

WALLA WALLA WA

Latitude = 46.10 N

Longitude = 118.20 W

Period of Record = 1973 to 1996

WMO No. 727846

Elevation = 1204 feet

Average Pressure = 28.71 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	106	69	53	9.1	N
0.4% Occurrence	99	67	52	8.3	WSW
1.0% Occurrence	95	66	51	8.0	WSW
2.0% Occurrence	91	64	51	7.9	WSW
Mean Daily Range	19	-	-	-	-
97.5% Occurrence	20	19	13	4.9	S
99.0% Occurrence	12	11	8	4.4	S
99.6% Occurrence	4	3	5	4.6	S
Median of Extreme Lows	1	0	4	4.1	ESE
	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	72	94	86	7.7	WSW
0.4% Occurrence	69	93	70	7.8	WSW
1.0% Occurrence	67	91	63	7.8	WSW
2.0% Occurrence	65	87	59	8.0	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	104	83	0.67	6.4	S
0.4% Occurrence	84	76	0.54	7.4	S
1.0% Occurrence	76	71	0.49	8.0	S
2.0% Occurrence	72	73	0.47	7.8	S
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		146	736	8	113

Other Site Data

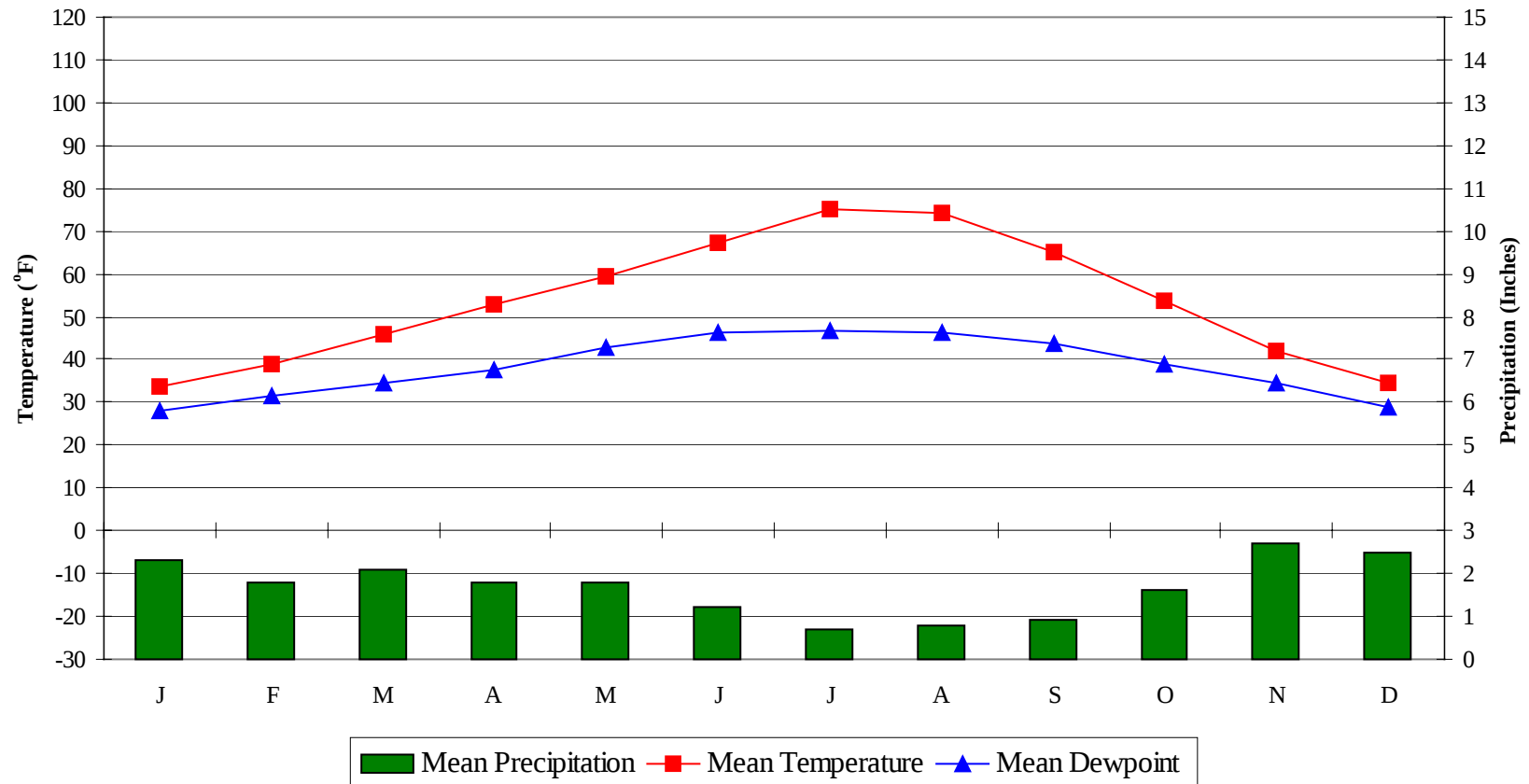
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
7	1.2	85	0.0 + 0.9
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
56.1	49	15	29

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

WALLA WALLA WA

WMO No. 727846

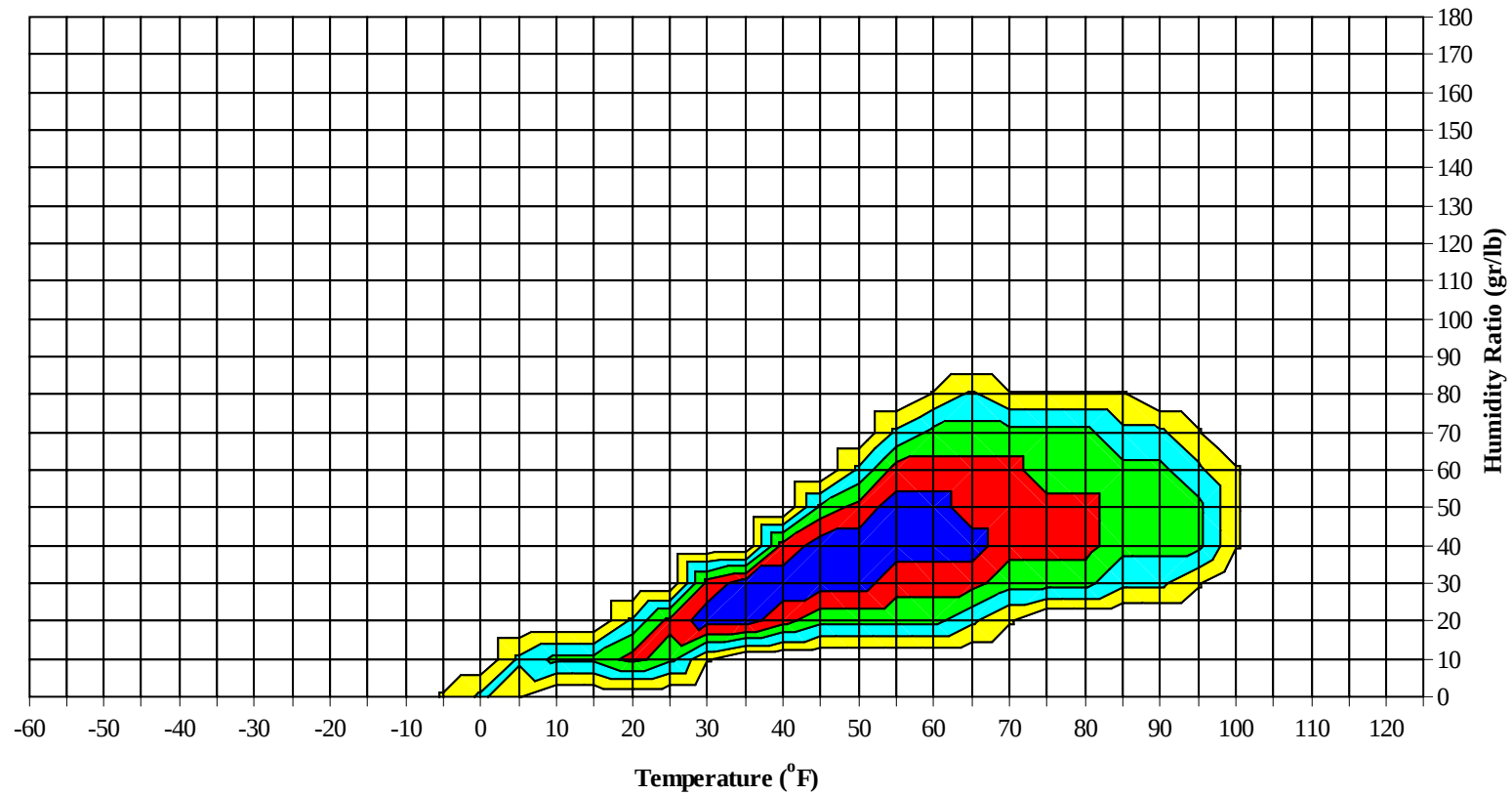
Average Annual Climate



WALLA WALLA WA

WMO No. 727846

Long Term Psychrometric Summary

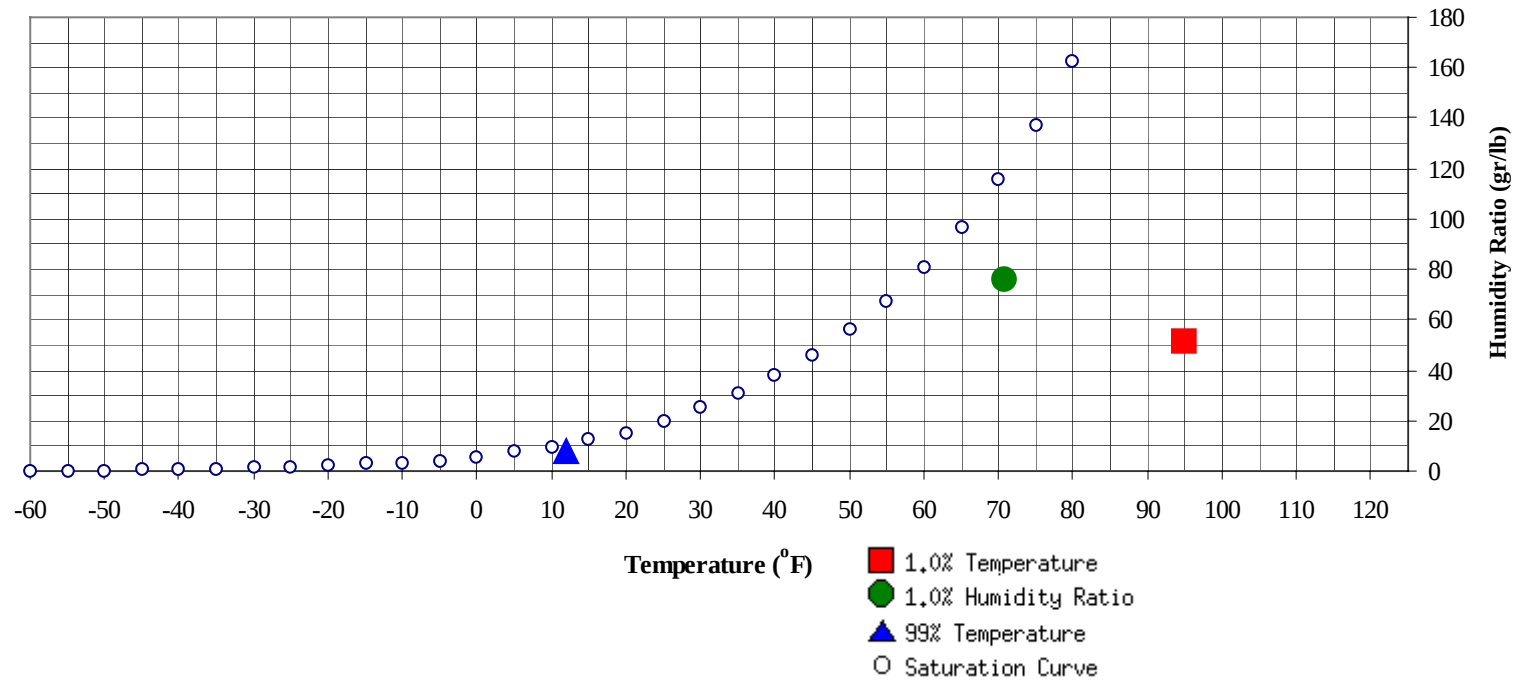


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

WALLA WALLA WA

WMO No. 727846

Psychrometric Summary of Peak Design Values



	(°F)	MCHR	Enthalpy	1.0% Humidity Ratio	(gr/lb)	MCDB	MCWB	MC Dewpt	Enthalpy
		(gr/lb)	(btu/lb)			(°F)	(°F)	(°F)	(btu/lb)
99% Dry Bulb	12	8.1	4.1		76.3	70.8	62.5	57.9	28.9

1.0% Dry Bulb	(°F)	MCHR	MCWB	Enthalpy
		(gr/lb)	(°F)	(btu/lb)
	95	51.9	65.7	31.0

WALLA WALLA WA

WMO No. 727846

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		
110 / 114															
105 / 109															
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79							0		0	62.0		0	0	0	52.4
70 / 74							0	0	0	58.4	0	2	1	3	53.2
65 / 69	0	0	0	0	49.4	0	2	0	2	53.9	0	9	2	11	52.7
60 / 64	1	3	1	5	50.0	2	6	2	10	51.0	2	24	7	33	50.2
55 / 59	3	9	4	16	48.9	4	19	8	31	48.8	5	43	22	70	47.8
50 / 54	8	18	12	38	45.5	10	31	21	62	45.6	17	63	48	129	45.0
45 / 49	17	27	23	67	42.3	20	41	35	96	42.2	47	58	64	170	42.1
40 / 44	31	36	37	104	38.6	38	41	49	128	38.8	74	32	64	171	38.6
35 / 39	45	38	46	129	35.0	54	27	45	126	34.8	67	9	28	104	34.3
30 / 34	53	44	47	144	31.1	52	27	31	110	31.0	25	4	8	37	30.2
25 / 29	36	29	29	94	26.3	21	15	17	53	25.9	7	2	2	11	25.9
20 / 24	24	20	19	63	21.2	9	5	7	21	21.0	2	1	1	4	21.6
15 / 19	12	9	11	32	16.5	5	4	3	12	16.0	1	0	0	1	16.4
10 / 14	6	8	7	21	10.8	3	2	3	8	11.3	0	0	0	0	11.0
5 / 9	6	4	6	16	6.4	1	1	1	3	6.5	0			0	7.3
0 / 4	3	2	3	8	1.4	2	1	1	4	1.2					
-5 / -1	2	1	2	5	-3.0	1	0	1	2	-3.0					
-10 / -6	1	0	2	3	-6.6	1	0	1	2	-7.2					
-15 / -11	0		0	0	-10.0	1		0	1	-11.0					
-20 / -16						0			0	-15.0					

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.

WALLA WALLA WA

WMO No. 727846

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

Period of Record = 1973 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		
110 / 114															
105 / 109												0	0	0	68.5
100 / 104												1	0	1	67.2
95 / 99		0	0	0	61.5		0	0	0	68.8	0	5	2	7	67.1
90 / 94		0	0	0	60.3		3	1	4	66.6	0	15	7	22	64.8
85 / 89		1	0	1	61.1		8	3	11	64.5	0	24	10	34	63.1
80 / 84	0	3	1	4	60.2	0	13	5	18	62.5	1	36	18	55	61.3
75 / 79	0	8	3	11	58.3	1	23	10	34	59.7	6	37	23	66	59.7
70 / 74	1	17	6	24	55.8	4	34	20	58	57.1	16	43	37	96	57.7
65 / 69	2	29	14	45	53.3	11	49	32	92	54.6	37	39	42	118	55.8
60 / 64	6	41	25	72	50.8	27	51	44	122	52.3	53	26	44	123	53.7
55 / 59	21	56	42	119	48.1	49	40	51	140	49.9	62	13	37	112	51.0
50 / 54	47	52	58	157	45.5	67	23	51	141	46.8	48	3	16	67	47.6
45 / 49	62	25	53	140	42.5	59	4	24	87	43.0	14	0	2	16	43.9
40 / 44	65	7	32	104	38.6	27	0	5	32	39.2	2		0	2	39.3
35 / 39	32	0	5	37	34.5	4		0	4	36.0	0			0	38.5
30 / 34	4		0	4	30.8										
25 / 29	0			0	26.5										
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															

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.

WALLA WALLA WA

WMO No. 727846

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		
110 / 114		0	0	0	75.8		0		0	68.0					
105 / 109		2	1	3	69.7		1	0	1	68.9					
100 / 104		9	4	13	68.4		7	3	10	67.2		0	0	0	66.7
95 / 99		22	10	32	66.3		20	8	28	65.9		2	0	2	65.8
90 / 94	0	36	19	55	64.7	0	30	14	44	64.1		10	3	13	63.7
85 / 89	2	42	23	67	63.0	1	41	20	62	62.5	0	20	6	26	62.4
80 / 84	8	44	31	83	61.3	7	49	32	88	61.1	0	34	11	45	60.5
75 / 79	23	40	42	106	59.5	20	43	41	104	59.2	2	41	17	60	58.5
70 / 74	43	28	42	114	57.5	40	32	46	118	57.4	9	43	33	85	56.6
65 / 69	60	16	37	114	55.8	63	16	44	123	55.8	30	41	49	120	54.8
60 / 64	58	6	27	91	53.7	68	7	29	104	53.7	52	27	49	128	52.7
55 / 59	39	2	9	50	51.0	39	2	9	50	51.0	65	15	42	122	50.2
50 / 54	13	0	1	14	47.7	9	0	2	11	47.3	50	4	24	78	46.7
45 / 49	1	0	0	1	45.2	2		0	2	43.8	22	1	6	29	42.7
40 / 44			0	0							7	0	1	8	39.0
35 / 39											2		0	2	33.4
30 / 34											0			0	28.6
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															

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.

WALLA WALLA WA

WMO No. 727846

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		
110 / 114															
105 / 109															
100 / 104															
95 / 99															
90 / 94															
85 / 89		1	0	1	58.8										
80 / 84		6	0	6	58.8										
75 / 79	0	13	2	15	57.5		0		0	57.3					
70 / 74	0	22	4	26	55.7		1	0	1	55.5					
65 / 69	3	40	14	57	53.2	1	4	2	7	54.1	0	0	0	0	54.5
60 / 64	12	53	29	94	51.0	2	9	4	15	52.2	2	3	2	7	51.4
55 / 59	32	50	48	130	49.1	10	23	11	44	49.3	5	7	5	17	48.9
50 / 54	59	37	64	161	46.4	24	45	27	96	46.4	10	20	10	40	46.1
45 / 49	64	17	52	132	42.7	35	54	44	134	43.0	19	31	23	73	42.4
40 / 44	47	6	26	79	38.8	50	41	58	150	39.4	31	34	34	99	38.5
35 / 39	21	2	7	30	34.3	54	26	43	124	35.1	42	37	44	123	34.7
30 / 34	8	1	3	12	30.4	35	21	29	85	30.9	55	48	57	160	30.9
25 / 29	1	0	0	1	26.7	15	9	10	34	25.8	47	36	41	124	26.8
20 / 24						6	3	5	14	20.8	17	16	15	48	21.0
15 / 19						3	1	2	6	16.1	10	7	9	26	17.0
10 / 14						2	2	2	6	10.8	3	3	3	9	11.8
5 / 9						2	1	1	4	6.7	2	2	2	6	6.1
0 / 4						0	0	0	0	1.6	2	2	2	6	1.2
-5 / -1						0	0	0	0	-2.6	1	0	1	2	-3.6
-10 / -6						0		0	0	-8.0	1	0	2	3	-7.7
-15 / -11								0	0	-11.0	1	0	0	1	-11.1
-20 / -16													0	0	-15.0

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.

WALLA WALLA WA

WMO No. 727846

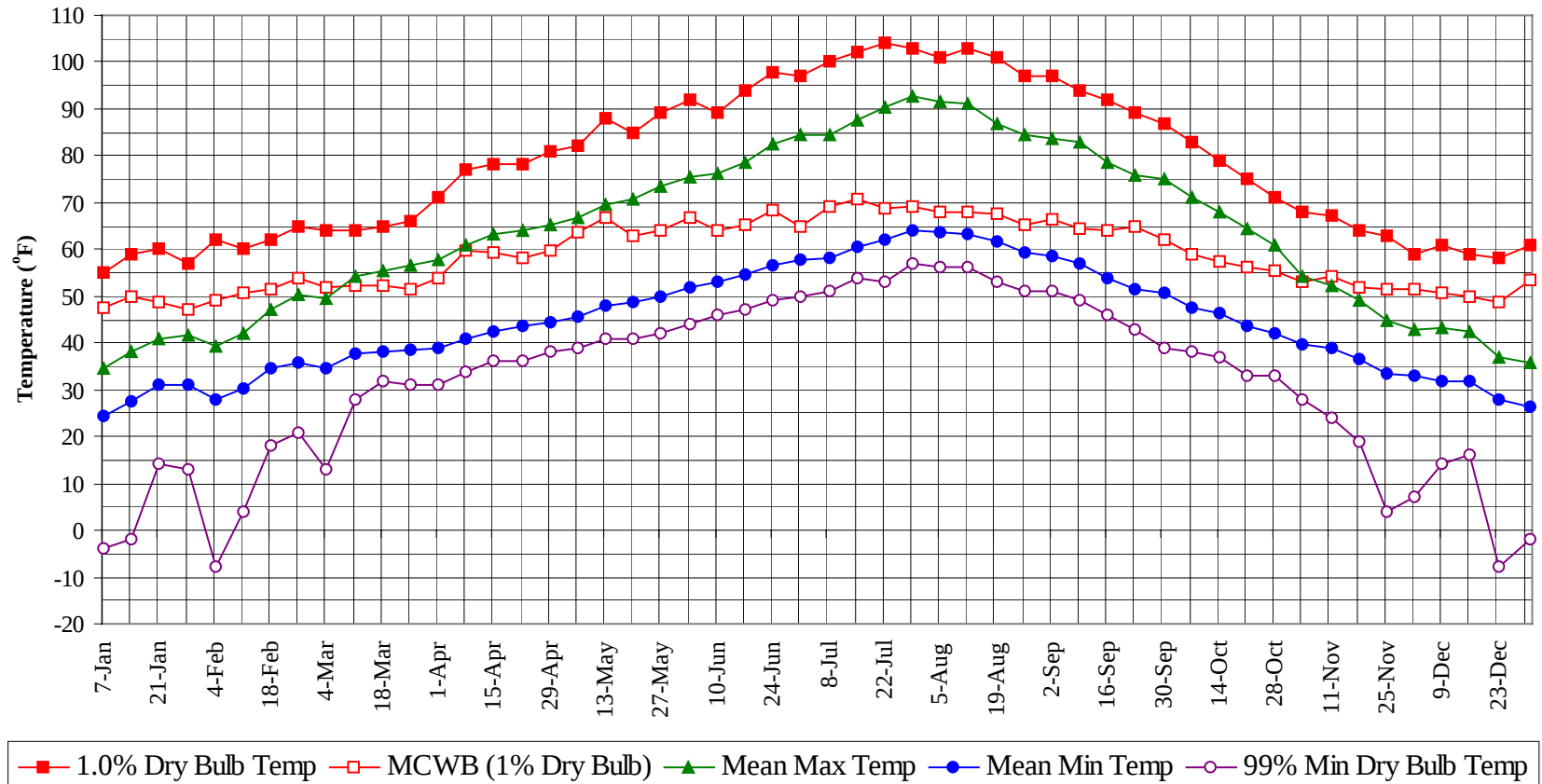
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

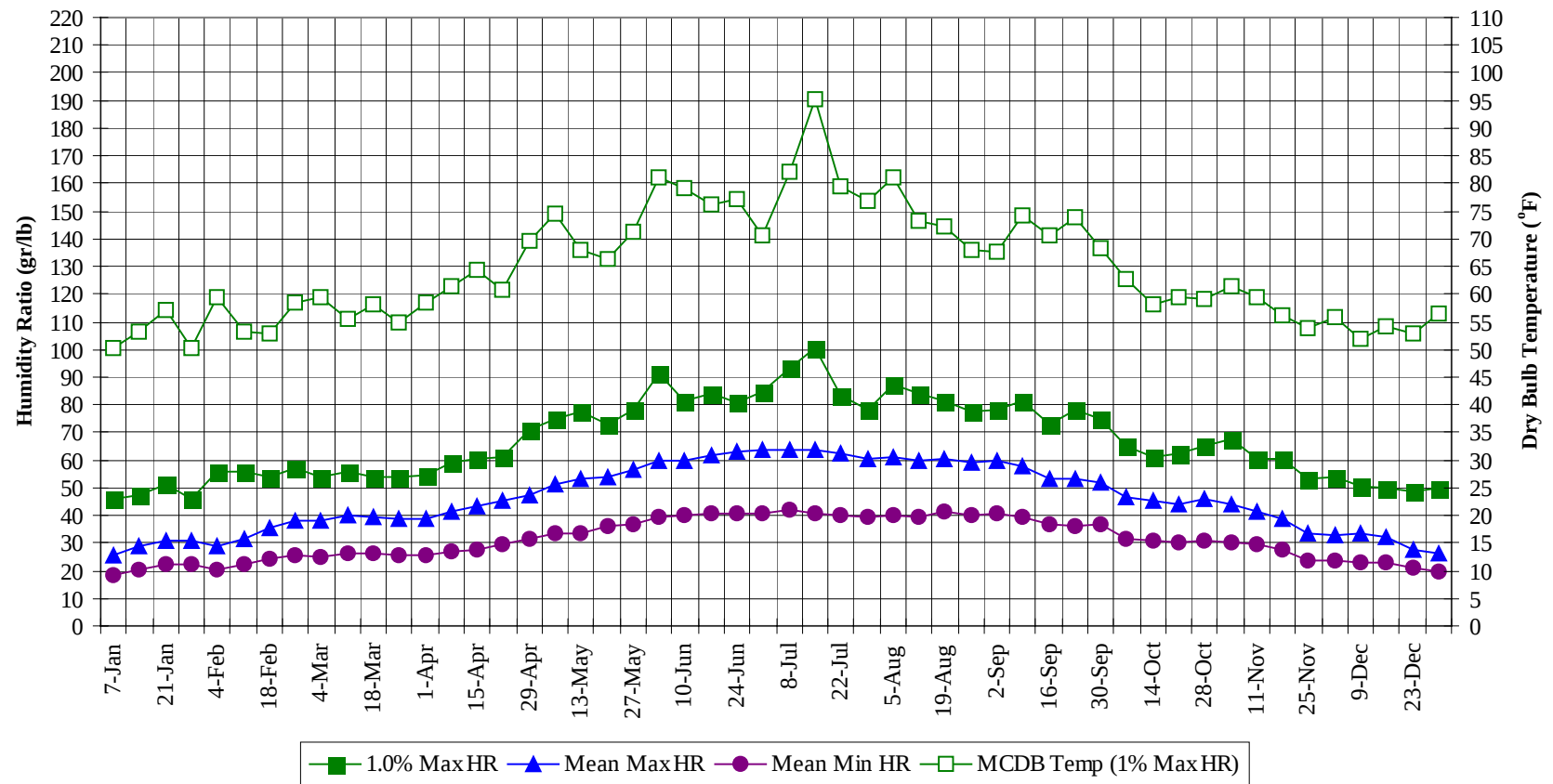
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
110 / 114		0	0	0	74.9
105 / 109		4	1	5	69.4
100 / 104		17	7	24	67.8
95 / 99	0	49	20	69	66.2
90 / 94	0	95	43	138	64.5
85 / 89	4	136	62	202	62.9
80 / 84	17	184	99	300	61.1
75 / 79	53	205	138	396	59.2
70 / 74	113	220	189	522	57.1
65 / 69	208	245	237	690	55.0
60 / 64	286	255	264	805	52.5
55 / 59	333	278	289	900	49.6
50 / 54	363	296	333	992	46.2
45 / 49	358	260	325	943	42.6
40 / 44	372	198	306	876	38.8
35 / 39	322	140	221	683	34.8
30 / 34	233	146	176	555	30.9
25 / 29	127	92	101	320	26.4
20 / 24	58	46	48	152	21.1
15 / 19	32	21	25	78	16.5
10 / 14	14	14	15	43	11.1
5 / 9	11	8	10	29	6.4
0 / 4	8	6	6	20	1.3
-5 / -1	3	2	3	8	-3.1
-10 / -6	3	1	4	8	-7.2
-15 / -11	1	0	1	2	-11.0
-20 / -16	0		0	0	-15.0

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.

Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



WALLA WALLA WA

WMO No. 727846

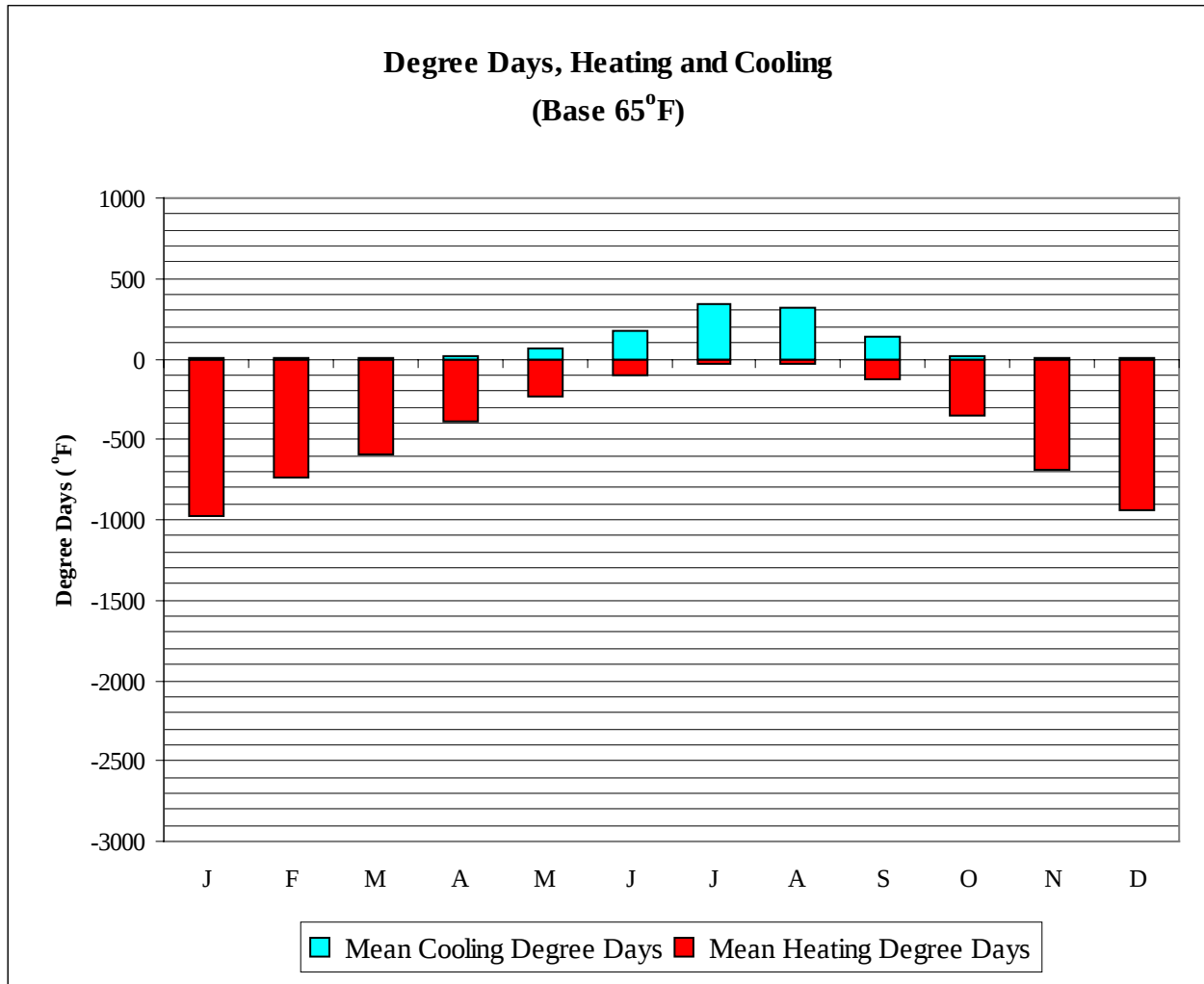
Long Term Dry Bulb Temperature and Humidity Summary

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	55.0	47.6	34.6	24.5	-4.0	46.2	50.2	25.9	18.2
14-Jan	59.0	50.1	38.1	27.4	-2.0	47.6	53.2	28.9	20.2
21-Jan	60.0	48.8	40.7	31.2	14.0	51.1	57.3	30.6	22.5
28-Jan	57.0	47.0	41.7	31.1	13.0	46.2	50.1	31.1	22.1
4-Feb	62.0	49.2	39.2	27.8	-8.0	56.0	59.4	29.0	20.3
11-Feb	60.0	50.8	42.1	30.5	4.0	56.0	53.2	31.4	22.1
18-Feb	62.0	51.6	47.3	34.8	18.0	53.9	53.0	35.7	24.0
25-Feb	65.0	53.7	50.5	35.8	21.0	57.4	58.4	37.9	25.5
4-Mar	64.0	51.9	49.7	34.8	13.0	53.9	59.3	37.8	25.1
11-Mar	64.0	52.4	54.4	37.7	28.0	56.0	55.5	39.9	26.5
18-Mar	65.0	52.4	55.4	38.3	32.0	53.9	58.1	39.1	26.3
25-Mar	66.0	51.4	56.8	38.5	31.0	53.9	55.0	38.5	25.5
1-Apr	71.0	53.8	57.6	39.1	31.0	54.6	58.6	38.7	25.3
8-Apr	77.0	59.7	60.8	41.1	34.0	58.8	61.6	41.4	27.0
15-Apr	78.0	59.4	63.1	42.3	36.0	60.2	64.5	43.4	27.8
22-Apr	78.0	58.1	64.1	43.7	36.0	60.9	60.7	45.6	29.6
29-Apr	81.0	59.9	65.2	44.6	38.0	70.7	69.7	47.5	31.2
6-May	82.0	63.8	67.0	45.8	39.0	74.9	74.7	51.2	33.5
13-May	88.0	66.9	69.6	47.9	41.0	77.7	67.9	53.3	33.6
20-May	85.0	62.7	70.9	48.8	41.0	72.8	66.3	53.8	35.8
27-May	89.0	64.2	73.5	49.9	42.0	78.4	71.4	56.6	36.5
3-Jun	92.0	66.7	75.3	51.7	44.0	91.0	81.1	59.6	39.3
10-Jun	89.0	64.2	76.3	53.1	46.0	81.2	79.1	60.1	39.8
17-Jun	94.0	65.3	78.7	54.5	47.0	84.0	76.3	61.7	40.7
24-Jun	98.0	68.6	82.4	56.6	49.0	80.5	77.2	63.2	41.0
1-Jul	97.0	64.9	84.4	57.9	50.0	84.7	70.7	63.5	40.7
8-Jul	100.0	69.1	84.5	58.2	51.0	93.1	82.0	63.7	42.2
15-Jul	102.0	70.6	87.7	60.5	54.0	100.8	95.1	63.9	41.0
22-Jul	104.0	68.8	90.4	62.2	53.0	83.3	79.6	62.1	40.3
29-Jul	103.0	69.2	92.8	64.1	57.0	78.4	76.9	60.5	39.7
5-Aug	101.0	68.1	91.4	63.6	56.0	87.5	81.0	61.1	40.3
12-Aug	103.0	68.1	91.1	63.1	56.0	84.0	73.2	59.6	39.6
19-Aug	101.0	67.5	86.9	61.6	53.0	81.2	72.3	60.5	41.3
26-Aug	97.0	65.2	84.4	59.3	51.0	77.7	67.8	58.9	39.9
2-Sep	97.0	66.4	83.8	58.5	51.0	78.4	67.6	59.5	40.5
9-Sep	94.0	64.5	82.8	56.9	49.0	81.2	74.2	58.0	39.3
16-Sep	92.0	64.0	78.7	53.7	46.0	72.8	70.6	53.2	36.6
23-Sep	89.0	65.0	75.9	51.5	43.0	78.4	73.7	53.4	36.0
30-Sep	87.0	62.2	75.0	50.9	39.0	74.9	68.2	51.6	36.8
7-Oct	83.0	59.0	71.2	47.5	38.0	65.1	62.9	46.7	31.3
14-Oct	79.0	57.2	68.0	46.3	37.0	60.9	58.1	45.2	30.6
21-Oct	75.0	56.4	64.3	43.5	33.0	62.3	59.6	44.1	30.5
28-Oct	71.0	55.5	60.8	42.0	33.0	65.1	59.0	45.7	31.2
4-Nov	68.0	53.0	54.4	39.9	28.0	67.9	61.3	44.0	30.2
11-Nov	67.0	54.3	52.2	38.7	24.0	60.2	59.6	41.2	29.3
18-Nov	64.0	52.0	49.0	36.7	19.0	60.2	56.2	38.6	27.3
25-Nov	63.0	51.5	44.7	33.4	4.0	53.2	53.7	33.8	23.8
2-Dec	59.0	51.4	42.7	32.8	7.0	53.9	55.9	33.0	23.7
9-Dec	61.0	50.9	43.2	31.9	14.0	50.4	51.8	33.2	23.2
16-Dec	59.0	50.1	42.6	32.0	16.0	49.7	54.3	32.2	22.7
23-Dec	58.0	48.9	36.8	27.9	-8.0	48.3	52.9	27.9	20.8
31-Dec	61.0	53.4	35.7	26.5	-2.0	49.7	56.5	26.6	19.4

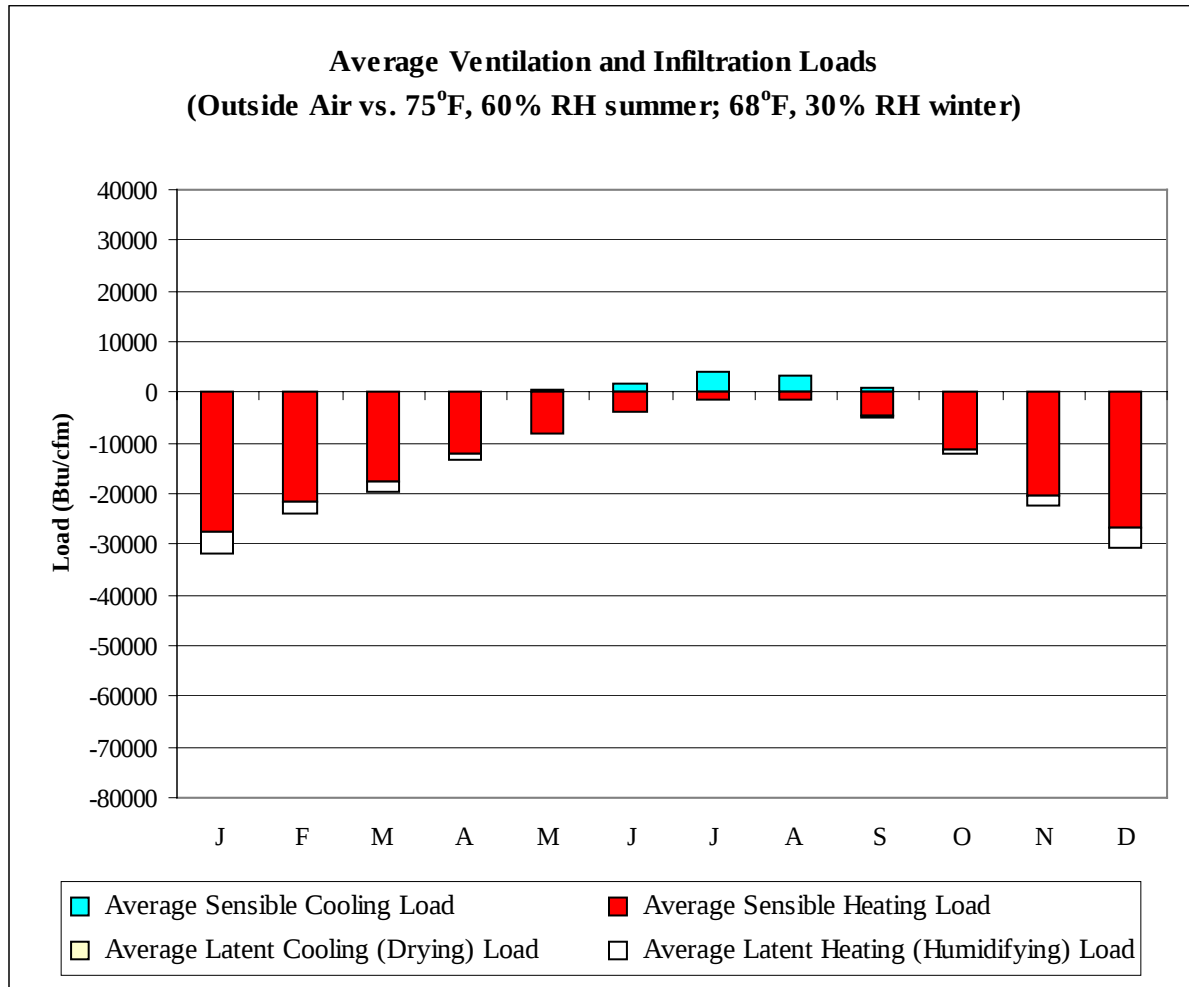
WALLA WALLA

WA

WMO No. 727846



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	975
FEB	0	741
MAR	1	589
APR	19	387
MAY	67	237
JUN	172	101
JUL	345	34
AUG	315	34
SEP	135	128
OCT	22	355
NOV	1	693
DEC	0	944
ANN	1077	5218



	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	-27688	0	-4122
FEB	0	-21390	0	-2683
MAR	0	-17642	0	-1817
APR	63	-12164	0	-1032
MAY	408	-7989	37	-321
JUN	1519	-3827	31	-87
JUL	3935	-1520	120	-75
AUG	3342	-1561	32	-66
SEP	1039	-4664	15	-269
OCT	73	-11268	0	-869
NOV	0	-20280	0	-1914
DEC	0	-26891	0	-3808
ANN	10379	-156884	235	-17063

Average Annual Solar Radiation – Nearest Available Site

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

City: PENDLETON
 State: OR
 WBAN No: 24155
 Lat(N): 45.68
 Long(W): 118.85
 Elev(ft): 1496

Stn Type: Secondary
 SHADING GEOMETRY IN DIMENSIONLESS UNITS
 Window: 1
 Overhang: 0.698
 Vert Gap: 0.33

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	420	670	1090	1550	1950	2190	2330	2000	1520	960	490	360	1300
	Std Dev	29	65	82	121	119	148	113	148	117	81	41	28	35
	Minimum	360	550	930	1200	1630	1910	2100	1630	1320	780	420	310	1220
	Maximum	480	860	1270	1760	2150	2430	2530	2250	1760	1150	590	430	1350
	Diffuse	300	410	530	680	760	750	590	530	440	360	310	260	490
Clear Day	Global	680	1040	1590	2170	2580	2740	2640	2280	1760	1190	750	580	1670
NORTH	Global	160	230	330	440	570	670	630	480	350	250	180	140	370
	Diffuse	160	230	320	420	500	540	500	430	340	250	180	140	340
Clear Day	Global	140	200	290	400	600	740	660	470	320	230	150	120	360
EAST	Global	280	460	720	980	1170	1280	1400	1250	1010	670	340	240	820
	Diffuse	200	290	400	520	610	640	590	530	430	320	220	170	410
Clear Day	Global	590	830	1150	1430	1590	1640	1600	1470	1220	910	630	520	1130
SOUTH	Global	630	870	1100	1110	1030	980	1090	1250	1420	1290	740	580	1010
	Diffuse	310	390	480	560	590	590	550	530	480	410	320	270	460
Clear Day	Global	1830	2000	1960	1620	1300	1140	1190	1460	1800	1960	1850	1730	1650
WEST	Global	280	440	710	940	1150	1270	1370	1240	1010	670	330	240	810
	Diffuse	200	290	410	530	610	640	600	530	440	320	220	170	410
Clear Day	Global	590	830	1150	1430	1590	1640	1600	1470	1220	910	630	520	1130

Average Annual Solar Heat and Illumination – Nearest Available Site

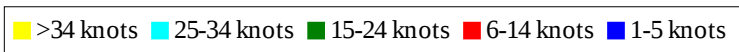
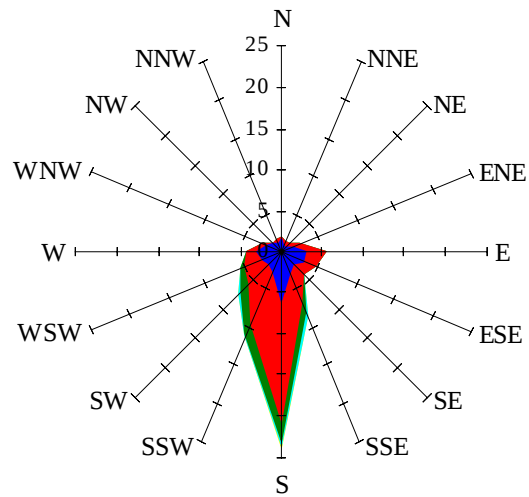
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

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	270	450	750	1100	1410	1590	1700	1440	1070	650	320	230	920
NORTH	Unshaded	110	160	220	300	380	430	410	320	240	180	120	97	250
	Shaded	90	130	190	250	320	370	360	280	210	150	99	77	210
EAST	Unshaded	190	320	510	700	840	920	1000	900	720	470	230	170	580
	Shaded	160	270	420	570	670	730	800	730	600	400	200	140	480
SOUTH	Unshaded	470	640	780	750	650	600	670	800	980	940	550	430	690
	Shaded	440	570	580	430	350	350	340	380	630	800	520	410	480
WEST	Unshaded	190	310	500	670	820	900	990	890	720	470	230	170	570
	Shaded	160	250	420	540	660	720	790	720	600	400	190	140	470

AVERAGE INCIDENT ILLUMINANCE (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	38	66	73	56	21	53	85	100	94	67
	M.Cloudy	23	42	46	36	14	36	59	74	70	47
NORTH	M.Clear	9	13	14	12	7	13	15	16	16	13
	M.Cloudy	9	14	15	13	6	13	17	19	18	15
EAST	M.Clear	75	52	14	12	7	85	71	27	16	13
	M.Cloudy	29	29	15	13	6	44	46	25	18	15
SOUTH	M.Clear	45	79	88	67	25	12	41	57	50	24
	M.Cloudy	20	40	44	34	12	13	31	44	40	20
WEST	M.Clear	9	13	25	67	61	12	15	16	54	82
	M.Cloudy	9	14	20	34	23	12	17	19	42	49
M.Clear	(% hrs)	27	24	21	20	24	47	46	40	38	43
		Sept					Dec				
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear	30	65	80	72	44	9	30	34	18	0
	M.Cloudy	20	43	57	51	28	6	18	20	11	0
NORTH	M.Clear	8	13	14	13	10	4	8	9	6	0
	M.Cloudy	8	14	16	15	10	3	8	9	5	0
EAST	M.Clear	74	68	23	13	10	31	32	9	6	0
	M.Cloudy	31	39	21	15	10	8	13	9	5	0
SOUTH	M.Clear	27	65	83	74	41	30	74	81	49	0
	M.Cloudy	15	38	54	46	23	8	22	23	14	0
WEST	M.Clear	8	13	14	55	79	4	8	21	38	0
	M.Cloudy	8	14	16	37	39	3	8	11	12	0
M.Clear	(% hrs)	59	59	57	56	55	13	14	13	13	16

Wind Summary - December, January, and February

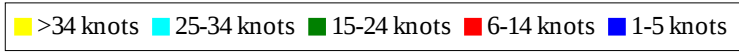
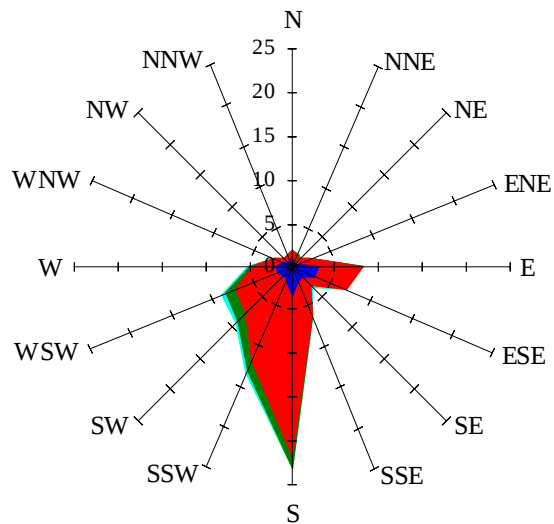
Labels of Percent Frequency on North Axis



Percent Calm = 14.50

Wind Summary - March, April, and May

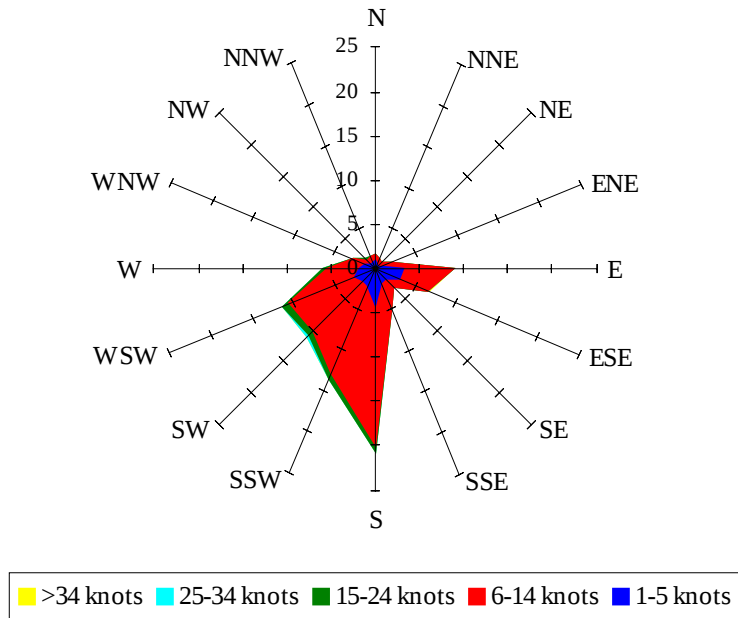
Labels of Percent Frequency on North Axis



Percent Calm = 4.88

Wind Summary - June, July, and August

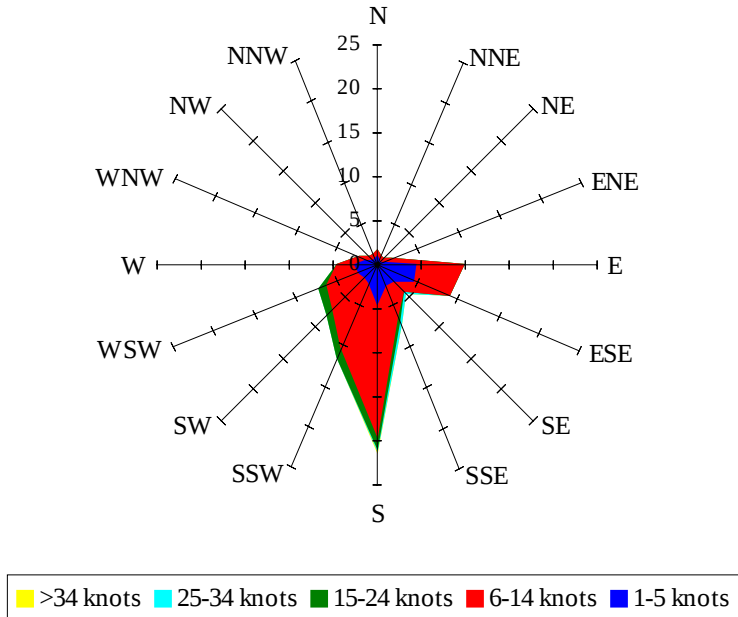
Labels of Percent Frequency on North Axis



Percent Calm = 3.61

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 7.69