

2021 ASHRAE Handbook - Fundamentals (SI)																	
VILLA DOLORES, ARGENTINA (WMO: 873280)																	
Lat:31.9514S			Long:65.1492W			Elev:569		StdP: 94.67			Time zone:-3.00 (W03)			Period:95-19		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	0.2	2.0	-10.0	1.7	9.8	-7.7	2.1	10.4	11.9	19.8	10.5	17.8	1.6	90	0.370		
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	12.5	36.4	21.0	34.9	20.7	33.6	20.5	24.1	31.9	23.3	30.9	22.5	30.0	5.0	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			
21.9	17.7	28.0	21.0	16.8	27.2	20.2	16.0	26.6	76.2	31.9	72.7	31.3	69.5	29.9	31.2		
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		
11.0	9.4	7.9	DB	-2.9	39.9	1.7	1.7	-4.2	41.2	-5.2	42.2	-6.1	43.2	-7.4	44.4		
			WB	-4.1	26.3	1.5	1.6	-5.2	27.5	-6.1	28.4	-6.9	29.4	-8.0	30.5		
Monthly Climatic Design Conditions																	
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Temperatures, Degree-Days and Degree-Hours	DBAvg	19.1	26.1	24.6	22.1	18.8	15.0	11.9	11.4	14.2	16.9	20.4	23.0	24.9			
	DBStd	6.25	3.18	3.33	3.33	3.82	3.79	3.39	4.04	4.51	4.54	3.98	3.86	3.41			
	HDD10.0	70	0	0	0	1	4	19	31	11	4	0	0	0			
	HDD18.3	833	1	2	7	39	117	194	218	143	78	24	7	1			
	CDD10.0	3380	498	409	376	264	159	75	73	142	211	322	391	461			
	CDD18.3	1101	240	177	124	52	13	1	3	16	36	88	147	204			
	CDH23.3	11466	2743	1773	1026	375	76	8	29	179	389	923	1653	2292			
	CDH26.7	5011	1380	787	367	96	8	0	5	55	123	350	743	1097			
Wind		WSAvg	2.4	2.6	2.2	2.1	2.0	1.9	1.9	2.0	2.6	2.6	2.8	3.2	2.8		
Precipitation	PrecAvg	613	120	91	76	37	12	9	7	8	26	38	72	122			
	PrecMax	880	331	180	224	107	53	55	49	54	98	114	210	249			
	PrecMin	406	56	24	6	0	0	0	0	0	0	0	11	46			
	PrecStd	125	57	39	45	30	13	14	10	12	23	31	40	47			
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	38.6	36.4	34.7	31.7	27.7	24.4	26.2	31.7	33.0	35.1	36.5	38.4			
		MCWB	21.3	22.7	21.4	20.8	18.8	16.4	16.6	18.4	17.2	19.3	19.5	20.9			
	2%	DB	36.5	34.5	32.1	29.4	25.4	21.9	23.3	27.8	30.1	32.6	34.7	35.8			
		MCWB	21.6	22.4	21.4	19.6	17.8	14.3	15.0	15.7	16.5	18.4	19.0	20.5			
	5%	DB	34.7	32.9	30.3	27.4	23.4	20.1	20.9	24.9	27.8	30.5	32.9	34.0			
		MCWB	21.2	22.1	20.6	18.9	16.5	13.2	13.1	14.0	15.6	17.5	18.7	20.5			
	10%	DB	33.0	31.2	28.6	25.4	21.3	18.3	18.6	22.2	25.4	28.6	31.0	32.2			
		MCWB	21.0	21.6	20.0	18.3	15.1	12.0	11.3	12.5	14.3	16.5	18.2	20.0			
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	25.4	25.1	23.6	22.9	20.1	17.5	18.0	19.2	19.7	21.6	21.9	24.1			
		MCDB	33.5	32.0	30.5	28.3	26.2	23.4	24.8	30.3	28.1	31.7	31.9	33.8			
	2%	WB	24.2	24.2	22.6	21.4	18.6	15.5	16.0	17.0	17.8	20.1	20.9	23.0			
		MCDB	32.0	31.5	29.2	26.3	23.7	20.4	22.1	26.4	27.8	29.7	30.9	31.7			
	5%	WB	23.2	23.4	21.8	20.2	17.4	14.2	14.2	15.0	16.5	18.8	20.0	22.0			
		MCDB	30.9	30.7	27.8	25.0	21.8	18.8	19.4	22.7	25.6	27.9	29.6	30.7			
	10%	WB	22.3	22.4	20.9	19.1	16.2	12.8	12.4	13.2	15.2	17.7	19.2	21.1			
		MCDB	30.0	29.4	26.8	24.4	20.4	17.1	17.2	20.9	23.8	26.1	28.2	29.7			

Mean Daily Temperature Range		MDBR	12.5	11.7	11.1	10.5	10.3	11.4	12.2	13.2	13.3	13.2	13.4	13.0
	5% DB	MCDBR	13.8	13.1	12.7	12.4	11.8	12.8	14.0	15.2	15.4	14.8	14.8	14.8
		MCWBR	4.7	4.8	5.1	5.7	5.9	7.1	7.4	7.4	7.0	6.2	5.4	5.4
	5% WB	MCDBR	12.2	11.8	11.0	10.5	10.5	11.4	13.0	14.3	13.7	13.3	13.1	12.7
		MCWBR	5.5	5.1	5.2	5.6	5.6	6.7	7.3	7.6	7.0	6.2	5.4	5.4
Clear Sky Solar Irradiance	taub		0.379	0.368	0.362	0.343	0.329	0.309	0.314	0.347	0.394	0.384	0.372	0.384
	taud		2.433	2.468	2.481	2.497	2.476	2.535	2.475	2.372	2.236	2.328	2.395	2.393
	Ebn at noon		960	951	922	886	845	844	853	865	872	924	960	958
	Edn at noon		122	114	106	93	85	75	83	104	133	130	126	128
All-Sky Solar Radiation	RadAvg		7.35	6.36	5.32	3.96	3.03	2.85	3.16	4.16	5.32	6.31	7.24	7.52
	RadStd		0.45	0.45	0.45	0.46	0.34	0.29	0.21	0.29	0.39	0.50	0.40	0.42
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	+0.59	+0.40	+0.58	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	