BERGER™
Quality Building Products Since 1874

SNOW RETENTION SYSTEMS






A Comprehensive Line of Snow Retention Systems

BERGER BUILDING PRODUCTS, INC.

Distributed by: BEST MATERIALS LLC
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CONTINUING EDUCATION AIA

*See back cover

SNOW RETENTION SYSTEMS QUESTIONS

What Are Snow Guards?

Snow Guards are devices that are attached to sloped roofing surfaces. Proper Snow Guard placement and attachment will reduce the potential for avalanching snow and help control the rapid movement of large sheets of snow falling at once.

The roof on this church details the use of Berger cast aluminum "RT Snow Guards".

How Do Snow Retention Systems Work?

When snow and ice have accumulated on a sloped roof, both the rise in the outdoor temperature and the heat generated by the building, can cause the snow and ice to melt. This melting process causes a film of water to develop between the snow and ice and the roof's surface. The water acts like a lubricant, making it easy for the snow and ice to fall quickly and abruptly in one big release. Snow Retention Systems break the fall and hold the snow and ice on the roof. They enable the snow to fall off the roof in small amounts or even melt completely on the roof surface. In addition, Snow Guards help to evenly distribute the weight of snow and ice which can also be damaging.

Why Do You Need A Snow Retention System?

Snow Retention Systems help to reduce damage to objects below a sloped roof surface including:

- **Pedestrian Areas**
- **Parked and Moving Vehicles**
- **Expensive Landscaping**
- **Gutters and Plumbing Vents**
- **Skylights and Atriums**
- **Adjacent and Lower Roofs**

Snow Guards are a practical, preventive measure that is also very cost effective. Snow Guards can save money by stopping or reducing damage.

The roof on this church details the use of the Berger "F-Rail™ Snow Retention System"

What Type of Roofs Need Snow Guards?

Snow Guards can be installed on most sloped roof surfaces. Berger offers an extensive selection of Snow Guards for virtually any type of roof including metal, slate, shingle and cedar. It is not *necessary* for Snow Guards to be installed on *all* roof surfaces. However, it is important to note that Snow Guards reduce the potential for snow avalanching and are therefore **A MUST** on any commercial or industrial facility which generates pedestrian traffic areas.

What Type of Snow Retention Systems Do You Need?

There are a wide variety of Snow Retention Systems available to fit all types of roofs. Berger offers a complete line of "pad style", "seam mounted" and "rail style" Snow Retention Systems. Pad style Snow Guards are one-piece units, which are installed in a specific layered pattern across the roofs' surface. Rail style systems are typically used on steep roofs or when heavy snow loads occur.

Berger Snow Retention Systems attach to the roof in many ways, most of which **do not penetrate the roofs surface**. These non-penetrating devices can be mechanically attached to standing seams, or surface mounted with adhesive. Berger Snow Guards are available in a wide variety of specifications and can even be custom colored to match the roof. The Snow Guards include a selection of stamped patterns and ornamental castings to fit both contemporary and traditional architecture.

This shopping center features Berger Clear Snow Guards. They are manufactured in a crystal clear polycarbonate to offer superior protection with an out-of-sight look.

What is the Required Snow Guard Pattern?

Berger will provide a custom snow guard pattern recommendation. Please contact us at 800-523-8852 for your custom layout. Snow guard patterns provided by Berger are only recommendations. **Actual snow guard patterns should be approved by a licensed architect.**

Berger Snow Guards

The following information is needed to provide layouts.

1. **What is the style of roof?** Standing seam, trapezoidal panel, snap lock, ribbed, slate, tile, shingle, etc., all will accept some, but not all styles of snow guards.
2. **What materials are used in the roof?** Some roofing materials can have caustic reaction with certain metals.
3. **What Snow Guard do you wish to use?**
4. **What are the dimensions of the roof?** No one can make a recommendation without this information. Pitch is important. Many think they can forgo any snow retention products due to their roof's low slope. These roofs also need protection; the snow has a better chance to accumulate, and then avalanche.
   - **Eave to ridge measurement?**
   - **Eave width?**
   - **Pitch?**
   - **Seams/Ribs on center measurement?**
5. **Where is the building located?** A roof in Buffalo, NY will experience heavier snowfalls than a building in Buffalo, KY.
   - **Job Name?**

Berger Rail Systems

Berger Rail Systems are designed for metal roofs with standing seams up to 0.516" wide. It is not designed for ribbed roofs. Rail products are sold by the job, not by the foot. To give an accurate quote, the following information is needed:

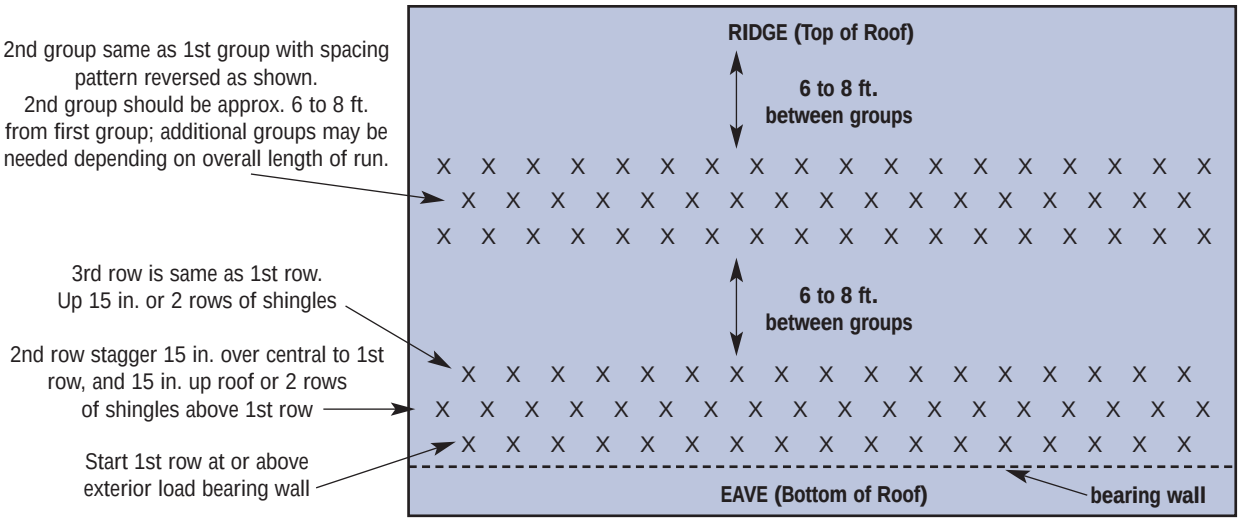
1. **Where is the building located?**
   - **Job Name?**
2. **What is the type of standing seam roof?**
3. **How many rails are requested – 1, 2, or 3 rails?**
4. **What are the dimensions of the roof?**
   - **Eave to ridge measurement?**
   - **Eave width?**
   - **Pitch?**
5. **How many inches on center are the standing seams?**
6. **What finish would be needed, painted, primer or mill finish?**

Note: Please provide an actual roof plan whenever possible.

This restaurant details the use of Berger's #100 Snow Guard Assembly for slate and asphalt shingled roofs. This snow guard style provides fast installation and is ideal for existing or new construction.

This gas station features Berger "AP Snow Guards". These non-penetrating devices are produced in cast aluminum and are available in 3 different sizes to accommodate various standing seams.

The pattern below shows the typical shingled roof recommended snow guard pattern:



Snow Guards must be securely fastened to a structural member of the roof.

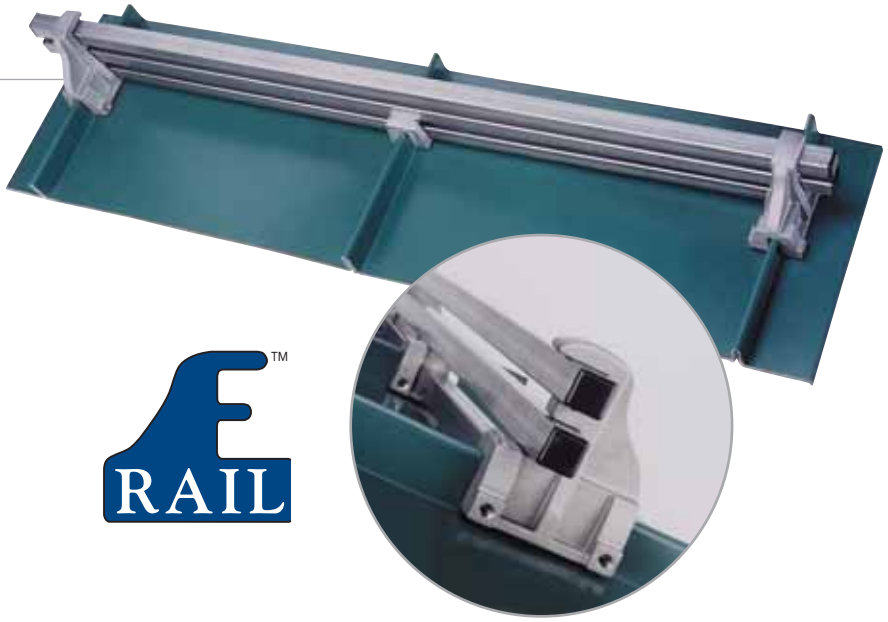
THE F-RAIL™, E-RAIL™ AND S-RAIL™ SNOW RETENTION SYSTEMS

Berger, a leader in the snow guard industry since 1874, has designed three unique and highly functional snow retention systems, the F-Rail™, E-Rail™ and S-Rail™. These non-penetrating, cast aluminum castings with steel rails are designed for standing seam roofs and are easy to install. What makes these systems so unique is that the lowest rail can be positioned below the standing seam of the roof, reducing the possibility of dangerous ice slides. What makes these products so functional is their receiver pockets through which each rail is inserted, making installation easier and more efficient than the other products currently on the market.

F-Rail™ Snow Retention System

- Accommodates up to 4 Rails of Protection
- Customized Rail Tubing to Suit Your Climatic Requirements
- The Only Rail Style Snow Fence Available that Functions BELOW the Standing Seams on Metal Roofs – Helping to Control the Possibility of Dangerous Ice Slides
- Easy to Retrofit Existing Roofs
- Available in Mill Finished Aluminum, Black Primer or Painted to Match the Roof

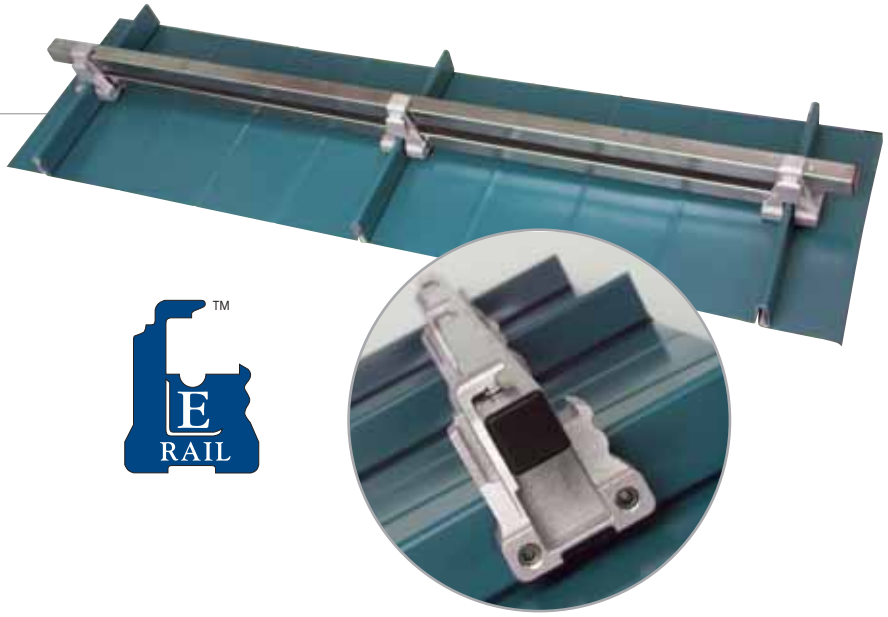
U. S. Patent 6688047



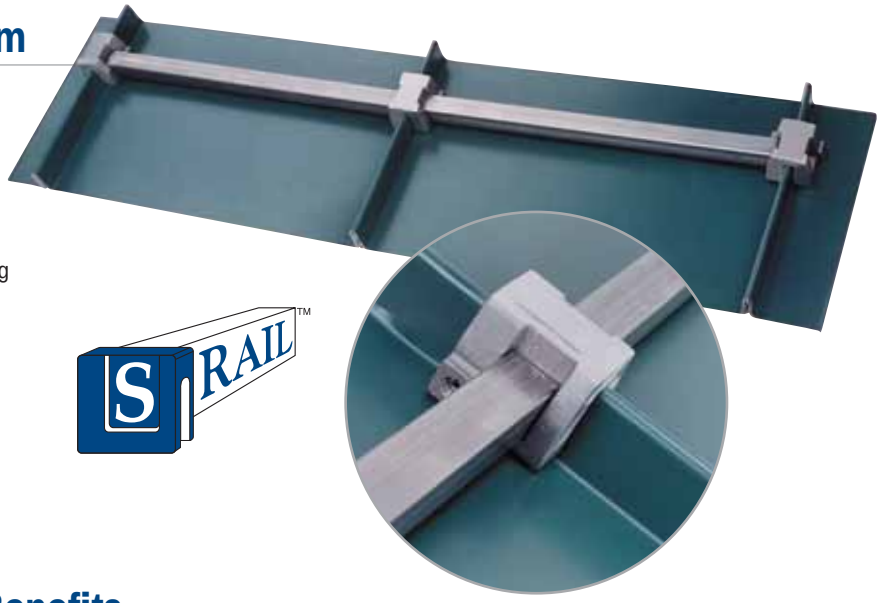
E-Rail™ Snow Retention System

- Dual Rail, Low Profile Snow Retention System
- Stronger and Lighter System that offers between the Seams Protection on Metal Roofs - Helping to Control the Possibility of Dangerous Ice Slides
- Available in Mill Finished Aluminum, Black Primer or Painted to Match the Roof
- Receptor Slot for Custom Ornamental Attachment

U. S. Patent 6688047



S-Rail™ Snow Retention System



- Single Rail, Low Profile Snow Retention System
- Functions BELOW the Standing Seams on Metal Roofs - Helping to Control the Possibility of Dangerous Ice Slides
- Economical Snow Rail that's Easy to Retrofit to Existing Roofs
- Available in Mill Finished Aluminum, Black Primer or Painted to Match the Roof

U. S. Patent 6688047

F-Rail™, E-Rail™ and S-Rail™ Benefits

- Reduces the Potential of a Mass Quantity of Snow and Ice from Avalanching all at once off the Roof
- Reduces the Potential for Injury to Pedestrians
- Reduces the Potential for Damage to Vehicles, Landscaping, Gutters and Property Below
- Reduces the Chance of Costly Insurance Claims
- Technical Support and Superior Customer Service
- Call for Custom Layout Design

F-Rail™, E-Rail™ and S-Rail™ Installation Instructions

F-Rail and E-Rail

1. Install castings in accordance with Berger roof layout provided. Measure correct distance and snap a straight line to mark seam for casting position.
2. The casting is furnished with factory installed oval and cup tipped set screws which should be tightened in place with a hex-bit socket. Turn screws equally to center casting on seam.
3. How tightly to torque the set screws will vary depending on the type and gauge of the metal roofing. The recommended method for determining proper torque is to install one first. After tightening the set screws, loosen and remove the casting, and inspect the indentations created in the metal to see that proper spherical indentation was obtained. **Caution: Overtightening can cause damage to casting resulting in failure. Maximum torque = 28 ft-lbs.**
4. After castings are installed, fit the square tubing rails into the receiver pockets. For the rail in the lowest position below the standing seam, rail must be cut to the width of the metal roof panel seams. A dab of SB-190 adhesive sealant may be used in the receiver pockets to ensure a snug fit.
5. For the upper rails, install the full length of the rail into the receiver pockets and place a black plastic end cap into each side of the rail. The rails can be butted right up against each other, but they do not connect. Butt termination should be at center line of guard.
6. After installing any upper rail, drill in one tech screw on each end of the top section of rail. The tech screw should be on the outside of the furthest castings on the rail tubing to help prevent the section of rail from sliding laterally.

S-Rail

Follow instructions from #1-4 listed above.

NOTE: For Guide Specifications, See Our Technical Specification CD-Rom or Our Website - www.bergerbuildingproducts.com

THE REAL TOOL® SERIES

RT Snow Guard Series

Berger RT Snow Guards are **non-penetrating devices** which are secured to the standing seams of metal roofs utilizing stainless steel set screws to clamp them in place. They require no glues or sealants, and will not restrict thermal movement or contribute to unsightly oil-canning. RT Snow Guards are available in cast aluminum and cast bronze, and in two sizes to accommodate differing seam widths. They are particularly suited to double-lock and mechanically seamed metal roofing, and being traditional in design, they are ideal for restoration and preservation work. Available in Mill Finish, Black Primer* or Custom Colors.

RT-200 - Designed to accommodate seams of up to 3/16" (0.188" thick) and suited for use with light gauge sheet metals such as 40lb. terne, 26 gauge galvanized, 16 ounce copper and TCS.

RT-300 - Designed to accommodate seams of up to 9/32" (0.297") in thickness and suited to heavier gauge metals such as 20 ounce copper, 24 gauge prefinished metal and products of similar thickness.

AP Snow Guard Series

Berger AP Snow Guards are **non-penetrating devices** which have been engineered specifically for use with the more popular structural and non-structural preformed and architectural metal roof systems. They are secured without glues or sealants, and utilize custom milled stainless steel set screws to clamp them in place. They are produced in cast aluminum, and are available in three different seam widths and heights. The attachment of the AP Snow Guard does not restrict thermal movement, and the deep throat permits it to be secured directly without damaging caps or compressing internal gasketing or sealant pockets. The wide, deep blade design makes it particularly effective in retaining snow with the higher seams and wider panel widths common in preformed architectural roofing. Available in Mill Finish, Black Primer* or Custom Colors.

AP-400 - Designed to accommodate seams of up to 3/8" (0.400") in thickness and at least 1-1/2" high, including snap-lock interlocking panels.

AP-516 - Designed to accommodate seams of just over 1/2" (0.516") in thickness and at least 1-1/2" high.

SM Snow Guard Series

Berger SM Surface Mount Snow Guards are manufactured of cast aluminum and are designed to be adhered to the pan surface of prefinished metal roofs using either a high strength construction adhesive or a combination of mechanical fasteners and an adhesive/sealant. They are particularly effective in retaining snow and ice on metal roofs where there are no suitable seams to which a seam mounted device can be fastened, including batten and lap seam panels, and other profiles having a flat surface of as little as 2 3/8" in width and space for a 5" blade. The SM Snow Guard is uniquely suited for use on trapezoidal type panels when coupled with the matching RT-300 Snow Guard. Available in Mill Finish, Black Primer* or Custom Colors.

SNOW MEISTER SERIES

SG-1 Snow Guard Series

The SG-1 Snow Meister Snow Guards are used for a traditional double lock standing seam roof that is 1.0" deep x .250" wide. These guards fit both 1" and 1-1/2" high seams. The symmetrical design rotates 180 degrees to match seam lock orientation. The SG-1 Snow Guards are available in Mill Finished (**SG-1MF**), Black E-Coat Primer* (**SG-1EBK**), Custom Colors (**SG-1C**) and Polished Bronze** (**SG-1PBZ**).

SL-1 Snow Guard Series

The SL-1 Snow Meister Snow Guards fit single lock T seam roofs that are 1.0" deep x .575" wide. The symmetrical design rotates 180 degrees to match seam lock orientation. The SL-1 Snow Guards are available in Mill Finished (**SL-1MF**), Black E-Coat Primer* (**SL-1EBK**) and Custom Colors (**SL-1C**).

**Requires final coating by contractor. **Non-Stock, Special Order*

Installation For The Real Tool® & Snow Meister Snow Guard Series

How Tight to Torque Set Screws? Torque will vary depending on the type and gauge of metal roofing. The recommended method for determining proper torque is to install one unit first, with blade on the uphill side. After tightening the set screws, loosen and remove the unit, inspecting the indentations created in the seam to see that proper compression was obtained. Remember, the screw closest to the blade is the real workhorse as it derives its strength from the blade, and if extra torque is needed, apply it to this screw. **Caution: Overtightening can cause damage to casting resulting in failure. Maximum torque = 28 ft-lbs.**

BERGER METAL SNOW GUARDS

No. 100 Snow Guard Shoe - *For Flat Metal Roof Surfaces*

Affordable protection for your gutter, foundation or shrubbery. Ideal for mounting to corrugated or flat roof panels. Stainless steel offers no corrosion problems or stains and is suitable for paint to match your roof. The copper guard can be soldered or fastened to copper roof panels. These guards provide 8.75 square inches of stopping area. Holes for #10 screws or rivets. 1" x 2" flat mounting area. This Snow Guard is available in Copper (**SG-CPS**) and Stainless Steel (**SG-SSS**).

No. 20 Snow Guard - *For Metal Corrugated Roof Surfaces*

Designed to fit 1 1/4" or 2 1/2" corrugation. It is fastened with rivets to the panel or nailed through the roof into the structural member. It fits on top of the corrugation. This Snow Guard is available in Bronze (**SGBR20**) or Galvanized Malleable Iron (**SGML20**).

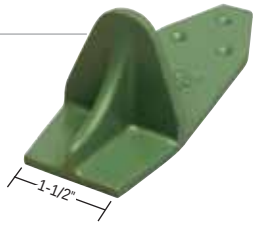
THE SNOW BOSS™ SERIES

SNOW BOSS™ Models #630, #640 and #690 are cast in Almag 35, an aluminum alloy which contains magnesium for durability under the most extreme conditions. Almag 35 castings have superior strength and ductility, test excellent on resistance to corrosion, and respond well to anodizing and paint. The castings have been engineered to have the most effective base to snow block proportions, so that when properly installed, give the greatest resistance to the forces exerted on the face of the snow block. The advantages of cast snow guards are that they are durable, made to resist crushing snow loads. SNOW BOSS™ Model #650 is constructed with durable UV resistant polycarbonate.

Model #630 Snow Guards

SNOW BOSS™ #630 are solid cast aluminum Snow Guards and are best used for curtain wall systems, window wells or cornice shelves. Typical installation is by means of high strength adhesives that develop superior peel and shear bonding strength on modern metal roofs coated with plastic resin paints such as Kynar®. These aluminum guards are available Mill Finished (**630M**), or Custom Colors (**630C**) matched using Dupont® Imron® enamels.

Model #640 Snow Guards

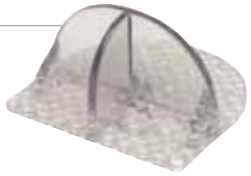


SNOW BOSS™ #640 are "traditional shaped", solid cast aluminum Snow Guards for the mid-panel application on all standing, batten, and flat seam (non-copper) metal roofs (fits in rib roof channel). Typical installation is by means of high strength adhesives that develop superior peel and shear bonding strength on modern metal roofs coated with plastic resin paints such as Kynar®. These aluminum guards are available Mill Finished (**640M**), or Custom Colors (**640C**) matched using Dupont® Imron® enamels.

Model #690 Snow Guards

SNOW BOSS™ #690 are a decorative, spoked, half-round designed solid cast aluminum Snow Guards. They are well suited for the mid-panel application on all standing, batten, and flat seam (non-copper) metal roofs. Typical installation is by means of high strength adhesives that develop superior peel and shear bonding strength on modern metal roofs coated with plastic resin paints such as Kynar®. These aluminum guards are available Mill Finished (**690M**), or Custom Colors (**690C**) matched using Dupont® Imron® enamels.

Model #650 Snow Guards



SNOW BOSS™ #650 Series is constructed with durable UV resistant polycarbonate and is compatible with all non-copper metal roof systems. This Clear Polycarbonate (**650C**) model includes a new patent pending base design which is the latest technological advance in adhesive mounted snow guard systems. This cross hatch design strengthens adhesive grip by increasing surface area and texture, and provides for faster solvent escape, and adhesive curing. The series of evenly spaced holes in the base allow the solvents to dissipate quickly, and become "glue rivets" when the adhesive keys in the holes for a more secure application.

BERGER CLEAR SNOW GUARDS - *Superior Protection With An Out-Of-Sight Look!*

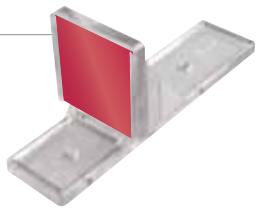
CL Snow Guard Series

Structural Rib

Surface Mount

Berger CL Snow Guards are manufactured in a crystal clear polycarbonate with U.V. stabilizers. There are two models of the Berger Clear Snow Guards: **RTCLSR** - Structural Ribs and **RTCLSM** - Surface Mount. The unique vent rib system allows for adhesive out gassing, which increases the shear and mechanical strength. The three to one base to blade ratio adds significantly to the shear and peel adhesion of the device to the surface. Superior engineering, along with the structured ribs, prevent common blade breakage. Berger Clear Snow Guards are well suited for mechanical attachments with washer face screws into the purlin sealed with SB-190 or fully adhered with same.

MINI Clear Snow Guard



Berger "Mini" Clear Snow Guards are manufactured in a premium, high clarity, polycarbonate plastic. This U. V. stabilized model, **RTMINI**, provides maximum protection to fit an economical budget. The two to one base to blade ratio, the 4.5 square inch holding area, and the gusseted blade snow pocket combine to effectively retain snow. They are well suited for mechanical attachments with washer face screws into the purlin sealed with SB-190 or fully adhered with same. The RTMINI features a blade **"Snowflake" slot that accepts a metal color chip or custom emblem** (as shown to the right).

Installation For Berger Clear & Snow Boss Series Snow Guards

Adhesive Attachment: All surface areas that are to come in contact with either SB-190 or SB-1800 are to be cleaned with isopropyl alcohol and allowed to dry. Adhesive or sealant should be applied so as to completely cover the underside of the device before it is positioned, and sufficient compression should be created to squeeze adhesive out around its perimeter and a bead of the same material should be applied around the base to create a waterproof joint free of gaps and air pockets. One 10.3 oz tube will adhere approximately 8 to 10 of the RTCLSM and RTCLSR, and 12 to 14 of the RTMINI.

RTCLSR Preparation: Prior to installing the RTCLSR over a minor rib using either adhesive, or mechanical attachments, remove only the section of baffle from the underside necessary to accommodate the rib. This is easily accomplished with pliers and a twisting motion, and the remaining portion of the baffle will help prevent adhesive creep. This model will accommodate a rib up to 3/16" high and 1-3/4" wide.

Mechanical Attachment: The RTMINI and RTCLSM are provided with pre-drilled holes, while the RTCLSR has dimples showing where to attach #10 Type A self-tapping fasteners, (flat or oval head) with a neoprene washer for a watertight seal. The Snow Guard needs to be fastened into a structural member, rafter or purlin at least 1-1/4" through each screw point. Fastener selection should be governed by substrate and anticipated loads; stainless steel or corrosion resistant fasteners should be insisted upon.

"Screw and Glue" Attachment: Each Snow Guard may also be installed using a combination of fasteners (screw) and adhesive (glue) or a suitable high-quality non-silicone sealant.

SB-1800 And SB-190 High Strength Adhesive Caulks

SB-1800**

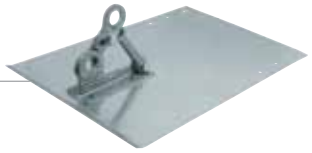
SB-190*

Berger recommends Surebond Everseal (SB-190)* when using adhesive to install the CL Snow Guard. This product has been proven in the industry for this particular use. SB-190 requires 28 days (672 consecutive hours) of 50 degrees Fahrenheit, or warmer temperatures to fully cure to 2000psi shear tensile strength. If these conditions cannot be met, Surebond Everflex (SB-1800)**, a cold weather sealant that sets in 24 hours and fully cures in 48 to 72 hours in temperatures as low as (-20F) to 500psi shear tensile strength, should be considered for sealing mechanical fastened snowguards when temperature does not permit use of SB-190 adhesive. Berger recommends SB-190 as the strongest adhesive. In any case of adhesive bond failure, there is no warranty by Berger for the adhesive.

FITRITE PIPE SERIES

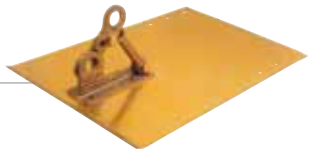
Rugged cast snow fence systems in Bronze and Galvanized Iron. Developed over 100 years ago by master craftsman and designer David Levow in NYC. Includes brackets for Ludowici and Celadon tiles.

Fitrite #121 Protector Snow Fence Bracket for 2 Pipes



The Model #121 Snow Fence Bracket is cast in Galvanized Malleable Iron for durability and the castings are mounted on an 11 gauge Galvanized Steel Plate (**FR121ML**). The brackets accommodate two .080" (od) Galvanized pipes. The Fitrite #121 is typically installed on slate roofs with rafters not over 18 ft. in areas with moderate snow falls. The Fitrite #121 is a custom order and the base plate can be fabricated to any specified size.

Fitrite #122 Protector Snow Fence Bracket for 2 Pipes



The Model #122 Snow Fence Bracket is cast in Bronze for durability and the castings are mounted on an 11 gauge Galvanized Steel Plate (**FR122ML**). The brackets accommodate two .080" (od) Brass pipes. The Fitrite #121 is typically installed on slate roofs with rafters not over 18 ft. in areas with moderate snow falls. The Fitrite #122 is a custom order and the base plate can be fabricated to any specified size.

Fitrite #124 Mini Protector Snow Fence Bracket for 2 Pipes

The Fitrite #124 Mini Protector Snow Fence Bracket is cast in Bronze or Malleable Iron for durability. The castings are mounted on a solid Galvanized Steel plate, 2" x 12", with predrilled holes for easy installation. The bracket assembly is set up to accommodate two 1/2" Galvanized pipes. Brackets are adjustable to the roof pitch. The Model #124 should be used only where low to moderate snowloads are anticipated and can be mounted to most any roof surface. The Fitrite #124 is available in Cast Bronze (**FR124BRZ**) or Galvanized Malleable iron (**FR124ML**).

Fitrite #131 Snow Fence Bracket for 3 Pipes

(Custom plate not shown)

The Model #131 Snow Fence Bracket is cast from Malleable Iron and Zinc Plated for durability (**FR131ML**). The castings have been carefully engineered to assure maximum strength at the points of the greatest stress when under load. The Model #131 accommodates 3 Galvanized Iron, Bronze, Brass or Stainless Steel pipes. It is for use on large slate and shingle roofs with rafters up to 25 ft. long. The brackets are adjustable to various roof pitches. The base plate is 11 gauge Galvanized Steel, sized to the slate dimension, and predrilled and countersunk for fasteners. Bolts are Grade 5 zinc plated steel. The Fitrite #131 is a custom order and the base plate can be fabricated to any specified size.

Fitrite #132 Snow Fence Bracket for 3 Pipes

(Custom plate not shown)

The Model #132 Snow Fence Bracket is Cast from Solid Bronze for durability (**FR132BR**). The castings have been carefully engineered to assure maximum strength at the points of the greatest stress when under load. The Model #132 accommodates 3 Brass, Bronze or Stainless Steel pipes. It is for use on small slate roofs with rafters up to 18 ft. long. The brackets are adjustable to various roof pitches. The base plate is 1/8" commercial Bronze or Brass plate, sized to the slate dimension, and predrilled and countersunk for fasteners. Bolts are solid Brass. The Fitrite #132 is a custom order and the base plate can be fabricated to any specified size.

Fitrite Series #5, #6, #7, #8 & #9 Snow Fence Brackets for Tile Roofs

Available for Spanish, French, Conasera, Interlocking & Mission Tiles. Please call for details. If your Tile is not shown, please call and we may be able to accommodate you. All Fitrite Pipe Snow Guards for Tile Roofs are a custom order.

- Codes for Fitrite Pipe Snow Guards are **FR**__ __ __.
- The Third Space in the Code is for the Tile Base Style: Available in Spanish (**5**), French (**6**), Conasera (**7**), Interlocking (**8**) and Mission (**9**).
- The Fourth Space in the Code is for the Number of Pipes: Available in Two Pipes (**2**) and Three Pipes (**3**).
- The Fifth Space in the Code is for the Bracket Metal: Available in Aluminum Alloy (**1**) and Solid Bronze (**2**).
- Example: FR621 is a French Tile Base with a 2 Pipe, Aluminum Alloy Bracket.

Series #5 - Spanish Tile Base

Series #6 - French Tile Base

Series #7 - Conasera Tile Base

Series #8 - Interlocking Tile Base

Series #9 - Mission Tile Base

BRONZE GUARD™ SERIES

BRONZE GUARD™ offers a complete line of high quality snow retention products for all steep roof applications. All BRONZE GUARD™ products are cast in pure tin bronze, using only virgin metals to assure the highest quality alloy. The castings are produced by old-world craftsmen using state of the art equipment to assure that each casting is of consistent quality. The final assembly is done by hand, using only solid Copper rivets, so that each finished product is of uniform quality.

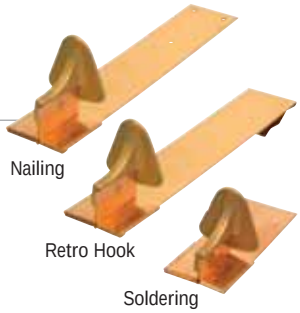
Model #500 Snow Fence Bracket for 3 Pipes

The Model #500 Snow Fence Bracket is cast from solid bronze for lifetime durability. The castings have been carefully engineered to assure maximum strength at the points of greatest stress when under load. Double back brace brackets are standard, and give redundant protection against casting failure when under load. Holes for rails are 1.125" to accommodate 1.05" (od) Brass pipe. The brackets are available in three angles: 90, 67.5, and 45 degrees. The base plate is 1/8" 220 Bronze. The Model #500 is typically installed along the perimeter of slate roofs with rafters up to 25 ft. in areas with moderate to high snow falls. The Model #500 is a custom order and the base plate can be fabricated to any specified size.

Installation For Fitrite & Model #500 Snow Guard Series

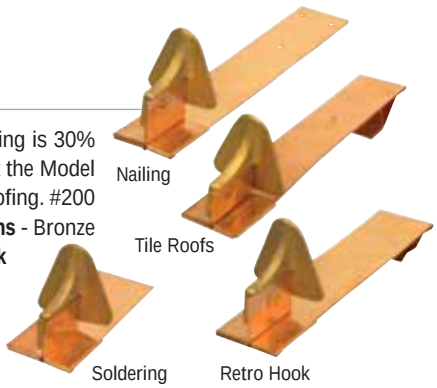
Install snow fence bracket parallel to the eave, spacing the brackets from 24" to no more than 48" apart, depending upon the pitch of the roof and anticipated snow load. Install brackets approximately 24" to 36" from the roof edge. Recommended installation method is to use through bolts, with a backer plate on the underside of the sheathing. Copper water pipe is NOT recommended. In high snow load, and a rafter of over 25', a second row of fence is recommended. As an alternative, or in areas where ice slides are possible, supplement the fence system with an array of model #100S or #200S snow guards. (Model #FR124: Install snow fence bracket parallel to, and approximately 24" to 36" from the eaves. The bracket should be spaced from 18" to no more than 36" apart, depending upon the pitch of the roof and anticipated snow load.)

Model #100 Series



A traditional spike style snow guard, from a design first patented in 1899. The Model #100 is historically accurate for period restorations, but is just as appropriate for new construction or retrofit application on existing slate roofs. Because of its low profile, this model is more appropriate for residential usage. The Model #100 is for applications on slate, shake, and shingle roofs, and is designed to fit between adjacent pieces of roof material, so that only the casting is visible above the roof surface. #100 Series is available for **Soldering** - Bronze (**100CPSM**). #100 Series is also designed for **Nailing on New Applications** - Bronze for Slate (**100S-NA**) or Bronze for Asphalt Shingle (**100S-AS**). The #100 Series is also available with a **Retro-Hook for Existing Slate Roofs** - Bronze (**100S-RH**) or Tin Plated (**100STP-NA**).

Model #200 Series

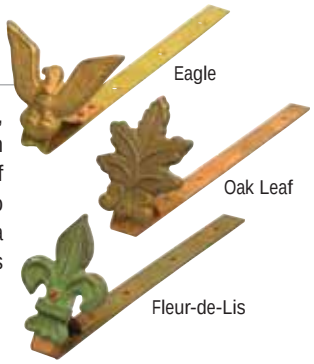


This spike style snow guard is fabricated from the same sheet metal components as the #100, but the #200 casting is 30% larger than the #100. Both products are equally strong and effective in their capacity to hold snow on the roof, but the Model #200S is more appropriate to larger scale buildings, or where the roof material is thicker than usual, such as tile roofing. #200 Series is available for **Soldering** - Bronze (**200CPSM**). #200 Series is also designed for **Nailing on New Applications** - Bronze for Slate (**200S-NA**) or Bronze for Asphalt Shingle (**200S-AS**). The #200 Series is also available with a **Retro-Hook for Existing Slate Roofs** - Bronze (**200S-RH**). The #200 Series is also available with a **Hook for New Installations on Tile Roofs** - Bronze (**200CPT**) or Tin Plated (**200STP-NA**).

Model #300 Series

A solid bronze pad style snow guard for all steep roof applications. The half round Model #300 casting is attached to a 24 oz. copper installation base flange by four solid copper rivets for extreme durability and snow load bearing capacity. The solid bronze casting eliminates the corrosion problem caused by condensation which is formed inside of closed, pressed copper snow guards. The installation flange can be easily fabricated to any length for any roof application, and is also available with our Retro-Hook. #300 Series is available for **Soldering** - Bronze (**300CPSM**). #300 Series is also designed for **Nailing on New Applications** - Bronze for Slate (**300S-NA**) or Bronze for Asphalt Shingle (**300S-AS**). The #300 Series is also available with a **Retro-Hook for Existing Slate Roofs** - Bronze (**300S-RH**) or Tin Plated (**300STP-NA**).

Model #400 Series



This "Classic" BRONZE GUARD™ series features large (approximately 4" x 4") decorative bronze castings in Eagle, Oak Leaf, or Fleur-De-Lis designs. The castings are mounted on solid 1" x 1/8" copper bar stock with solid brass bolts. The installation bar is predrilled for easy installation. While they are decorative elements, they are also extremely durable and are capable of holding extreme loads. They are typically installed in two rows along the eaves with subsequent rows of low profile guards to supplement the necessary snow holding design load. The Eagle casting is available in Bronze (**400EGLBRZ**) or Bronze Patina (**400EGLPAT**). The Oak Leaf casting is available in Bronze (**400LEAFBRZ**) or Bronze Patina (**400LEAFPAT**). The Fleur-de-Lis casting is available in Bronze (**400FDLBRZ**) or Bronze Patina (**400FDLPAT**).

Installation For Bronze Guard™ Snow Guard Series

Installation for Models #100, #200, #300, and #400: Snow Guards are installed in a series of rows placed parallel to the eave. Guards should be spaced no more than 24" apart in the horizontal rows. The number of rows and the vertical spacing between rows are determined by the pitch and length of the rafter. The most effective placement is an even spacing of the array over the lower 2/3 of the roof surface. Other variables such as upper roofs, dormers and valleys should be considered when determining a layout.

Pro 100 Snow Guard Assembly (Heavy Duty) - *For Asphalt Shingled, Slate And Tile Roofs*

Developed for areas that experience heavier snow loads. This heavy-duty Snow Guard is available in Copper (**SGCP100**) or Stainless Steel (**SGSP100**). The superior design features a 1 inch gusset that reinforces the shoe, which makes this Snow Guard 5 times stronger than traditional residential Snow Guards. The Pro 100 has been tested to withstand a 300 pound point load at any location when applied to the gusset side of the shoe.

No. 100 Snow Guard Assembly - *For Slate And Asphalt Shingled Roofs*

This guard has eliminated the necessity of removing slate, avoiding the possibility of breakage. Simply insert the slotted bar under the slate or shingle, engage a nail with one of the conveniently placed slots and pull down to fully secure bar. This style Snow Guard provides fast installation and is ideal for existing or new construction applications with asphalt shingled roofs. This Snow Guard is available in Copper (**SGC100**), Stainless Steel (**SGS100**) or Hot Dipped Galvanized (**SGG100**).

Modified No. 100 Snow Guard Assembly - *For Asphalt Shingled Roofs*

This guard is a modified Berger #100 Snow Guard. The #100 shoe is attached to a shorter, solid bar/strap, and is designed for easy installation on shingle roofs. This Snow Guard is available in Copper (**SGC100HP**) or Stainless Steel (**SGS100HP**).

No. 2 Snow Guard Assembly - *For Slate Roofs (Heavy Duty)*

A durable, plated iron casting and bar assembly designed for slate roofs. The riveted steel bar is 1/8" x 1" x 12" long and goes 8" under the slate and between the slate course. It is normally installed with the slate roof application. Also suited for wood shake, tile and mineral surfaced shingles. Excellent in areas that receive heavy snows! This Snow Guard is available in Bronze (**SGBR-2**) or Galvanized Malleable Iron (**SGML-2**).

No. 95 Snow Guard Assembly - *For Slate Roofs (Heavy Duty Ornamental)*

A larger guard with Gothic styling designed to transfer snow and ice loads more effectively to reduce cracking of the slate. This assembly is available in three material selections with 1/8" x 1" x 12" bar in appropriate metal combination. Excellent in areas that receive heavy snows! This Snow Guard is available in Bronze (**SGBR95**), Aluminum (**SGAL95**) or Galvanized Malleable Iron (**SGML95**).

Loop The Loop Snow Guard - *For Asphalt Shingle, Slate & Cedar Shake Roofs*

The Loop the Loop Snow Guard is an economy guard for wood deck applications under slate, wood shakes or asphalt shingles. **Available in Copper only (SGLLC1).** Minimum required quantity for proper installation: one-quarter pitch roof use 50 guards per square, one-third pitch roof use 75 guards per square, and one-half pitch roof use 150 guards per square.

Call 800-523-8852 for Our Technical Specification CD-Rom

Berger Building Products, Inc (BBPI) snow guards are devices that are attached to the roof structure in order to provide uniform retention and control the snow from avalanching in large sheets. The snow guards need to be applied in sufficient quantity according to a prescribed pattern in order to be effective. Snow Guards are intended to reduce snow movement and provide for a controlled melt and breakdown of the snow mass into smaller sections. Snow guard placement will vary from region to region and will be influenced by roof pitch, the lengths of roof runs and roof features. Local installation customs may not be the best guide for placement. Additional information can be found in Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) architectural sheet metal manual. Ultimately a qualified professional should determine placement. **Snow guards should never be placed beyond the bearing wall on an extended roof section. This can result in ice damming and cause structural damage.**

USE OF SNOWGUARDS ON LOW-SLOPE ROOFS: Snow guards help slow the momentum of a potential snow slide. On low-slope roofs (those with pitches less than 3:12), snow does not typically slide off in the same manner. Under these circumstances, it is often better to allow the snow to naturally clear itself from the roof as quickly as possible or to manually remove it if needed. Therefore, snow guards are not recommended for low-slope roof applications. Check with the roof manufacturer for specific product application limits and observe roof safety guidelines.

Berger Building Products, Inc (BBPI) warrants that the products it manufactures shall be free from material defects. Should any of the products prove defective, the obligation of BBPI under this warranty shall be limited to replacement of the defective product or at our option the cost of the product originally shipped by Berger. This warranty is expressly in lieu of all other warranties expressed or implied including the warranties of merchantability and fitness for a particular purpose. There are no warranties, which extend beyond the description on the face hereof. BBPI in no event, whether claim is based on warranties, contract negligence or otherwise, is liable for incidental or consequential damages.

Berger Building Products, Inc (BBPI) will not be responsible for misapplication or modification of product, incorrect material or defects that were obvious at time of installation. Any consequential damage, schedule delays, additional labor, and or equipment rental costs will not be BBPI responsibility. Any BBPI product warranty claim is limited solely to Berger Building Products, Inc.

Berger Building Products, Inc (BBPI) reserves the right to change design and specification of our products without prior notification or alteration of literature. Materials may be revised to improve strength and corrosion properties and incorporated as a running change without obsolescence.

*Patent No.s 5,282,340 /D351,989; REAL-TOOL is a Registered Trademark

The American Institute of Architects Continuing Education Systems

AIA/CES Registered Provider Program Summary

Program #: BBP101 / **Program:** Snow Retention Systems / **Length:** 1 Hour / **Credits:** 1 Learning Unit / **HSW:** Yes

Description: This program will review knowledge, proper use and improve specification practices of snow guards.

Learning Objectives: After completion of this course, participants will be able to: 1) Understand the effects of accumulating snow and ice on sloped roofs. 2) Explain the benefits of snow retention on sloped roofs. 3) Understand the limitations of snow retention on sloped roofs. 4) Improve details and specifications for snow retention systems.

How Taught: The CES facilitator will utilize a PowerPoint presentation to provide an overview of the history, use and types of snow retention products. It will be an interactive session that encourages feedback and questions.

A/V Needs: Electrical power and a screen will be needed for the PowerPoint presentation. The CES facilitator will provide the laptop computer and projector if necessary.

Target Audience: Architects, specifiers and other design professionals will all benefit from this presentation.

Facilitator Qualifications: Berger CES facilitators have been trained on CES guidelines and presentation skills. In addition, they receive continuous in-depth training in the field and are considered industry experts.

Costs: There is no cost to present this program to your group meeting.

For More Information Contact: Berger at (800) 523-8852

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