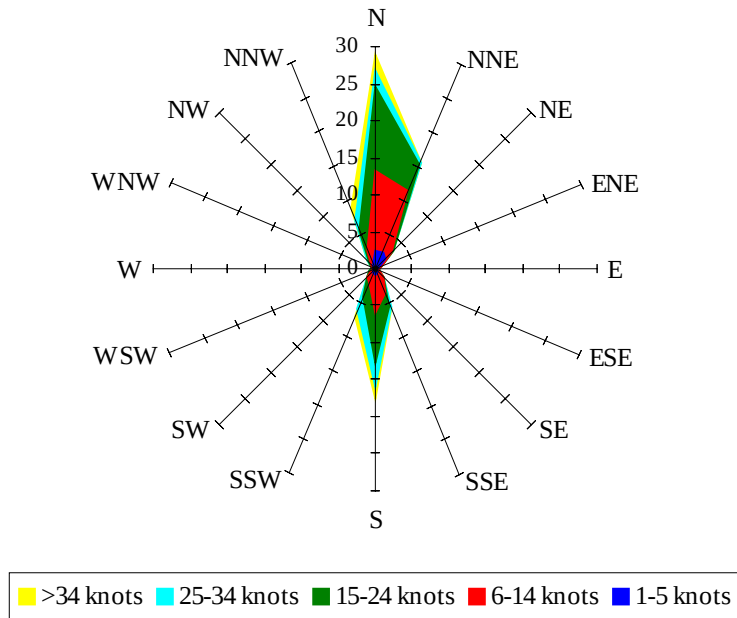
Labels of Percent Frequency on North Axis



Percent Calm = 4.57

Wind Summary - June, July, and August

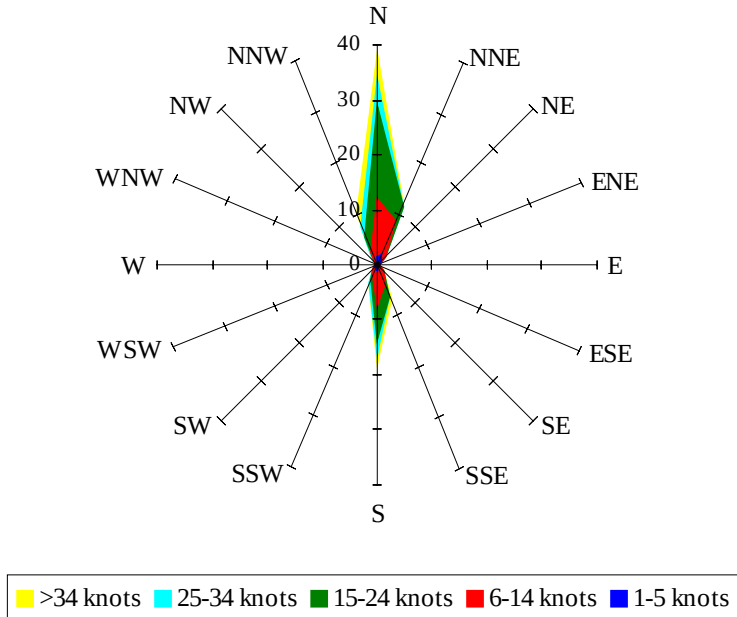
Labels of Percent Frequency on North Axis



Percent Calm = 4.24

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 3.49