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SHENYANG, China

WMO#: **543420**

Lat: **41.73N** Long: **123.52E** Elev: **43** StdP: **100.81** Time Zone: **8.00 (CHN)** 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	-22.4	-20.0	-27.9	0.3	-16.3	-25.9	0.4	-15.7	9.8	-6.3	8.2	-7.0	1.5	70	(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)	7	7.5	31.5	23.1	30.3	22.5	29.2	22.1	25.5	29.3	24.7	28.2	23.9	27.3	3.9	220	(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)	24.4	19.5	27.8	23.6	18.5	27.0	22.8	17.7	26.3	78.9	29.4	75.5	28.3	72.4	27.3	566	(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)	9.6	8.2	7.0	29.8	-25.0	33.3	3.1	1.4	-27.3	34.3	-29.1	35.1	-30.8	35.9	-33.1	36.9	(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		8.7	-10.8	-6.0	1.5	10.4	17.3	22.1	24.6	23.8	18.0	10.2	0.4	-7.7	(5)
(6)		Sd			4.85	5.30	4.42	4.40	3.40	2.68	2.00	2.31	3.33	4.51	5.56	5.33	(6)
(7)		HDD10.0		2299	644	449	264	47	1	0	0	0	0	54	291	549	(7)
(8)		HDD18.3		4053	902	683	521	238	60	4	0	1	46	254	538	808	(8)
(9)		CDD10.0		1834	0	0	1	61	227	362	453	428	241	60	3	0	(9)
(10)		CDD18.3		547	0	0	0	1	28	117	194	170	36	1	0	0	(10)
(11)		CDH23.3		4236	0	0	0	19	269	890	1504	1294	252	7	0	0	(11)
(12)		CDH26.7		1118	0	0	0	1	53	252	423	359	31	0	0	0	(12)
(13)	Precipitation	PrecAvg		683	7	7	17	40	56	90	175	159	68	43	18	10	(13)
(14)		PrecMax		881	28	25	34	83	97	168	337	353	188	142	74	32	(14)
(15)		PrecMin		450	0	0	1	7	23	26	35	20	11	1	1	1	(15)
(16)		PrecSD		123.3	6.8	6.2	9.2	21.7	20.2	38.7	87.5	96.7	38.1	37.0	15.2	9.7	(16)
(17)	Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB		3.5	9.5	16.1	25.7	30.2	32.8	33.2	32.8	29.2	24.3	17.1	7.7	(17)
(18)			MCWB		0.6	3.5	8.6	13.6	17.7	20.2	24.4	24.8	21.1	16.4	11.0	4.4	(18)
(19)		2%	DB		1.3	6.4	13.1	22.9	28.2	31.0	31.6	31.1	27.4	21.9	13.8	4.6	(19)
(20)			MCWB		-1.4	1.8	6.1	12.8	16.3	20.1	24.4	23.9	19.5	14.8	9.3	1.6	(20)
(21)		5%	DB		-0.5	4.4	10.9	20.8	26.4	29.5	30.2	29.9	26.2	19.7	11.2	2.7	(21)
(22)			MCWB		-2.8	0.4	4.9	11.4	15.5	19.7	23.8	23.5	18.7	13.5	7.4	0.2	(22)
(23)		10%	DB		-2.5	2.4	8.9	18.6	24.5	27.9	29.0	28.8	24.7	17.8	8.7	0.8	(23)
(24)			MCWB		-4.7	-0.9	3.5	9.9	14.6	19.4	23.4	22.9	18.0	12.1	5.3	-1.5	(24)
(25)	Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB		1.1	4.4	9.3	15.7	19.7	23.3	26.8	26.5	23.2	17.9	11.8	5.0	(25)
(26)			MCDB		3.5	8.3	14.7	22.6	27.4	28.8	31.0	30.4	27.3	22.7	15.7	7.1	(26)
(27)		2%	WB		-1.0	2.3	6.9	13.7	18.1	22.3	25.7	25.5	21.7	16.0	9.7	2.1	(27)
(28)			MCDB		1.0	5.6	11.6	21.0	24.7	27.7	29.6	29.3	25.3	19.9	13.2	4.1	(28)
(29)		5%	WB		-2.8	0.8	5.5	12.3	17.0	21.5	24.9	24.8	20.3	14.6	7.9	0.3	(29)
(30)			MCDB		-0.7	3.9	10.1	19.0	23.3	26.6	28.5	28.3	24.0	18.7	10.8	2.5	(30)
(31)		10%	WB		-4.6	-0.7	4.0	10.8	16.0	20.7	24.2	24.0	19.1	13.1	5.7	-1.4	(31)
(32)			MCDB		-2.6	2.4	8.2	17.5	22.6	25.6	27.6	27.3	22.9	16.8	8.4	0.8	(32)
(33)	Mean Daily Temperature Range		MDBR		10.7	10.6	9.8	11.2	10.8	9.3	7.5	8.3	10.9	11.0	9.3	9.8	(33)
(34)		5% DB	MCDBR		12.4	12.2	12.7	14.5	14.0	11.8	9.4	9.8	12.4	13.5	12.6	11.0	(34)
(35)			MCWBR		10.3	8.4	7.7	6.9	5.7	4.4	3.9	4.1	5.5	7.4	8.7	9.2	(35)
(36)		5% WB	MCDBR		11.9	11.0	11.8	12.6	11.6	9.3	7.6	7.7	9.8	11.8	11.5	10.3	(36)
(37)			MCWBR		10.2	8.0	7.7	6.7	5.6	4.1	3.8	3.9	5.4	7.1	8.7	9.1	(37)
(38)	Clear Sky Solar Irradiance	taub			0.449	0.457	0.465	0.548	0.608	0.614	0.557	0.477	0.450	0.457	0.422	0.402	(38)
(39)		taud			1.918	1.913	1.941	1.758	1.628	1.660	1.865	2.114	2.165	2.112	2.155	2.101	(39)
(40)		Ebn,noon			631	710	768	733	700	698	736	787	779	709	673	655	(40)
(41)		Edh,noon			132	154	167	216	252	245	198	150	133	125	104	101	(41)

Nomenclature: See separate page