

**FAIRBANKS AK**

Latitude = 64.82 N

Longitude = 147.80 W

Period of Record = 1973 to 1996

WMO No. 702610

Elevation = 453 feet

Average Pressure = 29.31 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                          | 86                  | 63                               | 49                      | 6.2                    | S                           |
| 0.4% Occurrence                                  | 81                  | 61                               | 50                      | 7.4                    | S                           |
| 1.0% Occurrence                                  | 78                  | 60                               | 49                      | 7.8                    | S                           |
| 2.0% Occurrence                                  | 75                  | 59                               | 50                      | 7.8                    | S                           |
| Mean Daily Range                                 | 18                  | -                                | -                       | -                      | -                           |
| 97.5% Occurrence                                 | -30                 | -30                              | 1                       | 1.9                    | NNE                         |
| 99.0% Occurrence                                 | -38                 | -38                              | 1                       | 1.7                    | N                           |
| 99.6% Occurrence                                 | -42                 | -42                              | 0                       | 1.4                    | NNE                         |
| Median of Extreme Lows                           | -45                 | -45                              | 0                       | 1.2                    | N                           |
|                                                  | <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                          | 66                  | 79                               | 73                      | 6.5                    | S                           |
| 0.4% Occurrence                                  | 63                  | 76                               | 64                      | 6.7                    | S                           |
| 1.0% Occurrence                                  | 62                  | 74                               | 63                      | 7.0                    | S                           |
| 2.0% Occurrence                                  | 60                  | 71                               | 59                      | 7.0                    | 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                          | 85                  | 72                               | 0.56                    | 7.0                    | S                           |
| 0.4% Occurrence                                  | 74                  | 66                               | 0.49                    | 6.0                    | S                           |
| 1.0% Occurrence                                  | 69                  | 64                               | 0.45                    | 6.4                    | SW                          |
| 2.0% Occurrence                                  | 66                  | 64                               | 0.44                    | 6.2                    | N                           |
| <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      |
|                                                  |                     | 0                                | 58                      | 0                      | 4                           |

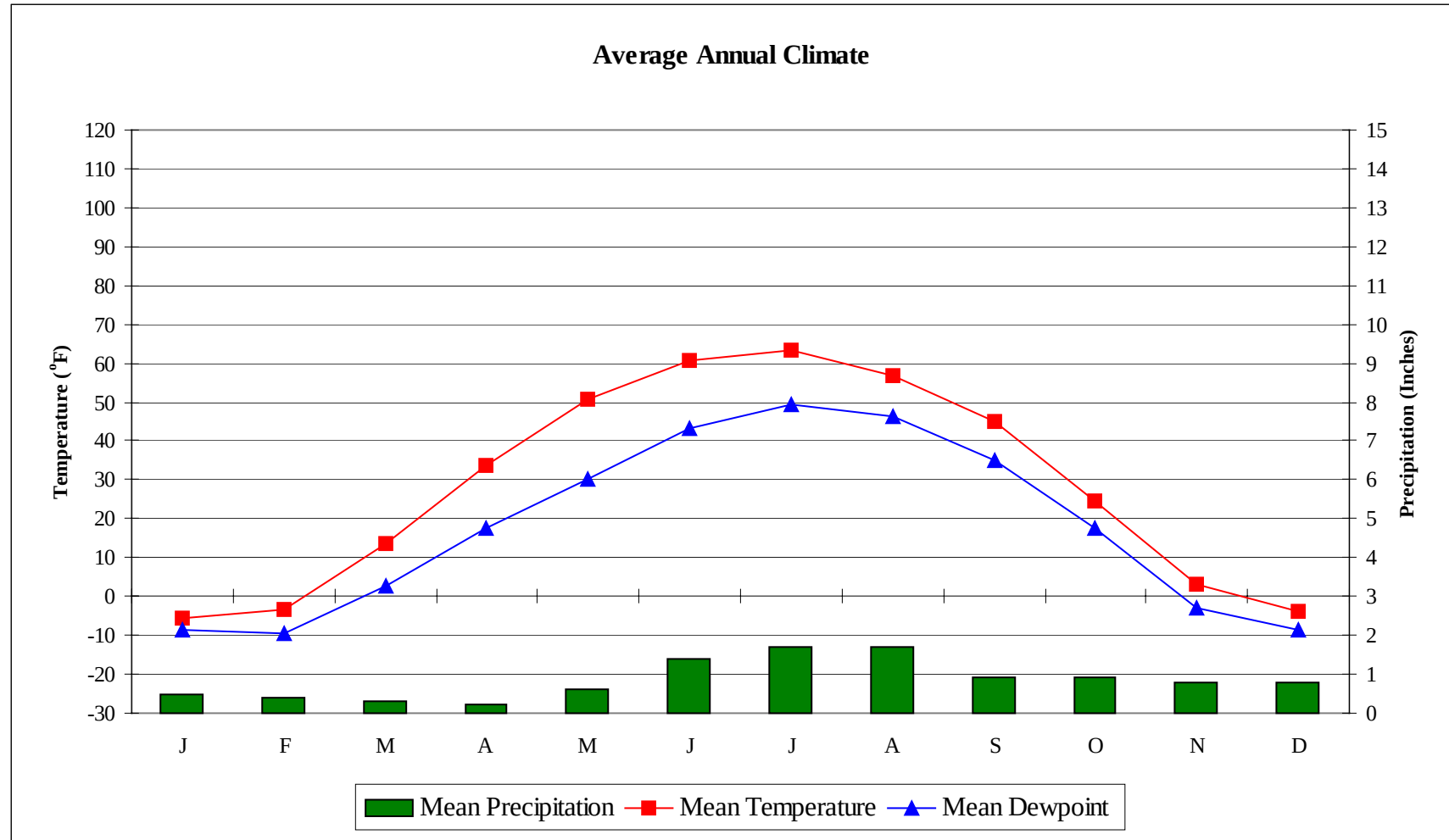
**Other Site Data**

| 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 |
|--------------------------------------------------|----------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 2                                                | 1.0                                          | 90                                                                 | 0.0 + 0.1                                                                               |
| 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>(#)                                             |
| Permafrost                                       | Permafrost                                   | N/A                                                                | 53                                                                                      |

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

FAIRBANKS AK

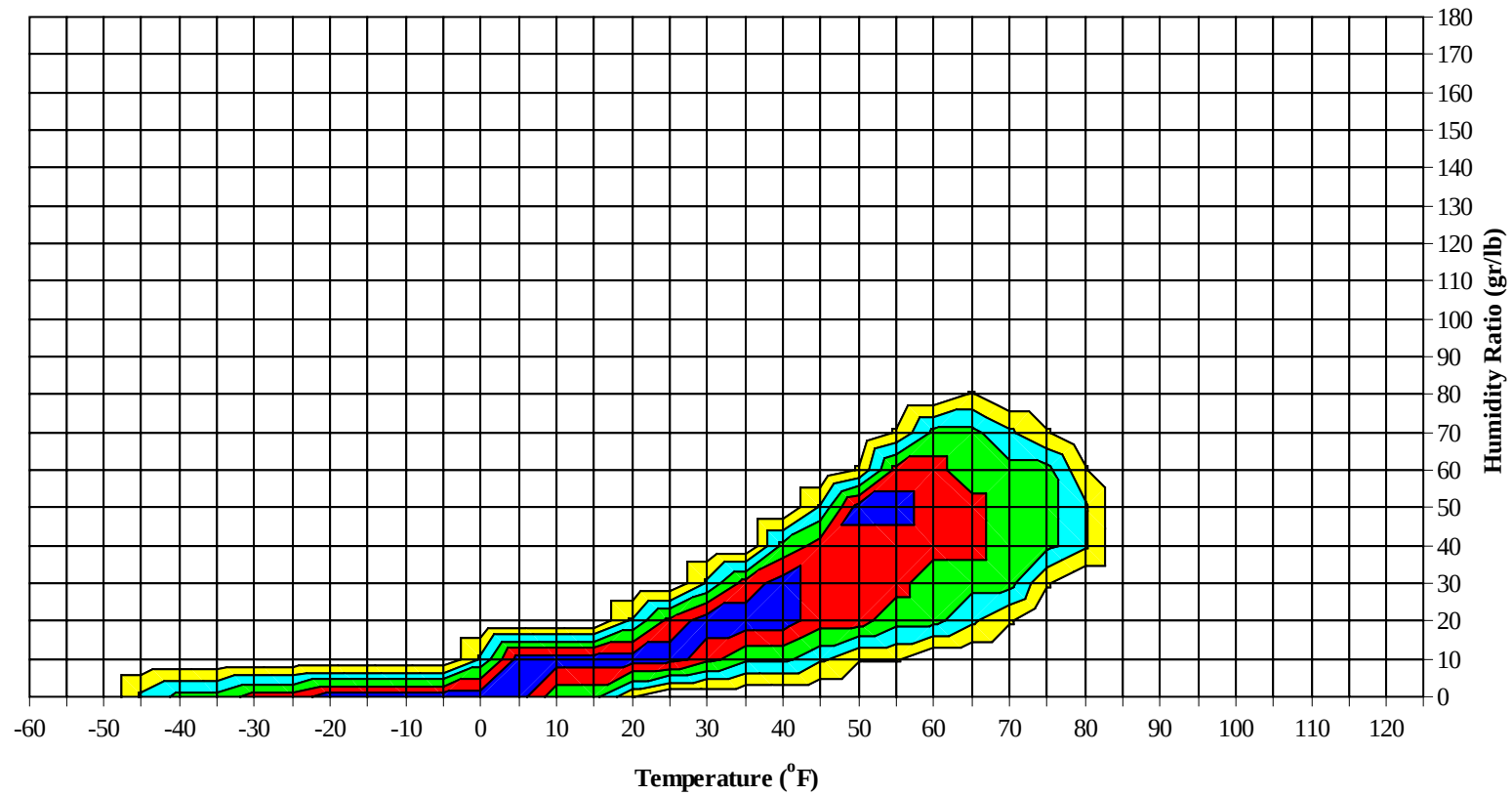
WMO No. 702610



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### Long Term Psychrometric Summary

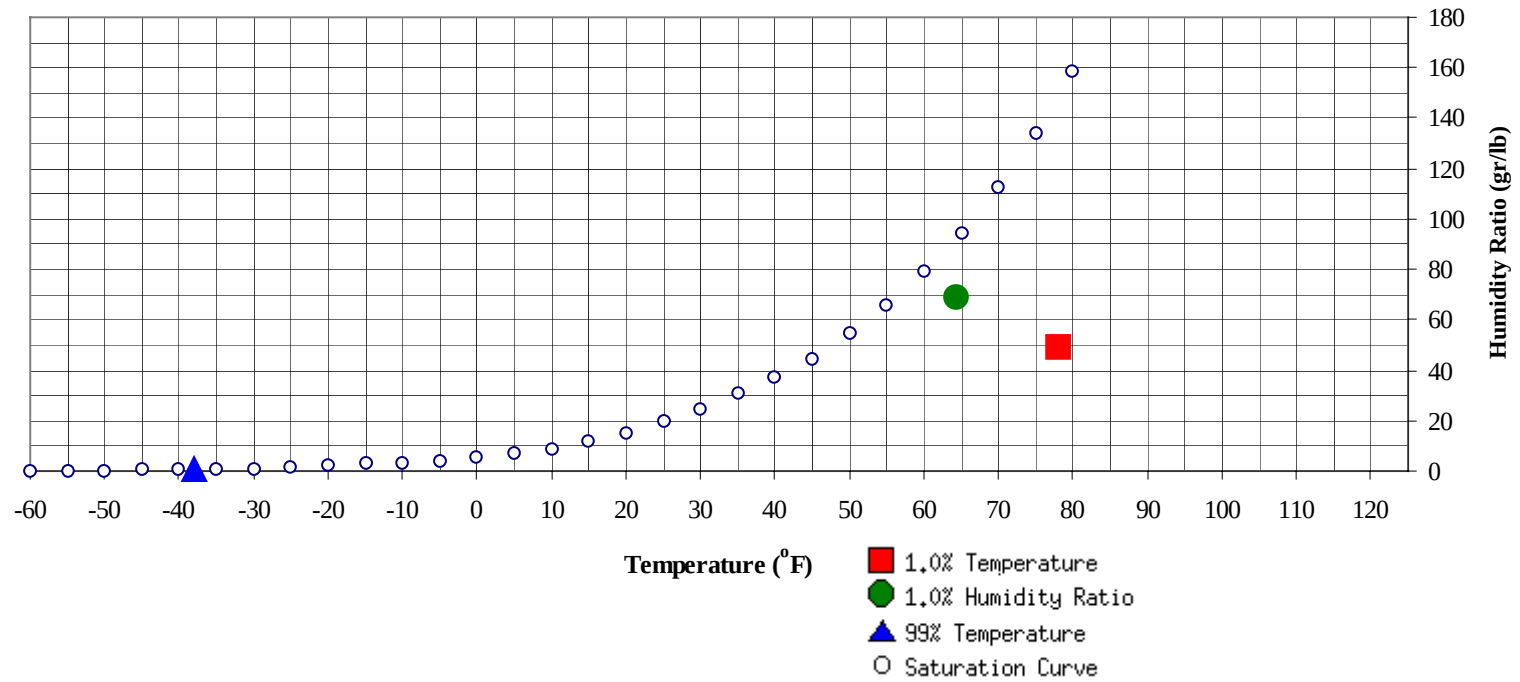


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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## Psychrometric Summary of Peak Design Values



| 99% Dry Bulb | (°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) |
|--------------|------|-----------------|----------------------|------------------------|---------|--------------|--------------|------------------|----------------------|
|              | -38  | 0.7             | -9.0                 |                        | 68.6    | 64.3         | 59.1         | 56               | 26.1                 |

| 1.0% Dry Bulb | (°F) | MCHR<br>(gr/lb) | MCWB<br>(°F) | Enthalpy<br>(btu/lb) |
|---------------|------|-----------------|--------------|----------------------|
|               | 78   | 49              | 59.9         | 26.4                 |

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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 |              |                          |
| 90 / 94                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 85 / 89                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 80 / 84                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 75 / 79                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 70 / 74                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 65 / 69                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 60 / 64                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 55 / 59                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 50 / 54                      |                     |                |                |              |                          |                     |                |                |              |                          |                     | 0              | 0              | 0            | 38.5                     |
| 45 / 49                      | 0                   | 0              | 0              | 0            | 38.9                     |                     |                |                |              |                          |                     | 3              | 2              | 5            | 36.3                     |
| 40 / 44                      | 1                   | 0              | 1              | 2            | 35.4                     | 0                   | 1              | 0              | 1            | 34.6                     | 0                   | 12             | 7              | 19           | 33.7                     |
| 35 / 39                      | 1                   | 2              | 2              | 5            | 31.7                     | 1                   | 4              | 2              | 7            | 31.5                     | 2                   | 19             | 14             | 35           | 30.7                     |
| 30 / 34                      | 3                   | 3              | 4              | 10           | 28.6                     | 4                   | 7              | 7              | 18           | 28.7                     | 8                   | 26             | 24             | 58           | 27.4                     |
| 25 / 29                      | 6                   | 6              | 6              | 18           | 24.9                     | 7                   | 10             | 9              | 26           | 24.4                     | 16                  | 27             | 31             | 74           | 23.6                     |
| 20 / 24                      | 10                  | 10             | 9              | 29           | 20.5                     | 10                  | 14             | 15             | 39           | 20.3                     | 23                  | 30             | 32             | 85           | 19.4                     |
| 15 / 19                      | 15                  | 17             | 13             | 45           | 15.9                     | 12                  | 16             | 14             | 42           | 15.6                     | 28                  | 32             | 33             | 93           | 14.9                     |
| 10 / 14                      | 18                  | 22             | 20             | 60           | 10.8                     | 12                  | 15             | 19             | 46           | 10.7                     | 29                  | 30             | 32             | 91           | 10.2                     |
| 5 / 9                        | 24                  | 22             | 23             | 69           | 5.9                      | 16                  | 20             | 19             | 55           | 5.8                      | 35                  | 26             | 28             | 89           | 5.6                      |
| 0 / 4                        | 26                  | 28             | 28             | 82           | 1.1                      | 21                  | 22             | 22             | 65           | 1.0                      | 33                  | 18             | 17             | 68           | 0.9                      |
| -5 / -1                      | 20                  | 21             | 22             | 63           | -3.0                     | 16                  | 18             | 16             | 50           | -3.2                     | 21                  | 9              | 9              | 39           | -3.3                     |
| -10 / -6                     | 25                  | 25             | 26             | 76           | -7.5                     | 22                  | 21             | 20             | 63           | -7.7                     | 20                  | 8              | 7              | 35           | -7.6                     |
| -15 / -11                    | 22                  | 21             | 21             | 64           | -12.2                    | 18                  | 20             | 22             | 60           | -12.5                    | 12                  | 4              | 5              | 21           | -12.3                    |
| -20 / -16                    | 13                  | 15             | 15             | 43           | -17.0                    | 20                  | 16             | 18             | 54           | -17.1                    | 6                   | 3              | 3              | 12           | -17.2                    |
| -25 / -21                    | 13                  | 12             | 12             | 37           | -22.1                    | 18                  | 12             | 16             | 46           | -22.0                    | 6                   | 2              | 2              | 10           | -22.0                    |
| -30 / -26                    | 14                  | 11             | 11             | 36           | -27.0                    | 15                  | 11             | 10             | 36           | -26.8                    | 5                   | 1              | 1              | 7            | -26.8                    |
| -35 / -31                    | 11                  | 12             | 15             | 38           | -31.9                    | 13                  | 6              | 8              | 27           | -31.9                    | 3                   | 1              | 0              | 4            | -31.9                    |
| -40 / -36                    | 11                  | 9              | 10             | 30           | -35.5                    | 8                   | 5              | 5              | 18           | -36.1                    | 1                   | 0              | 0              | 1            | -35.0                    |
| -45 / -41                    | 8                   | 8              | 7              | 23           | -40.8                    | 7                   | 3              | 2              | 12           | -41.0                    | 0                   | 0              |                | 0            |                          |
| -50 / -46                    | 5                   | 4              | 3              | 12           |                          | 2                   | 1              | 1              | 4            |                          |                     |                |                |              |                          |
| -55 / -51                    | 0                   | 0              | 0              | 0            |                          | 0                   | 0              | 0              | 0            |                          |                     |                |                |              |                          |
| -60 / -56                    | 0                   |                | 0              | 0            |                          | 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.

FAIRBANKS AK

WMO No. 702610

**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 |              |                          |
| 90 / 94                      |                     |                |                |              |                          |                     |                |                |              |                          |                     | 0              | 0              | 0            | 63.5                     |
| 85 / 89                      |                     |                |                |              |                          |                     | 0              |                | 0            | 60.0                     |                     | 2              | 2              | 4            | 61.4                     |
| 80 / 84                      |                     |                |                |              |                          |                     | 1              | 1              | 2            | 57.0                     | 0                   | 9              | 7              | 16           | 59.4                     |
| 75 / 79                      |                     |                |                |              |                          |                     | 3              | 3              | 6            | 54.9                     | 0                   | 21             | 16             | 37           | 57.8                     |
| 70 / 74                      |                     |                |                |              |                          | 0                   | 10             | 8              | 18           | 52.6                     | 2                   | 36             | 30             | 68           | 55.9                     |
| 65 / 69                      |                     | 1              | 1              | 2            | 49.0                     | 0                   | 24             | 19             | 43           | 50.3                     | 8                   | 53             | 49             | 110          | 54.0                     |
| 60 / 64                      |                     | 3              | 2              | 5            | 45.8                     | 3                   | 47             | 39             | 89           | 47.7                     | 27                  | 53             | 55             | 135          | 52.5                     |
| 55 / 59                      |                     | 12             | 7              | 19           | 43.0                     | 13                  | 57             | 48             | 118          | 45.3                     | 61                  | 38             | 46             | 145          | 50.8                     |
| 50 / 54                      | 0                   | 23             | 18             | 41           | 40.1                     | 31                  | 48             | 52             | 131          | 43.1                     | 81                  | 22             | 28             | 131          | 48.1                     |
| 45 / 49                      | 3                   | 36             | 32             | 71           | 37.3                     | 57                  | 32             | 39             | 128          | 40.3                     | 46                  | 4              | 6              | 56           | 44.1                     |
| 40 / 44                      | 12                  | 44             | 41             | 97           | 34.6                     | 63                  | 16             | 22             | 101          | 36.8                     | 12                  | 1              | 1              | 14           | 39.9                     |
| 35 / 39                      | 37                  | 37             | 44             | 118          | 31.6                     | 52                  | 7              | 10             | 69           | 33.2                     | 2                   | 0              | 0              | 2            | 33.8                     |
| 30 / 34                      | 59                  | 29             | 39             | 127          | 28.0                     | 24                  | 3              | 4              | 31           | 29.2                     | 0                   |                |                | 0            | 30.0                     |
| 25 / 29                      | 46                  | 21             | 23             | 90           | 23.8                     | 4                   | 1              | 1              | 6            | 23.9                     |                     |                |                |              |                          |
| 20 / 24                      | 30                  | 14             | 13             | 57           | 19.2                     | 0                   | 0              | 0              | 0            | 18.0                     |                     |                |                |              |                          |
| 15 / 19                      | 18                  | 9              | 8              | 35           | 14.7                     | 1                   |                | 0              | 1            | 13.9                     |                     |                |                |              |                          |
| 10 / 14                      | 12                  | 6              | 6              | 24           | 9.9                      | 0                   |                |                | 0            | 10.8                     |                     |                |                |              |                          |
| 5 / 9                        | 9                   | 3              | 3              | 15           | 5.7                      |                     |                |                |              |                          |                     |                |                |              |                          |
| 0 / 4                        | 6                   | 2              | 1              | 9            | 1.0                      |                     |                |                |              |                          |                     |                |                |              |                          |
| -5 / -1                      | 3                   | 1              | 1              | 5            | -3.0                     |                     |                |                |              |                          |                     |                |                |              |                          |
| -10 / -6                     | 3                   | 0              | 0              | 3            | -7.4                     |                     |                |                |              |                          |                     |                |                |              |                          |
| -15 / -11                    | 1                   | 0              | 0              | 1            | -12.1                    |                     |                |                |              |                          |                     |                |                |              |                          |
| -20 / -16                    | 1                   |                |                | 1            | -16.7                    |                     |                |                |              |                          |                     |                |                |              |                          |
| -25 / -21                    | 0                   |                |                | 0            | -22.0                    |                     |                |                |              |                          |                     |                |                |              |                          |
| -30 / -26                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -35 / -31                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -40 / -36                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -45 / -41                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -50 / -46                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -55 / -51                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -60 / -56                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |

**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.

FAIRBANKS AK

WMO No. 702610

**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 |              |                          |
| 90 / 94                      |                     | 0              | 0              | 0            | 64.8                     |                     | 0              | 0              | 0            | 67.7                     |                     |                |                |              |                          |
| 85 / 89                      |                     | 2              | 3              | 5            | 62.8                     |                     | 1              | 1              | 2            | 66.1                     |                     |                |                |              |                          |
| 80 / 84                      |                     | 12             | 11             | 23           | 62.0                     |                     | 3              | 3              | 6            | 64.2                     |                     |                |                |              |                          |
| 75 / 79                      | 0                   | 33             | 29             | 62           | 60.3                     |                     | 10             | 9              | 19           | 61.1                     |                     | 0              |                | 0            | 57.4                     |
| 70 / 74                      | 2                   | 53             | 45             | 100          | 58.8                     | 0                   | 24             | 20             | 44           | 58.5                     |                     | 3              | 1              | 4            | 55.3                     |
| 65 / 69                      | 15                  | 53             | 51             | 119          | 57.3                     | 3                   | 43             | 37             | 83           | 56.6                     | 1                   | 9              | 6              | 16           | 52.5                     |
| 60 / 64                      | 48                  | 52             | 57             | 157          | 55.5                     | 17                  | 56             | 52             | 125          | 54.6                     | 0                   | 22             | 14             | 36           | 50.3                     |
| 55 / 59                      | 91                  | 31             | 38             | 160          | 53.4                     | 48                  | 51             | 55             | 154          | 52.4                     | 2                   | 39             | 27             | 68           | 48.3                     |
| 50 / 54                      | 71                  | 10             | 13             | 94           | 50.0                     | 80                  | 40             | 47             | 167          | 49.1                     | 15                  | 45             | 45             | 105          | 46.2                     |
| 45 / 49                      | 20                  | 1              | 2              | 23           | 45.9                     | 55                  | 16             | 18             | 89           | 45.1                     | 46                  | 45             | 52             | 143          | 43.2                     |
| 40 / 44                      | 1                   |                |                | 1            | 41.1                     | 29                  | 4              | 5              | 38           | 40.0                     | 63                  | 35             | 42             | 140          | 39.0                     |
| 35 / 39                      |                     |                |                |              |                          | 12                  | 1              | 2              | 15           | 35.3                     | 53                  | 23             | 28             | 104          | 34.4                     |
| 30 / 34                      |                     |                |                |              |                          | 3                   |                | 0              | 3            | 30.5                     | 39                  | 13             | 16             | 68           | 30.2                     |
| 25 / 29                      |                     |                |                |              |                          | 0                   |                |                | 0            | 27.3                     | 13                  | 4              | 5              | 22           | 25.1                     |
| 20 / 24                      |                     |                |                |              |                          |                     |                |                |              |                          | 4                   | 1              | 2              | 7            | 20.4                     |
| 15 / 19                      |                     |                |                |              |                          |                     |                |                |              |                          | 2                   | 0              | 1              | 3            | 15.8                     |
| 10 / 14                      |                     |                |                |              |                          |                     |                |                |              |                          | 1                   | 0              | 0              | 1            | 11.1                     |
| 5 / 9                        |                     |                |                |              |                          |                     |                |                |              |                          | 1                   |                |                | 1            | 7.0                      |
| 0 / 4                        |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -5 / -1                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -10 / -6                     |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -15 / -11                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -20 / -16                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -25 / -21                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -30 / -26                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -35 / -31                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -40 / -36                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -45 / -41                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -50 / -46                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -55 / -51                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| -60 / -56                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |

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FAIRBANKS AK

WMO No. 702610

**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 |              |                          |
| 90 / 94                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 85 / 89                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 80 / 84                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 75 / 79                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 70 / 74                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 65 / 69                      |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |
| 60 / 64                      |                     | 0              | 0              | 0            | 48.3                     |                     |                |                |              |                          |                     |                |                |              |                          |
| 55 / 59                      |                     | 1              | 0              | 1            | 44.8                     |                     |                |                |              |                          |                     |                |                |              |                          |
| 50 / 54                      | 0                   | 5              | 2              | 7            | 42.2                     |                     |                |                |              |                          |                     |                |                |              |                          |
| 45 / 49                      | 1                   | 11             | 6              | 18           | 39.4                     |                     |                |                |              |                          |                     |                |                |              |                          |
| 40 / 44                      | 7                   | 20             | 15             | 42           | 37.0                     | 0                   | 0              | 0              | 0            | 35.7                     | 1                   | 0              | 0              | 1            | 35.7                     |
| 35 / 39                      | 23                  | 32             | 33             | 88           | 33.4                     | 2                   | 2              | 2              | 6            | 33.2                     | 1                   | 1              | 2              | 4            | 33.0                     |
| 30 / 34                      | 45                  | 40             | 47             | 132          | 29.6                     | 6                   | 7              | 7              | 20           | 29.7                     | 2                   | 3              | 3              | 8            | 30.0                     |
| 25 / 29                      | 47                  | 43             | 41             | 131          | 24.8                     | 9                   | 11             | 9              | 29           | 25.0                     | 4                   | 3              | 5              | 12           | 25.6                     |
| 20 / 24                      | 36                  | 33             | 31             | 100          | 20.6                     | 14                  | 17             | 17             | 48           | 20.4                     | 9                   | 11             | 9              | 29           | 20.8                     |
| 15 / 19                      | 27                  | 24             | 29             | 80           | 15.8                     | 23                  | 28             | 27             | 78           | 15.5                     | 15                  | 16             | 15             | 46           | 16.0                     |
| 10 / 14                      | 23                  | 17             | 18             | 58           | 11.2                     | 27                  | 29             | 24             | 80           | 10.8                     | 21                  | 19             | 19             | 59           | 11.1                     |
| 5 / 9                        | 15                  | 7              | 12             | 34           | 6.2                      | 26                  | 28             | 31             | 85           | 6.0                      | 24                  | 28             | 25             | 77           | 6.2                      |
| 0 / 4                        | 11                  | 6              | 7              | 24           | 1.4                      | 31                  | 32             | 32             | 95           | 1.3                      | 28                  | 30             | 33             | 91           | 1.2                      |
| -5 / -1                      | 5                   | 2              | 3              | 10           | -2.9                     | 20                  | 19             | 20             | 59           | -3.1                     | 22                  | 21             | 23             | 66           | -3.1                     |
| -10 / -6                     | 4                   | 3              | 2              | 9            | -7.4                     | 23                  | 20             | 22             | 65           | -7.5                     | 29                  | 30             | 29             | 88           | -7.6                     |
| -15 / -11                    | 2                   | 1              | 2              | 5            | -12.3                    | 20                  | 16             | 15             | 51           | -12.3                    | 25                  | 24             | 24             | 73           | -12.3                    |
| -20 / -16                    | 2                   | 1              | 1              | 4            | -17.0                    | 13                  | 12             | 12             | 37           | -17.0                    | 17                  | 18             | 18             | 53           | -17.0                    |
| -25 / -21                    | 1                   | 1              | 1              | 3            | -22.1                    | 13                  | 9              | 12             | 34           | -21.8                    | 17                  | 15             | 15             | 47           | -21.9                    |
| -30 / -26                    | 0                   | 0              |                | 0            | -25.6                    | 8                   | 5              | 6              | 19           | -26.6                    | 11                  | 9              | 10             | 30           | -26.8                    |
| -35 / -31                    |                     |                |                |              |                          | 4                   | 2              | 2              | 8            | -31.4                    | 8                   | 9              | 9              | 26           | -32.1                    |
| -40 / -36                    |                     |                |                |              |                          | 1                   | 1              | 1              | 3            |                          | 7                   | 6              | 5              | 18           | -36.3                    |
| -45 / -41                    |                     |                |                |              |                          | 1                   | 1              | 1              | 3            |                          | 4                   | 3              | 4              | 11           | -41.5                    |
| -50 / -46                    |                     |                |                |              |                          | 0                   |                |                | 0            |                          | 1                   | 1              | 1              | 3            | -45.2                    |
| -55 / -51                    |                     |                |                |              |                          |                     |                |                |              |                          | 0                   | 0              |                | 0            |                          |
| -60 / -56                    |                     |                |                |              |                          |                     |                |                |              |                          |                     |                |                |              |                          |

**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.



FAIRBANKS AK

WMO No. 702610

**Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)**

Period of Record = 1973 to 1996

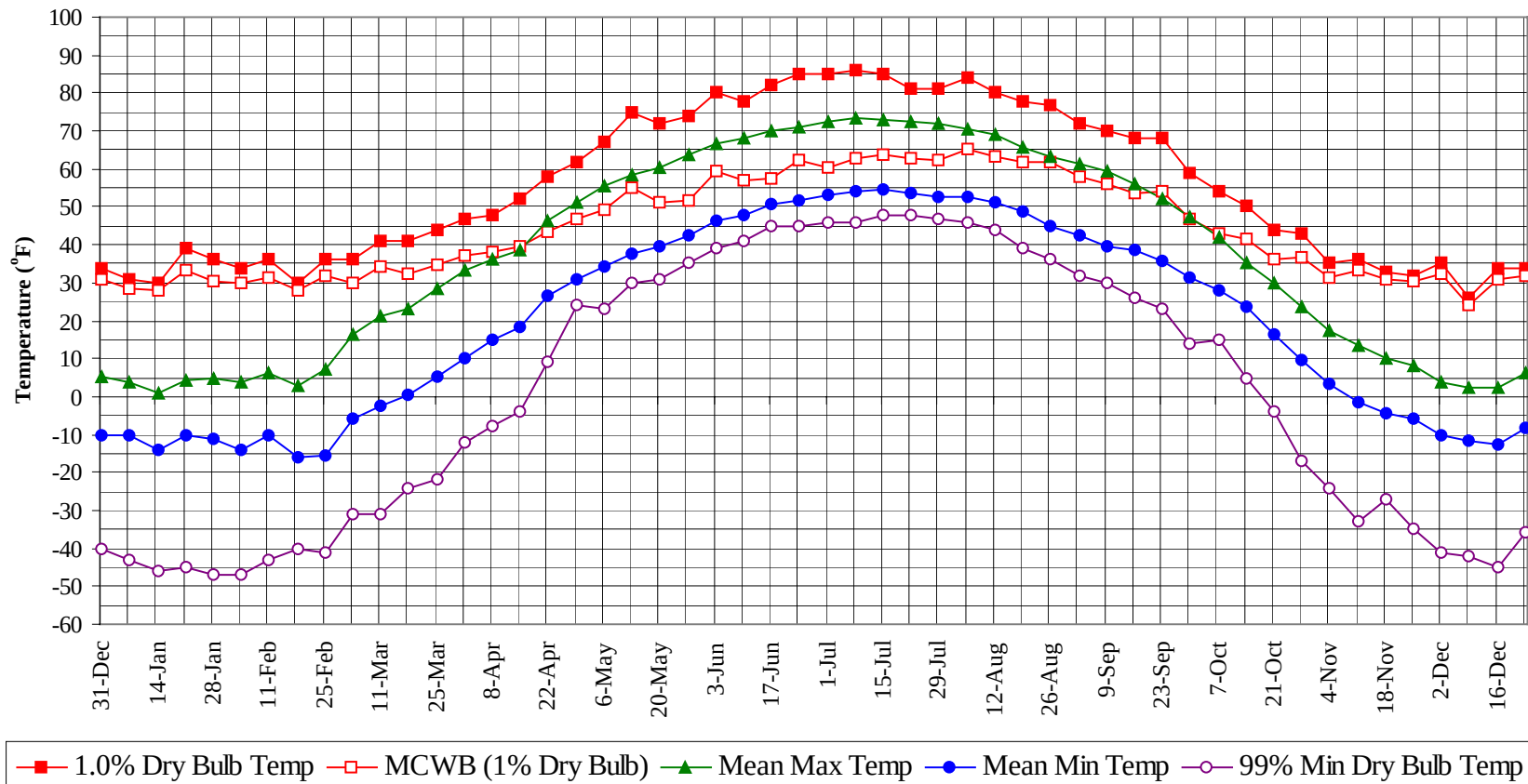
| Annual Totals                |                     |                |                |              |                          |
|------------------------------|---------------------|----------------|----------------|--------------|--------------------------|
| Temperature<br>Range<br>(°F) | Hour<br>Group (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 |              |                          |
| 90 / 94                      |                     | 1              | 1              | 2            | 64.7                     |
| 85 / 89                      |                     | 5              | 5              | 10           | 62.7                     |
| 80 / 84                      | 0                   | 24             | 22             | 46           | 61.2                     |
| 75 / 79                      | 1                   | 67             | 56             | 124          | 59.4                     |
| 70 / 74                      | 4                   | 127            | 104            | 235          | 57.3                     |
| 65 / 69                      | 27                  | 185            | 163            | 375          | 55.1                     |
| 60 / 64                      | 96                  | 234            | 222            | 552          | 52.8                     |
| 55 / 59                      | 215                 | 230            | 223            | 668          | 50.3                     |
| 50 / 54                      | 279                 | 193            | 206            | 677          | 46.8                     |
| 45 / 49                      | 229                 | 149            | 157            | 535          | 42.0                     |
| 40 / 44                      | 190                 | 135            | 135            | 460          | 37.2                     |
| 35 / 39                      | 187                 | 128            | 140            | 455          | 32.9                     |
| 30 / 34                      | 194                 | 130            | 150            | 474          | 28.9                     |
| 25 / 29                      | 152                 | 126            | 131            | 409          | 24.4                     |
| 20 / 24                      | 136                 | 130            | 127            | 393          | 20.1                     |
| 15 / 19                      | 139                 | 141            | 141            | 421          | 15.4                     |
| 10 / 14                      | 144                 | 137            | 137            | 418          | 10.7                     |
| 5 / 9                        | 149                 | 133            | 140            | 422          | 5.9                      |
| 0 / 4                        | 156                 | 138            | 140            | 434          | 1.1                      |
| -5 / -1                      | 106                 | 91             | 92             | 289          | -3.1                     |
| -10 / -6                     | 125                 | 106            | 108            | 339          | -7.6                     |
| -15 / -11                    | 100                 | 86             | 89             | 275          | -12.3                    |
| -20 / -16                    | 71                  | 65             | 67             | 203          | -17.1                    |
| -25 / -21                    | 68                  | 50             | 58             | 176          | -22.0                    |
| -30 / -26                    | 52                  | 37             | 37             | 126          | -26.8                    |
| -35 / -31                    | 39                  | 30             | 33             | 102          | -31.9                    |
| -40 / -36                    | 27                  | 21             | 20             | 68           | -35.9                    |
| -45 / -41                    | 20                  | 15             | 14             | 49           | -41.3                    |
| -50 / -46                    | 8                   | 5              | 5              | 18           | -45.2                    |
| -55 / -51                    | 1                   | 1              | 0              | 2            |                          |
| -60 / -56                    | 0                   |                | 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.

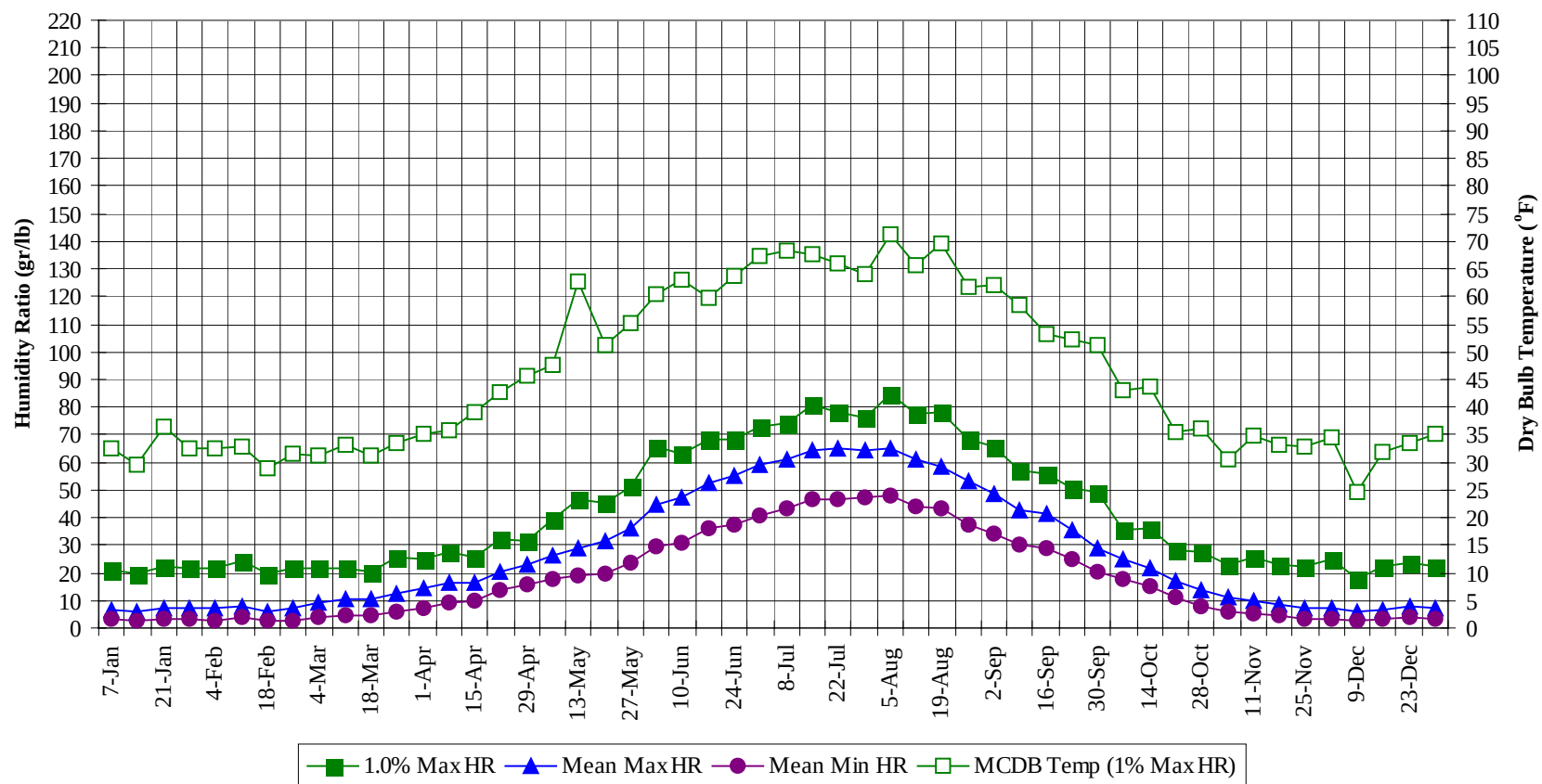
FAIRBANKS AK

WMO No. 702610

### Annual Summary of Temperatures

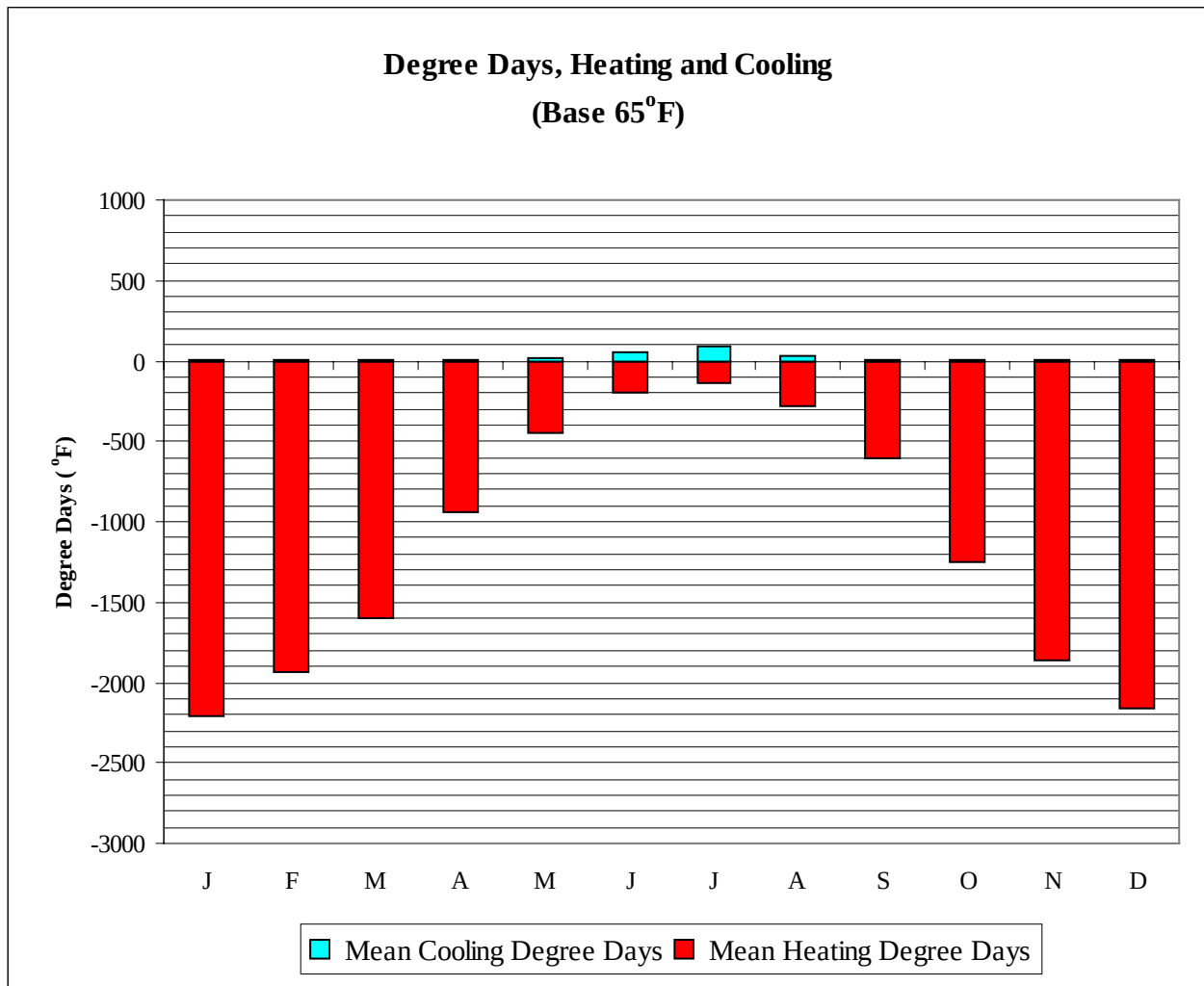


## Long Term Humidity and Dry Bulb Temperature Summary



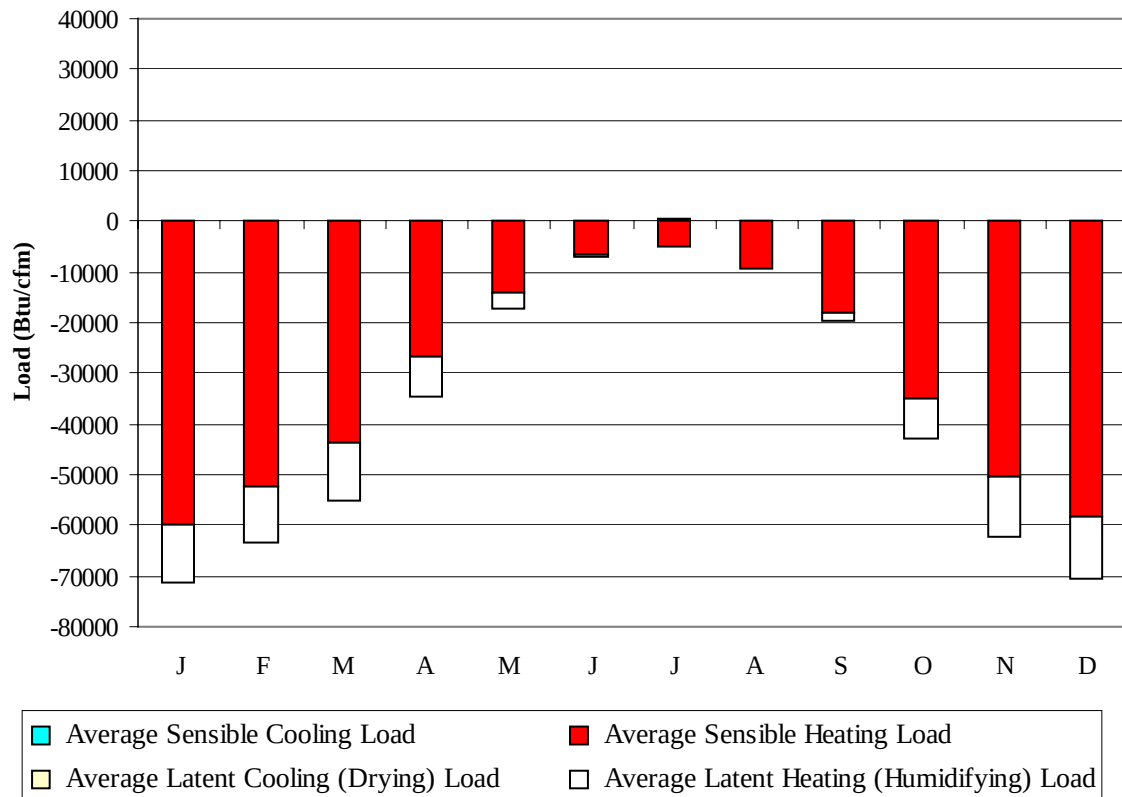
**FAIRBANKS AK****WMO No. 702610****Long Term Dry Bulb Temperature and Humidity Summary**

| Week Ending | 1.0% Temp (°F) | MCWB @ 1% Temp (°F) | Mean Max Temp (°F) | Mean Min Temp (°F) | 99% Temp (°F) | 1.0% HR (gr/lb) | MCDB @ 1% HR (°F) | Mean Max HR (gr/lb) | Mean Min HR (gr/lb) |
|-------------|----------------|---------------------|--------------------|--------------------|---------------|-----------------|-------------------|---------------------|---------------------|
| 7-Jan       | 31.0           | 28.3                | 3.8                | -10.2              | -43.0         | 21.0            | 32.5              | 6.8                 | 3.0                 |
| 14-Jan      | 30.0           | 28.2                | 0.9                | -14.0              | -46.0         | 19.6            | 29.6              | 6.2                 | 2.7                 |
| 21-Jan      | 39.0           | 33.4                | 4.4                | -10.4              | -45.0         | 22.4            | 36.6              | 7.3                 | 3.3                 |
| 28-Jan      | 36.0           | 30.4                | 4.8                | -11.3              | -47.0         | 21.7            | 32.7              | 7.4                 | 3.3                 |
| 4-Feb       | 34.0           | 30.1                | 3.7                | -14.0              | -47.0         | 21.7            | 32.4              | 7.0                 | 2.8                 |
| 11-Feb      | 36.0           | 31.6                | 6.3                | -10.1              | -43.0         | 24.5            | 33.0              | 7.7                 | 3.7                 |
| 18-Feb      | 30.0           | 28.0                | 3.0                | -15.9              | -40.0         | 19.6            | 28.9              | 5.7                 | 2.5                 |
| 25-Feb      | 36.0           | 31.7                | 7.1                | -15.6              | -41.0         | 21.7            | 31.7              | 7.1                 | 2.7                 |
| 4-Mar       | 36.0           | 30.0                | 16.6               | -5.7               | -31.0         | 21.7            | 31.1              | 9.3                 | 4.0                 |
| 11-Mar      | 41.0           | 34.2                | 21.4               | -2.3               | -31.0         | 21.7            | 33.3              | 10.2                | 4.5                 |
| 18-Mar      | 41.0           | 32.5                | 23.3               | 0.4                | -24.0         | 20.3            | 31.2              | 10.8                | 4.7                 |
| 25-Mar      | 44.0           | 34.7                | 28.7               | 5.1                | -22.0         | 25.9            | 33.5              | 12.4                | 5.8                 |
| 1-Apr       | 47.0           | 37.1                | 33.5               | 10.0               | -12.0         | 25.2            | 35.2              | 14.3                | 7.3                 |
| 8-Apr       | 48.0           | 38.1                | 36.4               | 15.1               | -8.0          | 27.3            | 35.9              | 16.5                | 9.2                 |
| 15-Apr      | 52.0           | 39.5                | 38.8               | 18.4               | -4.0          | 25.9            | 39.1              | 16.4                | 10.1                |
| 22-Apr      | 58.0           | 43.3                | 46.4               | 26.8               | 9.0           | 32.2            | 42.7              | 20.4                | 13.7                |
| 29-Apr      | 62.0           | 46.9                | 51.0               | 30.9               | 24.0          | 31.5            | 45.7              | 23.2                | 15.9                |
| 6-May       | 67.0           | 49.4                | 55.3               | 34.2               | 23.0          | 39.2            | 47.7              | 26.1                | 17.5                |
| 13-May      | 75.0           | 55.1                | 58.4               | 37.5               | 30.0          | 46.9            | 62.7              | 29.0                | 19.1                |
| 20-May      | 72.0           | 51.4                | 60.2               | 39.8               | 31.0          | 45.5            | 51.3              | 31.5                | 19.9                |
| 27-May      | 74.0           | 51.6                | 63.9               | 42.4               | 35.0          | 51.1            | 55.1              | 36.0                | 23.8                |
| 3-Jun       | 80.0           | 59.4                | 66.8               | 46.4               | 39.0          | 65.8            | 60.4              | 44.9                | 29.4                |
| 10-Jun      | 78.0           | 57.2                | 67.9               | 47.6               | 41.0          | 63.0            | 63.2              | 47.2                | 30.9                |
| 17-Jun      | 82.0           | 57.6                | 70.0               | 50.5               | 45.0          | 68.6            | 59.8              | 52.5                | 36.2                |
| 24-Jun      | 85.0           | 62.3                | 71.1               | 51.7               | 45.0          | 68.6            | 63.7              | 55.4                | 37.5                |
| 1-Jul       | 85.0           | 60.5                | 72.3               | 53.3               | 46.0          | 72.8            | 67.4              | 59.0                | 40.6                |
| 8-Jul       | 86.0           | 62.7                | 73.4               | 54.0               | 46.0          | 74.2            | 68.4              | 61.0                | 43.1                |
| 15-Jul      | 85.0           | 63.6                | 72.9               | 54.4               | 48.0          | 80.5            | 67.7              | 64.6                | 46.6                |
| 22-Jul      | 81.0           | 62.7                | 72.5               | 53.6               | 48.0          | 78.4            | 65.9              | 64.8                | 46.6                |
| 29-Jul      | 81.0           | 62.1                | 72.1               | 52.7               | 47.0          | 76.3            | 64.0              | 64.3                | 47.4                |
| 5-Aug       | 84.0           | 65.0                | 70.5               | 52.7               | 46.0          | 84.7            | 71.4              | 64.9                | 48.1                |
| 12-Aug      | 80.0           | 63.2                | 69.0               | 51.0               | 44.0          | 77.7            | 65.6              | 60.8                | 44.2                |
| 19-Aug      | 78.0           | 61.6                | 65.8               | 48.7               | 39.0          | 78.4            | 69.7              | 58.6                | 43.3                |
| 26-Aug      | 77.0           | 61.8                | 63.4               | 45.1               | 36.0          | 68.6            | 61.6              | 53.3                | 37.5                |
| 2-Sep       | 72.0           | 57.9                | 61.1               | 42.4               | 32.0          | 65.8            | 62.0              | 48.6                | 34.1                |
| 9-Sep       | 70.0           | 55.8                | 59.6               | 39.5               | 30.0          | 57.4            | 58.3              | 42.7                | 29.9                |
| 16-Sep      | 68.0           | 53.6                | 56.2               | 38.7               | 26.0          | 56.0            | 53.3              | 41.4                | 29.2                |
| 23-Sep      | 68.0           | 54.0                | 51.9               | 35.7               | 23.0          | 50.4            | 52.3              | 35.3                | 24.8                |
| 30-Sep      | 59.0           | 46.8                | 47.2               | 31.4               | 14.0          | 49.0            | 51.3              | 29.1                | 20.5                |
| 7-Oct       | 54.0           | 42.9                | 42.2               | 28.1               | 15.0          | 35.7            | 42.9              | 25.0                | 17.7                |
| 14-Oct      | 50.0           | 41.4                | 35.1               | 23.7               | 5.0           | 36.4            | 43.8              | 22.0                | 15.3                |
| 21-Oct      | 44.0           | 36.2                | 29.8               | 16.3               | -4.0          | 28.0            | 35.3              | 17.1                | 10.9                |
| 28-Oct      | 43.0           | 36.5                | 23.5               | 9.6                | -17.0         | 27.3            | 36.1              | 13.9                | 8.2                 |
| 4-Nov       | 35.0           | 31.3                | 17.3               | 3.4                | -24.0         | 23.1            | 30.7              | 11.2                | 6.1                 |
| 11-Nov      | 36.0           | 33.3                | 13.4               | -1.3               | -33.0         | 25.9            | 34.8              | 9.8                 | 5.1                 |
| 18-Nov      | 33.0           | 30.8                | 9.9                | -4.6               | -27.0         | 23.1            | 33.2              | 8.8                 | 4.4                 |
| 25-Nov      | 32.0           | 30.2                | 8.0                | -6.1               | -35.0         | 22.4            | 32.8              | 7.5                 | 3.6                 |
| 2-Dec       | 35.0           | 32.3                | 3.9                | -10.0              | -41.0         | 25.2            | 34.4              | 7.2                 | 3.5                 |
| 9-Dec       | 26.0           | 24.0                | 2.6                | -11.8              | -42.0         | 17.5            | 24.5              | 6.1                 | 2.8                 |
| 16-Dec      | 34.0           | 31.0                | 2.1                | -12.6              | -45.0         | 22.4            | 31.9              | 6.7                 | 3.1                 |
| 23-Dec      | 34.0           | 31.8                | 6.4                | -8.5               | -36.0         | 23.8            | 33.4              | 8.0                 | 3.6                 |
| 31-Dec      | 34.0           | 31.0                | 5.1                | -10.3              | -40.0         | 22.4            | 35.3              | 7.4                 | 3.2                 |



|     | Mean Cooling<br>Degree Days (°F) | Mean Heating<br>Degree Days (°F) |
|-----|----------------------------------|----------------------------------|
| JAN | 0                                | 2214                             |
| FEB | 0                                | 1931                             |
| MAR | 0                                | 1595                             |
| APR | 0                                | 945                              |
| MAY | 12                               | 449                              |
| JUN | 59                               | 194                              |
| JUL | 88                               | 138                              |
| AUG | 32                               | 280                              |
| SEP | 2                                | 599                              |
| OCT | 0                                | 1252                             |
| NOV | 0                                | 1857                             |
| DEC | 0                                | 2156                             |
| ANN | 193                              | 13610                            |

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



|     | Average Sensible Cooling Load | Average Sensible Heating Load | Average Latent Cooling Load | Average Latent Heating Load |
|-----|-------------------------------|-------------------------------|-----------------------------|-----------------------------|
|     | (Btu/cfm)                     | (Btu/cfm)                     | (Btu/cfm)                   | (Btu/cfm)                   |
| JAN | 0                             | -59812                        | 0                           | -11356                      |
| FEB | 0                             | -52255                        | 0                           | -11014                      |
| MAR | 0                             | -43743                        | 0                           | -11455                      |
| APR | 0                             | -26827                        | 0                           | -7609                       |
| MAY | 19                            | -13901                        | 0                           | -3319                       |
| JUN | 230                           | -6750                         | 0                           | -285                        |
| JUL | 340                           | -5166                         | 16                          | -17                         |
| AUG | 87                            | -9311                         | 13                          | -207                        |
| SEP | 0                             | -17829                        | 0                           | -1865                       |
| OCT | 0                             | -34867                        | 0                           | -7872                       |
| NOV | 0                             | -50460                        | 0                           | -11745                      |
| DEC | 0                             | -58261                        | 0                           | -12178                      |
| ANN | 676                           | -379182                       | 29                          | -78922                      |

## Average Annual Solar Radiation – Nearest Available Site

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

City: FAIRBANKS  
 State: AK  
 WBAN No: 26411  
 Lat(N): 64.82  
 Long(W): 147.87  
 Elev(ft): 453

Stn Type: Primary  
 SHADING GEOMETRY IN DIMENSIONLESS UNITS  
 Window: 1  
 Overhang: 0.176  
 Vert Gap: 0.2

| 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  | 38  | 240  | 720  | 1270 | 1610 | 1780 | 1630 | 1190 | 720  | 300  | 83  | 5   | 800  |
|                                                                               | Std Dev | 4   | 18   | 49   | 94   | 99   | 134  | 122  | 81   | 76   | 23   | 7   | 2   | 26   |
|                                                                               | Minimum | 32  | 220  | 570  | 1030 | 1430 | 1490 | 1300 | 1020 | 570  | 250  | 73  | 3   | 750  |
|                                                                               | Maximum | 44  | 290  | 810  | 1470 | 1820 | 2010 | 1840 | 1350 | 920  | 340  | 98  | 6   | 860  |
|                                                                               | Diffuse | 26  | 140  | 360  | 640  | 770  | 900  | 840  | 660  | 400  | 210  | 58  | 3   | 420  |
| Clear Day                                                                     | Global  | 44  | 260  | 810  | 1580 | 2190 | 2500 | 2320 | 1730 | 1000 | 390  | 79  | 6   | 1080 |
| NORTH                                                                         | Global  | 16  | 87   | 230  | 410  | 610  | 750  | 650  | 430  | 240  | 120  | 34  | 1   | 300  |
|                                                                               | Diffuse | 16  | 87   | 230  | 390  | 500  | 590  | 540  | 400  | 240  | 120  | 34  | 1   | 260  |
| Clear Day                                                                     | Global  | 19  | 73   | 180  | 370  | 710  | 1000 | 840  | 460  | 220  | 100  | 29  | 0   | 340  |
| EAST                                                                          | Global  | 46  | 230  | 620  | 970  | 1190 | 1210 | 1090 | 810  | 550  | 240  | 84  | 11  | 590  |
|                                                                               | Diffuse | 20  | 120  | 310  | 520  | 620  | 690  | 630  | 480  | 310  | 150  | 45  | 2   | 330  |
| Clear Day                                                                     | Global  | 86  | 340  | 830  | 1380 | 1720 | 1870 | 1770 | 1440 | 960  | 460  | 130 | 25  | 920  |
| SOUTH                                                                         | Global  | 240 | 740  | 1280 | 1380 | 1290 | 1230 | 1180 | 1060 | 940  | 590  | 350 | 94  | 860  |
|                                                                               | Diffuse | 60  | 240  | 440  | 600  | 650  | 700  | 660  | 540  | 390  | 240  | 110 | 5   | 390  |
| Clear Day                                                                     | Global  | 500 | 1250 | 1890 | 2030 | 1870 | 1780 | 1790 | 1870 | 1860 | 1430 | 680 | 240 | 1430 |
| WEST                                                                          | Global  | 47  | 240  | 620  | 950  | 1080 | 1180 | 1090 | 850  | 560  | 250  | 85  | 11  | 580  |
|                                                                               | Diffuse | 21  | 120  | 310  | 520  | 620  | 700  | 650  | 500  | 310  | 150  | 45  | 2   | 330  |
| Clear Day                                                                     | Global  | 86  | 340  | 830  | 1380 | 1720 | 1870 | 1770 | 1440 | 960  | 460  | 130 | 25  | 920  |

## 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 | 19  | 130 | 440 | 860 | 1120 | 1250 | 1140 | 820 | 470 | 180 | 45  | 3   | 540  |
| NORTH                                                                                               | Unshaded | 10  | 60  | 160 | 280 | 410  | 510  | 440  | 290 | 170 | 82  | 24  | 0   | 200  |
|                                                                                                     | Shaded   | 10  | 58  | 150 | 270 | 400  | 500  | 430  | 280 | 160 | 79  | 23  | 0   | 200  |
| EAST                                                                                                | Unshaded | 27  | 160 | 440 | 700 | 860  | 870  | 780  | 580 | 390 | 170 | 54  | 5   | 420  |
|                                                                                                     | Shaded   | 27  | 150 | 430 | 680 | 840  | 850  | 760  | 560 | 380 | 170 | 53  | 5   | 410  |
| SOUTH                                                                                               | Unshaded | 190 | 570 | 950 | 990 | 900  | 850  | 810  | 750 | 690 | 440 | 270 | 74  | 620  |
|                                                                                                     | Shaded   | 190 | 560 | 940 | 970 | 880  | 820  | 790  | 740 | 680 | 440 | 270 | 73  | 610  |
| WEST                                                                                                | Unshaded | 28  | 160 | 440 | 680 | 780  | 840  | 780  | 610 | 400 | 170 | 54  | 5   | 410  |
|                                                                                                     | Shaded   | 27  | 160 | 430 | 660 | 760  | 820  | 760  | 590 | 390 | 170 | 54  | 5   | 400  |

| 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  | 9     | 29   | 40  | 36  | 20  | 37   | 60   | 73  | 75  | 64  |
|                                                                                                                  | M.Cloudy | 8     | 23   | 32  | 29  | 16  | 25   | 41   | 52  | 55  | 46  |
| NORTH                                                                                                            | M.Clear  | 4     | 8    | 10  | 9   | 7   | 12   | 13   | 15  | 15  | 14  |
|                                                                                                                  | M.Cloudy | 4     | 9    | 12  | 11  | 7   | 10   | 14   | 16  | 16  | 15  |
| EAST                                                                                                             | M.Clear  | 34    | 51   | 21  | 9   | 7   | 75   | 75   | 44  | 15  | 14  |
|                                                                                                                  | M.Cloudy | 14    | 26   | 17  | 11  | 7   | 34   | 42   | 32  | 16  | 15  |
| SOUTH                                                                                                            | M.Clear  | 16    | 60   | 86  | 77  | 38  | 10   | 45   | 72  | 76  | 55  |
|                                                                                                                  | M.Cloudy | 8     | 30   | 45  | 40  | 19  | 10   | 28   | 46  | 50  | 36  |
| WEST                                                                                                             | M.Clear  | 4     | 8    | 10  | 40  | 51  | 10   | 13   | 15  | 29  | 65  |
|                                                                                                                  | M.Cloudy | 4     | 9    | 12  | 24  | 24  | 10   | 14   | 16  | 24  | 41  |
| M.Clear                                                                                                          | (% hrs)  | 39    | 42   | 41  | 39  | 39  | 25   | 24   | 22  | 19  | 16  |

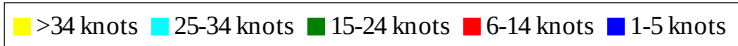
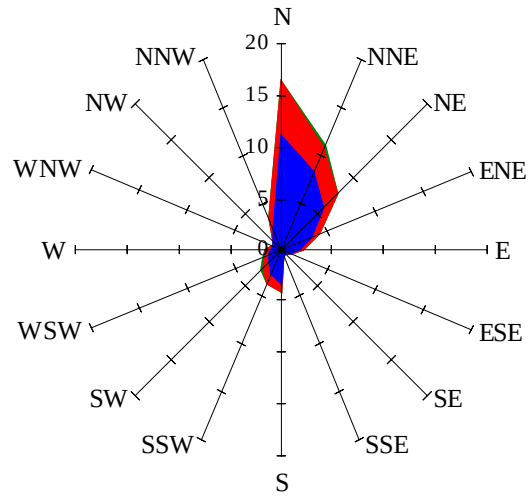
  

|         |          | Sept |      |     |     |     | Dec |      |     |     |     |
|---------|----------|------|------|-----|-----|-----|-----|------|-----|-----|-----|
|         |          | 9am  | 11am | 1pm | 3pm | 5pm | 9am | 11am | 1pm | 3pm | 5pm |
| HORIZ.  | M.Clear  | 8    | 28   | 43  | 46  | 34  | 0   | 0    | 1   | 0   | 0   |
|         | M.Cloudy | 5    | 18   | 27  | 29  | 21  | 0   | 0    | 1   | 0   | 0   |
| NORTH   | M.Clear  | 4    | 8    | 10  | 11  | 9   | 0   | 0    | 0   | 0   | 0   |
|         | M.Cloudy | 3    | 7    | 10  | 11  | 8   | 0   | 0    | 0   | 0   | 0   |
| EAST    | M.Clear  | 31   | 58   | 37  | 11  | 9   | 0   | 0    | 1   | 0   | 0   |
|         | M.Cloudy | 9    | 21   | 19  | 11  | 8   | 0   | 0    | 0   | 0   | 0   |
| SOUTH   | M.Clear  | 7    | 45   | 77  | 81  | 55  | 0   | 0    | 4   | 0   | 0   |
|         | M.Cloudy | 3    | 18   | 32  | 36  | 24  | 0   | 0    | 1   | 0   | 0   |
| WEST    | M.Clear  | 4    | 8    | 10  | 26  | 55  | 0   | 0    | 0   | 0   | 0   |
|         | M.Cloudy | 3    | 7    | 10  | 16  | 24  | 0   | 0    | 0   | 0   | 0   |
| M.Clear | (% hrs)  | 22   | 23   | 23  | 21  | 22  | 35  | 29   | 27  | 30  | 30  |



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

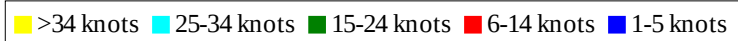
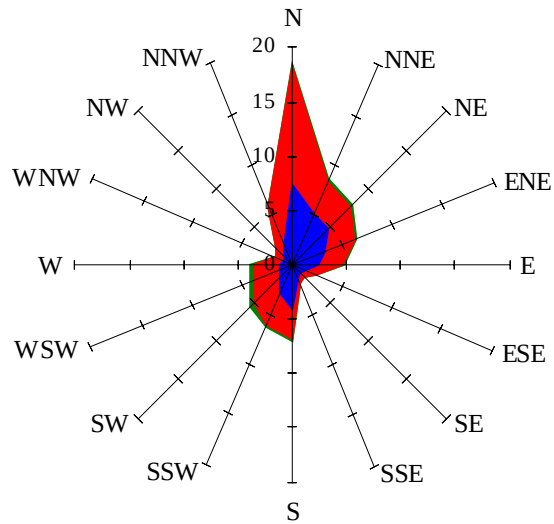
Labels of Percent Frequency on North Axis



Percent Calm = 37.12

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

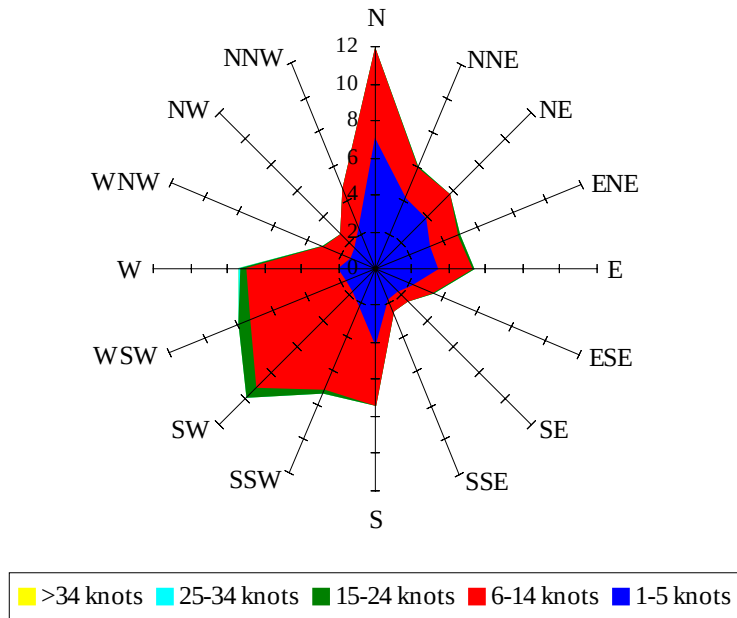
Labels of Percent Frequency on North Axis



Percent Calm = 12.51

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

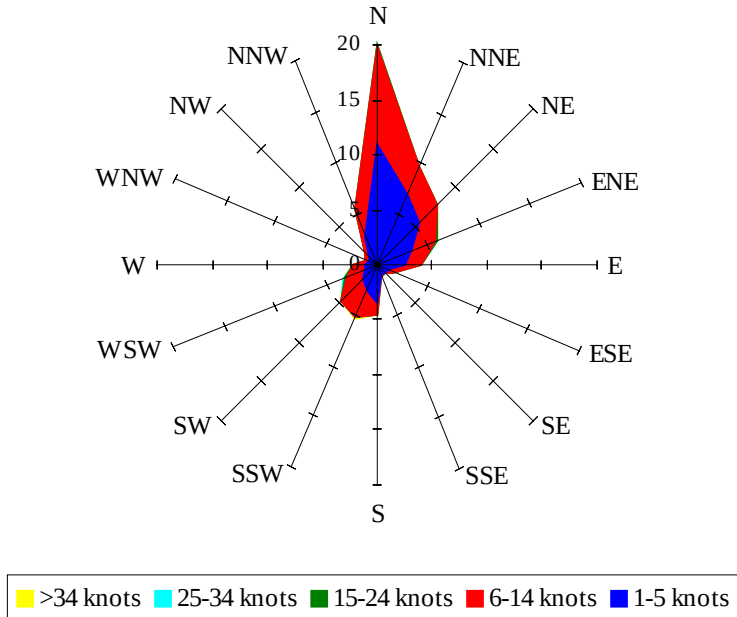
Labels of Percent Frequency on North Axis



Percent Calm = 8.18

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

Labels of Percent Frequency on North Axis



Percent Calm = 21.13