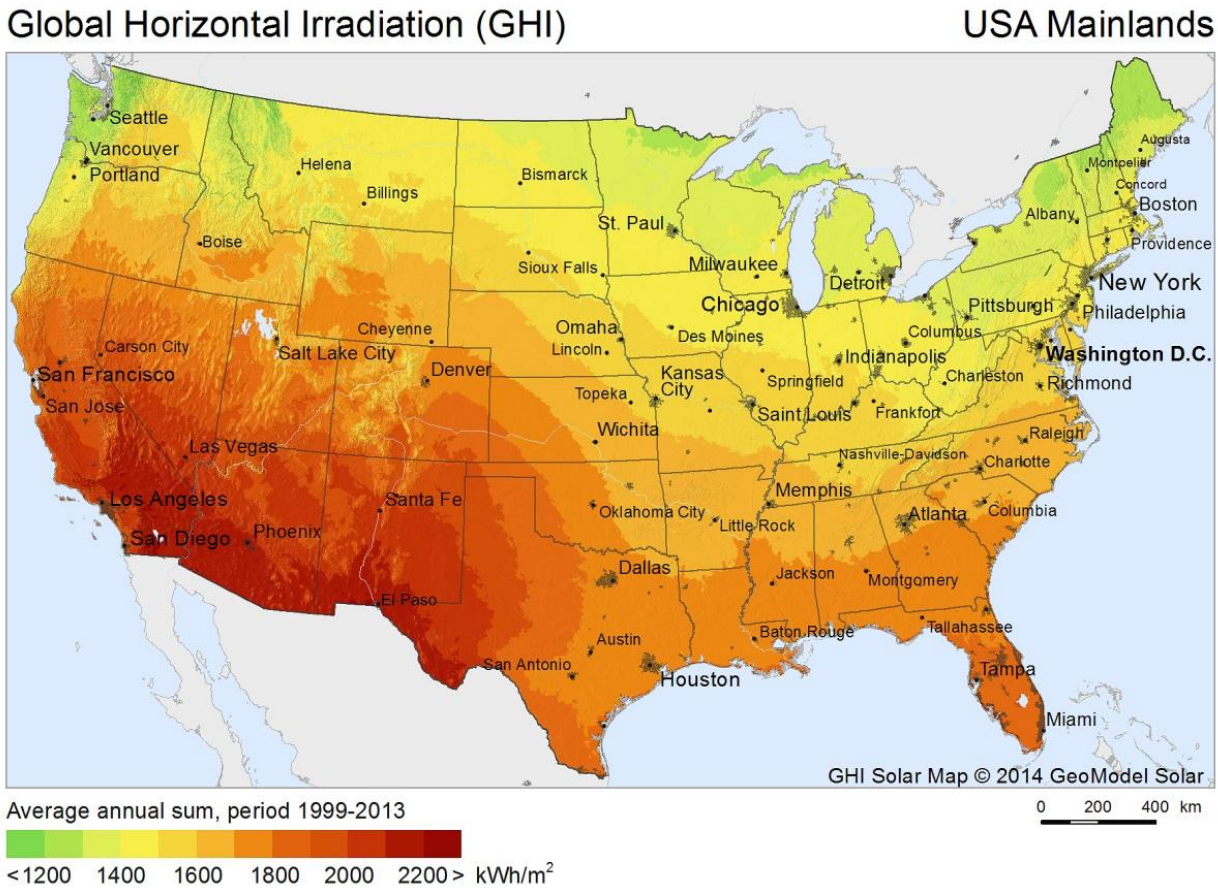
DDB Unlimited Inc.

Topic: SOLAR LOAD LOCATION WITHIN THE CONTINENTAL US

The solar loading of a cabinet is critical to the location as can be seen from the following map of the US. This map is based on the annual irradiation and takes into account the change in the seasons that normally occur. This only affects cabinets that are outside in direct view of the sun. Those cabinets that are shielded from the direct irradiation of the sun should not be considered in this evaluation.



For simplicity the above ranges can be broken down to 3 ranges as shown below:

Low = 1200-1400

Medium = 1600-1800

High = 2000-2200

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Obviously the south west of the US is by far the highest irradiation of solar energy however there are significant difference in the high desert of the south west and these areas must be taken into account otherwise the site may be overcompensated unnecessarily. Another consideration that is often not considered is that the south west has the greatest differential of air temperature between day and night and it is not uncommon for the differential to be nearly 60 degrees F. This differential is due to the fact that there is very low moisture (RH%) and the surface of the ground due to its very light density does not retain heat during the night time period.

Of the three ranges above the low range for the most part can nearly be ignored due to the low solar radiation contribution to cabinet heat. This leaves the medium and high ranges which need to be considered.

MEDIUM RANGE: The medium range typically requires additional cooling to account for the additional heat generated by the solar load. A good resolution is to add about 20% additional BTU cooling and if the medium range is in the upper portion of the range then an additional BTU of 30% will insure proper cooling.

HIGH RANGE: The high range is the most critical and 40% additional BTU capability for the low end and 50% for the high end should handle the cooling requirements.

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