

Mid-Winter Shadow Length: 42°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	
7:39	58.206°	RISE	238.206°				
7:45	57.203°	0.393°	237.203°	145.677			
8:00	54.651°	2.701°	234.651°	21.195			
8:15	52.031°	4.936°	232.031°	11.578			
8:30	49.335°	7.092°	229.335°	8.038			
8:45	46.559°	9.161°	226.559°	6.201			
9:00	43.698°	11.136°	223.698°	5.080			
9:15	40.747°	13.008°	220.747°	4.329			
9:30	37.704°	14.770°	217.704°	3.793			
9:45	34.567°	16.414°	214.567°	3.395			
10:00	31.335°	17.929°	211.335°	3.091			
10:15	28.010°	19.309°	208.010°	2.854			
10:30	24.595°	20.543°	204.595°	2.668			
10:45	21.095°	21.625°	201.095°	2.522			
11:00	17.519°	22.547°	197.519°	2.409			
11:15	13.875°	23.301°	193.875°	2.322			
11:30	10.175°	23.881°	190.175°	2.259			
11:45	6.433°	24.284°	186.433°	2.216			
12:00	2.664°	24.505°	182.664°	2.194			
12:15	358.884°	24.542°	178.884°	2.190			
12:30	355.108°	24.396°	175.108°	2.205			
12:45	351.353°	24.068°	171.353°	2.239			
13:00	347.634°	23.560°	167.634°	2.293			
13:15	343.966°	22.876°	163.966°	2.370			
13:30	340.361°	22.022°	160.361°	2.472			
13:45	336.828°	21.005°	156.828°	2.604			
14:00	333.378°	19.832°	153.378°	2.773			
14:15	330.016°	18.511°	150.016°	2.987			
14:30	326.745°	17.050°	146.745°	3.261			
14:45	323.569°	15.458°	143.569°	3.616			
15:00	320.488°	13.743°	140.488°	4.089			
15:15	317.499°	11.915°	137.499°	4.739			
15:30	314.602°	9.981°	134.602°	5.682			
15:45	311.792°	7.950°	131.792°	7.161			
16:00	309.064°	5.829°	129.064°	9.796			
16:15	306.414°	3.625°	126.414°	15.784			
16:30	303.835°	1.346°	123.835°	42.555			
16:42:00	301.652°	SET	121.652°				

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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