

Mid-Winter Shadow Length: 36° 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	
7:13	60.976°	RISE	240.976°				
7:30	58.449°	2.438°	238.449°	23.483			
7:45	56.138°	4.991°	236.138°	11.451			
8:00	53.743°	7.474°	233.743°	7.623			
8:15	51.257°	9.880°	231.257°	5.741			
8:30	48.672°	12.203°	228.672°	4.624			
8:45	45.981°	14.433°	225.981°	3.885			
9:00	43.177°	16.562°	223.177°	3.362			
9:15	40.255°	18.581°	220.255°	2.975			
9:30	37.212°	20.479°	217.212°	2.678			
9:45	34.043°	22.246°	214.043°	2.445			
10:00	30.748°	23.872°	210.748°	2.260			
10:15	27.328°	25.344°	207.328°	2.111			
10:30	23.789°	26.653°	203.789°	1.992			
10:45	20.137°	27.788°	200.137°	1.898			
11:00	16.384°	28.739°	196.384°	1.824			
11:15	12.543°	29.497°	192.543°	1.768			
11:30	8.633°	30.054°	188.633°	1.728			
11:45	4.672°	30.405°	184.672°	1.704			
12:00	0.684°	30.547°	180.684°	1.694			
12:15	356.692°	30.478°	176.692°	1.699			
12:30	352.720°	30.198°	172.720°	1.718			
12:45	348.790°	29.710°	168.790°	1.752			
13:00	344.923°	29.020°	164.923°	1.803			
13:15	341.138°	28.135°	161.138°	1.870			
13:30	337.450°	27.062°	157.450°	1.957			
13:45	333.871°	25.812°	153.871°	2.068			
14:00	330.410°	24.394°	150.410°	2.205			
14:15	327.072°	22.820°	147.072°	2.377			
14:30	323.860°	21.100°	143.860°	2.592			
14:45	320.774°	19.245°	140.774°	2.864			
15:00	317.811°	17.267°	137.811°	3.217			
15:15	314.967°	15.174°	134.967°	3.687			
15:30	312.238°	12.978°	132.238°	4.339			
15:45	309.618°	10.686°	129.618°	5.300			
16:00	307.098°	8.307°	127.098°	6.849			
16:15	304.673°	5.849°	124.673°	9.761			
16:30	302.335°	3.320°	122.335°	17.239			
16:45	300.075°	0.725°	120.075°	78.981			
16:52:00	298.899°	SET	118.899°				

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 **Sunset**



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