

KINGSTON/NORMAN MANLEY JM

Latitude = 17.93 N

WMO No. 783970

Longitude = 76.78 W

Elevation = 30 feet

Period of Record = 1973 to 1996

Average Pressure = 29.86 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	95	78	118	24.3	E
0.4% Occurrence	93	79	125	24.1	E
1.0% Occurrence	91	78	128	21.3	ESE
2.0% Occurrence	91	78	128	21.3	ESE
Mean Daily Range	11	-	-	-	-
97.5% Occurrence	73	69	100	4.7	NNW
99.0% Occurrence	73	69	100	4.7	NNW
99.6% Occurrence	72	69	100	4.8	NNW
Median of Extreme Lows	68	66	90	4.3	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	85	89	173	14.9	SE
0.4% Occurrence	82	88	152	17.2	ESE
1.0% Occurrence	81	88	146	17.2	ESE
2.0% Occurrence	80	87	140	16.7	ESE
	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	181	88	1.19	14.7	ESE
0.4% Occurrence	160	87	1.06	13.2	SE
1.0% Occurrence	151	85	0.99	12.5	SE
2.0% Occurrence	150	85	0.99	12.6	SE
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		35	5896	6052	7887

Other Site Data

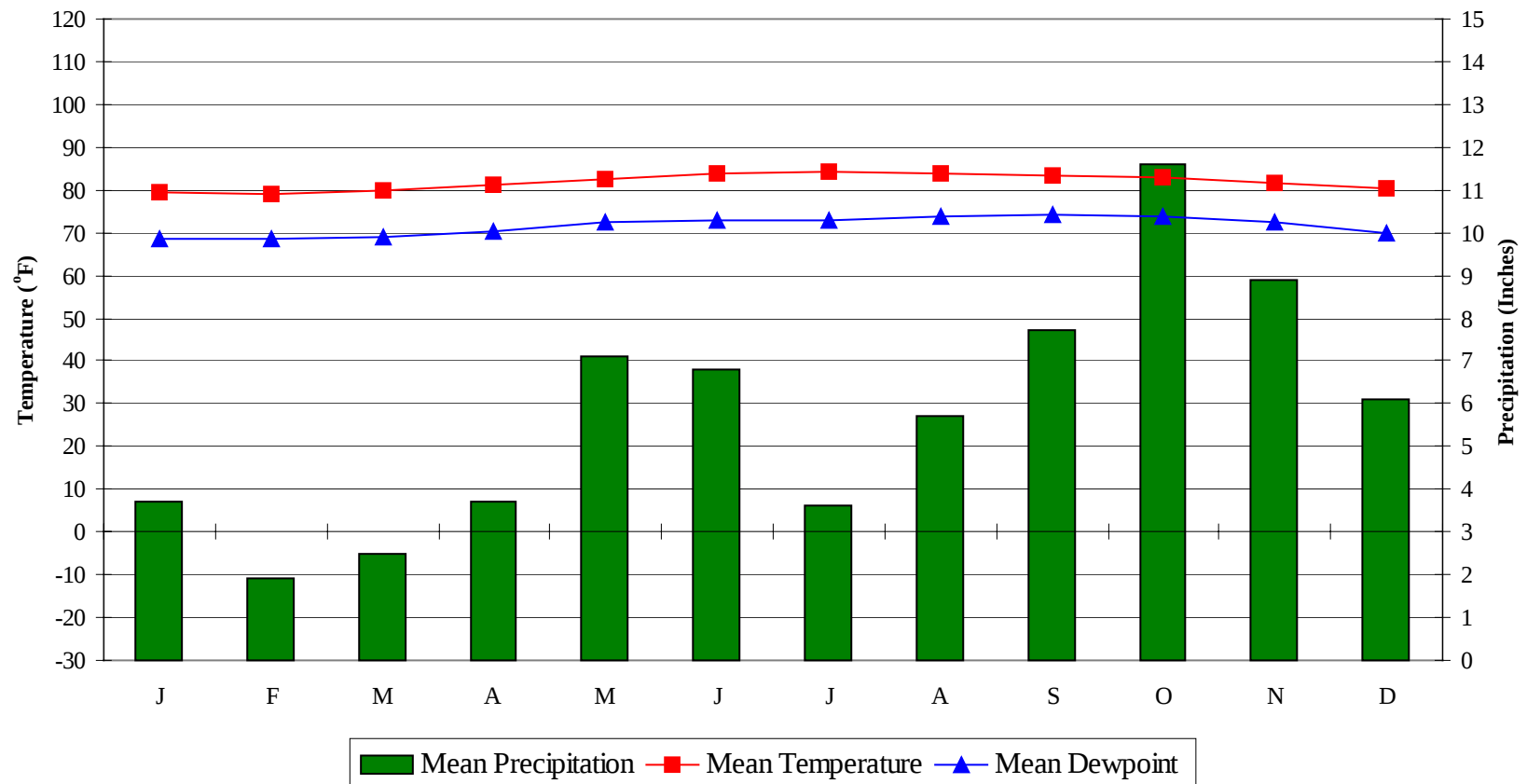
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
10	N/A	N/A	15.4 + 5.5
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
84.4	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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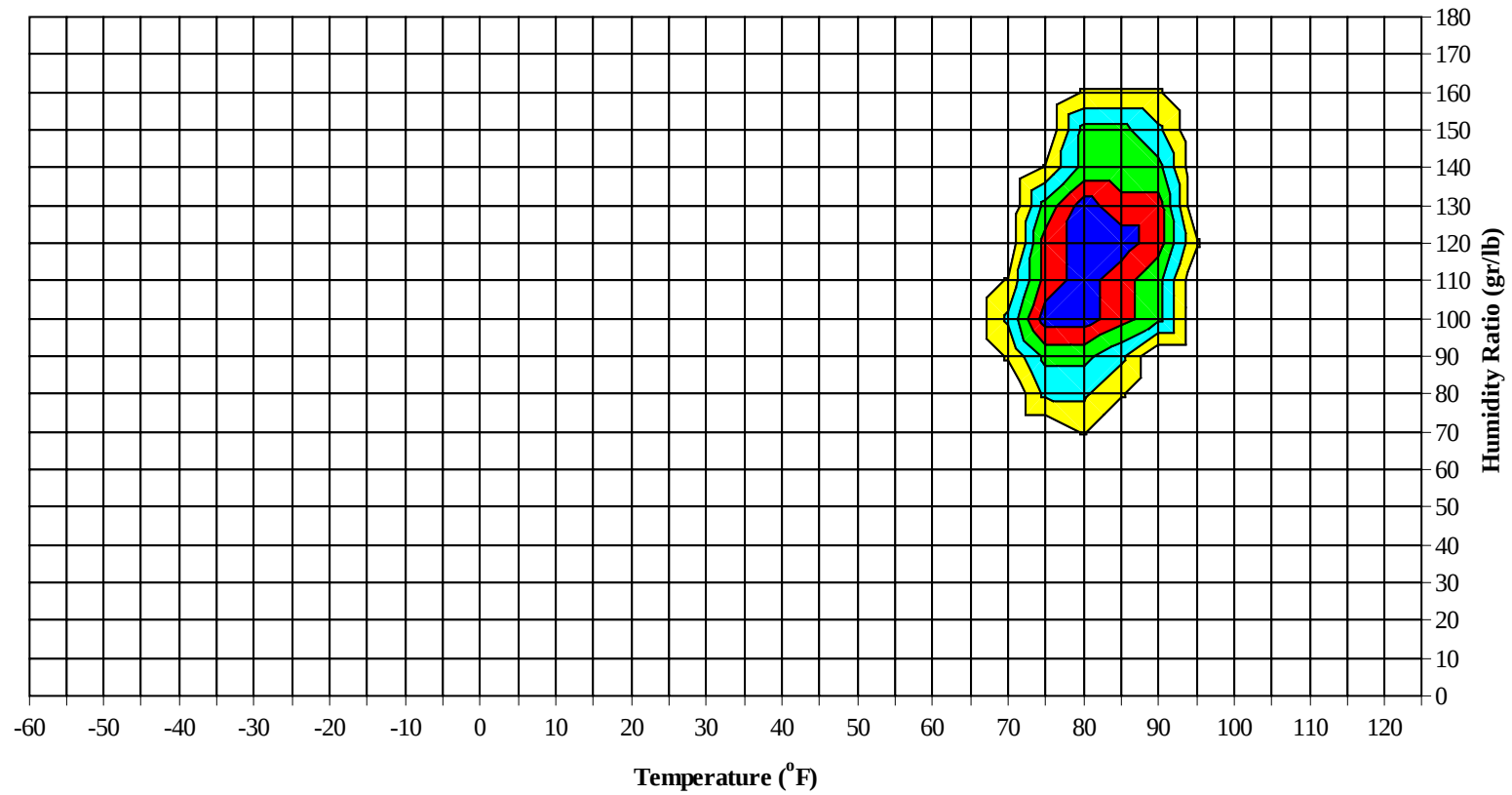
Average Annual Climate



KINGSTON/NORMAN MANLEY JM

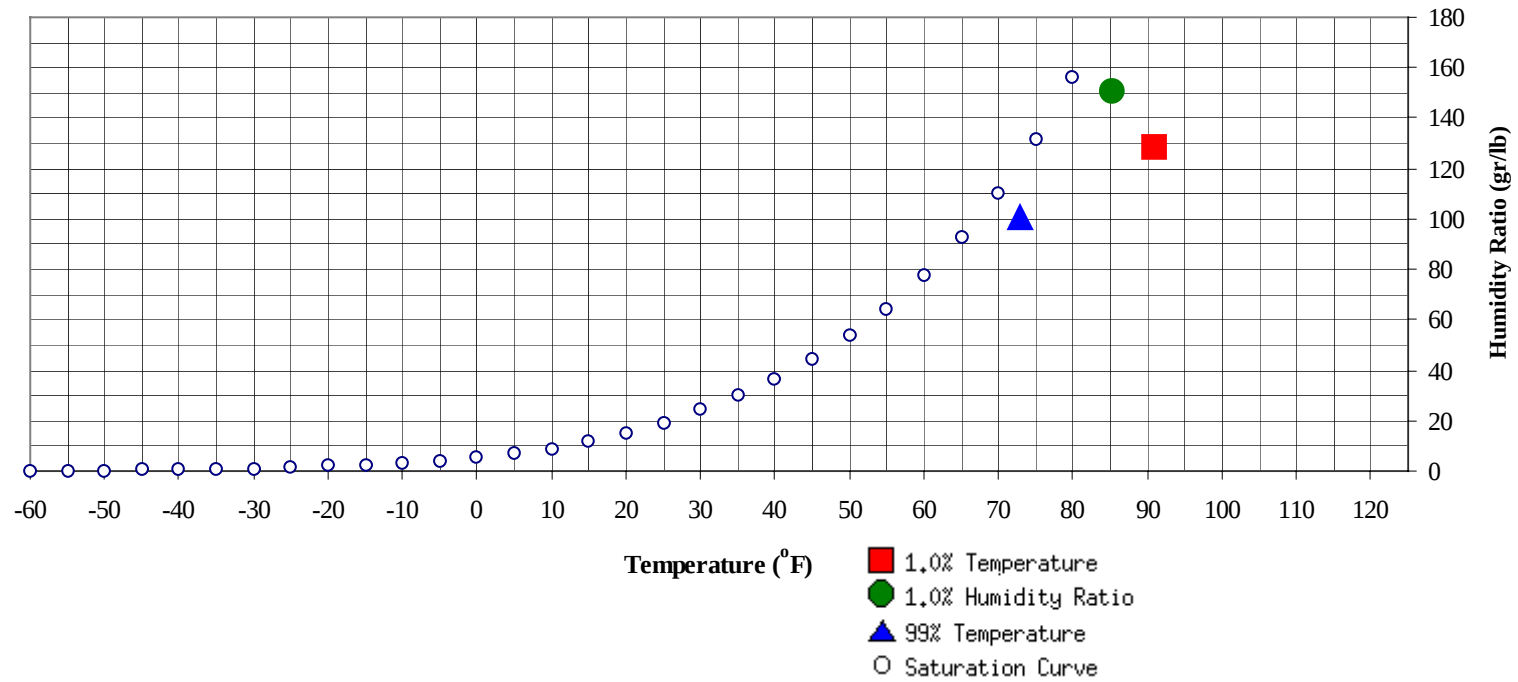
WMO No. 783970

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)
	73	100.9	33.3		150.5	85.2	80.5	78.8	44.1

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	91	128.6	78.9	42.1

KINGSTON/NORMAN MANLEY **JM** WMO No. 783970

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

Period of Record = 1973 to 1996

[illegible]

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.

KINGSTON/NORMAN MANLEY **JM** **WMO No. 783970**

Dry-Bulb Temperature Hours For An Average Year (Sheet 2 of 5)

Period of Record = 1973 to 1996

[illegible]

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.

KINGSTON/NORMAN MANLEY **JM** WMO No. 783970

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

Period of Record = 1973 to 1996

July						August					September				
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		
95 / 99	1			1	76.9	0	1	0	1	78.4	1			1	78.7
90 / 94	0	119	5	124	78.3	1	99	4	104	78.8	1	82	1	84	78.9
85 / 89	16	104	57	177	76.9	11	115	45	171	77.5	10	105	34	149	77.7
80 / 84	172	22	176	370	75.4	173	29	183	385	76.0	151	41	174	366	76.3
75 / 79	60	3	10	73	73.9	62	5	15	82	74.3	76	10	30	116	74.4
70 / 74	0	0	0	0	71.5	1	0	1	2	72.6	2	1	1	4	72.0
65 / 69															
60 / 64															
	</														

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 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		
95 / 99		0		0	79.6		0		0	79.0			0	0	74.0
90 / 94	0	55	0	55	79.2	0	26	0	26	78.1	0	16	0	16	76.2
85 / 89	6	128	16	150	77.5	2	119	9	130	76.6	1	103	6	110	75.0
80 / 84	129	56	186	370	76.2	76	83	155	314	75.2	34	115	111	259	73.7
75 / 79	112	10	46	168	74.4	158	12	75	245	73.5	176	14	126	315	71.9
70 / 74	1	0	0	1	71.5	4	0	1	5	70.8	38	1	5	44	69.0
65 / 69											0	0	0	0	66.0
60 / 64													0	0	

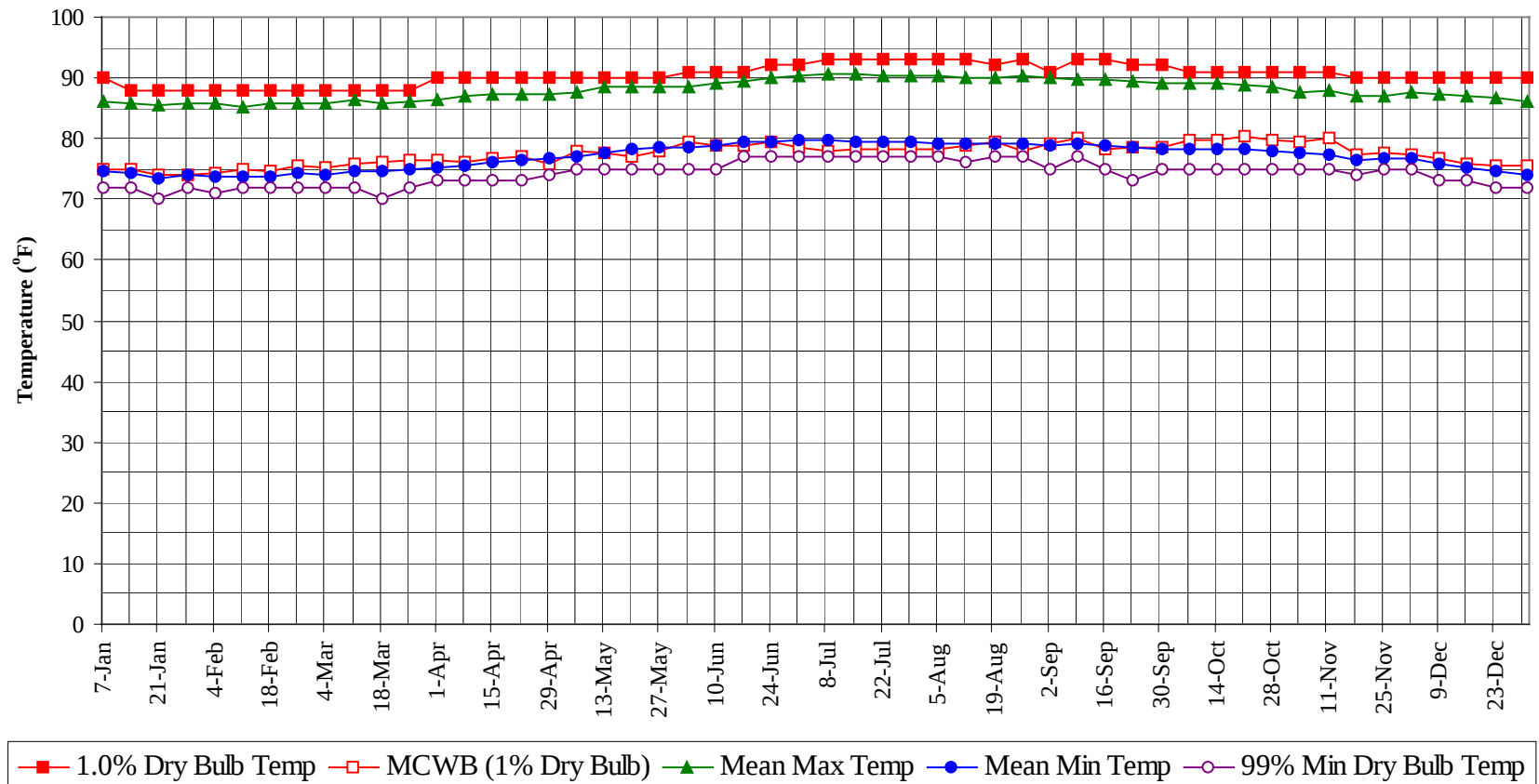
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

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Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)
Period of Record = 1973 to 1996

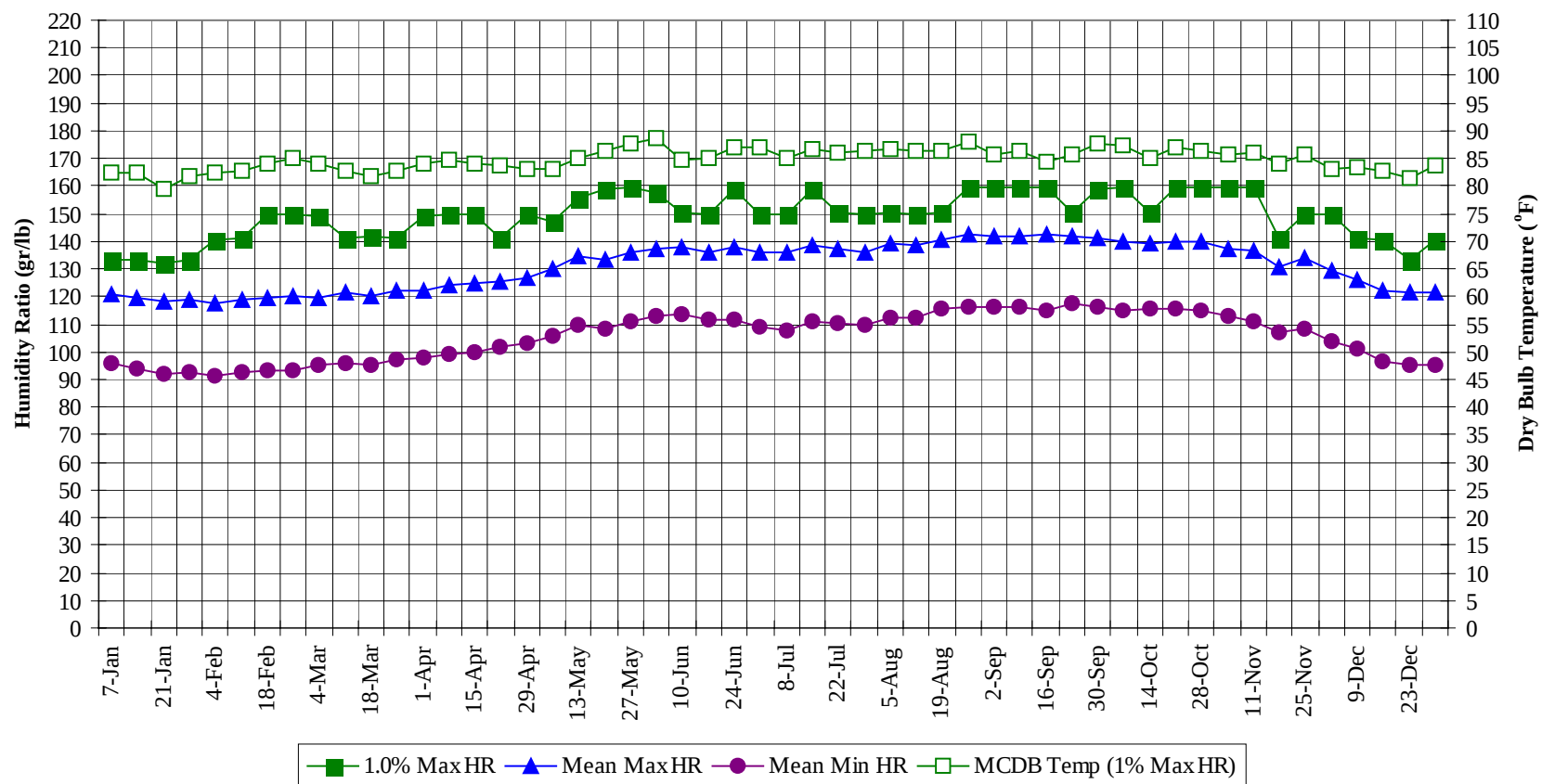
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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary

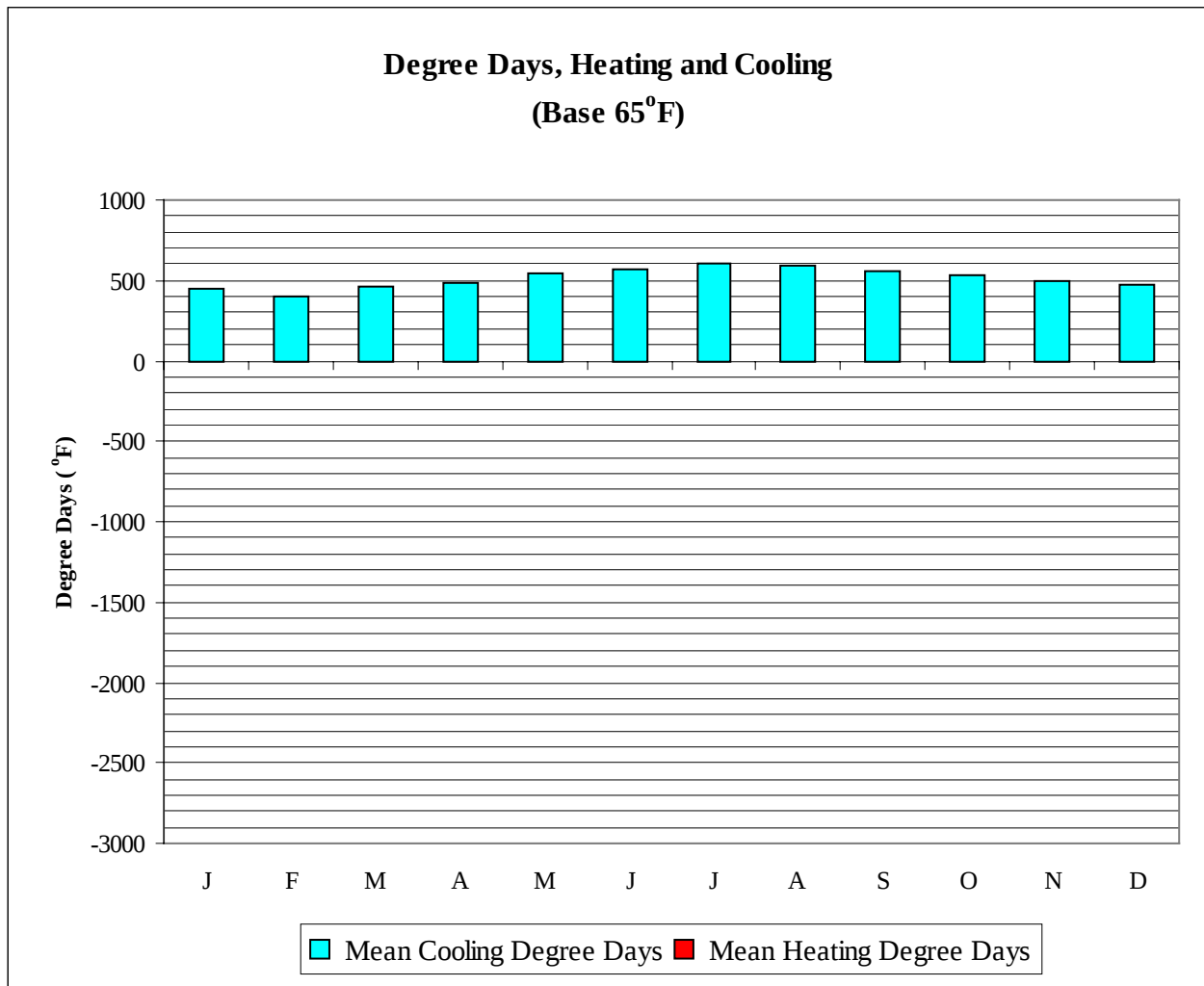


KINGSTON/NORMAN MANLEY JM

WMO No. 783970

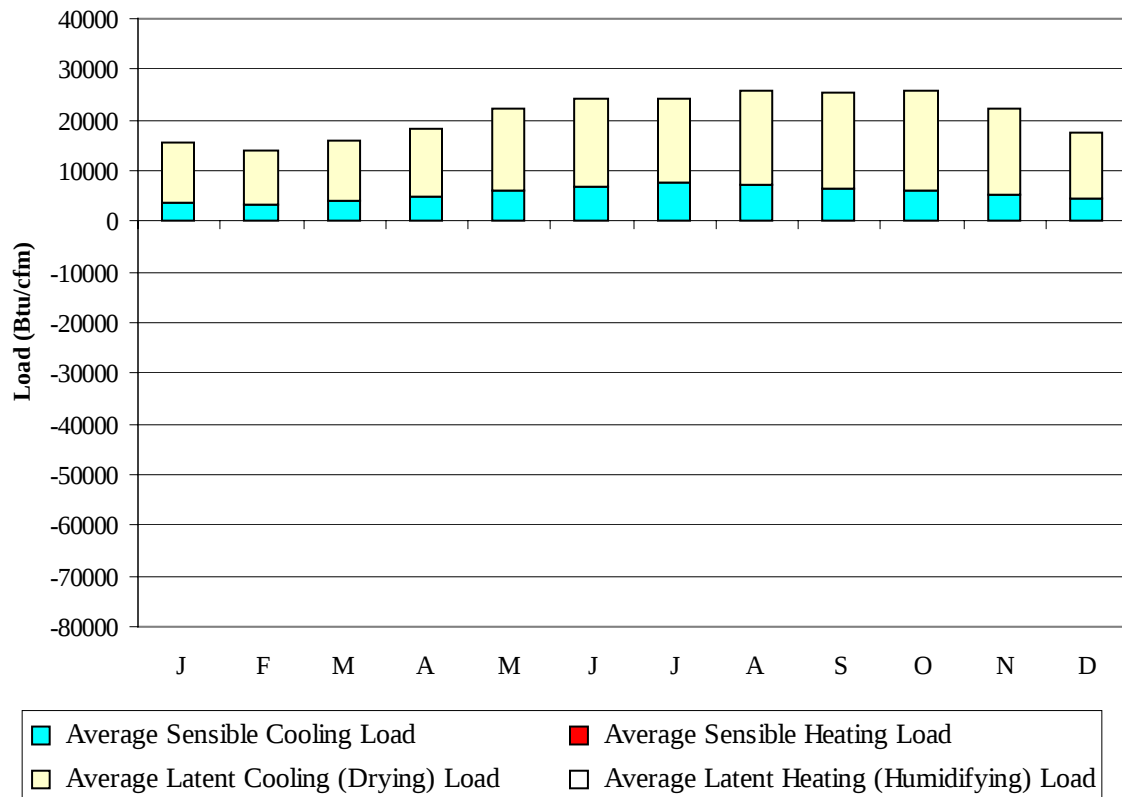
Long Term Dry Bulb Temperature and Humidity Summary

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	90.0	75.0	86.2	74.5	72.0	133.0	82.3	121.1	95.8
14-Jan	88.0	74.9	85.9	74.2	72.0	133.0	82.3	119.7	93.8
21-Jan	88.0	74.0	85.6	73.5	70.0	132.3	79.5	118.1	92.1
28-Jan	88.0	74.2	85.7	74.0	72.0	133.0	81.8	118.6	92.5
4-Feb	88.0	74.3	85.8	73.6	71.0	140.7	82.3	117.3	91.6
11-Feb	88.0	74.9	85.1	73.7	72.0	141.4	82.9	118.7	92.7
18-Feb	88.0	74.7	85.7	73.8	72.0	149.8	84.1	119.6	93.0
25-Feb	88.0	75.5	85.9	74.4	72.0	149.8	84.9	120.1	93.1
4-Mar	88.0	75.3	85.8	74.0	72.0	149.1	84.1	119.6	95.0
11-Mar	88.0	76.0	86.3	74.6	72.0	141.4	82.8	121.3	96.0
18-Mar	88.0	76.0	85.9	74.5	70.0	142.1	81.9	119.9	95.3
25-Mar	88.0	76.4	86.1	74.9	72.0	141.4	82.8	121.9	97.0
1-Apr	90.0	76.5	86.5	75.2	73.0	149.1	84.0	122.3	98.1
8-Apr	90.0	76.3	86.9	75.5	73.0	149.8	84.8	123.9	99.0
15-Apr	90.0	76.7	87.3	76.2	73.0	149.8	84.1	125.0	99.7
22-Apr	90.0	76.9	87.4	76.4	73.0	141.4	83.6	125.2	102.0
29-Apr	90.0	75.9	87.3	76.7	74.0	149.8	83.0	126.9	103.2
6-May	90.0	78.0	87.7	77.0	75.0	147.0	83.0	130.0	105.9
13-May	90.0	77.6	88.4	77.7	75.0	155.4	85.0	134.5	109.5
20-May	90.0	77.2	88.5	78.2	75.0	158.9	86.2	133.5	108.4
27-May	90.0	78.0	88.5	78.5	75.0	159.6	87.7	136.1	110.8
3-Jun	91.0	79.6	88.4	78.6	75.0	157.5	88.7	137.1	113.0
10-Jun	91.0	78.8	89.2	78.9	75.0	150.5	84.6	137.7	113.7
17-Jun	91.0	78.8	89.6	79.6	77.0	149.8	84.9	136.2	111.7
24-Jun	92.0	79.5	90.2	79.6	77.0	158.9	87.1	138.2	111.4
1-Jul	92.0	78.5	90.2	79.7	77.0	149.8	86.9	136.2	109.0
8-Jul	93.0	77.9	90.6	79.6	77.0	149.8	85.1	136.2	108.0
15-Jul	93.0	78.4	90.6	79.6	77.0	158.9	86.7	138.4	111.1
22-Jul	93.0	78.1	90.4	79.3	77.0	150.5	86.1	137.5	110.7
29-Jul	93.0	78.2	90.4	79.3	77.0	149.8	86.3	136.1	109.5
5-Aug	93.0	78.2	90.3	79.3	77.0	150.5	86.6	139.1	112.3
12-Aug	93.0	79.0	90.0	79.1	76.0	149.8	86.4	138.3	112.1
19-Aug	92.0	79.4	89.9	79.3	77.0	150.5	86.5	140.3	115.8
26-Aug	93.0	77.9	90.2	79.2	77.0	159.6	88.1	142.5	116.2
2-Sep	91.0	79.3	89.9	78.8	75.0	159.6	85.6	142.1	116.0
9-Sep	93.0	79.9	89.9	79.1	77.0	159.6	86.3	141.9	116.4
16-Sep	93.0	78.2	89.8	78.8	75.0	159.6	84.4	142.2	114.8
23-Sep	92.0	78.7	89.3	78.5	73.0	150.5	85.6	141.8	117.4
30-Sep	92.0	78.5	89.1	78.4	75.0	158.9	87.7	141.5	116.5
7-Oct	91.0	79.8	89.2	78.3	75.0	159.6	87.5	140.1	114.8
14-Oct	91.0	79.7	89.1	78.1	75.0	150.5	85.2	139.6	115.7
21-Oct	91.0	80.4	88.9	78.3	75.0	159.6	87.0	140.0	115.4
28-Oct	91.0	79.9	88.6	78.1	75.0	159.6	86.2	139.8	114.9
4-Nov	91.0	79.5	87.8	77.6	75.0	159.6	85.7	137.2	112.9
11-Nov	91.0	79.9	88.1	77.4	75.0	159.6	86.1	136.7	111.1
18-Nov	90.0	77.4	87.1	76.6	74.0	141.4	84.0	131.0	107.0
25-Nov	90.0	77.6	87.2	76.8	75.0	149.8	85.8	134.0	108.5
2-Dec	90.0	77.2	87.7	76.6	75.0	149.8	83.1	129.6	103.7
9-Dec	90.0	76.6	87.4	75.7	73.0	141.4	83.5	126.1	100.8
16-Dec	90.0	75.9	87.0	75.3	73.0	140.7	82.7	122.3	96.5
23-Dec	90.0	75.5	86.7	74.6	72.0	133.0	81.5	121.3	95.2
31-Dec	90.0	75.5	86.1	74.0	72.0	140.7	83.6	121.2	95.2



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	445	0
FEB	401	0
MAR	464	0
APR	487	0
MAY	542	0
JUN	569	0
JUL	602	0
AUG	588	0
SEP	554	0
OCT	529	0
NOV	501	0
DEC	474	0
ANN	6155	0

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	3704	0	11758	0
FEB	3247	0	10553	0
MAR	4139	0	11625	0
APR	4863	0	13279	0
MAY	6088	0	15962	0
JUN	7002	0	17053	0
JUL	7596	0	16654	0
AUG	7238	0	18462	0
SEP	6613	0	18853	0
OCT	6004	0	19800	0
NOV	5226	0	17079	0
DEC	4401	0	13158	0
ANN	66121	0	184236	0

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

No Solar Radiation
Data Available

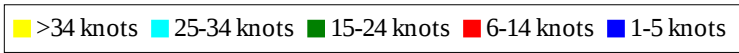
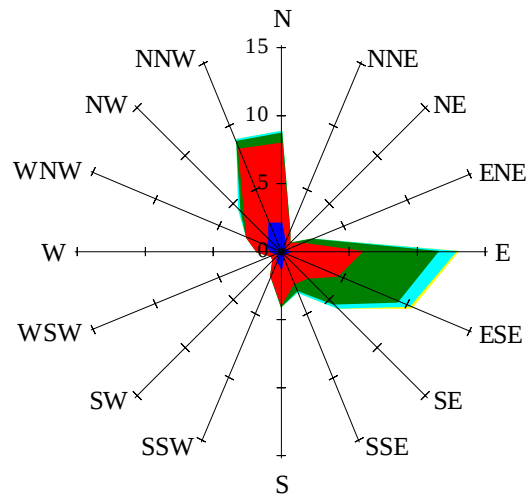


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

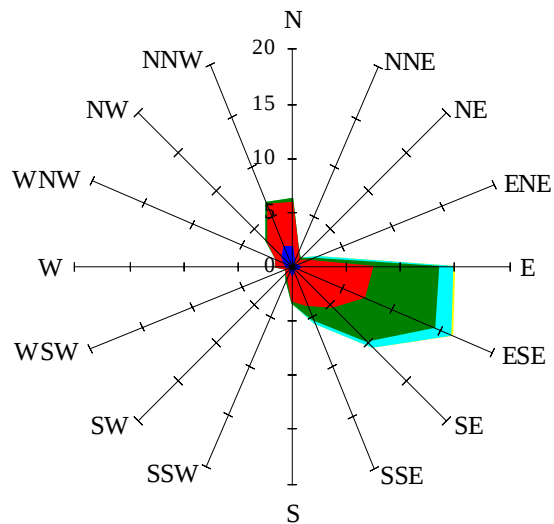
Labels of Percent Frequency on North Axis



Percent Calm = 29.04

Wind Summary - March, April, and May

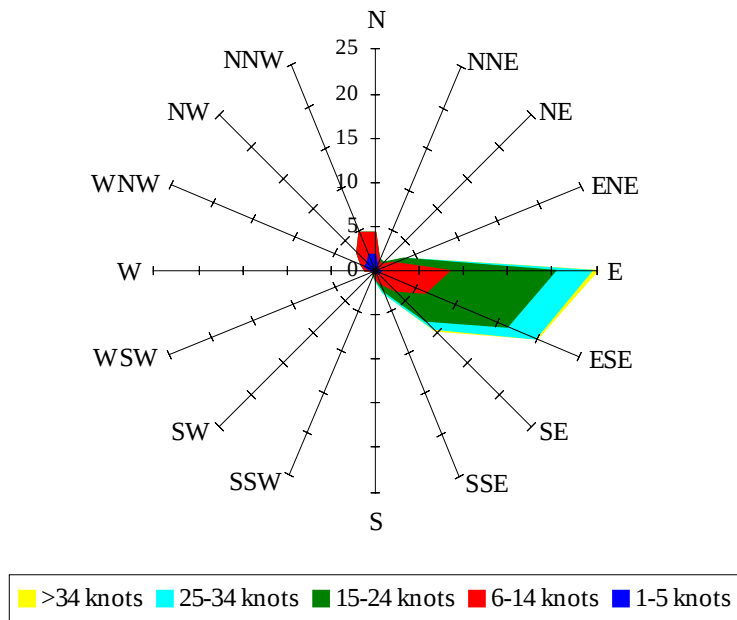
Labels of Percent Frequency on North Axis



Percent Calm = 23.52

Wind Summary - June, July, and August

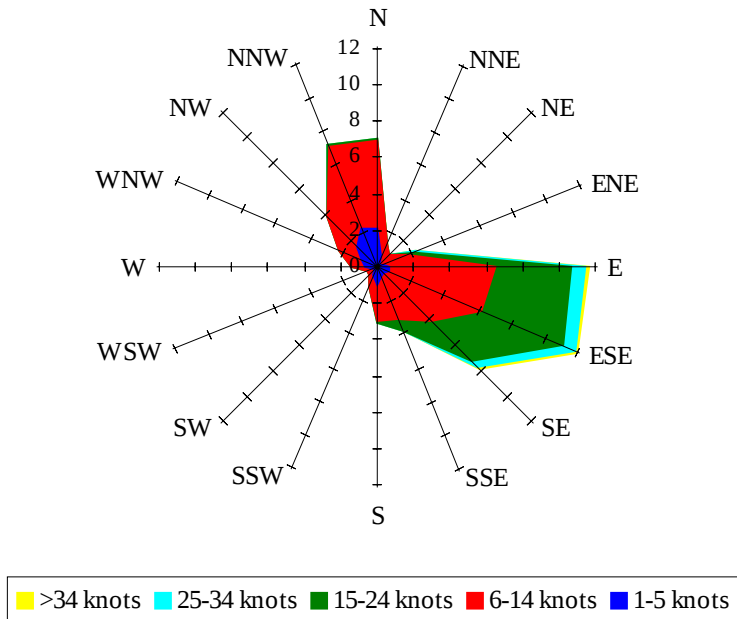
Labels of Percent Frequency on North Axis



Percent Calm = 20.21

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 33.01