

2021 ASHRAE Handbook - Fundamentals (SI)																	
USHUAIA, ARGENTINA (WMO: 879380)																	
Lat: 54.84S			Long: 68.3033W			Elev: 57		StdP: 100.64			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	-4.2	-2.9	-7.5	2.0	1.1	-6.2	2.3	1.8	20.0	3.1	18.1	3.2	3.8	230	0.853		
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		
2	6.5	18.2	11.8	16.6	10.7	15.1	9.9	12.7	16.8	11.5	15.4	10.5	14.1	5.5	320		
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			
10.4	7.9	13.9	9.2	7.3	12.5	8.3	6.9	11.6	36.2	17.0	33.2	15.4	30.9	14.2	17.1		
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
18.3	16.0	14.3	DB	-5.2	22.7	1.5	2.1	-6.3	24.2	-7.2	25.5	-8.1	26.7	-9.2	28.2		
			WB	-5.9	15.1	1.6	1.0	-7.1	15.8	-8.0	16.4	-8.9	17.0	-10.0	17.7		
Monthly Climatic Design Conditions																	
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Temperatures, Degree-Days and Degree-Hours	DBAvg	6.0	9.5	9.7	8.5	6.4	4.3	2.3	2.2	3.0	4.5	6.3	7.5	8.7			
	DBStd	3.70	2.45	2.72	2.71	2.67	2.48	2.58	2.64	2.31	2.64	2.67	2.77	2.46			
	HDD10.0	1541	39	36	62	112	176	232	243	218	167	117	84	55			
	HDD18.3	4485	274	243	305	357	434	482	501	476	416	372	327	298			
	CDD10.0	96	24	26	16	4	1	0	0	0	1	3	8	15			
	CDD18.3	0	0	0	0	0	0	0	0	0	0	0	0	0			
	CDH23.3	2	0	2	0	0	0	0	0	0	0	0	0	0			
	CDH26.7	0	0	0	0	0	0	0	0	0	0	0	0	0			
Wind		WSAvg	5.9	6.9	6.5	5.9	5.5	4.8	4.8	5.1	5.2	5.6	6.4	6.8	6.9		
Precipitation	PrecAvg	492	43	43	46	51	45	50	38	40	34	32	36	43			
	PrecMax	768	121	138	172	118	171	181	124	145	95	82	77	110			
	PrecMin	216	13	5	9	10	2	6	4	4	1	7	1	4			
	PrecStd	136	20	30	29	29	29	36	21	27	18	17	18	22			
	Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	20.1	21.8	19.1	16.8	13.1	10.5	10.8	11.0	14.1	16.2	18.3	19.2		
MCWB			13.6	13.9	12.9	10.7	7.9	6.5	5.2	5.9	7.9	9.1	11.5	12.1			
2%		DB	17.2	17.9	16.2	13.5	10.9	8.9	8.3	9.0	11.8	13.9	15.2	16.4			
		MCWB	11.0	12.0	11.0	8.9	7.0	5.7	4.5	5.0	6.8	8.0	9.5	10.2			
5%		DB	15.5	15.9	14.2	11.8	9.1	7.2	7.0	7.7	10.0	12.1	13.7	14.7			
		MCWB	10.2	10.9	9.7	8.0	6.1	4.5	4.0	4.3	5.7	7.0	8.4	9.2			
10%		DB	14.0	14.1	12.8	10.4	7.9	6.0	5.9	6.3	8.6	10.8	12.1	13.0			
		MCWB	9.4	9.9	9.0	7.4	5.5	3.8	3.4	3.6	5.0	6.4	7.6	8.5			
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	13.8	14.6	13.6	11.2	9.0	7.5	6.4	6.6	8.8	10.0	11.9	12.8			
		MCDB	19.3	19.5	17.9	15.1	12.3	10.1	9.5	9.9	13.1	14.7	16.7	18.0			
	2%	WB	12.0	12.8	11.6	9.6	7.6	5.9	5.1	5.4	7.2	8.5	10.1	10.9			
		MCDB	16.2	16.4	15.2	12.6	9.8	8.0	7.3	7.8	10.7	12.6	14.2	15.4			
	5%	WB	10.8	11.5	10.3	8.5	6.6	4.9	4.2	4.7	6.1	7.6	9.0	9.7			
		MCDB	14.5	14.9	13.4	11.1	8.4	6.5	6.2	6.7	8.9	11.2	12.9	13.5			
	10%	WB	9.8	10.4	9.5	7.6	5.7	4.0	3.6	4.0	5.3	6.7	8.1	8.8			
		MCDB	13.3	13.4	12.3	9.9	7.4	5.6	5.3	5.9	7.8	10.0	11.4	12.3			

Mean Daily Temperature Range		MDBR	6.6	6.5	6.2	5.3	4.4	3.9	4.1	4.8	5.7	6.5	6.7	6.7
	5% DB	MCDBR	9.6	9.8	8.7	7.7	6.3	5.7	5.8	6.4	8.0	8.7	9.4	9.6
		MCWBR	5.2	5.7	5.3	4.7	4.0	3.6	3.5	4.0	4.6	4.9	5.2	5.3
	5% WB	MCDBR	9.1	8.9	8.0	6.8	5.4	4.9	4.8	5.6	7.1	8.1	8.7	8.8
		MCWBR	5.4	5.6	5.3	4.6	4.0	3.5	3.5	4.0	4.6	4.9	5.2	5.3
Clear Sky Solar Irradiance	taub		0.323	0.321	0.312	0.307	0.284	0.264	0.278	0.296	0.309	0.315	0.317	0.323
	taud		2.530	2.541	2.560	2.519	2.400	2.235	2.244	2.383	2.490	2.502	2.513	2.514
	Ebn at noon		976	939	883	769	641	553	612	757	869	936	976	986
	Edn at noon		101	92	78	62	48	43	53	68	81	94	102	105
All-Sky Solar Radiation	RadAvg		4.83	3.92	2.55	1.38	0.71	0.42	0.54	1.10	2.20	3.55	4.59	5.12
	RadStd		0.23	0.26	0.19	0.10	0.07	0.04	0.05	0.07	0.16	0.22	0.30	0.32
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	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