

Mid-Winter Shadow Length: 30°S

When Installing a solar array behind or generally to the south of an object, such as another solar array, you may need to know how far to the south of the object the new solar array may need to be in order to not be shaded. Since mid winter is when the longest shadows occur, the table below gives the direction of the shadow for each 15 minute interval. The horizontal distance of the shadow can then be calculated by multiplying the height of the object (eg solar array) by the shadow length multipliers provided in the table. It is recommended that these calculations be performed for both the eastern and the western end of the obstacle.

Local Time	Sun Azimuth	Sun Altitude	Direction	Length	Cast Shadow		
					South	East/West	
6:46	62.961°	RISE	242.961°				
7:00	61.190°	2.190°	241.190°	26.151			
7:15	59.213°	5.008°	239.213°	11.412			
7:30	57.146°	7.767°	237.146°	7.332			
7:45	54.980°	10.461°	234.980°	5.416			
8:00	52.706°	13.083°	232.706°	4.303			
8:15	50.313°	15.624°	230.313°	3.576			
8:30	47.793°	18.077°	227.793°	3.064			
8:45	45.136°	20.431°	225.136°	2.684			
9:00	42.334°	22.677°	222.334°	2.393			
9:15	39.379°	24.801°	219.379°	2.164			
9:30	36.263°	26.792°	216.263°	1.980			
9:45	32.984°	28.638°	212.984°	1.831			
10:00	29.539°	30.323°	209.539°	1.710			
10:15	25.931°	31.835°	205.931°	1.611			
10:30	22.167°	33.158°	202.167°	1.531			
10:45	18.257°	34.281°	198.257°	1.467			
11:00	14.220°	35.189°	194.220°	1.418			
11:15	10.077°	35.873°	190.077°	1.383			
11:30	5.856°	36.323°	185.856°	1.360			
11:45	1.589°	36.534°	181.589°	1.350			
12:00	357.309°	36.502°	177.309°	1.351			
12:15	353.051°	36.229°	173.051°	1.365			
12:30	348.847°	35.718°	168.847°	1.391			
12:45	344.729°	34.976°	164.729°	1.429			
13:00	340.723°	34.011°	160.723°	1.482			
13:15	336.849°	32.836°	156.849°	1.550			
13:30	333.124°	31.463°	153.124°	1.634			
13:45	329.558°	29.905°	149.558°	1.739			
14:00	326.156°	28.177°	146.156°	1.867			
14:15	322.919°	26.293°	142.919°	2.024			
14:30	319.845°	24.266°	139.845°	2.218			
14:45	316.930°	22.109°	136.930°	2.462			
15:00	314.166°	19.835°	134.166°	2.772			
15:15	311.546°	17.454°	131.546°	3.180			
15:30	309.059°	14.977°	129.059°	3.738			
15:45	306.698°	12.414°	126.698°	4.543			
16:00	304.453°	9.773°	124.453°	5.806			
16:15	302.313°	7.062°	122.313°	8.073			
16:30	300.270°	4.287°	120.270°	13.341			
16:45	298.315°	1.455°	118.315°	39.376			
16:55:00	296.932°	SET	116.932°				

The length is in the direction indicated in the previous column. The shadow length is a multiplier. For example, if the height of the object is 0.75 metres, then multiply the multiplier in each line by 0.75 to give the horizontal shadow length in metres.

The south and east/west components of the shadow show how far south of the object the shadow will be cast and how far east or west of the object the shadow will be cast on a horizontal plane. The south and east/west components are multipliers as for length.

Sunrise West

Sunset East



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