

2021 ASHRAE Handbook - Fundamentals (SI)															
GUALEGUAYCHU, ARGENTINA (WMO: 874970)															
Lat:33.0125S		Long:58.6108W		Elev:21		StdP: 101.07			Time zone:-3.00 (W03)			Period:94-18		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	0.9	2.4	-2.7	3.0	5.8	-1.2	3.4	6.1	12.0	17.4	10.9	17.3	0.8	230	0.387
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	11.5	34.7	23.2	33.3	22.6	32.0	22.2	25.5	31.2	24.6	30.1	23.8	29.1	4.3	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	
23.9	18.8	28.6	23.0	17.8	27.5	22.2	16.9	26.3	78.6	31.1	74.6	30.1	71.5	29.2	28.4
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
10.3	9.0	7.8	DB	-2.0	37.4	1.3	1.6	-2.9	38.6	-3.7	39.5	-4.4	40.4	-5.4	41.6
			WB	-2.4	27.0	1.3	0.8	-3.3	27.5	-4.1	28.0	-4.9	28.4	-5.8	28.9
Monthly Climatic Design Conditions															
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperatures, Degree-Days and Degree-Hours	DBAvg	18.1	24.8	23.8	21.9	18.4	14.8	12.1	11.8	13.5	15.0	18.1	20.5	23.4	
	DBStd	5.73	2.72	2.93	3.21	3.67	3.81	3.85	4.27	4.30	3.59	3.31	3.24	3.10	
	HDD10.0	67	0	0	0	1	4	18	28	12	3	1	0	0	
	HDD18.3	909	0	1	7	43	123	191	208	163	112	45	14	2	
	CDD10.0	3041	459	387	370	252	152	83	84	120	153	251	316	416	
	CDD18.3	843	201	156	118	44	13	5	6	13	11	37	80	159	
	CDH23.3	7723	2042	1422	949	292	67	13	27	97	90	306	788	1631	
	CDH26.7	2988	901	574	321	81	12	1	4	26	14	81	276	699	
Wind		WSAvg	2.8	2.6	2.5	2.5	2.5	2.2	2.5	2.8	3.0	3.2	3.2	3.2	2.9
Precipitation	PrecAvg	1112	116	126	132	105	76	48	56	58	72	109	105	112	
	PrecMax	1790	342	652	697	376	312	216	165	231	230	347	334	430	
	PrecMin	598	2	10	6	0	0	0	0	0	7	15	2	0	
	PrecStd	307	78	117	117	77	59	40	39	52	51	71	63	91	
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	36.8	35.2	34.2	32.0	28.8	25.2	26.7	30.1	29.1	31.7	34.2	36.8	
		MCWB	24.2	23.8	24.0	22.5	20.8	20.8	19.9	21.0	20.3	21.2	21.6	23.4	
	2%	DB	34.7	33.7	32.0	29.1	25.1	22.3	22.7	25.9	26.2	28.7	31.8	34.1	
		MCWB	23.5	23.1	22.6	21.0	19.4	19.1	18.2	19.1	18.7	20.2	20.7	22.3	
	5%	DB	33.0	32.0	30.3	26.5	22.6	19.9	20.2	23.1	23.9	26.5	29.8	32.5	
		MCWB	22.8	22.9	22.0	20.0	18.2	17.0	16.4	17.8	17.6	19.4	19.8	21.7	
	10%	DB	31.4	30.2	28.3	24.5	20.5	18.2	18.1	20.6	21.8	24.6	27.9	30.7	
		MCWB	22.4	22.2	21.1	19.3	17.2	15.3	15.0	16.2	16.2	18.3	19.2	21.0	
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	26.4	26.5	26.5	24.5	22.0	21.5	20.5	22.1	22.2	23.2	23.6	25.7	
		MCDB	32.6	32.3	32.2	28.6	26.7	24.2	24.4	27.9	27.0	28.6	30.2	32.5	
	2%	WB	25.2	25.2	24.7	22.7	20.3	19.7	18.6	20.1	20.3	21.6	22.2	24.4	
		MCDB	31.3	30.4	28.9	26.9	23.7	21.7	22.2	24.5	24.5	26.0	28.3	30.6	
	5%	WB	24.3	24.1	23.5	21.6	19.1	18.0	17.2	18.6	18.8	20.5	21.2	23.3	
		MCDB	30.5	29.4	27.4	24.7	21.5	19.8	19.6	22.4	22.0	24.8	26.7	29.3	
	10%	WB	23.6	23.2	22.4	20.5	17.7	16.2	15.8	16.9	17.4	19.4	20.3	22.4	
		MCDB	29.3	28.1	26.4	23.0	20.1	17.6	17.5	19.9	20.4	23.3	25.5	28.0	

Mean Daily Temperature Range		MDBR	11.5	10.7	10.6	9.9	9.2	9.4	9.3	10.6	10.4	10.4	11.7	11.9
	5% DB	MCDBR	13.8	13.1	13.0	13.0	11.8	10.4	11.1	13.5	13.6	13.8	14.8	14.6
		MCWBR	5.1	5.0	5.2	5.9	6.1	6.5	6.4	7.2	7.1	6.6	5.7	5.2
	5% WB	MCDBR	11.3	10.7	10.1	9.5	9.5	8.2	9.3	11.5	10.7	10.9	11.4	11.7
		MCWBR	5.3	5.0	5.3	5.2	5.5	6.0	5.8	6.8	7.1	6.6	5.7	5.2
Clear Sky Solar Irradiance	taub		0.419	0.399	0.385	0.380	0.365	0.369	0.362	0.443	0.482	0.429	0.397	0.411
	taud		2.320	2.396	2.415	2.387	2.397	2.372	2.370	2.092	1.998	2.221	2.340	2.321
	Ebn at noon		921	918	894	839	796	760	789	757	785	879	935	932
	Edn at noon		137	122	112	103	91	88	92	136	168	144	133	138
All-Sky Solar Radiation	RadAvg		7.17	6.13	5.25	3.84	2.77	2.37	2.54	3.35	4.50	5.55	6.81	7.26
	RadStd		0.46	0.52	0.53	0.47	0.23	0.26	0.29	0.30	0.36	0.53	0.51	0.43
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	+0.39	+0.43	+0.47	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