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# KILKENNY, Ireland

WMO#: **039600**

Lat: **52.67N** Long: **7.27W** Elev: **64** StdP: **100.56** Time Zone: **0.00 (GMT)** Period: **86-08** 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) | **2** | **-3.2** | **-1.9** | **-5.2** | **2.5** | **-0.5** | **-3.7** | **2.8** | **0.3** | **14.9** | **7.9** | **13.3** | **9.2** | **1.2** | **10** | (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** | **8.6** | **23.8** | **17.5** | **22.1** | **16.7** | **20.7** | **16.0** | **18.6** | **22.3** | **17.6** | **20.7** | **16.8** | **19.5** | **3.5** | **220** | (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) | **17.1** | **12.3** | **19.9** | **16.4** | **11.7** | **18.9** | **15.6** | **11.1** | **18.1** | **52.5** | **22.4** | **49.5** | **20.7** | **47.3** | **19.5** | **1263** | (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) | **11.4** | **9.8** | **8.4** | **21.6** | **-6.0** | **26.7** | **1.2** | **1.9** | **-6.9** | **28.1** | **-7.5** | **29.2** | **-8.2** | **30.3** | **-9.0** | **31.7** | (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 | **9.9** | **5.5** | **5.2** | **6.8** | **8.4** | **11.2** | **13.8** | **15.7** | **15.3** | **13.2** | **10.6** | **7.2** | **5.9** | (5) |
| (6) | | | Sd | | **2.96** | **2.88** | **2.61** | **2.67** | **2.31** | **2.32** | **2.25** | **2.23** | **2.51** | **2.70** | **2.86** | **3.05** | (6) |
| (7) | | | HDD10.0 | **709** | **143** | **136** | **103** | **63** | **13** | **2** | **0** | **0** | **3** | **27** | **90** | **130** | (7) |
| (8) | | | HDD18.3 | **3081** | **399** | **367** | **357** | **299** | **221** | **137** | **88** | **98** | **154** | **241** | **333** | **386** | (8) |
| (9) | | | CDD10.0 | **677** | **2** | **2** | **4** | **13** | **51** | **114** | **176** | **163** | **99** | **44** | **7** | **2** | (9) |
| (10) | | | CDD18.3 | **9** | **0** | **0** | **0** | **0** | **0** | **1** | **5** | **3** | **1** | **0** | **0** | **0** | (10) |
| (11) | | | CDH23.3 | **72** | **0** | **0** | **0** | **0** | **1** | **7** | **48** | **15** | **1** | **0** | **0** | **0** | (11) |
| (12) | | | CDH26.7 | **6** | **0** | **0** | **0** | **0** | **0** | **0** | **5** | **1** | **0** | **0** | **0** | **0** | (12) |
| (13) | Precipitation | | PrecAvg | **823** | **87** | **66** | **63** | **52** | **62** | **50** | **53** | **71** | **72** | **85** | **74** | **88** | (13) |
| (14) | | | PrecMax | **1162** | **200** | **153** | **129** | **116** | **134** | **88** | **139** | **101** | **139** | **160** | **146** | **182** | (14) |
| (15) | | | PrecMin | **642** | **12** | **5** | **4** | **19** | **12** | **13** | **13** | **2** | **3** | **22** | **29** | **27** | (15) |
| (16) | | | PrecSD | **125.2** | **43.7** | **37.0** | **30.7** | **25.7** | **32.2** | **22.9** | **26.4** | **25.6** | **40.8** | **44.0** | **34.2** | **46.3** | (16) |
| (17) | Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures | 0.4% | DB | | **13.0** | **13.2** | **15.3** | **19.7** | **22.6** | **24.4** | **27.3** | **25.2** | **22.6** | **18.3** | **14.8** | **13.5** | (17) |
| (18) | | | MCWB | | **11.4** | **11.2** | **11.0** | **13.4** | **16.1** | **16.7** | **18.4** | **19.3** | **17.8** | **14.8** | **13.3** | **12.0** | (18) |
| (19) | | 2% | DB | | **12.0** | **12.1** | **13.4** | **16.7** | **20.1** | **22.2** | **24.5** | **22.6** | **20.4** | **16.6** | **13.6** | **12.5** | (19) |
| (20) | | | MCWB | | **10.8** | **10.4** | **10.7** | **11.9** | **14.6** | **16.2** | **18.0** | **17.4** | **16.1** | **14.1** | **12.3** | **11.2** | (20) |
| (21) | | 5% | DB | | **11.2** | **11.2** | **12.2** | **14.8** | **18.0** | **20.6** | **22.5** | **20.9** | **19.0** | **15.6** | **12.8** | **11.6** | (21) |
| (22) | | | MCWB | | **9.9** | **9.6** | **9.9** | **10.9** | **13.1** | **15.5** | **17.1** | **16.2** | **15.3** | **13.6** | **11.6** | **10.5** | (22) |
| (23) | | 10% | DB | | **10.3** | **10.2** | **11.3** | **13.1** | **16.2** | **18.9** | **20.6** | **19.7** | **17.8** | **14.8** | **12.0** | **10.9** | (23) |
| (24) | | | MCWB | | **9.1** | **8.8** | **9.3** | **9.9** | **12.3** | **14.6** | **16.3** | **15.6** | **14.7** | **13.1** | **10.7** | **9.8** | (24) |
| (25) | Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures | 0.4% | WB | | **11.8** | **11.7** | **12.5** | **14.1** | **17.1** | **18.5** | **19.8** | **20.0** | **18.5** | **15.9** | **13.6** | **12.3** | (25) |
| (26) | | | MCDB | | **12.6** | **12.7** | **14.3** | **17.9** | **22.1** | **22.5** | **24.3** | **24.4** | **21.5** | **17.0** | **14.3** | **13.2** | (26) |
| (27) | | 2% | WB | | **11.0** | **10.6** | **11.2** | **12.6** | **15.3** | **17.0** | **18.6** | **18.5** | **17.1** | **14.9** | **12.7** | **11.4** | (27) |
| (28) | | | MCDB | | **12.0** | **11.7** | **12.6** | **15.4** | **19.0** | **20.5** | **23.2** | **21.2** | **19.1** | **16.0** | **13.4** | **12.3** | (28) |
| (29) | | 5% | WB | | **10.2** | **9.9** | **10.4** | **11.6** | **13.9** | **16.0** | **17.6** | **17.4** | **16.2** | **14.1** | **11.8** | **10.7** | (29) |
| (30) | | | MCDB | | **11.0** | **11.0** | **11.8** | **14.0** | **16.8** | **19.4** | **21.4** | **19.6** | **18.0** | **15.2** | **12.6** | **11.5** | (30) |
| (31) | | 10% | WB | | **9.3** | **9.0** | **9.6** | **10.6** | **12.7** | **15.1** | **16.7** | **16.6** | **15.4** | **13.4** | **10.9** | **9.9** | (31) |
| (32) | | | MCDB | | **10.2** | **10.2** | **11.0** | **12.8** | **15.3** | **18.1** | **19.9** | **18.8** | **17.2** | **14.6** | **11.9** | **10.8** | (32) |
| (33) | Mean Daily Temperature Range | | MDBR | | **6.0** | **6.6** | **7.3** | **8.4** | **8.9** | **8.5** | **8.6** | **8.5** | **8.5** | **7.1** | **6.8** | **5.8** | (33) |
| (34) | | 5% DB | MCDBR | | **6.3** | **6.8** | **7.8** | **10.7** | **12.3** | **11.7** | **12.2** | **9.9** | **9.5** | **7.6** | **6.9** | **6.2** | (34) |
| (35) | | | MCWBR | | **5.8** | **5.8** | **5.6** | **6.5** | **7.4** | **6.6** | **6.4** | **5.3** | **5.9** | **5.5** | **6.0** | **5.8** | (35) |
| (36) | | 5% WB | MCDBR | | **6.3** | **6.3** | **6.9** | **9.2** | **10.7** | **10.4** | **10.5** | **8.8** | **8.3** | **6.7** | **6.4** | **6.3** | (36) |
| (37) | | | MCWBR | | **6.0** | **5.8** | **5.5** | **6.1** | **6.8** | **6.3** | **6.1** | **5.5** | **5.9** | **5.5** | **5.9** | **6.0** | (37) |
| (38) | Clear Sky Solar Irradiance | taub | | | **0.364** | **0.374** | **0.379** | **0.359** | **0.358** | **0.344** | **0.382** | **0.369** | **0.358** | **0.346** | **0.379** | **0.368** | (38) |
| (39) | | taud | | | **2.487** | **2.425** | **2.367** | **2.367** | **2.343** | **2.412** | **2.317** | **2.402** | **2.466** | **2.521** | **2.435** | **2.488** | (39) |
| (40) | | Ebn,noon | | | **625** | **730** | **805** | **875** | **891** | **907** | **862** | **855** | **822** | **756** | **590** | **551** | (40) |
| (41) | | Edh,noon | | | **57** | **77** | **97** | **108** | **117** | **110** | **119** | **104** | **87** | **68** | **59** | **49** | (41) |

Nomenclature: See separate page