

2021 ASHRAE Handbook - Fundamentals (SI)																
LABOULAYE, ARGENTINA (WMO: 875340)																
Lat: 34.1278S		Long: 63.3675W		Elev: 137		StdP: 99.69			Time zone: -3.00 (W03)			Period: 98-19		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	-1.5	0.1	-8.4	1.9	8.8	-6.5	2.2	7.2	13.4	13.1	11.8	15.3	0.6	230	0.432	
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	12.0	34.6	21.8	33.0	21.4	31.6	21.2	25.0	30.3	24.0	29.3	23.1	28.3	5.6	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		
23.5	18.6	28.1	22.4	17.4	26.9	21.5	16.4	25.9	77.1	30.1	73.0	29.1	69.3	28.3	28.8	
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
12.7	11.0	9.7	DB	-4.6	38.1	1.8	2.0	-5.9	39.5	-7.0	40.7	-8.0	41.8	-9.4	43.3	
			WB	-5.1	26.8	1.6	1.1	-6.3	27.6	-7.2	28.2	-8.1	28.8	-9.3	29.6	
Monthly Climatic Design Conditions																
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Temperatures, Degree-Days and Degree-Hours	DBAvg	16.8	23.7	22.7	20.4	17.2	13.3	10.0	9.4	11.2	14.1	17.2	20.6	22.8		
	DBStd	6.02	2.95	3.10	3.29	3.77	3.61	2.82	3.40	3.81	3.72	3.38	3.39	3.11		
	HDD10.0	136	0	0	0	2	11	34	52	29	7	1	0	0		
	HDD18.3	1216	2	4	17	65	162	251	277	223	133	62	17	4		
	CDD10.0	2633	426	354	324	216	111	33	33	67	131	223	318	396		
	CDD18.3	673	169	124	82	29	5	0	1	3	8	26	85	141		
	CDH23.3	6498	1663	1061	660	254	28	1	4	47	134	322	879	1444		
	CDH26.7	2536	730	408	217	56	2	0	1	14	32	97	343	636		
Wind		WSAvg	2.9	3.1	2.4	2.5	2.4	2.2	2.1	2.4	3.2	3.7	4.0	3.8	3.4	
Precipitation	PrecAvg	855	120	104	133	80	32	17	16	19	43	90	108	122		
	PrecMax	1387	331	356	416	260	174	91	110	106	168	232	246	377		
	PrecMin	542	5	17	14	1	0	0	0	0	0	7	25	9		
	PrecStd	192	65	71	79	55	34	24	18	25	36	58	56	73		
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	37.1	35.1	33.3	30.6	26.3	21.7	22.2	28.5	30.1	32.6	35.0	36.7		
		MCWB	21.5	23.3	22.3	19.8	18.5	14.5	15.6	17.4	17.4	19.4	20.4	21.5		
	2%	DB	34.5	32.7	30.9	28.2	23.5	19.2	19.3	23.5	26.9	29.5	32.6	34.2		
		MCWB	22.5	23.1	22.3	19.2	17.1	13.6	12.9	15.0	16.3	18.6	19.4	21.0		
	5%	DB	32.6	31.1	29.1	26.4	21.2	17.5	17.4	20.5	24.4	26.7	30.5	32.3		
		MCWB	22.1	22.5	21.0	18.5	15.8	12.4	11.9	12.7	14.8	17.1	19.0	20.6		
	10%	DB	30.9	29.1	27.2	24.3	19.1	15.8	15.6	18.2	22.2	24.5	28.3	30.2		
		MCWB	21.8	21.7	20.2	17.9	15.0	11.2	11.3	11.7	13.8	16.0	18.1	20.0		
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	26.0	26.2	25.2	23.2	20.2	17.7	17.0	19.0	20.0	22.0	22.7	25.4		
		MCDB	31.5	31.7	30.3	26.6	23.5	19.6	20.5	23.6	26.7	29.8	29.4	31.7		
	2%	WB	24.9	24.8	23.6	21.4	18.6	15.3	15.2	16.7	17.7	20.1	21.3	23.5		
		MCDB	30.4	29.6	28.0	25.4	21.7	17.2	17.2	20.9	23.7	26.2	28.3	29.6		
	5%	WB	23.9	23.7	22.4	20.0	17.1	13.5	13.7	14.9	16.1	18.8	20.3	22.4		
		MCDB	30.0	28.4	26.9	23.5	20.1	16.1	16.0	18.3	21.4	24.1	27.3	28.7		
	10%	WB	22.8	22.9	21.3	18.8	15.7	12.0	12.1	12.9	14.9	17.5	19.4	21.4		
		MCDB	28.4	27.6	25.2	23.0	18.3	14.9	14.6	17.5	20.4	22.7	25.9	27.6		

Mean Daily Temperature Range		MDBR	12.0	11.2	11.4	11.5	10.7	11.5	11.3	12.7	13.2	12.0	12.9	12.8
	5% DB	MCDBR	15.2	13.8	14.1	15.0	13.4	14.0	14.1	16.3	17.4	16.3	16.7	16.2
		MCWBR	5.6	5.5	6.1	7.1	7.3	8.3	8.5	8.6	8.5	7.5	6.3	5.7
	5% WB	MCDBR	11.9	11.3	11.6	11.5	9.6	11.1	10.5	13.1	14.0	13.1	13.5	12.6
		MCWBR	5.9	5.3	5.8	6.3	5.7	7.6	7.4	7.8	8.5	7.5	6.3	5.7
Clear Sky Solar Irradiance	taub		0.403	0.390	0.377	0.365	0.347	0.324	0.335	0.375	0.423	0.403	0.393	0.395
	taud		2.342	2.382	2.417	2.422	2.422	2.484	2.422	2.281	2.147	2.267	2.326	2.343
	Ebn at noon		935	925	899	851	810	809	814	823	836	902	938	946
	Edn at noon		134	124	111	99	87	77	85	111	143	137	135	134
All-Sky Solar Radiation	RadAvg		7.37	6.35	5.26	3.80	2.68	2.44	2.59	3.52	4.68	5.68	6.93	7.54
	RadStd		0.46	0.50	0.43	0.46	0.30	0.29	0.25	0.34	0.40	0.52	0.41	0.51
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	+0.50	+0.73	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	