

2021 ASHRAE Handbook - Fundamentals (SI)																	
MALARGUE, ARGENTINA (WMO: 875060)																	
Lat:35.4814S			Long:69.5833W			Elev:1425		StdP: 85.34			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	-5.3	-3.7	-19.5	0.8	14.2	-16.4	1.1	13.3	12.4	10.0	11.3	10.3	1.3	230	0.490		
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	14.8	30.7	15.3	29.4	14.6	28.2	14.2	18.0	26.2	17.0	25.4	16.1	24.4	4.0	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			
15.2	12.9	21.5	14.1	12.0	20.2	13.0	11.1	19.7	57.0	26.7	53.5	25.4	50.6	24.4	23.4		
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	8.0	DB	-9.1	33.8	2.5	1.0	-10.9	34.6	-12.3	35.1	-13.7	35.7	-15.5	36.4		
			WB	-9.9	20.0	2.4	1.5	-11.6	21.1	-13.0	22.0	-14.4	22.8	-16.1	23.9		
Monthly Climatic Design Conditions																	
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Temperatures, Degree-Days and Degree-Hours	DBAvg	12.5	20.4	19.2	16.6	12.2	8.0	5.3	4.9	6.9	9.1	12.6	15.9	18.7			
	DBStd	6.39	2.67	3.28	3.24	3.47	3.50	3.68	3.73	4.04	3.94	3.58	3.26	2.89			
	HDD10.0	604	1	0	2	17	82	147	164	113	61	16	2	1			
	HDD18.3	2343	11	27	71	183	321	390	417	353	277	179	85	30			
	CDD10.0	1501	323	258	207	84	19	7	5	18	35	97	178	269			
	CDD18.3	198	74	52	18	1	0	0	0	0	0	2	11	41			
	CDH23.3	2561	868	563	229	29	1	0	1	6	9	50	226	577			
	CDH26.7	641	262	153	39	2	0	0	0	0	0	5	34	146			
Wind		WSAvg	2.5	2.5	2.4	2.0	1.9	2.0	2.5	2.4	2.8	2.9	2.9	3.0	2.9		
Precipitation	PrecAvg	285	25	24	24	21	24	37	34	21	21	20	23	28			
	PrecMax	537	122	122	104	79	118	132	148	128	147	76	127	118			
	PrecMin	101	0	0	0	0	0	0	0	0	0	0	0	0			
	PrecStd	115	29	26	22	21	27	33	36	25	26	19	29	28			
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	33.0	32.1	29.7	26.4	21.8	20.2	20.2	24.1	24.7	27.2	29.4	31.9			
		MCWB	16.2	16.0	14.8	12.3	9.8	7.4	8.0	10.0	10.3	12.7	13.2	15.0			
	2%	DB	30.9	30.2	27.7	23.8	19.5	17.5	17.4	20.7	21.7	24.6	27.6	30.0			
		MCWB	15.4	15.6	14.7	11.9	9.5	6.9	6.6	8.4	9.2	11.1	12.6	14.4			
	5%	DB	29.4	28.6	26.0	21.5	17.3	14.8	15.0	17.9	19.5	22.7	26.0	28.3			
		MCWB	14.8	15.1	14.0	11.4	8.7	5.9	5.7	7.2	8.3	10.1	12.1	13.6			
	10%	DB	28.0	27.0	24.2	19.6	15.0	12.6	12.5	15.2	17.2	20.7	24.3	26.8			
		MCWB	14.3	14.5	13.6	10.8	8.0	5.2	4.7	6.1	7.5	9.3	11.2	13.2			
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	19.7	19.4	18.3	15.5	12.8	8.9	8.9	10.9	11.8	14.9	15.8	17.8			
		MCDB	27.9	27.8	25.7	21.3	18.8	17.1	18.2	21.3	21.6	23.2	24.3	26.4			
	2%	WB	17.9	18.2	16.6	13.9	10.9	7.8	7.4	9.1	10.2	12.7	14.4	16.4			
		MCDB	26.8	26.2	23.8	20.4	16.6	14.6	15.7	18.4	19.5	21.4	23.9	25.8			
	5%	WB	16.8	17.2	15.6	12.8	9.7	6.7	6.2	7.8	9.0	11.5	13.4	15.4			
		MCDB	25.6	25.1	22.9	19.1	15.0	13.0	13.3	16.3	17.9	19.8	23.2	25.0			
	10%	WB	15.8	16.1	14.6	11.7	8.6	5.7	5.1	6.6	7.9	10.3	12.4	14.5			
		MCDB	24.8	23.8	21.8	17.6	13.5	11.6	11.5	14.2	15.8	18.4	22.1	24.3			

Mean Daily Temperature Range		MDBR	14.8	14.0	13.4	12.3	11.3	11.5	12.3	12.9	13.0	13.8	14.8	15.0
	5% DB	MCDBR	16.7	16.3	16.1	15.9	15.5	15.5	16.6	18.1	17.2	16.8	17.2	17.6
		MCWBR	6.9	6.7	6.8	7.7	8.1	8.1	8.8	8.9	8.1	7.6	7.6	7.5
	5% WB	MCDBR	14.6	13.7	13.7	13.6	13.6	13.9	15.2	16.7	16.1	15.3	15.7	15.6
		MCWBR	6.7	6.0	6.3	7.3	7.7	8.1	8.7	8.7	8.1	7.6	7.6	7.5
Clear Sky Solar Irradiance	taub		0.329	0.321	0.305	0.287	0.269	0.252	0.252	0.268	0.292	0.293	0.294	0.309
	taud		2.428	2.459	2.503	2.539	2.560	2.585	2.573	2.519	2.452	2.467	2.478	2.469
	Ebn at noon		1007	992	972	935	900	893	912	942	970	1011	1037	1031
	Edn at noon		122	114	101	85	73	66	70	85	104	111	115	118
All-Sky Solar Radiation	RadAvg		8.47	7.43	6.09	4.37	2.84	2.28	2.51	3.32	4.79	6.31	7.85	8.67
	RadStd		0.44	0.38	0.33	0.39	0.33	0.24	0.21	0.36	0.39	0.46	0.39	0.35
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	+0.78	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