

2021 ASHRAE Handbook - Fundamentals (SI)																
CATARATAS DEL IGUAZU, ARGENTINA (WMO: 870970)																
Lat: 25.731S			Long: 54.479W			Elev: 270		StdP: 98.12		Time zone: -3.00 (W03)			Period: 94-19		WBAN: 99999	
Annual Heating, Humidification, and Ventilation Design Conditions																
Coldest Month	Heating DB		Humidification DP/MCDB and HR						Coldest month WS/MCDB				MCWS/PCWD to 99.6% DB		WSF	
			99.6%			99%			0.4%		1%					
	99.6%	99%	DP	HR	MCDB	DP	HR	MCDB	WS	MCDB	WS	MCDB	MCWS	PCWD		
7	4.1	6.1	2.2	4.6	7.1	4.1	5.2	8.7	9.0	15.7	8.0	16.3	1.9	230	0.310	
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	
1	10.9	35.1	24.1	34.0	24.1	33.0	24.0	26.6	31.3	26.1	30.8	25.6	30.3	3.2	0	
Dehumidification DP/MCDB and HR									Enthalpy/MCDB						Extreme Max WB	
0.4%			1%			2%			0.4%		1%		2%			
DP	HR	MCDB	DP	HR	MCDB	DP	HR	MCDB	Enth	MCDB	Enth	MCDB	Enth	MCDB		
25.2	21.1	28.9	24.9	20.6	28.7	24.2	19.7	27.8	85.3	31.4	82.7	31.0	80.3	30.6	30.6	
Extreme Annual Design Conditions																
Extreme Annual WS				Extreme Annual Temperature				n-Year Return Period Values of Extreme Temperature								
				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
7.9	6.4	5.4	DB	0.4	37.3	1.6	1.0	-0.7	38.0	-1.6	38.6	-2.5	39.2	-3.6	39.9	
			WB	0.3	28.1	1.5	0.8	-0.8	28.7	-1.6	29.2	-2.5	29.6	-3.6	30.2	
Monthly Climatic Design Conditions																
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Temperatures, Degree-Days and Degree-Hours	DBAvg	21.8	26.2	25.9	24.8	22.2	18.3	17.0	16.7	18.7	20.3	22.7	23.9	25.5		
	DBStd	4.67	1.71	1.85	2.13	3.29	3.44	4.05	4.36	4.44	4.15	2.94	2.41	2.10		
	HDD10.0	10	0	0	0	0	1	2	5	2	1	0	0	0		
	HDD18.3	286	0	0	0	9	43	71	82	52	26	2	1	0		
	CDD10.0	4333	504	446	459	367	258	213	213	273	311	393	416	480		
	CDD18.3	1568	246	212	201	126	43	32	32	65	87	137	167	222		
	CDH23.3	13147	2271	1815	1627	878	224	152	207	555	773	1127	1487	2032		
	CDH26.7	5312	1008	785	659	294	41	17	33	192	320	457	613	891		
Wind		WSAvg	2.2	2.1	2.0	1.8	1.9	2.0	2.1	2.3	2.5	2.7	2.5	2.3	2.1	
Precipitation	PrecAvg	1826	167	142	115	149	172	163	113	124	130	180	180	132		
	PrecMax	3105	458	360	258	363	428	333	447	376	400	253	588	284		
	PrecMin	1205	21	4	24	4	18	32	2	11	19	92	20	24		
	PrecStd	541	102	91	63	103	126	83	104	105	96	49	127	80		
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	35.2	36.2	35.1	33.1	30.0	28.2	29.2	32.8	35.2	35.4	35.2	36.0		
		MCWB	24.7	24.0	24.2	24.2	23.1	21.3	20.2	20.4	22.4	24.5	23.9	23.5		
	2%	DB	34.1	34.1	33.2	31.7	27.8	27.0	27.7	30.9	33.0	33.2	33.3	34.2		
		MCWB	24.7	24.6	24.1	24.1	22.1	21.0	20.2	20.5	21.9	23.8	23.6	24.2		
	5%	DB	33.0	32.8	31.9	30.0	25.9	25.1	25.9	29.0	30.4	31.2	32.0	32.9		
		MCWB	24.7	24.7	24.0	23.7	21.2	20.7	20.2	20.5	21.4	22.9	22.9	24.2		
	10%	DB	31.9	31.2	30.4	28.2	24.0	23.1	23.8	26.8	27.9	29.2	30.2	31.2		
		MCWB	24.5	24.4	23.6	22.9	20.3	19.9	19.4	20.0	20.5	22.2	22.8	23.9		
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	27.2	27.2	26.6	26.1	24.1	22.8	22.5	23.1	24.8	26.2	26.6	27.1		
		MCDB	31.7	31.4	31.1	30.5	27.7	25.7	26.4	29.0	31.6	32.4	31.5	31.9		
	2%	WB	26.4	26.3	25.7	25.1	22.8	21.8	21.4	21.9	23.3	25.1	25.5	26.2		
		MCDB	31.1	30.8	30.4	29.3	26.0	25.0	25.4	27.2	29.5	31.1	30.4	30.9		
	5%	WB	25.9	25.7	25.1	24.4	21.9	21.0	20.4	21.0	22.3	24.0	24.6	25.6		
		MCDB	30.6	30.2	29.7	28.4	24.9	24.4	24.2	26.9	27.9	29.4	29.4	30.1		
	10%	WB	25.3	25.1	24.5	23.6	20.9	20.1	19.6	20.2	21.3	23.1	23.7	24.9		
		MCDB	29.8	29.5	28.8	27.3	23.5	22.6	23.1	25.4	26.4	27.7	28.2	29.2		

Mean Daily Temperature Range		MDBR	10.9	10.6	10.8	10.4	9.7	9.7	11.1	12.6	12.1	11.1	11.6	11.1
	5% DB	MCDBR	12.8	12.9	13.0	12.2	11.6	11.7	13.2	15.4	15.9	14.6	14.3	13.4
		MCWBR	5.1	5.1	5.5	5.8	6.4	6.4	6.9	6.8	7.0	6.6	6.3	5.5
	5% WB	MCDBR	10.7	10.9	10.9	10.8	10.2	10.4	11.7	14.0	13.7	12.7	11.9	11.0
		MCWBR	5.1	5.1	5.4	5.6	6.0	6.2	6.7	7.0	7.0	6.6	6.3	5.5
Clear Sky Solar Irradiance	taub		0.403	0.397	0.386	0.381	0.353	0.386	0.382	0.466	0.561	0.467	0.416	0.412
	taud		2.432	2.447	2.467	2.452	2.500	2.401	2.392	2.114	1.867	2.198	2.345	2.383
	Ebn at noon		941	931	912	870	853	791	811	771	741	857	923	934
	Edn at noon		124	119	111	103	90	95	99	143	199	151	134	130
All-Sky Solar Radiation	RadAvg		6.44	5.89	5.36	4.42	3.28	2.84	3.21	3.95	4.51	5.18	6.30	6.46
	RadStd		0.50	0.49	0.37	0.41	0.46	0.30	0.38	0.29	0.48	0.60	0.63	0.63
Historical Trends														
		DBAvg	Heating		Cooling			Degree-Days						
			99% DB	99% DP	1% DB	1% WB	1% DP	HDD10.0	HDD18.3	CDD10.0	CDD18.3			
Station Only		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Regional (0 neighbors)		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			

CDDn	Cooling degree-days base n°C, °C-day	Lat	Latitude, °	Period	Years used to calculate the design conditions
CDHn	Cooling degree-hours base n°C, °C-hour	Long	Longitude, °	Sd	Standard deviation of daily average temperature, °C
DB	Dry bulb temperature, °C	MCDB	Mean coincident dry bulb temperature, °C	StdP	Standard pressure at station elevation, kPa
DP	Dew point temperature, °C	MCDBR	Mean coincident dry bulb temp. range, °C	taub	Clear sky optical depth for beam irradiance
Ebn,noon	Clear sky beam normal and diffuse horizontal irradiances at solar noon, W/m2	MCDP	Mean coincident dew point temperature, °C	taud	Clear sky optical depth for diffuse irradiance
Edh,noon		MCWB	Mean coincident wet bulb temperature, °C	Tavg	Average temperature, °C
Elev	Elevation, m	MCWBR	Mean coincident wet bulb temp. range, °C	Time Zone	Hours ahead or behind UTC
Enth	Enthalpy, kJ/kg	MCWS	Mean coincident wind speed, m/s	WB	Wet bulb temperature, °C
HDDn	Heating degree-days base n°C, °C-day	MDBR	Mean dry bulb temp. range, °C	Hours 8/4 & 12.8/20.6	Number of hours between 8 a.m. and 4 p.m with DB between 12.8 and 20.6 °C
PCWD	Prevailing coincident wind direction, °,0 = North, 90 = East	WS	Wind speed, m/s	HR	Humidity ratio, g of moisture per kg of dry air