

**HURON SD**

Latitude = 44.38 N

Longitude = 98.22 W

Period of Record = 1973 to 1996

WMO No. 726540

Elevation = 1289 feet

Average Pressure = 28.58 inches Hg

**Design Criteria Data**

|                                                  | <b>Design Value</b> | Mean Coincident (Average) Values |                         |                        |                             |
|--------------------------------------------------|---------------------|----------------------------------|-------------------------|------------------------|-----------------------------|
|                                                  |                     | Wet Bulb Temperature (°F)        | Humidity Ratio (gr/lb)  | Wind Speed (mph)       | Prevailing Direction (NSEW) |
| <b>Dry Bulb Temperature (T)</b>                  | <b>(°F)</b>         |                                  |                         |                        |                             |
| Median of Extreme Highs                          | 103                 | 73                               | 81                      | 16.4                   | S                           |
| 0.4% Occurrence                                  | 95                  | 73                               | 91                      | 14.0                   | S                           |
| 1.0% Occurrence                                  | 92                  | 72                               | 92                      | 13.5                   | S                           |
| 2.0% Occurrence                                  | 88                  | 71                               | 90                      | 13.0                   | S                           |
| Mean Daily Range                                 | 22                  | -                                | -                       | -                      | -                           |
| 97.5% Occurrence                                 | -4                  | -5                               | 3                       | 10.2                   | NW                          |
| 99.0% Occurrence                                 | -12                 | -12                              | 2                       | 8.8                    | NW                          |
| 99.6% Occurrence                                 | -16                 | -16                              | 1                       | 8.5                    | NW                          |
| Median of Extreme Lows                           | -24                 | -24                              | 1                       | 6.5                    | WNW                         |
|                                                  | <b>Design Value</b> | Mean Coincident (Average) Values |                         |                        |                             |
|                                                  |                     | Dry Bulb Temperature (°F)        | Humidity Ratio (gr/lb)  | Wind Speed (mph)       | Prevailing Direction (NSEW) |
| <b>Wet Bulb Temperature (T<sub>wb</sub>)</b>     | <b>(°F)</b>         |                                  |                         |                        |                             |
| Median of Extreme Highs                          | 80                  | 91                               | 142                     | 11.9                   | SSE                         |
| 0.4% Occurrence                                  | 77                  | 89                               | 125                     | 12.5                   | S                           |
| 1.0% Occurrence                                  | 75                  | 87                               | 116                     | 12.5                   | S                           |
| 2.0% Occurrence                                  | 73                  | 84                               | 108                     | 12.3                   | S                           |
|                                                  | <b>Design Value</b> | Mean Coincident (Average) Values |                         |                        |                             |
|                                                  |                     | Dry Bulb Temperature (°F)        | Vapor Pressure (in. Hg) | Wind Speed (mph)       | Prevailing Direction (NSEW) |
| <b>Humidity Ratio (HR)</b>                       | <b>(gr/lb)</b>      |                                  |                         |                        |                             |
| Median of Extreme Highs                          | 143                 | 84                               | 0.90                    | 10.9                   | SE                          |
| 0.4% Occurrence                                  | 130                 | 83                               | 0.82                    | 11.3                   | S                           |
| 1.0% Occurrence                                  | 120                 | 81                               | 0.77                    | 11.1                   | SSE                         |
| 2.0% Occurrence                                  | 113                 | 80                               | 0.72                    | 11.4                   | S                           |
| <b>Air Conditioning/<br/>Humid Area Criteria</b> | <b># of Hours</b>   | T ≥ 93°F                         | T ≥ 80°F                | T <sub>wb</sub> ≥ 73°F | T <sub>wb</sub> ≥ 67°F      |
|                                                  |                     | 70                               | 630                     | 202                    | 839                         |

**Other Site Data**

| Weather Region                                   | Rain Rate<br>100 Year Recurrence<br>(in./hr) | Basic Wind Speed<br>3 sec gust @ 33 ft<br>50 Year Recurrence (mph) | Ventilation Cooling Load Index<br>(Ton-hr/cfm/yr) Base 75°F-RH 60%<br>Latent + Sensible |
|--------------------------------------------------|----------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 5                                                | 3.5                                          | 90                                                                 | 1.0 + 0.7                                                                               |
| Ground Water Temperature (°F)<br>50 Foot Depth * | Frost Depth<br>50 Year Recurrence<br>(in.)   | Ground Snow Load<br>50 Year Recurrence<br>(lb/ft <sup>2</sup> )    | Average Annual<br>Freeze-Thaw Cycles<br>(#)                                             |
| 48.0                                             | N/A                                          | 46                                                                 | 81                                                                                      |

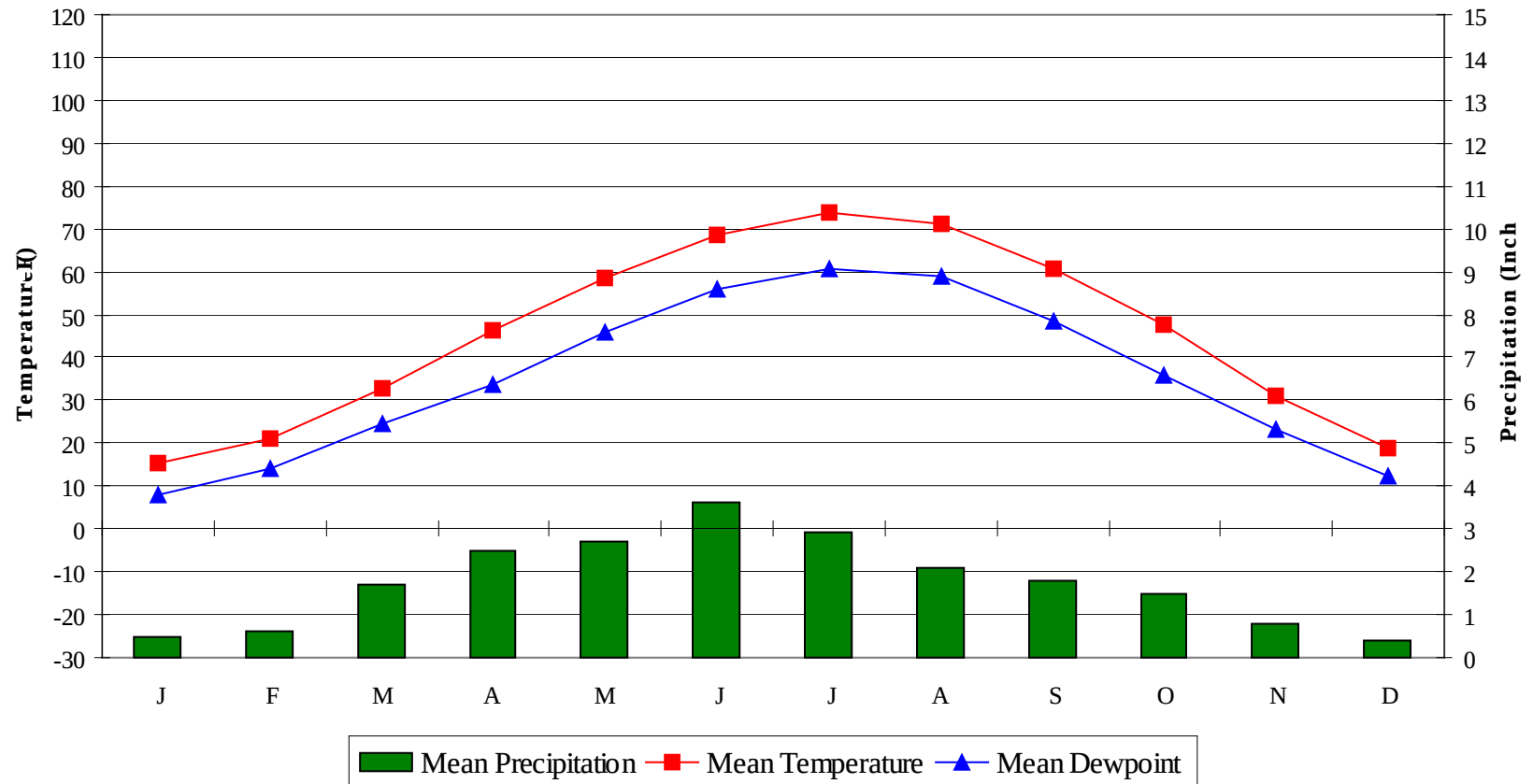
\*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.

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### Average Annual Climate

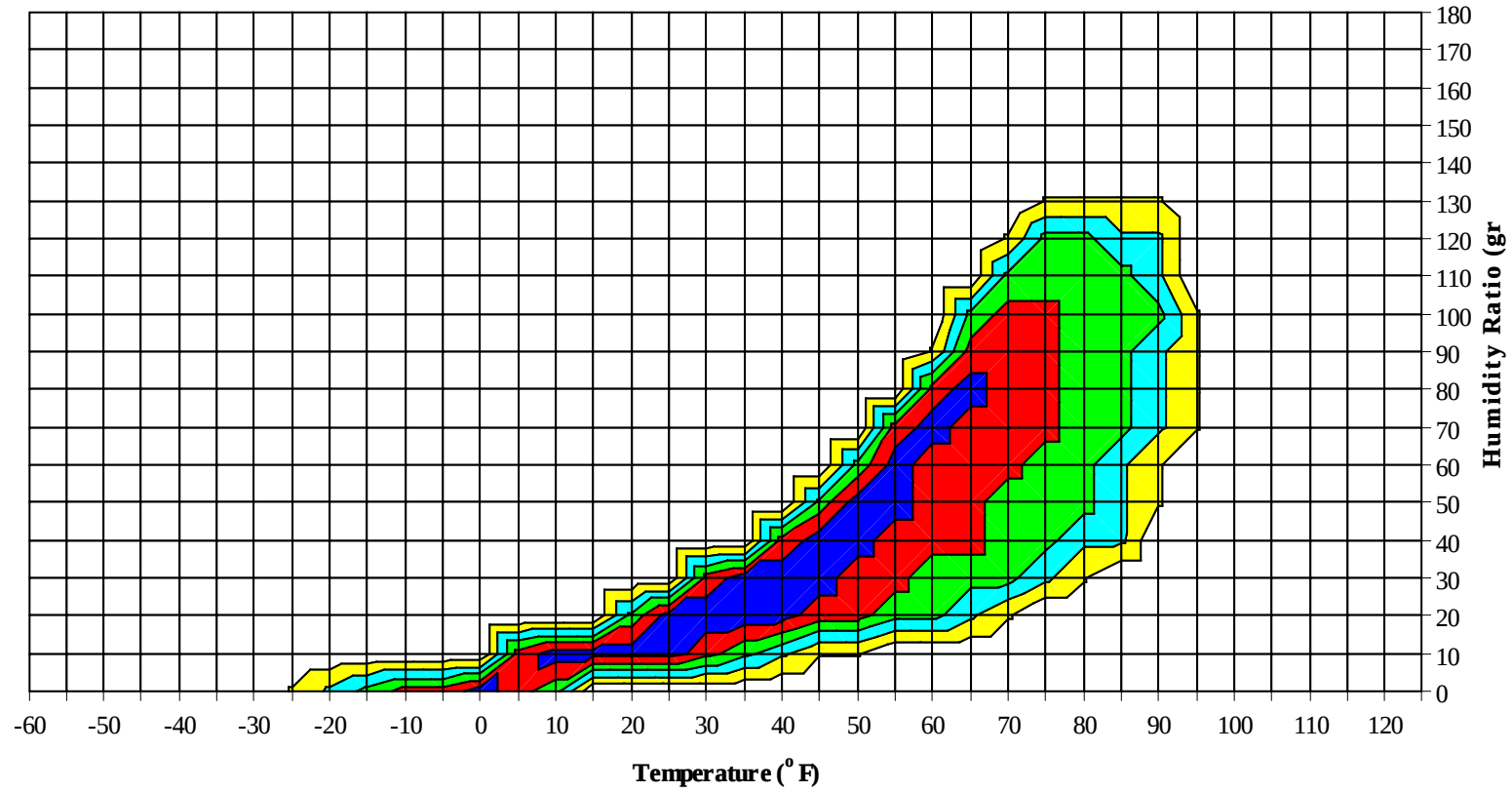


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### Long Term Psychrometric Summary

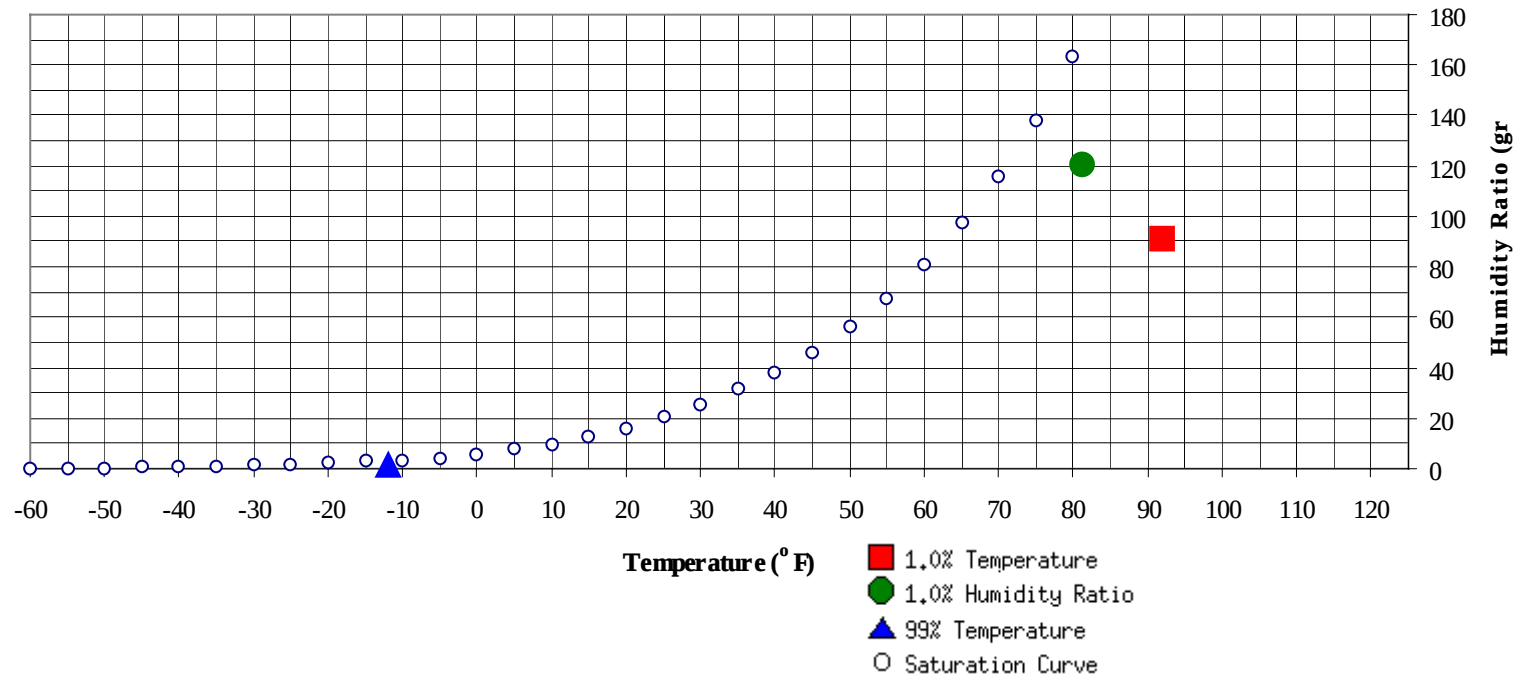


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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**Psychrometric Summary of Peak Design Values**

|              | (°F) | MCHR<br>(gr/lb) | Enthalpy<br>(btu/lb) | 1.0% Humidity<br>Ratio | (gr/lb) | MCDB<br>(°F) | MCWB<br>(°F) | MC Dewpt<br>(°F) | Enthalpy<br>(btu/lb) |
|--------------|------|-----------------|----------------------|------------------------|---------|--------------|--------------|------------------|----------------------|
| 99% Dry Bulb | -12  | 1.9             | -2.6                 |                        | 120.4   | 81.3         | 73.9         | 71.1             | 38.4                 |

|               | (°F) | MCHR<br>(gr/lb) | MCWB<br>(°F) | Enthalpy<br>(btu/lb) |
|---------------|------|-----------------|--------------|----------------------|
| 1.0% Dry Bulb | 92   | 91.5            | 71.9         | 36.5                 |

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**Dry-Bulb Temperature Hours For An Average Year (Sheet 1 of 5)****Period of Record = 1973 to 1996**

| Temperature<br>Range<br>(°F) | January             |                |                |              |                          | February            |                |                |              |                          | March               |                |                |              |                          |
|------------------------------|---------------------|----------------|----------------|--------------|--------------------------|---------------------|----------------|----------------|--------------|--------------------------|---------------------|----------------|----------------|--------------|--------------------------|
|                              | Hour<br>Group (LST) |                |                | Total<br>Obs | M<br>C<br>W<br>B<br>(°F) | Hour<br>Group (LST) |                |                | Total<br>Obs | M<br>C<br>W<br>B<br>(°F) | Hour<br>Group (LST) |                |                | Total<br>Obs | M<br>C<br>W<br>B<br>(°F) |
|                              | 01<br>To<br>08      | 09<br>To<br>16 | 17<br>To<br>00 |              |                          | 01<br>To<br>08      | 09<br>To<br>16 | 17<br>To<br>00 |              |                          | 01<br>To<br>08      | 09<br>To<br>16 | 17<br>To<br>00 |              |                          |
| 105 / 109                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 100 / 104                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 95 / 99                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 90 / 94                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 85 / 89                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 80 / 84                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 75 / 79                      |                     |                |                |              |                          |                     |                |                |              |                          |                     | 1              | 0              | 1            | 57.3                     |
| 70 / 74                      |                     |                |                |              |                          |                     |                |                |              |                          |                     | 2              | 1              | 2            | 54.9                     |
| 65 / 69                      |                     |                |                |              |                          |                     | 0              | 0              | 0            | 47.9                     |                     | 3              | 1              | 4            | 52.2                     |
| 60 / 64                      |                     | 0              |                | 0            | 44.7                     |                     | 1              | 0              | 2            | 46.2                     | 0                   | 6              | 3              | 9            | 49.2                     |
| 55 / 59                      |                     | 1              |                | 1            | 44.3                     |                     | 4              | 1              | 4            | 44.6                     | 0                   | 11             | 5              | 17           | 46.6                     |
| 50 / 54                      |                     | 2              | 0              | 2            | 41.8                     |                     | 4              | 2              | 6            | 42.6                     | 2                   | 18             | 12             | 31           | 44.4                     |
| 45 / 49                      | 0                   | 5              | 1              | 6            | 38.8                     | 0                   | 10             | 4              | 14           | 39.7                     | 6                   | 25             | 18             | 49           | 41.0                     |
| 40 / 44                      | 1                   | 13             | 5              | 19           | 36.4                     | 2                   | 18             | 11             | 30           | 37.5                     | 15                  | 40             | 34             | 89           | 37.9                     |
| 35 / 39                      | 7                   | 19             | 19             | 46           | 33.4                     | 17                  | 26             | 29             | 72           | 34.1                     | 40                  | 46             | 51             | 137          | 34.2                     |
| 30 / 34                      | 18                  | 25             | 29             | 72           | 29.5                     | 31                  | 31             | 38             | 100          | 30.1                     | 63                  | 36             | 47             | 146          | 30.2                     |
| 25 / 29                      | 29                  | 28             | 33             | 89           | 25.3                     | 35                  | 23             | 29             | 87           | 25.4                     | 40                  | 20             | 29             | 88           | 25.2                     |
| 20 / 24                      | 30                  | 29             | 26             | 84           | 20.7                     | 28                  | 23             | 22             | 72           | 20.5                     | 29                  | 16             | 18             | 63           | 20.4                     |
| 15 / 19                      | 35                  | 27             | 27             | 88           | 15.8                     | 24                  | 22             | 19             | 64           | 15.7                     | 21                  | 11             | 12             | 44           | 15.7                     |
| 10 / 14                      | 28                  | 24             | 24             | 76           | 10.8                     | 19                  | 21             | 20             | 61           | 10.8                     | 11                  | 6              | 7              | 24           | 10.7                     |
| 5 / 9                        | 21                  | 21             | 22             | 63           | 5.9                      | 18                  | 14             | 18             | 50           | 6.0                      | 7                   | 5              | 6              | 18           | 6.0                      |
| 0 / 4                        | 18                  | 21             | 19             | 58           | 1.1                      | 15                  | 11             | 12             | 39           | 1.0                      | 8                   | 2              | 3              | 13           | 1.4                      |
| -5 / -1                      | 15                  | 12             | 14             | 41           | -3.4                     | 10                  | 6              | 6              | 23           | -3.3                     | 2                   | 0              | 1              | 3            | -2.9                     |
| -10 / -6                     | 18                  | 11             | 14             | 42           | -7.7                     | 9                   | 5              | 6              | 20           | -7.7                     | 2                   | 1              | 1              | 3            | -7.5                     |
| -15 / -11                    | 13                  | 5              | 10             | 29           | -12.3                    | 9                   | 2              | 4              | 15           | -12.2                    | 1                   |                | 0              | 2            | -12.2                    |
| -20 / -16                    | 10                  | 2              | 6              | 19           | -16.8                    | 4                   | 1              | 2              | 7            | -16.7                    | 1                   |                |                | 1            | -16.0                    |
| -25 / -21                    | 4                   | 1              | 1              | 5            | -21.3                    | 2                   | 1              | 1              | 3            | -21.6                    |                     |                |                |              |                          |
| -30 / -26                    | 1                   | 0              | 0              | 1            | -26.3                    | 1                   | 0              | 0              | 1            | -27.0                    |                     |                |                |              |                          |
| -35 / -31                    | 0                   | 0              |                | 0            | -31.6                    | 1                   | 0              | 0              | 1            | -32.1                    |                     |                |                |              |                          |
| -40 / -36                    | 0                   |                |                | 0            | -35.3                    | 0                   |                |                | 0            |                          |                     |                |                |              |                          |
| -45 / -41                    |                     |                |                |              |                          | 0                   |                |                | 0            |                          |                     |                |                |              |                          |

**Caution:** This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

HURON

SD

WMO No. 726540

**Dry-Bulb Temperature Hours For An Average Year (Sheet 2 of 5)****Period of Record = 1973 to 1996**

| Temperature<br>Range<br>(°F) | April               |                |                |              |                          | May                 |                |                |              |                          | June                |                |                |              |                          |
|------------------------------|---------------------|----------------|----------------|--------------|--------------------------|---------------------|----------------|----------------|--------------|--------------------------|---------------------|----------------|----------------|--------------|--------------------------|
|                              | Hour<br>Group (LST) |                |                | Total<br>Obs | M<br>C<br>W<br>B<br>(°F) | Hour<br>Group (LST) |                |                | Total<br>Obs | M<br>C<br>W<br>B<br>(°F) | Hour<br>Group (LST) |                |                | Total<br>Obs | M<br>C<br>W<br>B<br>(°F) |
|                              | 01<br>To<br>08      | 09<br>To<br>16 | 17<br>To<br>00 |              |                          | 01<br>To<br>08      | 09<br>To<br>16 | 17<br>To<br>00 |              |                          | 01<br>To<br>08      | 09<br>To<br>16 | 17<br>To<br>00 |              |                          |
| 105 / 109                    |                     |                |                |              |                          |                     |                |                |              |                          |                     | 0              | 0              | 0            | 75.3                     |
| 100 / 104                    |                     |                |                |              |                          |                     |                |                |              |                          |                     | 1              | 0              | 1            | 73.6                     |
| 95 / 99                      |                     | 0              | 0              | 0            | 61.1                     |                     |                |                |              |                          |                     | 2              | 1              | 4            | 72.7                     |
| 90 / 94                      |                     | 1              | 0              | 1            | 62.3                     |                     | 1              | 0              | 1            | 67.4                     |                     | 11             | 6              | 17           | 71.6                     |
| 85 / 89                      |                     | 1              | 1              | 2            | 61.9                     |                     | 5              | 2              | 6            | 67.2                     | 0                   | 25             | 13             | 38           | 69.8                     |
| 80 / 84                      |                     | 4              | 2              | 6            | 61.2                     |                     | 16             | 7              | 23           | 65.7                     | 1                   | 38             | 25             | 64           | 67.7                     |
| 75 / 79                      |                     | 7              | 5              | 12           | 58.9                     | 0                   | 30             | 16             | 47           | 62.3                     | 7                   | 47             | 36             | 91           | 65.2                     |
| 70 / 74                      | 0                   | 12             | 7              | 20           | 56.3                     | 3                   | 39             | 27             | 69           | 59.4                     | 24                  | 47             | 43             | 113          | 63.1                     |
| 65 / 69                      | 1                   | 17             | 12             | 30           | 53.4                     | 12                  | 43             | 33             | 88           | 57.2                     | 41                  | 35             | 41             | 117          | 60.9                     |
| 60 / 64                      | 4                   | 25             | 17             | 46           | 50.6                     | 29                  | 40             | 41             | 110          | 54.8                     | 56                  | 20             | 38             | 114          | 57.9                     |
| 55 / 59                      | 11                  | 32             | 26             | 68           | 47.8                     | 44                  | 34             | 45             | 123          | 51.7                     | 53                  | 9              | 22             | 84           | 54.2                     |
| 50 / 54                      | 19                  | 38             | 32             | 89           | 44.8                     | 51                  | 21             | 35             | 107          | 48.0                     | 34                  | 2              | 13             | 50           | 49.8                     |
| 45 / 49                      | 30                  | 33             | 35             | 99           | 42.0                     | 43                  | 13             | 23             | 79           | 43.9                     | 16                  | 1              | 3              | 20           | 45.7                     |
| 40 / 44                      | 42                  | 32             | 40             | 114          | 38.5                     | 33                  | 5              | 12             | 50           | 39.5                     | 6                   |                | 1              | 7            | 41.5                     |
| 35 / 39                      | 50                  | 21             | 34             | 106          | 34.6                     | 22                  | 1              | 5              | 27           | 35.2                     | 1                   |                |                | 1            | 37.9                     |
| 30 / 34                      | 47                  | 11             | 19             | 77           | 30.2                     | 7                   | 0              | 1              | 9            | 30.8                     |                     |                |                |              |                          |
| 25 / 29                      | 24                  | 3              | 8              | 35           | 25.6                     | 2                   |                | 0              | 2            | 25.5                     |                     |                |                |              |                          |
| 20 / 24                      | 8                   | 1              | 1              | 10           | 20.5                     | 1                   |                | 0              | 1            | 19.7                     |                     |                |                |              |                          |
| 15 / 19                      | 3                   | 0              | 1              | 4            | 15.4                     | 0                   |                |                | 0            | 17.3                     |                     |                |                |              |                          |
| 10 / 14                      | 1                   | 0              | 0              | 1            | 11.0                     |                     |                |                |              |                          |                     |                |                |              |                          |
| 5 / 9                        | 0                   |                | 0              | 1            | 6.3                      |                     |                |                |              |                          |                     |                |                |              |                          |
| 0 / 4                        | 0                   |                | 0              | 0            | 0.8                      |                     |                |                |              |                          |                     |                |                |              |                          |
| -5 / -1                      | 0                   |                |                | 0            | -1.0                     |                     |                |                |              |                          |                     |                |                |              |                          |
| -10 / -6                     |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -15 / -11                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -20 / -16                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -25 / -21                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -30 / -26                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -35 / -31                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -40 / -36                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -45 / -41                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |

**Caution:** This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

HURON

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WMO No. 726540

**Dry-Bulb Temperature Hours For An Average Year (Sheet 3 of 5)****Period of Record = 1973 to 1996**

| Temperature<br>Range<br>(°F) | July                |                |                |              |                          | August              |                |                |              |                          | September           |                |                |              |                          |
|------------------------------|---------------------|----------------|----------------|--------------|--------------------------|---------------------|----------------|----------------|--------------|--------------------------|---------------------|----------------|----------------|--------------|--------------------------|
|                              | Hour<br>Group (LST) |                |                | Total<br>Obs | M<br>C<br>W<br>B<br>(°F) | Hour<br>Group (LST) |                |                | Total<br>Obs | M<br>C<br>W<br>B<br>(°F) | Hour<br>Group (LST) |                |                | Total<br>Obs | M<br>C<br>W<br>B<br>(°F) |
|                              | 01<br>To<br>08      | 09<br>To<br>16 | 17<br>To<br>00 |              |                          | 01<br>To<br>08      | 09<br>To<br>16 | 17<br>To<br>00 |              |                          | 01<br>To<br>08      | 09<br>To<br>16 | 17<br>To<br>00 |              |                          |
| 105 / 109                    |                     | 0              | 0              | 0            | 70.7                     |                     | 0              |                | 0            | 73.3                     |                     |                |                |              |                          |
| 100 / 104                    |                     | 4              | 1              | 5            | 73.9                     |                     | 2              | 1              | 3            | 72.6                     |                     | 1              | 0              | 1            | 70.2                     |
| 95 / 99                      |                     | 11             | 6              | 17           | 73.8                     |                     | 6              | 3              | 9            | 72.5                     |                     | 2              | 1              | 3            | 69.0                     |
| 90 / 94                      |                     | 25             | 14             | 39           | 72.6                     |                     | 18             | 8              | 26           | 72.2                     |                     | 6              | 2              | 8            | 68.4                     |
| 85 / 89                      | 0                   | 41             | 26             | 67           | 70.9                     |                     | 35             | 20             | 54           | 70.5                     |                     | 12             | 6              | 18           | 68.0                     |
| 80 / 84                      | 5                   | 54             | 39             | 98           | 68.9                     | 2                   | 50             | 32             | 84           | 68.7                     | 0                   | 20             | 11             | 31           | 65.5                     |
| 75 / 79                      | 22                  | 50             | 46             | 118          | 67.1                     | 10                  | 49             | 42             | 101          | 66.9                     | 1                   | 26             | 18             | 46           | 63.4                     |
| 70 / 74                      | 46                  | 37             | 48             | 131          | 65.4                     | 40                  | 44             | 53             | 138          | 65.3                     | 10                  | 37             | 25             | 72           | 61.4                     |
| 65 / 69                      | 63                  | 18             | 38             | 119          | 62.8                     | 62                  | 25             | 40             | 127          | 62.4                     | 17                  | 38             | 31             | 86           | 58.8                     |
| 60 / 64                      | 60                  | 7              | 22             | 88           | 59.3                     | 56                  | 11             | 29             | 97           | 58.7                     | 30                  | 36             | 38             | 104          | 55.8                     |
| 55 / 59                      | 36                  | 1              | 7              | 45           | 55.4                     | 46                  | 4              | 15             | 66           | 54.6                     | 45                  | 31             | 41             | 116          | 52.6                     |
| 50 / 54                      | 14                  | 0              | 1              | 15           | 51.0                     | 22                  | 0              | 5              | 27           | 50.3                     | 46                  | 18             | 34             | 98           | 48.5                     |
| 45 / 49                      | 2                   |                |                | 2            | 46.7                     | 9                   |                | 1              | 10           | 45.9                     | 40                  | 8              | 20             | 68           | 44.2                     |
| 40 / 44                      | 0                   |                |                | 0            | 42.8                     | 2                   |                |                | 2            | 41.4                     | 28                  | 3              | 10             | 41           | 39.8                     |
| 35 / 39                      |                     |                |                |              |                          | 0                   |                |                | 0            | 37.8                     | 16                  | 1              | 3              | 20           | 35.7                     |
| 30 / 34                      |                     |                |                |              |                          |                     |                |                |              |                          | 5                   | 0              | 1              | 6            | 31.0                     |
| 25 / 29                      |                     |                |                |              |                          |                     |                |                |              |                          | 2                   | 0              | 0              | 2            | 26.1                     |
| 20 / 24                      |                     |                |                |              |                          |                     |                |                |              |                          | 0                   |                |                | 0            | 22.0                     |
| 15 / 19                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 10 / 14                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 5 / 9                        |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 0 / 4                        |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -5 / -1                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -10 / -6                     |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -15 / -11                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -20 / -16                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -25 / -21                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -30 / -26                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -35 / -31                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -40 / -36                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -45 / -41                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |

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HURON

SD

WMO No. 726540

**Dry-Bulb Temperature Hours For An Average Year (Sheet 4 of 5)****Period of Record = 1973 to 1996**

| Temperature<br>Range<br>(°F) | October             |                |                |              |                          | November            |                |                |              |                          | December            |                |                |              |                          |
|------------------------------|---------------------|----------------|----------------|--------------|--------------------------|---------------------|----------------|----------------|--------------|--------------------------|---------------------|----------------|----------------|--------------|--------------------------|
|                              | Hour<br>Group (LST) |                |                | Total<br>Obs | M<br>C<br>W<br>B<br>(°F) | Hour<br>Group (LST) |                |                | Total<br>Obs | M<br>C<br>W<br>B<br>(°F) | Hour<br>Group (LST) |                |                | Total<br>Obs | M<br>C<br>W<br>B<br>(°F) |
|                              | 01<br>To<br>08      | 09<br>To<br>16 | 17<br>To<br>00 |              |                          | 01<br>To<br>08      | 09<br>To<br>16 | 17<br>To<br>00 |              |                          | 01<br>To<br>08      | 09<br>To<br>16 | 17<br>To<br>00 |              |                          |
| 105 / 109                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 100 / 104                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 95 / 99                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 90 / 94                      |                     | 0              |                | 0            | 60.0                     |                     |                |                |              |                          |                     |                |                |              |                          |
| 85 / 89                      |                     | 1              | 0              | 1            | 60.8                     |                     |                |                |              |                          |                     |                |                |              |                          |
| 80 / 84                      |                     | 3              | 1              | 4            | 59.2                     |                     |                |                |              |                          |                     |                |                |              |                          |
| 75 / 79                      |                     | 8              | 2              | 10           | 58.3                     |                     | 0              |                | 0            | 55.6                     |                     |                |                |              |                          |
| 70 / 74                      | 0                   | 15             | 6              | 21           | 56.3                     |                     | 1              |                | 1            | 53.1                     |                     |                |                |              |                          |
| 65 / 69                      | 1                   | 22             | 10             | 33           | 54.1                     |                     | 3              | 0              | 3            | 51.5                     |                     |                |                |              |                          |
| 60 / 64                      | 5                   | 31             | 19             | 55           | 51.8                     |                     | 7              | 1              | 8            | 49.5                     |                     | 0              |                | 0            | 45.0                     |
| 55 / 59                      | 13                  | 40             | 33             | 86           | 49.6                     | 2                   | 10             | 5              | 17           | 48.3                     | 0                   | 1              | 0              | 1            | 46.9                     |
| 50 / 54                      | 25                  | 39             | 37             | 101          | 46.2                     | 3                   | 17             | 8              | 29           | 44.5                     | 0                   | 3              | 0              | 3            | 42.6                     |
| 45 / 49                      | 40                  | 35             | 42             | 118          | 42.5                     | 6                   | 23             | 15             | 43           | 40.8                     | 0                   | 7              | 1              | 8            | 39.3                     |
| 40 / 44                      | 48                  | 27             | 39             | 114          | 38.5                     | 13                  | 28             | 21             | 63           | 37.4                     | 2                   | 14             | 4              | 19           | 36.5                     |
| 35 / 39                      | 48                  | 15             | 31             | 95           | 34.2                     | 31                  | 37             | 37             | 105          | 33.6                     | 7                   | 25             | 19             | 52           | 33.3                     |
| 30 / 34                      | 35                  | 6              | 19             | 60           | 30.0                     | 46                  | 38             | 49             | 133          | 29.7                     | 24                  | 35             | 34             | 93           | 29.7                     |
| 25 / 29                      | 20                  | 2              | 6              | 28           | 25.6                     | 48                  | 31             | 41             | 119          | 25.3                     | 37                  | 37             | 41             | 115          | 25.2                     |
| 20 / 24                      | 8                   | 1              | 3              | 12           | 20.8                     | 37                  | 19             | 28             | 84           | 20.7                     | 43                  | 32             | 38             | 113          | 20.8                     |
| 15 / 19                      | 3                   | 0              | 1              | 4            | 16.7                     | 24                  | 11             | 15             | 50           | 16.1                     | 36                  | 27             | 27             | 91           | 16.1                     |
| 10 / 14                      | 1                   | 0              | 0              | 1            | 11.2                     | 13                  | 7              | 8              | 28           | 11.0                     | 28                  | 21             | 24             | 72           | 11.0                     |
| 5 / 9                        |                     |                |                |              |                          | 9                   | 4              | 5              | 17           | 6.5                      | 19                  | 13             | 17             | 49           | 6.1                      |
| 0 / 4                        |                     |                |                |              |                          | 4                   | 2              | 3              | 9            | 1.4                      | 19                  | 12             | 14             | 45           | 1.1                      |
| -5 / -1                      |                     |                |                |              |                          | 2                   | 1              | 2              | 6            | -3.0                     | 10                  | 7              | 9              | 26           | -3.4                     |
| -10 / -6                     |                     |                |                |              |                          | 2                   | 0              | 1              | 4            | -7.3                     | 10                  | 7              | 9              | 26           | -7.5                     |
| -15 / -11                    |                     |                |                |              |                          | 1                   |                | 0              | 1            | -11.2                    | 6                   | 4              | 7              | 17           | -12.4                    |
| -20 / -16                    |                     |                |                |              |                          | 0                   |                | 0              | 0            | -15.8                    | 4                   | 2              | 3              | 9            | -16.7                    |
| -25 / -21                    |                     |                |                |              |                          |                     |                |                |              |                          | 1                   | 1              | 1              | 3            | -21.6                    |
| -30 / -26                    |                     |                |                |              |                          |                     |                |                |              |                          | 2                   | 0              | 0              | 2            | -26.4                    |
| -35 / -31                    |                     |                |                |              |                          |                     |                |                |              |                          | 0                   |                |                | 0            | -30.0                    |
| -40 / -36                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -45 / -41                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |

**Caution:** This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.



**HURON SD**

WMO No. 726540

**Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)****Period of Record = 1973 to 1996**

| Temperature<br>Range<br>(°F) | Annual Totals       |                |                |              |                          |
|------------------------------|---------------------|----------------|----------------|--------------|--------------------------|
|                              | Hour<br>Group (LST) |                |                | Total<br>Obs | M<br>C<br>W<br>B<br>(°F) |
|                              | 01<br>To<br>08      | 09<br>To<br>16 | 17<br>To<br>00 |              |                          |
| 105 / 109                    |                     | 1              | 0              | 1            | 73.3                     |
| 100 / 104                    |                     | 7              | 2              | 9            | 73.1                     |
| 95 / 99                      |                     | 23             | 11             | 33           | 72.7                     |
| 90 / 94                      |                     | 61             | 31             | 92           | 71.8                     |
| 85 / 89                      | 0                   | 120            | 67             | 187          | 70.0                     |
| 80 / 84                      | 8                   | 185            | 117            | 309          | 67.7                     |
| 75 / 79                      | 40                  | 218            | 165            | 424          | 65.3                     |
| 70 / 74                      | 123                 | 232            | 209            | 564          | 63.0                     |
| 65 / 69                      | 198                 | 204            | 205            | 607          | 59.9                     |
| 60 / 64                      | 239                 | 183            | 208            | 630          | 56.0                     |
| 55 / 59                      | 249                 | 176            | 201            | 626          | 51.8                     |
| 50 / 54                      | 215                 | 162            | 179            | 556          | 47.1                     |
| 45 / 49                      | 193                 | 158            | 162            | 513          | 42.6                     |
| 40 / 44                      | 191                 | 180            | 177            | 548          | 38.3                     |
| 35 / 39                      | 239                 | 192            | 230            | 662          | 34.1                     |
| 30 / 34                      | 277                 | 184            | 238            | 699          | 29.9                     |
| 25 / 29                      | 235                 | 145            | 188            | 568          | 25.3                     |
| 20 / 24                      | 184                 | 121            | 137            | 442          | 20.6                     |
| 15 / 19                      | 148                 | 99             | 101            | 348          | 15.9                     |
| 10 / 14                      | 101                 | 80             | 84             | 265          | 10.9                     |
| 5 / 9                        | 74                  | 58             | 67             | 199          | 6.0                      |
| 0 / 4                        | 65                  | 49             | 52             | 166          | 1.1                      |
| -5 / -1                      | 39                  | 27             | 32             | 99           | -3.3                     |
| -10 / -6                     | 41                  | 24             | 31             | 95           | -7.6                     |
| -15 / -11                    | 30                  | 11             | 22             | 64           | -12.3                    |
| -20 / -16                    | 20                  | 5              | 11             | 35           | -16.7                    |
| -25 / -21                    | 8                   | 2              | 2              | 12           | -21.5                    |
| -30 / -26                    | 3                   | 0              | 1              | 4            | -26.5                    |
| -35 / -31                    | 1                   | 0              | 0              | 1            | -31.8                    |
| -40 / -36                    | 0                   |                |                | 0            | -35.3                    |
| -45 / -41                    | 0                   |                |                | 0            |                          |

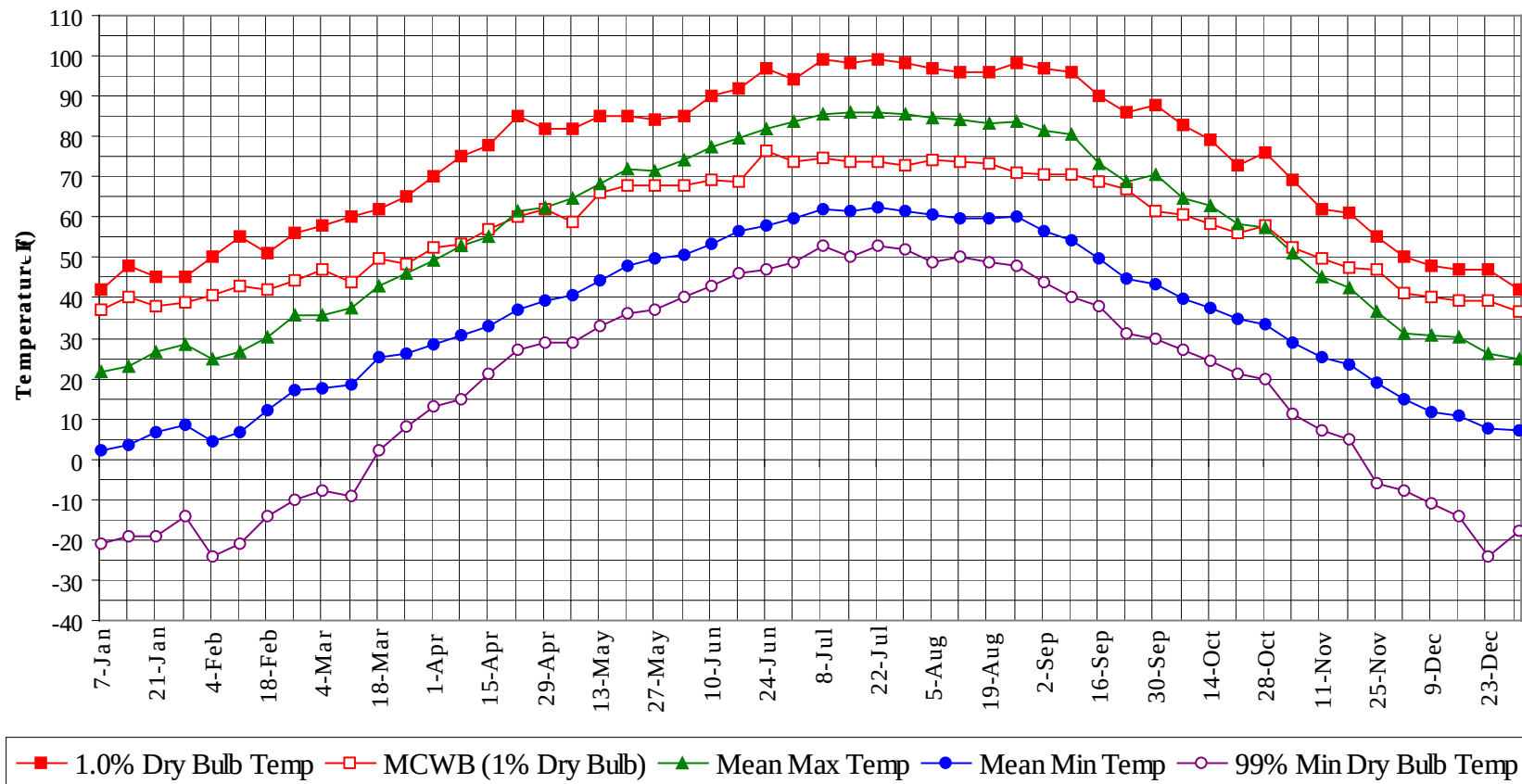
**Caution:** This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

HURON

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### Annual Summary of Temperatures

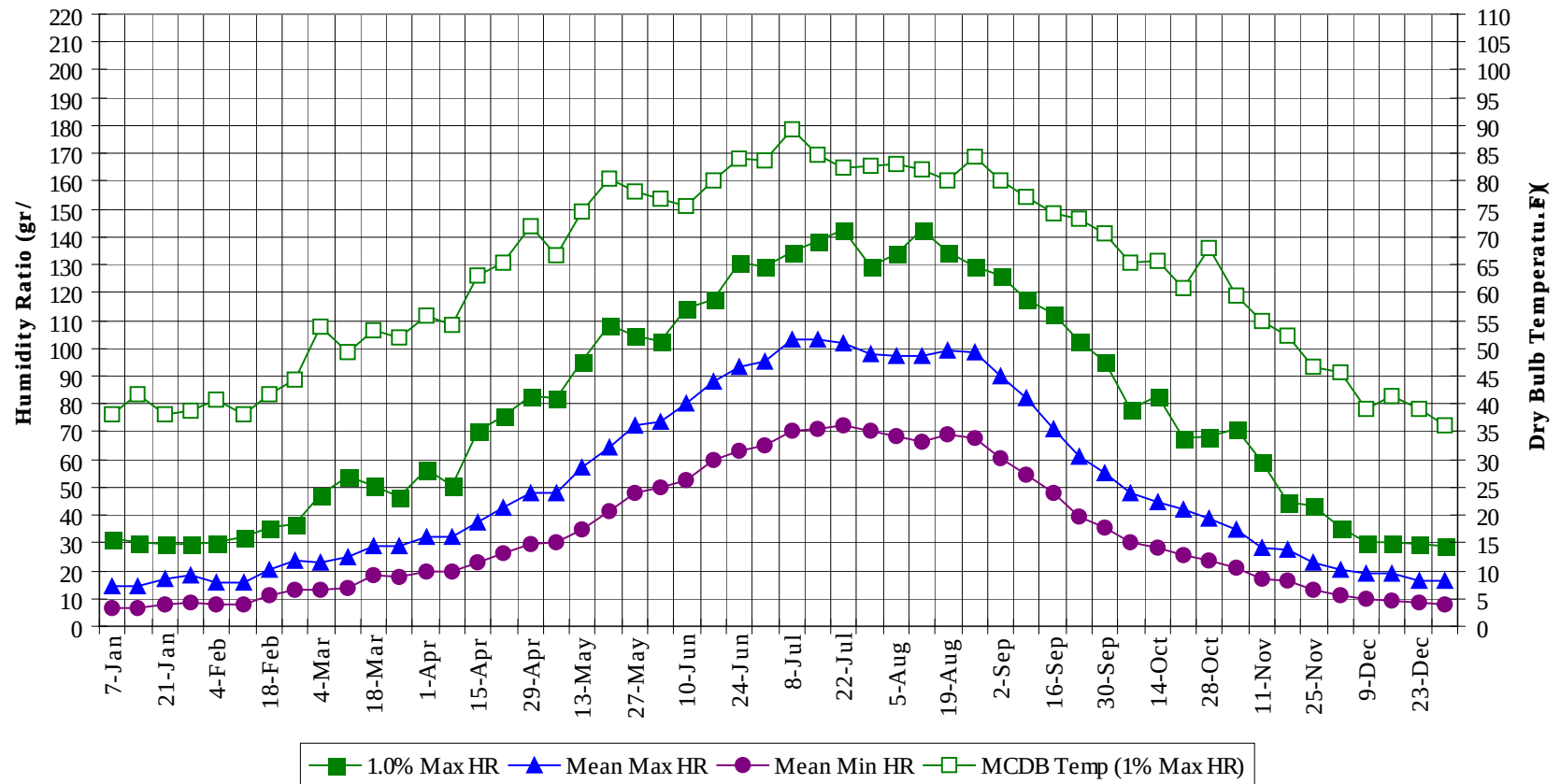


HURON

SD

WMO No. 726540

## Long Term Humidity and Dry Bulb Temperature Summary



**HURON****SD****WMO No. 726540****Long Term Dry Bulb Temperature and Humidity Summary**

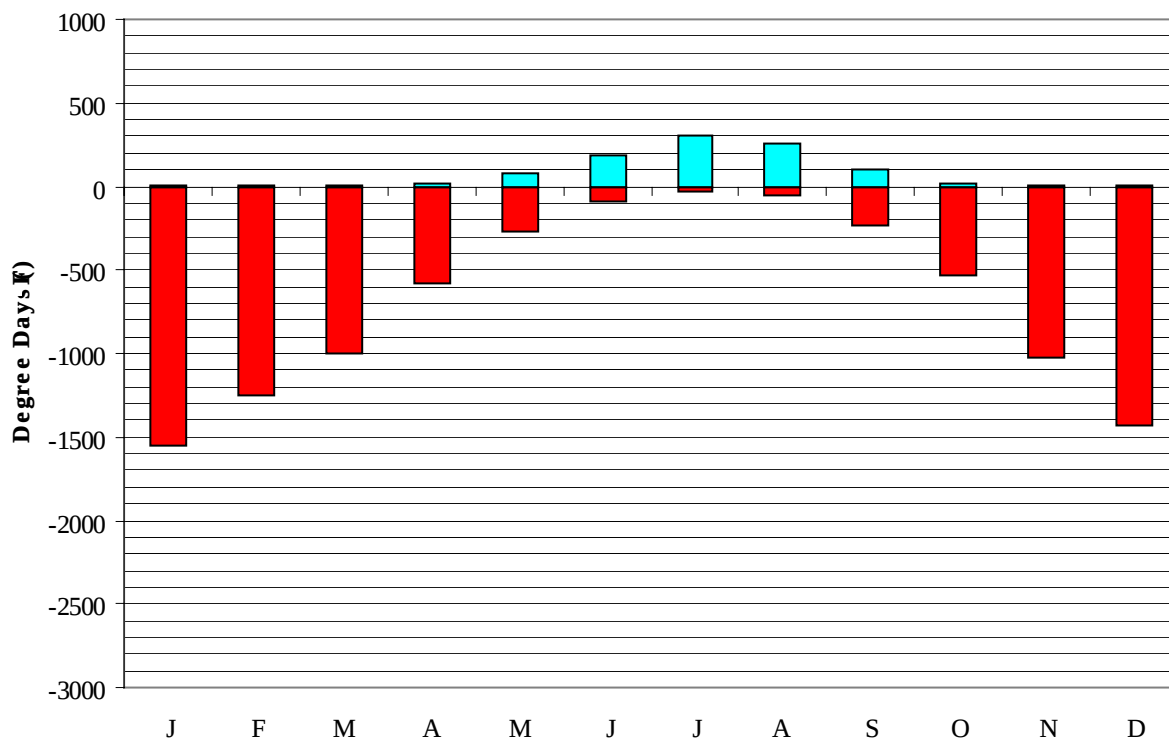
| Week<br>Ending | 1.0%<br>Temp (°F) | MCWB @<br>1% Temp (°F) | Mean Max<br>Temp (°F) | Mean Min<br>Temp (°F) | 99%<br>Temp (°F) | 1.0%<br>HR (gr/lb) | MCDB @<br>1% HR (°F) | Mean Max<br>HR (gr/lb) | Mean Min<br>HR (gr/lb) |
|----------------|-------------------|------------------------|-----------------------|-----------------------|------------------|--------------------|----------------------|------------------------|------------------------|
| 7-Jan          | 42.0              | 36.9                   | 21.7                  | 2.1                   | -21.0            | 31.5               | 38.1                 | 14.4                   | 6.7                    |
| 14-Jan         | 48.0              | 40.3                   | 22.8                  | 3.4                   | -19.0            | 30.1               | 41.8                 | 14.7                   | 6.8                    |
| 21-Jan         | 45.0              | 38.1                   | 26.4                  | 6.7                   | -19.0            | 29.4               | 38.2                 | 17.1                   | 8.1                    |
| 28-Jan         | 45.0              | 39.0                   | 28.6                  | 8.6                   | -14.0            | 29.4               | 38.7                 | 18.2                   | 8.2                    |
| 4-Feb          | 50.0              | 40.9                   | 24.7                  | 4.5                   | -24.0            | 30.1               | 40.7                 | 15.5                   | 7.9                    |
| 11-Feb         | 55.0              | 43.0                   | 26.5                  | 6.5                   | -21.0            | 32.2               | 38.1                 | 15.8                   | 7.8                    |
| 18-Feb         | 51.0              | 42.0                   | 30.2                  | 12.3                  | -14.0            | 35.7               | 41.8                 | 20.3                   | 10.9                   |
| 25-Feb         | 56.0              | 44.5                   | 35.6                  | 17.0                  | -10.0            | 37.1               | 44.3                 | 23.5                   | 12.9                   |
| 4-Mar          | 58.0              | 47.1                   | 35.8                  | 17.6                  | -8.0             | 47.6               | 53.9                 | 23.1                   | 13.3                   |
| 11-Mar         | 60.0              | 43.8                   | 37.7                  | 18.3                  | -9.0             | 53.9               | 49.4                 | 25.0                   | 13.9                   |
| 18-Mar         | 62.0              | 49.6                   | 43.1                  | 25.1                  | 2.0              | 50.4               | 53.2                 | 29.0                   | 18.1                   |
| 25-Mar         | 65.0              | 48.6                   | 46.1                  | 26.4                  | 8.0              | 46.9               | 51.8                 | 28.9                   | 17.7                   |
| 1-Apr          | 70.0              | 52.6                   | 49.2                  | 28.6                  | 13.0             | 56.7               | 55.8                 | 32.4                   | 19.8                   |
| 8-Apr          | 75.0              | 53.6                   | 53.0                  | 30.7                  | 15.0             | 50.4               | 54.3                 | 32.0                   | 20.0                   |
| 15-Apr         | 78.0              | 56.8                   | 55.3                  | 33.0                  | 21.0             | 70.0               | 62.9                 | 37.6                   | 23.2                   |
| 22-Apr         | 85.0              | 60.2                   | 61.6                  | 37.2                  | 27.0             | 75.6               | 65.2                 | 42.8                   | 26.5                   |
| 29-Apr         | 82.0              | 62.1                   | 62.5                  | 39.3                  | 29.0             | 82.6               | 71.9                 | 48.2                   | 29.8                   |
| 6-May          | 82.0              | 58.8                   | 64.7                  | 40.5                  | 29.0             | 81.9               | 66.6                 | 47.8                   | 30.3                   |
| 13-May         | 85.0              | 66.1                   | 68.4                  | 44.3                  | 33.0             | 95.2               | 74.4                 | 57.3                   | 34.7                   |
| 20-May         | 85.0              | 67.7                   | 71.9                  | 47.8                  | 36.0             | 108.5              | 80.6                 | 64.6                   | 41.5                   |
| 27-May         | 84.0              | 67.7                   | 71.5                  | 49.8                  | 37.0             | 104.3              | 78.1                 | 72.0                   | 47.8                   |
| 3-Jun          | 85.0              | 67.9                   | 74.0                  | 50.8                  | 40.0             | 102.2              | 77.0                 | 73.9                   | 50.0                   |
| 10-Jun         | 90.0              | 69.4                   | 77.3                  | 53.6                  | 43.0             | 114.1              | 75.6                 | 80.1                   | 52.8                   |
| 17-Jun         | 92.0              | 69.0                   | 79.7                  | 56.6                  | 46.0             | 117.6              | 80.3                 | 88.3                   | 59.5                   |
| 24-Jun         | 97.0              | 76.4                   | 81.9                  | 58.0                  | 47.0             | 130.9              | 84.0                 | 93.1                   | 63.3                   |
| 1-Jul          | 94.0              | 73.6                   | 83.7                  | 59.6                  | 49.0             | 129.5              | 83.8                 | 95.1                   | 65.2                   |
| 8-Jul          | 99.0              | 74.6                   | 85.6                  | 62.1                  | 53.0             | 134.4              | 89.4                 | 102.8                  | 70.5                   |
| 15-Jul         | 98.0              | 73.6                   | 85.9                  | 61.6                  | 50.0             | 138.6              | 84.9                 | 103.1                  | 71.0                   |
| 22-Jul         | 99.0              | 73.9                   | 86.0                  | 62.5                  | 53.0             | 142.8              | 82.4                 | 101.8                  | 72.1                   |
| 29-Jul         | 98.0              | 72.8                   | 85.7                  | 61.5                  | 52.0             | 129.5              | 82.6                 | 98.0                   | 70.0                   |
| 5-Aug          | 97.0              | 74.0                   | 84.6                  | 60.5                  | 49.0             | 133.7              | 83.0                 | 97.2                   | 68.4                   |
| 12-Aug         | 96.0              | 73.9                   | 84.4                  | 59.7                  | 50.0             | 142.8              | 82.1                 | 97.0                   | 66.3                   |
| 19-Aug         | 96.0              | 73.3                   | 83.2                  | 59.8                  | 49.0             | 134.4              | 80.0                 | 99.3                   | 68.8                   |
| 26-Aug         | 98.0              | 71.0                   | 83.9                  | 60.2                  | 48.0             | 129.5              | 84.4                 | 98.2                   | 67.9                   |
| 2-Sep          | 97.0              | 70.4                   | 81.6                  | 56.7                  | 44.0             | 126.0              | 80.2                 | 90.0                   | 60.3                   |
| 9-Sep          | 96.0              | 70.6                   | 80.3                  | 54.2                  | 40.0             | 117.6              | 77.3                 | 82.1                   | 54.6                   |
| 16-Sep         | 90.0              | 68.6                   | 73.2                  | 49.9                  | 38.0             | 112.0              | 74.3                 | 71.1                   | 48.2                   |
| 23-Sep         | 86.0              | 67.0                   | 68.7                  | 44.8                  | 31.0             | 102.2              | 73.2                 | 60.8                   | 39.2                   |
| 30-Sep         | 88.0              | 61.4                   | 70.5                  | 43.3                  | 30.0             | 95.2               | 70.5                 | 55.4                   | 35.5                   |
| 7-Oct          | 83.0              | 60.5                   | 64.5                  | 39.8                  | 27.0             | 78.4               | 65.4                 | 48.2                   | 30.5                   |
| 14-Oct         | 79.0              | 58.2                   | 62.7                  | 37.4                  | 24.5             | 82.6               | 65.7                 | 44.4                   | 28.3                   |
| 21-Oct         | 73.0              | 56.3                   | 58.5                  | 34.6                  | 21.0             | 67.9               | 60.8                 | 41.7                   | 25.8                   |
| 28-Oct         | 76.0              | 57.9                   | 57.3                  | 33.5                  | 20.0             | 68.6               | 67.9                 | 38.9                   | 23.7                   |
| 4-Nov          | 69.0              | 52.5                   | 51.0                  | 29.1                  | 11.0             | 70.7               | 59.4                 | 34.8                   | 20.9                   |
| 11-Nov         | 62.0              | 49.7                   | 45.1                  | 25.4                  | 7.0              | 58.8               | 54.8                 | 28.5                   | 17.0                   |
| 18-Nov         | 61.0              | 47.5                   | 42.5                  | 23.5                  | 5.0              | 44.8               | 52.2                 | 27.3                   | 16.3                   |
| 25-Nov         | 55.0              | 47.2                   | 36.5                  | 18.9                  | -6.0             | 43.4               | 46.6                 | 22.8                   | 13.1                   |
| 2-Dec          | 50.0              | 41.1                   | 31.2                  | 14.8                  | -8.0             | 35.7               | 45.6                 | 20.6                   | 11.2                   |
| 9-Dec          | 48.0              | 40.2                   | 30.9                  | 11.8                  | -11.0            | 30.1               | 39.2                 | 19.2                   | 9.9                    |
| 16-Dec         | 47.0              | 39.3                   | 30.3                  | 10.9                  | -14.0            | 30.1               | 41.4                 | 19.2                   | 9.4                    |
| 23-Dec         | 47.0              | 39.4                   | 26.2                  | 7.4                   | -24.0            | 29.4               | 39.1                 | 16.7                   | 8.4                    |
| 31-Dec         | 42.0              | 36.4                   | 24.8                  | 7.0                   | -18.0            | 28.7               | 36.2                 | 16.3                   | 8.2                    |

HURON

SD

WMO No. 726540

**Degree Days, Heating and Cooling**  
(Base 65°F)



■ Mean Cooling Degree Days ■ Mean Heating Degree Days

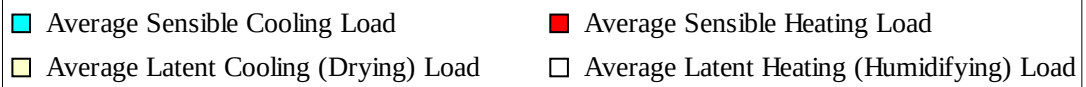
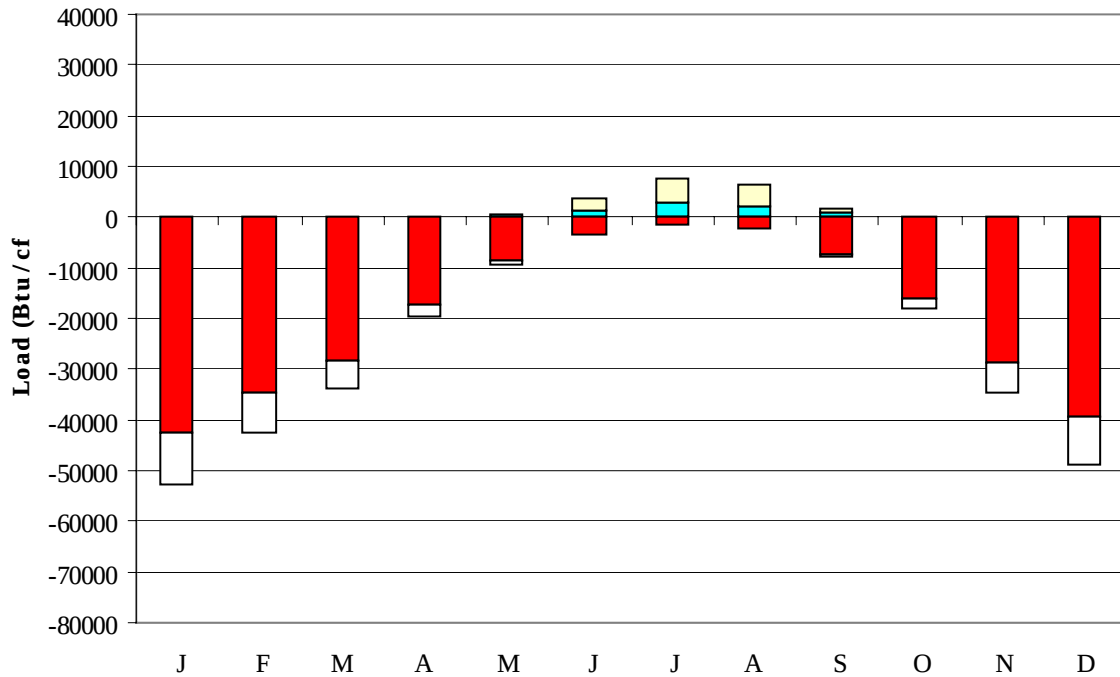
|     | Mean Cooling<br>Degree Days (°F) | Mean Heating<br>Degree Days (°F) |
|-----|----------------------------------|----------------------------------|
| JAN | 0                                | 1548                             |
| FEB | 0                                | 1247                             |
| MAR | 1                                | 1002                             |
| APR | 21                               | 576                              |
| MAY | 72                               | 268                              |
| JUN | 189                              | 89                               |
| JUL | 310                              | 33                               |
| AUG | 254                              | 56                               |
| SEP | 101                              | 229                              |
| OCT | 16                               | 537                              |
| NOV | 1                                | 1019                             |
| DEC | 0                                | 1430                             |
| ANN | 964                              | 8034                             |

HURON

SD

WMO No. 726540

**Average Ventilation and Infiltration Loads**  
**(Outside Air vs. 75°F, 60% RH summer; 68°F, 30% RH winter)**



|     | Average Sensible Cooling Load (Btu/cfm) | Average Sensible Heating Load (Btu/cfm) | Average Latent Cooling Load (Btu/cfm) | Average Latent Heating Load (Btu/cfm) |
|-----|-----------------------------------------|-----------------------------------------|---------------------------------------|---------------------------------------|
| JAN | 0                                       | -42536                                  | 0                                     | -10154                                |
| FEB | 0                                       | -34515                                  | 0                                     | -7838                                 |
| MAR | 2                                       | -28355                                  | 0                                     | -5524                                 |
| APR | 111                                     | -17069                                  | 6                                     | -2507                                 |
| MAY | 351                                     | -8723                                   | 308                                   | -515                                  |
| JUN | 1500                                    | -3330                                   | 2140                                  | -4                                    |
| JUL | 3047                                    | -1485                                   | 4624                                  | -1                                    |
| AUG | 2255                                    | -2241                                   | 4085                                  | -6                                    |
| SEP | 765                                     | -7532                                   | 849                                   | -273                                  |
| OCT | 59                                      | -16078                                  | 3                                     | -2108                                 |
| NOV | 0                                       | -28748                                  | 0                                     | -6028                                 |
| DEC | 0                                       | -39468                                  | 0                                     | -9295                                 |
| ANN | 8090                                    | -230080                                 | 12015                                 | -44253                                |

## Average Annual Solar Radiation – Nearest Available Site

(Source: National Renewable Energy Laboratory, Golden CO, 1995)

City: HURON  
 State: SD  
 WBAN No: 14936  
 Lat(N): 44.38  
 Long(W): 98.22  
 Elev(ft): 1289

Stn Type: Secondary  
 SHADING GEOMETRY IN DIMENSIONLESS UNITS

Window: 1  
 Overhang: 0.66  
 Vert Gap: 0.331

| AVERAGE INCIDENT SOLAR RADIATION (Btu/sq.ft./day), Percentage Uncertainty = 9 |         | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  | Year |
|-------------------------------------------------------------------------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| HORIZ                                                                         | Global  | 560  | 820  | 1180 | 1530 | 1850 | 2070 | 2110 | 1840 | 1390 | 960  | 600  | 460  | 1280 |
|                                                                               | Std Dev | 37   | 68   | 107  | 151  | 128  | 147  | 97   | 101  | 136  | 76   | 40   | 29   | 43   |
|                                                                               | Minimum | 470  | 650  | 960  | 1210 | 1530 | 1800 | 1930 | 1680 | 1100 | 800  | 470  | 420  | 1210 |
|                                                                               | Maximum | 630  | 1000 | 1380 | 1790 | 2080 | 2360 | 2350 | 2060 | 1670 | 1110 | 650  | 520  | 1400 |
|                                                                               | Diffuse | 280  | 420  | 580  | 680  | 780  | 780  | 710  | 620  | 510  | 390  | 300  | 250  | 520  |
| Clear Day                                                                     | Global  | 740  | 1100 | 1630 | 2160 | 2530 | 2670 | 2570 | 2250 | 1760 | 1210 | 800  | 630  | 1670 |
| NORTH                                                                         | Global  | 180  | 250  | 350  | 440  | 560  | 640  | 600  | 470  | 350  | 260  | 190  | 150  | 370  |
|                                                                               | Diffuse | 180  | 250  | 350  | 430  | 500  | 530  | 510  | 440  | 350  | 260  | 190  | 150  | 340  |
| Clear Day                                                                     | Global  | 160  | 220  | 300  | 410  | 590  | 700  | 640  | 460  | 330  | 230  | 160  | 140  | 360  |
| EAST                                                                          | Global  | 400  | 560  | 750  | 930  | 1080 | 1160 | 1210 | 1090 | 880  | 650  | 410  | 330  | 790  |
|                                                                               | Diffuse | 220  | 310  | 430  | 520  | 600  | 630  | 610  | 540  | 440  | 330  | 230  | 190  | 420  |
| Clear Day                                                                     | Global  | 620  | 850  | 1140 | 1380 | 1520 | 1550 | 1520 | 1400 | 1180 | 900  | 650  | 540  | 1110 |
| SOUTH                                                                         | Global  | 1050 | 1140 | 1150 | 1060 | 950  | 910  | 980  | 1120 | 1220 | 1230 | 1000 | 930  | 1060 |
|                                                                               | Diffuse | 340  | 430  | 520  | 550  | 580  | 580  | 570  | 540  | 490  | 420  | 340  | 300  | 470  |
| Clear Day                                                                     | Global  | 1880 | 2010 | 1930 | 1570 | 1240 | 1080 | 1130 | 1390 | 1740 | 1920 | 1860 | 1770 | 1620 |
| WEST                                                                          | Global  | 410  | 560  | 750  | 930  | 1080 | 1200 | 1220 | 1130 | 900  | 650  | 430  | 350  | 800  |
|                                                                               | Diffuse | 220  | 320  | 440  | 520  | 600  | 640  | 620  | 550  | 440  | 330  | 230  | 190  | 430  |
| Clear Day                                                                     | Global  | 620  | 850  | 1140 | 1380 | 1520 | 1550 | 1520 | 1400 | 1180 | 900  | 650  | 540  | 1110 |

## Average Annual Solar Heat and Illumination – Nearest Available Site

(Source: National Renewable Energy Laboratory, Golden CO, 1995)

| AVERAGE TRANSMITTED SOLAR RADIATION (Btu/sq.ft./day) FOR DOUBLE GLAZING, Percentage Uncertainty = 9 |          | Jan | Feb | Mar | Apr  | May  | Jun  | Jul  | Aug  | Sep | Oct | Nov | Dec | Year |
|-----------------------------------------------------------------------------------------------------|----------|-----|-----|-----|------|------|------|------|------|-----|-----|-----|-----|------|
| HORIZ                                                                                               | Unshaded | 350 | 550 | 820 | 1100 | 1330 | 1510 | 1530 | 1330 | 980 | 650 | 380 | 280 | 900  |
| NORTH                                                                                               | Unshaded | 120 | 180 | 240 | 300  | 370  | 410  | 390  | 310  | 240 | 180 | 130 | 110 | 250  |
|                                                                                                     | Shaded   | 100 | 150 | 200 | 250  | 320  | 360  | 340  | 280  | 210 | 160 | 110 | 88  | 210  |
| EAST                                                                                                | Unshaded | 270 | 390 | 530 | 670  | 770  | 830  | 860  | 780  | 630 | 460 | 290 | 230 | 560  |
|                                                                                                     | Shaded   | 240 | 330 | 450 | 550  | 630  | 670  | 700  | 640  | 530 | 390 | 250 | 200 | 460  |
| SOUTH                                                                                               | Unshaded | 800 | 840 | 810 | 710  | 600  | 560  | 600  | 720  | 840 | 900 | 760 | 710 | 740  |
|                                                                                                     | Shaded   | 770 | 770 | 610 | 420  | 340  | 350  | 340  | 380  | 560 | 770 | 720 | 690 | 560  |
| WEST                                                                                                | Unshaded | 280 | 390 | 530 | 670  | 770  | 860  | 870  | 810  | 640 | 460 | 300 | 240 | 570  |
|                                                                                                     | Shaded   | 250 | 340 | 450 | 550  | 630  | 700  | 710  | 660  | 540 | 390 | 260 | 210 | 470  |

| AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9 |          |       |      |     |     |     |      |      |     |     |     |
|------------------------------------------------------------------------------------------------------------------|----------|-------|------|-----|-----|-----|------|------|-----|-----|-----|
|                                                                                                                  |          | March |      |     |     |     | June |      |     |     |     |
|                                                                                                                  |          | 9am   | 11am | 1pm | 3pm | 5pm | 9am  | 11am | 1pm | 3pm | 5pm |
| HORIZ.                                                                                                           | M.Clear  | 27    | 60   | 75  | 65  | 34  | 39   | 75   | 97  | 97  | 76  |
|                                                                                                                  | M.Cloudy | 17    | 40   | 51  | 42  | 23  | 25   | 52   | 68  | 70  | 55  |
| NORTH                                                                                                            | M.Clear  | 8     | 12   | 14  | 13  | 9   | 19   | 15   | 16  | 16  | 15  |
|                                                                                                                  | M.Cloudy | 7     | 14   | 17  | 15  | 9   | 13   | 16   | 18  | 18  | 17  |
| EAST                                                                                                             | M.Clear  | 68    | 64   | 19  | 13  | 9   | 76   | 78   | 43  | 16  | 15  |
|                                                                                                                  | M.Cloudy | 23    | 33   | 19  | 15  | 9   | 34   | 47   | 33  | 18  | 17  |
| SOUTH                                                                                                            | M.Clear  | 31    | 71   | 88  | 76  | 39  | 10   | 31   | 52  | 52  | 32  |
|                                                                                                                  | M.Cloudy | 13    | 35   | 46  | 37  | 18  | 10   | 24   | 38  | 39  | 26  |
| WEST                                                                                                             | M.Clear  | 8     | 12   | 14  | 57  | 72  | 10   | 15   | 16  | 40  | 75  |
|                                                                                                                  | M.Cloudy | 7     | 14   | 17  | 31  | 29  | 10   | 16   | 18  | 32  | 50  |
| M.Clear                                                                                                          | (% hrs)  | 30    | 28   | 28  | 28  | 29  | 41   | 41   | 41  | 41  | 41  |

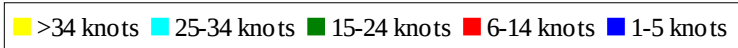
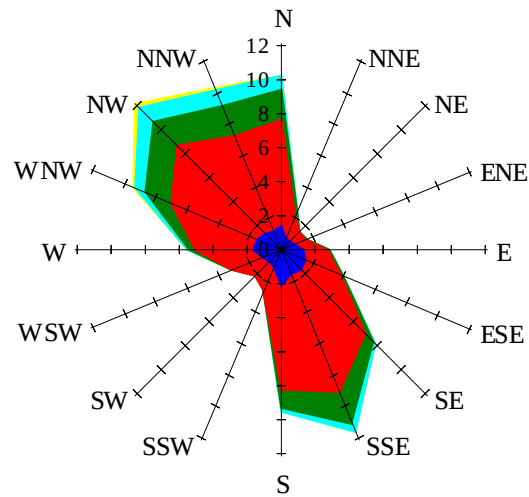
  

|         |          | Sept |      |     |     |     | Dec |      |     |     |     |
|---------|----------|------|------|-----|-----|-----|-----|------|-----|-----|-----|
|         |          | 9am  | 11am | 1pm | 3pm | 5pm | 9am | 11am | 1pm | 3pm | 5pm |
| HORIZ.  | M.Clear  | 17   | 55   | 78  | 77  | 54  | 4   | 28   | 39  | 28  | 3   |
|         | M.Cloudy | 11   | 34   | 48  | 50  | 34  | 3   | 18   | 25  | 18  | 3   |
| NORTH   | M.Clear  | 6    | 12   | 14  | 14  | 12  | 2   | 8    | 9   | 8   | 2   |
|         | M.Cloudy | 5    | 12   | 16  | 16  | 12  | 2   | 8    | 10  | 8   | 2   |
| EAST    | M.Clear  | 54   | 75   | 40  | 14  | 12  | 17  | 41   | 10  | 8   | 2   |
|         | M.Cloudy | 18   | 34   | 26  | 16  | 12  | 4   | 17   | 10  | 8   | 2   |
| SOUTH   | M.Clear  | 13   | 53   | 78  | 77  | 51  | 14  | 69   | 87  | 69  | 12  |
|         | M.Cloudy | 7    | 27   | 40  | 43  | 27  | 4   | 25   | 35  | 26  | 4   |
| WEST    | M.Clear  | 6    | 12   | 14  | 41  | 74  | 2   | 8    | 10  | 42  | 15  |
|         | M.Cloudy | 5    | 12   | 16  | 27  | 36  | 2   | 8    | 10  | 18  | 4   |
| M.Clear | (% hrs)  | 47   | 47   | 47  | 46  | 47  | 31  | 30   | 30  | 31  | 36  |



### Wind Summary - December, January, and February

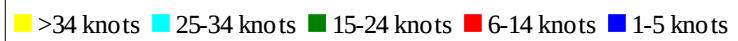
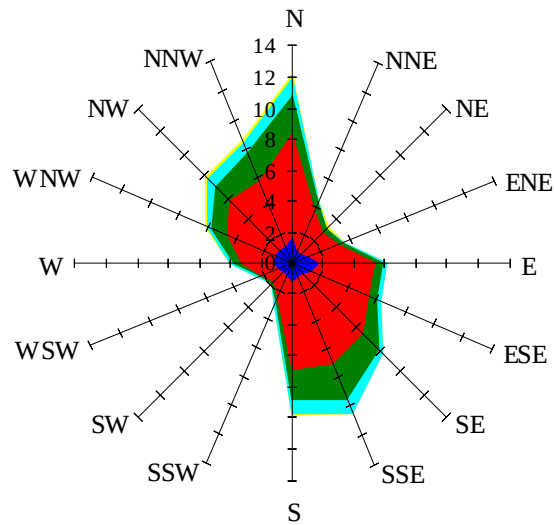
Labels of Percent Frequency on North Axis



Percent Calm = 4.08

### Wind Summary - March, April, and May

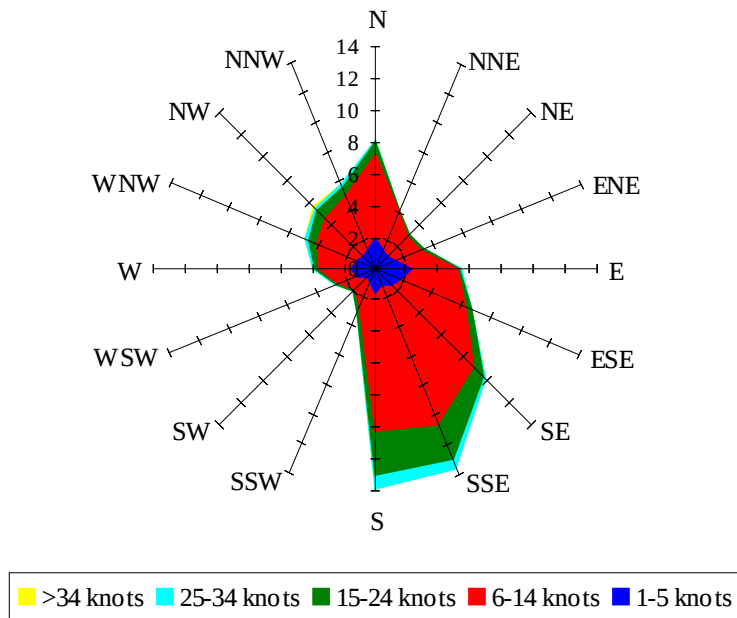
Labels of Percent Frequency on North Axis



Percent Calm = 3.03

### Wind Summary - June, July, and August

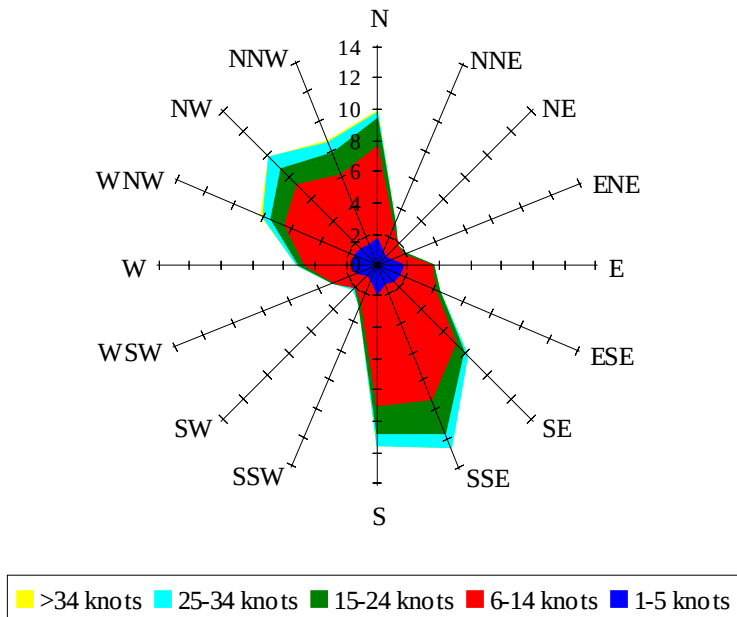
Labels of Percent Frequency on North Axis



Percent Calm = 4.50

### Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 4.39