

2021 ASHRAE Handbook - Fundamentals (SI)																	
LA RIOJA, ARGENTINA (WMO: 872170)																	
Lat: <b>29.382S</b>			Long: <b>66.793W</b>			Elev: <b>429</b>		StdP: <b>96.28</b>			Time zone: <b>-3.00 (W03)</b>			Period: <b>94-19</b>		WBAN: <b>99999</b>	
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	1.8	3.3	-4.9	2.6	8.8	-3.1	3.1	8.2	8.0	12.3	6.3	12.0	1.8	270	0.361		
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	11.9	39.1	23.5	37.6	23.2	36.2	22.9	25.9	34.6	25.1	33.8	24.4	32.9	3.0	90		
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	19.3	30.6	22.7	18.4	29.6	22.0	17.6	28.7	83.2	34.7	79.5	33.8	76.6	33.1	30.5		
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		
8.0	6.2	5.3	DB	-1.4	42.3	1.8	1.3	-2.7	43.2	-3.7	44.0	-4.7	44.7	-6.0	45.6		
			WB	-2.7	27.7	1.8	1.3	-4.0	28.6	-5.1	29.4	-6.1	30.1	-7.4	31.0		
Monthly Climatic Design Conditions																	
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Temperatures, Degree-Days and Degree-Hours	DBAvg	20.9	27.9	26.7	24.4	20.3	16.2	12.6	12.1	15.4	19.3	23.3	25.7	27.5			
	DBStd	6.64	3.18	3.52	3.47	3.66	3.54	2.95	3.12	3.98	4.34	4.20	3.80	3.44			
	HDD10.0	31	0	0	0	1	2	9	14	4	1	0	0	0			
	HDD18.3	636	0	1	2	20	87	172	196	109	39	8	1	0			
	CDD10.0	4014	556	467	448	309	193	88	78	170	279	411	472	542			
	CDD18.3	1577	298	234	192	79	19	1	1	17	68	161	223	284			
	CDH23.3	17477	3534	2589	1727	592	137	11	32	269	736	1760	2564	3525			
	CDH26.7	8821	1929	1329	764	194	23	1	7	94	293	854	1364	1967			
Wind		WSAvg	2.3	2.4	2.2	2.2	1.9	1.8	1.7	2.0	2.3	2.5	2.7	2.7	2.8		
Precipitation	PrecAvg	370	83	72	58	27	6	4	4	5	5	16	38	63			
	PrecMax	640	228	203	205	193	27	32	27	54	29	73	195	218			
	PrecMin	178	8	5	2	0	0	0	0	0	0	0	0	0			
	PrecStd	117	50	50	47	30	7	7	6	11	6	19	31	45			
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	40.9	39.7	37.1	34.0	29.0	24.8	26.7	33.8	36.0	38.9	40.1	41.2			
		MCWB	25.3	24.4	24.0	23.0	20.1	17.0	16.1	18.8	19.5	21.9	22.6	23.1			
	2%	DB	38.5	37.2	34.9	31.0	26.7	22.3	23.4	29.0	32.4	36.0	37.6	38.6			
		MCWB	24.5	24.0	23.2	21.7	19.1	15.1	14.8	17.0	18.7	21.7	21.9	23.2			
	5%	DB	36.7	35.4	33.0	28.8	24.7	20.8	21.4	26.1	30.0	33.7	35.7	37.0			
		MCWB	23.9	23.7	22.7	20.6	17.9	14.3	13.7	15.7	17.6	20.4	21.6	22.9			
	10%	DB	34.9	33.6	31.0	26.8	22.6	19.2	19.4	23.6	27.6	31.5	33.7	35.1			
		MCWB	23.4	23.3	22.1	19.6	16.8	13.5	12.5	14.4	16.3	19.4	21.0	22.5			
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	27.4	26.6	25.9	24.1	21.2	18.1	17.2	19.6	21.5	24.4	24.6	25.9			
		MCDB	37.5	34.7	34.4	31.7	26.7	24.0	24.7	31.1	33.6	35.4	36.0	36.5			
	2%	WB	26.1	25.6	24.6	22.8	19.9	16.2	15.6	17.7	19.8	22.4	23.5	24.8			
		MCDB	34.8	33.5	32.0	28.7	25.2	21.0	22.3	27.9	30.6	33.4	34.6	35.3			
	5%	WB	25.1	24.9	23.7	21.7	18.7	15.0	14.2	16.3	18.4	21.3	22.5	24.1			
		MCDB	33.6	32.9	30.3	26.9	23.4	19.5	20.4	25.3	28.1	31.9	33.0	34.1			
	10%	WB	24.3	24.1	22.8	20.7	17.4	13.9	13.0	14.8	17.0	20.1	21.7	23.2			
		MCDB	32.5	31.7	29.1	25.5	21.7	18.2	18.5	22.8	26.1	29.5	31.6	32.7			

Mean Daily Temperature Range		MDBR	11.9	11.5	10.6	10.8	10.7	12.3	13.8	14.4	13.9	13.1	13.0	12.9
	5% DB	MCDBR	14.4	14.0	13.6	13.6	13.4	14.8	16.9	18.2	16.7	15.8	15.7	15.7
		MCWBR	5.2	5.2	5.2	6.5	7.3	8.8	9.8	9.4	7.9	7.0	6.4	5.9
	5% WB	MCDBR	12.4	11.9	11.4	11.5	11.6	13.3	15.3	17.0	15.4	14.1	14.0	13.6
		MCWBR	5.3	5.0	4.7	5.9	6.6	8.2	9.3	9.1	7.9	7.0	6.4	5.9
Clear Sky Solar Irradiance	taub		0.396	0.385	0.369	0.353	0.326	0.308	0.302	0.335	0.377	0.376	0.380	0.391
	taud		2.418	2.454	2.495	2.492	2.511	2.529	2.522	2.411	2.302	2.366	2.403	2.413
	Ebn at noon		946	938	921	886	864	860	883	889	896	936	955	953
	Edn at noon		125	117	106	96	85	79	82	102	126	126	126	126
All-Sky Solar Radiation	RadAvg		7.28	6.51	5.55	4.48	3.55	3.30	3.68	4.67	5.83	6.85	7.57	7.65
	RadStd		0.38	0.44	0.37	0.36	0.33	0.24	0.19	0.24	0.36	0.43	0.38	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	N/A	N/A	N/A	N/A	N/A	N/A			
Regional (0 neighbors)		N/A	N/A	N/A	+0.85	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