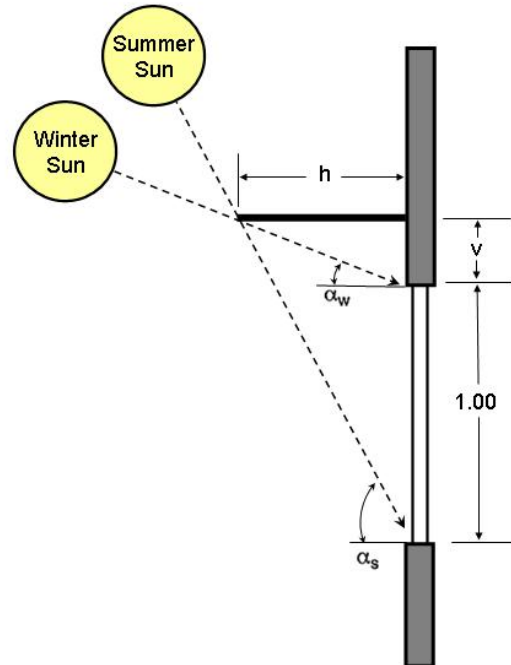


Solar Overhang Dimensions



"h" and "v" are shading overhang dimensions, as a multiple of window height.

Excerpt from "Solar Radiation Data Manual for Buildings" (<http://rredc.nrel.gov/solar/pubs/bluebook/appendix.html>) describing overhang shading dimensions and calculation:

Transmitted solar radiation for shaded windows. Windows externally shaded by a roof overhang were treated differently than unshaded windows in two ways. First, the direct beam radiation component and the circumsolar diffuse radiation were reduced if portions of the window were shaded. Second, the isotropic diffuse sky radiation were reduced to account for the reduced field of view of the sky because of the roof overhang. The presence of the roof overhang was assumed to have no effect on the transmitted diffuse radiation from the horizon and on the ground-reflected diffuse radiation. The shading geometry selected for each station balanced the need for maximum solar heat gain for south-facing windows during the heating season without creating unreasonable solar heat gain during the cooling season. For each station, the same shading geometry was used for all vertical windows, and the roof overhang was assumed to extend and infinite distance with respect to the window width. Two angles (and) describe the shading geometry. These angles determine the amount of shading of south-facing windows at solar noon throughout the year. If the sun elevation at solar noon is greater than (summer), then the window is completely shaded. If the sun elevation at solar noon is less than but greater than (spring and fall), then the window is partially shaded. If the sun elevation at solar noon is less than (winter), then the window is completely unshaded. For most stations in this manual, = 108 degrees - latitude and = 71 degrees -latitude. This shading geometry provides no shading of the south-facing window from November 17 to January 25, and provides complete shading of the window (at solar noon) from May 12 to August 2. Stations in southern states can benefit from more summertime shading; therefore, the shading geometry was modified to accommodate a longer shading period. Their monthly heating degree day (base 65 degrees Fahrenheit) requirements were examined to find the first fall month with a value greater than zero. If this month was October or later, then = 92 degrees Fahrenheit -latitude and =66.5 degrees - latitude. For these stations, this provides no shading of the southfacing window only on December 21, and provides complete shading of the window (at solar noon) from March 26 to September 18.