

2021 ASHRAE Handbook - Fundamentals (SI)																	
SAN JUAN, ARGENTINA (WMO: 873110)																	
Lat:31.5747S			Long:68.4225W			Elev:598		StdP: 94.34			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	-2.1	-0.5	-14.2	1.2	17.1	-11.3	1.5	13.1	13.6	17.3	11.4	15.7	1.1	0	0.500		
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	13.8	38.1	19.8	36.7	19.7	35.2	19.3	22.4	33.7	21.7	32.7	21.0	31.9	4.9	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			
19.0	14.8	26.9	18.1	14.0	26.8	17.2	13.2	26.4	69.0	33.7	66.2	32.7	63.6	31.9	25.5		
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		
13.1	11.1	9.7	DB	-5.1	42.2	1.7	1.7	-6.3	43.4	-7.3	44.4	-8.2	45.3	-9.4	46.5		
			WB	-6.2	23.8	1.5	0.9	-7.3	24.4	-8.1	25.0	-9.0	25.5	-10.1	26.2		
Monthly Climatic Design Conditions																	
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Temperatures, Degree-Days and Degree-Hours	DBAvg	18.4	27.4	25.8	23.0	17.9	13.1	9.2	8.5	11.5	15.3	19.7	23.3	26.1			
	DBStd	7.34	2.86	3.32	3.24	3.50	3.24	2.90	3.19	3.63	3.93	3.70	3.48	3.22			
	HDD10.0	153	0	0	0	1	8	48	67	23	6	1	0	0			
	HDD18.3	1152	1	1	4	49	163	275	306	214	106	27	5	1			
	CDD10.0	3207	538	442	404	239	105	23	19	71	164	302	399	500			
	CDD18.3	1163	280	210	149	37	2	0	1	3	14	71	154	243			
	CDH23.3	14364	3529	2434	1509	401	52	14	19	98	311	947	1919	3130			
	CDH26.7	7169	1954	1268	658	114	10	4	4	33	99	386	931	1708			
Wind		WSAvg	3.7	4.7	4.3	3.8	3.2	2.6	2.7	2.8	3.3	3.8	4.4	4.8	4.8		
Precipitation	PrecAvg	101	18	25	12	4	3	2	2	3	5	3	8	15			
	PrecMax	225	44	155	27	21	24	19	14	33	45	19	24	50			
	PrecMin	35	0	1	0	0	0	0	0	0	0	0	0	0			
	PrecStd	46	14	31	8	6	6	5	3	6	9	4	8	14			
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	40.1	39.0	36.3	32.2	27.6	25.2	26.2	30.8	33.2	36.3	37.9	40.1			
		MCWB	21.1	19.8	20.6	18.7	15.2	10.3	11.3	12.6	14.8	16.2	18.2	19.7			
	2%	DB	38.0	36.8	34.1	29.7	24.5	20.1	21.0	26.0	29.5	33.1	35.8	37.7			
		MCWB	20.4	20.5	19.8	17.4	14.4	10.8	9.8	12.1	13.6	16.6	18.0	19.6			
	5%	DB	36.4	35.1	32.3	27.7	22.2	18.1	18.5	22.8	26.8	30.7	33.8	36.1			
		MCWB	20.4	19.9	19.3	16.6	13.5	10.0	9.0	11.0	12.6	15.6	17.7	19.2			
	10%	DB	34.8	33.5	30.6	25.5	20.3	16.3	16.3	20.3	24.5	28.5	31.9	34.3			
		MCWB	19.9	19.6	18.8	15.8	12.6	9.1	8.1	9.7	11.9	14.7	17.1	18.8			
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	23.3	23.2	22.6	19.7	16.9	12.9	12.4	14.6	16.0	19.4	21.3	22.7			
		MCDB	36.0	34.1	32.8	28.4	24.9	20.3	21.6	27.2	28.8	31.8	33.4	34.7			
	2%	WB	22.3	22.3	21.2	18.6	15.6	11.7	10.8	12.6	14.6	17.8	19.8	21.6			
		MCDB	34.4	32.7	31.1	26.9	22.5	18.6	19.5	23.9	26.8	29.7	31.9	33.5			
	5%	WB	21.6	21.5	20.3	17.5	14.4	10.7	9.6	11.4	13.4	16.5	18.7	20.7			
		MCDB	33.2	31.7	29.5	25.7	20.8	17.1	17.3	21.7	24.8	27.8	30.8	32.4			
	10%	WB	20.8	20.7	19.4	16.6	13.2	9.6	8.5	10.1	12.3	15.4	17.7	19.8			
		MCDB	31.9	30.7	28.4	24.4	19.2	15.5	15.6	19.7	22.9	26.5	29.7	31.1			

Mean Daily Temperature Range		MDBR	13.8	13.3	12.8	12.9	12.8	14.0	14.9	15.5	15.3	14.8	15.1	14.6
	5% DB	MCDBR	16.0	16.0	15.7	16.4	16.0	17.1	18.6	20.1	19.7	18.6	18.2	17.4
		MCWBR	4.6	4.8	5.2	6.8	8.1	9.5	9.9	9.6	8.3	6.9	6.3	5.5
	5% WB	MCDBR	14.2	13.6	13.7	14.0	14.3	15.4	16.9	18.4	17.5	16.2	15.8	14.7
		MCWBR	4.8	4.8	5.1	6.2	7.5	8.9	9.4	9.1	8.3	6.9	6.3	5.5
Clear Sky Solar Irradiance	taub		0.393	0.386	0.364	0.350	0.315	0.291	0.290	0.312	0.356	0.356	0.371	0.386
	taud		2.383	2.402	2.457	2.461	2.505	2.567	2.533	2.461	2.335	2.371	2.361	2.369
	Ebn at noon		947	933	920	879	864	869	886	907	912	953	962	957
	Edn at noon		129	122	109	97	82	73	79	95	120	125	131	131
All-Sky Solar Radiation	RadAvg		7.93	7.10	5.94	4.63	3.44	3.17	3.45	4.45	5.70	7.03	8.09	8.42
	RadStd		0.43	0.38	0.30	0.33	0.35	0.21	0.18	0.24	0.36	0.39	0.40	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	+0.45	+0.43	N/A	N/A	N/A	N/A			
Regional (0 neighbors)		N/A	N/A	N/A	+0.36	N/A	N/A	N/A	N/A	N/A	+63			

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