

ROCKY MOUNTAIN SNOW GUARDS 4231 S NATCHES CT., UNIT C ENGLEWOOD, CO 80110 PHONE: (720) 379-7756 FAX: (720) 387-8361

www.rockymountainsnowguards.com

## S-5® ColorGard SNOW BAR SYSTEM

#### **AVAILABLE MATERIALS:**

- ALUMINUM
- BRASS (S-5® B-CLAMP ONLY)





Unpunched ColorGard Bar with S Clamps, Veraclips and SnoClip II, Rear

#### INFORMATION:

- 7'8" Punched or Unpunched bar Clamps to fit all seam profiles Specific load ratings for all panels Excellent Choice for:
  - Standing seam metal panel roofs
  - Through-fastened metal panels (Versabracket)
  - Corrugated metal panels (Corrubracket)



Punched ColorGard Bar with S Clamps, Rear

#### **EXAMPLES:**





888-825-3432 | www.S-5.com



# S-5-B Clamp

Architects and roof designers choose copper roofing for its timeless elegance and durability. The S-5-B ("B" for "Brass") allows architects to maintain that theme with all equipment and accessories that must be mounted to the roof with permanence and durability consistent with the roof itself.

This clamp is specifically designed for double-folded copper standing seam paneling.

Installation is as simple as placing the clamp on the seam and tightening the patented round-point setscrews to the specified tension. Then, affix ancillary items using the bolt provided. Go to www.S-5.com/tools for information and tools available for properly attaching and tensioning S-5!® clamps.

## S-5-B Mini Clamp

The S-5-B Mini is a bit shorter than the original S-5-B and has one setscrew rather than two. The mini is the choice for attaching all kinds of rooftop accessories: signs, walkways, satellite dishes, antennas, rooftop lighting, lightning protection systems, solar arrays, conduit, rooftop mechanicals—just about anything!\*

The brass S-5-B clamp is designed to complement the beauty of your copper roofing without piercing the panel, thereby preserving the roof manufacturer's warranty!

<sup>\*</sup>S-5! mini clamps are not compatible with, and should not be used with S-5! SnoRail™/SnoFence™ or ColorGard® snow retention systems.



The strength of the S-5-B clamp is in its simple design. The patented setscrews will slightly dimple the metal seam material but will not puncture it—leaving the roof manufacturer's warranty intact.

The **S-5-B and S-5-B Mini clamps** are each furnished with the hardware shown to the right. The S-5-B standard clamp is provided with an M8-1.25 X 16.00 mm Hex Flange Bolt. Each box also includes a screw gun bit tip. All included hardware is stainless steel. Please visit **www.S-5.com** for more information including CAD details and specifications.

The S-5-B and S-5-B Mini clamps have been tested for load-to-failure results on cold-rolled standing seam copper. The independent lab test reports found on our website at www.S-5.com prove that S-5!® holding strength is unmatched in the industry.

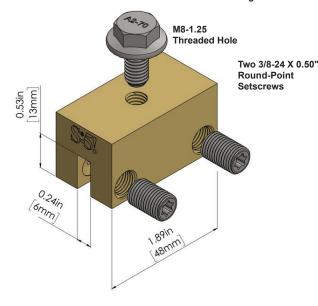
An S-5-B standard clamp compatible with an M10-1.5 X 16.00 mm Hex Flange Bolt is available upon request for an additional up charge.

## **Example Profile**

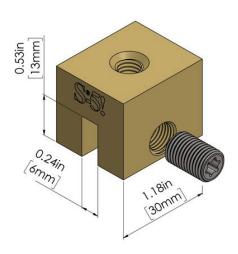


# S-5-B Clamp

M8-1.25 X 16.00 mm Hex Flange Bolt



S-5-B Mini Clamp



#### S-5!® Warning! Please use this product responsibly!

Products are protected by multiple U.S. and foreign patents. Visit the website at www.S-5.com for complete information on patents and trademarks. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel, and between 130 and 150 inch pounds for all other metals and thinner gauges of steel. Consult the S-5! website at www.S-5.com for published data regarding holding strength.

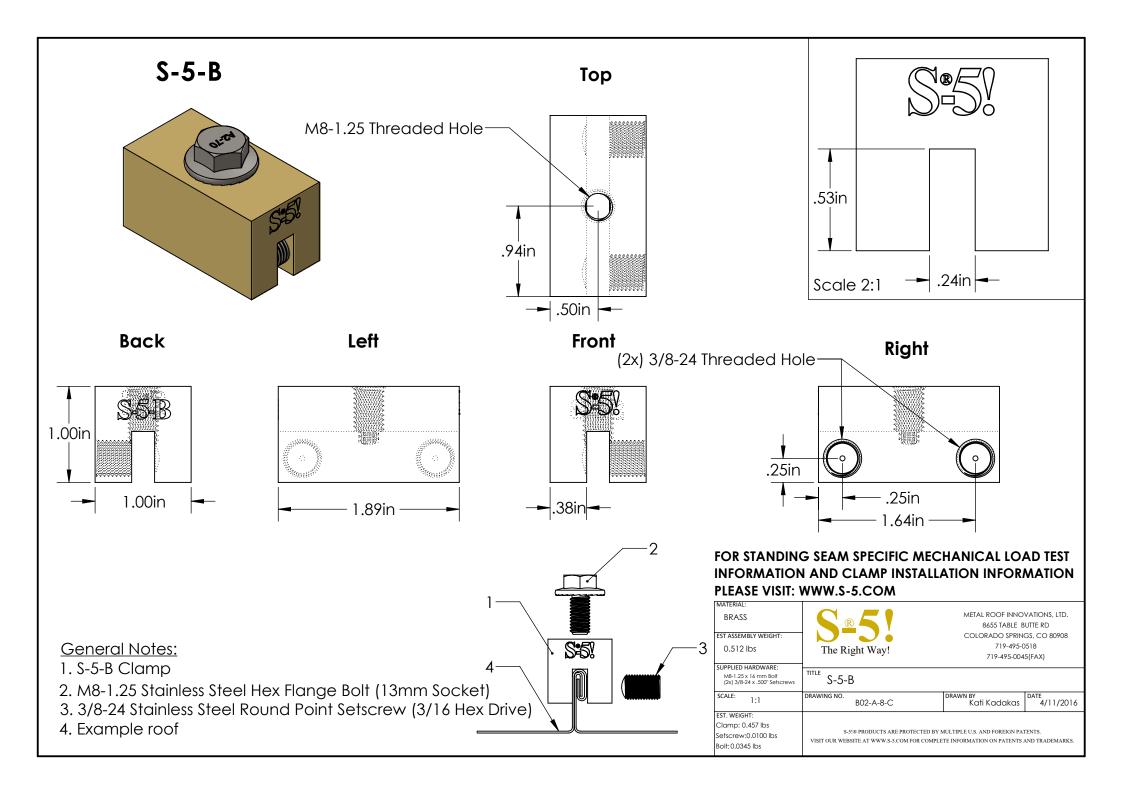
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#### Distributed by



# Rocky Mountain Snow Guards Inc

4231 S. Natches Court, Unit C, Englewood, CO 80110 (877) 414-7606 / www.rockymountainsnowguards.com





The right way<sup>™</sup> to attach almost anything to metal roofs!

# **Installation Instructions**

**S-5!® Warning!** Please use these products responsibly! Visit our website or contact your S-5! distributor for available load test results. The user and/or installer of these parts is responsible for all necessary engineering and design to ensure the S-5! clamps have been properly spaced and configured. **Notice to S-5! users:** Due to the many variables involved with specific panel products, climates, snow melt phenomena, and job particulars, the manufacturer cannot and does not express any opinions as to the suitability of any S-5! assembly for any specific application and assumes no liability with respect thereto. S-5! products are tested for ultimate holding strength on various profile types and materials. Visit **www.S-5.com** for more details. This document is an installation guide only and the photographs and drawings herein are for the purpose of illustrating installation, tools and techniques, not system designs. Information contained within is intended to apply to the document as a whole.

**The S-5-U, S-5-S, S-5-E, S-5-B, and S-5-V clamps are made for standing seam profiles.** For horizontal seam applications, the setscrew(s) must be accessible from the top for tightening. S-5-U clamps have two bolt holes to accommodate either vertical or horizontal seam applications; visit www.S-5.com for more details.

## **Tools Needed**

- Screw Gun\*
- T30 Torx Bit Tip (provided)
- Dial-Calibrated Torque Wrench (For accurate tension values, do NOT use a clicking torque wrench; inquire with S-5! for proper tool sourcing)

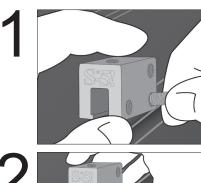
# To Install the S-5-U, S-5-S, S-5-E, S-5-B, and S-5-V

- 1. Partially thread the setscrews into the clamp by hand. (The S-5-U has four setscrew locations to make the clamp more versatile; however, only two setscrews are used per clamp. Both setscrews should always be loaded into the same side of the clamp.)
- 2. Determine how to position the clamp. When attaching to machine-folded seams (regardless of panel profile and geometry), S-5! clamps are designed to engage the seam as shown in Illustration A; with setscrew opposite seam fold. On many snaptogether type seams, the setscrews are on the open (or overlap) side of the seam. On some seams, this aspect of clamp orientation is not critical.
- 3. Tighten the setscrews using a screw gun\* and the included screw gun bit tip. Setscrews should be tensioned and re-tensioned as the seam material compresses, i.e. tighten the first setscrew, then the second; then repeat until each setscrew achieves the recommended torque. The setscrews will dimple the seam material but will not penetrate it. When relying on published load values, setscrew tension should be verified periodically using a calibrated torque wrench as indicated below to ensure the tool is consistently achieving the proper torque range. Note: See "Step 3 Note" at bottom of document on fitting S-5-U and S-5-V on certain vertical double-folds.
  - \* For time-saving tool recommendations, call S-5!

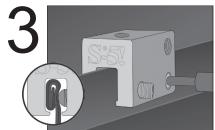
Specified Torque	Inch Pounds	Foot Pounds	Nm
22ga steel	160–180	13–15	18–20
All other metals and thinner gauges of steel	130–150	11–12.5	15–17

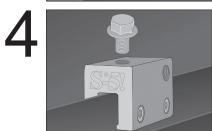
Once installed correctly, these clamps require no maintenance or reinspection for the life of the roof.

**4.** For critical attachment applications utilizing an M8-1.25 X 16 mm Hex Flange Bolt, tighten the included M8 bolt to 160 inch pounds (13 foot pounds).

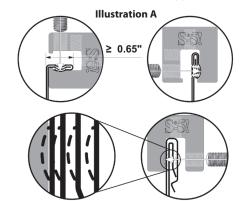








Above illustrations show S-5-U clamp on a vertical seam. Step 2 shows both vertical and horizontal applications.



(Top) S-5-U clamp on both vertical and horizontal seams. (Bottom) S-5-S on a snap together seam with blow up illustrating deformation of seam as setscrew is tightened For horizontal seams equal to or greater than .65" use the S-5-U in its horizontal orientation.

For horizontal seams equal to or less than .50" use the S-5-S mounted vertically.

These instructions are for use by those experienced in the trade. Always follow appropriate safety precautions and use appropriate tools.



## The right way to attach almost anything to metal roofs!

## Installation Instructions

Stop! Has your ColorGard® system been designed properly with the assistance of a distributor or the online ColorGard calculator? If not, see our Calculator and Load Table at www.S-5.com, or ask your distributor!

**Notice to S-5!** users: Specific layout and assembly schematics for S-5! products are the responsibility of the user or project designer. Due to the many variables involved with specific panel products, climates, snow melt phenomena, and job particulars, the manufacturer cannot and does not express any opinions as to the suitability of any S-5! assembly for any specific application and assumes no liability with respect thereto. S-5! clamps are tested for ultimate holding strength on various seam types and materials. This information is available from the S-5! website: **www.S-5.com.** This document is an installation guide only and the photographs and drawings herein are for the purpose of illustrating installation, tools and techniques, not system designs. Read installation instructions in their entirety before beginning installation. Clamp spacing should never exceed 32" with ColorGard snow retention assemblies (contact your distributor for products to accommodate a seam spacing greater than 32").

## Tools Needed

- Screw Gun\*
- Box End Wrench, 1/2" Drive Impact Wrench, or Ratchet
- Electric reciprocating saw to cut ColorGard cross-member
- Tin Snips
- String Line
- Torque Wrench
- Pliers or Vice Grip Pliers

thinner gauges of steel. Please visit our load table at **www.S-5.com** to determine the proper screw tensions and holding strength.

(3)

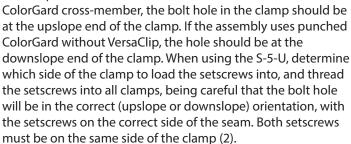
\*For time saving tool recommendations contact S-5!

## To Install ColorGard®

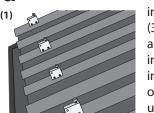
1. Before you start: First, use a string (1) line across the top of the panel seams at the desired location to establish a true line for installation of the S-5! clamps. Individually measuring from the eave to determine each clamp location is not recommended (1).

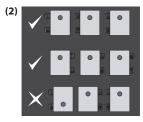
Before continuing, please take a moment to read the important notice about SnoClip™ on the back side of these installation instructions.

2. Preparing the Clamps: If the ColorGard assembly utilizes the VersaClip™ for attachment of the



**3. Installing the clamps:** S-5! clamps are installed differently depending upon clamp model and seam style. Please see the installation instructions included with your clamps. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Screw tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel and between 130 and 150 inch pounds for all other metals and





Using VersaClip™: When seam spacing is not divisible by 4″, when panels are not laid up true-to-dimension, or when ColorGard is installed askew to the panel seams (3) (e.g. parallel with the line of a valley), the VersaClip facilitates installation. The VersaClips are

inserted into the ColorGard prior to placement of ColorGard on the clamps. Align clips with S-5! clamp. VersaClip can be used with punched or unpunched ColorGard.



over time, ColorStrips should be sheared from the same prefinished metal as the roof panels (supplied by others). Shear strips to exactly 2" wide (8' or 10' long). Slide the ColorStrip into the ColorGard cross-member as shown (4a). If the strip length is 8', it may be pre-assembled into the ColorGard cross-member. If the strip is 10'

cross-member as shown (4a). If the strip length is 8′, it may be pre-assembled into the ColorGard cross-member. If the strip is 10′ long, it will be assembled to the ColorGard as installation progresses. Joints in the ColorGard

progresses. Joints in the ColorGard should be concealed by offsetting the joints of the ColorStrip from the joints of the ColorStrips can be overlapped about 1/2" if desired. Each ColorStrip should be secured to the ColorGard somewhere along its length. This is done by pinching the retainer lip of the ColorGard with an ordinary pair of pliers (4b). It can be done at one end of the ColorGard section or anywhere along

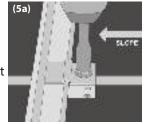
its length to prevent lateral migration of the ColorStrip.



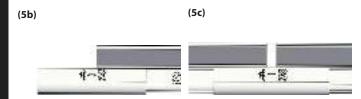
These instructions are for use by those experienced in the trade. Always follow appropriate safety precautions and use appropriate tools.

#### 5. Bolt ColorGard® to clamps:

Attach ColorGard to clamps with the stainless bolts provided. Bolts can be tightened with a 1/2" (13mm) box-end wrench, or ratchet (5a). On larger jobs, a 1/2" drive electric impact will expedite this work. Tension bolts to a minimum



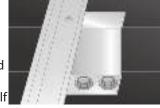
of 13 ft-lbs (18 Nm). Add splice pieces at each ColorGard joint as shown below (5b). The "dimple" in the splice piece will automatically provide a 3/8" space between adjoining sections (5c) to allow for linear thermal expansion of the ColorGard. Trim ColorGard at the end of the assembly, being sure it does not cantilever more than 4" beyond the last clamp of an assembly. Any trimmed piece of ColorGard must be attached with at least two clamps.



ColorGard® Cutting Tip: If it is necessary to field cut ColorGard, such as at the end of an assembly, it can be done with a hack saw or electric reciprocating saw with a fine tooth metal cutting blade. A power mitre saw with a fine tooth carbide tip blade also works well.

## Using VersaBracket™

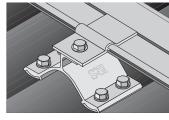
1. Install the bracket. See installation instructions that were included with your bracket.



2. Fasten unpunched ColorGard to the top flange of the bracket using a 1/4-14 stainless steel self drilling screw.

# Using CorruBracket™

1. Install the bracket. See installation instructions that were included with your bracket. The threaded hole closest to the edge of bracket should be oriented upslope for unpunched ColorGard & downslope for punched



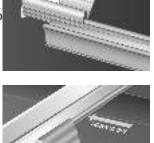
ColorGard. When using VersaClip see step 3 on front page. 2. Fasten ColorGard to the bracket in the same fashion as step 5.

# **Using SnoClip™**

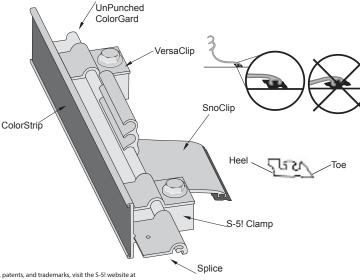




**IMPORTANT NOTICE! SnoClip**<sup>1</sup> design has changed. SnoClip<sup>17</sup> must now slide on from the end of the ColorGard® crossmember. Be sure to slide SnoClip onto assembly before attaching cross-member to clamps (a new Retro-Fit SnapClip™ is also available from your authorized S-5!® distributor). One SnoClip is used between seams (in some cases two SnoClips may be desired; see www.S-5.com for details). Mount the SnoClip to the back of the ColorGard using the lock that results with the rubber "foot" resting properly on



the panel surface. When applying downward pressure on the part, the "toe" should engage the surface of the panel just before the "heel". Periodic maintenance over time may be necessary to ensure that the SnoClips maintain the appropriate positioning, as snow weight may sometimes flip the clip up slightly. When installing any S-5! snow retention assembly with SnoClip or SnapClip, be sure that the toe of the SnoClip part bears on an area of the roof panel that is well supported and not subject to excessive deflection. Should panel deflection be excessive under load allowing the SnoClip to rotate under the ColorGard, then SnoClips should not be used.



S-5!® Warning! Please use this product responsibly!

ding holding strength, fastener torque, patents, and trademarks, visit the S-5! website at

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Black

**Charcoal Gray** 

Dark Bronze

Medium Bronze

Evergreen

**ACTUAL COLORS MAY VARY** 

We strongly recommend obtaining a sample prior to purchasing.

(877) 414-7606

#### **SECTION 07 72 53**

#### COLORGARD® SNOW GUARDS

#### **PART 1 - GENERAL**

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Snow guards for metal roofs.
  - 2. [Non-penetrating] [Face fastened] attachment system.

#### 1.2 RELATED SECTIONS

- A. Division 01: Administrative, procedural, and temporary work requirements apply to this section.
- B. Section 07 41 13 Metal Roof Panels
- C. Section 07 61 00 Sheet Metal Roofing
- D. Section 07 62 00 Sheet Metal Flashing and Trim
- E. Section 07 72 55 Roof Accessory Attachment System.
- F. Section 13 34 19 Metal Building Systems

#### 1.3 REFERENCES

- A. Aluminum Association (AA) Aluminum Standards and Data, 2003 Edition.
- B. ASTM International (ASTM):
  - 1. B85-03 Standard Specification for Aluminum-Alloy Die Castings.
  - 2. B221-04a Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

#### 1.4 SUBMITTALS

- A. Action Submittal:
  - 1. Shop Drawings: Include roof plans showing locations of snow guards on roof and attachment details and spacing.
  - 2. Product Data:
    - a. Product description.
    - b. Construction details.
    - c. Material descriptions.
    - d. Individual component dimensions.
    - e. Finishes.
    - f. Installation instructions.
  - 3. Samples:

- a. Clamp samples.
- b. 12-inch long cross member samples including all associated hardware.
- B. Informational Submittals:
  - 1. Include calculation of number and location of snow guards based on designed roof snow load, roof slope, roof type, components, spacings and finish
  - 2. Test results: Results of product tensile load testing, issued by a recognized independent testing laboratory, showing ultimate load-to-failure value of attachment.

#### C. Closeout Submittals:

1. Certification: Installer's certification that snow guard system was installed in accordance with manufacturer's instructions and approved Shop Drawings.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer to specialize in production of Snow Guard Products of the type specified with a minimum of 20 years documented experience.
- B. Installer Qualifications: Installer to specialize in metal roof installation and installation of Snow Guard Products with a minimum of 5 years documented experience.
- C. Mockup:
  - 1. Size: Minimum [8] [ ] feet long.
  - 2. Show: Snow guard attachment, cross members, and accessories.
  - 3. Locate [where directed.] [\_\_\_\_.]
  - 4. Approved mockup may remain as part of the Work.

#### 1.6 DELIVERY, STORGE AND HANDLING

- A. Deliver components to jobsite properly packaged to provide protection during transport, delivery and handling.
- B. Store products in manufacturer's original labeled and unopened packaging in a clean and dry location, protected from potential damage, until ready for application.

#### **PART 2 - PRODUCTS**

#### 2.1 SYSTEM DESCRIPTION

- A. Attachment system to provide attachment to standing seam metal roofs:
  - 1. With only minor dimpling of panel seams.
  - 2. Without penetrations through roof seams or panels.
  - 3. Without use of sealers or adhesives.
  - 4. Without voiding roof warranty.
- B. Performance Requirements: Provide snow guards to withstand exposure to the weather and environmental elements, and resist design forces without failure due to defective manufacture.
  - 1. Loading: Design snow guard system to resist minimum in-service vector load of [\_\_] pounds per linear foot of eave.
  - 2. Factor of safety: Utilize a factor of safety ≥ [2] [\_\_\_\_] to determine allowable loads from ultimate tested clamp tensile load values.
  - 3. Source Limitation: Provide snow guard system as designed and tested by the manufacturer as a complete system. Install components by the same manufacturer.

- A. Acceptable Manufacturer: S-5! Metal Roof Innovations, Ltd., 8655 Table Butte Road, Colorado Springs, CO. 80908; Tel: 888-825-3432; Fax: 719-495-0045; Email: <a href="mailto:support@s-5.com">support@s-5.com</a>; Web: www.s-5.com
- B. Substitutions: Not permitted.

#### 2.3 BAR/RAIL-TYPE SNOW RETENTION SYSTEMS FOR STANDING SEAM METAL ROOFS

- A. Basis of Design: ColorGard, manufactured by S-5! Metal Roof Innovations, Ltd.
- B. Components:
  - 1. Clamps
    - a. Manufactured from 6061-T6 aluminum extrusions conforming to ASTM B221 or aluminum castings conforming to ASTM B85 and to AA Aluminum Standards and Data.
      - 1) Model: No. [S-5-U.] [S-5-S.] [S-5-T.] [S-5-Z.] [S-5-E.] [S-5-B.] [S-5-Q.] [S-5-H.] [S-5-K700.] [S-5-H90.] [S-5-N.] [S-5-N 1.5.] [S-5-KHD.] [S-5-V.] [S-5-K Grip.] [S-5-R465.]
    - b. Set screws: 300 Series stainless steel, 18-8 alloy, 3/8 inch diameter, with round nose point.
    - c. Attachment bolts: 300 Series stainless steel, 18-8 alloy, 8 mm or 10 mm diameter, hex flange bolt..

#### 2. Brackets:

- a. Manufactured from 6061-T6 or 6005-T5 alloy and temper aluminum extrusions conforming to ASTM B221 and AA Aluminum Standards and Data or cast aluminum.
  - 1) Model: No. [VersaBracket 47.] [VersaBracket 67.] [CorruBracket.].
- b. Screws for attachment of brackets to roof: Type best suited to application: Metal to metal applications: ¼-14 self drilling point, 2 inch length, 3/8 inch hex washer head, Zinc/Aluminum cap. Metal to wood applications: ¼-14 type 17 AB milled point, 2 inch length, 3/8 inch hex washer head, Zinc/Aluminum cap.

#### 3. Cross Members:

- a. Manufactured from 6061-T6 or 6005-T5 alloy and temper aluminum extrusions conforming to ASTM B221 and AA Aluminum Standards and Data.
- b. Receptacle in face to receive color-matched metal strips.
- c. Provide splice connectors ensuring alignment and structural continuity at end joints.
- 4. Color Strips: Same material and finish as roof panels; obtained from roof panel manufacturer.
- 5. Snow and Ice Clips:
  - a. Aluminum, with rubber foot, minimum 3 inches wide.
    - 1) Model: SnoClip II or SnapClip II for standing seam heights 1" to 1.75"
    - 2) Model: SnoClip III or SnapClip III for standing seam heights 1.75" to 3"

#### **PART 3- EXECUTION**

#### 3.1 EXAMINATION

Prior to beginning installation, verify that:

- 1. Panel seaming is complete.
- 2. Panel attachment is sufficient to withstand loads applied by snow guard system.
- 3. Installation will not impeded roof drainage.

Prior to beginning installation, verify that:

- 1. Roof attachment is sufficient to withstand loads applied by snow guard system.
- 2. Installation will not impede roof drainage.

#### 3.2 PREPARATION

A. Clean areas to receive attachments; remove loose and foreign matter that could interfere with installation or performance.

#### 3.3 INSTALLATION

- A. Install system in accordance with manufacturer's instructions and approved Shop Drawings
- B. ColorGard Snow Retention System:
  - 1. Place clamps at maximum 32 inches on center or as required by in-service loads.
  - 2. Place clamps in straight, aligned rows.
  - 3. Place both set screws on same side of clamp.
  - 4. Tighten set screws to manufacturer's recommended torque. Randomly test set screw torque using calibrated torque wrench.
  - 5. Insert color-matched metal strips into cross members, staggering strips to cover cross member joints.
  - 6. Attach cross members to clamps; tighten bolts to manufacturer's recommended torque.
  - 7. Install splice connectors at cross member end joints.
  - 8. Do not cantilever cross members more than 4 inches beyond last clamp at ends.
  - 9. Install [one SnoClip or SnapClip] [two SnoClips or SnapClips] per panel between panel seams.
    - a. SnoClips: slide onto cross member before securing cross member to clamps
    - b. SnapClips: Secure [SnapClip II] [SnapClip III] to back side of cross member using stainless steel #10 x ½ inch screw
  - 1. Place brackets at maximum 32 inches on center or as required by in-service loads.
  - 2. Clean roof area to receive bracket. Remove protective seal on butyl tape
  - 3. Place brackets in straight rows along underlying substrate.
  - 4. Insert color-matched metal strips into cross members.
  - 5. Place brackets at spot of attachment and fasten with screws best suited for type of attachment
  - 6. Attach cross members to brackets using self drilling screws.
  - 7. Install splice connectors at cross member end joints.
  - 8. Do not cantilever cross members more than 4 inches beyond last bracket at ends.

- 9. Install SnoClips or SnapClips at spacings indicated on Shop Drawings.
  - c. SnoClips: slide onto cross member before securing cross member to clamps
  - d. SnapClips: Secure [SnapClip II] [SnapClip III] to back side of cross member using stainless steel #10 x ½ inch screw (provided).

END OF SECTION



ROCKY MOUNTAIN SNOW GUARDS 4231 S. NATCHES COURT, UNIT C ENGLEWOOD, CO 80110 PHONE: (877) 414-7606 FAX: (720) 387-8361

www.rockymountainsnowguards.com

## Rocky Mountain Snow Guards Snow Retention System Maintenance Guide

Systems designed by Rocky Mountain Snow Guards, installed properly should last the life of the roof. Rocky Mountain does not recommend adhesive tape or sealant attachment for any snow fence or snow guard system. Rocky Mountain snow retention systems installed on commercial buildings, above high traffic areas or in areas with high snow loads should be inspected by a qualified roofing or snow retention professional on an annual basis to ensure the system will continue to perform as designed.

## **Bolt Down Snow Fence Systems:**

- 1. Inspect brackets, snow fence components and fasteners for evidence of damage.
- 2. Replace damaged parts prior to the next snow season.

#### Clamp to Seam Snow Fence and Snow Bar Systems:

- 1. Inspect brackets, snow fence and snow bar components for evidence of damage.
- 2. Replace damaged parts prior to the next snow season.
- 3. Check torque on set screws with an appropriate torque wrench.
- 4. Torque set screws to recommended torque. This is especially important after the 1st snow season.

#### **Snow Guards:**

- 1. Inspect snow guards for evidence of damage.
- 2. Inspect exposed fasteners.
- 3. Replace damaged parts prior to the next snow season.