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ASAHIKAWA, Japan

WMO#: **474070**

Lat: **43.77N** Long: **142.37E** Elev: **116** StdP: **99.94** Time Zone: **9.00 (JPN)** Period: **86-10** WBAN: **99999**

Annual Heating and Humidification Design Conditions

	Coldest Month	Heating DB		Humidification DP/MCDB and HR						Coldest month WS/MCDB				MCWS/PCWD to 99.6% DB		
				99.6%			99%			0.4%		1%				
		99.6%	99%	DP	HR	MCDB	DP	HR	MCDB	WS	MCDB	WS	MCDB	MCWS	PCWD	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	
(1)	1	-17.6	-15.2	-19.8	0.7	-17.2	-17.5	0.8	-14.6	9.0	-3.1	7.7	-3.1	1.0	90	(1)

Annual Cooling, Dehumidification, and Enthalpy Design Conditions

	Hottest Month	Hottest Month DB Range	Cooling DB/MCWB						Evaporation WB/MCDB						MCWS/PCWD to 0.4% DB		
			0.4%		1%		2%		0.4%		1%		2%				
			DB	MCWB	DB	MCWB	DB	MCWB	WB	MCDB	WB	MCDB	WB	MCDB	MCWS	PCWD	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	
(2)	8	8.5	29.6	22.5	27.9	21.2	26.5	20.4	23.7	28.1	22.7	26.5	21.7	25.0	3.2	270	(2)

	Dehumidification DP/MCDB and HR									Enthalpy/MCDB						Hours 8 to 4 & 12.8/20.6	
	0.4%			1%			2%			0.4%		1%		2%			
	DP	HR	MCDB	DP	HR	MCDB	DP	HR	MCDB	Enth	MCDB	Enth	MCDB	Enth	MCDB		
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	
(3)	22.2	17.2	26.4	21.3	16.2	25.3	20.4	15.3	24.2	71.6	28.1	67.7	26.6	64.0	24.9	740	(3)

Extreme Annual Design Conditions

	Extreme Annual WS			Extreme Max WB	Extreme Annual DB				n-Year Return Period Values of Extreme DB								
					Mean		Standard deviation		n=5 years		n=10 years		n=20 years		n=50 years		
	1%	2.5%	5%		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	
(4)	8.2	6.7	5.6	26.8	-21.5	32.3	2.5	1.4	-23.3	33.3	-24.8	34.2	-26.2	35.0	-28.0	36.0	(4)

Monthly Climatic Design Conditions

				Annual (d)	Jan (e)	Feb (f)	Mar (g)	Apr (h)	May (i)	Jun (j)	Jul (k)	Aug (l)	Sep (m)	Oct (n)	Nov (o)	Dec (p)	
(5)	Temperatures, Degree-Days and Degree-Hours	Tavg		7.2	-7.4	-6.6	-1.8	5.5	12.1	17.2	20.7	21.5	16.4	9.6	2.5	-4.2	(5)
(6)		Sd			4.02	3.91	3.56	3.71	3.57	3.19	2.80	2.90	3.14	3.22	3.84	3.74	(6)
(7)		HDD10.0		2246	538	464	364	142	21	1	0	0	1	48	227	441	(7)
(8)		HDD18.3		4291	797	697	623	384	195	58	10	6	74	272	476	699	(8)
(9)		CDD10.0		1225	0	0	0	8	86	216	332	356	192	34	1	0	(9)
(10)		CDD18.3		228	0	0	0	0	1	23	84	104	16	0	0	0	(10)
(11)		CDH23.3		1391	0	0	0	2	33	176	482	618	79	1	0	0	(11)
(12)		CDH26.7		292	0	0	0	0	3	21	104	156	8	0	0	0	(12)
(13)	Precipitation	PrecAvg		1091	73	57	56	57	67	71	96	159	132	112	117	95	(13)
(14)		PrecMax		1367	118	196	113	119	134	122	213	298	266	213	226	162	(14)
(15)		PrecMin		889	21	19	22	18	36	18	22	22	60	38	71	47	(15)
(16)		PrecSD		140.7	26.0	37.6	26.0	25.5	26.6	28.4	41.1	89.9	52.5	47.5	34.7	29.5	(16)
(17)	Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB		3.7	5.2	10.2	22.0	26.7	28.8	31.5	32.2	27.7	21.2	15.6	8.4	(17)
(18)			MCWB		1.6	2.2	4.9	12.1	15.5	19.3	23.5	24.3	21.4	15.1	10.9	5.8	(18)
(19)		2%	DB		1.5	2.8	7.5	18.2	23.8	27.0	29.3	30.1	25.6	18.7	12.6	5.0	(19)
(20)			MCWB		0.0	0.6	3.3	10.3	14.1	18.7	22.2	23.4	19.7	13.8	9.3	3.2	(20)
(21)		5%	DB		0.1	1.2	5.6	15.1	21.6	25.4	27.5	28.4	23.7	17.0	10.6	3.0	(21)
(22)			MCWB		-1.1	-0.5	2.2	8.7	13.2	17.8	21.2	22.3	18.6	12.6	7.7	1.5	(22)
(23)		10%	DB		-1.4	-0.3	3.9	12.4	19.3	23.8	26.0	26.7	22.0	15.3	8.6	1.2	(23)
(24)			MCWB		-2.6	-1.9	1.1	7.3	12.2	17.1	20.4	21.5	17.5	11.8	6.3	-0.1	(24)
(25)	Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB		1.9	2.8	5.8	13.3	16.7	21.2	24.6	25.2	22.7	16.0	11.8	6.1	(25)
(26)			MCDB		3.5	4.7	9.6	19.9	23.2	26.6	29.4	30.7	26.6	19.9	14.8	8.2	(26)
(27)		2%	WB		0.3	1.0	3.8	11.1	15.1	19.8	23.3	24.1	21.1	14.4	9.6	3.3	(27)
(28)			MCDB		1.4	2.5	6.5	17.1	21.5	25.0	27.8	28.8	24.1	17.5	12.1	4.9	(28)
(29)		5%	WB		-1.0	-0.4	2.5	9.3	14.1	18.8	22.3	23.2	19.5	13.3	8.0	1.5	(29)
(30)			MCDB		0.1	1.1	5.1	14.4	19.8	23.7	26.1	27.3	22.4	16.2	10.4	2.8	(30)
(31)		10%	WB		-2.5	-1.8	1.4	7.6	13.0	17.7	21.4	22.3	18.1	12.2	6.4	0.0	(31)
(32)			MCDB		-1.4	-0.3	3.6	12.0	18.1	22.5	24.8	25.6	21.4	14.9	8.5	1.2	(32)
(33)	Mean Daily Temperature Range		MDBR		7.4	8.6	8.3	9.7	11.0	10.2	8.9	8.5	9.2	9.3	6.8	6.2	(33)
(34)		5% DB	MCDBR		7.8	9.2	10.2	15.3	15.7	13.4	11.2	10.5	11.1	11.6	10.9	7.8	(34)
(35)			MCWBR		6.9	7.5	6.9	8.4	7.5	6.4	5.3	4.8	5.8	7.1	7.9	6.5	(35)
(36)		5% WB	MCDBR		7.6	9.1	9.3	13.5	12.7	11.2	8.8	9.2	9.7	10.4	10.5	7.7	(36)
(37)			MCWBR		6.8	7.6	6.8	8.0	6.8	5.7	4.6	4.6	5.8	6.8	8.0	6.7	(37)
(38)	Clear Sky Solar Irradiance	taub			0.326	0.407	0.420	0.488	0.492	0.430	0.415	0.387	0.371	0.371	0.357	0.301	(38)
(39)		taud			2.248	1.979	1.928	1.840	1.902	2.149	2.263	2.391	2.444	2.394	2.336	2.375	(39)
(40)		Ebn,noon			776	747	799	776	788	843	852	867	855	799	739	781	(40)
(41)		Edh,noon			88	139	165	196	190	149	132	112	98	91	82	71	(41)

Nomenclature: See separate page