

2021 ASHRAE Handbook - Fundamentals (SI)																	
PILAR, ARGENTINA (WMO: 873490)																	
Lat:31.6681S			Long:63.8819W			Elev:338		StdP: 97.33			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	0.0	1.6	-8.7	1.9	10.1	-6.7	2.2	8.8	11.7	18.1	9.8	14.1	0.8	230	0.375		
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	10.6	34.6	21.6	32.9	21.5	31.5	21.4	25.3	30.1	24.3	29.0	23.5	28.2	4.9	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			
24.0	19.7	27.9	23.0	18.5	27.0	22.1	17.5	26.3	80.0	29.9	75.7	29.1	72.2	28.2	28.5		
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	Min	Max		
9.8	8.6	7.3	DB	-2.8	38.9	1.7	1.9	-4.0	40.3	-5.0	41.4	-5.9	42.4	-7.1	43.8		
			WB	-3.7	26.6	1.5	1.0	-4.9	27.3	-5.8	27.9	-6.6	28.5	-7.7	29.2		
Monthly Climatic Design Conditions																	
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Temperatures, Degree-Days and Degree-Hours	DBAvg	17.9	24.4	22.9	20.7	17.9	14.4	11.6	10.9	12.7	15.5	18.5	21.4	23.6			
	DBStd	5.76	2.77	2.96	3.10	3.59	3.51	3.34	3.71	3.88	4.10	3.70	3.34	3.14			
	HDD10.0	77	0	0	0	1	4	21	32	15	5	0	0	0			
	HDD18.3	968	1	3	12	50	129	204	232	179	102	43	10	2			
	CDD10.0	2944	447	362	333	238	142	67	61	100	170	262	342	421			
	CDD18.3	793	189	132	87	37	9	1	2	6	17	47	102	164			
	CDH23.3	6926	1742	964	596	258	41	10	18	80	224	437	967	1588			
	CDH26.7	2567	721	309	163	60	4	1	3	21	72	143	373	696			
Wind		WSAvg	2.6	2.3	1.9	2.1	2.1	2.3	2.5	2.7	3.2	3.2	3.1	3.3	2.9		
Precipitation	PrecAvg	735	123	104	98	57	21	11	13	8	36	69	95	123			
	PrecMax	1180	282	346	250	198	94	69	117	41	147	214	246	300			
	PrecMin	360	25	33	10	0	0	0	0	0	0	10	16	25			
	PrecStd	177	61	56	59	42	22	16	24	11	36	47	52	66			
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	37.2	33.9	32.5	31.1	26.9	24.6	25.7	29.6	32.8	33.6	35.2	37.1			
		MCWB	23.1	23.0	23.0	21.4	18.8	16.9	16.9	18.1	18.5	20.3	20.4	22.3			
	2%	DB	34.2	31.7	30.2	28.1	24.1	21.4	21.7	25.6	28.3	30.5	32.7	34.5			
		MCWB	22.0	23.9	22.8	19.4	17.6	14.6	14.5	15.6	16.6	18.8	19.6	21.8			
	5%	DB	32.3	30.1	28.5	26.3	22.1	19.5	19.5	22.2	25.6	28.0	30.7	32.4			
		MCWB	22.4	23.4	21.7	18.6	16.2	13.7	12.9	13.5	15.6	17.9	19.3	21.1			
	10%	DB	30.6	28.5	26.7	24.2	20.2	17.7	17.4	19.8	23.2	25.6	28.6	30.5			
		MCWB	21.9	22.5	20.6	17.6	16.0	12.3	12.1	12.2	14.3	16.7	18.6	20.7			
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	26.5	26.5	25.4	23.1	20.7	18.6	18.0	19.9	20.4	22.3	23.3	25.5			
		MCDB	31.7	30.3	30.1	26.8	23.3	22.1	22.5	27.5	27.5	28.8	29.4	32.4			
	2%	WB	25.1	25.5	23.9	21.6	19.4	17.0	16.4	17.2	18.4	20.7	21.9	24.1			
		MCDB	29.7	29.5	28.3	25.9	22.1	20.7	20.4	22.0	25.4	28.3	28.6	30.5			
	5%	WB	24.1	24.4	22.7	20.3	18.2	15.1	14.8	15.4	16.9	19.2	20.7	22.9			
		MCDB	29.1	28.1	26.8	23.2	20.8	17.7	17.6	20.0	23.2	25.3	27.5	29.4			
	10%	WB	23.2	23.4	21.7	19.3	16.8	13.5	13.5	13.4	15.5	18.0	19.7	21.8			
		MCDB	28.5	26.9	25.4	22.8	19.4	16.4	16.2	18.6	21.2	23.1	26.2	27.9			

Mean Daily Temperature Range		MDBR	10.6	9.2	10.0	10.0	9.9	11.2	11.3	12.6	12.5	11.5	12.0	11.5
	5% DB	MCDBR	13.5	11.4	12.0	13.4	12.5	13.8	14.2	16.2	16.3	15.0	15.4	14.4
		MCWBR	4.8	4.9	5.2	5.8	6.2	7.7	7.9	8.3	7.5	6.3	5.5	4.9
	5% WB	MCDBR	10.5	9.5	10.2	10.0	9.0	10.8	11.2	13.6	13.7	12.6	12.6	11.9
		MCWBR	5.0	5.0	5.2	5.3	5.0	7.0	7.1	8.1	7.5	6.3	5.5	4.9
Clear Sky Solar Irradiance	taub		0.393	0.378	0.371	0.356	0.339	0.319	0.328	0.366	0.421	0.401	0.384	0.389
	taud		2.370	2.421	2.442	2.452	2.444	2.496	2.432	2.309	2.148	2.274	2.355	2.370
	Ebn at noon		946	941	913	872	834	832	837	845	846	908	949	954
	Edn at noon		130	120	110	98	88	79	87	111	145	137	132	131
All-Sky Solar Radiation	RadAvg		7.08	6.08	5.19	3.85	2.94	2.73	3.00	4.00	5.09	5.93	6.89	7.18
	RadStd		0.47	0.48	0.44	0.50	0.28	0.31	0.23	0.31	0.44	0.48	0.43	0.44
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	+0.47	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