

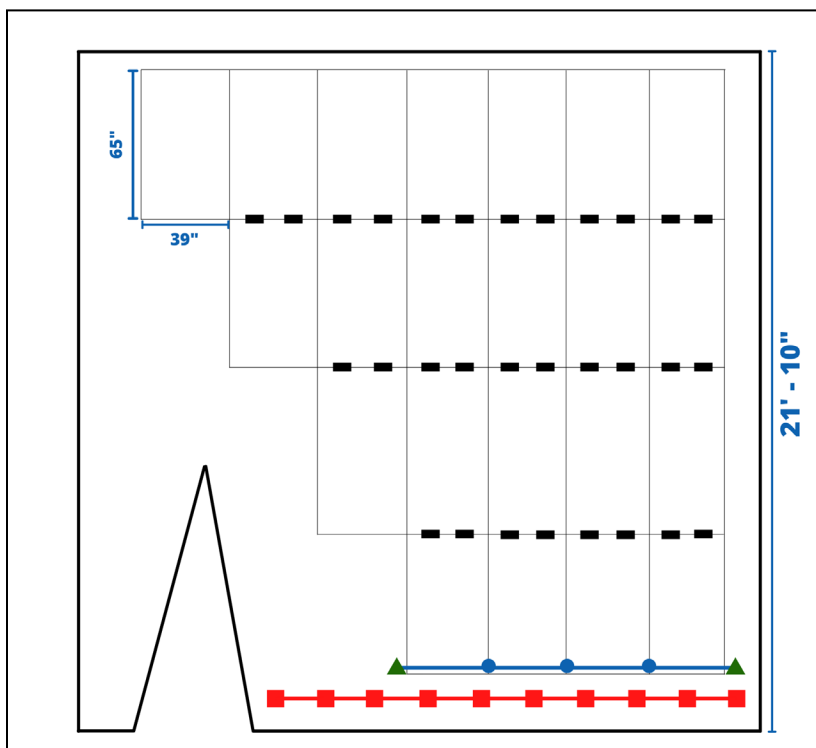
ALPINE SNOWGUARDS®













Solar Snow Management Systems Overview

Alpine Solar Snow Management System recommended components:

- **Solar SafeGuard Bar System** – bar-style snow guard attached to the leading edge of the array.
- **Solar Snow Dog** – pad-style snow guards installed between the upslope panels of the array.
- **SSG-313** – fence-style system that attaches directly to the roof deck below the array. (Minimum of 1' of spacing between array and install location.)

Recommended Solar Snow Management Layout:



| LEGEND | PART NUMBER | IMAGE | QTY. |
|--|----------------------------------|---|---------|
|  | SOLAR SG-BRKT |  | 3 pcs. |
|  | SOLAR SG-END BRKT |  | 2pcs |
|  | ALPINE SIMGUARD-BAR |  | 16 feet |
|  | SNOW DOG-BLK |  | 30 pcs. |
|  | SSG-313 |  | 10 pcs. |
|  | PP75 (1" OD, SOLD IN 8' LENGTHS) |  | 40 feet |

Pipe-Style accessories available as needed

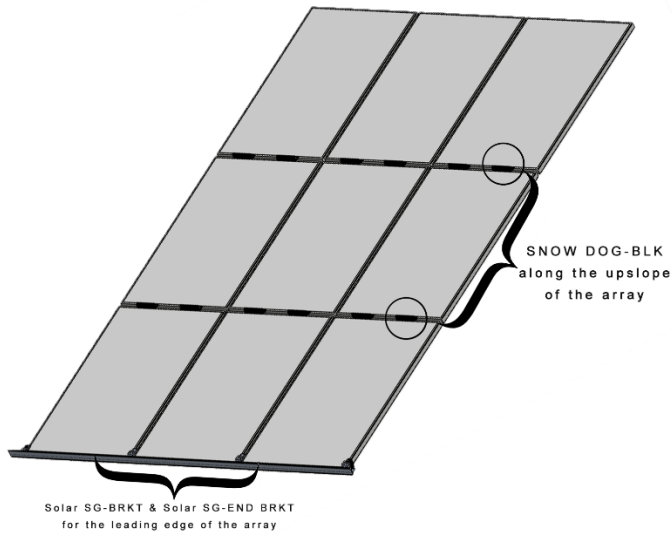
BEFORE INSTALLING THESE SNOW GUARDS, READ BLOG BELOW:

<http://www.fromridgetoeave.com/introducing-solar-snowdog/>

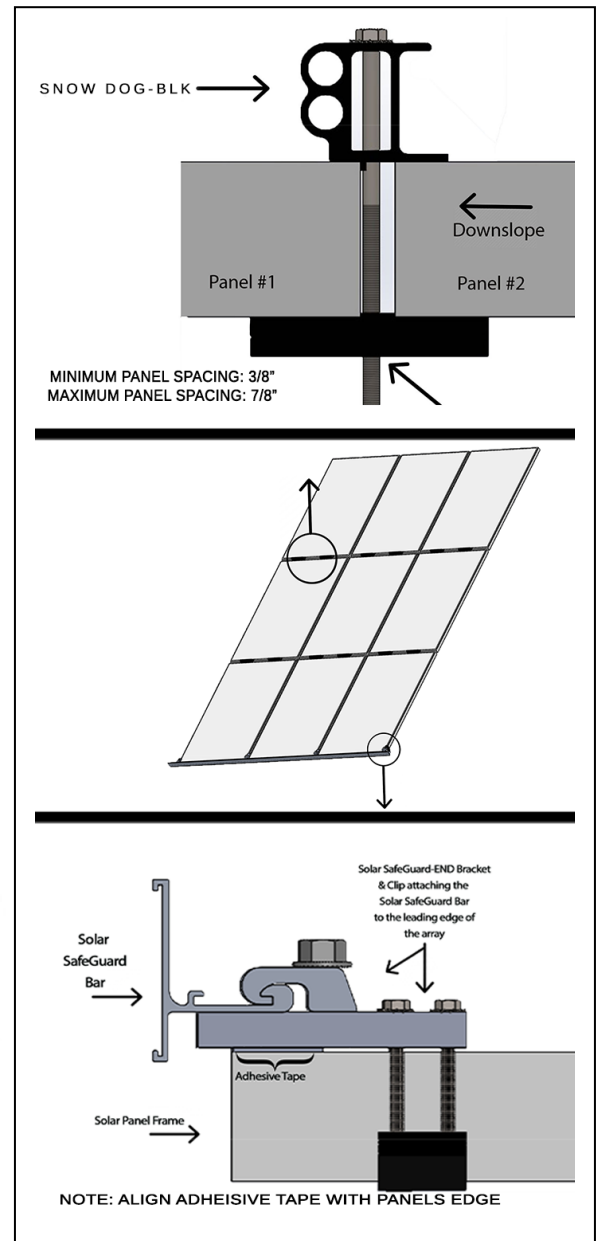
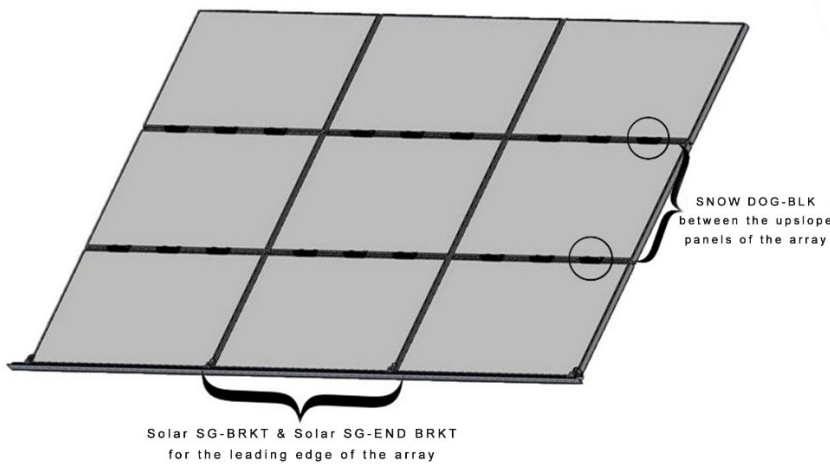
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Layout recommendation Continued:

Portrait Orientation:



Landscape Orientation:

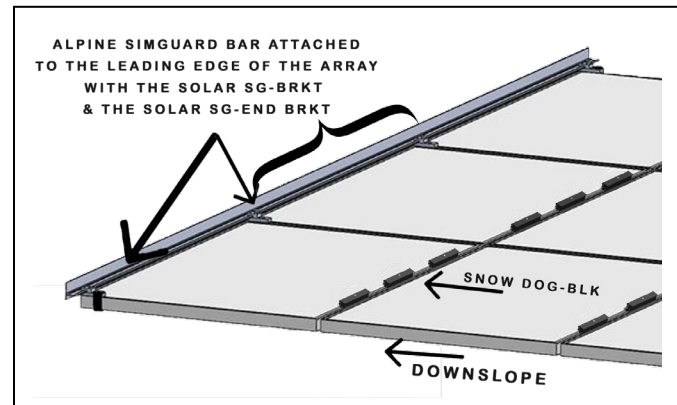


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(Solar SafeGuard Bar)

Solar SG-END Bracket & Solar SG Bracket:

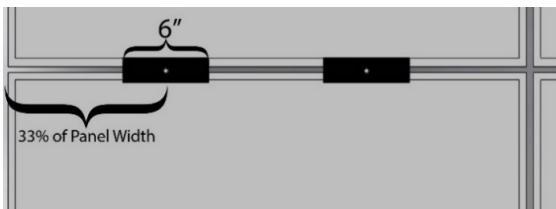
Alpine designed a 2" tall rail-based snow retention system for the leading edge of the arrays. SNOW DOG-BLK should be installed upslope. Combined, these systems will typically retain snowfall amounts of 2-3 times the 2" bar height (4"-6"). This bar height is governed by the need to prevent shading of the solar panel. There may be conditions where snow accumulates to depths greater than 6" behind the Alpine Solar SimGuard Bar and SNOW DOG-BLK. If this happens, it is the responsibility of the building owner to clear the excess accumulation. This will ensure structural integrity. This will also help to protect critical safety areas below the array and allow for more power generation.



SNOW DOG-BLK:

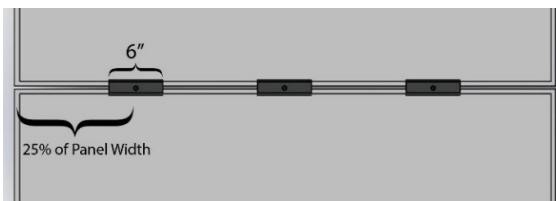
The SNOW DOG-BLK was designed to supplement the Solar SafeGuard 2" bar system on the leading edge of the array. This solar snow retention is not intended to keep all of the snow on the array for the entire duration of the winter. It is intended to slow the movement of snow and ice off the panels; limiting the chance for a large mass to evacuate all at once, similar to an avalanche.

Portrait Layout: Alpine suggests using a minimum of two SNOW DOG-BLK per panel.



Panels in "Portrait" layout are suggested to use SNOWDOG-BLK spaced at 33% of the panel's width. (Two guards per panel)

Landscape Layout: Alpine suggests using a minimum of three SNOW DOG-BLK per panel.



Panels in a "Landscape" layout are suggested to use SNOW DOG-BLK spaced at 25% of the panel's width. (Three guards per panel)

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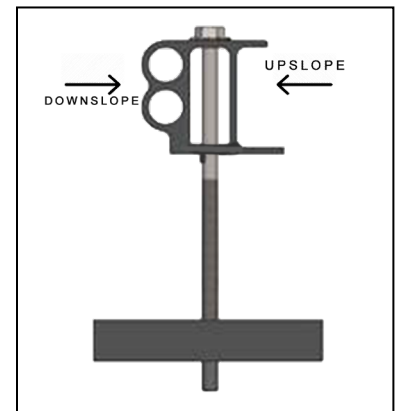
Installation – SNOW DOG-BLK:

NOTE:

- The first row of solar snow pads should be installed in the horizontal joint between the top of the first panel and the bottom of the second panel.
- Minimum panel spacing: 3/8". Maximum panel spacing: 7/8".
- Depending on your panel orientation, the SNOW DOG-BLK pads will be installed with either two or three pads per panel. In a landscape layout, the first SNOW DOG-BLK should be installed on the center of the panel. The following SNOW DOG-BLK will divide the remaining panel space on each side of the central pad. (See diagram on page #2 for "Landscape Layout") For panels in a portrait layout, two SNOW DOG-BLK will be installed at 1/3rd and 2/3rd the panels width. (See diagram on page #2 for "Portrait Layout")

Installation:

1. To begin, ensure that the SNOW DOG-BLK rounded edge is facing downslope.
2. Align the T-Nut parallel with the SNOW DOG-BLK to fit in-between the horizontal joints of the array.
3. Using the Alignment ridge on the bottom of the SNOW DOG-BLK, engage the top edge of the downslope panel with the alignment ridge so that the SNOW DOG-BLK is resting on both the top of the downslope panel and the bottom edge of the upslope panel.
4. Turn the T-Nut perpendicular to the SNOW DOG-BLK so that it engages both the top edge of the downslope panel and the bottom edge of the upslope panel.
5. Tighten the hex bolt on the top of the SNOW DOG-BLK to engage the T-Nut to the panels. Fasten between 80 - 100-inch pounds.
6. Repeat these steps for each SNOW DOG-BLK assembly on the array. Follow the recommended layout provided in this installation manual. Refer to page #1 & #2 diagrams for layout details.



Installation – Solar SafeGuard

Note: The SG-BRKT and SG-BRKT-END are engineered to attach the SafeGuard bar (2") to the leading edge of the solar array. The SG-BRKT-END is designed to engage the outer edges of the solar array, whereas, the SG-BRKT is designed to engage with the vertical joints between panels at the leading edge of the array. (See diagrams above.)

1. Remove paper from the normount adhesive strip from the bottom of the SG-BRKT-END.
2. Align and place the leading edge of the adhesive tape at the leading edge of the panel array.
3. Tighten the (two) threaded hex bolts to engage the end-clamp with the bottom of the panel. (Repeat steps 2 - 4 for the other SG-BRKT-END on the opposite side of the array.) Torque between 80 - 100-inch pounds.
4. Remove paper from the normount adhesive strip on the bottom of the SG-BRKT (Mid-clamps).
5. Align and place the leading edge of the adhesive tape at the leading edge of the panel array, between the vertical joints. (Maximum spacing of 1". Minimum spacing of 3/8".)
6. Tighten the hex bolt to engage the T-Nut to the bottom of the panel array. (Ensure the T-Nut is perpendicular to the vertical joints.) Torque between 80 – 100-inch pounds

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Installation – Solar SafeGuard Bar

Note: In order to attach the bar to the installed brackets, you will need the Solar SG-Clip (#7 on assembly sheet), and the SS Flange Bolt (#6 on assembly sheet).

1. Place the SafeGuard bar on top of the SafeGuard bracket so that the slotted face of the bar is pointed down slope. When properly installed, the face of the bar will help to hide the bracket when looking upslope.
2. Engage the Solar SG-Clip with the SafeGuard bar and line up with the flange bolt hole located in the center of the bracket.
3. Thread the flange bolt into the SG-BRKT-END until it holds in place. (You will tighten this fully once the remaining bar is installed.)

Note: Do not install runs of snow retention bar more than 100 feet long without a break to allow for thermal expansion. The SafeGuard bars are provided in 8' lengths. Each bar comes with a coupling/splice device (rectangular shape) that slides into the slot at the end of the bar. Join successive bars by sliding slotted end over the coupling/splice device.

4. Continue engaging the Solar SG-Clips and SS Flange Bolts with bar and installed brackets across the array.
5. Once the bar is attached to each installed bracket and properly spliced, tighten each flange bolt to a minimum of 110-120 inch-pounds for a secure hold.
6. Color Insert: The face of the bar is designed to accept a 2" wide color insert. This is available in a limited color selection from Alpine SnowGuards.

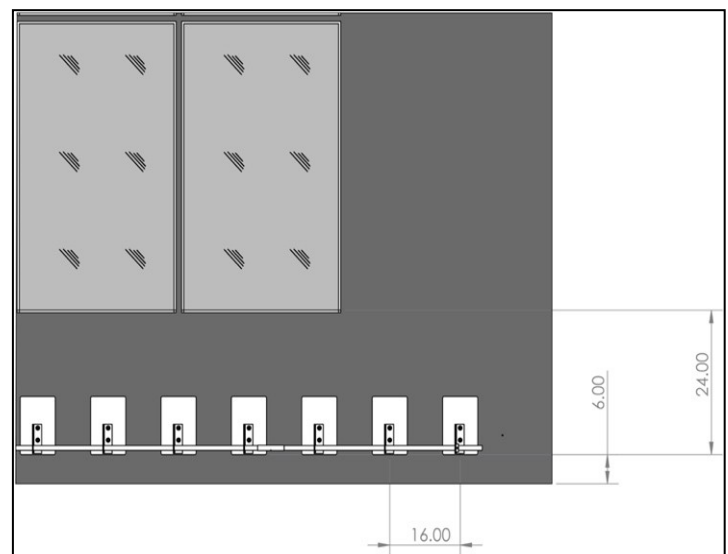
Installation – SSG-313H3SL-812BLK

- New/existing Composition Shingle

Note: If the roofing material is rigid like slate or tile, do not use the SSG-313. Refer to our model [PP125 Snow Guards](#).

Layout:

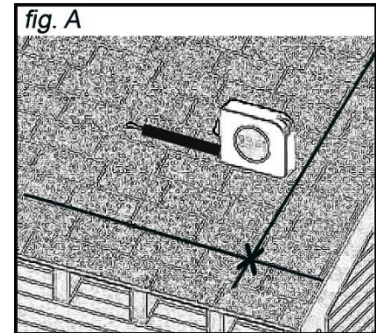
- It is the responsibility of the installer or engineer of record to determine if the structure is capable of supporting the retained loads.
- Snow guards must be installed into rafters.
- A 24" minimum landing zone between the array and snow guards is required.
- The minimum distance for snow guard placement from the eave is 6" or the second course of shingles.
- Do not install snow retention pipe/bar runs more than 100 feet long without a break to allow for thermal expansion
- Contact the manufacturer for detailed layout.



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Installation - Flashing:

1. Locate the rafters and snap horizontal and vertical lines to mark the installation position for each flashing (*fig. A*).
2. Insert top of flashing up and under the next row of shingles. Push far enough up-slope to prevent water infiltration through vertical joints in shingles.
3. Align fastener holes with marked line of rafter and vertically align holes for a straight installation across the roof.



Installation - Bracket:

1. Line up flashing holes with pilot holes. Place the bracket directly over the flashing holes.

Note: The flat edge of the bracket should face downslope (*fig. B*).

2. Install the included washers and customer supplied fasteners through the bracket and into the rafter.

Note: Alpine SnowGuards has tested with GRK RSS stainless steel screws. If using traditional lag bolts, pre-drilling holes and backfilling with sealant is required.

3. Install Pipes, Couplings, End Caps and End Collars (refer to Pipe-Style Installation Instructions).
4. Ice Flags are optional.

