

2021 ASHRAE Handbook - Fundamentals (SI)															
CERES, ARGENTINA (WMO: 872570)															
Lat:29.8756S		Long:61.9361W		Elev:88		StdP: 100.27			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	1.1	2.8	-4.9	2.5	8.1	-2.8	3.0	9.6	15.3	19.4	12.5	13.8	1.0	0	0.418
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	11.7	36.6	24.0	35.0	23.8	33.6	23.3	26.7	32.5	26.0	31.6	25.2	30.6	5.7	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	
25.3	20.7	29.7	24.5	19.7	28.9	23.7	18.7	28.1	84.8	32.3	81.2	31.7	78.0	30.6	30.7
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	
				Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
1%	2.5%	5%													
12.4	11.6	9.1	DB	-1.9	39.2	1.5	1.8	-3.0	40.5	-3.9	41.6	-4.8	42.6	-5.9	43.9
			WB	-2.7	28.3	1.5	1.0	-3.8	29.0	-4.7	29.6	-5.5	30.2	-6.6	31.0
Monthly Climatic Design Conditions															
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperatures, Degree-Days and Degree-Hours	DBAvg		19.6	25.8	24.8	22.8	19.6	16.3	13.5	12.9	14.8	17.2	20.3	22.4	24.6
	DBStd		5.81	2.92	3.10	3.14	3.83	4.01	4.20	4.54	4.80	4.40	3.77	3.21	3.05
	HDD10.0		39	0	0	0	0	1	12	17	8	2	0	0	0
	HDD18.3		693	0	1	3	29	91	156	180	135	73	21	4	1
	CDD10.0		3529	490	414	397	288	196	117	108	156	216	319	373	453
	CDD18.3		1141	232	182	143	67	27	11	13	24	37	82	128	196
	CDH23.3		11368	2529	1789	1234	502	164	51	89	281	443	857	1343	2087
	CDH26.7		4953	1247	813	483	163	37	9	22	110	167	347	579	977
Wind		WSAvg	3.6	3.3	3.3	3.1	3.2	3.0	3.2	3.6	4.1	4.4	4.4	4.0	3.6
Precipitation	PrecAvg		928	137	114	139	89	29	20	15	17	40	80	106	136
	PrecMax		1408	420	387	396	302	110	127	105	89	152	230	275	450
	PrecMin		450	13	5	6	2	0	0	0	0	0	4	16	15
	PrecStd		215	92	69	85	66	28	24	21	19	35	52	55	93
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	38.5	37.7	35.4	33.2	30.3	27.9	29.8	33.4	35.3	36.2	36.3	38.6	
		MCWB	24.7	24.7	24.8	23.7	22.6	20.4	19.7	21.1	21.3	22.5	23.0	24.7	
	2%	DB	36.1	35.4	33.3	30.8	27.4	24.2	25.9	29.8	31.2	32.8	34.2	35.8	
		MCWB	24.3	24.8	23.9	22.6	21.0	19.7	19.1	19.7	19.8	22.0	21.8	23.7	
	5%	DB	34.4	33.4	31.4	28.6	25.0	21.9	22.8	26.3	28.4	30.4	32.1	33.7	
		MCWB	23.8	24.1	23.0	21.5	20.3	18.0	16.9	18.1	18.7	20.6	21.3	23.4	
	10%	DB	32.7	31.5	29.6	26.2	22.8	19.9	20.2	23.1	25.7	28.0	30.2	31.8	
		MCWB	23.4	23.4	22.3	20.8	18.8	16.1	15.3	16.4	17.2	19.4	20.8	22.7	
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	27.9	27.8	26.8	25.6	24.4	21.9	21.4	22.4	23.2	25.6	25.8	27.4	
		MCDB	34.0	33.6	32.8	30.3	28.1	25.0	27.1	30.3	30.7	32.2	32.8	33.1	
	2%	WB	26.6	26.6	25.7	24.2	22.5	20.4	19.5	20.6	21.5	23.6	24.2	26.1	
		MCDB	32.3	32.0	30.5	28.3	25.8	23.4	24.5	27.9	28.6	29.9	30.2	31.8	
	5%	WB	25.8	25.6	24.6	23.1	20.9	18.9	18.0	19.0	20.0	22.3	23.0	25.1	
		MCDB	31.5	31.0	28.7	26.6	24.0	21.4	21.9	25.3	26.3	28.1	28.8	31.0	
	10%	WB	24.9	24.7	23.6	21.8	19.5	17.2	16.5	17.2	18.6	20.9	21.9	24.0	
		MCDB	30.1	29.7	27.6	24.9	22.2	19.2	19.6	22.2	23.9	26.1	27.4	29.1	

Mean Daily Temperature Range		MDBR	11.7	10.9	10.8	10.0	9.8	10.1	11.6	13.1	13.0	12.2	12.6	12.0
	5% DB	MCDBR	14.1	13.7	13.3	12.9	11.8	11.6	14.0	17.0	17.0	15.9	16.0	15.0
		MCWBR	4.7	5.2	5.3	5.9	6.1	6.5	7.3	8.1	7.6	7.0	6.2	5.7
	5% WB	MCDBR	11.2	11.1	10.5	10.1	9.8	9.4	11.6	14.9	13.5	13.1	12.5	12.0
		MCWBR	5.3	5.3	5.4	5.8	5.6	5.8	6.6	7.4	7.6	7.0	6.2	5.7
Clear Sky Solar Irradiance	taub		0.406	0.397	0.385	0.382	0.361	0.360	0.362	0.433	0.497	0.449	0.403	0.400
	taud		2.375	2.407	2.434	2.415	2.431	2.415	2.379	2.125	1.958	2.177	2.334	2.375
	Ebn at noon		936	926	904	852	821	795	809	782	782	867	933	945
	Edn at noon		130	122	112	104	92	88	95	136	178	152	135	131
All-Sky Solar Radiation	RadAvg		6.96	6.20	5.16	3.88	2.99	2.63	3.05	4.01	4.99	5.83	6.90	7.07
	RadStd		0.48	0.40	0.38	0.48	0.28	0.31	0.28	0.31	0.47	0.45	0.41	0.39
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		+0.53	+0.78	-1.62	+0.74	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