

DUBLIN, IRELAND

Latitude = 53.43 N

Longitude = 6.25 W

Period of Record = 1973 to 1996

WMO No. 039690

Elevation = 279 feet

Average Pressure = 29.61 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	75	64	73	10.8	E
0.4% Occurrence	72	63	70	10.5	E
1.0% Occurrence	69	61	69	10.6	W
2.0% Occurrence	67	60	67	10.7	W
Mean Daily Range	11	-	-	-	-
97.5% Occurrence	34	33	25	11.0	W
99.0% Occurrence	31	30	23	9.7	W
99.6% Occurrence	29	28	21	9.4	W
Median of Extreme Lows	25	24	17	8.4	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	67	72	87	10.2	WSW
0.4% Occurrence	64	69	80	9.9	WSW
1.0% Occurrence	63	67	78	9.9	WSW
2.0% Occurrence	61	65	73	9.7	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	92	69	0.61	10.1	WSW
0.4% Occurrence	84	67	0.56	8.7	WSW
1.0% Occurrence	80	65	0.54	9.1	WSW
2.0% Occurrence	76	63	0.51	9.3	WSW
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		0	1	0	6

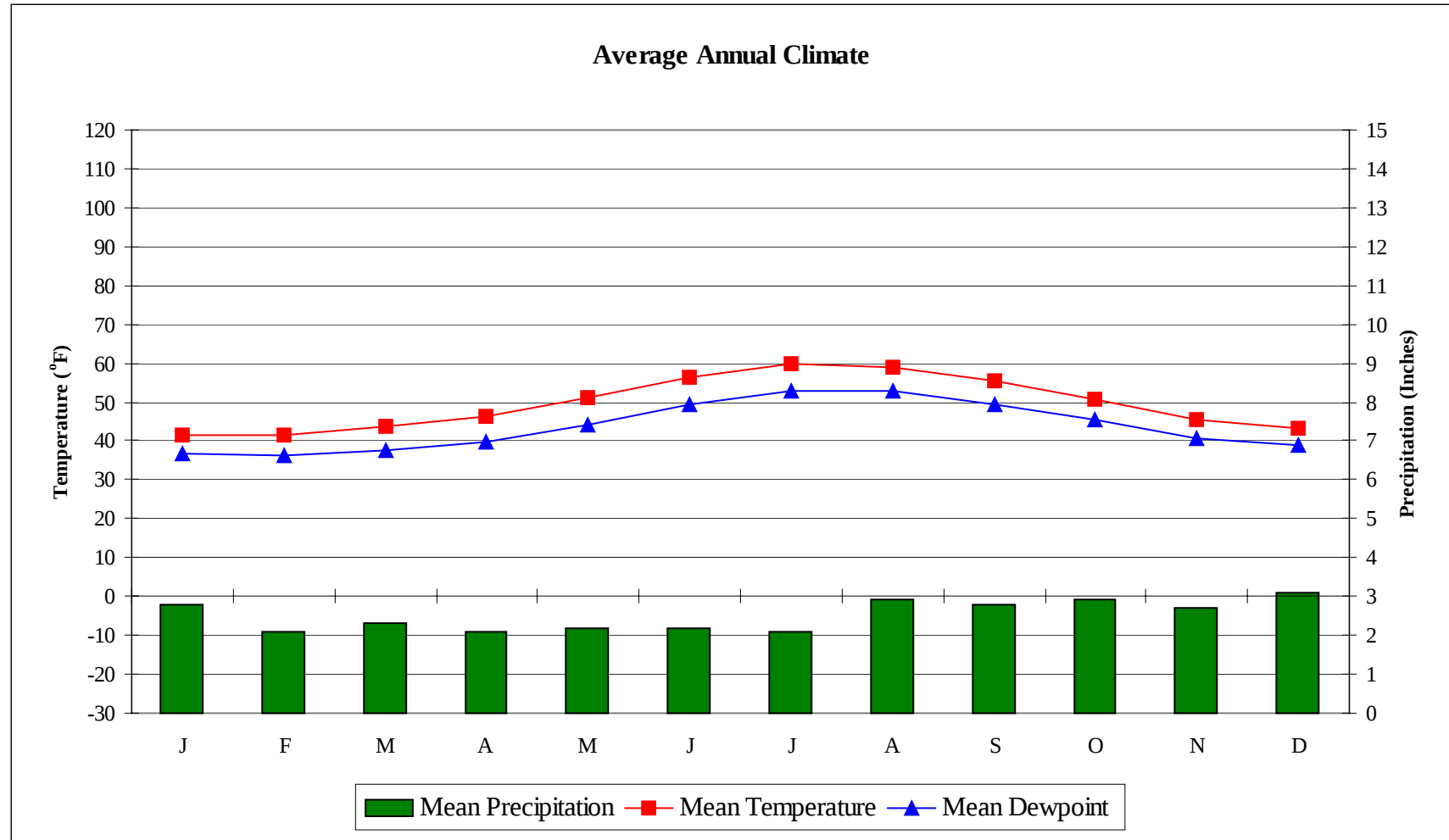
Other Site Data

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
6	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 (#)
52.0	N/A	N/A	14

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

DUBLIN, IRELAND

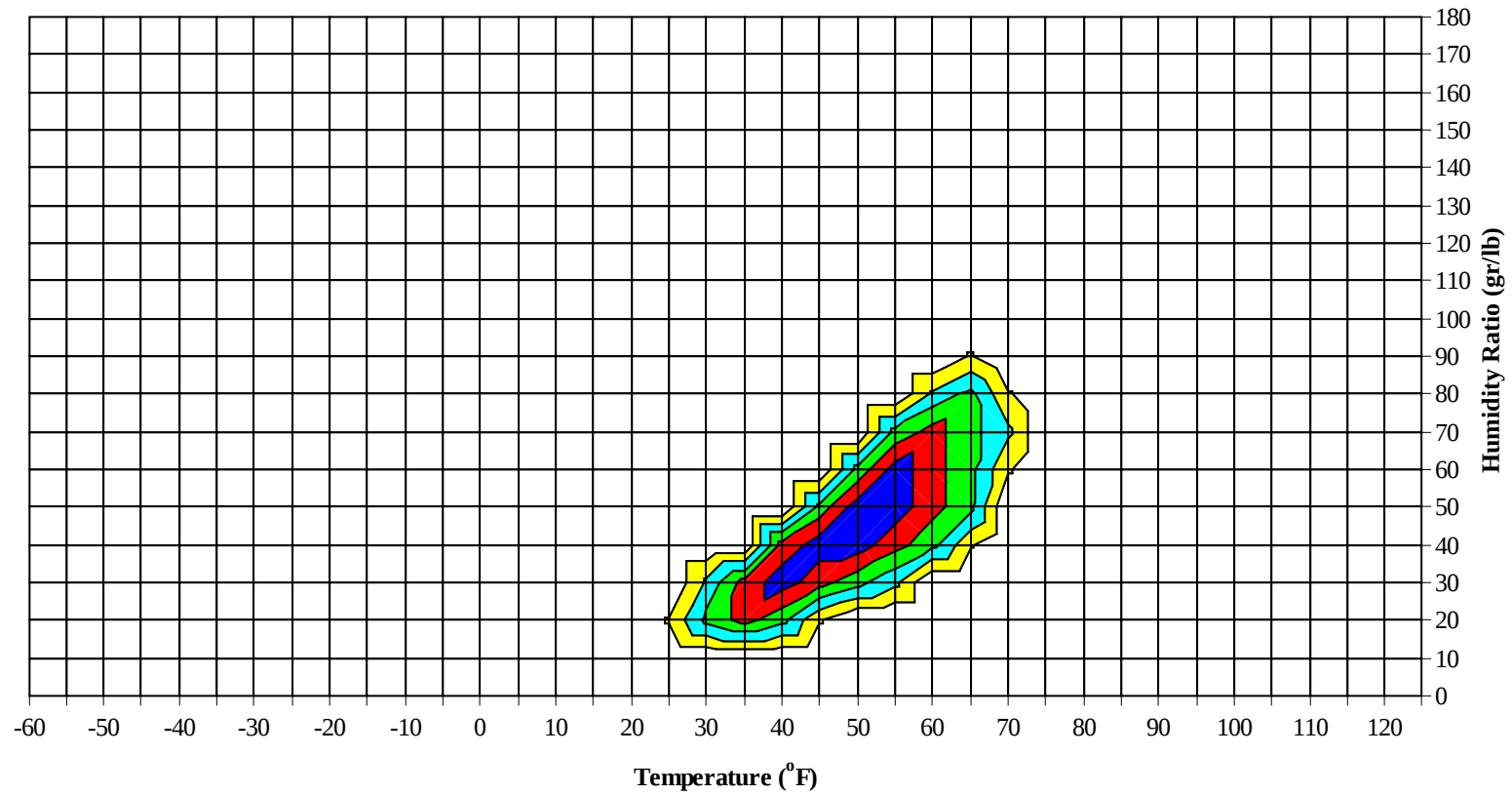
WMO No. 039690



DUBLIN, IRELAND

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Long Term Psychrometric Summary

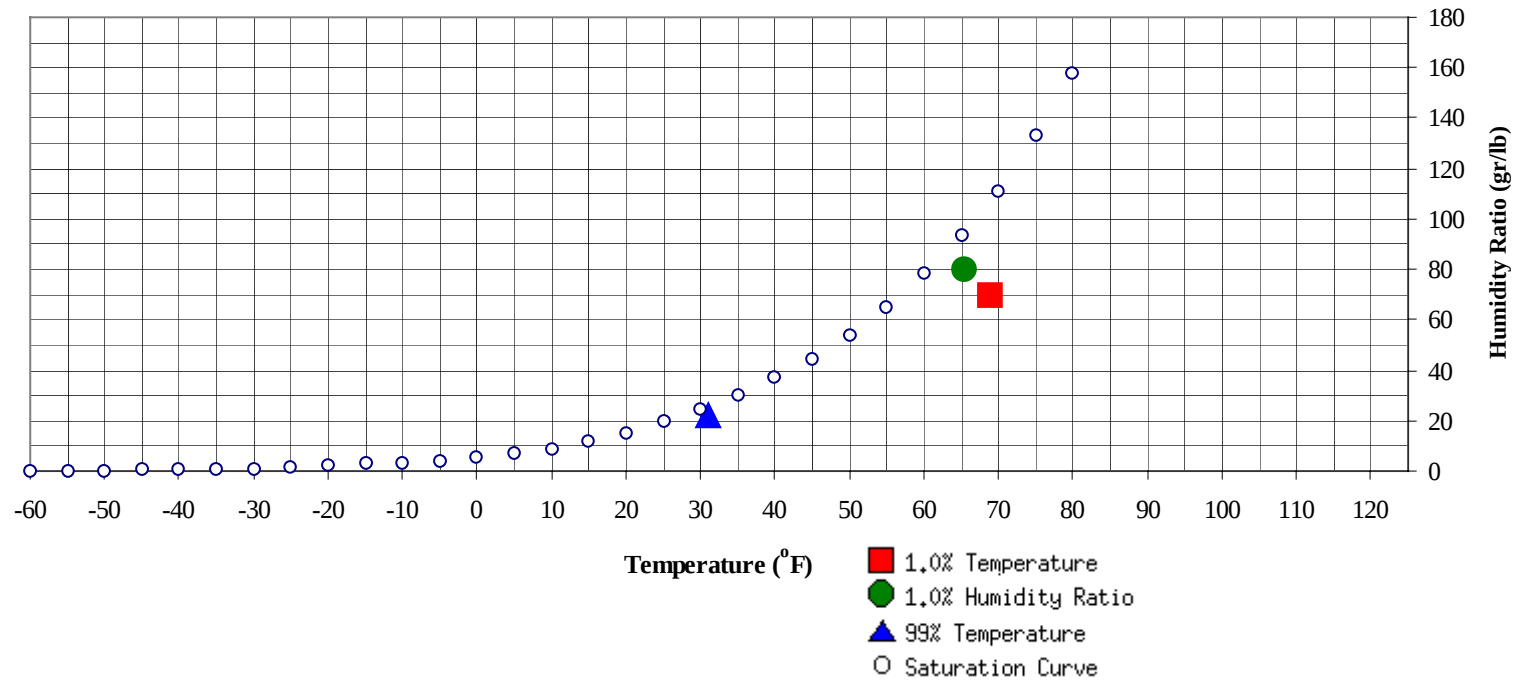


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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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)
	31	22.3	10.9		79.8	65.5	62.5	60.7	28.1

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	69	69.4	61.3	27.4

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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		
80 / 84															
75 / 79															
70 / 74															
65 / 69															
60 / 64												1	0	1	51.5
55 / 59	1	2	2	5	51.9	0	2	1	3	50.5	1	14	4	19	51.0
50 / 54	24	34	26	84	48.5	11	27	16	54	48.0	19	52	32	103	47.5
45 / 49	53	69	60	182	44.3	44	71	55	170	44.0	57	96	80	233	43.4
40 / 44	58	68	63	189	39.7	53	60	61	174	39.9	71	60	77	208	39.7
35 / 39	65	56	67	188	35.3	73	50	68	191	35.3	70	23	44	137	35.5
30 / 34	39	16	25	80	31.2	37	13	21	71	30.8	29	3	10	42	31.6
25 / 29	7	3	4	14	26.3	6	1	2	9	26.4	2	0	0	2	27.3
20 / 24	1	0	1	2	20.7	0	0	0	0	22.9	0			0	23.0
15 / 19	0	0	0	0	17.9										

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

April						May					June					
Temperature Range (°F)	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			
80 / 84																
75 / 79																
70 / 74						1	0	1	60.5	0	8	3	11	63.2		
65 / 69	1					57.8	6	2	8	57.8	1	27	12	40	59.2	
60 / 64	7					54.6	1	29	14	44	54.8	11	74	49	134	56.4
55 / 59	1	33	14	48	50.8	15	80	48	143	51.5	66	94	89	249	53.1	
50 / 54	24	85	53	162	47.3	72	89	93	255	48.3	107	34	71	212	49.8	
45 / 49	77	83	93	253	43.7	96	38	70	204	44.7	44	2	14	60	45.6	
40 / 44	75	27	53	155	39.9	44	3	17	64	40.6	11	0	1	12	41.3	
35 / 39	49	5	22	76	35.9	17	1	4	22	36.7	1			1	37.2	
30 / 34	13	0	3	16	31.6	3		0	3	32.2						
25 / 29	1			1	27.5											
20 / 24																
15 / 19																

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 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		
80 / 84		0	0	0	68.0		0	0	0	67.0					
75 / 79		4	1	5	65.5		3	1	4	65.1		0		0	63.0
70 / 74	0	21	9	30	62.4		20	6	26	62.8		4	1	5	62.8
65 / 69	4	54	29	87	60.2	3	48	23	74	60.5	1	18	6	25	60.3
60 / 64	37	105	90	232	57.5	37	105	84	226	57.6	15	68	36	119	57.1
55 / 59	117	60	91	268	54.6	107	65	96	268	54.6	70	106	94	271	53.7
50 / 54	74	4	27	105	50.7	76	7	34	117	50.7	84	39	75	198	49.6
45 / 49	15		2	17	46.5	23	0	4	27	46.3	51	4	24	79	45.4
40 / 44	1		0	1	42.8	2			2	42.3	16	0	3	19	41.3
35 / 39											3		0	3	37.7
30 / 34															
25 / 29															
20 / 24															
15 / 19															

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.

DUBLIN, IRELAND

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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		
80 / 84															
75 / 79															
70 / 74															
65 / 69		1	0	1	59.9										
60 / 64	4	22	7	33	57.3	0	1	1	2	57.5			0	0	55.5
55 / 59	43	77	54	174	53.6	14	24	13	51	53.5	5	9	5	19	52.9
50 / 54	70	93	85	248	49.1	44	65	54	163	49.2	32	41	36	109	49.2
45 / 49	71	45	68	184	44.6	59	78	66	203	44.1	59	72	66	197	44.3
40 / 44	36	8	25	69	40.4	53	47	54	154	40.0	63	68	61	192	40.1
35 / 39	21	2	9	32	36.5	47	22	41	110	36.0	58	44	59	161	35.8
30 / 34	3	0	0	3	32.0	21	4	11	36	31.6	26	12	17	55	31.5
25 / 29						2	0	0	2	28.0	4	2	3	9	26.6
20 / 24											1	0	0	1	21.9
15 / 19											0		0	0	19.0

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.

WMO No. 039690

Period of Record = 1973 to 1996

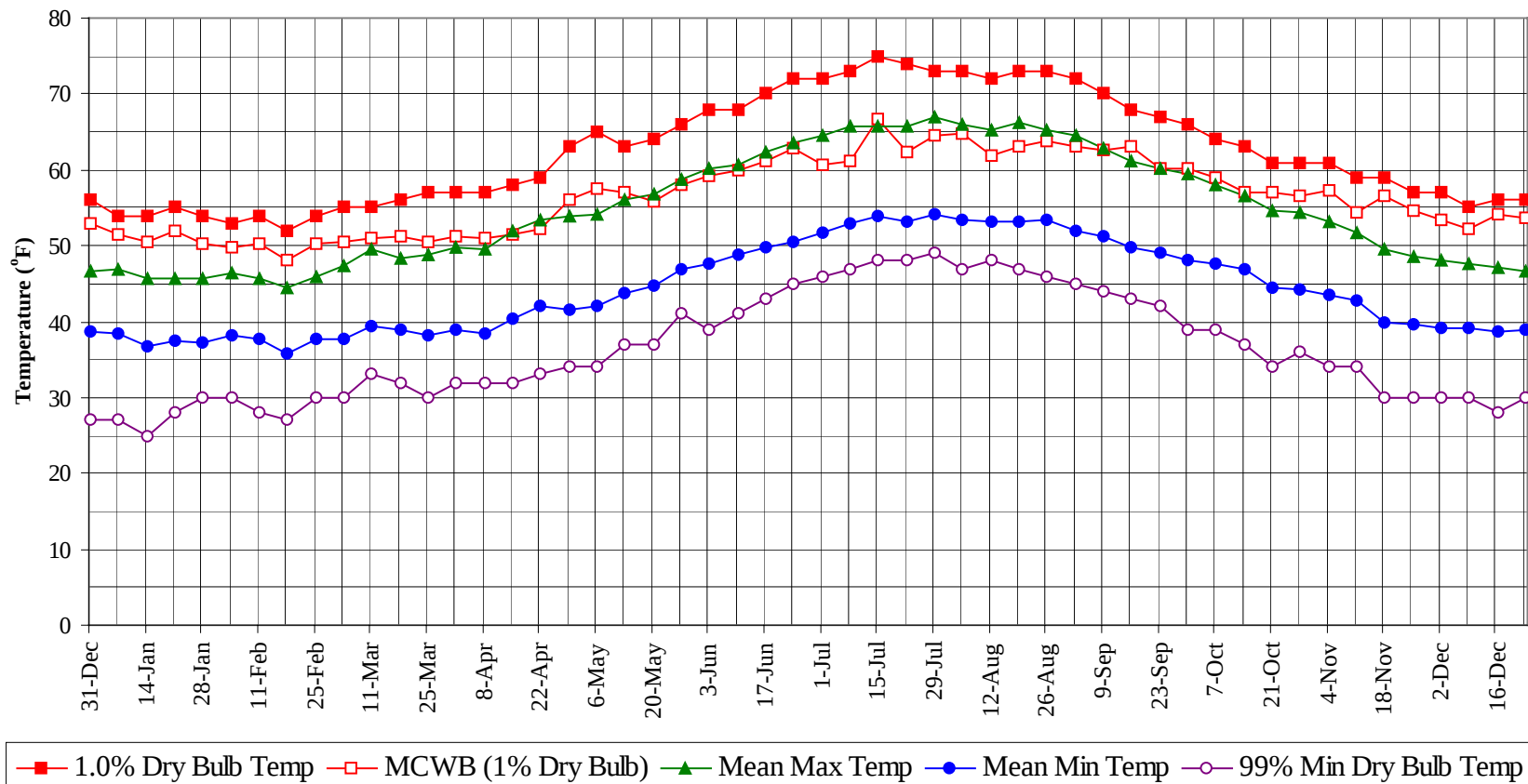
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
80 / 84		0	0	0	67.6
75 / 79		7	1	8	65.1
70 / 74	0	54	18	72	62.4
65 / 69	10	156	72	238	60.1
60 / 64	104	412	284	800	57.1
55 / 59	439	565	512	1516	53.5
50 / 54	639	569	604	1812	49.0
45 / 49	651	556	602	1809	44.3
40 / 44	481	341	414	1236	40.0
35 / 39	403	203	314	920	35.6
30 / 34	172	49	87	308	31.3
25 / 29	21	6	10	37	26.6
20 / 24	2	1	1	4	21.3
15 / 19	0	0	0	0	18.1

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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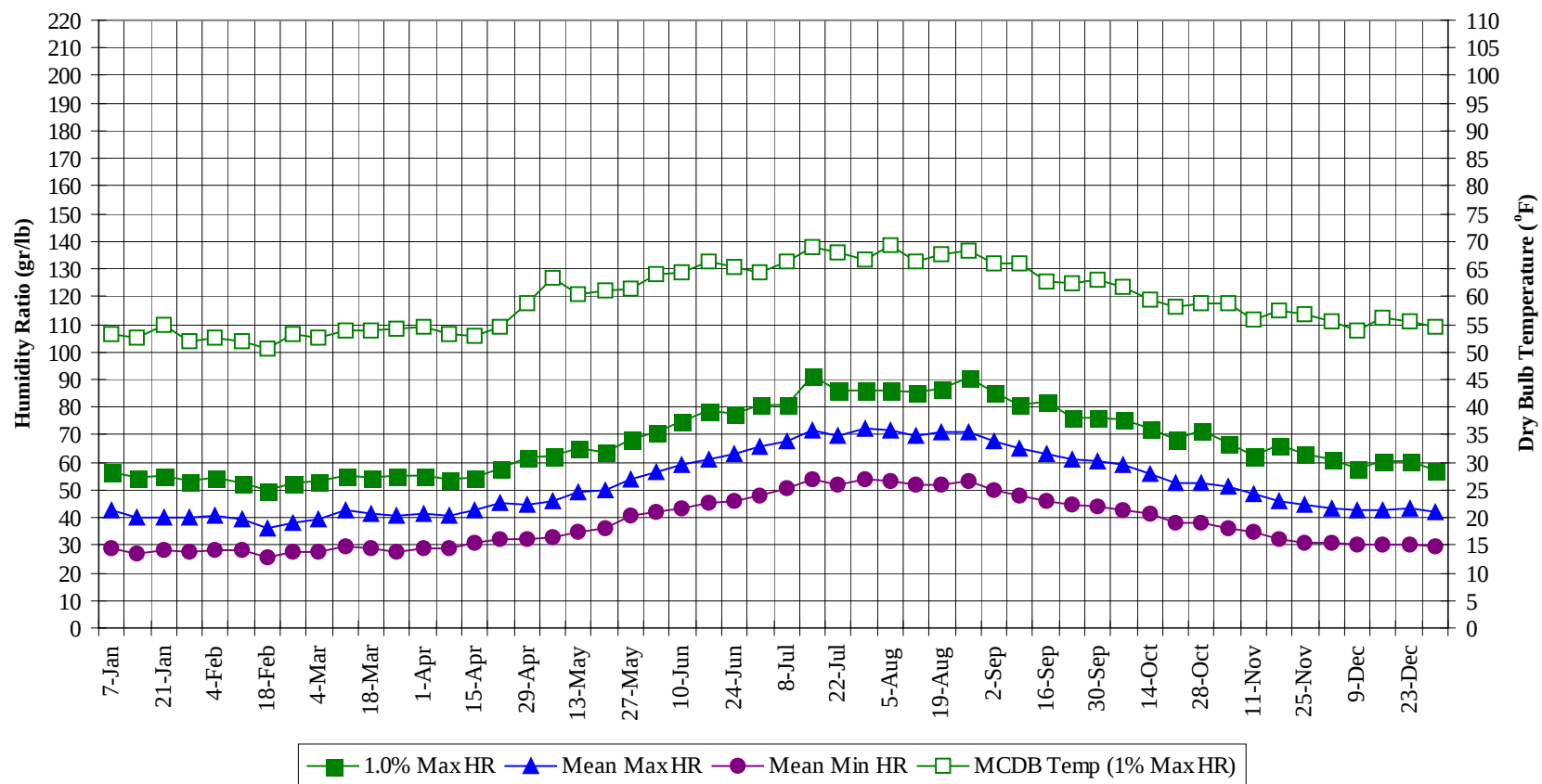
Annual Summary of Temperatures



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Long Term Humidity and Dry Bulb Temperature Summary

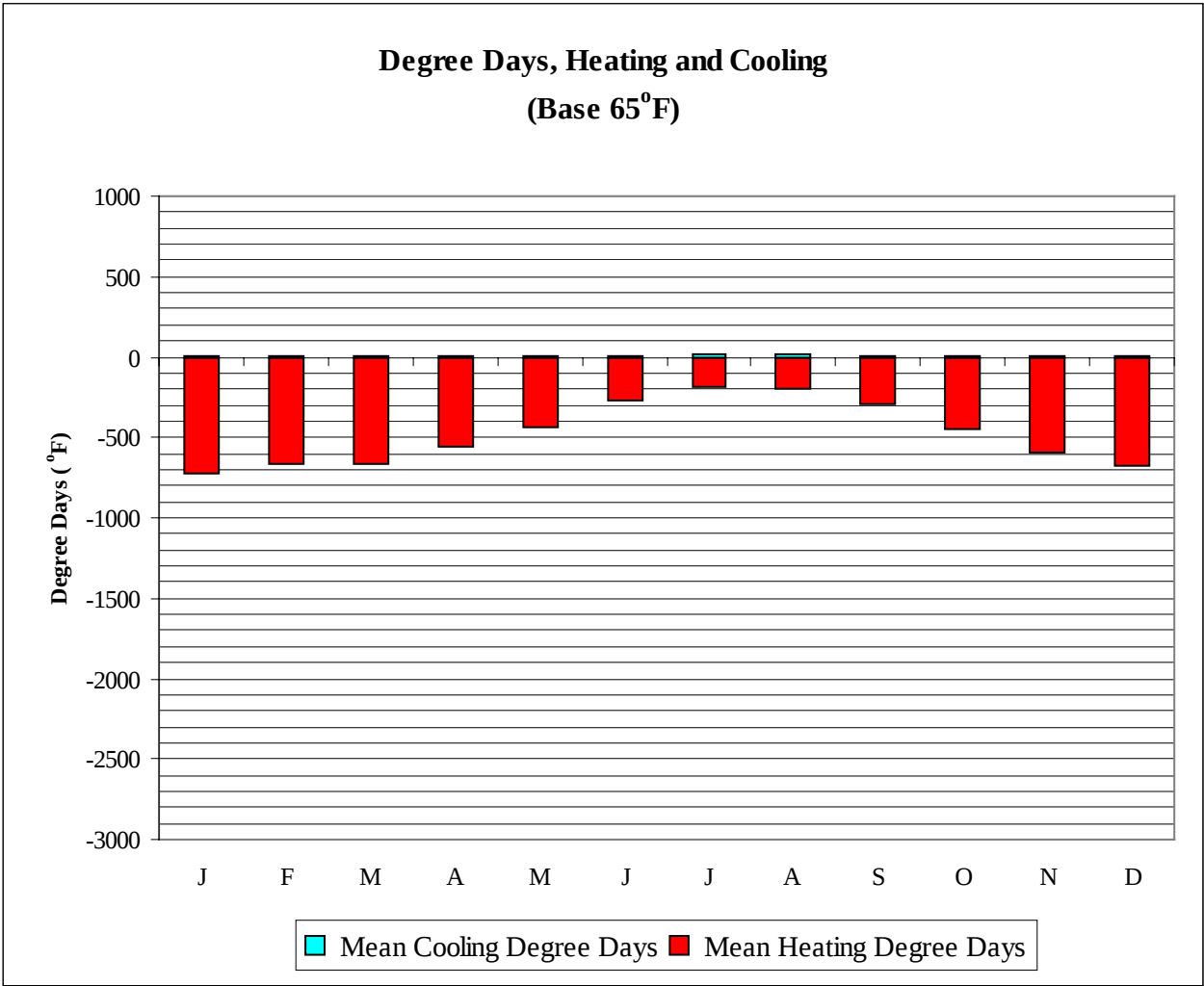


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Long Term Dry Bulb Temperature and Humidity Summary

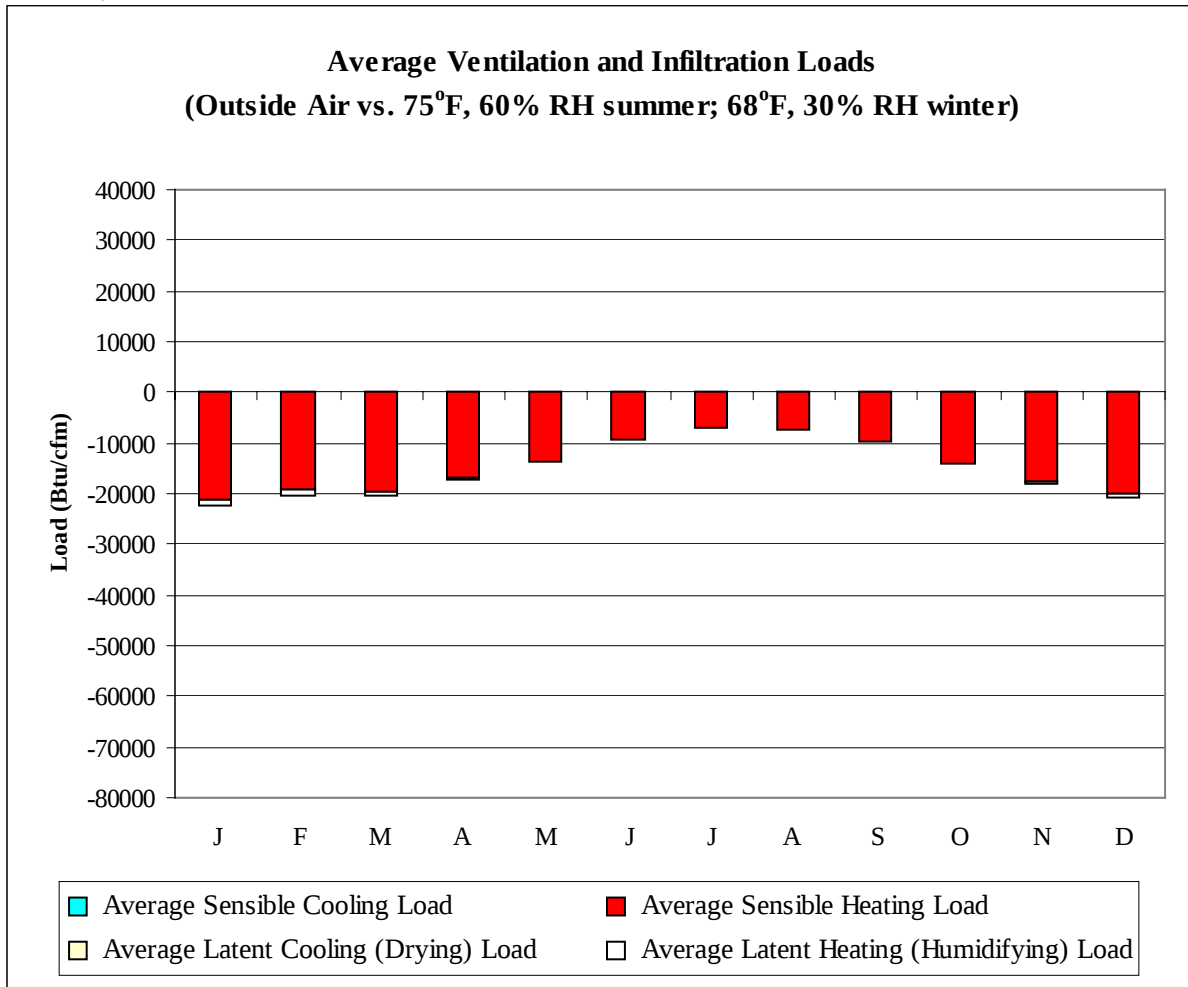
Week Ending	1.0% Temp (°F)	MCWB @ 1% Temp (°F)	Mean Max Temp (°F)	Mean Min Temp (°F)	99% Temp (°F)	1.0% HR (gr/lb)	MCDB @ 1% HR (°F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	54.0	51.6	47.0	38.4	27.0	56.7	53.3	42.4	29.1
14-Jan	54.0	50.6	45.6	36.8	25.0	54.6	52.6	39.8	26.9
21-Jan	55.0	51.9	45.7	37.4	28.0	55.3	55.0	39.9	28.0
28-Jan	54.0	50.2	45.6	37.1	30.0	53.2	51.7	39.8	27.7
4-Feb	53.0	49.8	46.4	38.2	30.0	54.6	52.5	40.5	28.3
11-Feb	54.0	50.3	45.8	37.7	28.0	52.5	51.9	39.5	28.0
18-Feb	52.0	48.2	44.6	35.8	27.0	49.7	50.5	36.4	25.3
25-Feb	54.0	50.3	45.9	37.7	30.0	52.5	53.2	38.3	27.7
4-Mar	55.0	50.4	47.4	37.6	30.0	53.2	52.4	39.6	27.8
11-Mar	55.0	51.1	49.6	39.4	33.0	55.3	53.8	42.6	29.7
18-Mar	56.0	51.3	48.3	38.9	32.0	54.6	53.7	41.1	29.0
25-Mar	57.0	50.6	48.8	38.3	30.0	55.3	54.3	40.5	27.8
1-Apr	57.0	51.1	49.9	39.0	32.0	55.3	54.4	41.2	28.7
8-Apr	57.0	50.9	49.6	38.5	32.0	53.9	53.1	40.8	29.2
15-Apr	58.0	51.5	52.0	40.3	32.0	54.6	52.8	42.9	30.6
22-Apr	59.0	52.3	53.3	42.0	33.0	58.1	54.5	45.4	32.5
29-Apr	63.0	56.1	53.9	41.5	34.0	61.6	58.6	44.8	32.3
6-May	65.0	57.4	54.1	42.2	34.0	62.3	63.4	45.7	32.9
13-May	63.0	57.1	56.1	43.6	37.0	65.1	60.5	49.0	34.9
20-May	64.0	55.7	56.7	44.8	37.0	63.7	60.9	49.8	36.4
27-May	66.0	57.9	58.7	46.9	41.0	68.6	61.5	53.8	40.5
3-Jun	68.0	59.2	60.1	47.6	39.0	70.7	64.0	56.5	41.8
10-Jun	68.0	59.9	60.7	48.7	41.0	74.9	64.3	59.0	43.5
17-Jun	70.0	61.2	62.4	49.7	43.0	79.1	66.3	61.2	45.1
24-Jun	72.0	62.9	63.5	50.5	45.0	77.7	65.5	62.9	46.2
1-Jul	72.0	60.7	64.5	51.6	46.0	80.5	64.5	65.6	48.0
8-Jul	73.0	61.1	65.6	53.0	47.0	80.5	66.5	68.0	50.7
15-Jul	75.0	66.7	65.7	54.0	48.0	91.0	68.9	71.8	53.8
22-Jul	74.0	62.3	65.9	53.3	48.0	86.1	67.9	69.6	52.1
29-Jul	73.0	64.5	66.9	54.2	49.0	86.1	66.8	72.1	54.0
5-Aug	73.0	64.8	65.9	53.4	47.0	86.1	69.4	71.6	53.4
12-Aug	72.0	61.9	65.2	53.1	48.0	85.4	66.2	69.5	52.1
19-Aug	73.0	63.2	66.1	53.2	47.0	86.8	67.6	70.8	52.1
26-Aug	73.0	63.7	65.1	53.4	46.0	90.3	68.5	70.8	53.3
2-Sep	72.0	63.1	64.5	52.0	45.0	85.4	66.0	67.8	49.8
9-Sep	70.0	62.7	63.0	51.2	44.0	80.5	65.9	65.3	48.3
16-Sep	68.0	63.2	61.2	49.7	43.0	81.9	62.8	63.1	45.8
23-Sep	67.0	60.1	60.3	49.0	42.0	76.3	62.5	61.0	44.6
30-Sep	66.0	60.2	59.4	48.1	39.0	76.3	62.9	60.3	44.0
7-Oct	64.0	59.1	57.9	47.6	39.0	75.6	61.6	59.0	42.4
14-Oct	63.0	57.1	56.5	46.9	37.0	72.1	59.6	55.7	41.6
21-Oct	61.0	57.2	54.5	44.4	34.0	68.6	58.3	52.6	38.4
28-Oct	61.0	56.6	54.4	44.3	36.0	71.4	58.8	52.3	37.8
4-Nov	61.0	57.2	53.2	43.5	34.0	67.2	58.7	51.0	36.1
11-Nov	59.0	54.5	51.8	42.7	34.0	62.3	55.7	48.9	34.7
18-Nov	59.0	56.5	49.6	40.0	30.0	66.5	57.6	46.0	32.0
25-Nov	57.0	54.5	48.6	39.6	30.0	63.0	57.0	44.4	31.1
2-Dec	57.0	53.3	48.0	39.2	30.0	60.9	55.4	43.6	31.1
9-Dec	55.0	52.1	47.6	39.2	30.0	58.1	53.9	42.9	30.5
16-Dec	56.0	54.2	47.1	38.7	28.0	60.2	56.2	42.9	30.2
23-Dec	56.0	53.6	46.6	39.0	30.0	60.2	55.4	43.2	30.5
31-Dec	56.0	53.0	46.6	38.7	27.0	57.4	54.4	41.8	29.9



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	720
FEB	0	664
MAR	0	660
APR	0	560
MAY	1	437
JUN	6	270
JUL	16	181
AUG	13	197
SEP	3	293
OCT	0	446
NOV	0	587
DEC	0	678
ANN	39	5693

DUBLIN, IRELAND

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	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	-21074	0	-1199
FEB	0	-19390	0	-1183
MAR	0	-19519	0	-859
APR	0	-16852	0	-502
MAY	0	-13729	0	-118
JUN	0	-9225	11	-6
JUL	6	-6845	99	0
AUG	6	-7299	122	0
SEP	0	-9879	22	-3
OCT	0	-13981	1	-97
NOV	0	-17558	0	-458
DEC	0	-19989	0	-750
ANN	12	-175340	255	-5175

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

No Solar Radiation
Data Available

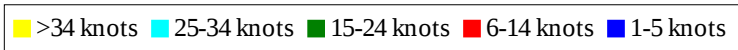
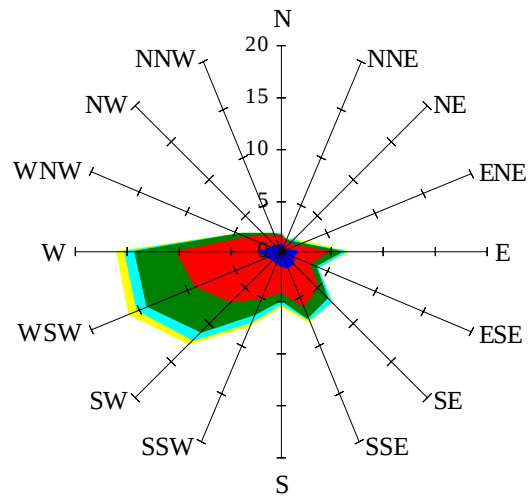


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

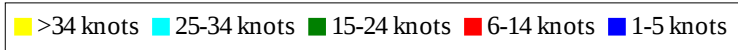
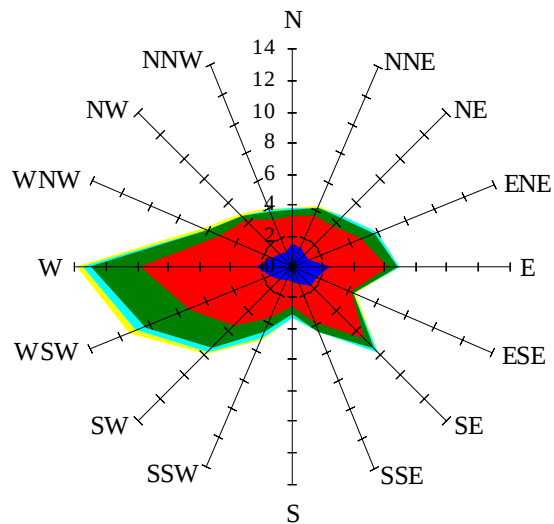
Labels of Percent Frequency on North Axis



Percent Calm = 2.02

Wind Summary - March, April, and May

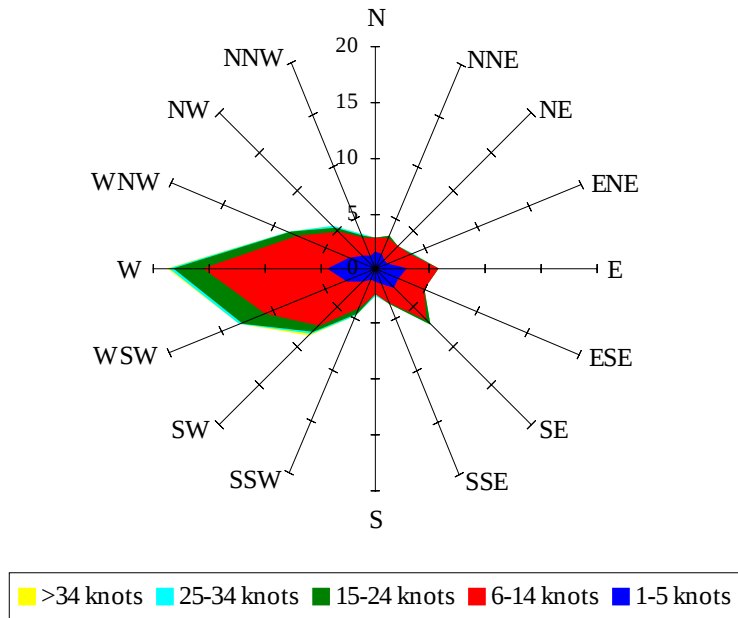
Labels of Percent Frequency on North Axis



Percent Calm = 2.73

Wind Summary - June, July, and August

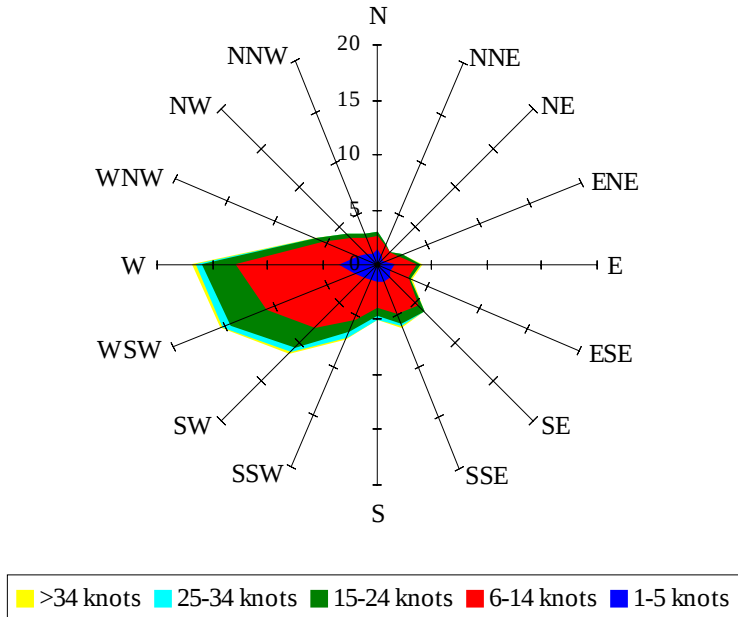
Labels of Percent Frequency on North Axis



Percent Calm = 3.85

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 3.30