

2021 ASHRAE Handbook - Fundamentals (SI)																
NEUQUEN, ARGENTINA (WMO: 877150)																
Lat: 38.952S			Long: 68.137W			Elev: 271		StdP: 98.11		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	-3.7	-2.1	-10.8	1.5	13.4	-8.8	1.8	11.9	12.4	14.8	10.3	13.9	1.0	270	0.474	
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	14.6	35.2	18.9	33.7	18.1	32.0	17.4	21.4	30.8	20.1	29.6	19.1	28.6	3.8	270	
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		
18.2	13.5	25.6	16.9	12.4	24.4	15.5	11.4	23.0	63.4	30.8	59.0	29.7	55.2	28.6	28.9	
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	
10.9	9.0	7.7	DB	-6.2	38.6	1.7	1.3	-7.5	39.5	-8.5	40.3	-9.5	41.0	-10.7	42.0	
			WB	-6.8	23.5	1.9	1.9	-8.2	24.9	-9.3	26.0	-10.3	27.1	-11.7	28.5	
Monthly Climatic Design Conditions																
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Temperatures, Degree-Days and Degree-Hours	DBAvg	15.2	24.0	22.6	19.3	14.4	10.2	7.4	6.8	9.0	12.0	15.6	19.3	22.5		
	DBStd	6.77	3.03	3.33	3.38	3.41	3.24	3.17	3.10	3.37	3.22	3.31	3.20	3.21		
	HDD10.0	314	0	0	0	4	37	89	107	59	16	2	0	0		
	HDD18.3	1704	2	4	29	123	253	328	357	289	192	96	26	5		
	CDD10.0	2220	433	353	287	137	43	12	8	29	75	176	281	386		
	CDD18.3	568	176	125	58	7	1	0	0	0	1	12	56	133		
	CDH23.3	6651	2044	1408	672	109	7	1	0	9	33	188	642	1538		
	CDH26.7	2799	984	635	238	19	1	0	0	1	5	41	204	671		
Wind		WSAvg	2.9	3.5	3.1	2.7	2.4	2.1	2.4	2.4	2.7	3.1	3.4	3.6	3.8	
Precipitation	PrecAvg	219	15	16	19	25	26	17	14	11	16	35	16	11		
	PrecMax	462	54	88	113	230	87	61	39	49	60	198	90	55		
	PrecMin	82	0	0	1	1	0	0	0	0	0	0	0	1		
	PrecStd	108	14	21	24	44	27	18	12	12	16	42	22	15		
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	38.0	36.8	34.4	28.9	24.0	20.6	20.1	24.4	26.8	30.2	33.8	36.7		
		MCWB	20.2	20.7	18.4	16.6	13.6	11.2	10.8	12.4	13.7	15.7	17.2	19.1		
	2%	DB	35.2	34.5	31.6	26.4	20.8	17.6	17.1	20.7	23.6	27.2	31.0	34.2		
		MCWB	18.7	19.3	17.9	15.3	12.3	9.8	9.3	11.0	12.2	14.0	16.3	18.0		
	5%	DB	33.7	32.8	29.5	24.0	18.4	15.6	15.2	18.0	21.4	25.2	29.0	32.2		
		MCWB	18.1	18.6	17.5	14.2	11.4	8.9	8.4	9.6	11.0	13.0	15.3	17.0		
	10%	DB	31.9	30.8	27.1	21.9	16.8	13.9	13.3	15.9	19.5	23.2	27.1	30.6		
		MCWB	17.1	17.8	16.3	13.3	10.6	8.2	7.4	8.5	10.1	12.2	14.3	16.5		
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	22.8	23.8	21.7	18.0	15.2	12.3	11.8	13.7	15.3	17.3	19.7	22.0		
		MCDB	33.3	32.6	29.6	25.6	19.9	18.2	17.7	22.2	23.4	27.1	30.1	32.4		
	2%	WB	20.9	21.6	19.9	16.5	13.4	10.6	10.1	11.4	13.2	15.6	17.5	19.9		
		MCDB	31.2	30.5	27.7	23.2	18.6	15.8	15.8	18.7	21.5	24.1	28.0	30.4		
	5%	WB	19.6	20.2	18.5	15.3	12.3	9.6	9.1	10.2	11.9	14.3	16.3	18.5		
		MCDB	29.8	29.4	26.4	21.6	17.3	14.1	14.3	16.7	19.5	22.7	26.4	29.1		
	10%	WB	18.4	19.0	17.4	14.2	11.3	8.7	7.9	9.2	10.8	13.1	15.1	17.3		
		MCDB	28.9	28.3	25.4	20.2	15.6	12.8	12.4	14.9	18.0	21.2	25.3	28.2		

Mean Daily Temperature Range		MDBR	14.6	14.4	14.2	13.4	11.4	10.9	11.8	12.7	13.1	13.0	13.8	14.3
	5% DB	MCDBR	17.3	17.3	17.7	16.8	14.4	13.4	14.8	16.0	16.8	16.4	16.5	16.8
		MCWBR	6.5	6.6	7.3	7.9	7.9	7.6	8.6	8.4	8.3	7.0	6.7	6.6
	5% WB	MCDBR	15.8	15.4	15.2	14.5	12.7	11.8	13.6	14.6	15.0	14.9	15.2	15.8
		MCWBR	7.1	7.0	7.3	7.5	7.6	7.4	8.4	8.2	8.3	7.0	6.7	6.6
Clear Sky Solar Irradiance	taub		0.382	0.375	0.355	0.347	0.326	0.305	0.304	0.320	0.350	0.354	0.363	0.374
	taud		2.321	2.353	2.415	2.418	2.469	2.540	2.536	2.477	2.375	2.367	2.352	2.342
	Ebn at noon		948	929	906	845	800	796	823	865	896	940	961	962
	Edn at noon		134	124	107	93	76	66	70	86	110	121	130	133
All-Sky Solar Radiation	RadAvg		8.45	7.22	5.63	3.80	2.35	1.92	2.17	3.06	4.55	6.06	7.73	8.57
	RadStd		0.34	0.28	0.28	0.33	0.28	0.21	0.22	0.26	0.32	0.37	0.33	0.34
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		+0.28	N/A	N/A	+0.56	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	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