

# Mid-Winter Shadow Length: 34° 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	
07:04:00	61.674°	RISE	241.674°				
07:15:00	60.126°	1.523°	240.126°	37.607			
07:30:00	57.949°	4.189°	237.949°	13.654			
07:45:00	55.688°	6.790°	235.688°	8.398			
08:00:00	53.335°	9.321°	233.335°	6.092			
08:15:00	50.883°	11.774°	230.883°	4.797			
08:30:00	48.322°	14.142°	228.322°	3.969			
08:45:00	45.645°	16.415°	225.645°	3.394			
09:00:00	42.846°	18.584°	222.846°	2.974			
09:15:00	39.917°	20.639°	219.917°	2.655			
09:30:00	36.855°	22.569°	216.855°	2.406			
09:45:00	33.656°	24.364°	213.656°	2.208			
10:00:00	30.318°	26.011°	210.318°	2.049			
10:15:00	26.845°	27.498°	206.845°	1.921			
10:30:00	23.240°	28.814°	203.240°	1.818			
10:45:00	19.513°	29.947°	199.513°	1.736			
11:00:00	15.676°	30.887°	195.676°	1.672			
11:15:00	11.745°	31.624°	191.745°	1.624			
11:30:00	7.742°	32.150°	187.742°	1.591			
11:45:00	3.688°	32.460°	183.688°	1.572			
12:00:00	359.611°	32.549°	179.611°	1.567			
12:15:00	355.536°	32.418°	175.536°	1.575			
12:30:00	351.490°	32.066°	171.490°	1.596			
12:45:00	347.499°	31.499°	167.499°	1.632			
13:00:00	343.585°	30.723°	163.585°	1.683			
13:15:00	339.767°	29.745°	159.767°	1.750			
13:30:00	336.063°	28.576°	156.063°	1.836			
13:45:00	332.482°	27.227°	152.482°	1.944			
14:00:00	329.035°	25.708°	149.035°	2.077			
14:15:00	325.724°	24.032°	145.724°	2.243			
14:30:00	322.551°	22.211°	142.551°	2.449			
14:45:00	319.514°	20.256°	139.514°	2.710			
15:00:00	316.611°	18.178°	136.611°	3.045			
15:15:00	313.835°	15.988°	133.835°	3.490			
15:30:00	311.182°	13.697°	131.182°	4.103			
15:45:00	308.642°	11.312°	128.642°	4.999			
16:00:00	306.209°	8.844°	126.209°	6.427			
16:15:00	303.875°	6.299°	123.875°	9.060			
16:30:00	301.631°	3.684°	121.631°	15.530			
16:45:00	299.469°	1.007°	119.469°	56.868			
16:53:00	298.208°	SET	118.208°				

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.



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