

2021 ASHRAE Handbook - Fundamentals (SI)																	
SANTA ROSA, ARGENTINA (WMO: 876230)																	
Lat:36.5931S			Long:64.28W			Elev:191		StdP: 99.05			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	-2.3	-0.6	-9.5	1.7	7.7	-7.8	2.0	7.1	10.7	11.1	9.5	11.2	1.2	290	0.489		
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	13.5	35.4	21.1	33.7	20.5	32.1	20.2	23.8	30.8	22.8	29.9	21.9	29.1	5.0	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			
21.9	17.0	27.1	20.7	15.7	25.9	19.7	14.7	25.1	72.5	30.9	68.6	29.7	65.1	29.2	27.7		
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			
1%	2.5%	5%		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
10.6	9.3	8.3	DB	-5.7	38.8	2.0	1.9	-7.2	40.2	-8.4	41.3	-9.5	42.4	-10.9	43.8		
			WB	-6.4	25.5	1.8	1.1	-7.7	26.3	-8.7	26.9	-9.7	27.5	-11.0	28.2		
Monthly Climatic Design Conditions																	
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Temperatures, Degree-Days and Degree-Hours	DBAvg	16.1	24.0	22.6	20.1	15.9	12.0	8.8	8.3	10.4	13.0	16.1	19.7	22.7			
	DBStd	6.44	3.19	3.62	3.67	3.71	3.58	2.96	3.29	3.75	3.72	3.46	3.49	3.46			
	HDD10.0	204	0	0	0	3	18	56	73	40	14	1	0	0			
	HDD18.3	1446	1	7	24	89	199	286	312	248	163	88	24	6			
	CDD10.0	2431	436	353	312	180	81	20	19	52	104	189	292	393			
	CDD18.3	631	178	127	77	17	3	0	0	1	3	17	67	141			
	CDH23.3	6887	1968	1283	733	176	23	0	1	23	70	235	759	1616			
	CDH26.7	2874	934	554	266	38	2	0	0	4	12	57	269	737			
Wind		WSAvg	3.5	3.8	3.6	3.6	3.1	2.9	2.7	3.0	3.6	3.9	4.0	4.1	4.0		
Precipitation	PrecAvg	708	82	82	95	58	33	14	18	25	43	81	88	93			
	PrecMax	1173	202	216	331	171	137	59	176	145	132	246	285	378			
	PrecMin	357	9	6	9	0	0	0	0	0	0	5	7	10			
	PrecStd	198	48	52	66	46	32	14	28	32	35	62	53	67			
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	38.3	36.6	34.5	30.0	26.2	20.6	21.4	26.8	28.1	31.2	34.4	37.3			
		MCWB	22.1	22.4	21.7	19.5	18.1	12.7	13.6	15.4	15.7	18.5	19.0	21.1			
	2%	DB	35.3	34.1	31.8	27.6	22.7	18.1	18.4	22.4	25.2	28.1	31.8	35.0			
		MCWB	21.2	21.4	21.1	18.2	15.8	11.3	11.2	12.8	14.9	17.2	18.7	20.3			
	5%	DB	33.5	32.2	29.8	25.3	20.2	16.2	16.3	19.8	23.0	25.9	29.9	33.0			
		MCWB	20.6	21.0	20.1	16.9	14.2	10.3	10.2	11.9	13.4	16.2	17.8	19.9			
	10%	DB	31.7	30.2	27.6	23.1	18.2	14.6	14.6	17.5	20.7	23.9	27.8	30.9			
		MCWB	20.3	20.3	19.2	15.7	13.4	9.9	9.6	10.3	12.2	15.0	16.9	19.2			
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	24.9	25.2	24.3	21.8	19.5	15.0	15.7	17.7	18.0	21.0	22.0	24.3			
		MCDB	31.6	31.0	30.3	25.6	24.0	17.1	17.6	22.7	25.3	27.7	29.8	31.6			
	2%	WB	23.6	23.7	22.7	19.9	17.4	13.2	13.5	14.5	16.1	19.0	20.4	22.6			
		MCDB	31.2	30.5	28.5	23.9	21.1	15.6	15.9	19.3	22.9	25.6	27.7	30.6			
	5%	WB	22.6	22.7	21.3	18.6	15.8	11.8	11.7	12.9	14.6	17.5	19.3	21.4			
		MCDB	30.3	29.4	27.6	23.2	18.7	14.6	14.7	18.2	20.5	23.4	26.8	29.6			
	10%	WB	21.6	21.6	20.2	17.2	14.2	10.6	10.2	11.4	13.3	16.2	18.2	20.5			
		MCDB	29.1	28.0	26.3	21.9	17.2	13.4	13.5	16.2	18.8	22.0	25.2	28.4			

Mean Daily Temperature Range		MDBR	13.5	12.9	12.3	11.7	10.7	11.1	11.4	12.1	12.6	12.2	13.3	13.8
	5% DB	MCDBR	16.1	15.5	15.1	15.3	13.7	13.9	14.4	15.5	16.5	16.1	16.3	16.7
		MCWBR	5.9	5.9	6.4	7.6	7.4	8.1	8.3	8.2	8.1	7.7	6.9	6.4
	5% WB	MCDBR	13.4	13.2	13.2	11.8	11.1	11.4	11.3	13.2	13.9	13.9	13.9	14.1
		MCWBR	6.2	6.0	6.6	6.7	6.6	7.5	7.4	7.9	8.1	7.7	6.9	6.4
Clear Sky Solar Irradiance	taub		0.399	0.383	0.365	0.356	0.334	0.318	0.325	0.352	0.404	0.388	0.376	0.391
	taud		2.330	2.379	2.432	2.421	2.454	2.494	2.448	2.362	2.193	2.300	2.347	2.330
	Ebn at noon		935	927	904	848	809	797	809	838	846	911	951	948
	Edn at noon		134	123	108	96	81	72	80	100	134	131	131	135
All-Sky Solar Radiation	RadAvg		7.75	6.74	5.34	3.77	2.52	2.19	2.34	3.23	4.45	5.67	7.29	8.00
	RadStd		0.38	0.32	0.35	0.48	0.27	0.27	0.23	0.32	0.34	0.46	0.38	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	+0.70	N/A	N/A	-44	-132	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