### Design Criteria Data

#### Mean Coincident (Average) Values

<table>
<thead>
<tr>
<th>Design Criteria</th>
<th>Mean Coincident (Average) Values</th>
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<tbody>
<tr>
<td><strong>Dry Bulb Temperature (T)</strong></td>
<td>Wet Bulb Temperature (°F)</td>
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<td>99.6% Occurrence</td>
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<tr>
<td>Median of Extreme Lows</td>
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#### Mean Coincident (Average) Values

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<tbody>
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<td><strong>Wet Bulb Temperature (T_wb)</strong></td>
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#### Mean Coincident (Average) Values

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<thead>
<tr>
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<th>Mean Coincident (Average) Values</th>
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<tr>
<td><strong>Humidity Ratio (HR)</strong></td>
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#### Air Conditioning/

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<td>T_wb ≥ 67°F</td>
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#### Other Site Data

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<th><strong>Rain Rate</strong></th>
<th><strong>Basic Wind Speed</strong></th>
<th><strong>Ventilation Cooling Load Index</strong></th>
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<td>Ground Snow Load (lb/ft²)</td>
<td>Average Annual Freeze-Thaw Cycles (#)</td>
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*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.
Average Annual Climate

- Temperature (°F)
- Precipitation (Inches)

Mean Precipitation
Mean Temperature
Mean Dewpoint
Long Term Psychrometric Summary

- Temperature (°F)
- Humidity Ratio (gr/lb)

- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations
Psychrometric Summary of Peak Design Values

- 99% Dry Bulb
  - Temperature (°F): -15
  - MCHR (gr/lb): 1.7
  - Enthalpy (btu/lb): -3.3
  - MCDB (°F): 70.7
  - MCWB (°F): 65.6
  - MC Dewpt (°F): 58.2
  - Enthalpy (btu/lb): 53.8
  - 99% Temperature

- 1.0% Humidity Ratio
  - Temperature (°F): 84
  - MCHR (gr/lb): 43.1
  - MCWB (°F): 58.5
  - Enthalpy (btu/lb): 26.9

- 1.0% Humidity Ratio
  - Temperature (°F): 99
  - MCHR (gr/lb): 1.0
  - MCWB (°F): 58.2
  - Enthalpy (btu/lb): 26.8

- Saturation Curve
CUT BANK           MT
WMO No. 727796

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

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<td>Group 01 09 17 08 16 00</td>
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**CUT BANK**

MT

**WMO No. 727796**

**Dry-Bulb Temperature Hours For An Average Year** (Sheet 2 of 5)

**Period of Record = 1973 to 1996**

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<th>Temperature Range (°F)</th>
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</tbody>
</table>

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<table>
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<th>Temperature Range (°F)</th>
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<th>September</th>
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</tbody>
</table>

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**CUT BANK**  
MT  
WMO No. 727796  

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

<table>
<thead>
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<th>Temperature Range (°F)</th>
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<th>November M</th>
<th>December M</th>
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<td>C</td>
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**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.
**CUT BANK**

**MT**

WMO No. 727796

**Dry-Bulb Temperature Hours For An Average Year**

**(Sheet 5 of 5)**

**Period of Record = 1973 to 1996**

---

### Annual Totals

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**(Base 65°F)**

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(Outside Air vs. 75°F, 60% RH summer; 68°F, 30% RH winter)

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

City: CUT BANK  
State: MT  
WBAN No: 24137  
Lat(N): 48.6  
Long(W): 112.37  
Elev(ft): 3839

Stn Type: Secondary  
SHADING GEOMETRY IN DIMENSIONLESS UNITS  
Window: 1  
Overhang: 0.782  
Vert Gap: 0.322

#### AVERAGE INCIDENT SOLAR RADIATION (Btu/sq.ft./day), Percentage Uncertainty = 9

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### Average Annual Solar Heat and Illumination – Nearest Available Site
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

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Percent Calm = 6.92
Wind Summary - June, July, and August

Percent Calm = 8.00

Wind Summary - September, October, and November

Percent Calm = 9.23