

Pasquill Stability classes

Pasquill Stability class	Atmospheric Stability	Temperature Gradient $\frac{dT}{dz}$ ($^{\circ}\text{C}/100\text{m}$)
A	Extremely Unstable	< -1.9
B	Moderately Unstable	-1.9 to -1.7
C	Slightly unstable	-1.7 to -1.5
D	Neutral	-1.5 to -0.5
E	Slightly Stable	-0.5 to 1.5
F	Stable	> 1.5



Stability Classification

Surface Wind speed (at 10m), m/s	Day Time Insolation			Night Time Conditions	
	Strong	Moderate	Slight	Thin overcast or $\geq 4/8$ low cloud cover	$\leq 3/8$ cloud cover
< 2	A	A-B	B	-	-
2-3	A-B	B	C	E	F
3-5	B	B-C	C	D	E
5-6	C	C-D	D	D	D
> 6	C	D	D	D	D



Insolation Category

Insolation Category	Insolation (Langley/hours)
Strong	$R > 50$
Moderate	$25 < R < 50$
Weak	$12.5 < R < 25$
Night	$R < 12.5$

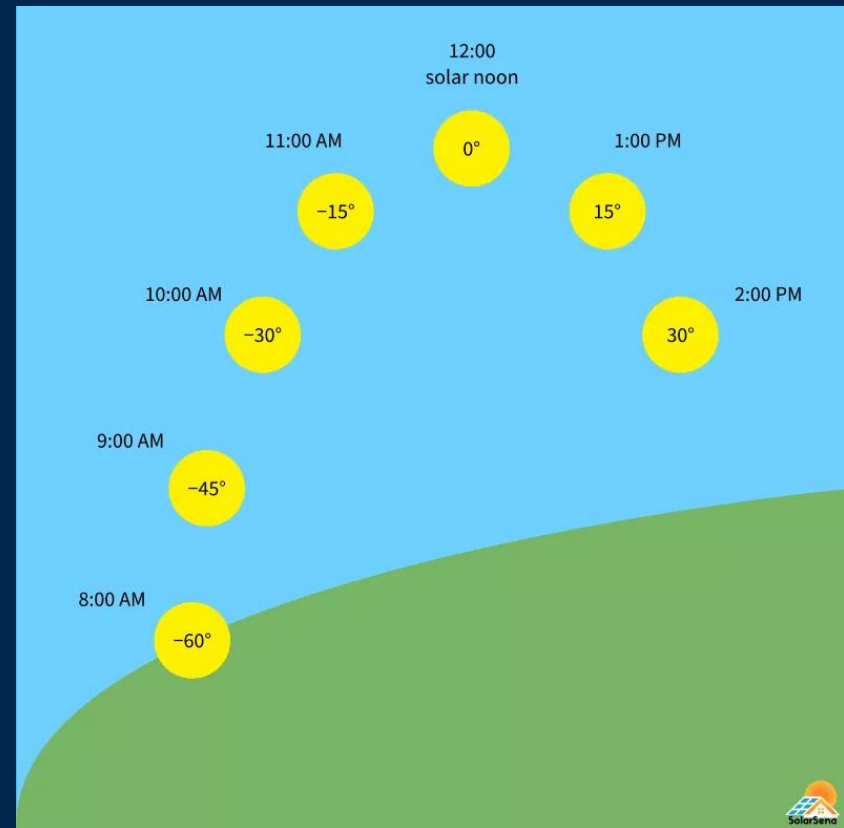
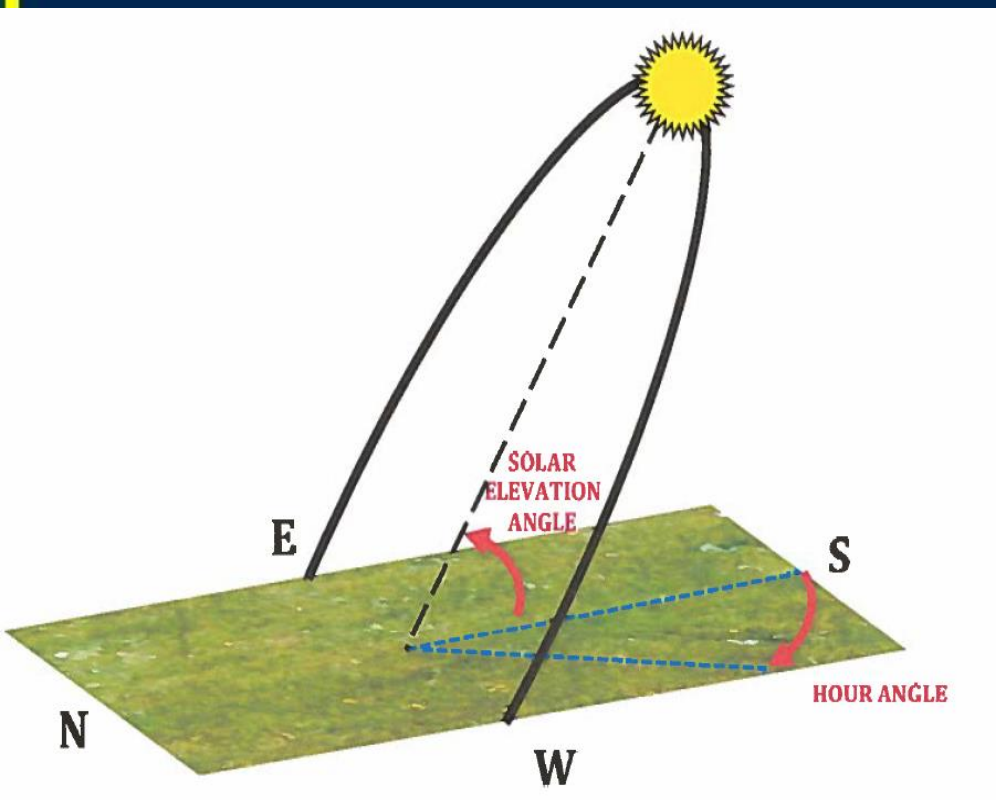


Solar Angle and Cloud cover-based Insolation Category

Cloud Cover	Solar Elevation Angle $> 60^\circ$	Solar Elevation Angle $\leq 60^\circ$ but $> 35^\circ$	Solar Elevation Angle $\leq 35^\circ$ but $> 15^\circ$
4/8 or less or any amount of high thin clouds (> 4800 m base)	Strong	Moderate	Slight
5/8 to 7/8, middle clouds (2100 to 4800 m base)	Moderate	Slight	Slight
5/8 to 7/8, middle clouds (< 2100 m base)	Slight	Slight	Slight



Solar Elevation Angle and Hour Angle



<https://www.youtube.com/watch?v=ZALVBxzmPlk>