

KADENA (USAFB-NAVY) JP

Latitude = 26.35 N

WMO No. 479310

Longitude = 127.77 E

Elevation = 148 feet

Period of Record = 1967 to 1996

Average Pressure = 29.76 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	93	81	142	12.2	VARIABLE
0.4% Occurrence	91	81	143	11.5	VARIABLE
1.0% Occurrence	90	81	143	11.5	VARIABLE
2.0% Occurrence	90	81	143	11.5	VARIABLE
Mean Daily Range	10	-	-	-	-
97.5% Occurrence	54	49	44	8.4	N
99.0% Occurrence	52	47	40	7.8	ENE
99.6% Occurrence	49	45	38	8.0	ENE
Median of Extreme Lows	45	42	35	6.1	ENE
	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	84	90	164	11.9	WSW
0.4% Occurrence	83	88	158	11.5	WSW
1.0% Occurrence	82	87	155	11.4	WSW
2.0% Occurrence	82	87	155	11.4	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	172	87	1.12	11.0	WSW
0.4% Occurrence	162	86	1.06	11.0	WSW
1.0% Occurrence	161	86	1.06	10.4	WSW
2.0% Occurrence	155	82	1.00	32.4	S
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		14	2672	3350	4822

Other Site Data

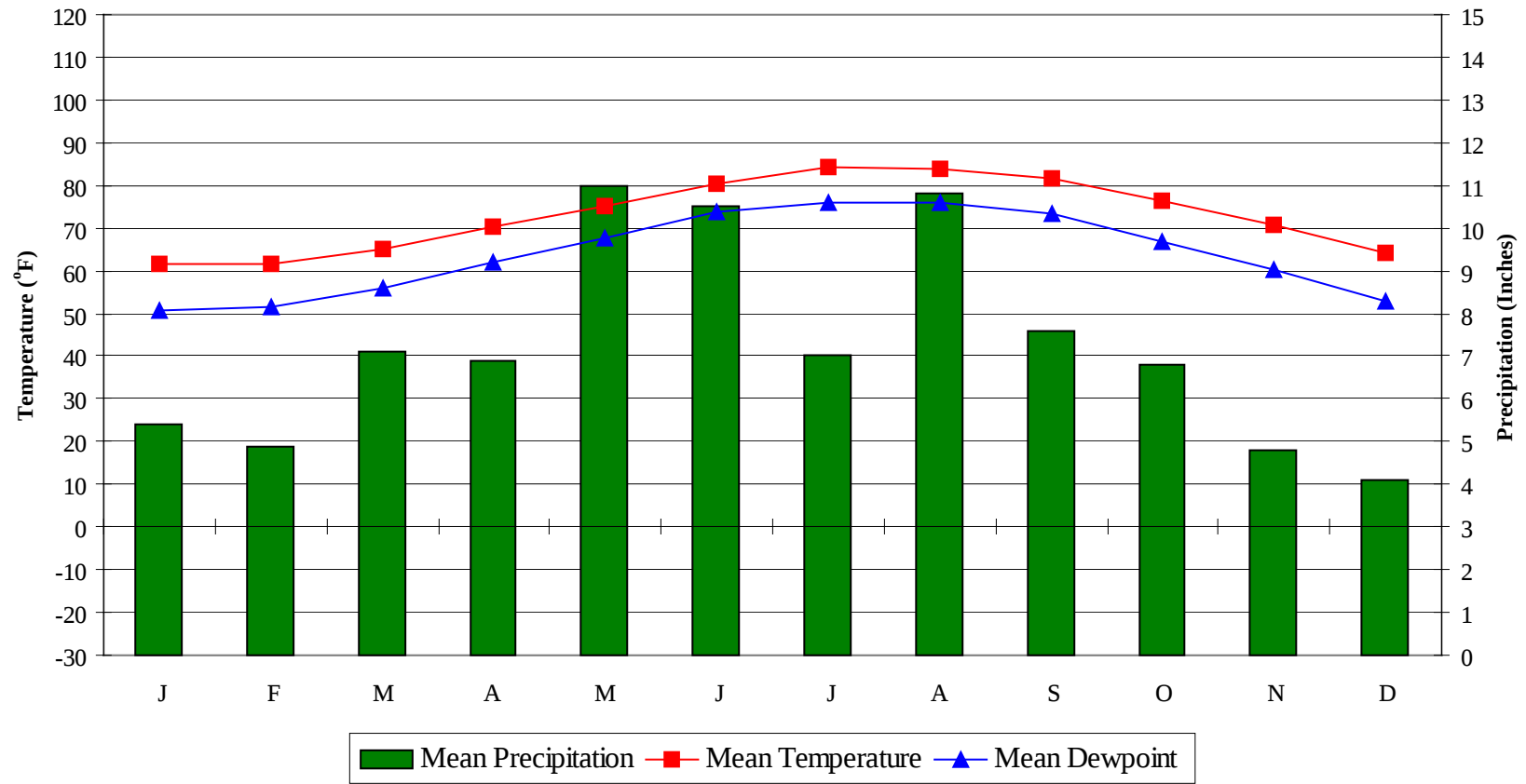
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
10	N/A	N/A	11.4 + 2.4
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
75.4	N/A	N/A	0

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

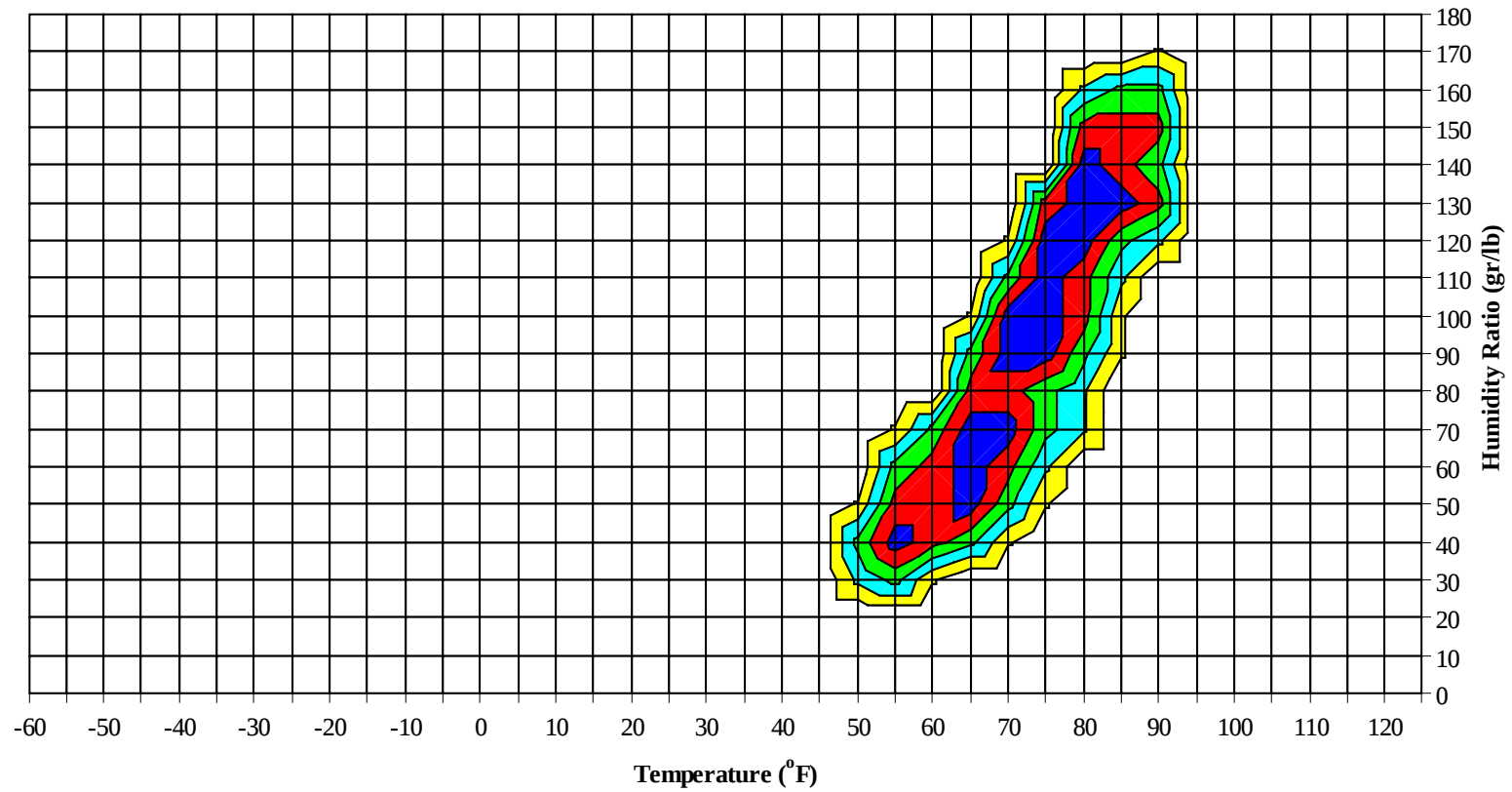
KADENA (USAFB-NAVY) JP

WMO No. 479310

Average Annual Climate

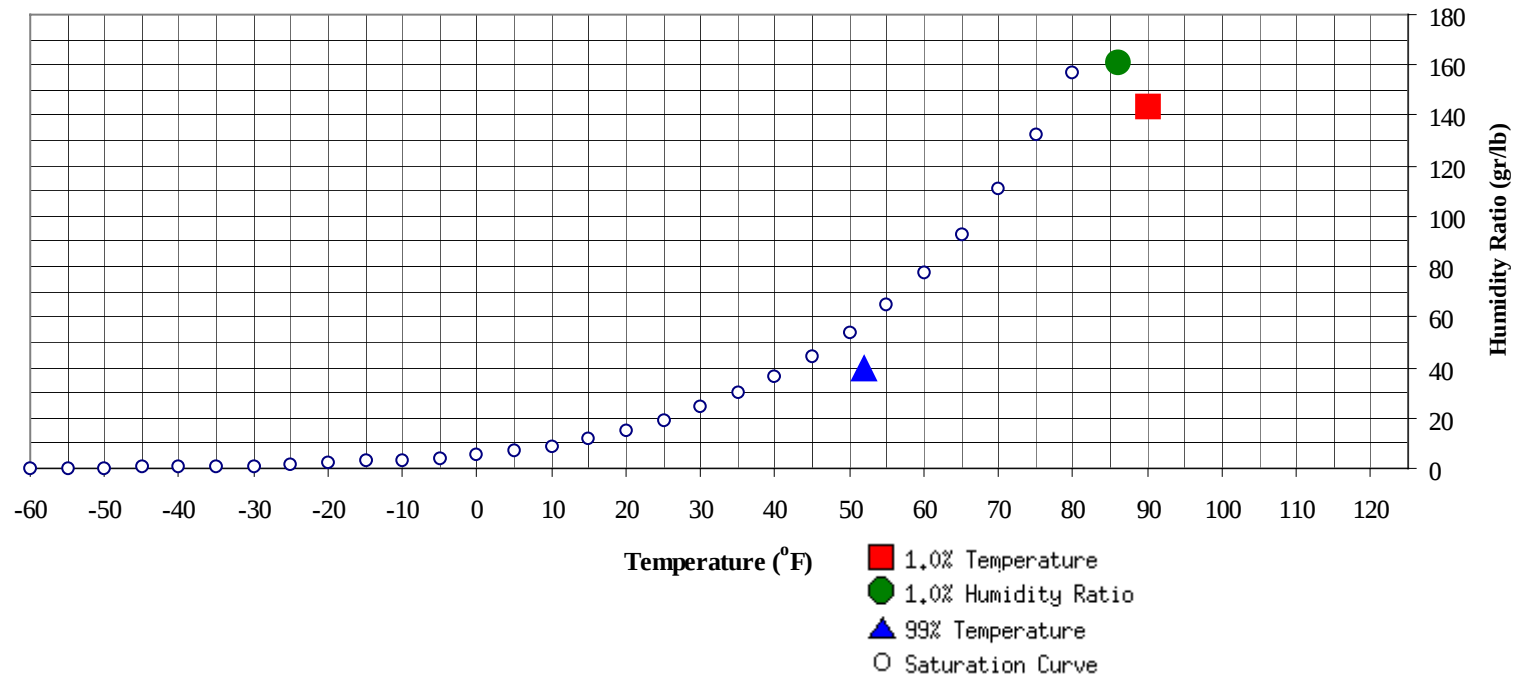


Long Term Psychrometric Summary



- 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)
	52	39.8	18.6		161	86.1	82.1	80.6	45.9

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	90	143.5	80.5	44.2

KADENA (USAFB-NAVY) JP

WMO No. 479310

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

Period of Record = 1967 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		
95 / 99															
90 / 94															
85 / 89															
80 / 84							0		0	72.0		3	0	3	72.2
75 / 79	0	9	1	11	68.7	0	12	1	14	68.9	2	34	9	46	70.1
70 / 74	13	48	20	80	64.2	15	48	25	88	65.2	48	81	59	187	66.2
65 / 69	22	50	30	102	60.6	25	37	31	93	61.5	47	48	51	146	62.0
60 / 64	71	98	86	256	56.2	60	76	70	207	56.8	70	59	72	201	57.3
55 / 59	89	37	82	208	51.6	69	41	64	174	51.6	51	19	43	113	51.7
50 / 54	44	6	26	76	47.5	42	8	29	80	47.4	25	3	13	41	47.8
45 / 49	9	0	2	11	43.6	11	1	4	15	43.6	5	0	2	7	44.0
40 / 44	0			0	40.0	1			1	40.1	1		0	1	39.8

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.

KADENA (USAFB-NAVY) JP

WMO No. 479310

Dry-Bulb Temperature Hours For An Average Year (Sheet 2 of 5)**Period of Record = 1967 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		
95 / 99												0		0	81.5
90 / 94							0		0	78.7	0	24	2	26	81.0
85 / 89		1		1	77.2	0	11	1	12	78.5	3	63	15	81	79.8
80 / 84	0	33	5	38	74.3	13	87	31	131	75.3	105	102	118	325	77.4
75 / 79	31	76	45	151	71.0	88	106	102	296	71.6	86	40	74	200	73.5
70 / 74	88	91	96	275	66.4	102	40	89	231	67.4	39	10	26	75	68.7
65 / 69	44	25	46	114	62.0	27	3	19	49	63.2	7	2	4	13	64.6
60 / 64	54	13	39	105	57.6	17	1	7	24	59.3	1	0	0	1	61.9
55 / 59	19	1	10	30	52.9	1		0	1	54.4					
50 / 54	4	0	1	5	48.8										
45 / 49	1		0	1	44.3										
40 / 44															

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.

KADENA (USAFB-NAVY) JP

WMO No. 479310

Dry-Bulb Temperature Hours For An Average Year (Sheet 3 of 5)**Period of Record = 1967 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		
95 / 99		2		2	81.1		0		0	81.5					
90 / 94	0	95	16	110	80.8	0	74	7	81	80.6		31	2	33	79.9
85 / 89	17	97	51	165	79.5	9	107	44	160	79.2	2	91	18	111	78.4
80 / 84	179	49	164	392	77.9	178	61	175	414	77.9	105	107	139	351	76.5
75 / 79	50	5	17	73	74.4	58	5	22	86	74.8	108	10	71	189	73.3
70 / 74	2	0	0	2	70.1	3	0	0	3	71.4	25	1	10	36	68.3
65 / 69											1		0	1	64.5
60 / 64											0			0	61.3
55 / 59															
50 / 54															
45 / 49															
40 / 44															

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.

KADENA (USAFB-NAVY) JP

WMO No. 479310

Dry-Bulb Temperature Hours For An Average Year (Sheet 4 of 5)**Period of Record = 1967 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															
90 / 94		1		1	78.4										
85 / 89	0	23	1	24	76.8		1		1	75.8					
80 / 84	18	124	45	186	73.8	1	36	4	42	72.6		1	0	1	72.0
75 / 79	101	78	111	290	70.9	25	84	39	148	69.1	1	26	4	31	68.0
70 / 74	93	21	71	185	66.2	89	81	95	266	65.2	22	84	35	142	63.6
65 / 69	23	1	16	40	61.7	56	27	51	133	60.9	30	56	42	128	60.1
60 / 64	12	0	5	17	58.4	58	10	46	114	57.0	103	63	104	271	56.3
55 / 59	0		0	1	55.4	11		5	16	53.3	71	15	54	141	51.6
50 / 54						1		0	1	50.1	19	1	8	28	47.9
45 / 49											2	0	1	3	43.8
40 / 44															

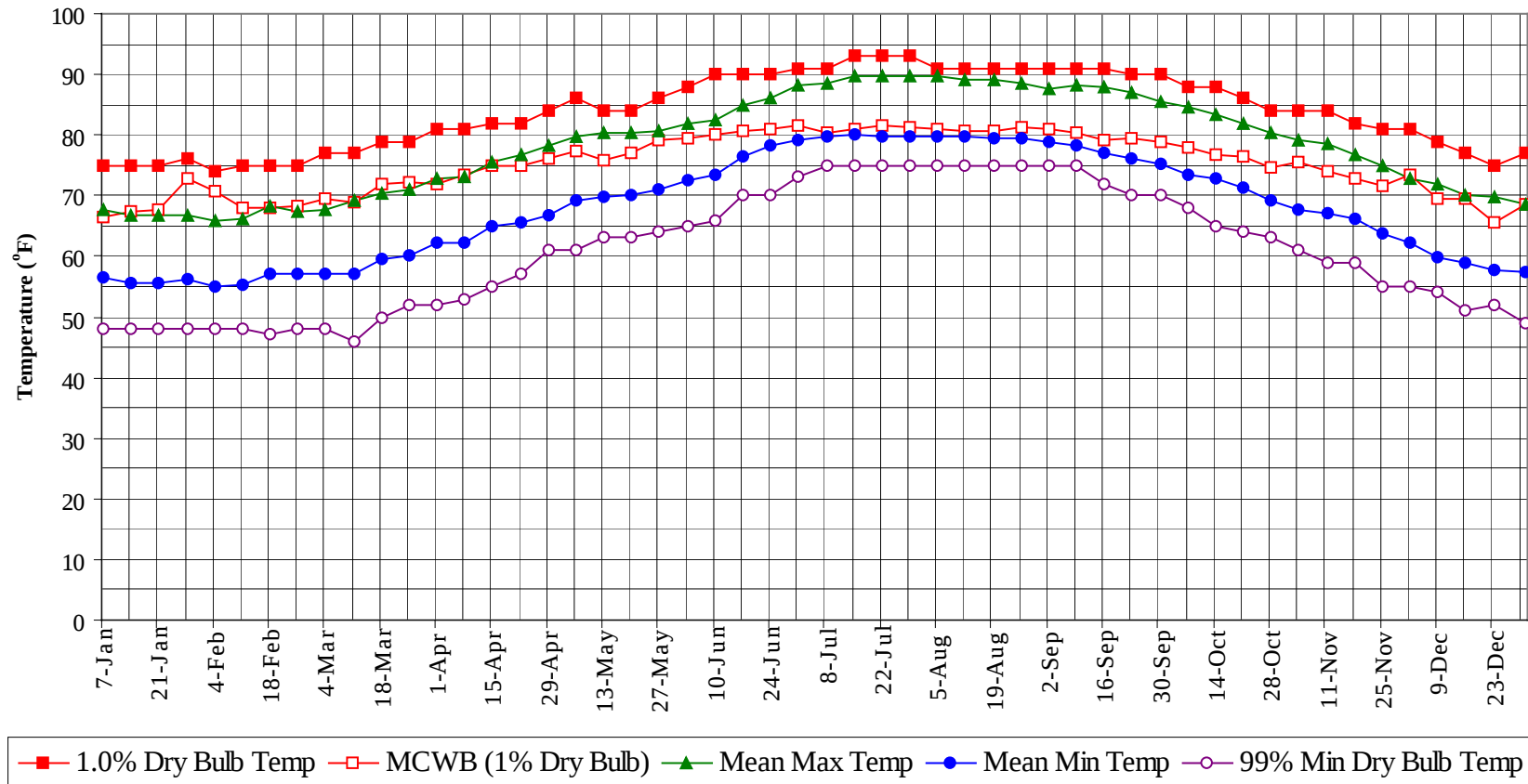
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

KADENA (USAFB-NAVY) JP WMO No. 479310
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)
Period of Record = 1967 to 1996

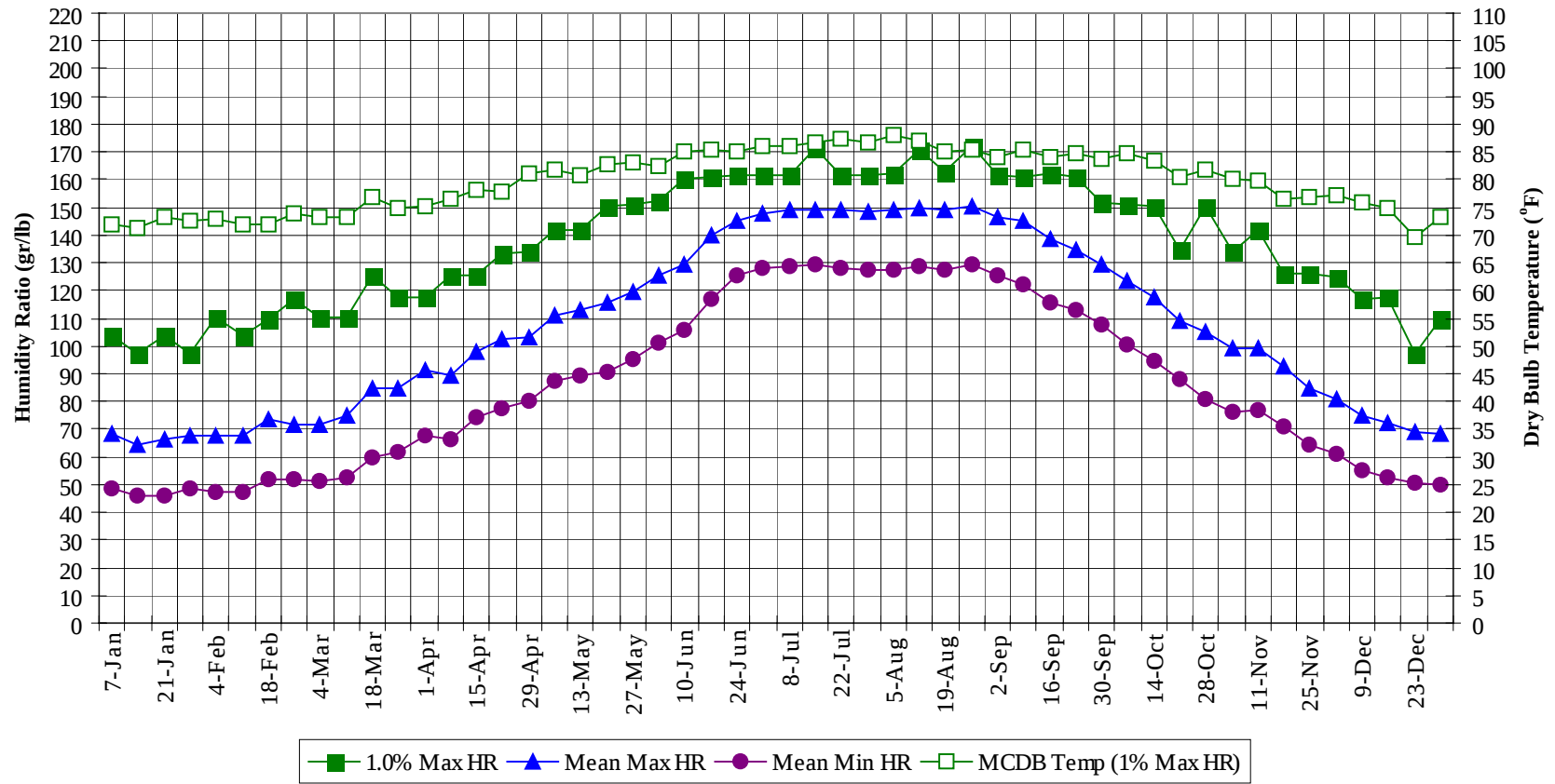
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
95 / 99		2		2	81.1
90 / 94	0	224	27	251	80.6
85 / 89	30	392	130	552	79.1
80 / 84	597	605	679	1880	76.8
75 / 79	550	485	497	1532	71.8
70 / 74	538	504	527	1569	66.1
65 / 69	282	247	290	819	61.4
60 / 64	447	321	430	1198	56.8
55 / 59	312	114	259	686	51.7
50 / 54	135	19	78	232	47.6
45 / 49	27	1	8	36	43.7
40 / 44	2		0	2	39.9

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.

Annual Summary of Temperatures



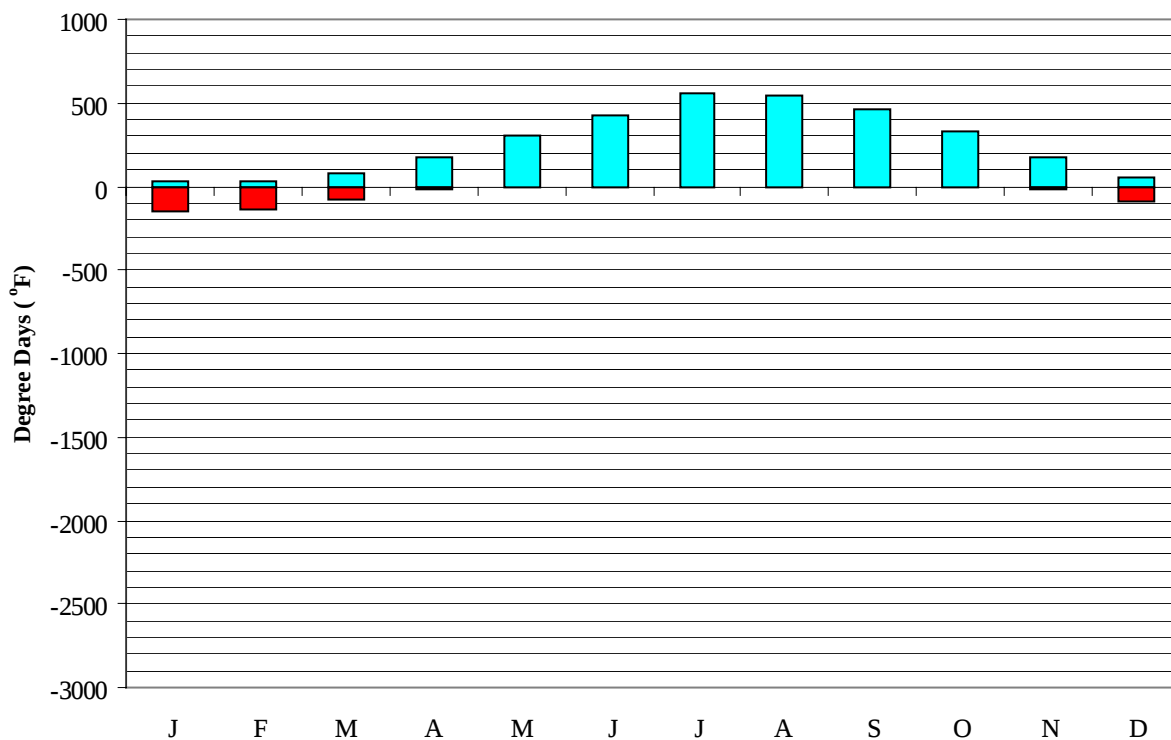
Long Term Humidity and Dry Bulb Temperature Summary



KADENA (USAFB-NAVY) JP**WMO No. 479310****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	75.0	66.6	67.6	56.4	48.0	103.6	71.8	68.5	48.4
14-Jan	75.0	67.4	66.8	55.7	48.0	97.3	71.2	64.7	46.0
21-Jan	75.0	67.8	66.6	55.4	48.0	103.6	73.4	66.1	46.2
28-Jan	76.0	72.7	66.9	56.1	48.0	97.3	72.6	67.5	48.6
4-Feb	74.0	70.8	65.8	55.0	48.0	110.6	72.9	67.4	47.3
11-Feb	75.0	68.1	66.0	55.2	48.0	103.6	71.8	67.5	47.4
18-Feb	75.0	68.0	68.1	57.1	47.0	109.9	71.9	73.7	52.0
25-Feb	75.0	68.2	67.4	57.1	48.0	116.9	73.9	71.8	51.7
4-Mar	77.0	69.5	67.8	57.0	48.0	110.6	73.3	71.7	51.0
11-Mar	77.0	68.7	69.3	57.2	46.0	110.6	73.3	74.9	52.7
18-Mar	79.0	72.0	70.3	59.5	50.0	125.3	76.8	84.4	59.7
25-Mar	79.0	72.2	71.1	60.2	52.0	117.6	74.8	84.6	61.4
1-Apr	81.0	72.0	72.9	62.3	52.0	117.6	75.1	91.2	67.9
8-Apr	81.0	73.4	73.2	62.3	53.0	125.3	76.5	89.5	66.0
15-Apr	82.0	75.0	75.6	65.0	55.0	125.3	78.1	97.6	74.5
22-Apr	82.0	75.0	76.8	65.6	57.0	133.0	77.8	102.2	77.4
29-Apr	84.0	76.1	78.1	66.9	61.0	133.7	81.0	102.9	80.4
6-May	86.0	77.3	79.9	69.3	61.0	142.1	81.8	111.0	87.3
13-May	84.0	75.7	80.3	69.7	63.0	142.1	80.8	113.1	89.4
20-May	84.0	77.0	80.4	70.1	63.0	150.5	82.8	115.8	90.3
27-May	86.0	79.1	80.8	71.0	64.0	151.2	83.0	119.5	95.1
3-Jun	88.0	79.4	82.0	72.4	65.0	152.6	82.4	125.8	101.2
10-Jun	90.0	79.9	82.6	73.5	66.0	160.3	85.0	129.5	105.7
17-Jun	90.0	80.6	85.0	76.4	70.0	161.0	85.3	140.0	117.1
24-Jun	90.0	81.1	86.2	78.1	70.0	161.7	85.2	145.1	125.2
1-Jul	91.0	81.4	88.1	79.2	73.0	161.7	86.0	147.7	128.3
8-Jul	91.0	80.5	88.6	79.7	75.0	161.7	86.0	149.2	128.9
15-Jul	93.0	81.0	89.6	80.1	75.0	171.5	86.8	149.2	129.5
22-Jul	93.0	81.5	89.8	79.8	75.0	161.7	87.5	148.9	128.3
29-Jul	93.0	81.2	89.7	79.7	75.0	161.7	86.8	148.2	127.3
5-Aug	91.0	81.1	89.7	79.7	75.0	162.4	87.9	149.0	127.5
12-Aug	91.0	80.6	89.3	79.8	75.0	170.8	86.9	149.4	128.9
19-Aug	91.0	80.5	89.0	79.5	75.0	163.1	84.9	149.4	127.6
26-Aug	91.0	81.4	88.6	79.4	75.0	172.2	85.4	150.3	129.1
2-Sep	91.0	80.9	87.8	78.9	75.0	161.7	84.2	146.4	125.3
9-Sep	91.0	80.4	88.1	78.2	75.0	161.0	85.3	145.2	122.3
16-Sep	91.0	79.2	87.8	76.9	72.0	162.4	84.2	138.8	115.9
23-Sep	90.0	79.4	87.0	76.1	70.0	161.0	84.6	134.9	112.7
30-Sep	90.0	78.8	85.4	75.1	70.0	151.9	83.9	129.7	107.7
7-Oct	88.0	78.1	84.5	73.5	68.0	151.2	84.6	123.8	100.2
14-Oct	88.0	76.8	83.5	72.7	65.0	150.5	83.4	117.9	94.6
21-Oct	86.0	76.5	81.8	71.2	64.0	134.4	80.6	109.0	88.3
28-Oct	84.0	74.6	80.5	69.3	63.0	150.5	81.8	104.9	80.8
4-Nov	84.0	75.5	79.2	67.6	61.0	133.7	80.1	99.1	76.3
11-Nov	84.0	73.9	78.6	67.2	59.0	142.1	79.9	99.3	76.7
18-Nov	82.0	72.7	76.8	66.1	59.0	126.0	76.6	92.6	71.2
25-Nov	81.0	71.5	74.8	63.9	55.0	126.0	77.0	85.0	64.3
2-Dec	81.0	73.4	72.7	62.3	55.0	124.6	77.3	80.7	60.9
9-Dec	79.0	69.5	71.8	59.9	54.0	116.9	75.9	74.8	55.4
16-Dec	77.0	69.5	70.1	58.8	51.0	117.6	75.0	72.1	52.8
23-Dec	75.0	65.5	69.8	57.6	52.0	97.3	69.7	69.1	50.7
31-Dec	77.0	68.6	68.5	57.4	49.0	109.9	73.1	68.5	49.8

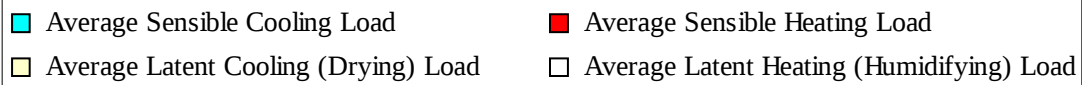
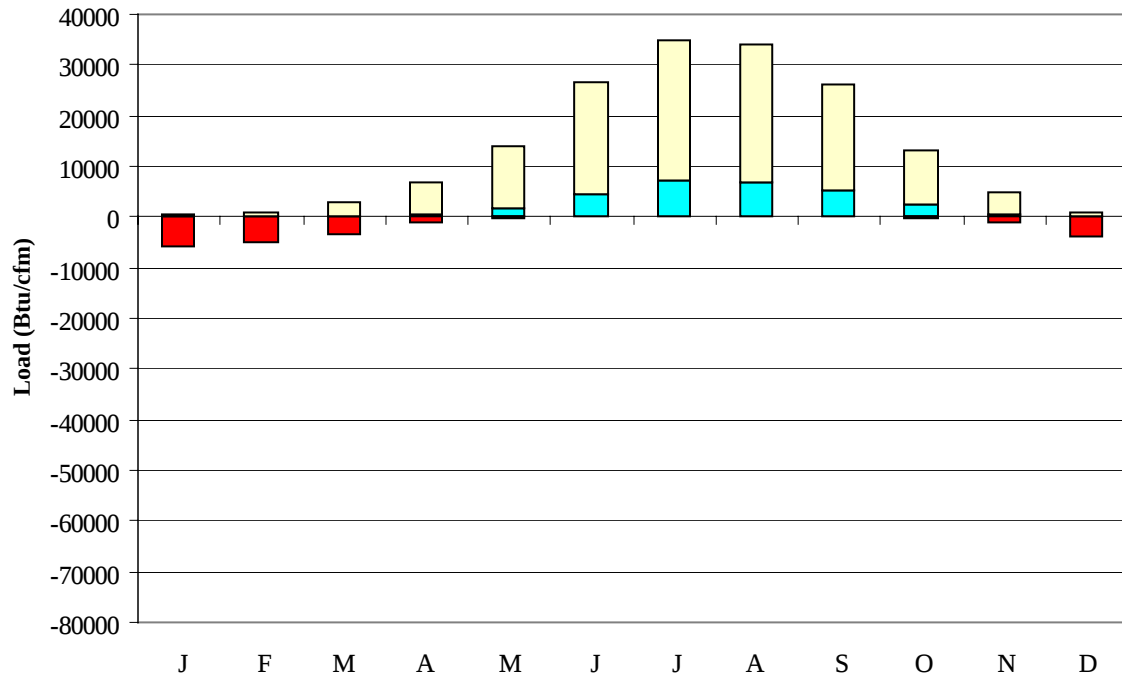
Degree Days, Heating and Cooling
(Base 65°F)



■ Mean Cooling Degree Days ■ Mean Heating Degree Days

	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	31	144
FEB	34	134
MAR	79	83
APR	173	22
MAY	300	2
JUN	429	0
JUL	555	0
AUG	541	0
SEP	463	0
OCT	334	1
NOV	173	15
DEC	58	88
ANN	3169	489

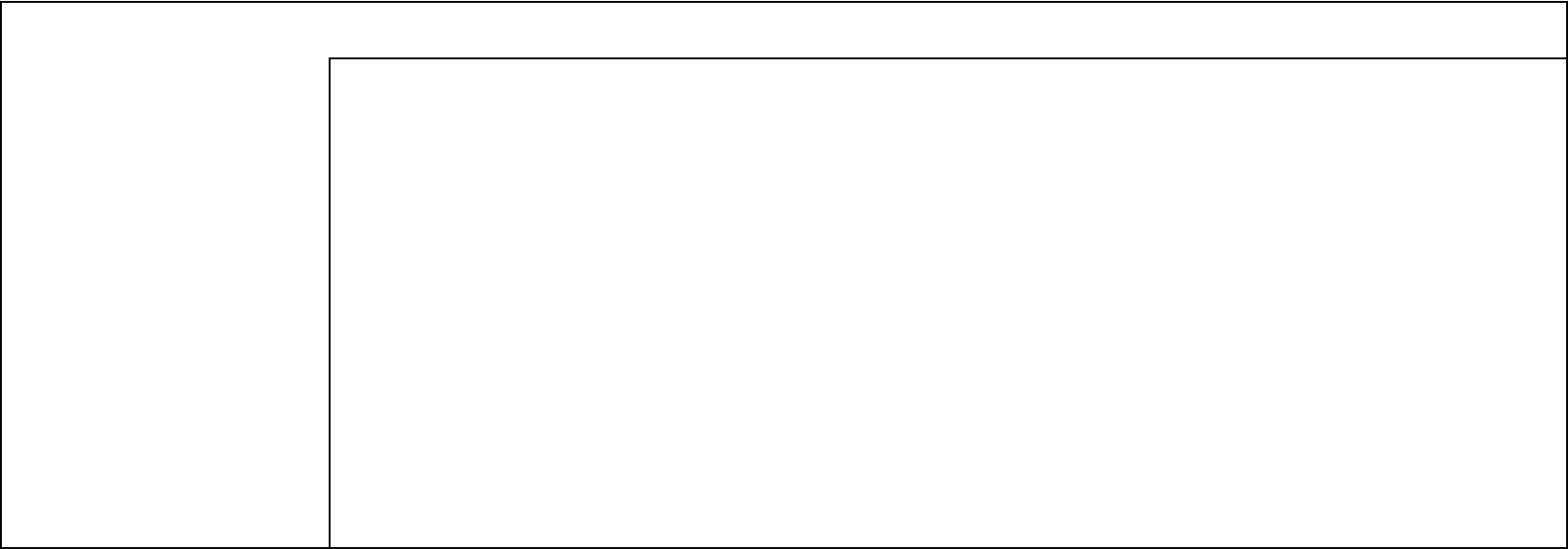
Average Ventilation and Infiltration Loads
(Outside Air vs. 75°F, 60% RH summer; 68°F, 30% RH winter)



	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	10	-5656	563	-13
FEB	16	-5181	931	-16
MAR	80	-3521	2646	-10
APR	521	-1155	6374	0
MAY	1709	-180	12167	0
JUN	4471	-15	22161	0
JUL	7379	0	27391	0
AUG	7006	0	27083	0
SEP	5210	-2	20780	0
OCT	2351	-132	10917	0
NOV	554	-967	4275	0
DEC	44	-3900	996	-4
ANN	29351	-20709	136284	-43

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

No Solar Radiation
Data Available

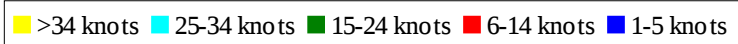
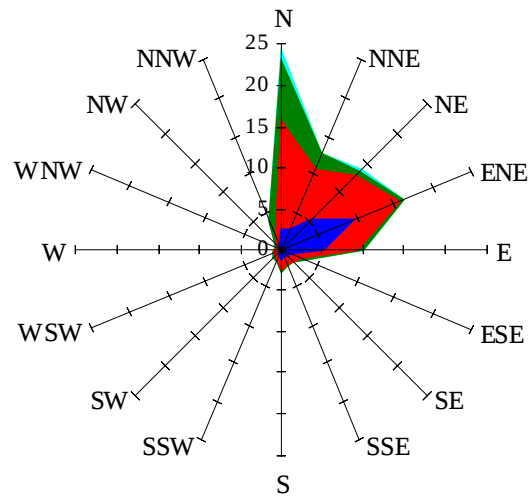


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

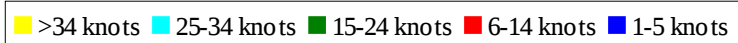
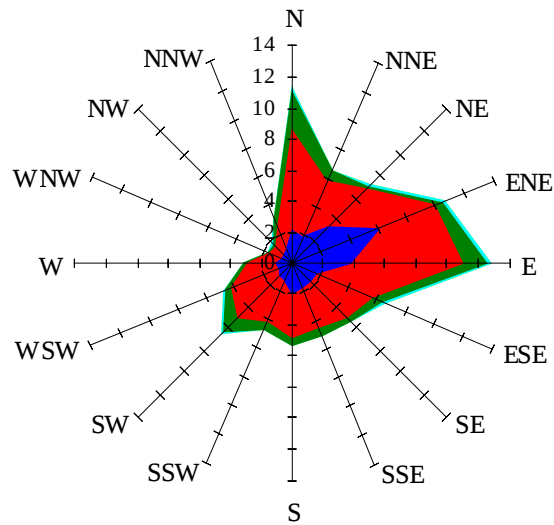
Labels of Percent Frequency on North Axis



Percent Calm = 3.50

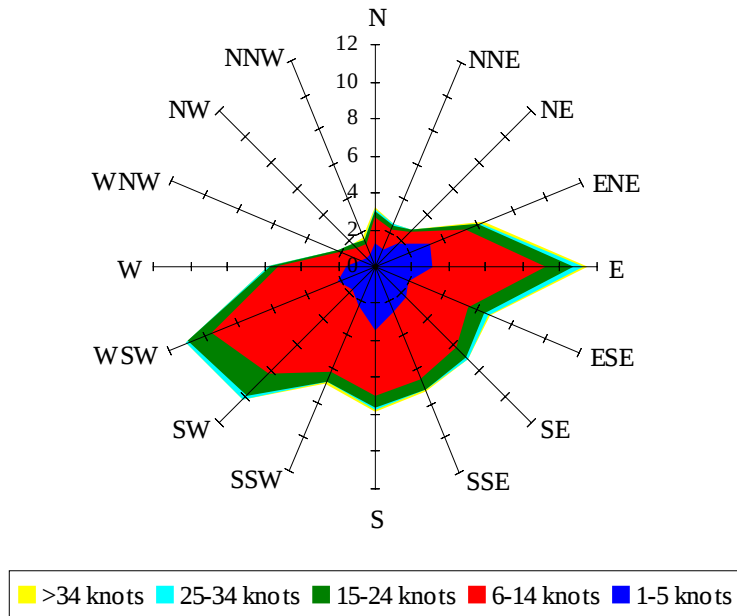
Wind Summary - March, April, and May

Labels of Percent Frequency on North Axis



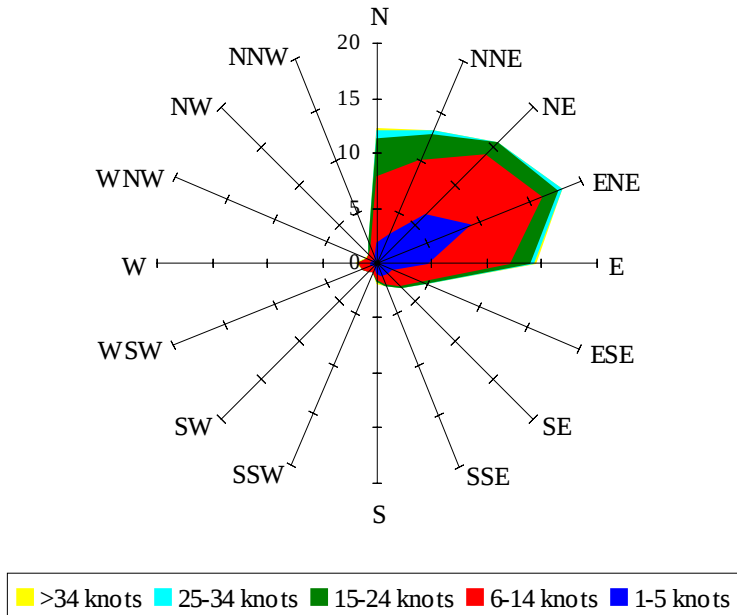
Percent Calm = 5.05

Wind Summary - June, July, and August **Labels of Percent Frequency on North Axis**



Percent Calm = 5.99

Wind Summary - September, October, and November **Labels of Percent Frequency on North Axis**



Percent Calm = 5.74