

2021 ASHRAE Handbook - Fundamentals (SI)																	
ORAN, ARGENTINA (WMO: 870160)																	
Lat:23.1547S			Long:64.3281W			Elev:357		StdP: 97.11			Time zone:-3.00 (W03)			Period:82-19		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	5.5	7.2	1.1	4.3	14.2	3.0	4.9	12.6	7.0	16.3	5.3	16.4	1.3	0	0.289		
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		
12	9.7	37.0	24.1	35.5	24.1	34.1	24.1	27.0	32.5	26.4	31.8	25.9	31.1	2.7	180		
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			
25.7	21.9	29.9	25.0	21.0	29.3	24.5	20.3	28.7	88.0	32.4	85.2	32.0	82.8	31.2	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			
				1%	2.5%	5%	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
7.5	5.4	4.6	DB	3.9	40.6	2.1	1.7	2.4	41.8	1.2	42.8	0.0	43.7	-1.6	44.9		
			WB	3.2	28.6	1.9	1.1	1.8	29.4	0.7	30.0	-0.4	30.6	-1.8	31.4		
Monthly Climatic Design Conditions																	
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Temperatures, Degree-Days and Degree-Hours	DBAvg	22.4	26.9	26.3	24.3	22.2	18.9	16.1	15.7	18.9	21.3	24.8	26.2	27.0			
	DBStd	5.22	2.53	2.64	2.92	3.27	3.38	3.35	3.43	4.15	4.00	3.93	3.24	2.98			
	HDD10.0	3	0	0	0	0	0	1	2	0	0	0	0	0			
	HDD18.3	284	0	0	1	8	34	83	96	45	15	2	0	0			
	CDD10.0	4513	526	455	444	366	275	184	179	276	339	458	485	526			
	CDD18.3	1750	267	222	187	123	51	16	14	62	104	202	235	268			
	CDH23.3	14936	2536	1935	1266	618	163	44	83	476	873	1933	2322	2685			
	CDH26.7	6233	1067	771	412	148	23	3	12	164	352	923	1104	1254			
Wind		WSAvg	1.7	1.9	1.8	1.6	1.4	1.2	1.3	1.4	1.6	1.9	2.1	2.1	1.9		
Precipitation	PrecAvg	955	197	166	153	80	19	9	6	4	11	51	97	156			
	PrecMax	1374	460	374	344	201	76	33	22	28	40	170	242	302			
	PrecMin	655	35	49	41	7	1	0	0	0	0	1	5	52			
	PrecStd	209	98	91	77	50	17	10	5	7	11	39	53	67			
	Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	36.5	36.4	34.4	31.7	28.9	27.0	28.6	33.4	35.8	38.9	38.7	38.7		
MCWB			25.9	25.1	25.9	24.5	22.2	20.2	19.9	21.3	21.4	23.5	23.3	24.7			
2%		DB	34.7	34.2	32.4	30.0	26.9	24.7	25.9	30.8	33.1	36.2	36.5	36.4			
		MCWB	25.9	25.6	25.2	23.9	21.6	19.1	18.7	20.6	20.8	23.3	23.5	24.9			
5%		DB	33.4	32.6	30.8	28.3	25.1	22.8	23.7	28.1	30.8	34.1	34.5	34.5			
		MCWB	25.7	25.2	25.0	23.3	20.9	18.3	17.1	19.3	19.9	22.4	23.1	24.7			
10%		DB	32.0	31.2	29.1	26.7	23.5	21.1	21.7	25.8	28.5	32.0	32.6	32.7			
		MCWB	25.2	25.0	24.1	22.7	20.2	17.4	16.2	17.8	18.9	21.7	22.7	24.6			
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	28.1	27.8	26.9	26.1	23.7	21.3	20.8	22.8	23.2	25.2	26.6	27.2			
		MCDB	32.7	32.5	31.5	30.2	26.9	25.4	26.9	30.6	32.1	34.9	34.4	33.3			
	2%	WB	27.1	26.7	26.1	25.1	22.6	20.0	19.4	21.3	22.0	24.3	25.5	26.3			
		MCDB	32.5	31.5	30.7	28.5	25.6	23.1	24.6	29.1	30.6	33.8	32.4	32.9			
	5%	WB	26.5	26.0	25.4	24.3	21.7	19.1	18.1	20.0	20.9	23.4	24.5	25.7			
		MCDB	31.7	30.9	29.5	27.1	24.3	21.8	22.5	26.1	28.3	31.9	31.1	32.1			
	10%	WB	25.8	25.4	24.7	23.5	20.7	18.1	17.0	18.9	19.7	22.5	23.8	25.1			
		MCDB	30.7	29.9	28.3	25.8	22.8	20.6	20.4	24.8	27.0	29.9	29.8	31.1			

Mean Daily Temperature Range		MDBR	8.9	8.7	7.6	7.0	7.0	8.6	10.5	12.0	11.7	11.0	10.4	9.7
	5% DB	MCDBR	11.2	10.9	10.0	9.5	9.0	11.3	13.8	15.1	15.5	14.8	14.2	13.0
		MCWBR	3.9	3.9	3.9	3.9	3.9	5.8	6.5	5.8	5.5	4.7	4.4	4.2
	5% WB	MCDBR	10.1	9.9	8.9	7.9	7.6	9.1	12.3	13.7	13.6	13.2	11.5	11.3
		MCWBR	4.4	4.2	3.9	3.9	3.6	5.0	6.0	5.5	5.5	4.7	4.4	4.2
Clear Sky Solar Irradiance	taub		0.426	0.424	0.417	0.400	0.364	0.331	0.334	0.398	0.487	0.494	0.441	0.435
	taud		2.355	2.371	2.392	2.406	2.435	2.506	2.474	2.276	2.036	2.084	2.268	2.317
	Ebn at noon		920	909	887	859	850	865	875	846	810	836	901	914
	Edn at noon		134	129	121	110	98	87	93	123	170	170	145	139
All-Sky Solar Radiation	RadAvg		5.96	5.48	4.53	3.76	3.22	3.13	3.67	4.51	5.13	5.29	5.74	5.76
	RadStd		0.49	0.35	0.42	0.39	0.35	0.28	0.28	0.36	0.47	0.46	0.56	0.41
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	N/A	N/A	N/A	-14	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