

MISAWA (JASDF/AF/NV) JP

Latitude = 40.70 N

WMO No. 475800

Longitude = 141.37 E

Elevation = 118 feet

Period of Record = 1966 to 1995

Average Pressure = 29.75 inches Hg

Design Criteria Data

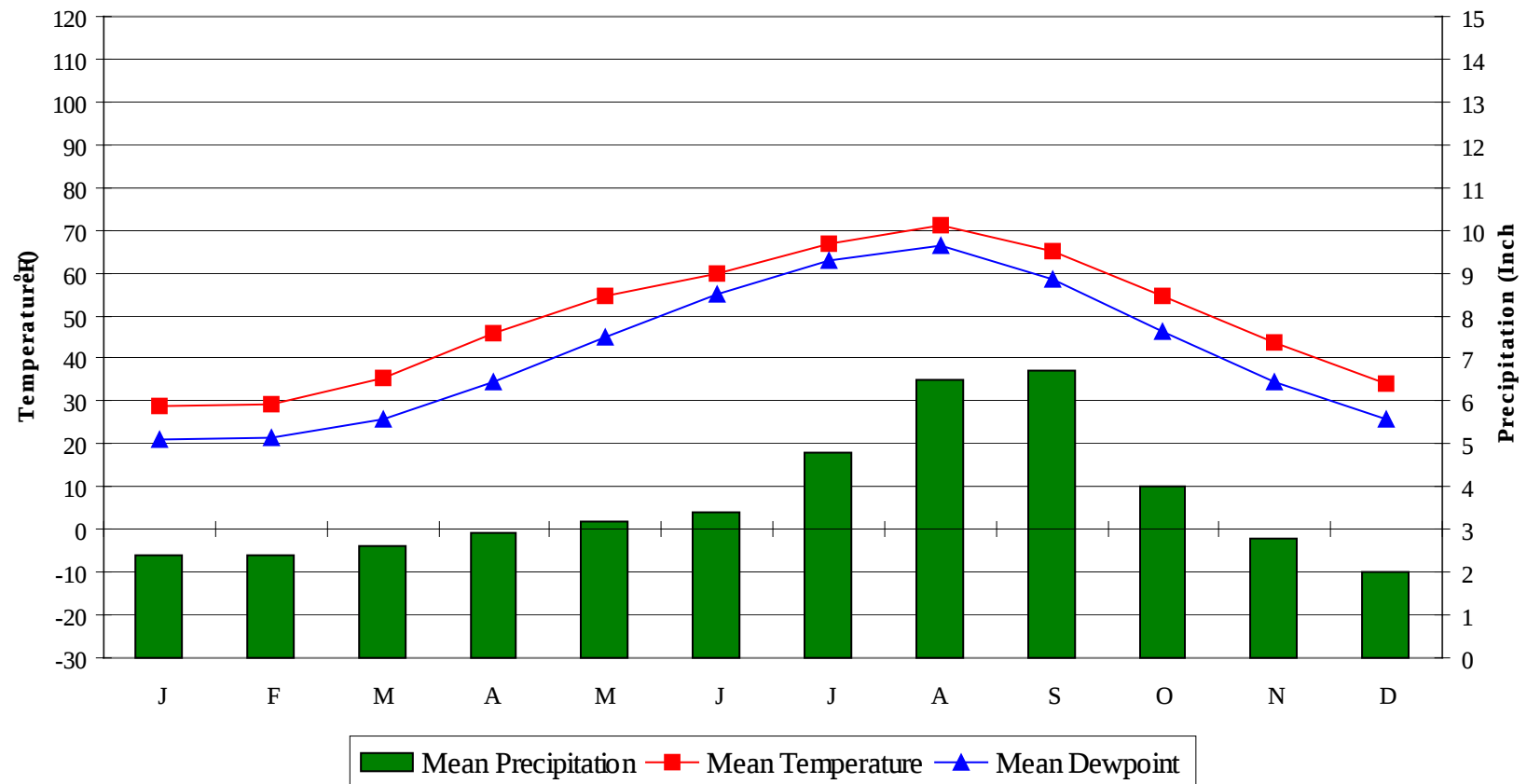
	Design Value	Mean Coincident (Average) Values			
		Wet Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Dry Bulb Temperature (T)	(°F)				
Median of Extreme Highs	91	77	118	12.8	WSW
0.4% Occurrence	84	75	116	10.1	WSW
1.0% Occurrence	82	73	112	9.7	SW
2.0% Occurrence	79	72	107	8.7	E
Mean Daily Range	13	-	-	-	-
97.5% Occurrence	21	20	12	9.5	W
99.0% Occurrence	19	17	11	8.9	W
99.6% Occurrence	18	17	11	8.9	W
Median of Extreme Lows	14	13	9	7.4	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	79	85	136	9.0	E
0.4% Occurrence	76	82	125	8.9	E
1.0% Occurrence	75	81	122	8.5	E
2.0% Occurrence	73	77	116	7.5	E
	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	141	83	0.94	6.9	E
0.4% Occurrence	133	81	0.88	7.2	E
1.0% Occurrence	125	79	0.83	7.4	E
2.0% Occurrence	118	77	0.78	7.3	E
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		0	154	231	840

Other Site Data

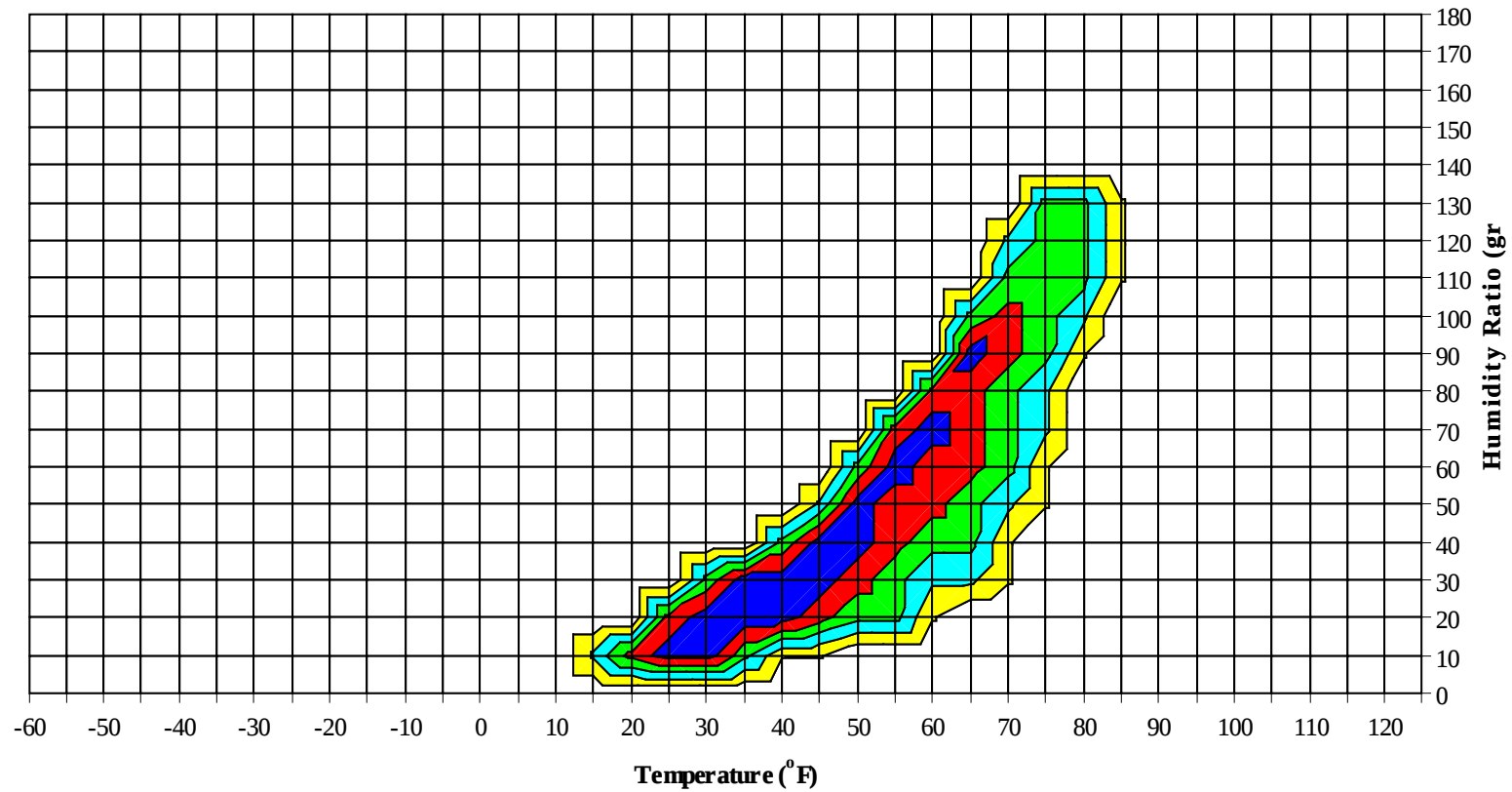
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
6	N/A	N/A	1.4 + 0.2
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
51.6	N/A	N/A	63

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

Average Annual Climate

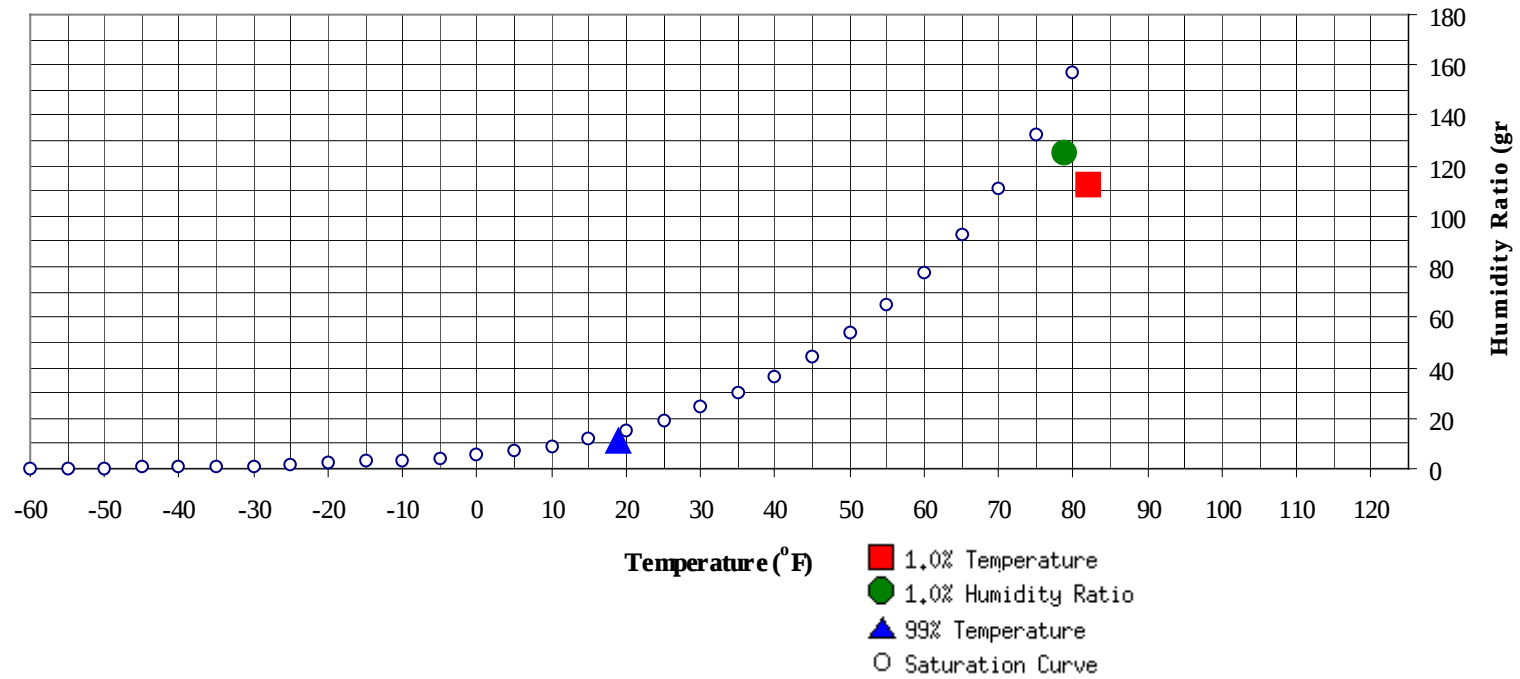


Long Term Psychrometric Summary



- 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



	(°F)	MCHR	Enthalpy	1.0% Humidity	(gr/lb)	MCDB	MCWB	MC Dewpt	Enthalpy
		(gr/lb)	(btu/lb)			(°F)	(°F)	(°F)	(btu/lb)
99% Dry Bulb	19	11.4	6.3	Ratio	125.3	78.9	74.8	73.4	38.6

	(°F)	MCHR	MCWB	Enthalpy
		(gr/lb)	(°F)	(btu/lb)
1.0% Dry Bulb	82	112.3	73.6	37.3

MISAWA (JASDF/AF/NV) JP

WMO No. 475800

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

Period of Record = 1966 to 1995

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		
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79															
70 / 74															
65 / 69															
60 / 64												1	0	1	49.6
55 / 59		0	0	0	47.3						0	6	1	8	46.3
50 / 54		1	0	1	44.3	0	2	0	2	44.9	2	16	5	22	43.5
45 / 49	1	7	2	10	40.6	2	6	3	11	41.2	9	35	14	57	40.1
40 / 44	4	14	7	25	37.5	4	14	6	24	37.4	12	44	25	81	37.0
35 / 39	20	49	30	99	33.3	18	47	29	95	33.2	50	79	70	199	33.4
30 / 34	56	82	66	204	28.9	50	77	64	191	29.0	92	51	89	232	29.4
25 / 29	90	71	85	246	24.4	80	60	78	218	24.4	65	14	38	116	24.9
20 / 24	46	19	38	104	20.4	41	12	29	82	20.5	14	2	7	22	20.6
15 / 19	27	5	18	50	16.9	25	5	14	44	16.8	4	0	1	5	17.2
10 / 14	3	0	1	5	12.4	4	0	1	5	12.1	0			0	12.1
5 / 9						0		0	0	7.5					
0 / 4						0			0	2.3					

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.

MISAWA (JASDF/AF/NV) JP

WMO No. 475800

Dry-Bulb Temperature Hours For An Average Year (Sheet 2 of 5)**Period of Record = 1966 to 1995**

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		
95 / 99															
90 / 94															
85 / 89							0		0	61.3		0	0	0	65.9
80 / 84							2		2	61.3	0	3	0	3	65.7
75 / 79		1	0	1	55.6	0	9	1	10	59.3	1	16	3	20	65.5
70 / 74	0	3	0	4	55.2	2	27	6	35	57.6	7	33	11	51	63.5
65 / 69	0	8	1	9	53.3	5	30	10	45	55.9	13	40	18	71	61.4
60 / 64	3	24	6	32	50.7	20	54	27	101	54.0	43	68	55	166	59.2
55 / 59	9	43	15	68	48.0	40	58	51	149	51.5	97	53	94	244	55.7
50 / 54	24	60	34	118	45.3	76	43	81	200	49.1	67	24	54	144	51.8
45 / 49	51	56	65	172	42.1	71	18	57	146	44.8	11	2	6	19	46.4
40 / 44	53	27	58	138	38.8	24	5	13	43	40.7	1		0	1	41.4
35 / 39	66	17	49	131	34.8	9	1	4	14	36.8	0			0	37.7
30 / 34	28	2	12	42	30.6	0			0	32.3					
25 / 29	4	0	1	5	25.8										
20 / 24	0			0	21.4										
15 / 19															
10 / 14															
5 / 9															
0 / 4															

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MISAWA (JASDF/AF/NV) JP

WMO No. 475800

Dry-Bulb Temperature Hours For An Average Year (Sheet 3 of 5)**Period of Record = 1966 to 1995**

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		
95 / 99							0		0	78.0					
90 / 94		2	0	2	76.0		4	0	4	77.4		0		0	77.0
85 / 89	0	9	1	10	75.7	0	15	1	17	75.8	0	1		1	74.5
80 / 84	4	30	8	42	73.9	8	43	15	65	74.0	0	8	1	9	72.9
75 / 79	17	39	26	82	71.4	26	64	40	131	71.7	4	28	6	38	69.0
70 / 74	40	53	41	134	68.3	77	71	86	234	68.9	19	80	32	130	65.7
65 / 69	43	41	45	129	64.9	73	35	66	173	65.5	39	67	58	164	63.1
60 / 64	77	50	75	203	61.4	55	15	37	107	61.8	91	50	97	238	59.8
55 / 59	57	21	47	125	56.8	9	0	3	12	57.2	60	6	37	103	54.8
50 / 54	9	3	4	16	52.1	1		0	1	52.5	23	0	9	32	49.8
45 / 49	1		0	1	47.4						5	0	1	6	45.7
40 / 44											0			0	43.0
35 / 39															
30 / 34															
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															

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.

MISAWA (JASDF/AF/NV) JP

WMO No. 475800

Dry-Bulb Temperature Hours For An Average Year (Sheet 4 of 5)**Period of Record = 1966 to 1995**

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															
90 / 94															
85 / 89															
80 / 84															
75 / 79		1		1	64.7										
70 / 74	1	13	1	15	61.2		0		0	58.6					
65 / 69	2	34	5	40	59.2	0	2	0	3	56.1					
60 / 64	18	81	37	136	56.6	2	15	2	19	54.4		1		1	52.8
55 / 59	52	69	69	190	52.8	8	36	14	59	51.1	1	3	1	5	50.1
50 / 54	71	38	70	179	48.2	24	56	34	114	46.8	4	13	4	21	45.5
45 / 49	63	11	48	122	43.4	42	55	57	154	42.0	10	26	15	51	41.5
40 / 44	29	1	14	45	39.9	47	30	45	122	38.0	16	31	22	69	37.8
35 / 39	11	0	4	15	36.3	71	26	53	150	34.2	53	66	55	174	33.5
30 / 34	1			1	31.8	36	15	26	77	30.1	76	63	77	216	29.3
25 / 29						10	3	8	21	26.0	63	38	56	157	24.9
20 / 24						1	0	0	1	21.4	19	6	15	40	20.6
15 / 19											5	1	4	10	17.0
10 / 14											0		0	0	11.9
5 / 9															
0 / 4															

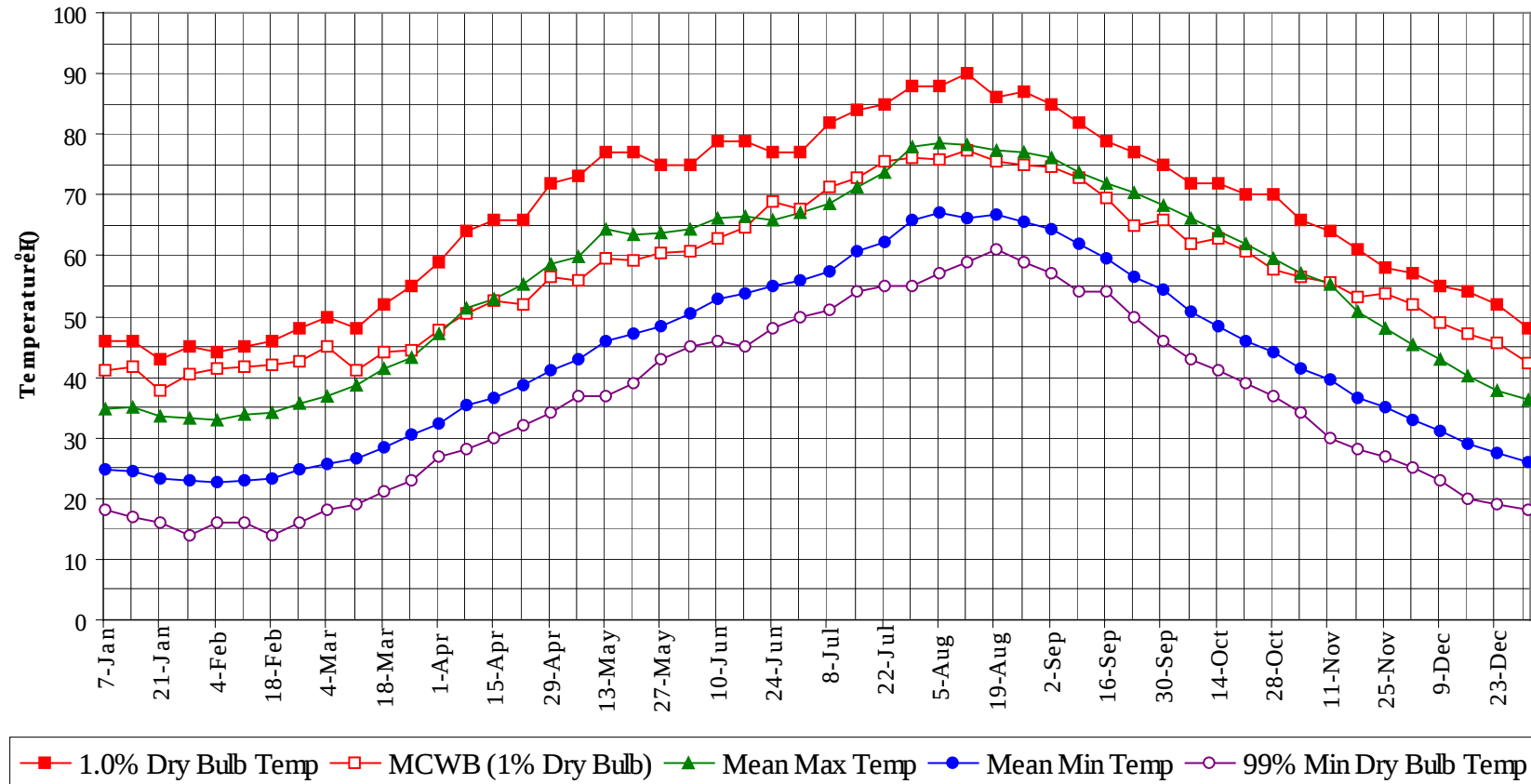
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

MISAWA (JASDF/AF/NV) JP WMO No. 475800
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)
Period of Record = 1966 to 1995

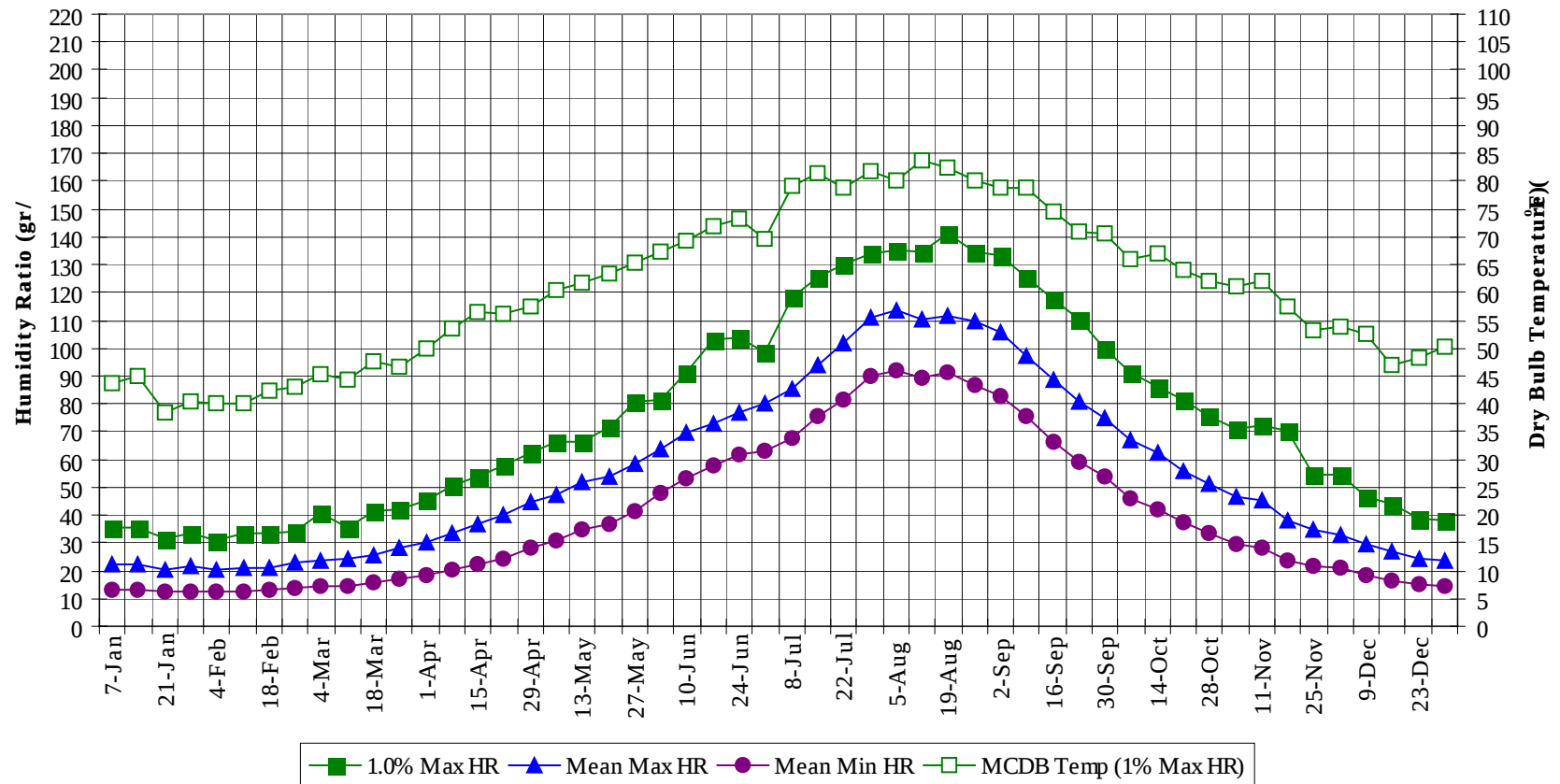
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
95 / 99	0			0	78.0
90 / 94	6			6	76.8
85 / 89	0	26	2	28	75.5
80 / 84	12	85	24	121	73.5
75 / 79	48	157	75	280	70.3
70 / 74	143	278	176	597	66.7
65 / 69	173	253	202	627	63.0
60 / 64	308	355	331	994	58.8
55 / 59	328	294	328	951	53.6
50 / 54	297	253	293	843	48.3
45 / 49	264	216	266	746	42.7
40 / 44	189	167	191	547	38.3
35 / 39	299	289	296	884	33.8
30 / 34	344	297	337	978	29.3
25 / 29	317	191	271	779	24.6
20 / 24	124	40	91	255	20.5
15 / 19	63	11	38	111	16.9
10 / 14	8	0	3	11	12.2
5 / 9	0		0	0	7.5
0 / 4	0			0	2.3

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



Long Term Humidity and Dry Bulb Temperature Summary



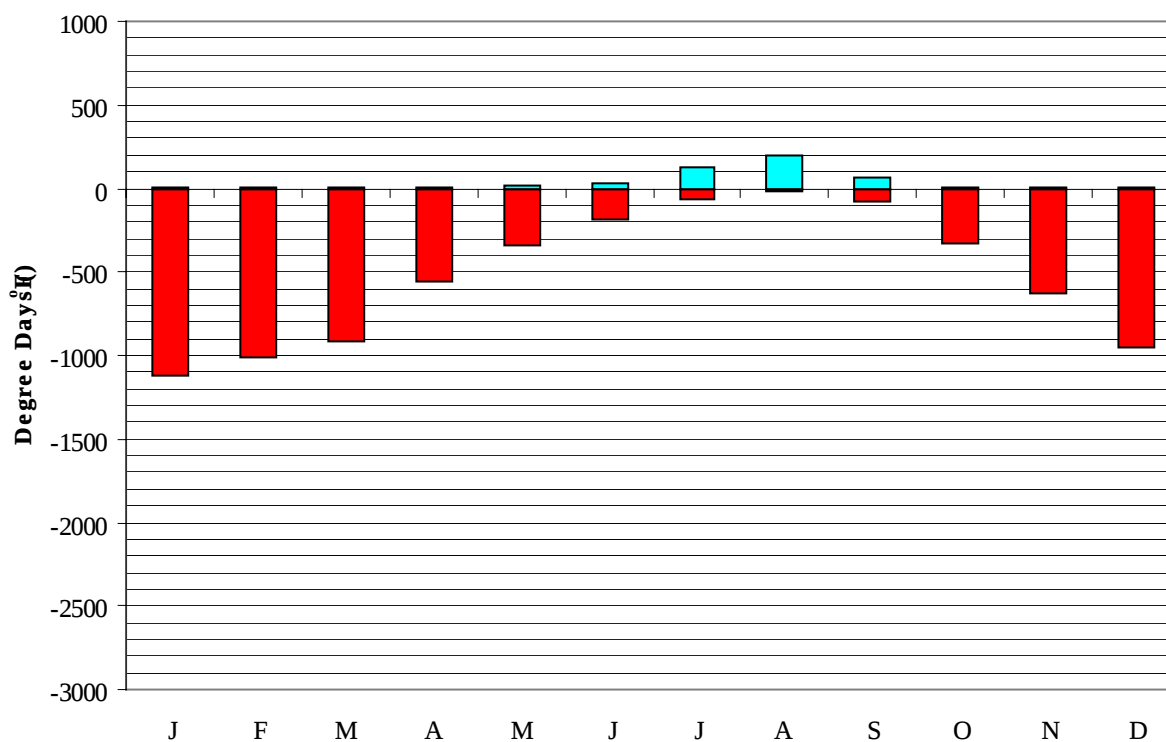
MISAWA (JASDF/AF/NV) JP

WMO No. 475800

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	46.0	41.1	34.9	24.9	18.0	35.7	43.6	22.2	13.3
14-Jan	46.0	41.6	35.0	24.6	17.0	35.7	45.1	22.2	13.3
21-Jan	43.0	37.8	33.4	23.3	16.0	31.5	38.4	20.5	12.5
28-Jan	45.0	40.6	33.3	23.0	14.0	33.6	40.2	21.4	12.5
4-Feb	44.0	41.5	32.9	22.7	16.0	30.8	40.2	20.4	12.2
11-Feb	45.0	41.7	33.7	23.1	16.0	33.6	40.0	21.0	12.7
18-Feb	46.0	41.9	34.3	23.2	14.0	33.6	42.2	21.2	12.8
25-Feb	48.0	42.5	35.5	24.8	16.0	34.3	43.0	23.1	14.1
4-Mar	50.0	45.1	36.8	25.6	18.0	40.6	45.3	23.6	14.4
11-Mar	48.0	40.9	38.7	26.5	19.0	35.7	44.4	24.5	14.4
18-Mar	52.0	44.2	41.2	28.3	21.0	41.3	47.7	25.7	15.5
25-Mar	55.0	44.4	43.3	30.6	23.0	42.0	46.7	28.1	17.3
1-Apr	59.0	47.7	47.1	32.2	27.0	45.5	50.0	30.5	18.7
8-Apr	64.0	50.5	51.5	35.2	28.0	50.4	53.4	33.4	20.3
15-Apr	66.0	52.5	53.0	36.7	30.0	53.9	56.4	36.7	22.5
22-Apr	66.0	51.8	55.1	38.7	32.0	58.1	56.3	40.2	24.4
29-Apr	72.0	56.6	58.5	41.0	34.0	62.3	57.5	44.8	28.3
6-May	73.0	56.0	59.9	42.8	37.0	66.5	60.4	47.2	30.9
13-May	77.0	59.6	64.4	46.1	37.0	66.5	61.8	51.9	34.6
20-May	77.0	59.3	63.3	47.0	39.0	71.4	63.2	53.9	37.1
27-May	75.0	60.4	63.8	48.4	43.0	80.5	65.3	58.4	41.5
3-Jun	75.0	60.8	64.3	50.4	45.0	81.2	67.2	63.7	47.9
10-Jun	79.0	62.9	66.3	53.0	46.0	91.0	69.2	69.9	53.1
17-Jun	79.0	64.8	66.3	53.8	45.0	102.9	71.9	73.1	57.7
24-Jun	77.0	69.0	65.8	55.0	48.0	103.6	73.4	77.1	62.1
1-Jul	77.0	67.8	67.1	55.8	50.0	98.7	69.7	80.2	63.2
8-Jul	82.0	71.3	68.5	57.4	51.0	118.3	79.3	85.7	67.6
15-Jul	84.0	72.9	71.2	60.6	54.0	125.3	81.4	93.6	75.3
22-Jul	85.0	75.4	73.6	62.3	55.0	130.2	78.7	101.6	81.2
29-Jul	88.0	76.3	78.1	65.8	55.0	133.7	81.7	111.3	90.2
5-Aug	88.0	76.0	78.5	66.9	57.0	135.1	80.2	113.4	91.6
12-Aug	90.0	77.2	78.1	66.2	59.0	134.4	83.8	110.1	89.6
19-Aug	86.0	75.7	77.3	66.6	61.0	141.4	82.3	111.8	91.6
26-Aug	87.0	75.0	77.1	65.7	59.0	134.4	80.2	109.8	87.0
2-Sep	85.0	74.5	76.0	64.5	57.0	133.0	78.9	105.8	82.9
9-Sep	82.0	72.7	73.7	62.1	54.0	125.3	78.9	97.1	75.4
16-Sep	79.0	69.6	71.8	59.5	54.0	117.6	74.4	88.4	66.4
23-Sep	77.0	65.0	70.3	56.4	50.0	110.6	71.0	81.0	58.8
30-Sep	75.0	65.9	68.4	54.4	46.0	100.1	70.7	74.7	53.7
7-Oct	72.0	61.8	66.1	50.9	43.0	91.0	66.0	66.9	45.8
14-Oct	72.0	62.7	64.2	48.5	41.0	86.1	66.9	62.7	42.4
21-Oct	70.0	60.7	62.0	45.9	39.0	81.2	64.0	55.9	37.3
28-Oct	70.0	57.6	59.6	44.1	37.0	75.6	61.9	51.4	33.7
4-Nov	66.0	56.5	57.2	41.3	34.0	70.7	61.1	46.6	29.6
11-Nov	64.0	55.5	55.3	39.7	30.0	72.1	61.9	45.4	27.9
18-Nov	61.0	53.3	50.9	36.6	28.0	70.0	57.5	38.4	23.7
25-Nov	58.0	53.7	48.1	34.9	27.0	54.6	53.3	34.8	21.6
2-Dec	57.0	51.8	45.4	33.0	25.0	54.6	54.0	33.1	21.0
9-Dec	55.0	48.9	43.0	31.1	23.0	46.9	52.5	29.7	18.4
16-Dec	54.0	47.2	40.1	29.1	20.0	44.1	46.9	27.1	16.7
23-Dec	52.0	45.7	37.7	27.5	19.0	38.5	48.3	24.5	15.2
31-Dec	48.0	42.3	36.3	25.9	18.0	37.8	50.1	23.5	14.6

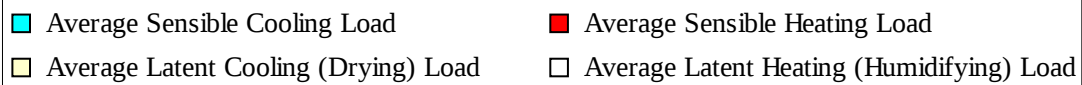
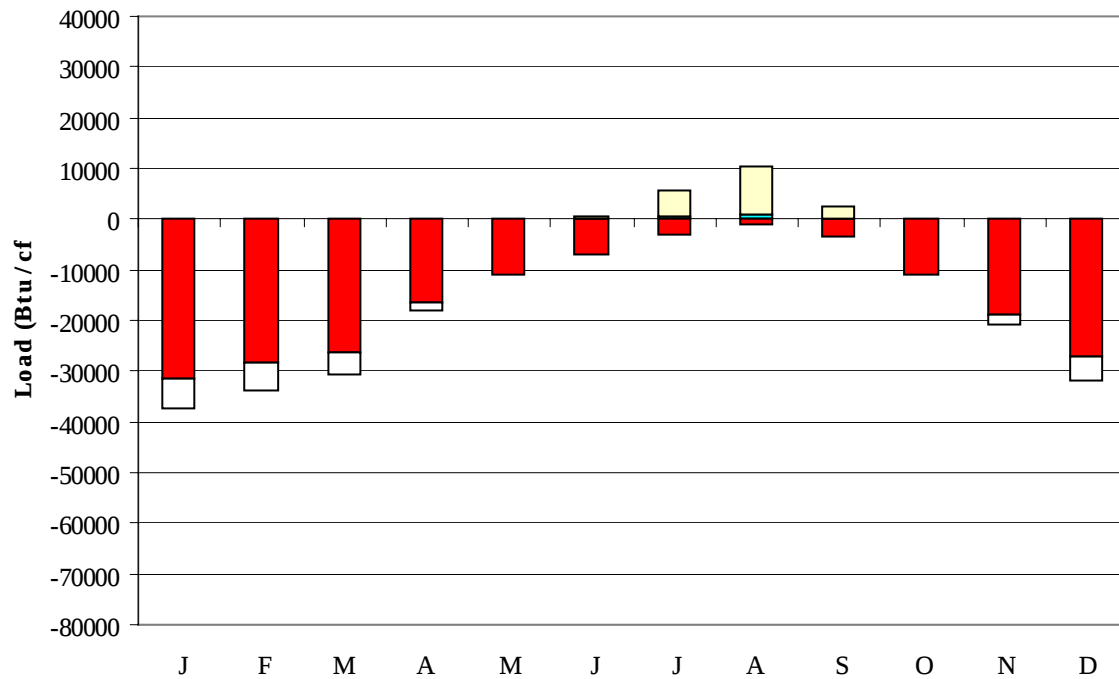
Degree Days, Heating and Cooling
(Base 65°F)



■ Mean Cooling Degree Days ■ Mean Heating Degree Days

	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1116
FEB	0	1007
MAR	0	920
APR	2	553
MAY	18	337
JUN	29	190
JUL	124	68
AUG	202	12
SEP	70	75
OCT	7	329
NOV	0	634
DEC	0	958
ANN	452	6199

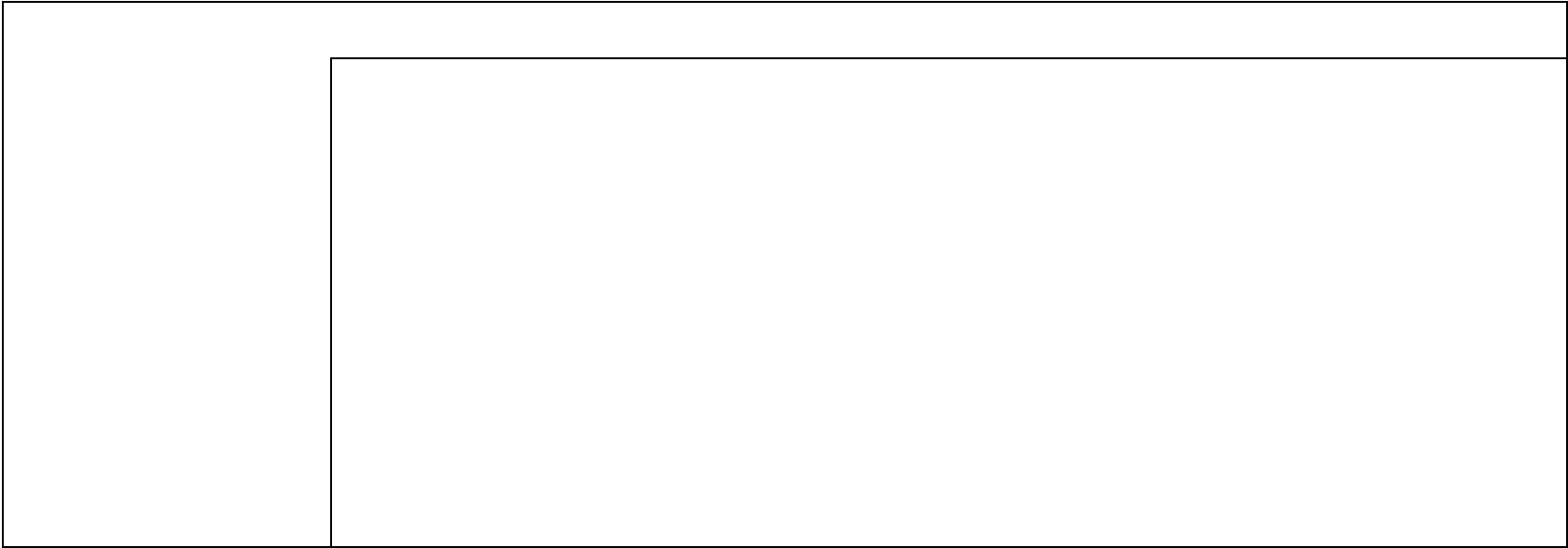
Average Ventilation and Infiltration Loads
(Outside Air vs. 75°F, 60% RH summer; 68°F, 30% RH winter)



	Average Sensible Cooling Load (Btu/cfm)	Average Sensible Heating Load (Btu/cfm)	Average Latent Cooling Load (Btu/cfm)	Average Latent Heating Load (Btu/cfm)
JAN	0	-31329	0	-6098
FEB	0	-28308	0	-5405
MAR	0	-26268	0	-4427
APR	1	-16567	1	-1607
MAY	28	-10914	5	-178
JUN	57	-6862	375	0
JUL	630	-3026	5090	0
AUG	1007	-871	9202	0
SEP	133	-3382	2386	-1
OCT	1	-10810	65	-139
NOV	0	-18773	0	-1849
DEC	0	-27239	0	-4422
ANN	1857	-184349	17124	-24126

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

No Solar Radiation
Data Available

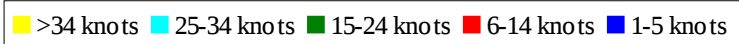
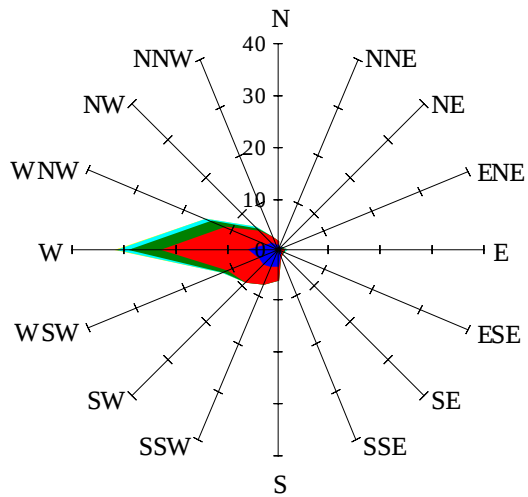


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

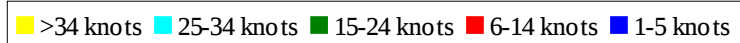
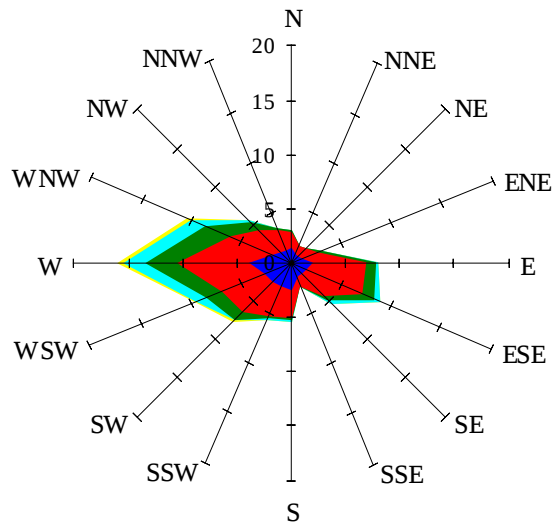
Labels of Percent Frequency on North Axis



Percent Calm = 2.53

Wind Summary - March, April, and May

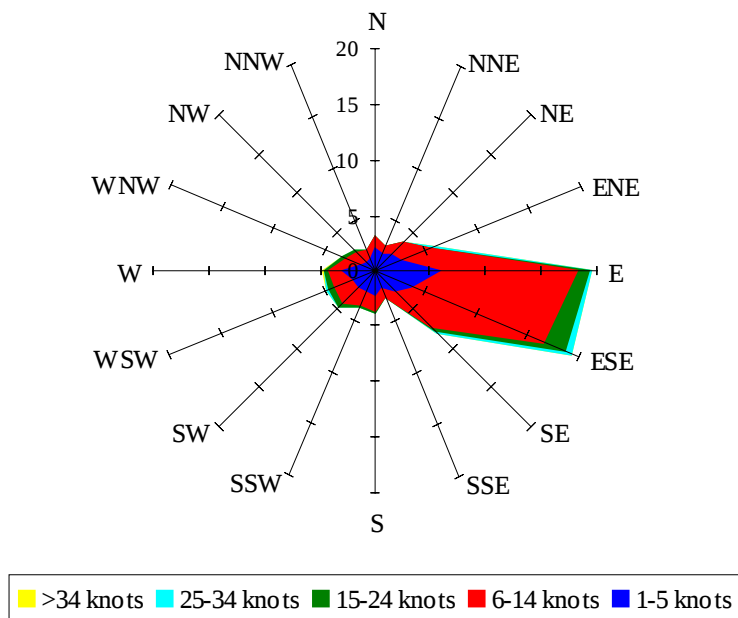
Labels of Percent Frequency on North Axis



Percent Calm = 4.24

Wind Summary - June, July, and August

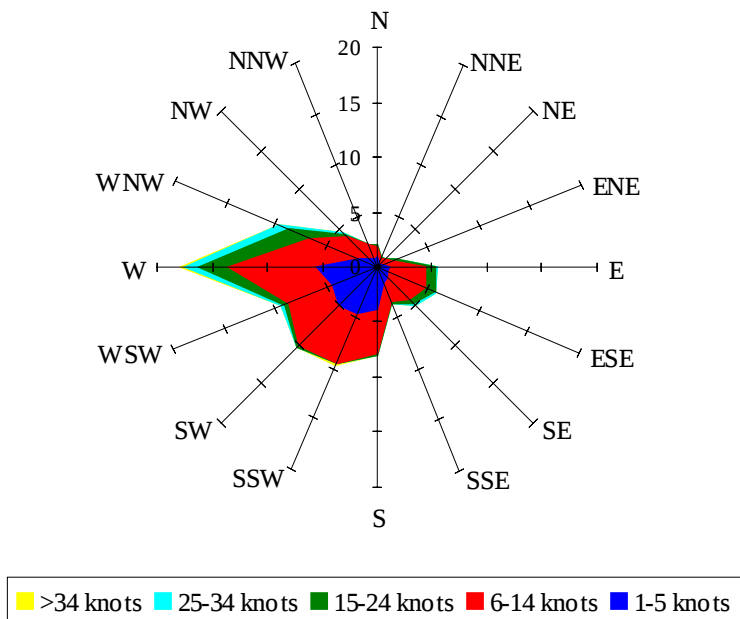
Labels of Percent Frequency on North Axis



Percent Calm = 7.39

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 3.18