

DELHI, INDIA

Latitude = 28.58 N

Longitude = 77.20 E

Period of Record = 1973 to 1995

WMO No. 421820

Elevation = 709 feet

Average Pressure = 28.99 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	109	71	60	7.7	NW
0.4% Occurrence	108	72	62	7.5	NW
1.0% Occurrence	106	72	69	6.8	NW
2.0% Occurrence	104	72	73	6.8	NW
Mean Daily Range	19	-	-	-	-
97.5% Occurrence	48	45	41	1.8	W
99.0% Occurrence	45	43	37	1.8	W
99.6% Occurrence	44	42	36	1.7	W
Median of Extreme Lows	41	39	33	1.7	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	85	94	169	4.3	SE
0.4% Occurrence	83	91	159	3.5	E
1.0% Occurrence	82	90	155	3.5	E
2.0% Occurrence	81	89	151	3.5	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	176	87	1.12	3.8	E
0.4% Occurrence	166	86	1.06	2.7	SE
1.0% Occurrence	161	86	1.03	2.2	E
2.0% Occurrence	157	85	1.00	2.8	E
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		1195	4299	2747	3976

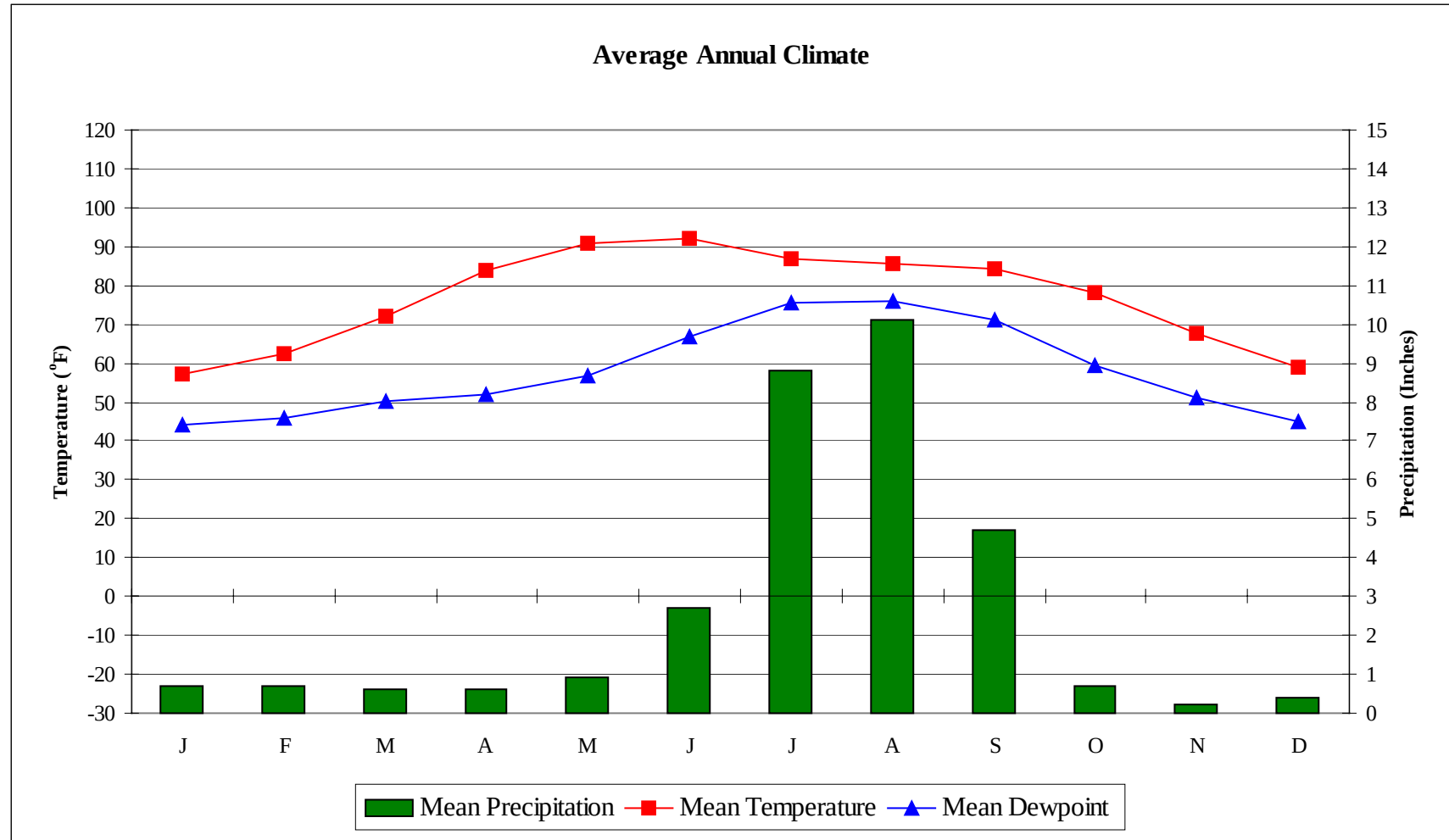
Other Site Data

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	2.5 + 5.4
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 (#)
79.3	N/A	N/A	0

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

DELHI, INDIA

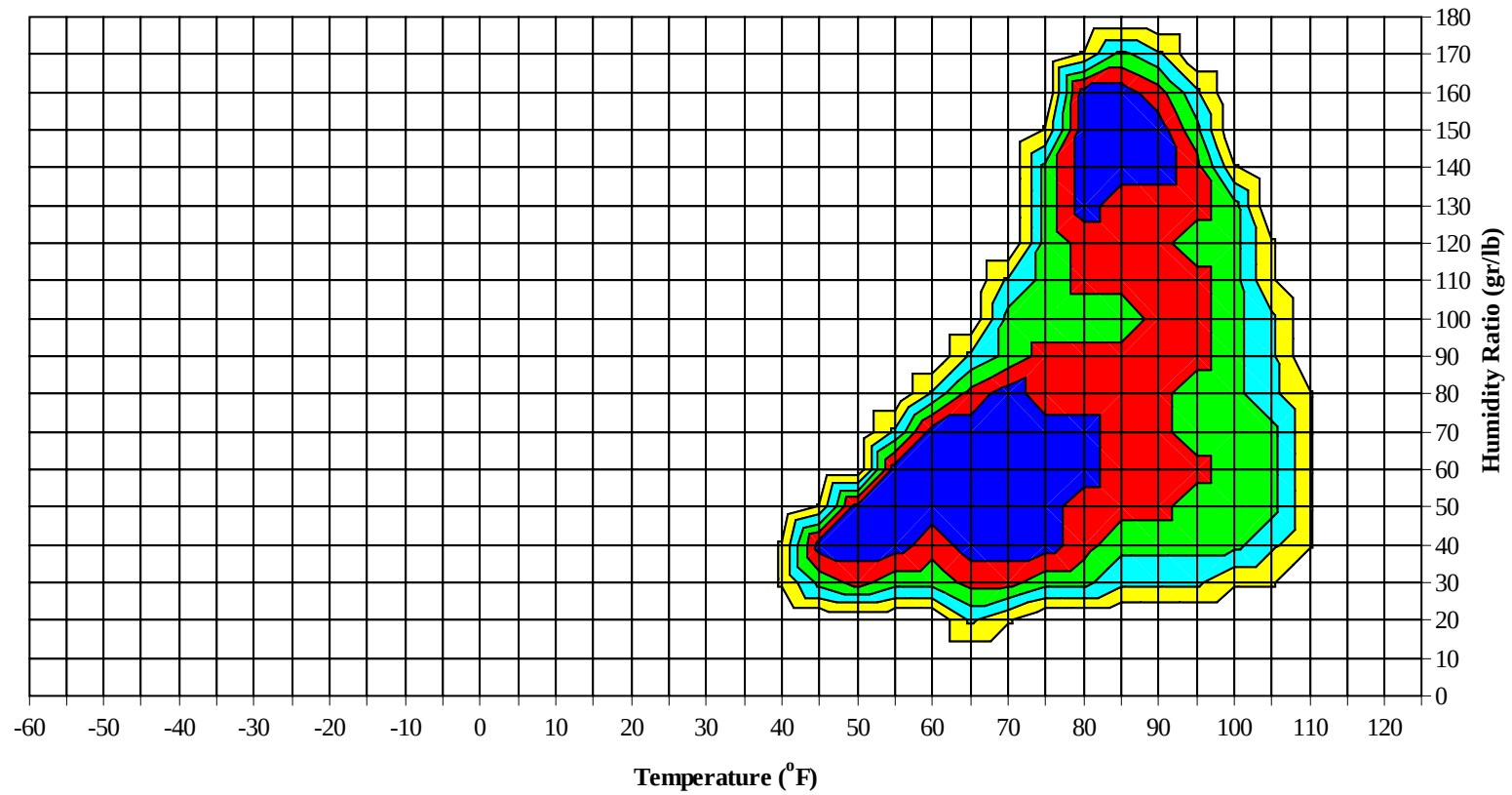
WMO No. 421820



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WMO No. 421820

Long Term Psychrometric Summary

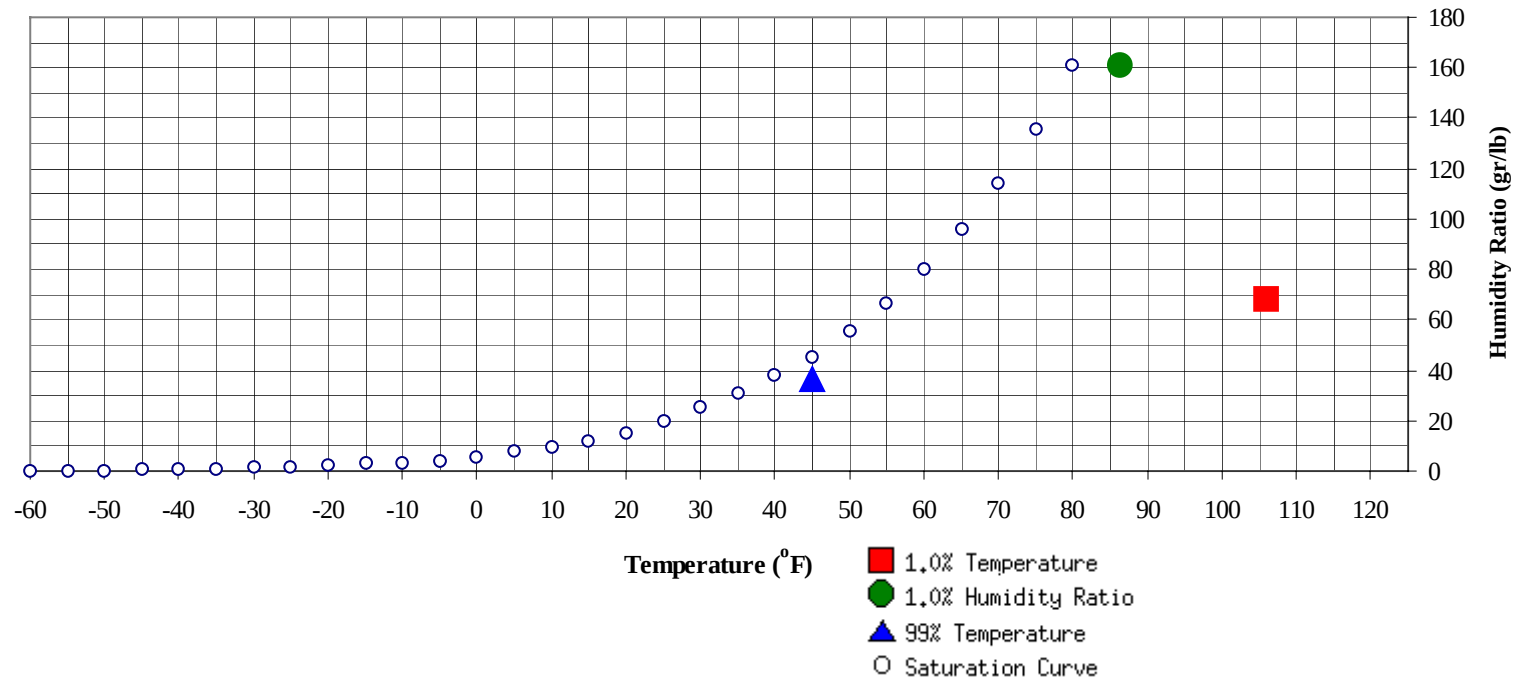


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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Psychrometric Summary of Peak Design Values



	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)	1.0% Humidity Ratio	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
99% Dry Bulb	45	36.6	16.5		161	86.3	81.4	79.8	46.0

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	106	68	72	36.2

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

Period of Record = 1973 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		
115 / 119															
110 / 114															
105 / 109															
100 / 104															
95 / 99												4	3	6	67.7
90 / 94								0	0	66.0	0	15	9	24	65.8
85 / 89		0		0	62.0		3	1	3	62.1	0	31	18	48	64.2
80 / 84		1	0	1	61.8		10	5	16	60.5	0	49	37	86	62.2
75 / 79		7	3	10	59.1		30	18	48	59.0	6	49	50	105	61.0
70 / 74		36	17	53	56.1	1	46	34	82	56.7	31	38	53	121	60.5
65 / 69	0	51	38	88	54.0	4	38	39	81	55.4	55	26	44	124	58.6
60 / 64	6	53	46	104	52.9	28	33	54	116	54.9	80	26	26	132	55.9
55 / 59	28	25	58	111	52.3	71	30	47	149	52.3	59	10	9	78	52.4
50 / 54	78	32	65	174	48.5	75	25	23	123	48.1	16	2	1	18	48.6
45 / 49	104	39	22	165	44.4	41	8	3	52	43.6	1			1	46.2
40 / 44	32	5	1	39	40.7	3	1		4	38.0					
35 / 39	0	0		0	37.8	0	0		0	33.5					
30 / 34	0	0		0	32.5		0		0	32.5					

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 2 of 5)

Period of Record = 1973 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		
115 / 119						0			0	70.0					
110 / 114						3	2	4	4	69.7		4	3	6	71.6
105 / 109		4	2	6	68.9	27	21	48	70.3		0	23	21	44	73.2
100 / 104		25	18	42	68.0	0	53	32	85	70.3	1	45	29	76	75.1
95 / 99	0	44	29	73	66.9	3	47	44	94	70.4	5	51	55	111	75.6
90 / 94	1	46	38	85	66.0	19	52	61	132	69.6	46	57	62	165	75.0
85 / 89	6	40	43	89	65.2	50	35	45	131	68.8	78	34	40	151	74.4
80 / 84	33	38	48	119	64.3	94	22	30	146	67.3	78	19	25	121	73.9
75 / 79	66	25	40	131	63.3	56	6	11	73	66.1	29	7	5	41	72.3
70 / 74	79	13	18	109	61.5	23	2	3	28	65.0	3	1	1	4	70.6
65 / 69	39	4	4	47	59.1	3	1	1	4	63.8					
60 / 64	14	1	1	16	56.6										
55 / 59	3			3	53.7										
50 / 54															
45 / 49															
40 / 44															
35 / 39															
30 / 34															

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

Period of Record = 1973 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		
115 / 119															
110 / 114															
105 / 109		3	3	5	76.6		0	0	0	78.3					
100 / 104	0	12	7	19	77.9		2	1	3	78.6		1	0	1	73.3
95 / 99	0	31	27	58	79.0	0	21	15	36	78.7	0	29	16	45	75.0
90 / 94	19	67	53	139	79.2	3	70	50	122	79.6	0	72	44	116	76.0
85 / 89	47	64	63	174	78.9	28	69	77	174	79.1	8	52	55	115	76.5
80 / 84	133	57	81	270	78.4	157	68	85	310	78.1	92	60	84	236	75.4
75 / 79	48	15	15	78	76.7	61	19	20	100	76.6	117	25	38	180	73.3
70 / 74	1		0	1	71.5		0		0	73.0	21	2	4	26	68.1
65 / 69							0		0		1		0	1	60.1
60 / 64															
55 / 59															
50 / 54															
45 / 49															
40 / 44															
35 / 39															
30 / 34															

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Dry-Bulb Temperature Hours For An Average Year (Sheet 4 of 5)

Period of Record = 1973 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		
115 / 119															
110 / 114															
105 / 109															
100 / 104															
95 / 99		11	1	12	69.5			0	0	64.0					
90 / 94	0	60	26	86	69.6		2	0	2	65.4					
85 / 89	0	63	35	98	67.4	0	19	1	20	63.9		0		0	61.0
80 / 84	4	40	48	93	68.3	0	62	21	83	62.7		3		3	60.5
75 / 79	42	29	58	129	68.7	0	51	38	88	60.7		26	3	28	58.7
70 / 74	76	30	51	156	64.9	3	28	38	68	59.9	0	62	30	92	56.6
65 / 69	70	14	25	109	61.0	14	21	41	76	59.9	0	44	39	83	54.7
60 / 64	52	1	4	57	58.2	68	32	64	164	57.1	6	24	37	66	54.4
55 / 59	4		0	4	54.5	101	20	34	155	53.2	35	26	69	129	52.2
50 / 54						48	4	4	57	49.0	103	44	57	203	48.4
45 / 49						6	0		6	44.7	89	18	13	119	44.6
40 / 44											15	3	1	19	41.1
35 / 39											1	0		1	37.8
30 / 34															

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

Period of Record = 1973 to 1995

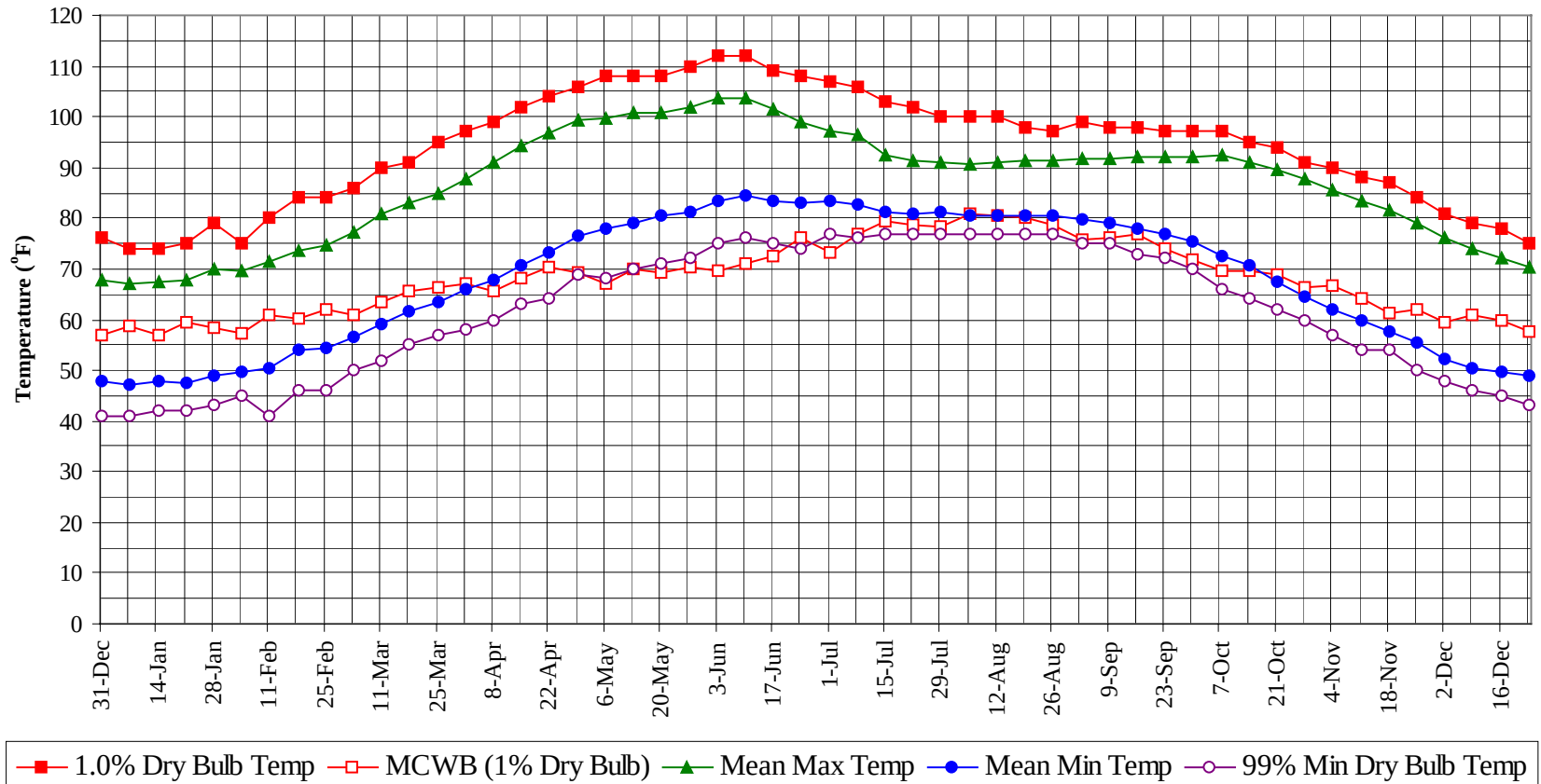
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
115 / 119		0		0	70.0
110 / 114		6	5	11	70.8
105 / 109	0	56	47	104	71.8
100 / 104	1	137	87	225	72.2
95 / 99	10	237	190	436	73.4
90 / 94	90	440	343	873	73.9
85 / 89	222	409	379	1010	73.2
80 / 84	600	429	466	1495	72.2
75 / 79	428	289	296	1013	67.3
70 / 74	237	259	246	741	60.5
65 / 69	186	197	230	613	57.4
60 / 64	251	169	231	651	55.5
55 / 59	296	111	215	622	52.5
50 / 54	313	106	148	566	48.4
45 / 49	234	64	37	335	44.4
40 / 44	50	9	2	60	40.7
35 / 39	3	1		4	36.7
30 / 34	0	0		0	32.5

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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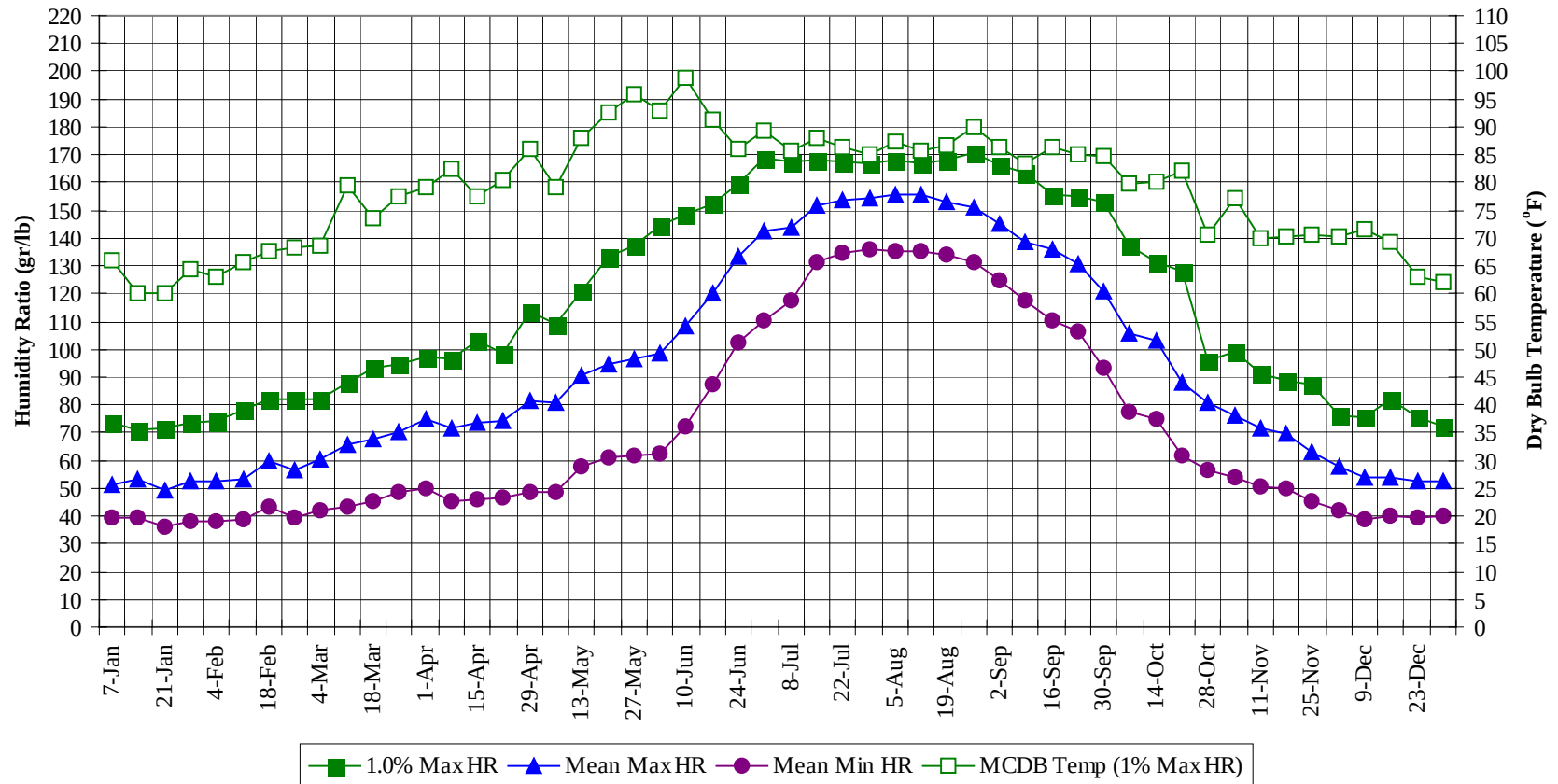
Annual Summary of Temperatures



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WMO No. 421820

Long Term Humidity and Dry Bulb Temperature Summary

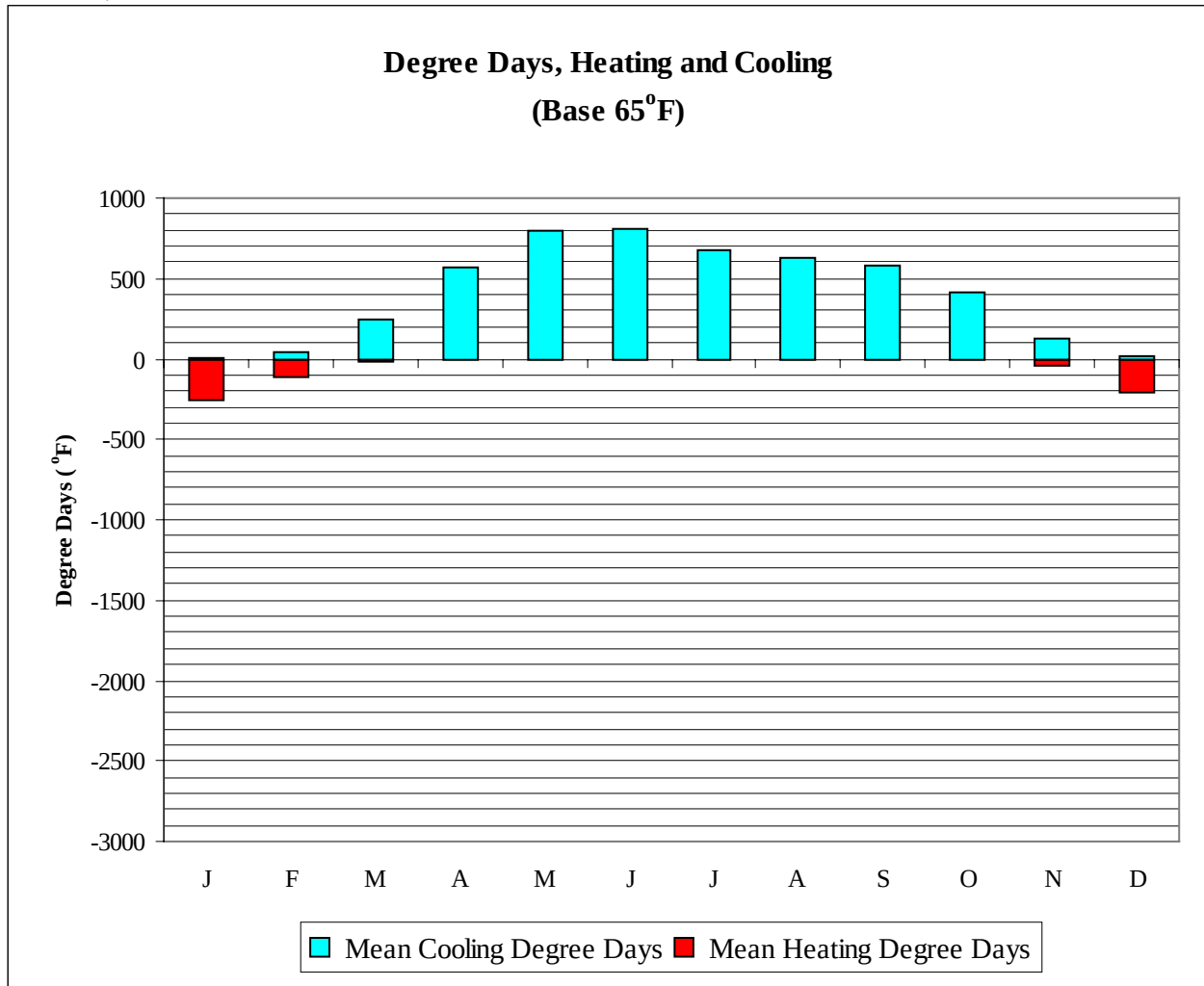


DELHI, INDIA**WMO No. 421820****Long Term Dry Bulb Temperature and Humidity Summary**

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	74.0	58.8	67.2	47.3	41.0	73.5	66.0	51.6	39.4
14-Jan	74.0	56.8	67.4	48.0	42.0	70.7	60.3	52.9	39.6
21-Jan	75.0	59.3	67.7	47.6	42.0	71.4	60.0	49.5	36.1
28-Jan	79.0	58.5	70.1	49.0	43.0	73.5	64.4	52.2	38.0
4-Feb	75.0	57.1	69.5	49.7	45.0	74.2	63.1	52.3	37.8
11-Feb	80.0	60.9	71.5	50.5	41.0	78.4	65.7	53.5	38.5
18-Feb	84.0	60.3	73.5	53.9	46.0	81.9	67.6	59.7	43.7
25-Feb	84.0	62.0	74.6	54.3	46.0	81.9	68.4	56.7	39.4
4-Mar	86.0	61.0	77.2	56.4	50.0	81.9	68.6	60.7	42.3
11-Mar	90.0	63.5	80.9	59.0	52.0	88.2	79.5	65.4	43.1
18-Mar	91.0	65.7	82.9	61.5	55.0	93.1	73.6	67.9	45.4
25-Mar	95.0	66.5	85.0	63.6	57.0	94.5	77.4	70.4	48.7
1-Apr	97.0	67.1	87.8	65.9	58.0	97.3	79.1	74.7	50.1
8-Apr	99.0	65.6	90.8	67.9	60.0	96.6	82.5	71.5	45.6
15-Apr	102.0	68.0	94.3	70.6	63.0	102.9	77.5	73.5	46.0
22-Apr	104.0	70.5	96.9	73.1	64.0	98.7	80.6	74.5	46.7
29-Apr	106.0	69.1	99.4	76.6	69.0	113.4	86.0	81.6	48.8
6-May	108.0	67.1	99.8	77.9	68.0	109.2	79.0	80.5	48.3
13-May	108.0	69.9	100.7	79.1	70.0	121.1	88.0	90.6	57.9
20-May	108.0	69.2	101.0	80.4	71.0	133.0	92.8	94.3	60.8
27-May	110.0	70.5	102.0	81.3	72.0	137.2	96.0	96.8	61.9
3-Jun	112.0	69.7	103.5	83.5	75.0	144.2	93.0	98.3	62.1
10-Jun	112.0	71.0	103.9	84.4	76.0	148.4	99.0	108.6	72.0
17-Jun	109.0	72.4	101.4	83.5	75.0	152.6	91.3	120.3	87.3
24-Jun	108.0	76.3	98.8	83.1	74.0	159.6	86.0	133.0	102.3
1-Jul	107.0	73.4	97.3	83.4	77.0	168.7	89.2	142.4	110.5
8-Jul	106.0	76.9	96.5	82.8	76.0	167.3	85.8	143.9	117.2
15-Jul	103.0	79.3	92.5	81.1	77.0	168.0	87.9	152.0	131.2
22-Jul	102.0	78.6	91.4	80.8	77.0	167.3	86.4	153.9	134.3
29-Jul	100.0	78.3	91.1	81.0	77.0	166.6	84.9	154.2	136.2
5-Aug	100.0	81.0	90.5	80.5	77.0	168.0	87.5	155.4	135.2
12-Aug	100.0	80.5	90.9	80.6	77.0	166.6	85.7	156.0	135.2
19-Aug	98.0	80.1	91.5	80.7	77.0	168.0	86.7	153.2	133.9
26-Aug	97.0	78.5	91.4	80.4	77.0	170.8	90.0	151.2	131.2
2-Sep	99.0	75.9	91.6	79.7	75.0	165.9	86.3	145.1	125.0
9-Sep	98.0	76.2	91.7	79.0	75.0	163.8	83.3	138.8	117.2
16-Sep	98.0	76.8	91.9	78.1	73.0	155.4	86.5	135.7	110.6
23-Sep	97.0	74.0	92.1	77.0	72.0	154.7	85.2	130.7	106.6
30-Sep	97.0	71.8	91.9	75.4	70.0	153.3	84.6	120.8	93.3
7-Oct	97.0	69.5	92.3	72.7	66.0	137.2	79.6	105.8	77.7
14-Oct	95.0	69.6	90.9	70.8	64.0	131.6	80.0	102.9	74.6
21-Oct	94.0	69.0	89.5	67.5	62.0	128.1	82.1	88.2	61.7
28-Oct	91.0	66.4	87.7	64.5	60.0	95.9	70.8	80.6	56.5
4-Nov	90.0	66.6	85.4	62.0	57.0	99.4	77.2	76.4	53.6
11-Nov	88.0	64.3	83.4	59.7	54.0	91.0	70.0	71.9	50.8
18-Nov	87.0	61.3	81.6	57.7	54.0	88.9	70.4	69.9	50.0
25-Nov	84.0	62.1	78.9	55.6	50.0	87.5	70.7	63.2	45.4
2-Dec	81.0	59.4	76.0	52.3	48.0	76.3	70.3	58.1	41.8
9-Dec	79.0	60.9	73.8	50.5	46.0	75.6	71.6	53.9	39.0
16-Dec	78.0	60.0	72.3	49.8	45.0	81.9	69.2	53.8	39.8
23-Dec	75.0	57.8	70.3	48.9	43.0	75.6	63.0	52.5	39.3
31-Dec	76.0	57.0	67.8	47.9	41.0	72.1	62.1	52.6	39.8

DELHI, INDIA

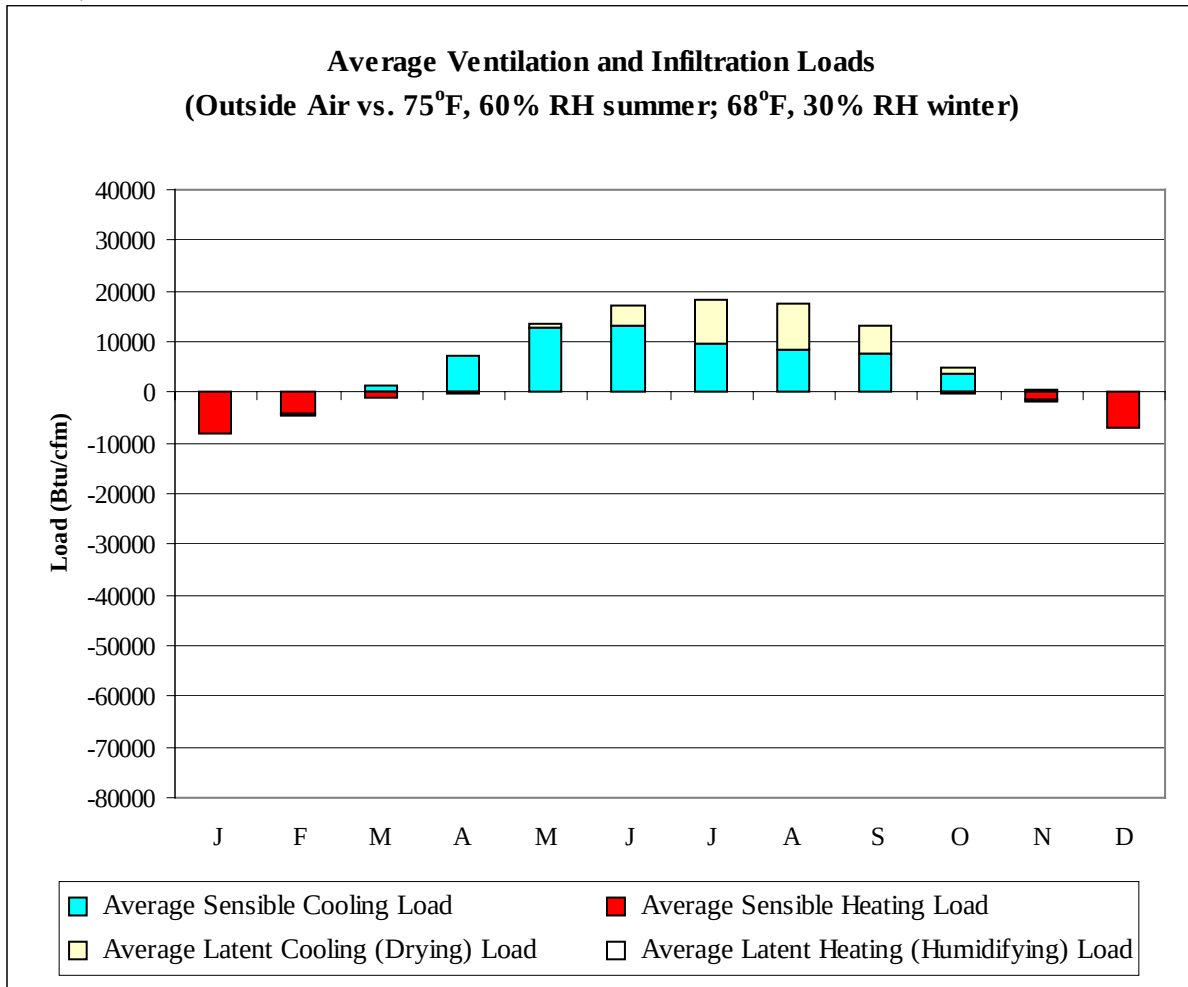
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	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	10	255
FEB	40	115
MAR	242	17
APR	569	1
MAY	798	0
JUN	808	0
JUL	676	0
AUG	631	0
SEP	581	0
OCT	412	1
NOV	122	39
DEC	17	209
ANN	4907	637

DELHI, INDIA

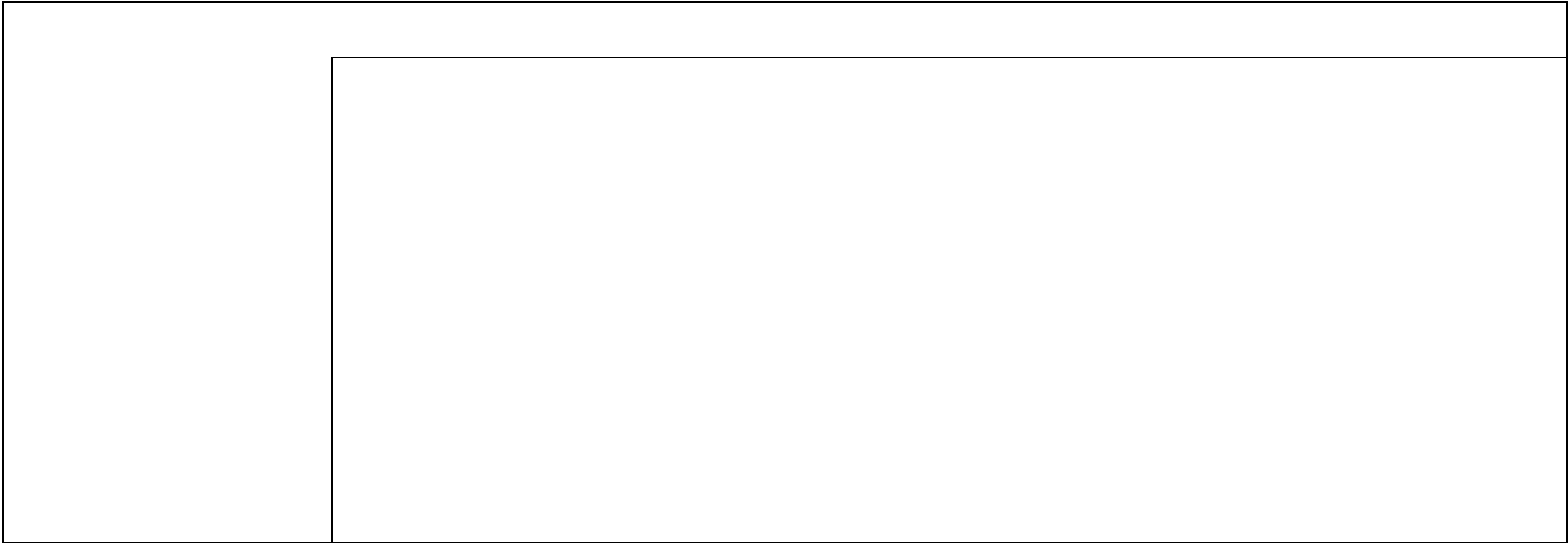
WMO No. 421820



	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	9	-8274	0	-52
FEB	87	-4393	3	-80
MAR	1315	-870	66	-36
APR	7141	-40	182	-31
MAY	12688	-1	1012	-30
JUN	13293	0	4009	-1
JUL	9704	0	8700	0
AUG	8520	0	8999	0
SEP	7492	0	5776	0
OCT	3753	-114	1270	-1
NOV	422	-1637	41	-8
DEC	20	-6812	3	-38
ANN	64444	-22141	30061	-277

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

No Solar Radiation
Data Available

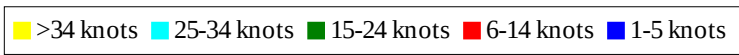
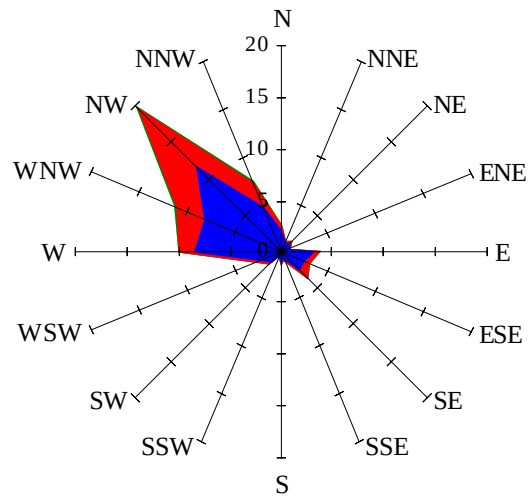


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

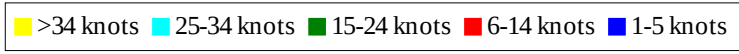
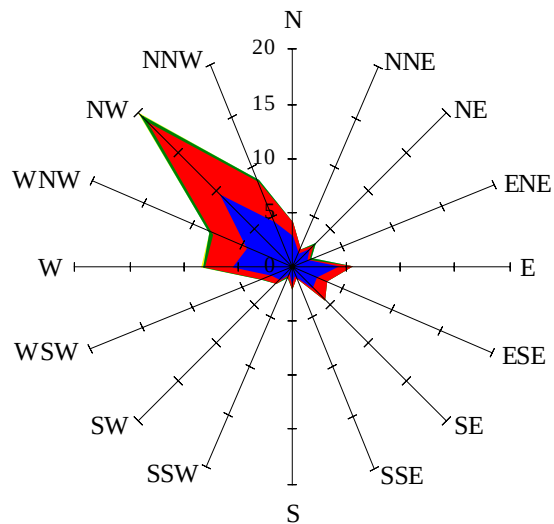
Labels of Percent Frequency on North Axis



Percent Calm = 29.37

Wind Summary - March, April, and May

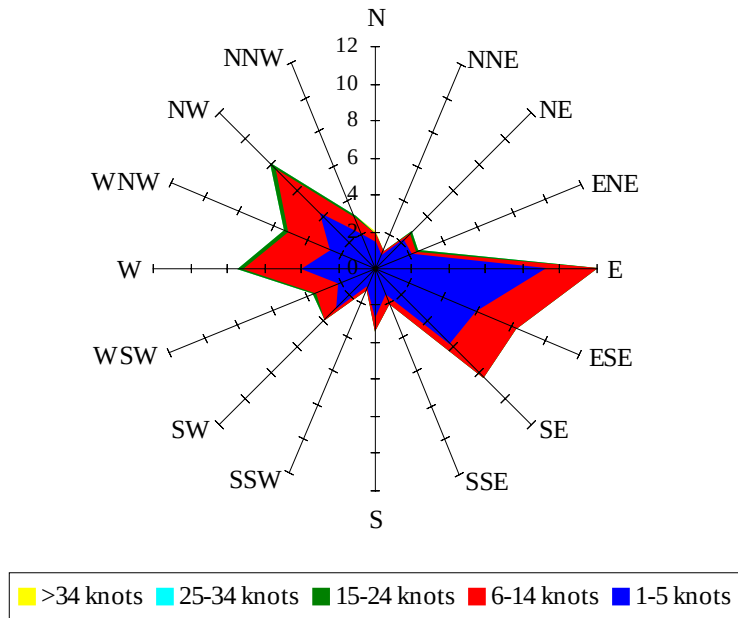
Labels of Percent Frequency on North Axis



Percent Calm = 23.90

Wind Summary - June, July, and August

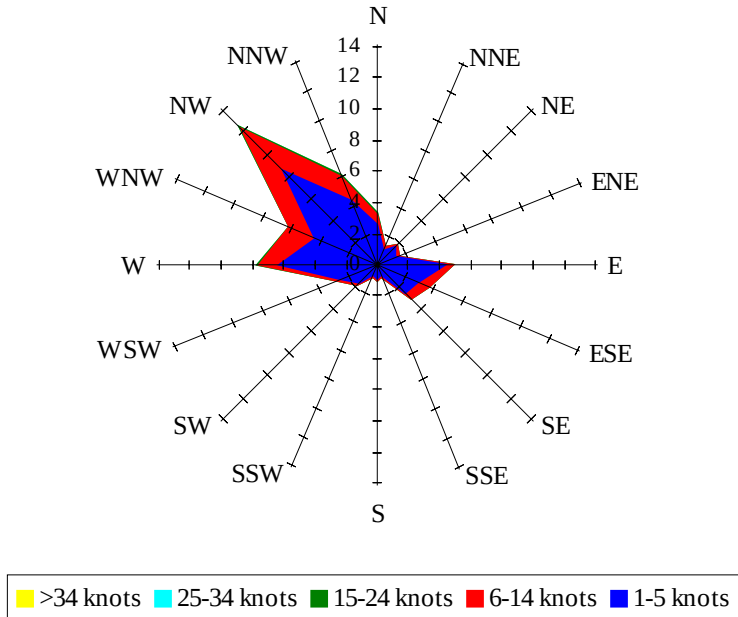
Labels of Percent Frequency on North Axis



Percent Calm = 26.24

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 41.45