

EL SALVADOR INTL, ES

Latitude = 13.44 N

Longitude = 89.06 W

Period of Record = 1988 To 2017

Station ID = ICAO_MSLP

Elevation = 31 Meters

Average Pressure = 1007 mb

Design Criteria Data

Dry Bulb Temperature (T)	Mean Coincident (Average) Values				
	Design Value (°C)	Wet Bulb Temperature (°C)	Humidity Ratio (g/kg)	Wind Speed (m/s)	Prevailing Direction (NSEW)
Median of Extreme Highs	38	22	10	5.1	VRB
0.4% Occurrence	36	23	13	4.5	VRB
1.0% Occurrence	35	23	13	4.4	VRB
2.0% Occurrence	34	24	14	4	VRB
Mean Daily Range	9	-	-	-	NE
97.5% Occurrence	22	20	14	1.4	NE
99.0% Occurrence	21	19	13	1.3	NE
99.6% Occurrence	20	18	12	1.2	NE
Median of Extreme Lows	18	16	11	1	ENE

Wet Bulb Temperature (T _{wb})	Design Value (°C)	Dry Bulb Temperature (°C)	Humidity Ratio (g/kg)	Wind Speed (m/s)	Prevailing Direction (NSEW)
Median of Extreme Highs	31	32	26	4.1	WSW
0.4% Occurrence	29	32	22	3.2	VRB
1.0% Occurrence	28	32	21	3.1	VRB
2.0% Occurrence	27	31	20	2.7	VRB

Humidity Ratio (HR)	Design Value (g/kg)	Dry Bulb Temperature (°C)	Vapor Pressure (kPa)	Wind Speed (m/s)	Prevailing Direction (NSEW)
Median of Extreme Highs	23	30	120.65	2.3	VRB
0.4% Occurrence	22	29	113.79	2.2	VRB
1.0% Occurrence	22	29	113.75	2.2	VRB
2.0% Occurrence	22	29	113.75	2.2	VRB

Air Conditioning/ Humid Area Criteria	Threshold	T ≥ 33.9 °C	T ≥ 26.7 °C	Twb ≥ 22.8 °C	Twb ≥ 19.4 °C
	# of Hours	294	4646	5737	7955

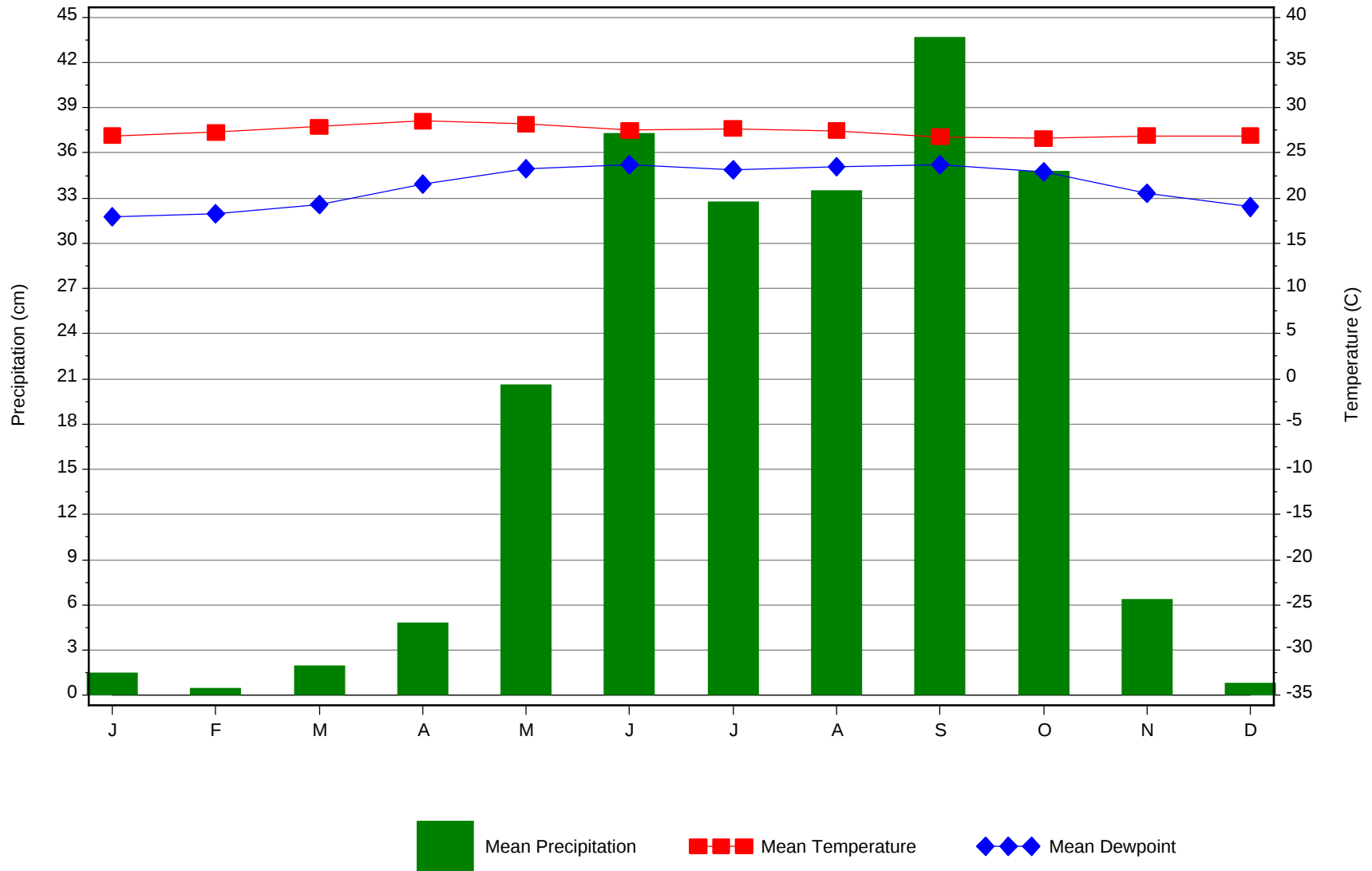
Other Site Data

Weather Region	Rain Rate 100 Year Recurrence (cm/hr)	Basic Wind Speed 3 sec gust @ 10 m 50 Year Recurrence (m/s)	Ventilation Cooling Load Index (kWh/l/s/yr) Base 24° C-RH 60% Latent + Sensible
10	N/A	N/A	11.1 + 3.3
Ground Water Temperature (°C) 15 Meter Depth*	Frost Depth 50 Year Recurrence (cm)	Ground Snow Load 50 Year Recurrence (kN/m ²)	Average Annual Freeze-Thaw Cycles (#)
28.8	N/A	N/A	0

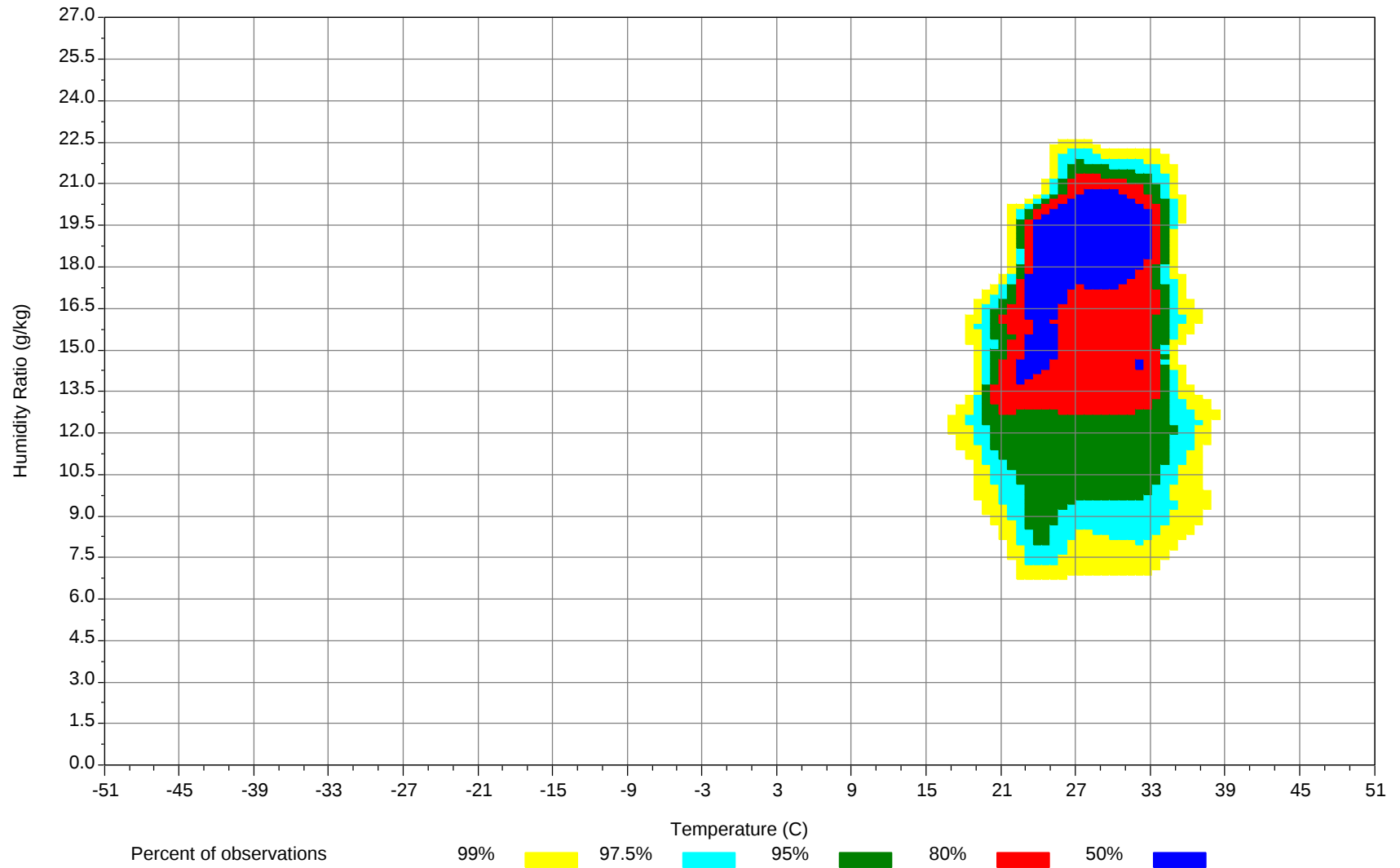
*Note: Temperatures at greater depths can be estimated by adding 0.83° C per 30 meters additional depth.



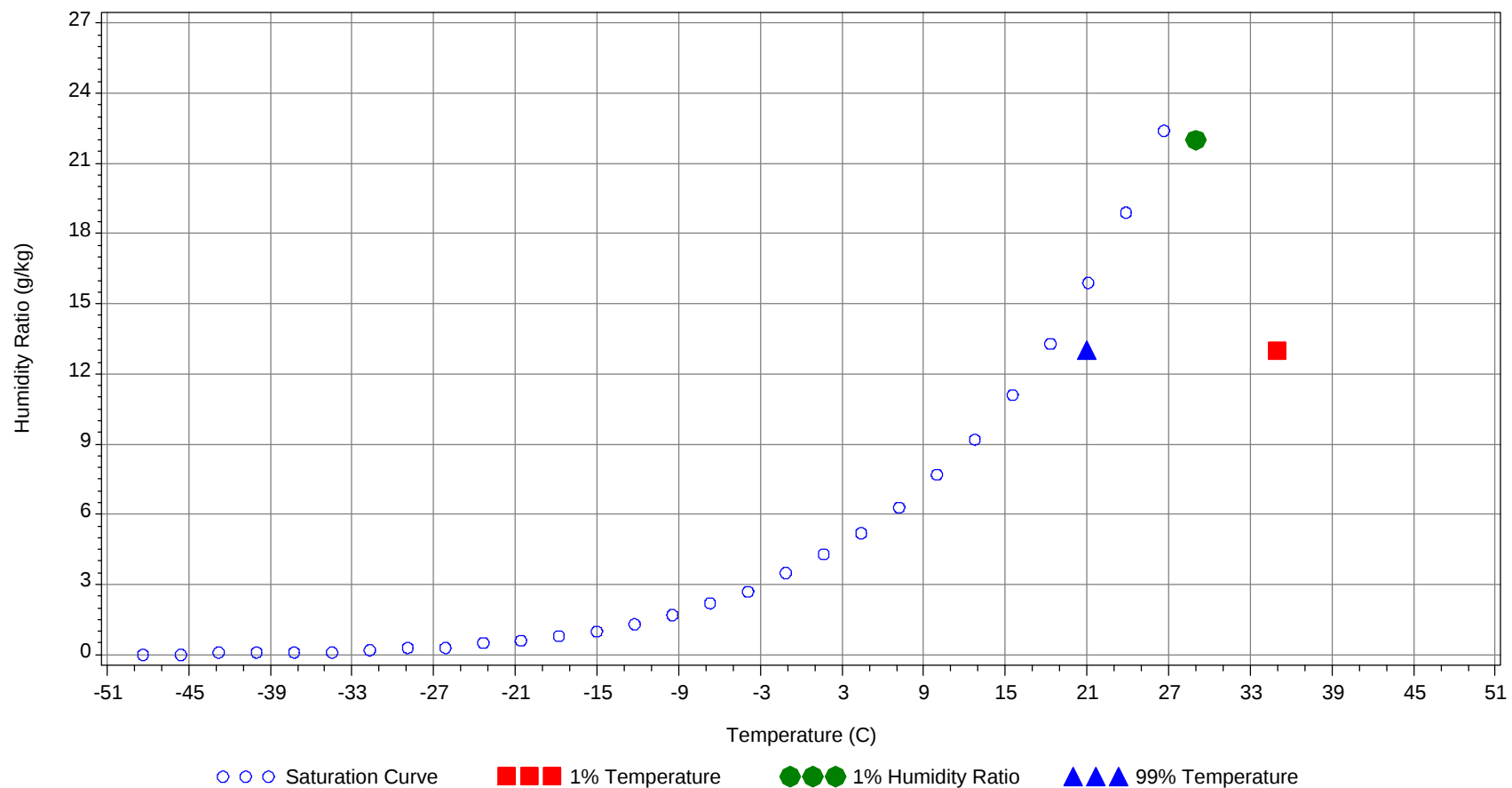
Average Annual Climate



Long Term Psychrometric Summary



Psychrometric Summary of Peak Design Values



	(°C) / (g/kg)	MCDB (°C)	MCWB (°C)	MCDP (°C)	MCHR (g/kg)	Enthalpy (kJ/kg)
1.0% Dry Bulb	35.0		23		13.0	68.9
99.0% Dry Bulb	21.0				13.0	52.7
1.0% Humidity Ratio	22.0	29.0	26.8	26.0		84.3

Dry-Bulb Temperature Hours For An Average Year

	January					February					March				
Temperature Range (°C)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°C)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°C)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°C)
39/ 41												0		0	23.3
36/ 38		3	0	3	22.1		6	0	6	21.2		9	0	9	21.3
33/ 35	0	31	0	31	22	0	30	1	31	21.7		39	1	40	22.5
30/ 32	0	179	19	198	22.3	1	169	27	197	22.6	3	186	38	227	23.2
27/ 29	20	33	71	124	21.4	25	17	67	109	21.6	45	12	93	150	22.5
24/ 26	63	2	71	136	20.4	61	1	66	128	20.9	75	1	76	152	21.8
21/ 23	140	0	83	223	19.6	118	0	62	180	20	113	0	39	152	20.3
18/ 20	22	0	4	26	18.2	17		1	18	18.1	11	0	1	12	17.6
15/ 17	3		0	3	16	2			2	16.3	1		0	1	15.7

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

	April					May					June				
Temperature Range (°C)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°C)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°C)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°C)
39/ 41		0		0				0	0	29					
36/ 38		5	0	5	22.5		4	0	4	23.5		1	0	1	25.4
33/ 35		46	0	46	24.1	0	29	1	30	25	0	13	0	13	25.7
30/ 32	10	179	43	232	24.5	7	171	37	215	25.5	3	169	22	194	25.9
27/ 29	52	10	117	179	24	52	36	125	213	24.9	31	45	89	165	25.2
24/ 26	105	1	64	170	23	122	7	70	199	24.1	101	10	99	210	24.3
21/ 23	71	0	15	86	21.2	67	2	15	84	22.9	105	2	30	137	23
18/ 20	2		0	2	18.3	0		0	0	19.5					
15/ 17	0			0	16.9										

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.

Dry-Bulb Temperature Hours For An Average Year

	July					August					September				
Temperature Range (°C)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°C)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°C)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°C)
39/ 41															
36/ 38		1		1	24.5		1	0	1	25.4					
33/ 35	0	24	0	24	25.4	0	14	0	14	25.7		3		3	26.2
30/ 32	3	186	34	223	25.6	2	184	26	212	25.8	1	154	10	165	25.9
27/ 29	34	30	85	149	24.9	27	43	89	159	25.2	18	66	69	153	25.3
24/ 26	98	5	85	188	23.9	99	6	96	201	24.1	73	14	114	201	24.3
21/ 23	113	2	44	159	22.6	121	1	37	159	22.7	148	4	47	199	22.9
18/ 20	0		0	0	20.3	0		0	0	18.7	0		0	0	20.3
15/ 17						0		0	0	17.1					

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Dry-Bulb Temperature Hours For An Average Year

	October					November					December				
Temperature Range (°C)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°C)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°C)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°C)
39/ 41															
36/ 38		0		0	25		0		0	25.1		1		1	23.1
33/ 35		5		5	25.1		13		13	23.7	0	28	0	28	22.8
30/ 32	1	153	6	160	25.3	0	184	8	192	23.9	0	185	12	197	23
27/ 29	21	70	61	152	24.8	24	38	59	121	23.1	22	32	61	115	22.1
24/ 26	67	14	119	200	24	65	3	106	174	22.4	61	2	87	150	21.4
21/ 23	157	5	61	223	22.6	142	1	65	208	21.2	146	0	85	231	20.3
18/ 20	2		0	2	18.8	7	0	1	8	18.2	16	0	2	18	18.5
15/ 17	0			0	18	1		0	1	16.3	2		0	2	16.4

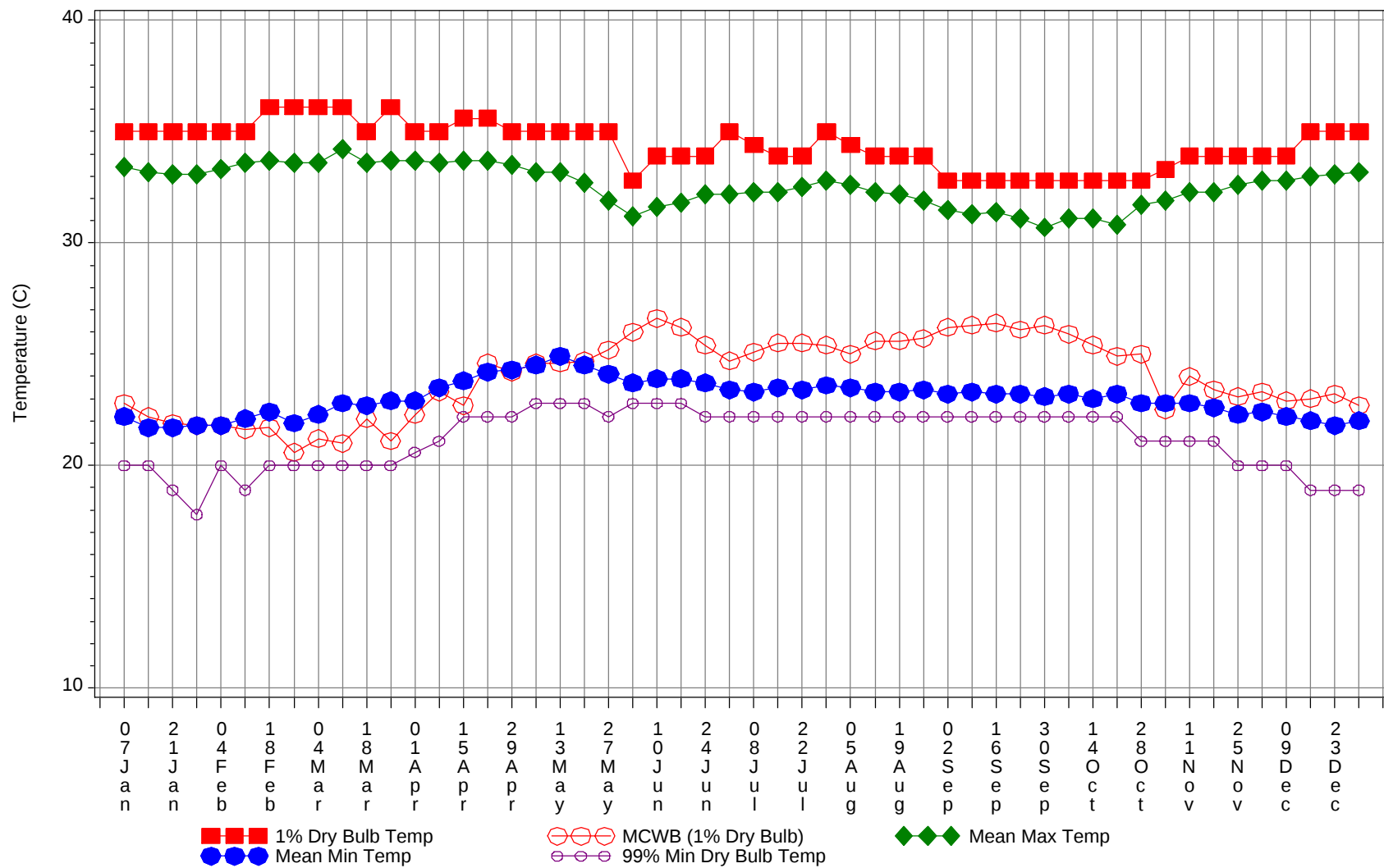
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

Dry-Bulb Temperature Hours For An Average Year

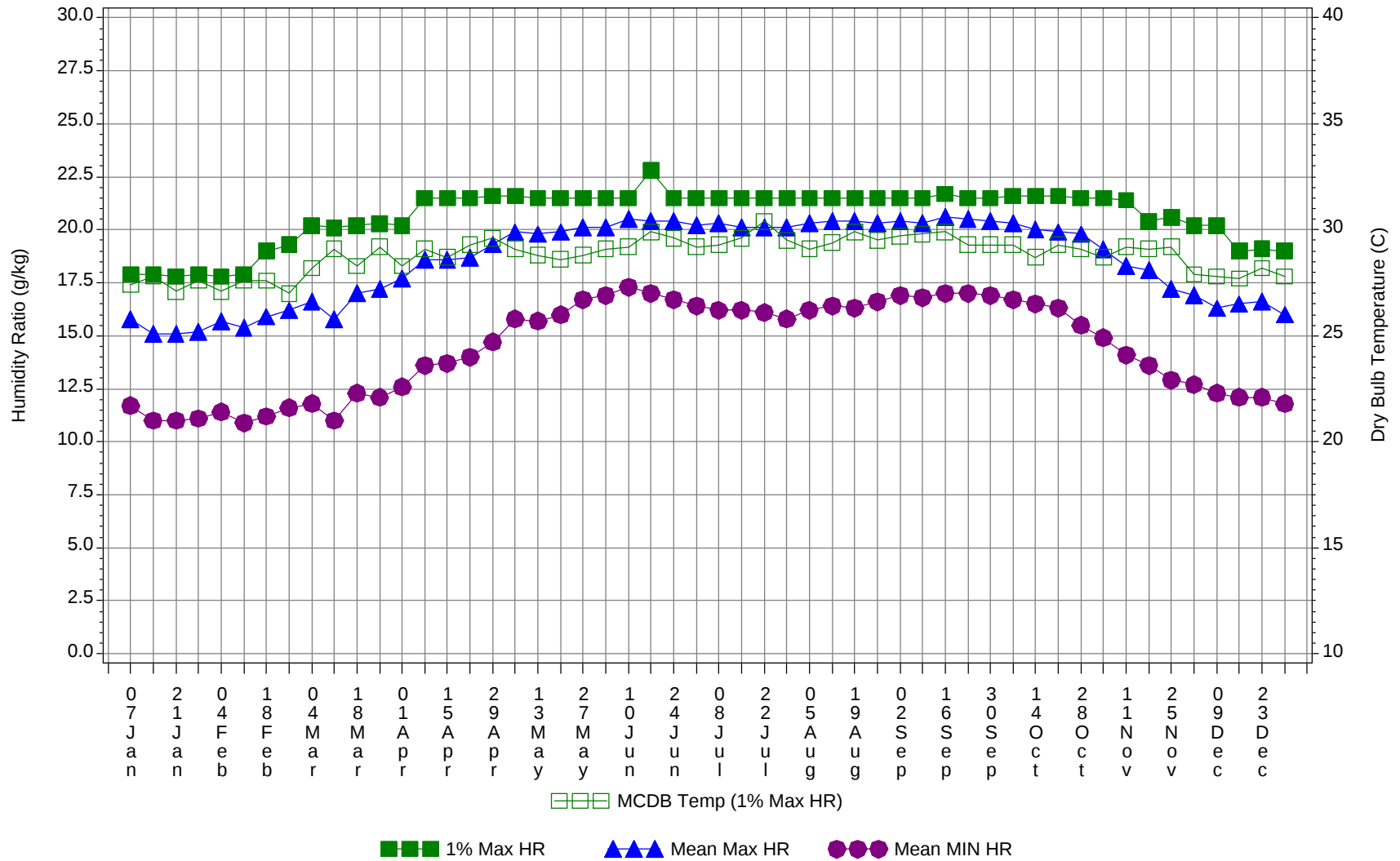
	Annual				
Temperature Range (°C)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°C)
39/ 41		0	0	0	25.2
36/ 38		32	1	33	22.3
33/ 35	0	275	4	279	23.6
30/ 32	31	2099	281	2411	24.4
27/ 29	368	433	982	1783	23.9
24/ 26	985	64	1055	2104	23.1
21/ 23	1447	17	586	2050	21.5
18/ 20	79	0	10	89	18.2
15/ 17	9		1	10	16.2

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



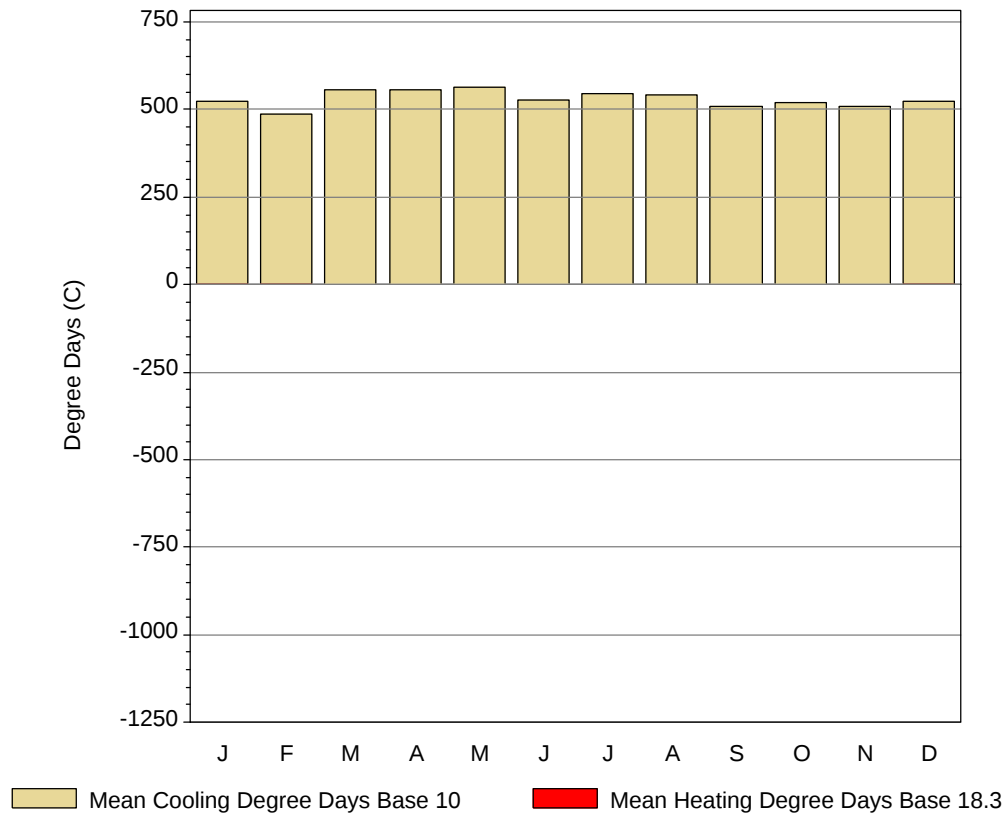
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

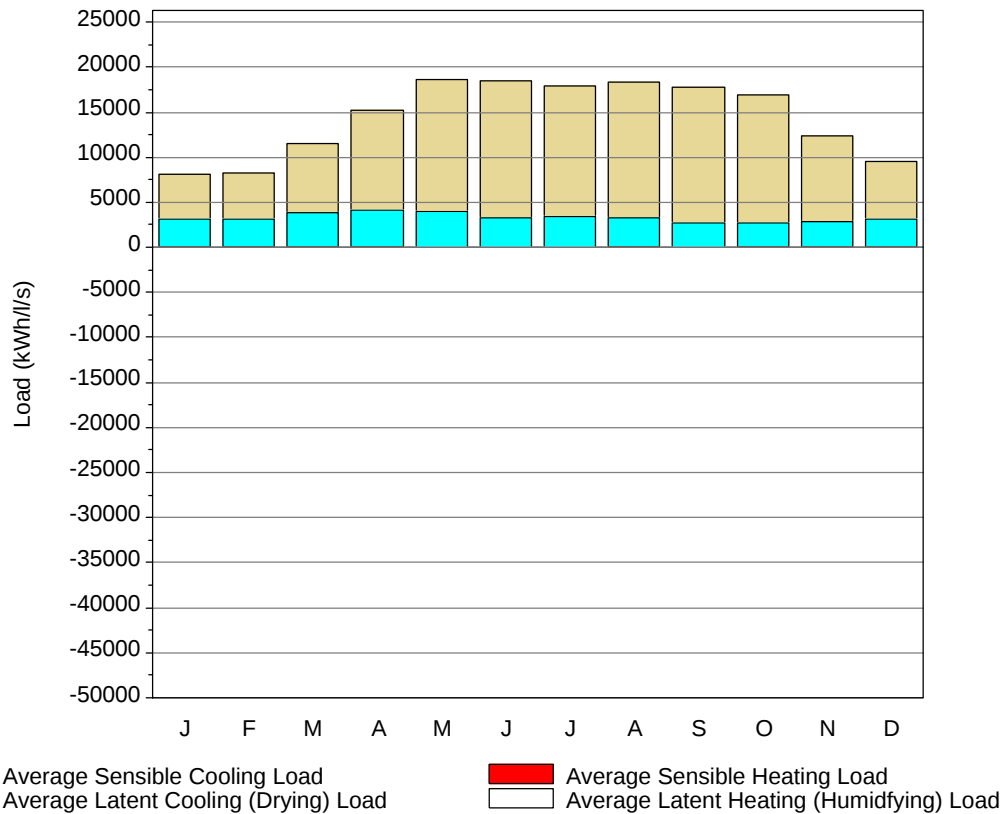
Week Ending	1.0% Temp (°C)	MCWB@ 1% Temp (°C)	Mean Max Temp (°C)	Mean Min Temp (°C)	99% Temp (°C)	1.0% HR (g/kg)	MCDB@ 1% HR (°C)	Mean Max HR (g/kg)	Mean Min HR (g/kg)
7-Jan	35	22.8	33.4	22.2	20	17.9	27.4	15.8	11.7
14-Jan	35	22.2	33.2	21.7	20	17.9	27.8	15.1	11
21-Jan	35	21.9	33.1	21.7	18.9	17.8	27.1	15.1	11
28-Jan	35	21.8	33.1	21.8	17.8	17.9	27.6	15.2	11.1
4-Feb	35	21.8	33.3	21.8	20	17.8	27.1	15.7	11.4
11-Feb	35	21.6	33.6	22.1	18.9	17.9	27.6	15.4	10.9
18-Feb	36.1	21.7	33.7	22.4	20	19	27.6	15.9	11.2
25-Feb	36.1	20.6	33.6	21.9	20	19.3	27	16.2	11.6
4-Mar	36.1	21.2	33.6	22.3	20	20.2	28.2	16.6	11.8
11-Mar	36.1	21	34.2	22.8	20	20.1	29.1	15.8	11
18-Mar	35	22.1	33.6	22.7	20	20.2	28.3	17	12.3
25-Mar	36.1	21.1	33.7	22.9	20	20.3	29.2	17.2	12.1
1-Apr	35	22.3	33.7	22.9	20.6	20.2	28.3	17.7	12.6
8-Apr	35	23.3	33.6	23.5	21.1	21.5	29.1	18.6	13.6
15-Apr	35.6	22.7	33.7	23.8	22.2	21.5	28.7	18.6	13.7
22-Apr	35.6	24.6	33.7	24.2	22.2	21.5	29.3	18.7	14
29-Apr	35	24.2	33.5	24.3	22.2	21.6	29.6	19.3	14.7
6-May	35	24.6	33.2	24.5	22.8	21.6	29.1	19.9	15.8
13-May	35	24.6	33.2	24.9	22.8	21.5	28.8	19.8	15.7
20-May	35	24.7	32.7	24.5	22.8	21.5	28.6	19.9	16
27-May	35	25.2	31.9	24.1	22.2	21.5	28.8	20.1	16.7
4-Jun	32.8	26	31.2	23.7	22.8	21.5	29.1	20.1	16.9
10-Jun	33.9	26.6	31.6	23.9	22.8	21.5	29.2	20.5	17.3
17-Jun	33.9	26.2	31.8	23.9	22.8	22.8	29.9	20.4	17
24-Jun	33.9	25.4	32.2	23.7	22.2	21.5	29.6	20.4	16.7
1-Jul	35	24.7	32.2	23.4	22.2	21.5	29.2	20.2	16.4
8-Jul	34.4	25.1	32.3	23.3	22.2	21.5	29.3	20.3	16.2
15-Jul	33.9	25.5	32.3	23.5	22.2	21.5	29.6	20.1	16.2
22-Jul	33.9	25.5	32.5	23.4	22.2	21.5	30.4	20.1	16.1
29-Jul	35	25.4	32.8	23.6	22.2	21.5	29.5	20.1	15.8
5-Aug	34.4	25	32.6	23.5	22.2	21.5	29.1	20.3	16.2
12-Aug	33.9	25.6	32.3	23.3	22.2	21.5	29.4	20.4	16.4
19-Aug	33.9	25.6	32.2	23.3	22.2	21.5	29.9	20.4	16.3
26-Aug	33.9	25.7	31.9	23.4	22.2	21.5	29.5	20.3	16.6
2-Sep	32.8	26.2	31.5	23.2	22.2	21.5	29.7	20.4	16.9
9-Sep	32.8	26.3	31.3	23.3	22.2	21.5	29.8	20.3	16.8
16-Sep	32.8	26.4	31.4	23.2	22.2	21.7	29.9	20.6	17
23-Sep	32.8	26.1	31.1	23.2	22.2	21.5	29.3	20.5	17
30-Sep	32.8	26.3	30.7	23.1	22.2	21.5	29.3	20.4	16.9
7-Oct	32.8	25.9	31.1	23.2	22.2	21.6	29.3	20.3	16.7
14-Oct	32.8	25.4	31.1	23	22.2	21.6	28.7	20	16.5
21-Oct	32.8	24.9	30.8	23.2	22.2	21.6	29.3	19.9	16.3
28-Oct	32.8	25	31.7	22.8	21.1	21.5	29.1	19.8	15.5
4-Nov	33.3	22.5	31.9	22.8	21.1	21.5	28.7	19.1	14.9
11-Nov	33.9	24	32.3	22.8	21.1	21.4	29.2	18.3	14.1
18-Nov	33.9	23.4	32.3	22.6	21.1	20.4	29.1	18.1	13.6
25-Nov	33.9	23.1	32.6	22.3	20	20.6	29.2	17.2	12.9
2-Dec	33.9	23.3	32.8	22.4	20	20.2	27.9	16.9	12.7
9-Dec	33.9	22.9	32.8	22.2	20	20.2	27.8	16.3	12.3
16-Dec	35	23	33	22	18.9	19	27.7	16.5	12.1
23-Dec	35	23.2	33.1	21.8	18.9	19.1	28.2	16.6	12.1
31-Dec	35	22.7	33.2	22	18.9	19	27.8	16	11.8

Degree Days, Heating and Cooling (Base 18.3 C) & Cooling (Base 10 C)



Month	Mean Cooling Degree Days (°C) Base 10	Mean Cooling Degree Days (°C) Base 18.3	Mean Heating Degree Days (°C) Base 18.3
JAN	524	265	0
FEB	488	253	0
MAR	556	297	0
APR	555	305	0
MAY	565	307	0
JUN	529	279	0
JUL	547	288	0
AUG	541	283	0
SEP	508	258	0
OCT	521	263	0
NOV	510	260	0
DEC	524	266	0
ANN	6367	3324	0

Average Ventilation and Infiltration Loads (Outside Air vs 24C, 60% RH summer; 20C, 30% RH winter)



Month	Average Sensible Cooling Load (kWh/l/s)	Average Sensible Heating Load (kWh/l/s)	Average Latent Cooling Load (kWh/l/s)	Average Latent Heating Load (kWh/l/s)
JAN	3112	-13	4986	0
FEB	3097	-9	5142	0
MAR	3820	-5	7677	0
APR	4071	-1	11106	0
MAY	3932	0	14699	0
JUN	3312	0	15187	0
JUL	3459	0	14429	0
AUG	3291	-1	15065	0
SEP	2746	0	15041	0
OCT	2761	-1	14169	0
NOV	2912	-6	9465	0
DEC	3077	-9	6423	0
ANN	39590	-43	133390	0

Station Information		Shading Geometry in Dimensionless Units	
City, State, WBAN	N/A	N/A	N/A
Lat, Lon, Elev	N/A	N/A	N/A
Press Stn Type	N/A	N/A	N/A

AVERAGE INCIDENT SOLAR RADIATION (Btu/sq.ft./day), Percentage Uncertainty = 9														
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
HORIZ.	Global													
	Std.Dev.													
	Minimum													
	Maximum													
	Diffuse													
Clear Day	Global													
NORTH	Global													
	Diffuse													
Clear Day	Global													
EAST	Global													
	Diffuse													
Clear Day	Global													
SOUTH	Global													
	Diffuse													
Clear Day	Global													
WEST	Global													
	Diffuse													
Clear Day	Global													

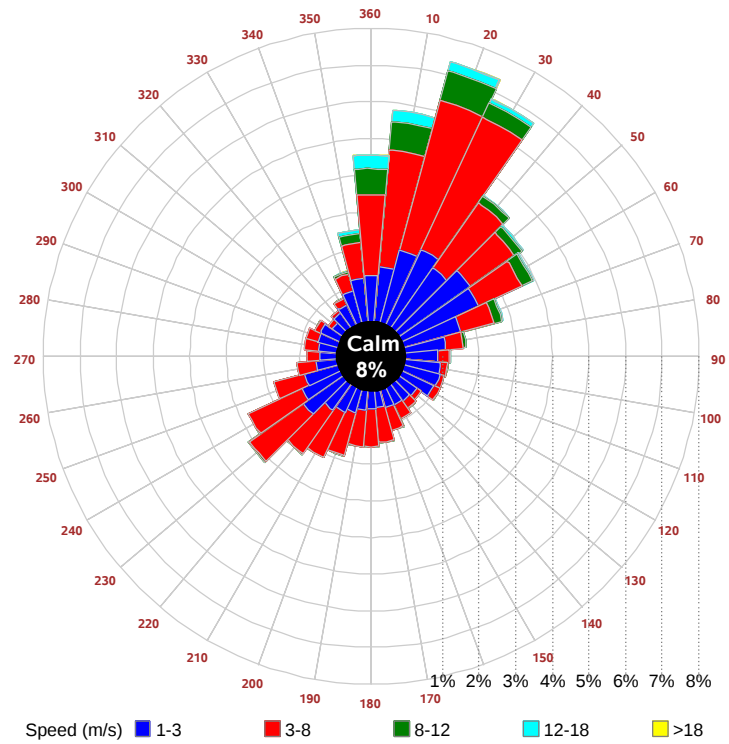
Average Annual Solar Radiation - Nearest Available Site
Source: National Renewable Energy Laboratory, Golden CO, 1995

AVERAGE TRANSMITTED SOLAR RADIATION (Btu/sq.ft./day) FOR DOUBLE GLAZING, Percentage Uncertainty = 9														
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
HORIZ.	Unshaded													
NORTH	Unshaded													
	Shaded													
EAST	Unshaded													
	Shaded													
SOUTH	Unshaded													
	Shaded													
WEST	Unshaded													
	Shaded													

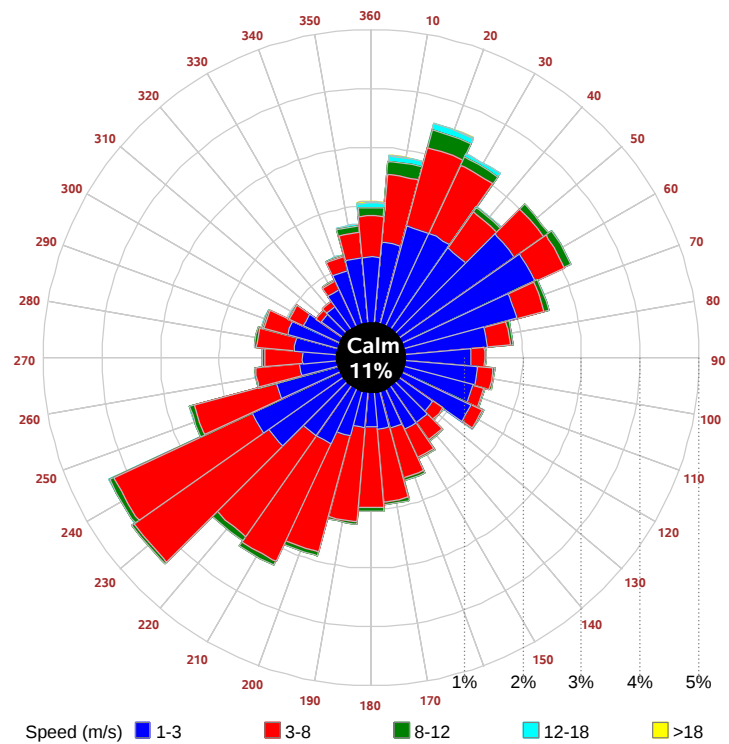
AVERAGE INCIDENT ILLUMINENCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9											
		March			June						
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear										
	M.Cloudy										
NORTH	M.Clear										
	M.Cloudy										
EAST	M.Clear										
	M.Cloudy										
SOUTH	M.Clear										
	M.Cloudy										
WEST	M.Clear										
	M.Cloudy										
M.Clear	(% hrs)										

		9am	11am	Sept 1pm	3pm	5pm	9am	11am	Dec 1pm	3pm	5pm
HORIZ.	M.Clear										
	M.Cloudy										
NORTH	M.Clear										
	M.Cloudy										
EAST	M.Clear										
	M.Cloudy										
SOUTH	M.Clear										
	M.Cloudy										
WEST	M.Clear										
	M.Cloudy										
M.Clear	(% hrs)										

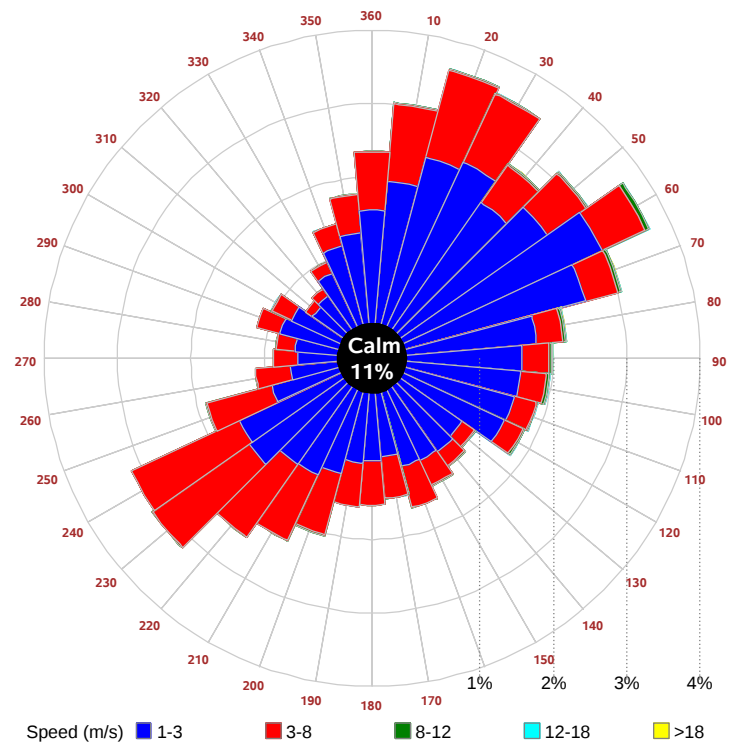
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

