 © 2013 ASHRAE, Inc.

# WIEN/HOHE WARTE, Austria

WMO#: **110350**

Lat: **48.25N** Long: **16.37E** Elev: **200** StdP: **98.95** Time Zone: **1.00 (EUW)** Period: **86-10** WBAN: **99999**

## Annual Heating and Humidification Design Conditions

| | Coldest Month | Heating DB | | Humidification DP/MCDB and HR | | | | | | Coldest month WS/MCDB | | | | MCWS/PCWD to 99.6% DB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 99.6% | | | 99% | | | 0.4% | | 1% | | | | |
| | | 99.6% | 99% | DP | HR | MCDB | DP | HR | MCDB | WS | MCDB | WS | MCDB | MCWS | PCWD | |
| | (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) | (j) | (k) | (l) | (m) | (n) | (o) | |
| (1) | 1 | -9.7 | -7.4 | -14.0 | 1.1 | -8.2 | -11.3 | 1.5 | -5.9 | 13.0 | 5.5 | 11.9 | 5.0 | 2.2 | 90 | (1) |

## 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 | |
| | (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) | (j) | (k) | (l) | (m) | (n) | (o) | (p) | |
| (2) | 7 | 9.4 | 30.8 | 21.6 | 29.1 | 20.7 | 27.4 | 19.7 | 22.2 | 29.6 | 21.2 | 27.8 | 20.3 | 26.3 | 3.4 | 130 | (2) |

| | Dehumidification DP/MCDB and HR | | | | | | | | | Enthalpy/MCDB | | | | | | Hours 8 to 4 & 12.8/20.6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.4% | | | 1% | | | 2% | | | 0.4% | | 1% | | 2% | | | |
| | DP | HR | MCDB | DP | HR | MCDB | DP | HR | MCDB | Enth | MCDB | Enth | MCDB | Enth | MCDB | | |
| | (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) | (j) | (k) | (l) | (m) | (n) | (o) | (p) | |
| (3) | 19.6 | 14.7 | 26.4 | 18.7 | 13.9 | 25.0 | 17.9 | 13.2 | 24.0 | 66.2 | 29.8 | 62.3 | 28.0 | 59.0 | 26.3 | 919 | (3) |

## Extreme Annual Design Conditions

| | Extreme Annual WS | | | Extreme Max WB | Extreme Annual DB | | | | n-Year Return Period Values of Extreme DB | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 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 | |
| | (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) | (j) | (k) | (l) | (m) | (n) | (o) | (p) | |
| (4) | 9.9 | 8.4 | 7.4 | 28.4 | -11.9 | 33.4 | 3.2 | 1.9 | -14.2 | 34.8 | -16.0 | 35.9 | -17.8 | 37.0 | -20.1 | 38.4 | (4) |

## Monthly Climatic Design Conditions

| | | | | Annual (d) | Jan (e) | Feb (f) | Mar (g) | Apr (h) | May (i) | Jun (j) | Jul (k) | Aug (l) | Sep (m) | Oct (n) | Nov (o) | Dec (p) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (5) | Temperatures, Degree-Days and Degree-Hours | Tavg | | 10.8 | 0.5 | 2.2 | 6.0 | 11.1 | 15.8 | 18.7 | 20.9 | 20.6 | 15.9 | 10.6 | 5.5 | 1.4 | (5) |
| (6) | | Sd | | | 4.77 | 4.60 | 4.43 | 3.90 | 3.36 | 3.44 | 3.16 | 3.30 | 3.17 | 3.83 | 3.91 | 4.15 | (6) |
| (7) | | HDD10.0 | | 1138 | 294 | 219 | 137 | 33 | 2 | 0 | 0 | 0 | 1 | 40 | 142 | 269 | (7) |
| (8) | | HDD18.3 | | 2996 | 552 | 451 | 383 | 217 | 93 | 37 | 12 | 16 | 84 | 239 | 386 | 527 | (8) |
| (9) | | CDD10.0 | | 1438 | 1 | 2 | 13 | 67 | 180 | 262 | 338 | 330 | 179 | 60 | 7 | 1 | (9) |
| (10) | | CDD18.3 | | 254 | 0 | 0 | 0 | 1 | 13 | 48 | 92 | 87 | 13 | 1 | 0 | 0 | (10) |
| (11) | | CDH23.3 | | 1873 | 0 | 0 | 0 | 6 | 103 | 355 | 723 | 627 | 57 | 1 | 0 | 0 | (11) |
| (12) | | CDH26.7 | | 509 | 0 | 0 | 0 | 0 | 13 | 80 | 225 | 186 | 5 | 0 | 0 | 0 | (12) |
| (13) | Precipitation | PrecAvg | | 607 | 38 | 42 | 41 | 51 | 61 | 74 | 63 | 58 | 45 | 41 | 50 | 43 | (13) |
| (14) | | PrecMax | | 783 | 99 | 108 | 112 | 131 | 131 | 193 | 123 | 133 | 97 | 132 | 107 | 94 | (14) |
| (15) | | PrecMin | | 439 | 7 | 4 | 9 | 10 | 10 | 22 | 11 | 19 | 13 | 8 | 18 | 3 | (15) |
| (16) | | PrecSD | | 93.8 | 22.9 | 24.1 | 22.6 | 36.5 | 35.9 | 50.4 | 34.2 | 26.5 | 21.0 | 33.4 | 28.9 | 21.4 | (16) |
| (17) | Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures | 0.4% | DB | | 13.6 | 15.1 | 20.0 | 24.2 | 28.2 | 31.5 | 33.4 | 33.4 | 27.1 | 21.6 | 17.5 | 13.0 | (17) |
| (18) | | | MCWB | | 9.3 | 9.4 | 12.7 | 15.5 | 19.7 | 22.3 | 22.9 | 21.9 | 19.1 | 16.1 | 12.8 | 9.2 | (18) |
| (19) | | 2% | DB | | 11.6 | 12.5 | 16.9 | 22.1 | 25.9 | 28.9 | 30.9 | 30.7 | 25.0 | 19.4 | 14.6 | 10.8 | (19) |
| (20) | | | MCWB | | 7.7 | 8.5 | 10.8 | 14.5 | 18.2 | 20.9 | 22.0 | 21.1 | 18.2 | 14.8 | 11.2 | 7.8 | (20) |
| (21) | | 5% | DB | | 9.2 | 10.3 | 14.6 | 20.0 | 24.2 | 27.1 | 29.2 | 28.7 | 23.1 | 17.8 | 12.6 | 8.7 | (21) |
| (22) | | | MCWB | | 6.2 | 7.0 | 9.7 | 13.2 | 16.9 | 19.8 | 20.9 | 20.3 | 17.3 | 14.1 | 10.0 | 6.5 | (22) |
| (23) | | 10% | DB | | 7.3 | 8.4 | 12.4 | 17.9 | 22.4 | 25.4 | 27.4 | 26.9 | 21.4 | 16.2 | 10.7 | 6.6 | (23) |
| (24) | | | MCWB | | 4.9 | 5.6 | 8.6 | 12.1 | 15.9 | 18.8 | 19.8 | 19.4 | 16.3 | 13.1 | 8.5 | 4.9 | (24) |
| (25) | Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures | 0.4% | WB | | 9.8 | 10.1 | 13.4 | 16.2 | 20.3 | 23.1 | 23.7 | 23.3 | 20.0 | 17.0 | 13.2 | 10.0 | (25) |
| (26) | | | MCDB | | 13.2 | 14.1 | 19.2 | 22.9 | 27.0 | 30.0 | 31.4 | 30.6 | 25.4 | 20.5 | 16.5 | 12.4 | (26) |
| (27) | | 2% | WB | | 7.8 | 8.6 | 11.5 | 14.8 | 18.8 | 21.6 | 22.4 | 21.8 | 18.9 | 15.6 | 11.7 | 8.1 | (27) |
| (28) | | | MCDB | | 10.8 | 12.0 | 15.8 | 21.1 | 24.9 | 28.0 | 30.1 | 29.2 | 23.9 | 18.4 | 14.3 | 10.4 | (28) |
| (29) | | 5% | WB | | 6.5 | 7.2 | 10.2 | 13.6 | 17.6 | 20.4 | 21.4 | 20.7 | 17.8 | 14.5 | 10.1 | 6.5 | (29) |
| (30) | | | MCDB | | 9.1 | 10.1 | 13.9 | 19.3 | 23.1 | 26.1 | 28.1 | 27.4 | 22.0 | 17.1 | 12.3 | 8.5 | (30) |
| (31) | | 10% | WB | | 5.0 | 5.8 | 8.9 | 12.5 | 16.4 | 19.2 | 20.4 | 19.8 | 16.8 | 13.4 | 8.7 | 5.1 | (31) |
| (32) | | | MCDB | | 7.0 | 8.1 | 12.1 | 17.2 | 21.4 | 24.4 | 26.3 | 25.9 | 20.5 | 15.9 | 10.5 | 6.6 | (32) |
| (33) | Mean Daily Temperature Range | | MDBR | | 4.4 | 5.7 | 7.0 | 8.7 | 9.0 | 8.9 | 9.4 | 9.1 | 7.7 | 6.6 | 4.5 | 3.9 | (33) |
| (34) | | 5% DB | MCDBR | | 6.8 | 8.4 | 10.8 | 12.0 | 12.4 | 11.8 | 12.6 | 12.5 | 10.4 | 8.7 | 7.2 | 6.4 | (34) |
| (35) | | | MCWBR | | 4.7 | 5.4 | 6.2 | 6.3 | 6.0 | 5.4 | 5.5 | 5.2 | 5.0 | 4.8 | 4.5 | 4.6 | (35) |
| (36) | | 5% WB | MCDBR | | 6.7 | 8.1 | 9.9 | 11.6 | 11.5 | 11.1 | 11.8 | 11.4 | 9.5 | 7.8 | 6.4 | 6.1 | (36) |
| (37) | | | MCWBR | | 4.9 | 5.4 | 6.1 | 6.2 | 5.9 | 5.4 | 5.5 | 5.3 | 4.9 | 4.7 | 4.3 | 4.6 | (37) |
| (38) | Clear Sky Solar Irradiance | taub | | | 0.323 | 0.353 | 0.386 | 0.403 | 0.375 | 0.402 | 0.388 | 0.399 | 0.375 | 0.357 | 0.352 | 0.327 | (38) |
| (39) | | taud | | | 2.426 | 2.301 | 2.258 | 2.193 | 2.267 | 2.186 | 2.274 | 2.262 | 2.373 | 2.431 | 2.455 | 2.462 | (39) |
| (40) | | Ebn,noon | | | 742 | 789 | 821 | 845 | 885 | 859 | 867 | 839 | 825 | 781 | 699 | 689 | (40) |
| (41) | | Edh,noon | | | 67 | 93 | 114 | 134 | 129 | 141 | 127 | 123 | 100 | 81 | 65 | 58 | (41) |

Nomenclature: See separate page