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BARCELONA/AEROPUERT, Spain

WMO#: **081810**

Lat: **41.28N** Long: **2.07E** Elev: **6** StdP: **101.25** Time Zone: **1.00 (EUW)** 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	1.2	2.5	-8.0	1.9	5.8	-5.0	2.5	5.7	11.1	10.8	9.8	10.6	4.9	350	(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	7.5	30.2	23.6	29.2	23.4	28.3	22.9	25.4	28.7	24.6	28.0	23.8	27.2	4.5	210	(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)	24.2	19.1	27.8	23.2	18.0	27.1	22.7	17.5	26.6	77.6	28.8	74.2	27.9	71.2	27.4	1300	(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)	9.8	8.4	7.4	28.7	-0.5	32.4	1.5	1.4	-1.6	33.4	-2.5	34.3	-3.4	35.1	-4.5	36.1	(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	16.3	9.4	10.0	11.9	13.8	17.3	21.1	24.0	24.7	21.7	17.9	13.0	10.1	(5)
(6)			Sd		2.46	2.52	2.17	2.06	2.37	2.54	2.06	1.91	2.21	2.57	2.85	2.78	(6)
(7)			HDD10.0	117	39	27	8	1	0	0	0	0	0	0	8	34	(7)
(8)			HDD18.3	1355	276	233	199	137	47	5	0	0	3	38	161	257	(8)
(9)			CDD10.0	2409	22	27	67	114	227	332	435	455	351	245	98	36	(9)
(10)			CDD18.3	603	0	0	0	0	15	87	177	197	103	25	0	0	(10)
(11)			CDH23.3	3815	0	0	1	1	21	405	1306	1549	488	45	0	0	(11)
(12)			CDH26.7	754	0	0	0	0	1	59	274	370	48	2	0	0	(12)
(13)	Precipitation		PrecAvg	658	44	36	48	51	57	38	22	66	79	94	74	50	(13)
(14)			PrecMax	911	208	77	125	174	232	98	94	177	277	270	193	254	(14)
(15)			PrecMin	453	3	1	6	15	19	7	4	6	1	14	2	12	(15)
(16)			PrecSD	155.3	49.1	23.8	29.7	36.6	47.3	26.3	26.0	41.6	69.2	72.2	47.6	62.1	(16)
(17)	Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB		18.2	20.0	20.4	22.2	25.2	30.4	31.6	32.3	29.1	26.2	21.3	18.8	(17)
(18)			MCWB		12.6	12.5	12.8	14.3	17.7	22.7	23.5	23.8	22.6	21.0	16.6	13.8	(18)
(19)		2%	DB		16.1	17.2	18.2	20.2	23.8	28.2	30.1	30.7	28.0	24.4	20.0	16.9	(19)
(20)			MCWB		11.6	11.6	12.5	14.5	17.7	21.8	23.6	23.8	22.7	19.8	15.8	13.2	(20)
(21)		5%	DB		14.9	15.6	17.0	19.1	22.5	26.9	29.1	29.5	27.0	23.2	18.9	15.8	(21)
(22)			MCWB		11.1	11.1	12.6	14.1	17.5	21.1	23.2	23.8	22.1	19.0	15.1	12.5	(22)
(23)		10%	DB		13.8	14.2	16.0	18.0	21.6	25.7	28.1	28.8	26.0	22.2	17.8	14.6	(23)
(24)			MCWB		10.6	10.6	12.2	13.7	17.1	20.7	22.7	23.5	21.3	18.3	14.4	11.7	(24)
(25)	Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB		14.1	13.8	15.2	16.9	20.4	24.6	26.1	26.7	25.1	22.4	18.5	15.2	(25)
(26)			MCDB		16.3	17.7	17.8	19.4	22.7	28.0	29.5	29.6	27.5	24.8	20.3	17.0	(26)
(27)		2%	WB		13.0	12.7	14.1	15.7	19.3	23.3	25.0	25.8	23.8	20.9	17.0	14.2	(27)
(28)			MCDB		15.0	15.6	16.8	18.5	22.0	26.6	28.6	29.0	26.6	23.5	18.9	16.1	(28)
(29)		5%	WB		12.0	12.0	13.5	15.1	18.4	22.1	24.2	24.9	22.9	20.0	15.9	13.2	(29)
(30)			MCDB		14.3	14.6	16.0	18.0	21.4	25.7	27.8	28.3	26.0	22.6	17.9	15.2	(30)
(31)		10%	WB		11.0	11.3	12.8	14.3	17.7	21.1	23.4	24.2	22.1	19.0	14.9	12.0	(31)
(32)			MCDB		13.3	13.8	15.2	17.2	20.7	24.6	27.2	27.6	25.2	21.5	17.1	14.2	(32)
(33)	Mean Daily Temperature Range		MDBR		8.1	8.2	8.0	7.8	7.4	7.3	7.3	7.5	7.7	7.6	8.0	7.9	(33)
(34)		5% DB	MCDBR		8.9	9.4	9.2	9.1	8.1	8.1	7.9	8.3	8.3	8.1	8.6	8.1	(34)
(35)			MCWBR		6.3	6.4	6.0	5.9	5.4	5.4	5.5	5.9	5.7	5.6	6.3	6.0	(35)
(36)		5% WB	MCDBR		7.8	8.4	8.2	8.1	7.5	7.5	7.7	7.9	7.9	7.3	7.8	7.1	(36)
(37)			MCWBR		6.0	6.2	6.0	6.1	5.7	5.8	6.1	6.3	6.0	5.6	6.3	6.0	(37)
(38)	Clear Sky Solar Irradiance	taub			0.367	0.377	0.383	0.399	0.401	0.409	0.421	0.416	0.398	0.387	0.367	0.350	(38)
(39)		taud			2.492	2.424	2.376	2.282	2.281	2.258	2.239	2.303	2.406	2.445	2.517	2.567	(39)
(40)		Ebn,noon			777	825	863	871	876	866	852	845	838	803	772	770	(40)
(41)		Edh,noon			77	94	109	128	131	135	136	124	105	91	74	67	(41)

Nomenclature: See separate page