

2021 ASHRAE Handbook - Fundamentals (SI)																
TANDIL, ARGENTINA (WMO: 876450)																
Lat:37.2411S			Long:59.2333W			Elev:175		StdP: 99.24		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	-3.2	-1.9	-7.0	2.1	3.8	-5.3	2.5	3.3	12.5	8.1	11.0	8.2	1.2	230	0.525	
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	14.0	31.8	20.1	30.2	19.7	28.8	19.2	22.4	27.9	21.5	26.8	20.7	25.9	5.5	320	
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		
20.9	15.8	24.5	20.0	15.0	23.4	19.1	14.2	22.8	67.0	28.0	63.6	26.9	60.7	26.1	26.2	
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	
11.2	9.8	8.7	DB	-6.3	34.8	1.8	1.5	-7.6	35.8	-8.7	36.7	-9.7	37.5	-11.0	38.6	
			WB	-6.5	24.5	1.4	1.1	-7.5	25.3	-8.3	25.9	-9.1	26.5	-10.1	27.3	
Monthly Climatic Design Conditions																
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Temperatures, Degree-Days and Degree-Hours	DBAvg	13.7	20.6	19.7	17.4	13.8	10.6	7.6	6.8	8.7	10.3	13.2	16.3	19.3		
	DBStd	5.73	3.12	3.27	3.38	3.33	3.34	2.97	3.31	3.48	3.19	3.22	3.30	3.41		
	HDD10.0	338	0	0	0	6	32	82	108	67	34	9	1	0		
	HDD18.3	1961	14	23	58	140	239	321	356	300	241	161	78	30		
	CDD10.0	1681	330	271	230	120	51	11	11	26	43	109	190	288		
	CDD18.3	261	86	61	30	4	1	0	0	1	1	2	17	60		
	CDH23.3	2872	963	577	258	42	4	0	0	4	6	39	233	747		
	CDH26.7	883	340	175	52	4	0	0	0	1	1	4	49	257		
Wind		WSAvg	3.8	3.9	3.6	3.4	3.2	3.1	3.4	3.6	4.0	4.3	4.3	4.1	4.2	
Precipitation	PrecAvg	969	119	88	106	82	75	47	43	44	58	103	91	93		
	PrecMax	1264	216	207	301	442	215	139	137	154	170	202	220	176		
	PrecMin	587	39	19	26	0	3	0	1	0	10	40	21	15		
	PrecStd	173	56	44	66	93	61	36	36	36	42	45	53	46		
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	34.3	33.0	30.3	26.8	23.5	18.3	19.0	22.8	23.6	26.8	30.2	33.7		
		MCWB	20.5	20.8	20.5	17.6	17.1	14.6	14.3	16.3	15.4	17.6	18.8	20.3		
	2%	DB	31.9	30.6	28.2	24.3	20.1	16.2	16.0	19.2	20.9	24.1	28.1	31.4		
		MCWB	20.5	20.5	19.6	17.4	15.1	12.4	12.0	13.5	13.6	16.4	17.8	19.2		
	5%	DB	30.2	28.9	26.2	22.4	18.0	14.6	14.3	16.9	19.0	22.2	26.1	29.6		
		MCWB	19.8	20.0	18.9	16.2	14.0	11.2	11.0	11.9	12.7	15.4	17.1	18.8		
	10%	DB	28.4	27.0	24.5	20.5	16.5	13.2	12.6	15.0	17.2	20.3	24.0	27.6		
		MCWB	19.1	19.3	18.2	15.7	13.4	10.5	10.0	10.8	11.7	14.4	16.3	18.3		
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	23.9	23.7	22.6	21.1	18.7	16.8	16.2	18.2	18.1	19.7	20.5	22.8		
		MCDB	30.3	28.6	26.5	23.8	21.4	17.4	17.9	21.4	20.9	24.1	26.7	29.2		
	2%	WB	22.3	22.3	21.3	19.3	16.8	14.2	13.9	15.3	15.5	17.8	19.3	21.4		
		MCDB	28.5	27.0	25.4	21.5	18.4	15.0	14.7	17.3	18.7	22.0	25.4	27.8		
	5%	WB	21.3	21.3	20.2	17.8	15.4	12.3	11.9	13.3	14.0	16.5	18.2	20.3		
		MCDB	27.2	26.1	24.4	20.5	17.1	13.4	13.2	15.5	16.9	20.6	23.9	26.4		
	10%	WB	20.5	20.4	19.2	16.6	14.0	10.8	10.4	11.7	12.7	15.4	17.3	19.2		
		MCDB	25.9	25.0	23.1	19.6	15.7	12.5	12.0	14.4	15.8	18.7	22.3	25.1		

Mean Daily Temperature Range		MDBR	14.0	12.8	12.1	11.8	10.6	10.2	10.3	11.0	11.7	11.7	13.0	14.0
	5% DB	MCDBR	16.4	15.4	14.3	14.7	12.6	11.9	12.2	14.1	15.3	15.1	16.0	16.8
		MCWBR	6.7	6.6	7.0	7.9	7.6	7.7	7.9	8.4	8.6	8.2	7.2	6.6
	5% WB	MCDBR	13.3	12.2	11.4	10.8	9.5	8.1	8.7	10.8	11.8	12.4	13.5	13.3
		MCWBR	6.5	6.2	6.3	7.1	6.7	6.9	6.8	7.7	8.6	8.2	7.2	6.6
Clear Sky Solar Irradiance	taub		0.406	0.391	0.372	0.355	0.351	0.332	0.335	0.385	0.425	0.400	0.385	0.392
	taud		2.298	2.353	2.396	2.401	2.370	2.435	2.405	2.233	2.116	2.245	2.317	2.317
	Ebn at noon		927	918	894	844	779	771	791	794	823	898	942	946
	Edn at noon		138	125	111	97	87	76	82	113	144	138	135	137
All-Sky Solar Radiation	RadAvg		7.36	6.36	5.05	3.68	2.49	2.05	2.17	2.99	4.14	5.43	6.80	7.73
	RadStd		0.35	0.45	0.32	0.37	0.21	0.20	0.21	0.33	0.31	0.55	0.37	0.37
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	+0.75	N/A	N/A	N/A	N/A	N/A	N/A	+37		
Regional (0 neighbors)		N/A	N/A	N/A	+0.70	N/A	N/A	N/A	N/A	N/A	N/A	+33		

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