Cut Sheet - SSM-U-BRKT

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2. See spec sheet or contact manufacturer for detailed material, finishes, and configuration options.
3. Contact manufacturer for detailed layout.
4. Do not scale drawings.
5. Subject to change without notice.
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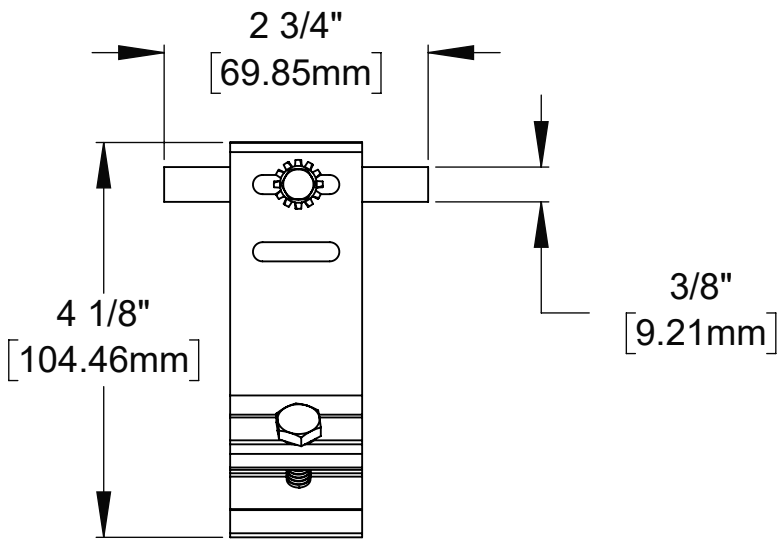
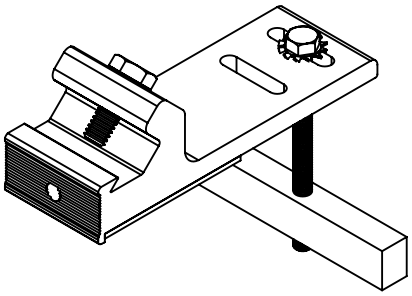
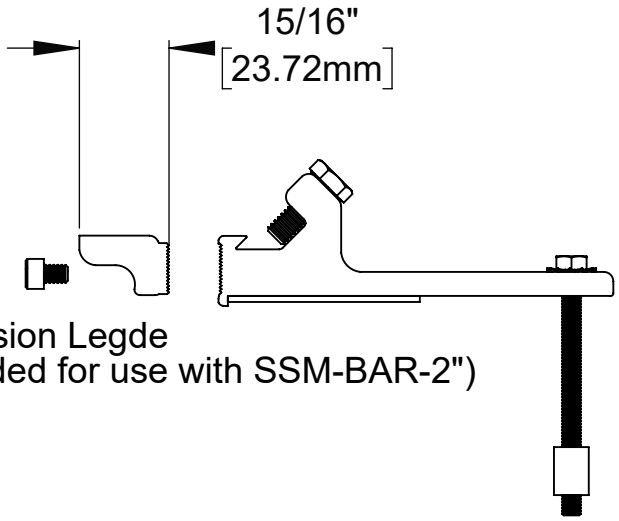
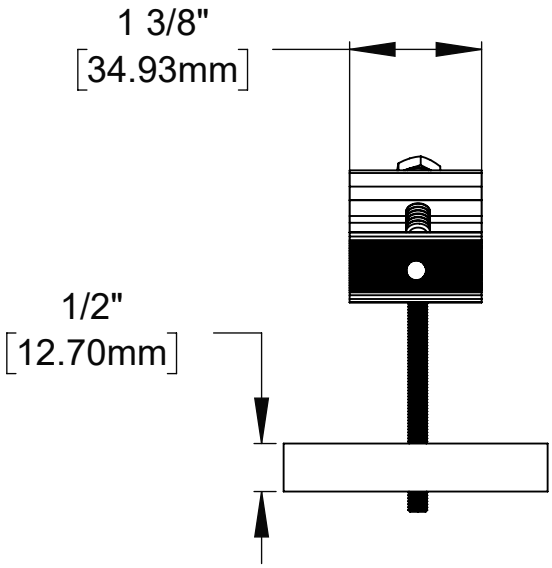






Extension Legde
(Included for use with SSM-BAR-2")



Note: Fits Panel Thicknesses 30mm-48mm; 1.1811” – 1.89”

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Scale: 1:2	8/26/2022

Solar SnowMax-Universal (SSM-U) Snow Guard Installation Instructions
Solar Snow Management System

TYPICAL APPLICATION

- Solar Array (leading edge panels only)

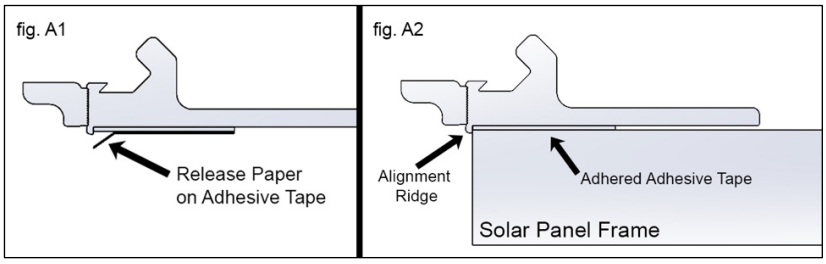
INSTALLATION

SSM-U-BRKT

Note: *Maximum bracket spacing is 68”*

1. Using supplied bolt, attach Extension Ledge to SSM-U-BRKT. Extension Ledge allows SSM-BAR-2" to seat properly.

2. Remove release paper from adhesive tape on underside of bracket (*fig. A1*).

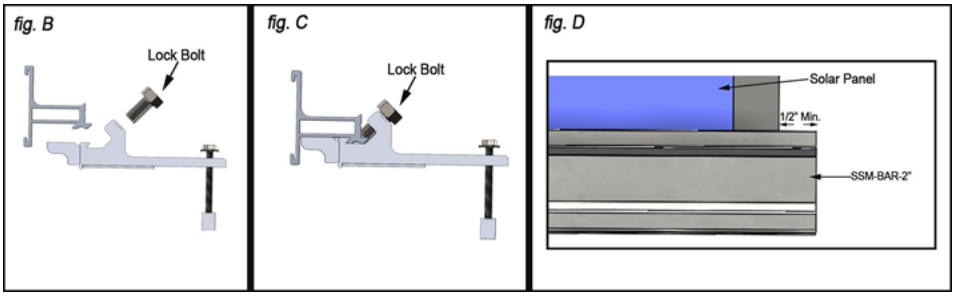


3. Drop T-nut in vertical joints between solar panels. Position bracket on panel frame so Alignment Ridge sits against upslope panel (*fig. A2*).

4. With T-nut perpendicular to panel edge, torque bolt with T-nut to a minimum of 120 inch-pounds.
   Note: *If array has expansion joints, contact Alpine SnowGuards to discuss 888.766.4273.*

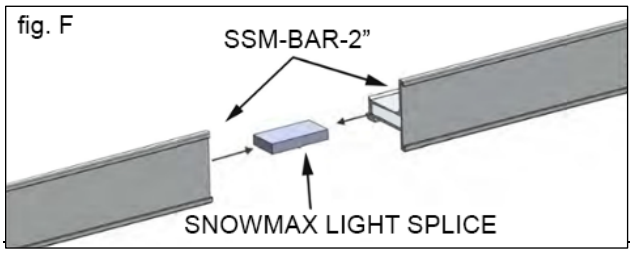
SSM-BAR-2" (2” bar)

1. Place SSM-BAR-2" into bracket’s dovetail feature (fig. B).
   Install Lock Bolt and torque until bar is secure (fig. C).
   Note: Bar must extend a minimum of 1/2” beyond each side of solar array (fig. D) to accommodate SSM-U-END BRKT.



Solar SnowMax-Universal (SSM-U) Snow Guard Installation Instructions
Solar Snow Management System

2. To connect two sections of SSM-BAR-2", slide SNOWMAX LIGHT SPLICE into hollow chamber of SSM-BAR-2". The small ridge on one side of splice (which can be facing up or down) keeps it from sliding out of place (*fig. E*).
   Note: *The bar should not extend more than 6" - 8" past final bracket*
   Optional: SNOWMAX-CI-69 can be installed into face of the bar.



SSM-U-END BRKT

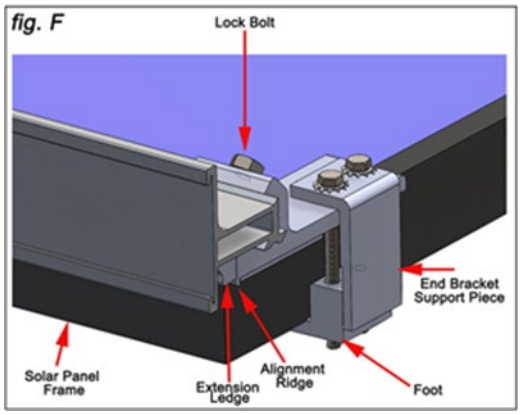
1. Using supplied bolt, attach Extension Ledge to SSM-U-END BRKT. Extension Ledge allows SSM- BAR-2" to seat properly.

2. Remove release paper from adhesive tape on underside of bracket (fig. A1).

3. Attach bracket to previously installed bar and position SSM-U-END BRKT foot so it engages with underside edge of solar panel frame. Lower bracket into place.
   Note: Ensure the alignment ridge sits against front edge of solar panel (fig. F).

4. Tighten Lock Bolt until bar is secure.

5. Tighten two bolts on End Bracket Support Piece to 120 inch-pounds.



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Solar SnowMax Universal (SSM-U) Specification Sheet
Snow Guards

PART 1 – General

1.1 SUMMARY

A. WORK INCLUDES

1. SSM-U snow guard system that clamps directly to the solar panel.

B. RELATED SECTIONS

1. Section 481413: Solar Energy Collectors MasterFormat 2016 48 14 13
2. Section 077253: Snow Guards MasterFormat 2016 07 72 53

1.2 SYSTEM DESCRIPTION

A. COMPONENTS

Universal Solar Bracket: A preassembled aluminum bracket and T-Nut installed between panels at the eave edge.

1. SSM-U-BRKT (ships pre-assembled)

Universal Solar End Bracket: A preassembled aluminum bracket and end clamp installed at both ends of eave edge panel row.

1. SSM-U-END BRKT (ships pre-assembled)

Bar: An aluminum bar (8’ length) and splice plate that attaches to the Universal Solar brackets via a hex bolt. Contains a 2” tall slot for optional color insert strip.

1. SSM-BAR-2”

B. ACCESSORIES

Color Insert Strip: A painted insert strip

2. SNOWMAX-CI-69 (Optional)

Leveling Shim: An adaptor plate that allows system to be installed with rail less solar racking systems.

1. SSM-U-LEVELING-SHIM

C. DESIGN REQUIREMENTS

1. Installation to be approved by solar array design engineer.
2. Maximum 68” between clamps and a minimum 1 clamp per panel joint.
3. No more than 6” of SSM-BAR 2” extended past the last bracket.
4. Solar Panel mechanical load rating of minimum 5,400 Pa.
5. It is important to design new structures and solar arrays or assess existing structures and solar arrays to ensure that they will withstand the retained snow loads.

1.3 SUBMITTAL

A. Submit manufacturer’s specifications, standard detail drawings, and installation instructions.

1.4 QUALITY ASSURANCE

A. Installer to be experienced in installation of specified solar racking system, roofing material, and snow guards for the area of the project.

Solar SnowMax Universal (SSM-U) Specification Sheet
Snow Guards

1.5 DELIVERY / STORAGE / HANDLING

A. Inspect material upon delivery and order replacements for any missing or defective items. Keep material dry, covered and off the ground until installed.

PART 2 – PRODUCTS

2.1 MANUFACTURER

A. Designed and exclusively distributed by Alpine SnowGuards®, a Division of Vermont Slate & Copper Services, Inc.
289 Harrel St., Morrisville, VT 05661 | 888-766-4273 | www.alpinesnowguards.com

2.2 MATERIALS

A. SSM-U-BRKT
1. SSM-U-BRKT – 6000 Series Aluminum
2. SSM-U T-NUT – 6000 Series Aluminum
3. W-STR SS-M5 – 304 Stainless Steel
4. B-HX SS-M5X0.8X65 – 18-8 Stainless Steel
5. SSM-R2-TAPE – Basek PE Foam Tape
6. B-HX SS-.25-20X.75 – 18-8 Stainless Steel
7. SSM-U-LEDGE – PA66 + 50% Glass Fiber Plastic
8. Socket Head Screw 0.19-24x0.25 – 18-8 Stainless Steel

B. SSM-U-END BRKT
1. SSM-U-BRKT – 6000 Series Aluminum
2. SSM-U L FOOT – 6000 Series Aluminum
3. SSM-U FOOT BRACKET – 6000 Series Aluminum
4. W-STR SS-M5 – 304 Stainless Steel
5. B-HX SS-M5X0.8X65 – 18-8 Stainless Steel
6. SSM-R2-TAPE – Basek PE Foam Tape
7. B-HX SS-.25-20X.75 – 18-8 Stainless Steel
8. SSM-U-LEDGE – PA66 + 50% Glass Fiber Plastic
9. Socket Head Screw 0.19-24x0.25 – 18-8 Stainless Steel

C. SSM-BAR-2”
1. SSM-BAR-2” – 6000 Series Aluminum
2. SNOWMAX LIGHT SPLICE – 6000 Series Aluminum

2.3 ACCESSORY MATERIALS

A. SNOWMAX-CI-69 – .032 Aluminum
B. SSM-U-LEVELING-SHIM – 6000 Series Aluminum

2.4 FINISH

A. SSM-U-BRKT and SSM-U-END BRKT – Anodized black (Standard)
B. SSM-BAR-2” – Mill finish

PART 3 – EXECUTION

5.1 EXAMINATION

A. Substrate

1. Inspect solar array on which the snow guards are to be installed and verify that it will withstand any additional loading that it may incur. Notify general contractor, solar design engineer of record and owner of any deficiencies before installing Alpine SnowGuards' Solar SnowMax Universal (SSM-U).
2. Verify that the solar array has been installed correctly prior to installing Alpine SnowGuards' Solar SnowMax Universal (SSM-U).

5.2 INSTALLATION

A. Comply with architectural drawings, solar panel manufacturer's recommendations, and solar array design engineer of record for location of system. Comply with manufacturer's written installation instructions.

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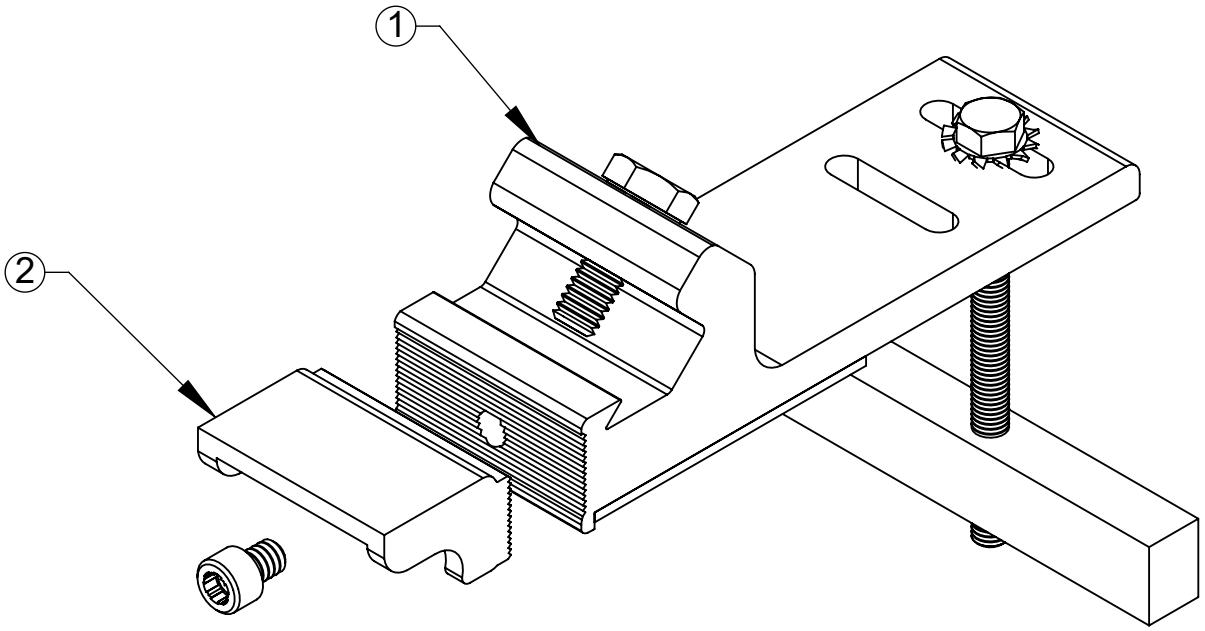
Assembly Sheet - SSM-U-BRKT

1. Installation to be completed in accordance with manufacturer's written specifications and installation instructions.
2. See spec sheet or contact manufacturer for detailed material, finishes, and configuration options.
3. Contact manufacturer for detailed layout.
4. Do not scale drawings.
5. Subject to change without notice.
6. For patent information, visit our Patent Page.



ITEM NO.	PART CODE	DESCRIPTION	QTY
1	SSM-U-BRKT	UNIVERSAL SOLAR BRACKET (PRE-ASSEMBLED)	1
2	SSM-U-LEDGE	UNIVERSAL SOLAR LEDGE (INCLUDED FOR USE WITH SSM-BAR-2")	1

FOR RAILLESS SYSTEMS, ASK ABOUT OUR LEVELING SHIM

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Cut Sheet - SSM-U-BRKT

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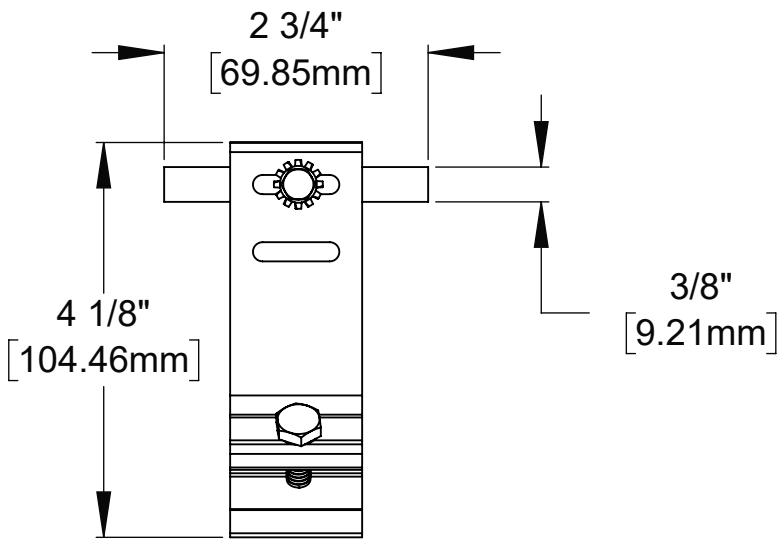

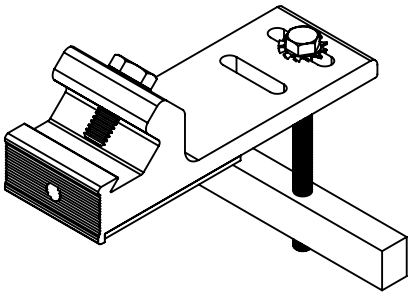

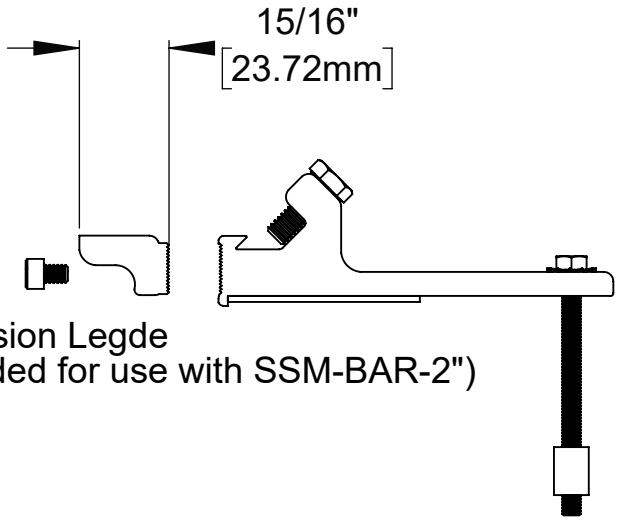

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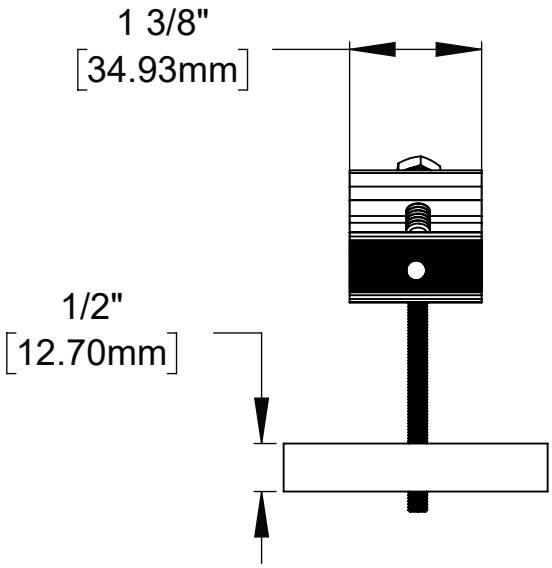

Note: Fits Panel Thicknesses 30mm-48mm; 1.1811” – 1.89”

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Cut Sheet - SSM-U-END BRKT WITH SSM-BAR-2"

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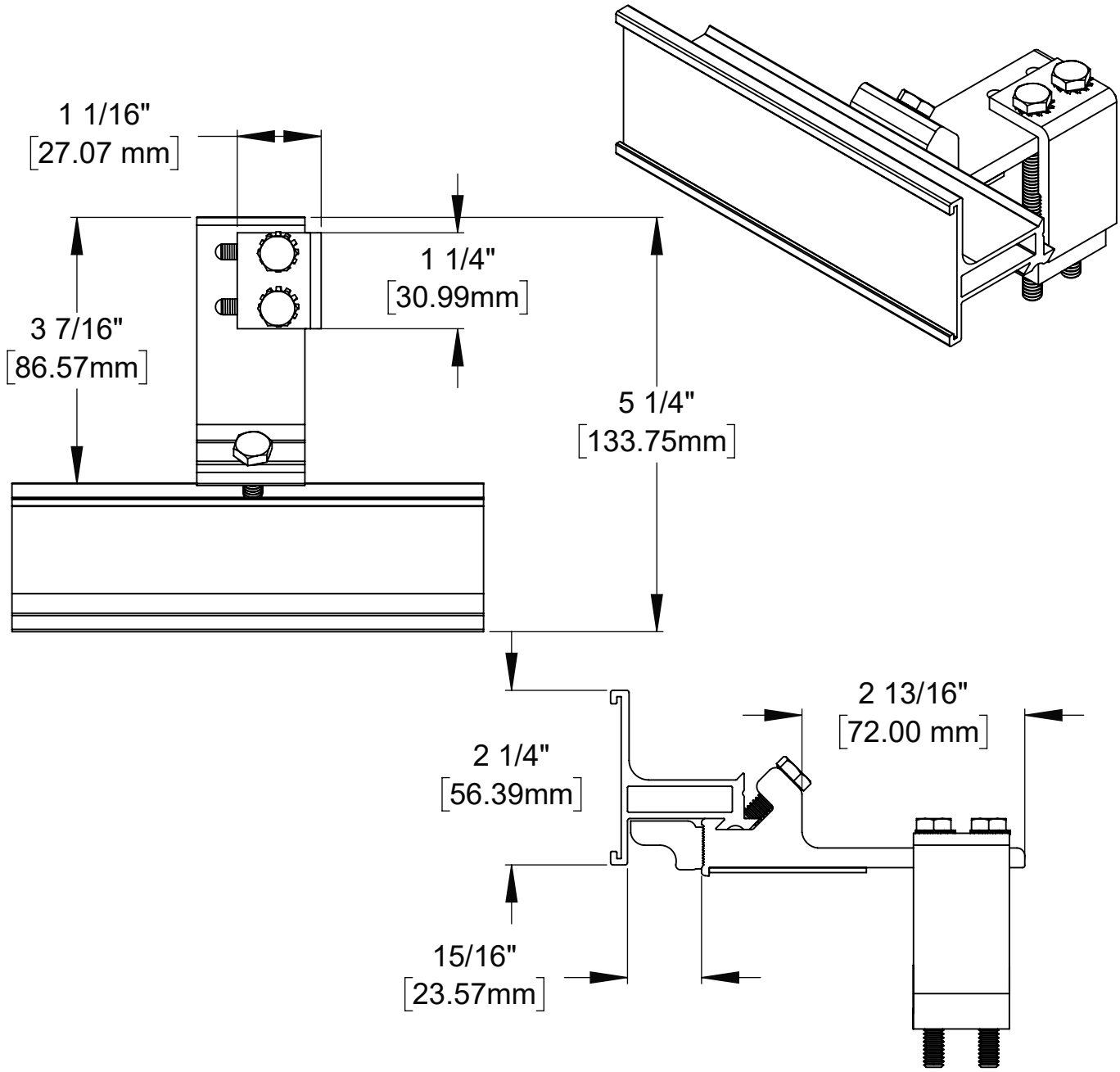

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Assembly Sheet - SSM-U-END BRKT

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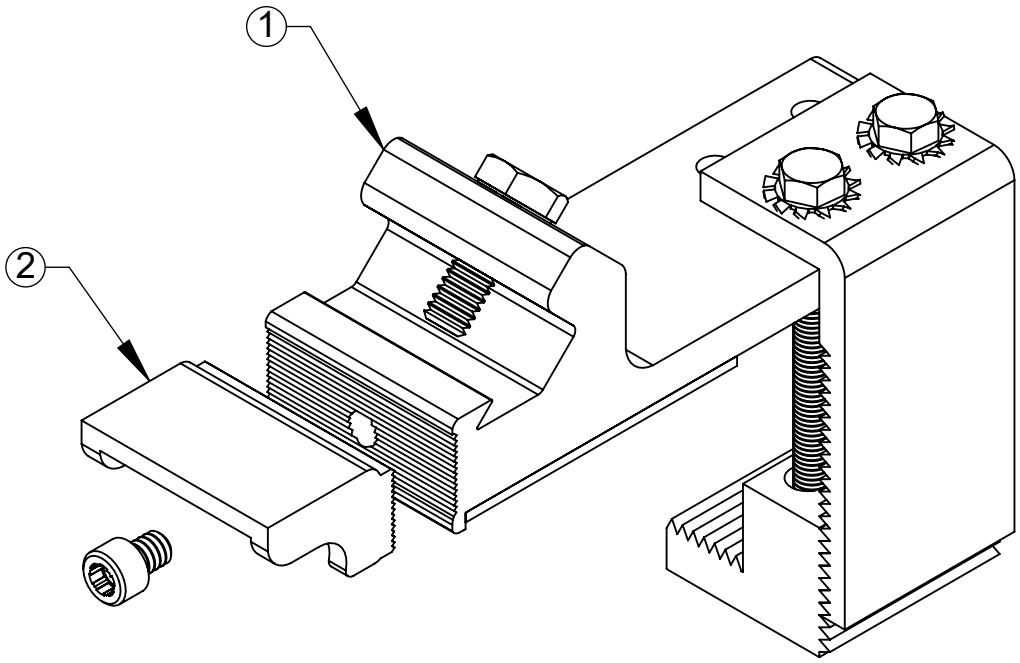

ITEM NO.	PART CODE	DESCRIPTION	QTY
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2	SSM-U-LEDGE	UNIVERSAL SOLAR LEDGE (INCLUDED FOR USE WITH SSM-BAR-2")	1

FOR RAILLESS SYSTEMS, ASK ABOUT OUR LEVELING SHIM

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Cut Sheet - SSM-U-END BRKT

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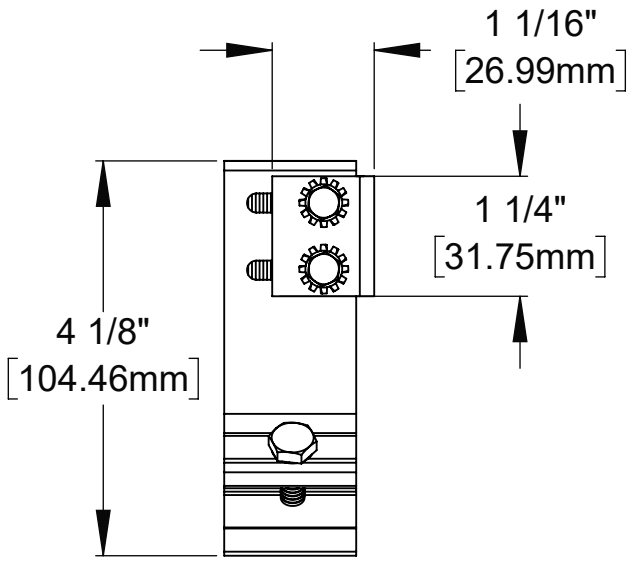

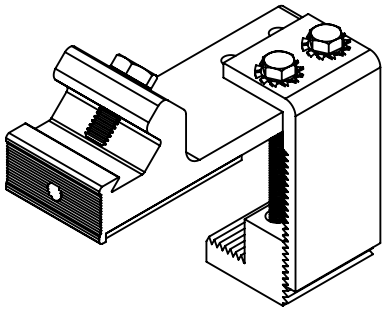

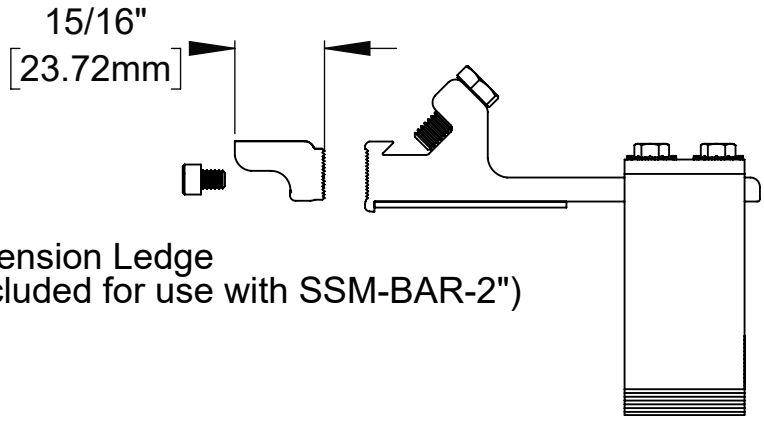

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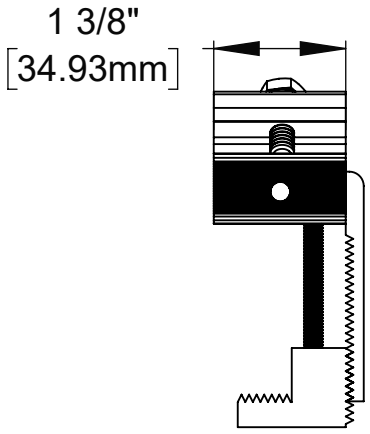

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SOLAR SNOW MANAGEMENT

Solar arrays installed in snowy climates will shed snow in a glacial or avalanche-style event; even on slopes as low as 5°.

Alpine's solar snow guard system comprises three main components:

1. **Solar Snow Dog**: a 6-inch wide individual pad-style snow guard implemented between solar panels in the horizontal joint upslope in the array.
2. **Solar SnowMax-Universal:** an array-mounted fence-style system installed at the lowest edge of the solar array.
3. **SSG-313:** a roof-mounted, pipe-style snow guard system

Depending on the solar array's size, pitch, and location, Alpine solar snow retention components can be installed alone or, for best performance, in combination with one another.

ALPINE'S SOLAR SNOW GUARDS:

- Are a mitigation system that will allow snow to melt naturally or to be removed as needed without a roof avalanche event.
- Can be installed on new or retrofitted solar applications
- Are an ideal solution for solar arrays that shed snow onto important egress points.
- Undergo rigorous performance testing and supported the load values established in IEC 62938:2020 for solar panels.
- Have been in continuous service in multiple variations since 2012 with no reported failures.

CONTACT

INFO@ALPINESNOWGUARDS.COM
WWW.ALPINESNOWGUARDS.COM
888.766.4273

SOLAR SNOW GUARD SYSTEM

1 SOLAR SNOW DOG

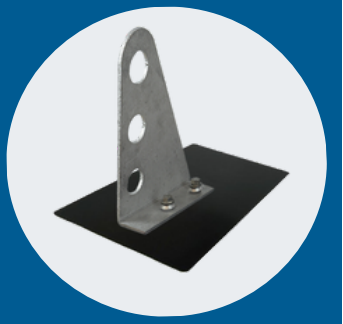
- Solar Snow Dog a 6-inch wide individual pad-style snow guard implemented between solar panels in the horizontal joint upslope in the array.
- Install 2 per panel in portait panel orientation, 3 per panel in horizontal panel orientation.
- Acts to hold and break up a sliding snow mass, preventing a roof snow avalanche.

2 SOLAR SNOWMAX UNIVERISAL

- Solar SnowMax- Universal is an array-mounted fence-style system installed at the lowest edge of the solar array.
- Taller fence style system is a proven solution that has been used in the conventional snow guard market for over 2 decades

3 SSG-313

- Solar Snow Guard- 313 is designed to stop snow that evacuates the array before it falls off the roof.
- The SSG-313 is intended to be installed in-line with the outer most load barring wall. (No closer then two feet from the array to allow for a snow landing zone.)



Solar Snow Management Overview

Recommended Components

Solar Snow Dog

- Pad-style snow guard that is 6” wide and installed upslope in the array in horizontal joints of panels that are spaced a minimum of 3/8”

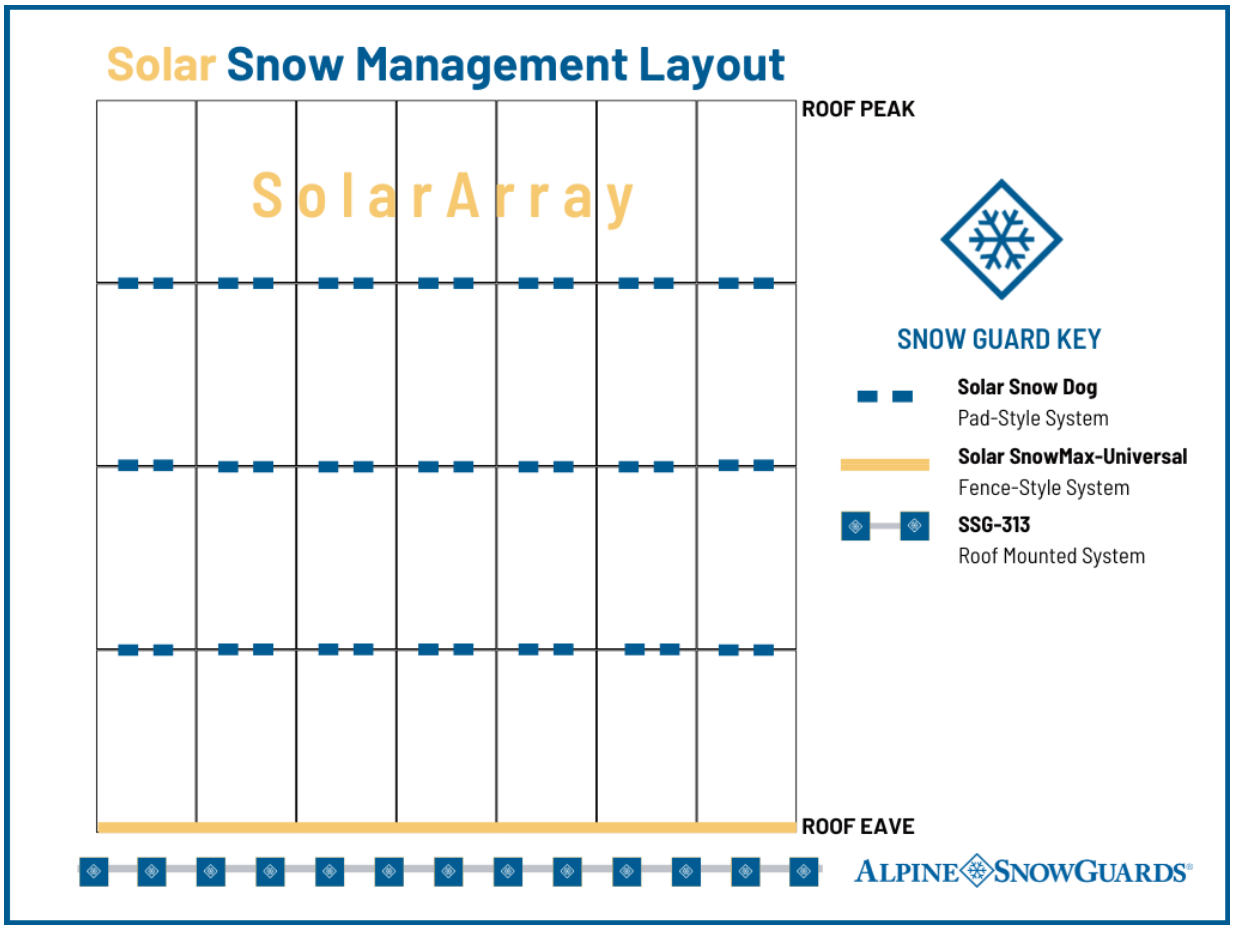
Solar SnowMax-Universal

- Array-mounted fence-style system that is 2” high and installed at lowest edge of array; limited in height to prevent panel shading and maximize snow holding potential
- Nearly eliminates panel shading except near sunrise and sunset on very low pitch applications

SSG-313

- Roof-mounted snow guard system with required minimum 24” landing zone between solar panels and roof-mounted snow guard system

When installed together, Solar Snow Dog and Solar SnowMax-Universal (SSM-U) will typically retain 4”-6” inches of snowfall which is 2-3 times the height of SSM-U’s bar.



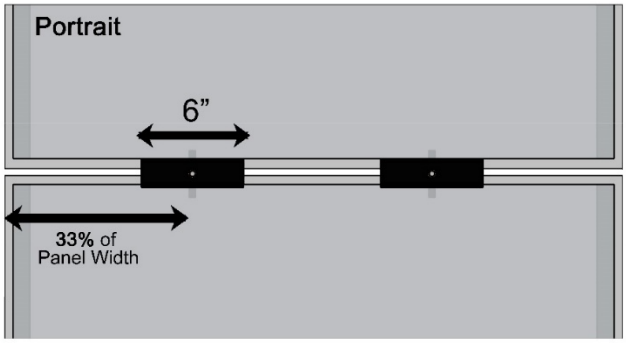
Solar Snow Management Overview

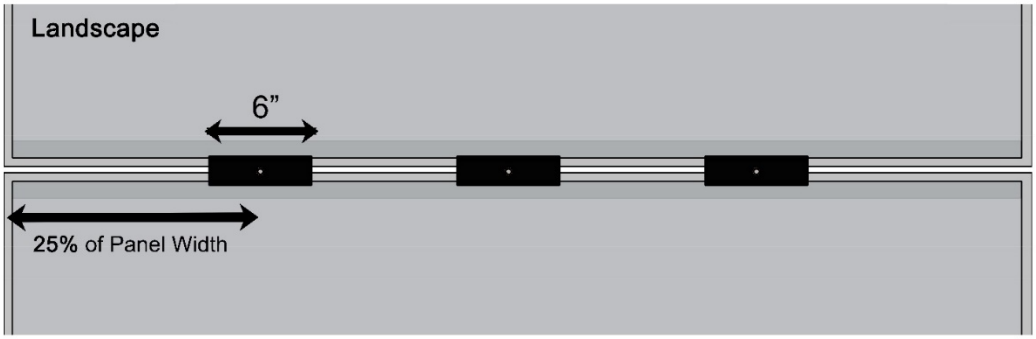
Portrait Orientation

- Alpine suggests a minimum of (2) Snow Dogs per panel, spaced at 33% of panel's width

Landscape Orientation

- Alpine suggests using a minimum of (3) Snow Dogs per panel, spaced at 25% of panel's width





Important Information About Snow Depths Greater than 6”

There may be conditions where snow accumulates to depths greater than 6” behind SSM-U and Snow Dog. 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.

This solar snow management system slows 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.

Product Information

For product information, including Cut Sheets, Assembly, Specifications and Installation Instructions, visit https://www.alpinesnowguards.com/roof-type/solar-panels.