

2021 ASHRAE Handbook - Fundamentals (SI)																
CONCORDIA, ARGENTINA (WMO: 873950)																
Lat:31.3022S		Long:58.0014W		Elev:38		StdP: 100.87			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	1.2	3.0	-2.8	3.0	7.6	-1.0	3.5	7.5	11.5	14.6	10.1	15.1	0.2	230	0.389	
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	11.3	35.2	23.2	33.8	23.0	32.3	22.6	26.0	31.5	25.1	30.6	24.4	29.4	4.2	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		
24.4	19.4	28.9	23.6	18.5	28.1	22.9	17.7	27.2	80.7	31.5	77.1	30.7	73.9	29.4	31.8	
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	
10.5	9.4	8.2	DB	-1.7	37.8	1.4	1.1	-2.8	38.6	-3.6	39.2	-4.4	39.8	-5.4	40.6	
			WB	-2.1	27.9	1.4	1.2	-3.2	28.7	-4.0	29.4	-4.8	30.1	-5.8	30.9	
Monthly Climatic Design Conditions																
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Temperatures, Degree-Days and Degree-Hours	DBAvg	19.1	25.7	24.6	22.6	19.2	15.8	13.3	12.7	14.5	16.2	19.1	21.6	24.1		
	DBStd	5.70	2.62	2.72	2.99	3.73	3.81	4.17	4.63	4.70	4.05	3.29	2.97	2.89		
	HDD10.0	51	0	0	0	0	2	13	23	10	2	0	0	0		
	HDD18.3	744	0	1	4	32	97	161	186	139	87	30	7	1		
	CDD10.0	3367	487	409	389	277	182	112	106	150	188	281	348	437		
	CDD18.3	1018	229	177	135	59	19	9	10	21	23	53	104	179		
	CDH23.3	9123	2410	1608	1081	368	81	24	38	154	209	417	930	1803		
	CDH26.7	3559	1107	650	374	96	12	2	6	39	62	114	317	780		
Wind		WSAvg	2.8	2.8	2.7	2.4	2.3	2.1	2.4	2.6	3.1	3.6	3.5	3.3	3.1	
Precipitation	PrecAvg	1350	123	142	145	149	104	76	67	74	92	144	136	128		
	PrecMax	2012	502	469	436	606	410	408	236	355	233	496	460	567		
	PrecMin	530	7	7	25	15	1	2	4	0	7	12	4	21		
	PrecStd	300	92	104	90	110	86	76	50	61	53	97	83	102		
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	37.3	35.7	34.2	32.0	28.1	26.1	27.1	30.8	32.1	32.7	34.1	36.9		
		MCWB	23.6	24.1	24.4	23.3	21.1	21.0	19.9	20.8	22.3	23.2	22.0	23.3		
	2%	DB	35.5	33.8	32.1	29.2	25.4	23.2	24.0	27.5	28.0	29.7	31.9	34.7		
		MCWB	23.0	23.5	22.9	22.1	20.4	19.8	19.0	20.1	20.2	21.3	21.4	22.8		
	5%	DB	33.8	32.2	30.3	27.2	23.5	21.3	21.6	24.8	25.5	27.4	30.1	32.9		
		MCWB	23.1	23.3	22.3	21.1	19.5	18.6	17.7	18.8	18.8	20.0	20.6	22.3		
	10%	DB	32.1	30.7	28.8	25.2	21.6	19.8	19.6	22.2	23.1	25.5	28.3	31.0		
		MCWB	22.6	22.8	21.6	20.1	18.1	17.2	16.6	17.2	17.1	19.0	20.0	21.6		
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	26.7	26.8	26.5	24.8	23.1	21.9	21.1	22.0	23.2	24.6	25.1	26.7		
		MCDB	32.4	32.1	31.9	29.7	26.7	24.8	25.2	28.1	29.0	31.2	30.7	33.1		
	2%	WB	25.6	25.8	25.1	23.6	21.6	20.5	19.5	20.5	21.3	22.8	23.4	25.3		
		MCDB	31.5	31.0	29.8	27.6	24.2	22.6	23.0	26.2	26.7	27.1	28.7	31.0		
	5%	WB	24.7	24.8	23.8	22.4	20.1	19.1	18.4	19.3	19.7	21.4	22.3	24.1		
		MCDB	30.3	29.8	27.9	25.6	22.6	21.1	21.3	24.1	24.2	25.6	27.0	29.6		
	10%	WB	24.0	23.8	22.7	21.3	18.8	17.8	17.1	17.9	18.4	20.3	21.3	23.0		
		MCDB	29.3	28.3	26.8	23.9	21.0	19.6	19.3	21.5	21.8	24.1	25.8	28.2		

Mean Daily Temperature Range		MDBR	11.3	10.3	10.5	9.7	9.0	9.1	9.7	10.7	10.7	10.4	11.3	11.6
	5% DB	MCDBR	13.6	12.5	12.6	11.8	10.8	9.3	10.6	13.1	13.9	13.2	14.1	14.5
		MCWBR	4.8	4.8	5.4	5.6	6.0	6.1	6.0	6.5	6.8	6.3	5.7	5.6
	5% WB	MCDBR	10.5	10.1	10.1	9.1	8.6	8.0	9.2	11.5	11.6	10.8	10.7	11.2
		MCWBR	4.8	4.8	5.4	5.0	5.4	5.6	5.7	6.2	6.8	6.3	5.7	5.6
Clear Sky Solar Irradiance	taub		0.415	0.404	0.388	0.384	0.365	0.376	0.374	0.449	0.498	0.445	0.401	0.409
	taud		2.347	2.392	2.418	2.384	2.410	2.366	2.341	2.088	1.966	2.190	2.338	2.341
	Ebn at noon		927	917	897	843	807	765	786	760	776	868	933	935
	Edn at noon		134	124	113	105	92	91	97	139	175	150	134	135
All-Sky Solar Radiation	RadAvg		7.01	6.13	5.27	3.97	2.87	2.46	2.73	3.51	4.51	5.50	6.79	7.12
	RadStd		0.61	0.43	0.46	0.51	0.27	0.25	0.28	0.32	0.45	0.64	0.63	0.49
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	+0.47	+0.54	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