

2021 ASHRAE Handbook - Fundamentals (SI)																
BASE ORCADAS, ANTARCTICA (WMO: 889680)																
Lat:60.7378S		Long:44.7383W		Elev:8		StdP: 101.23			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	-26.4	-24.1	-30.6	0.2	-26.2	-27.4	0.3	-23.9	21.5	-5.0	20.7	-5.1	5.4	140	1.077	
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	2.8	5.7	3.8	4.7	3.0	4.0	2.5	4.1	5.3	3.4	4.3	2.8	3.6	7.5	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		
3.1	4.7	4.2	2.5	4.5	3.5	2.1	4.4	2.9	17.2	5.4	15.8	4.5	14.7	3.7	9.6	
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	
19.1	15.1	13.2	DB	-29.2	8.5	2.1	1.5	-30.7	9.6	-31.9	10.4	-33.1	11.3	-34.6	12.4	
			WB	-29.2	6.2	1.9	1.1	-30.6	7.0	-31.7	7.7	-32.8	8.3	-34.2	9.1	
Monthly Climatic Design Conditions																
			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Temperatures, Degree-Days and Degree-Hours	DBAvg	-3.1	1.3	1.3	0.5	-1.8	-4.7	-7.1	-9.6	-8.6	-6.0	-2.4	-0.5	0.7		
	DBStd	5.94	1.36	1.49	2.09	3.22	5.20	6.10	7.48	6.98	5.98	3.90	2.32	1.43		
	HDD10.0	4781	269	244	294	354	457	512	608	576	481	384	314	289		
	HDD18.3	7822	527	477	552	604	715	762	866	834	731	643	564	547		
	CDD10.0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	CDD18.3	0	0	0	0	0	0	0	0	0	0	0	0	0		
	CDH23.3	0	0	0	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	6.5	5.8	6.4	6.9	6.7	6.6	6.3	6.5	6.7	6.6	6.8	6.4	6.0	
Precipitation	PrecAvg	803	70	77	105	84	60	47	50	55	58	74	67	55		
	PrecMax	997	117	123	178	124	130	79	96	104	99	145	116	97		
	PrecMin	583	45	49	64	46	25	23	16	9	21	20	25	16		
	PrecStd	108	19	16	26	22	23	17	22	27	24	25	24	21		
	Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	6.6	6.7	6.9	5.2	4.3	2.8	2.2	2.8	4.7	4.7	5.8	6.2	
MCWB			4.6	4.7	4.9	3.4	2.5	1.5	0.7	1.3	2.8	2.8	3.6	3.8		
2%		DB	4.9	5.1	5.1	3.2	2.5	1.2	0.8	1.2	2.6	3.3	4.3	4.4		
		MCWB	3.2	3.5	3.5	1.9	1.4	0.4	0.2	0.5	1.3	1.8	2.4	2.5		
5%		DB	3.9	4.0	4.0	2.2	1.5	0.4	0.1	0.4	1.4	2.3	3.1	3.2		
		MCWB	2.6	2.7	2.8	1.4	0.8	-0.2	-0.3	-0.1	0.5	1.0	1.7	1.8		
10%		DB	3.2	3.2	3.1	1.6	0.9	-0.3	-0.4	-0.3	0.6	1.4	2.2	2.6		
		MCWB	2.1	2.2	2.2	1.0	0.4	-0.8	-0.8	-0.7	-0.1	0.5	1.1	1.4		
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	5.1	5.1	5.0	3.7	2.8	1.6	1.2	1.5	3.1	3.1	4.0	4.1		
		MCDB	6.3	6.3	6.7	4.7	3.8	2.5	1.6	2.1	4.2	4.2	5.3	5.7		
	2%	WB	3.6	3.7	3.8	2.2	1.6	0.6	0.2	0.6	1.5	2.0	2.7	2.8		
		MCDB	4.5	4.6	4.7	2.8	2.2	1.0	0.5	1.1	2.3	3.0	3.9	4.0		
	5%	WB	2.8	3.1	3.0	1.7	1.0	0.0	-0.2	0.0	0.6	1.2	1.9	2.1		
		MCDB	3.5	3.7	3.7	2.1	1.4	0.3	0.0	0.3	1.1	1.9	2.8	3.0		
	10%	WB	2.3	2.5	2.3	1.1	0.4	-0.7	-0.8	-0.6	0.0	0.7	1.3	1.6		
		MCDB	3.0	3.1	2.9	1.6	0.8	-0.3	-0.4	-0.3	0.5	1.2	2.0	2.3		

Mean Daily Temperature Range		MDBR	2.8	2.6	3.0	3.4	5.0	6.1	7.4	7.1	6.5	4.7	3.9	3.1
	5% DB	MCDBR	4.1	3.9	4.2	3.7	4.3	5.1	6.0	5.8	5.4	4.7	4.9	4.3
		MCWBR	3.0	3.1	3.3	3.2	3.7	4.8	5.9	5.6	4.7	3.8	3.8	3.1
	5% WB	MCDBR	3.7	3.6	4.0	3.6	3.9	4.9	5.9	5.6	5.2	4.3	4.6	3.9
		MCWBR	3.0	3.1	3.3	3.2	3.6	4.8	5.9	5.5	4.7	3.8	3.8	3.1
Clear Sky Solar Irradiance	taub		0.316	0.314	0.302	0.284	0.229	0.179	0.209	0.251	0.277	0.302	0.295	0.305
	taud		2.497	2.524	2.527	2.437	2.193	1.991	2.118	2.270	2.326	2.349	2.429	2.465
	Ebn at noon		964	920	850	707	520	406	525	721	853	918	980	988
	Edn at noon		99	87	72	53	34	24	34	59	84	102	105	105
All-Sky Solar Radiation	RadAvg		4.50	3.18	1.82	0.92	0.34	0.16	0.26	0.91	2.18	3.74	5.21	5.43
	RadStd		0.33	0.28	0.09	0.09	0.04	0.01	0.02	0.09	0.20	0.44	0.65	0.55
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