

2021 ASHRAE Handbook - Fundamentals (SI)																	
TARTAGAL, ARGENTINA (WMO: 870220)																	
Lat:22.6167S			Long:63.7967W			Elev:450		StdP: 96.03			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	4.7	6.5	-4.4	2.7	14.5	-2.0	3.4	15.3	10.2	21.6	9.0	20.0	0.6	270	0.308		
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	10.2	38.1	22.4	36.5	22.6	35.1	22.6	26.1	32.1	25.5	31.5	25.0	31.0	4.9	50		
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			
24.5	20.6	29.0	23.9	19.9	28.4	23.4	19.2	27.8	84.0	31.8	81.6	31.8	79.3	31.1	29.1		
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	
9.3	8.0	6.8	DB	1.6	41.1	1.7	1.3	0.4	42.0	-0.6	42.8	-1.6	43.5	-2.9	44.4		
			WB	0.4	27.5	1.6	0.9	-0.7	28.1	-1.6	28.6	-2.5	29.1	-3.7	29.8		
Monthly Climatic Design Conditions																	
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Temperatures, Degree-Days and Degree-Hours	DBAvg	22.0	26.5	25.8	23.9	21.3	18.2	16.1	15.7	18.5	21.4	24.7	25.5	26.1			
	DBStd	5.31	2.73	2.75	2.97	3.48	3.54	3.57	4.09	4.70	4.58	4.10	3.62	3.18			
	HDD10.0	7	0	0	0	0	1	2	4	1	0	0	0	0			
	HDD18.3	331	0	0	2	12	47	85	102	58	21	4	1	0			
	CDD10.0	4374	511	442	432	339	255	186	182	264	343	457	465	499			
	CDD18.3	1657	253	208	175	102	43	19	21	63	114	202	216	241			
	CDH23.3	15803	2549	1854	1254	618	213	95	187	666	1256	2232	2353	2526			
	CDH26.7	7204	1199	798	455	191	40	14	45	278	591	1149	1202	1242			
Wind		WSAvg	2.0	1.9	1.8	1.7	1.5	1.5	1.6	1.8	2.2	2.5	2.6	2.5	2.2		
Precipitation	PrecAvg	993	188	192	162	64	25	9	4	4	18	48	111	168			
	PrecMax	1500	385	390	391	190	94	40	17	23	61	148	199	394			
	PrecMin	642	47	55	37	8	1	0	0	0	0	8	17	37			
	PrecStd	200	78	75	88	41	20	9	5	7	18	28	45	91			
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	38.2	37.3	34.7	32.4	30.1	28.4	30.5	35.5	38.1	40.2	39.9	38.9			
		MCWB	23.1	24.1	24.2	22.8	22.4	20.3	19.5	20.0	20.6	21.6	22.7	23.0			
	2%	DB	36.1	34.9	32.9	30.9	27.6	26.0	27.8	32.7	35.5	37.5	37.4	36.8			
		MCWB	23.4	24.2	24.6	23.1	21.3	19.4	19.2	19.8	20.0	21.8	22.6	23.2			
	5%	DB	34.4	33.2	31.2	29.2	25.8	23.8	25.4	30.0	33.1	35.3	35.3	34.9			
		MCWB	23.8	24.4	24.3	22.9	20.2	18.2	17.4	18.5	19.4	21.7	22.3	23.5			
	10%	DB	32.8	31.5	29.3	27.2	23.8	21.9	23.0	27.4	30.4	33.0	33.1	33.0			
		MCWB	23.7	24.1	23.6	22.3	19.5	17.2	16.0	17.2	18.5	21.0	21.9	23.2			
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	26.5	27.1	26.3	25.4	23.4	21.7	21.2	22.0	23.1	25.0	25.9	26.2			
		MCDB	32.5	33.0	31.4	30.1	28.0	26.1	27.8	31.7	33.4	35.7	34.8	32.9			
	2%	WB	25.7	26.0	25.5	24.4	22.4	20.5	19.8	20.6	21.7	23.8	24.7	25.4			
		MCDB	31.8	31.5	30.5	28.8	26.3	24.4	26.4	30.1	31.7	33.2	32.9	32.2			
	5%	WB	25.1	25.3	24.9	23.6	21.3	19.4	18.5	19.4	20.6	22.7	23.9	24.7			
		MCDB	31.3	30.7	29.5	27.6	24.4	22.6	23.7	28.5	29.8	31.8	31.3	31.5			
	10%	WB	24.5	24.6	24.1	22.8	20.3	18.3	17.2	18.2	19.5	21.8	23.0	24.1			
		MCDB	30.4	29.7	28.2	26.1	22.9	20.8	21.7	26.2	28.4	30.2	30.2	30.6			

Mean Daily Temperature Range		MDBR	10.2	9.3	8.1	7.6	7.8	8.7	11.0	12.6	12.5	11.5	11.2	10.4
	5% DB	MCDBR	13.3	12.4	11.1	11.0	10.6	11.5	14.7	16.5	16.6	15.7	15.4	14.1
		MCWBR	4.0	4.4	4.4	4.8	5.0	5.8	7.1	6.7	6.4	5.1	4.8	4.3
	5% WB	MCDBR	10.9	10.4	9.6	9.1	8.4	9.7	13.1	14.8	13.4	13.1	12.6	11.5
		MCWBR	4.4	4.7	4.5	4.5	4.4	5.2	6.8	6.4	6.4	5.1	4.8	4.3
Clear Sky Solar Irradiance	taub		0.413	0.406	0.401	0.385	0.368	0.335	0.343	0.414	0.494	0.485	0.425	0.419
	taud		2.390	2.420	2.437	2.453	2.431	2.509	2.457	2.235	2.024	2.118	2.315	2.356
	Ebn at noon		933	926	904	876	849	863	867	832	805	844	916	928
	Edn at noon		129	123	116	105	99	88	95	129	172	164	138	134
All-Sky Solar Radiation	RadAvg		6.13	5.63	4.70	3.83	3.18	3.01	3.65	4.53	5.13	5.34	5.82	5.92
	RadStd		0.49	0.33	0.46	0.43	0.40	0.31	0.31	0.35	0.48	0.48	0.59	0.48
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	+0.56	N/A	N/A	N/A	N/A	N/A	N/A			
Regional (0 neighbors)		N/A	N/A	N/A	+0.56	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