SECTION 07 72 53

SNOW GUARDS

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\*\* NOTE TO SPECIFIER \*\* TRA Snow and Sun; Snow brackets and guards.
This section is based on the products of TRA Snow and Sun, which is located at:
1657 South 580 East
American Fork, UT 84003
Toll Free Tel: 800-606-8980
Tel: 801-756-8666
Fax: 801-756-7891
Email: [request info (info@trasnowandsun.com)](https://arcat.com/rfi?action=email&company=TRA%252BSnow%252Band%252BSun&message=RE%253A%2520Spec%2520Question%2520(07729sas)%253A%2520&coid=48535&spec=07729sas&rep=&fax=801-756-7891)
Web: <http://www.trasnowandsun.com>
 [ [Click Here](https://arcat.com/company/tra-snow-and-sun-48535) ] for additional information.
TRA Snow and Sun was originally named TRA Snow Brackets when it was founded by Terry Anderson, the owner of Anderson Associates Consulting, in 1996. Although he had years of experience solving roof problems, it wasn't until Anderson traveled to snowy areas of Europe that he finally discovered how to prevent damage caused by snow and ice sliding off roofs: snow guards. Learning that the European solutions were very different from standard practices in the US, he brought that knowledge back to America and was able to design Snow Brackets (also sometimes referred to as snow guards) and Snow Fences (or snow rails systems) for all types of roofs as well as to help establish the concept of cold roof systems in the US.
TRA Snow and Sun's Snow Retention devices have demonstrated great success in ski resorts such as Beaver Creek, Colorado, Sun Peaks in Canada, and Grand Targhee Ski Resort in Alta, Wyoming.
Our Snow Retention devices, snow guards and snow rail systems, were tested to a fail point by Brigham Young University's Engineering Department. Using the resulting data, engineers created special charts to determine the number of brackets needed per roofing square based upon the roof pitch and the area's snow load. Each job benefits from this focus on the specific factors of each roof.
Another product line that was needed in the US, just like snow guards, was flexible roof flashing, which can be molded to the shape of a tile, eliminating the weight and cost of lead flashings. Anderson established partnerships with suppliers and for several years partnered with others to provide roof flashings to North American customers. Now flexible roof flashings are available from his 100% American-owned company - TRA Snow and Sun.
TRA Snow and Sun's snow guards and other products help provide you with safety from the dangers and expense of sliding snow, ice, and flexible roof flashings which have gained international recognition. Over two decades, our products have been selected by hundreds of satisfied builders and property owners.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Snow guard brackets.
		2. Standing seam clamp-on snow fence.
		3. Deck-mounted snow fence.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 05 36 00 - Composite Metal Decking.
		2. Section 06 11 00 - Wood Framing.
		3. Section 07 22 13 - Asphaltic Perlite Concrete Deck.
		4. Section 07 62 00 - Sheet Metal Flashing and Trim.
		5. Section 07 71 23 - Manufactured Gutters and Downspouts.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
			1. ASTM A36 - Standard Specification for Carbon Structural Steel.
			2. ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
			3. ASTM A304 - Standard Specification for Carbon and Alloy Steel Bars Subject to End-Quench Hardenability Requirements.
			4. ASTM A588 - Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi (345 MPa) Minimum Yield Point, with Atmospheric Corrosion Resistance.
			5. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
			6. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
			7. ASTM A1011 - Standard Specification for Steel, Sheet, and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
			8. ASTM B152 - Standard Specification for Copper Sheet, Strip, Plate, and Rolled Bar.
			9. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data:
			1. Manufacturer's data sheets on each product to be used.
			2. Preparation instructions and recommendations.
			3. Storage and handling requirements and recommendations.
			4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern, and color.
		2. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
		2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
		3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. PRE-INSTALLATION CONFERENCE
		1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
		2. Protect from damage due to weather, excessive temperature, and construction operations.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
	4. WARRANTY

\*\* NOTE TO SPECIFIER \*\* Verify with Owner's counsel that warranties stated in this article are not less than remedies available to Owner under prevailing local laws.

* + 1. Limited Warranty on Snow Guard Brackets, Standing Seam Clamp-on Snow Fences, and Deck-Mounted Snow Fences: Manufacturer's standard document in which manufacturer agrees to replace and ship snow guard components that fail to meet engineered design loads within specified warranty period.
			1. Warranty Period: 20 years from date of Substantial Completion.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: TRA Snow and Sun, which is located at:
		1657 South 580 East
		American Fork, UT 84003
		Toll Free Tel: 800-606-8980
		Tel: 801-756-8666
		Fax: 801-756-7891
		Email: [request info (info@trasnowandsun.com)](https://arcat.com/rfi?action=email&company=TRA%252BSnow%252Band%252BSun&message=RE%253A%2520Spec%2520Question%2520(07729sas)%253A%2520&coid=48535&spec=07729sas&rep=&fax=801-756-7891);Web: <http://www.trasnowandsun.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
	1. PERFORMANCE REQUIREMENTS
		1. Performance Requirements: Snow guard brackets, standing seam clamp-on snow fences, and deck-mounted snow fences must withstand exposure to weather and resist thermally induced movement without failure, rattling, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

\*\* NOTE TO SPECIFIER \*\* Differential values in "Temperature Change" Subparagraph below (for aluminum in particular) are suitable for most of the U.S.

* + - 1. Temperature Change: 120 degrees F (67 degrees C), ambient; 180 degrees F (100 degrees C), material surfaces.
			2. Retain "Structural Performance" Paragraph below if detailed design is assigned to manufacturer.
		1. Structural Performance:
			1. Snow Loads: As indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required, or delete product options not required.

* 1. SNOW GUARD BRACKETS
		1. Flat-Mounted, Pad-Type Snow Guards Brackets:
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.;
			2. Product: Snow Bracket A - Apex.
			3. Product: Snow Bracket A - Classic.
			4. Product: Snow Bracket A - Apex Counter Batten.
			5. Product: Snow Bracket A - Classic Counter Batten.
			6. Product: Snow Bracket B - Apex.
			7. Product: Snow Bracket B - Classic.
			8. Product: Snow Bracket B - Apex Counter Batten.
			9. Product: Snow Bracket B - Classic Counter Batten.
			10. Product: Snow Bracket Brava - Apex.
			11. Product: Snow Bracket C - Bear.
			12. Product: Snow Bracket C - Moose.
			13. Product: Snow Bracket C - Mushroom.
			14. Product: Snow Bracket C - Tree.
			15. Product: Snow Bracket D - Apex.
			16. Product: Snow Bracket D - Classic.
			17. Product: Snow Bracket E - Classic.
			18. Product: Snow Bracket E - Short Classic.
			19. Product: Snow Bracket E - Short Classic w/ Disk.
			20. Product: Snow Bracket F - Classic.
			21. Product: Snow Bracket F - Apex.
			22. Product: Snow Bracket F - Classic Extended.
			23. Product: Snow Bracket F - Apex Extended.
			24. Product: Snow Bracket G 9.5 - Apex.
			25. Product: Snow Bracket G 11.5 - Apex.
			26. Product: Snow Bracket G 8.5 - Classic.
			27. Product: Snow Bracket G 9.5 - Classic.
			28. Product: Snow Bracket G 11.5 - Classic.
			29. Product: Snow Bracket H - Apex.
			30. Product: Snow Bracket H - Classic.
			31. Product: Snow Bracket I - Apex Crest.
			32. Product: Snow Bracket I - Apex Valley.
			33. Product: Snow Bracket I - Classic Crest.
			34. Product: Snow Bracket I - Classic Valley.
			35. Product: Snow Bracket J - Apex.
			36. Product: Snow Bracket J - Classic.
			37. Product: Snow Bracket Legendary - Apex.
			38. Product: Snow Bracket Legendary - Classic.
			39. Product: Snow Bracket Ludowici High Profile - Apex.
			40. Product: Snow Bracket Ludowici High Profile - Classic.
			41. Product: Snow Bracket Ludowici Interlock - Apex.
			42. Product: Snow Bracket Ludowici Interlock - Classic.
			43. Product: Snow Bracket Ludowici Mid Profile - Apex.
			44. Product: Snow Bracket Ludowici Mid Profile - Classic.
			45. Product: Snow Bracket Madera - Classic.
			46. Product: Snow Bracket S.
			47. Product: Snow Bracket Slate Hook - Apex.
			48. Product: Snow Bracket Slate Hook - Classic.
			49. Product: Snow Bracket UniversalGuard.
	2. FASTENERS
		1. Copper Roof: Use stainless steel or brass for fasteners and anchors recommended by Manufacturer.
		2. Aluminum Roof: Use stainless steel for fasteners and anchors recommended by Manufacturer.
		3. Clay Tile Roof: Use copper or stainless steel for fasteners and anchors recommended by Manufacturer.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete paragraph and product options not required.

* 1. SNOW GUARD BRACKETS BY ROOF TYPE APPLICATION

\*\* NOTE TO SPECIFIER \*\* Flat-mounted metal systems may be recommended by manufacturers for slate, clay or concrete tile, wood shake, asphalt shingle, and metal roofing. Consult manufacturer's literature for specific applications. Decorative elements may be added to each of the brackets. Refer to https://trasnowandsun.com/product-category/snow-retention . Delete roof types and products not required.

* + 1. Roof Type: Asphalt Shingles.
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket D.
			3. Product: Snow Bracket E Short.
			4. Product: Snow Bracket E Short with Disc.
			5. Product: Snow Bracket H.
			6. Product: Snow Bracket S.
			7. Product: Universal Guard Snow Bracket.
		2. Roof Type: Cedar Shingles.
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket F.
			3. Product: Snow Bracket F Extended.
			4. Product: Snow Bracket S.
		3. Roof Type: Brava Spanish Tile.

\*\* NOTE TO SPECIFIER \*\* Snow Bracket Ludowici Interlocking to be used only with Ludowici French tiles. Other clay tile manufacturers are: Westlake, Redland Clay Tile, MCA, Gladding McBean, and Ludowici.

* + - 1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket Brava - Apex.
		1. Roof Type: Clay Tile.

\*\* NOTE TO SPECIFIER \*\* Snow Bracket Ludowici Interlocking to be used only with Ludowici French tiles. Other clay tile manufacturers are: Westlake, Redland Clay Tile, MCA, Gladding McBean, and Ludowici.

* + - 1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket Ludowici High Profile.
			3. Product: Snow Bracket Ludowici Interlocking.
			4. Product: Snow Bracket Ludowici Mid Profile.
		1. Roof Type: Concrete Tile.

\*\* NOTE TO SPECIFIER \*\*

* + 1. 'Snow brackets made for use with specific tile manufacturers are as follows:
		2. Snow Bracket A - Eagle, Westlake, Crown Building, and other similar tiles.
		3. Snow Bracket A - CB (Counter Batten) - Eagle, Westlake, Crown Building, and other similar tiles.
		4. Snow Bracket B - Bartile, and other similar tiles.
		5. Snow Bracket B - CB (Counter Batten) - Bartile, and other similar tiles.
		6. Snow Bracket Madera - Westlake Madera Tile.
		7. Snow Bracket Legendary - Bartile.
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket A.
			3. Product: Snow Bracket A - CB.
			4. Product: Snow Bracket B.
			5. Product: Snow Bracket B - CB.
			6. Product: Snow Bracket Madera.
			7. Product: Snow Bracket Legendary.
		8. Roof Type: Corrugated Metal.
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket I (Valley).
			3. Product: Snow Bracket I (Crest).
			4. Product: Snow Bracket C-Bear.
			5. Product: Snow Bracket C-Moose.
			6. Product: Snow Bracket C-Mushroom.
			7. Product: Snow Bracket C-Tree.
		9. Roof Type: Flat Seam Metal.
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket G 11.5.
			3. Product: Snow Bracket H.
			4. Product: Snow Bracket L.
			5. Product: Universal Guard Snow Bracket.
		10. Roof Type: Metal Shingle.
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket H.
			3. Product: Snow Bracket L.
			4. Product: Universal Guard Snow Bracket.
			5. Product: Snow Bracket G.
		11. Roof Type: Exposed Fastener Metal Panel.
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket H.
			3. Product: Snow Bracket L.
			4. Product: Universal Guard Snow Bracket.
		12. Roof Type: Simulated Shake.
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket D.
			3. Product: Snow Bracket E.
			4. Product: Snow Bracket E Short.
			5. Product: Snow Bracket E Short with Disc.
			6. Product: Snow Bracket F.
			7. Product: Snow Bracket F Extended.
			8. Product: Snow Bracket H.
			9. Product: Snow Bracket L.
			10. Product: Product: Snow Bracket S.
			11. Product: Universal Guard Snow Bracket.
		13. Roof Type: Simulated Slate.
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket D.
			3. Product: Snow Bracket E.
			4. Product: Snow Bracket E Short.
			5. Product: Snow Bracket E Short with Disc.
			6. Product: Snow Bracket F.
			7. Product: Snow Bracket F Extended.
			8. Product: Snow Bracket H.
			9. Product: Snow Bracket L.
			10. Product: Product: Snow Bracket S.
			11. Product: Universal Guard Snow Bracket.
		14. Roof Type: Slate.
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket F.
			3. Product: Snow Bracket F Extended.
			4. Product: Snow Bracket Slate Hook.
		15. Roof Type: Standing Seam Metal:
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket H.
			3. DecoGuard Clamp-on Bear.
			4. DecoGuard Clamp-on Leaf.
			5. DecoGuard Clamp-on Moose.
			6. DecoGuard Clamp-on Mountain.
			7. DecoGuard Clamp-on Mushroom Tall.
			8. DecoGuard Clamp-on Mushroom Wide.
			9. Product: Universal Guard Snow Bracket.
			10. Product: Snow Bracket L.
		16. Roof Type: Stone Coated Metal.
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket J.
		17. Roof Type: Wood Shake.
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.:
			2. Product: Snow Bracket F.
			3. Product: Snow Bracket F Extended.
			4. Product: Snow Bracket H.
			5. Product: Snow Bracket G 8.5.
			6. Product: Snow Bracket G 9.5.
			7. Product: Snow Bracket S.
			8. Product: Universal Guard Snow Bracket.
			9. Product: Snow Bracket L.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete paragraph and product options not required.

* 1. FENCE-TYPE SNOW GUARDS (DECK MOUNT AND CLAMP-ON)
		1. Flat-Mounted, Fence-Type Snow Guards (Deck Mount Fence):
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.;
			2. Product: D1 Diamond Mount.
			3. Product: D1H Deck Mount.
			4. Product: D1H Extended Deck Mount.
			5. Product: D1H Corrugated Deck Mount.
			6. Product: D1HJ Corrugated Deck Mount.
			7. Product: D2 Diamond Mount.
			8. Product: D2HH Deck Mount.
			9. Product: D2HH Extended Deck Mount.
			10. Product: D2HL Corrugated Deck Mount.
			11. Product: D2HL Deck Mount.
			12. Product: D2HL Extended Deck Mount.
			13. Product: D2HLJ Corrugated Deck Mount.
			14. Product: D3H Deck Mount.
			15. Product: D3H Extended Deck Mount.
			16. Product: D4H Deck Mount.
			17. Product: D4H Extended Deck Mount.
			18. Product: D-Log Deck Mount.
			19. Product: D-Timber Deck Mount.
			20. Product: FlashFree Fence 1 - 8 x 12 inch (203 x 305 mm).
			21. Product: FlashFree Fence 1 - 8 x 18 inch (203 x 457 mm).
			22. Product: FlashFree Fence 1 - 12 x 18 inch (305 x 457 mm).
			23. Product: FlashFree Fence 2 - 8 x 12 inch (203 x 305 mm).
			24. Product: FlashFree Fence 2 - 8 x 18 inch (203 x 457 mm).
			25. Product: FlashFree Fence 2 - 12 x 18 inch (305 x 457 mm).
			26. Product: Single Ply 1 Deck Mount.
			27. Product: Single Ply 2 Deck Mount.
			28. Product: Single Ply 3 Deck Mount.
			29. Product: SnowBlocker 1 Deck Mount.
			30. Product: SnowBlocker 2 Deck Mount.
			31. Product: SnowBlocker 3 Deck Mount.
			32. Product: T-1 Deck Mount.
		2. Seam-Mounted, Fence Type Snow Guards (Clamp-on):
			1. Basis-of-Design Product: Subject to compliance with requirements, provide by TRA SNOW AND SUN, INC.;
			2. Product: C21Z Clamp-on Snow Guard.
			3. Product: C22Z Clamp-on Snow Guard.
			4. Product: C23Z Clamp-on Snow Guard.
			5. Product: C31Z Clamp-on Snow Guard.
			6. Product: C32Z Clamp-on Snow Guard.
			7. Product: C41Z Clamp-on Snow Guard.
			8. Product: C42Z Clamp-on Snow Guard.
			9. Product: Snow Diamond 1 Rail Clamp-on.
			10. Product: Snow Diamond 2 Rail Clamp-on.
			11. Description: Units fabricated from metal with one, two, three, and four rail options.
	2. FASTENERS
		1. Copper Roof: Use stainless steel or brass for fasteners and anchors recommended by manufacturer.
		2. Aluminum Roof: Use stainless steel for fasteners and anchors recommended by manufacturer.
		3. Clay Tile Roof: Use copper or stainless steel for fasteners and anchors recommended by manufacturer.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete products not required.

* 1. FENCE-TYPE SNOW GUARDS (DECK MOUNTS) FOR MOST STICK FRAMED ROOF TYPES
		1. General Characteristics: Unless specified otherwise.
			1. Roof Types: Designed for most stick framed roof types.
			2. Used On: Asphalt shingles, cedar shingles, flat seam metal, granule metal, metal panel, slate, simulated slate, and wood shakes.
			3. Must be installed into structural roof member such as a truss or rafter beam.
			4. All roof penetrations that go through the underlayment are required to be flashed or sealed.
			5. Ice Flags recommended.

\*\* NOTE TO SPECIFIER \*\* Delete material and finish options not required.

* + - 1. Material: Zinc coated steel per ASTM A36: 3/16 inch (5 mm); ASTM A36: 1/4 inch (6 mm).
			2. Material: Copper per ASTM B152: 1/4 inch (6 mm).
			3. Material: Steel per ASTM A588: 1/4 inch (6 mm).
			4. Finish: Raw steel.
			5. Finish: Electro-galvanized steel.
			6. Finish: Mill finish copper.
			7. Finish: Mill finish A588.
			8. Finish: Powder coated to match roofing material color.
			9. Color: Determined by the Architect from Manufacturer's color range.
		1. Product: D1 Diamond Mount:
			1. Accepts 3/4 X 3/4 inch (19 x 19 mm) square fence tube. Quantity: 1.
			2. Installed using (4) 3/8 inch (9.5 mm) Lag bolts.
			3. Overall Dimensions (LxWxH): 4.57 x 2 x 3.11 inches (116 x 51 x 79 mm).
		2. Product: D1H Deck Mount:
			1. Accepts 1.315 inch (33.40 mm) O.D. fence tube. Quantity: 1.
			2. Installed using (4) 3/8 inch (9 mm) lag bolts or (4) 1/4 (6 mm) SDS screws.
			3. Overall Dimensions (LxWxH): 5 x 2 x 4.5 inches (127 x 51 x 114 mm).
		3. Product: D1H Extended Deck Mount:
			1. Accepts 1.315 inch (33.40 mm) O.D. fence tube. Quantity: 1.
			2. Installed using (4) 3/8 inch (9 mm) lag bolts or (4) 1/4 (6 mm) SDS screws.
			3. Overall Dimensions (LxWxH): 10 x 2.32 x 4.44 inches (254 x 59 x 113 mm).
		4. Product: D1H Corrugated Deck Mount:
			1. Roof Types: corrugated roofs only.
			2. Accepts 1.315 inch (33.40 mm) O.D. fence tube. Quantity: 1.
			3. Installed using (4) 3/8 inch (9 mm) lag bolts.
			4. Overall Dimensions (LxWxH): 4.69 x 1.69 x 5.04 inches (119 x 43 x 128 mm).
		5. Product: D1HJ Corrugated Deck Mount:
			1. Roof Types: corrugated roofs only.
			2. Accepts 1.315 inch (33.40 mm) O.D. fence tube. Quantity: 1.
			3. Installed using (4) 3/8 inch (9 mm) lag bolts.
			4. Overall Dimensions (LxWxH): 14.36 x 4.47 x 5.30 inches (365 x 113 x 135 mm).
		6. Product: D2 Diamond Mount:
			1. Accepts 3/4 X 3/4 inch (19 x 19 mm) square fence tube. Quantity: 2.
			2. Installed using (4) 3/8 inch (9 mm) lag bolts.
			3. Overall Dimensions (LxWxH): 4.53 x 2 x 6.11 inches (115 x 51 x 155 mm).
		7. Product: D2HH Deck Mount:
			1. Accepts 1.315 inch (33 mm) O.D. fence tube. Quantity: 2.
			2. Installed using (4) 3/8 inch (9 mm) lag bolts or (4) 1/4 (6 mm) SDS screws.
			3. Overall Dimensions (LxWxH): 12 x 2 x 10.5 inch (305 x 51 x 267 mm).
		8. Product: D2HH Extended Deck Mount:
			1. Accepts 1.315 inch (33.40 mm) O.D. fence tube. Quantity: 2.
			2. Installed using (4) 3/8 inch (9 mm) lag bolts or (4) 1/4 (6 mm) SDS screws.
			3. Overall Dimensions (LxWxH): 36 x 2.32 x 10.33 inches (914 x 59 x 262 mm).
		9. Product: D2HL Corrugated Deck Mount:
			1. Roof Type: Designed for corrugated metal roofs only.
			2. Accepts 1.315 inch (33.40 mm) O.D. fence tube. Quantity: 2.
			3. Installed using (4) 3/8 inch (9 mm) lag bolts.
			4. Overall Dimensions (LxWxH): 8 x 1.63 x 18.04 inches (203 x 41 x 458 mm).
		10. Product: D2HL Deck Mount:
			1. Accepts 1.315 inch (33.40 mm) O.D. fence tube. Quantity: 2.
			2. Installed using (4) 3/8 inch (9 mm) lag bolts or (4) 1/4 (6 mm) SDS screws.
			3. Overall Dimensions (LxWxH): 8 x 2 x 7.5 inches (203 x 51 x 191 mm).
		11. Product: D2HL Extended Deck Mount:
			1. Accepts 1.315 inch (33.40 mm) O.D. fence tube. Quantity: 2.
			2. Installed using (4) 3/8 inch (9 mm) lag bolts or (4) 1/4 (6 mm) SDS screws.
			3. Overall Dimensions (LxWxH): 15 x 2.16 x 7.59 inches (381 x 55 x 193 mm).
		12. Product: D2HLJ Corrugated Deck Mount:
			1. Roof Type: Designed for corrugated metal roofs only.
			2. Accepts 1.315 inch (33.40 mm) O.D. fence tube. Quantity: 2.
			3. Installed using (4) 3/8 inch (9 mm) lag bolts or (4) 1/4 (6 mm) SDS screws.
			4. Overall Dimensions (LxWxH): 15 x 2.16 x 7.59 inches (381 x 55 x 193 mm).
		13. Product: D3H Deck Mount:
			1. Accepts 1.315 inch (33.40 mm) O.D. fence tube. Quantity: 3.
			2. Installed using (4) 3/8 inch (9 mm) lag bolts or (4) 1/4 (6 mm) SDS screws.
			3. Overall Dimensions (LxWxH): 12 x 2 x 10.38 inches (305 x 51 x 264 mm).
		14. Product: D3H Extended Deck Mount:
			1. Accepts 1.315 inch (33.40 mm) O.D. fence tube. Quantity: 3.
			2. Installed using (4) 3/8 inch (9 mm) lag bolts or (4) 1/4 (6 mm) SDS screws.
			3. Overall Dimensions (LxWxH): 23 x 2.32 x 10.34 inches (584 x 59 x 263 mm).
		15. Product: D4H Deck Mount:
			1. Accepts 1.315 inch (33.40 mm) O.D. fence tube. Quantity: 4.
			2. Installed using (4) 3/8 inch (9 mm) lag bolts or (4) 1/4 (6 mm) SDS screws.
			3. Overall Dimensions (LxWxH): 12 x 2.13 x 13.51 inches (305 x 54 x 343 mm).
		16. Product: D4H Extended Deck Mount:
			1. Accepts 1.315 inch (33.40 mm) O.D fence tube. Quantity: 4.
			2. Installed using (4) 3/8 inch (9 mm) lag bolts or (4) 1/4 (6 mm) SDS screws.
			3. Overall Dimensions (LxWxH): 23 x 2.16 x 3.29 inches (584 x 406 x 3.29 mm).
		17. Product: FlashFree Fence 1 - 8 x 12 inch (203 x 305 mm):
			1. Accepts 1 inch (25 mm) O.D. fence tube. Quantity: 1.
			2. Installed using (8) No. 14 stainless screws.
			3. Overall Dimensions (LxWxH): 12 x 8 x 3.99 inches (305 x 203 x 101 mm).
		18. Product: FlashFree Fence 1 - 8 x 18 inch (203 x 457 mm):
			1. Accepts 1 inch (25 mm) O.D. fence tube. Quantity: 1.
			2. Installed using (8) No. 14 stainless screws.
			3. Overall Dimensions (LxWxH): 18 x 8 x 3.99 inches (457 x 203 x 101 mm).
		19. Product: FlashFree Fence 1 - 12 x 18 inch (305 x 457 mm):
			1. Accepts 1 inch (25 mm) O.D. fence tube. Quantity: 1.
			2. Installed using (8) No. 14 stainless screws.
			3. Overall Dimensions (LxWxH): 18 x 12 x 3.99 inches (457 x 305 x 101 mm).
		20. Product: FlashFree Fence 2 - 8 x 12 inch (203 x 305 mm):
			1. Accepts 1 inch (25 mm) O.D. fence tube. Quantity: 2.
			2. Installed using (8) No. 14 stainless screws.
			3. Overall Dimensions (LxWxH): 12 x 8 x 5.4 inches (305 x 203 x 137 mm).
		21. Product: FlashFree Fence 2 - 8 x 18 inch (203 x 457 mm):
			1. Accepts 1 inch (25 mm) O.D. fence tube. Quantity: 2.
			2. Installed using (8) No. 14 stainless screws.
			3. Overall Dimensions (LxWxH): 18 x 8 x 5.4 inches (457 x 203 x 137 mm).
		22. Product: FlashFree Fence 2 - 12 x 18 inch (305 x 457 mm):
			1. Accepts 1 inch (25 mm) O.D. fence tube. Quantity: 2.
			2. Installed using (8) No. 14 stainless screws.
			3. Overall Dimensions (LxWxH): 18 x 12 x 5.4 inches (457 x 305 x 137 mm).

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete product options not required.

* 1. FENCE-TYPE SNOW GUARDS (SNOW BLOCKER/ SINGLE PLY SERIES)
		1. General Characteristics:
			1. Roof Types: Designed for use with exposed fastener metal panel roofing.
			2. Fastens to purlin, blocking or other structural framing.
			3. Designed for 1 inch OD (25 mm) fence tubes.

\*\* NOTE TO SPECIFIER \*\* Ice flags and butyl flashing are recommended. Delete if not required.

* + - 1. Ice Flags: Recommended.
			2. Butyl Flashing: Applied under the snow blocker.

\*\* NOTE TO SPECIFIER \*\* Delete material and finish options not required.

* + - 1. Material: Steel per ASTM A1011 and ASTM A36: 3/16 inch (5 mm).
			2. Material: Copper per ASTM B152: 1/4 inch (6 mm).
			3. Material: Steel per ASTM A588: 1/4 inch (6 mm).
			4. Material: Stainless Steel per ASTM A304: 7 ga.
			5. Finish: Raw steel.
			6. Finish: Electro-galvanized steel.
			7. Finish: Mill finish copper.
			8. Finish: Mill finish A588.
			9. Finish: Mill finish Stainless Steel A304.
			10. Finish: Powder coated to match roofing material color.
			11. Finish: Powder Coating. Color: Determined by the Architect from Manufacturer's color range.
		1. Product: Snow Blocker 1. For one tube.
			1. Accepts 1 inch (25 mm) O.D. fence tube. Quantity: 1.
			2. Installed using (8) No. 14 stainless screws.
			3. Overall Dimensions (LxWxH): 4 x 1.90 x 3.25 inches (102 x 48 x 83 mm).
		2. Product: Snow Blocker 2. For two tubes.
			1. Accepts 1 inch (25 mm) O.D. fence tube. Quantity: 2.
			2. Installed using (8) No. 14 stainless screws.
			3. Overall Dimensions (LxWxH): 4 x 1.90 x 5.25 inches (102 x 48 x 133 mm).
		3. Product: Snow Blocker 3. For three tubes.
			1. Accepts 1 inch (25 mm) O.D. fence tube. Quantity: 3.
			2. Installed using (8) No. 14 stainless screws.
			3. Overall Dimensions (LxWxH): 4 x 1.91 x 7.25 inches (102 x 48 x 184 mm).
		4. Product: Single Ply 1. For one tube.
			1. Accepts 1 inch (25 mm) O.D. fence tube. Quantity: 1.
			2. Installed using (4) 1/4 (6 mm) SDS screws.
			3. Overall Dimensions (LxWxH): 7 x 6 x 3.38 inches (178 x 152 x 86 mm).
		5. Product: Single Ply 2. For two tubes.
			1. Accepts 1 inch (25 mm) O.D. fence tube. Quantity: 2.
			2. Installed using (4) 1/4 (6 mm) SDS screws.
			3. Overall Dimensions (LxWxH): 7 x 6 x 5.39 inches (178 x 152 x 140 mm).
		6. Product: Single Ply 3. For three tubes.
			1. Accepts 1 inch (25 mm) O.D. fence tube. Quantity: 3.
			2. Installed using (4) 1/4 (6 mm) SDS screws.
			3. Overall Dimensions (LxWxH): 7 x 6 x 7.38 inches (178 x 152 x 187 mm).

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete products not required.

* 1. FENCE-TYPE SNOW GUARDS (DECK MOUNT TILE, TIMBER, AND LOG)
		1. Product: T-1 Tile Deck Mount.
			1. Root Types: Most tile roofs or most stick framed roof types.
			2. Must be installed into structural roof member such as a truss or rafter beam.
			3. Roof penetrations that go through the underlayment are required to be flashed or sealed.
			4. Accepts 1.315 inch OD, (33.40 mm) fence tube.
			5. Lag Bolts: Four, 3/8 inch (9.5 mm).

\*\* NOTE TO SPECIFIER \*\* Ice flags are recommended. Delete if not required.

* + - 1. Ice Flags: Recommended.
			2. Overall Dimensions (LxWxH): 24.27 x 2.32 x 13.16 inches (616 x 59 x 334 mm).

\*\* NOTE TO SPECIFIER \*\* Delete material and finish options not required.

* + - 1. Material: Steel per ASTM A36: 1/4 inch (6 mm).
			2. Finish: Zinc plated steel.
			3. Finish: Electro-galvanized steel.
			4. Material: Copper per ASTM B152: 1/4 inch (6 mm).
			5. Finish: Mill finish Copper.
			6. Material: Steel per ASTM A588: 1/4 inch (6 mm).
			7. Finish: Mill finish A588.
			8. Finish: Powder coated to match roofing material color. Color: Determined by the Architect from Manufacturer's color range.

\*\* NOTE TO SPECIFIER \*\* the remaining products can be used with most common roof types and are not listed in the "Snow Guard Brackets by Roof Type Application" Article.

* + 1. Product: D-Timber Deck Mount.
			1. Root Types: For use in new construction applications.
			2. Can be used with most common roofing materials.
			3. Fastens to rafter, purlin, or other structural roof member.
				1. Fasteners: Four, Lag Bolts: 3/8 inch. Roof penetrations going through the underlayment must be flashed or sealed.
			4. Overall Dimensions (LxWxH):
			5. For 4 x 4 inch Timber (LxWxH): 15 x 1.95 x 8 inches (381 x 50 x 203 mm).
			6. For 6 x 6 inch Timber (LxWxH): 15-1/4 x 1.95 x 11-1/8 inches (387 x 50 x 283 mm).
			7. For 8 x 8 inch Timber (LxWxH): 20 x 1.95 x 13-7/8 inches (508 x 50 x 352 mm).
			8. For 12 x 12 inch Timber (LxWxH): 20-5/8 x 1.95 x 19-7/16 inches (524 x 50 x 494 mm).

\*\* NOTE TO SPECIFIER \*\* Delete material and finish options not required.

* + - 1. Material: Steel per ASTM A36: 1/4 inch (6 mm).
			2. Finish: Zinc plated steel.
			3. Finish: Electro-galvanized steel.
			4. Material: Copper per ASTM B152: 1/4 inch (6 mm).
			5. Finish: Mill finish Copper.
			6. Material: Steel per ASTM A588: 1/4 inch (6 mm).
			7. Finish: Mill finish A588.
			8. Finish: Powder coated to match roofing material color. Color: Determined by the Architect from Manufacturer's color range.
		1. Product: D-Log Deck Mount.
			1. For use in new construction applications.
			2. Can be used with most common roofing materials.
			3. Fastens to rafter, or other structural roof member.
			4. Fasteners: Four, Lag Bolts: 3/8 inch. Roof penetrations going through the underlayment must be flashed or sealed.

\*\* NOTE TO SPECIFIER \*\* Delete log diameter material, and finish options not required.

* + - 1. Log Diameter: 6 inch (152 mm).
			2. Overall Dimensions (LxWxH): 27.84 x 2.32 x 15.51 inches (707 x 59 x 394 mm).
			3. Log Diameter: 8 inch (203 mm).
			4. Overall Dimensions (LxWxH): 27.84 x 2.32 x 15.51 inches (707 x 59 x 394 mm).
			5. Log Diameter: 10 inch (354 mm).
			6. Overall Dimensions (LxWxH): 27.84 x 2.32 x 15.51 inches (707 x 59 x 394 mm).
			7. Materials: Steel per ASTM A36: 1/4 inch (6 mm).
			8. Finish: Raw steel.
			9. Finish: Electro-galvanized steel.
			10. Materials: Copper per ASTM B152: 1/4 inch (6 mm).
			11. Finish: Mill finish Copper.
			12. Materials: Steel ASTM A588: 1/4 inch (6 mm).
			13. Finish: Mill finish A588.
			14. Finish: Powder coated to match roofing material color. Color: Determined by the Architect from Manufacturer's color range.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete products not required.

* 1. FENCE-TYPE SNOW GUARDS (CLAMP-ONS)
		1. General Characteristics: Unless specified otherwise.
			1. Roof Types: Designed for standing seam metal roofs.
			2. Designed for 1 inch OD (25 mm) clamp-on fence tubes.
			3. Snow Diamond Rails: Accepts 0.75 inch (19 mm) square tubes.
			4. Allows for full installation without any penetration of the roof surface.
			5. Height of clamp varies based on rib type and height.
			6. Carriage Bolt: Two, 3/8 mm Dia x 1-3/4 or 2 inch (9.5 mm Dia x 44 or 51 mm).

\*\* NOTE TO SPECIFIER \*\* Delete material and finish options not required.

* + - 1. Material: Zinc Coated Steel per ASTM A36: 3/16 inch (5 mm).
			2. Material: Copper per ASTM B152: 1/4 inch (6 mm).
			3. Material: Stainless Steel per ASTM A240: 8 ga.
			4. Snow Diamond Material: Zinc Coated Steel per ASTM A36: 3/16 inch (5 mm).
			5. Snow Diamond Material: Stainless Steel per ASTM A666-03: 0.165 inch (4 mm).
			6. Finish: Raw Steel.
			7. Finish: Zinc Plated Steel.
			8. Finish: Mill Finish Copper.
			9. Finish: Stainless Steel.
			10. Finish: Powder coated to match roofing material color. Color: Determined by the Architect from Manufacturer's color range.
		1. Product: C21Z Clamp-on Snow Guard. 1 rail standing seam snow fence.
			1. Available for Rib Types Including: Double Lock, Single Lock, Snap Lock; 1-3/4 inches (44 mm), or greater. Snap Lock; 1 to 1-1/2 inches (25 to 38 mm), etc.

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 4.38 x \_\_\_ x \_\_\_ inches (111 x \_\_\_ x \_\_\_ mm).
			2. Weight: 1.35 lbs (0.61 kg).
		1. Product: C22Z Clamp-on Snow Guard. 2 rail standing seam snow fence.
			1. Available for Rib Types Including: Double Lock, Single Lock, Snap Lock; 1-3/4 inches (44 mm), or greater. Snap Lock; 1 to 1-1/2 inches (25 to 38 mm), etc.

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 4.50 x \_\_\_ x \_\_\_ inches (114 x \_\_\_ x \_\_\_ mm).
			2. Weight: 1.8 lbs (0.82 kg).
		1. Product: C23Z Clamp-on Snow Guard. 3 rail standing seam snow fence.
			1. Available for Rib Types Including: Double Lock, Single Lock, Snap Lock; 1-3/4 inches (44 mm), or greater. Snap Lock; 1 to 1-1/2 inches (25 to 38 mm), etc.

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 4.50 x \_\_\_ x \_\_\_ inches (114 x \_\_\_ x \_\_\_ mm).
		1. Product: C31Z Clamp-on Snow Guard. 1 rail standing seam snow fence.
			1. Available for Rib Types Including: Tee Seam, Zip Rib, etc.

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 5.19 x \_\_\_ x \_\_\_ inches (132 x \_\_\_ x \_\_\_ mm).
		1. Product: C32Z Clamp-on Snow Guard. 2 rail standing seam snow fence.
			1. Available for Rib Types Including: Tee Seam, Zip Rib, etc.

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 5.19 x \_\_\_ x \_\_\_ inches (132 x \_\_\_ x \_\_\_ mm)
		1. Product: C41Z Clamp-on Snow Guard.1 rail standing seam snow fence.
			1. Available for Rib Types Including: Tee Seam, Zip Rib, Batten Lock.

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 4.50 x \_\_\_ x \_\_\_inches (114 x \_\_\_ x \_\_\_ mm).
		1. Product: C42Z Clamp-on Snow Guard. 2 rail standing seam snow fence.
			1. Available for All Rib Types Including: Tee Seam, Zip Rib, Batten Lock.

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 4.50 x \_\_\_ x \_\_\_ inches (114 x \_\_\_ x \_\_\_ mm).
		1. Product: Snow Diamond 1 Clamp-on Snow Guard. 1 square rail standing seam snow fence.
			1. Available for All Rib Types Including: Double Lock, Single Lock, Snap Lock; 1-3/4 inches (44 mm), or greater. Snap Lock; 1 to 1-1/2 inches (25 to 38 mm), etc.

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 2.67 x \_\_\_ x \_\_\_ inches (68 x \_\_\_ x \_\_\_ mm).
		1. Product: Snow Diamond 2 Clamp-on Snow Guard. 2 square rail standing seam snow fence.
			1. Available for All Rib Types Including: Double Lock, Single Lock, Snap Lock; 1-3/4 inches (44 mm), or greater. Snap Lock; 1 to 1-1/2 inches (25 to 38 mm), etc.

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 2.67 x \_\_\_ x \_\_\_ inches (68 x \_\_\_ x \_\_\_ mm).

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete products not required.

* 1. SNOW GUARD BRACKETS (DECOGUARD-SERIES) STANDING SEAM METAL ROOFS
		1. General Characteristics: Unless specified otherwise.
			1. Roof Types: Standing seam metal roofs types.
			2. Used On all Rib Types Including: Double Lock, Single Lock, Snap Lock; 1-3/4 inches (44 mm), greater than or equal to X inches. Snap Lock; 1 to 1-1/2 inches (25 to 38 mm), etc.
			3. Allows for full installation without penetration of the roof surface.
			4. All roof penetrations that go through the underlayment are required to be flashed or sealed.
			5. Carriage Bolt: Two, 3/8 inch (9.5 mm) Dia X 1-3/4 or 2 inches (44 or 51 mm).

\*\* NOTE TO SPECIFIER \*\* Delete material and finish options not required.

* + - 1. Material: Zinc coated steel per ASTM A36: 3/16 inch (5 mm), D2 and D1 Diamond Mount.
			2. Material: Copper per ASTM B152: 1/4 inch (6 mm).
			3. Material: Steel per ASTM A588: 1/4 inch (6 mm).
			4. Finish: Raw steel.
			5. Finish: Zinc plated steel.
			6. Finish: Mill finish copper.
			7. Finish: Mill finish A588.
			8. Finish: Powder coated to match roofing material color. Color: Determined by the Architect from Manufacturer's color range.
		1. Product: DecoGuard Clamp-on Bear:

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 4.2 x \_\_\_ x \_\_\_ inches (107 x \_\_\_ x \_\_\_ mm).
			2. Height (H) and width (W) of clamp varies based on rib type.
		1. Product: DecoGuard Clamp-on Leaf:

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 4.67 x \_\_\_ x \_\_\_ inches (118 x \_\_\_ x \_\_\_ mm).
			2. Height (H) and width (W) of clamp varies based on rib type.
		1. Product: DecoGuard Clamp-on Moose:

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 4.50 x \_\_\_ x \_\_\_ inches (114 x \_\_\_ x \_\_\_ mm).
			2. Height (H) and width (W) of clamp varies based on rib type.
		1. Product: DecoGuard Clamp-on Mountain:

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 4.66 x \_\_\_ x \_\_\_ inches (118 x \_\_\_ x \_\_\_ mm).
			2. Height (H) and width (W) of clamp varies based on rib type.
		1. Product: DecoGuard Clamp-on Mushroom Tall:

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 4.68 x \_\_\_ x \_\_\_ inches (119 x \_\_\_ x \_\_\_ mm).
			2. Height (H) and width (W) of clamp varies based on rib type.
		1. Product: DecoGuard Clamp-on Mushroom Wide:

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions ((LxWxH): 4.69 x \_\_\_ x \_\_\_ inches (119 x \_\_\_ x \_\_\_ mm).
			2. Height (H) and width (W) of clamp varies based on rib type.
		1. Product: DecoGuard Clamp-on Tree:

\*\* NOTE TO SPECIFIER \*\* Height and width varies depending on the application.

* + - 1. Overall Dimensions (LxWxH): 4.92 x \_\_\_ x \_\_\_ inches (125 x \_\_\_ x \_\_\_ mm).
			2. Height (H) and width (W) of clamp varies based on rib type.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete products not required.

* 1. SNOW GUARDS (SNOW BRACKET - SERIES A, B, LEGENDARY, LUDOWICI, AND MADERA) CONCRETE AND CLAY ROOFING TILES
		1. General Characteristics: Unless specified otherwise.
			1. Bracket fastens to roof sheathing material or by fasteners.
			2. Material: Zinc Coated Steel per ASM A36: 16 ga.
			3. Material: Copper per ASTM B152: 48 oz.
			4. Material: Stainless Steel per ASTM A240: 16 ga.
			5. Finish: Zinc plated.
			6. Finish: Powder coated to match roofing material color.
			7. Color: Determined by the Architect from Manufacturer's color range.
		2. Product: Snow Bracket A-Apex:
			1. Roof Types: Concrete or clay tiles installed using horizontal battens.
			2. Used On: Eagle, Westlake, and similar tiles.
			3. 10 D galvanized nail fastener:
			4. Overall Dimensions (LxWxH): 16-1/4 x 2-1/4 x 3-3/4 inches (413 x 57 x 95 mm).
		3. Product: Snow Bracket A-Classic:
			1. Roof Types: Concrete tiles installed using horizontal battens.
			2. Used On: Eagle, Westlake, and similar tiles.
			3. Overall Dimensions (LxWxH): 18-1/2 x 1-3/16 x 3 inches (470 x 30 x 76 mm).
		4. Product: Snow Bracket A CB-Apex:
			1. Roof Types: For Clay Tile Lengths: 06-1/5 to 17 inches installed using a counter batten system.
			2. Used On: Eagle, Westlake, and similar tiles.
			3. Overall Dimensions (LxWxH): 16-1/4 x 1-3/16 x 3 inches (413 x 30 x 76 mm).
		5. Product: Snow Bracket A CB-Classic:
			1. Roof Types: For Clay Tile Lengths: 06-1/5 to 17 inches installed using a counter batten system.
			2. Used On: Eagle, Monier, Lifetile, Unicrete, Westile, and similar tiles.
			3. Overall Dimensions (LxWxH): 16-1/16 x 1-3/16 x 4-5/8 inches (408 x 30 x 117 mm)
		6. Product: Snow Bracket B-Apex:
			1. Roof Types: Concrete tiles 15 inches (381 mm) long installed using horizontal battens.
			2. Used On: Bartile and similar tiles.
			3. 10 D galvanized nail fastener.
			4. Overall Dimensions (LxWxH): 14-9/16 x 2-1/4 x 3 inches (370 x 57 x 76 mm).
		7. Product: Snow Bracket B-Classic:
			1. Roof Types: Concrete tiles 15 inches long installed using horizontal battens.
			2. Used On: Bartile and similar tiles.
			3. Overall Dimensions (LxWxH): 16-13/16 x 1-3/16 x 4-5/8 inches (427 x 30 x 117 mm).
		8. Product: Snow Bracket B CB-Apex: New construction only.
			1. Roof Types: Concrete tiles 15 inches (381 mm) long installed using a counter batten system.
			2. Used On: Bartile and similar tiles.
			3. Overall Dimensions (LxWxH): 15-3/8 x 1-3/16 x 4-3/4 inches (390 x 30 x 121 mm)
		9. Product: Snow Bracket B CB-Classic: New construction only.
			1. Roof Types: Concrete tiles 15 inches (381 mm) long installed using a counter batten system.
			2. Used On: Bartile and similar tiles.
			3. Overall Dimensions (LxWxH): 15-3/8 x 1-3/16 x 4-3/4 inches (390 x 30 x 121 mm)
		10. Product: Snow Bracket Legendary - Apex:
			1. Roof Types: For use with new construction Bartile Legendary tile.
			2. No fasteners required.
			3. Overall Dimensions (LxWxH): 14-3/16 x 1-3/16 x 3-1/16 inches (360 x 30 x 78 mm).
		11. Product: Snow Bracket Legendary - Classic:
			1. Roof Types: For use with new construction Bartile Legendary tile.
			2. No fasteners required.
			3. Overall Dimensions (LxWxH): 14-3/16 x 1-3/16 x 3-1/16 inches (360 x 30 x 78 mm).
		12. Product: Snow Bracket Ludowici High - Apex:
			1. Roof Types: For use with Ludowici S-Tile, Pan and Cover Tile, Spanish Tile, Italian Pan Tile, and Palm Beach tiles.
			2. Formed to correspond to tile's length.
			3. Installed Using: Four, No. 8 stainless steel screws or roofing nails that must penetrate the sheathing.
			4. Overall Dimensions (WxHxL): 2.25 x 3 x 20.74 inches (57 x 76 x 527 mm).
		13. Product: Snow Bracket Ludowici High - Classic:
			1. Roof Types: For use with Ludowici S-Tile, Pan and Cover Tile, Spanish Tile, Italian Pan Tile, and Palm Beach tiles.
			2. Formed to correspond to tile's length.
			3. Installed Using: Four, No. 8 stainless steel screws or roofing nails that must penetrate the sheathing.
			4. Overall Dimensions (WxHxL): 1-3/16 x 3-9/16 x 19-3/8 inches (30 x 90 x 482 mm).
		14. Product: Snow Bracket Ludowici Interlocking - Apex:
			1. Roof Types: For use with Ludowici Interlocking tile roofs; Americana, Classic, Lanai, Williamsburg, and French.
			2. Formed to match tile's interlocking profile.
			3. End of bracket formed to lock onto upper end of tile for ease of installation.
			4. Overall Dimensions (WxHxL): 2.25 x 3 x 15.33 inches (57 x 76 x 389 mm).
		15. Product: Snow Bracket Ludowici Interlocking - Classic:
			1. Roof Types: For use with Ludowici Interlocking tile roofs; Americana, Classic, Lanai, Williamsburg, and French.
			2. Formed to match tile's interlocking profile.
			3. End of bracket formed to lock onto upper end of tile for ease of installation.
			4. Overall Dimensions (WxHxL): 1-3/16 x 3-11/16 x 15 inches (30 x 94 x 381 mm).
		16. Product: Snow Bracket Ludowici Mid - Apex:
			1. Roof Types: For use with Ludowici Flat tile, S-Tile, Pan and Cover Tile, Flat Slab, Antique, Brittany, Calais, Colonial, Crude, Norman, Provincial, Georgian, Greek, Roman, and Tapered Mission tiles.
			2. Formed to correspond to tile's length.
			3. Installed Using: Four, No. 8 stainless steel screws or roofing nails that must penetrate the sheathing.

\*\* NOTE TO SPECIFIER \*\* Length varies depending on application.

* + - 1. Overall Dimensions (WxHxL): 2.25 x 3 x 15.33 inches (57 x 76 x 389 mm).
		1. Product: Snow Bracket Ludowici Mid - Classic:
			1. Roof Types: For use with Ludowici Flat tile, S-Tile, Pan and Cover Tile, Flat Slab, Antique, Brittany, Calais, Colonial, Crude, Norman, Provincial, Georgian, Greek, Roman, and Tapered Mission tiles.
			2. Formed to correspond to tile's length.
			3. Using: Four, No. 8 stainless steel screws or roofing nails that must penetrate the sheathing.

\*\* NOTE TO SPECIFIER \*\* Length varies depending on application.

* + - 1. Overall Dimensions (WxHxL): 1-3/16 x 3-9/16 x \_\_\_ inches (30 x 90 x \_\_\_ mm).
		1. Product: Snow Bracket Madera - Classic:
			1. Roof Types: For use with Westlake's Madera Tile.
			2. No fasteners required.
			3. Overall Dimensions (LxWxH): 13-1/2 x 1-3/16 x 3 inches (343 x 30 x 76 mm).

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete products not required.

* 1. SNOW GUARDS (SNOW BRACKET - SERIES BRAVA, D, E, F, G, H, J)
		1. General Characteristics: Unless specified otherwise.
			1. Roof Types: New construction on simulated shake, simulated slate, and asphalt shingles.
			2. Installed Using: Four, No. 8 stainless steel screws or Four roofing nails that must penetrate the sheathing.
			3. Bracket fastens to roof sheathing.
			4. Material: Zinc Coated Steel per ASM A36: 16 ga.
			5. Material: Copper per ASTM B152: 48 oz.
			6. Material: Stainless Steel per ASTM A240: 16 ga.
			7. Finish: Zinc plated.
			8. Finish: Powder coated to match roofing material color. Color: Determined by the Architect from Manufacturer's color range.
		2. Product: Snow Bracket Brava - Apex:
			1. Roof Types: For use with new construction of Brava's Spanish Tile.
			2. Installed Using: Four, No. 8 stainless steel screws or Four roofing nails that must penetrate the sheathing.
			3. All roof penetrations that go through the underlayment are required to be flashed or sealed.
			4. Overall Dimensions (LxWxH): 20-5/8 x 2-1/4 x 3-3/4 inches (524 x 57 x 95 mm).
		3. Product: Snow Bracket D - Apex:
			1. Roof Types: New construction on simulated shake, simulated slate, and asphalt shingles.
			2. Installed Using: Four, No. 8 stainless steel screws or four roofing nails that must penetrate the sheathing.
			3. All roof penetrations going through the underlayment are required to be flashed or sealed.
			4. Overall Dimensions (LxWxH): 12 x 2-1/4 x 3 inches (305 x 57 x 76 mm).
		4. Product: Snow Bracket D - Classic:
			1. Roof Types: New construction on simulated shake, simulated slate, and asphalt shingles.
			2. Installed Using: Four, No. 8 stainless steel screws or four roofing nails that must penetrate the sheathing.
			3. Overall Dimensions (LxWxH): 10 x 1-3/16 x 3 inches (254 x 30 x 76 mm)
		5. Product: Snow Bracket E - Classic:
			1. Roof Types: New construction on simulated shake, simulated slate, asphalt shingles, and metal roofs.
			2. Installed Using: Four, No. 8 stainless steel screws or four roofing nails that must penetrate the sheathing.
			3. Overall Dimensions (LxWxH): 8-1/8 x 1-3/16 x 2-7/8 inches (206 x 30 x 73 mm).
		6. Product: Snow Bracket E Short - Classic:
			1. Roof Types: New construction on simulated shake, simulated slate, and asphalt shingles.
			2. Installed Using: Four, No. 8 stainless steel screws or four roofing nails that must penetrate the sheathing.
			3. Overall Dimensions (LxWxH): 12 x 1-3/16 x 2-1/2 inches (305x 30 x 76 mm).
		7. Product: Snow Bracket E Short with Disc- Classic:
			1. Roof Types: New construction on simulated shake, simulated slate and asphalt shingles and metal roofs.
			2. Installed Using: Four, No. 8 stainless steel screws or four roofing nails that must penetrate the sheathing.
			3. Overall Dimensions (LxWxH): 8-1/8 x 3 x 2-7/8 inches (206 x 76 x 73 mm).
		8. Product: Snow Bracket F - Apex:
			1. Roof Types: New construction Cedar Shingles, Wood Shakes, Slate, and Simulated Slate.
			2. Installed Using: Four, No. 8 stainless steel screws or roofing nails that must penetrate the sheathing.
			3. Overall Dimensions (LxWxH): 16 x 1-3/16 x 3 inches (406 x 30 x 76 mm).
			4. Can be manufactured to custom lengths.
		9. Product: Snow Bracket F - Classic:
			1. Roof Types: New construction Cedar Shingles, Wood Shakes, Slate, and Simulated Slate.
			2. Installed Using: Four, No. 8 stainless steel screws or roofing nails that must penetrate the sheathing.
			3. Overall Dimensions (LxWxH): 16 x 1-3/16 x 3 inches (406 x 30 x 76 mm).
			4. Can be manufactured to custom lengths.
		10. Product: Snow Bracket F Extended- Apex:
			1. Roof Types: New construction Cedar Shingles, Wood Shakes, Slate, and Simulated Slate.
			2. Installed Using: Four, No. 8 stainless steel screws or roofing nails that must penetrate the sheathing.
			3. Overall Dimensions (LxWxH): 19.53 x 1.19 x 3 inches (496 x 30 x 76 mm).
			4. Can be manufactured to custom lengths.
		11. Product: Snow Bracket F - Classic:
			1. Roof Types: New construction Cedar Shingles, Asphalt Shingles, Wood Shakes, Slate, and Simulated Slate.
			2. Installed Using: Four, No. 8 stainless steel screws or roofing nails that must penetrate the sheathing.
			3. Overall Dimensions (LxWxH): 19-1/2 x 1-3/16 x 3 inches (495 x 30 x 76 mm).
			4. Can be manufactured to custom lengths.
		12. Product: Snow Bracket G - Apex:
			1. Roof Types: For any new or retrofit simulated slate, metal shingles, wood shake, and cedar shingle roofs with a 9-1/2 or 11-1/2 inches (241 or 292 mm) distance is roofing exposure.
			2. Installed Using: Two No. 8 stainless steel screws.
			3. Fastener cover clip.
			4. Overall Dimensions (LxWxH): 9-1/2 x 1-3/16 x 3 inches (241 x 30 x 76 mm).
			5. Overall Dimensions (LxWxH): 11-1/2 x 1-3/16 x 3 inches (292 x 30 x 76 mm).
		13. Product: Snow Bracket G - Classic:
			1. Roof Types: For any new or retrofit roof simulated slate, metal shingles, wood shake, and cedar shingle roofs with a 8-1/2, 9-1/2, or 11-1/2 inches (216, 241, or 292 mm) distance is roofing exposure.
			2. Installed Using: Two No. 8 stainless steel screws.
			3. Overall Dimensions (LxWxH): 8-1/2 x 1-3/16 x 3 inches (216 x 30 x 76 mm). Slate, Wood Shake, and Cedar Shingle.
			4. Overall Dimensions (LxWxH): 9-1/2 x 1-3/16 x 3 inches (241 x 30 x 76 mm). Wood shake.
			5. Overall Dimensions (LxWxH): 11-1/2 x 1-3/16 x 3 inches (292 x 30 x 76 mm). Flat seam metal.
		14. Product: Snow Bracket H - Apex:
			1. Roof Types: For any new or retrofit roofs.
			2. Installed Using: Two No. 14 stainless steel screws that must penetrate the sheathing.
			3. Overall Dimensions (LxWxH): 5.58 x 2-1/4 x 3 inches (142 x 57 x 76 mm).
		15. Product: Snow Bracket H - Classic:
			1. Roof Types: For any new or retrofit roofs.
			2. Installed Using: Two No. 14 stainless steel screws that must penetrate the sheathing.
			3. Fastener cover clip. Optional.
			4. Overall Dimensions (LxWxH): 5-1/2 x 1-3/16 x 3 inches (140 x 30 x 76 mm).
		16. Product: Snow Bracket J - Apex:
			1. Roof Types: For metal/granule tiles which are installed using horizontal battens.
			2. Installed Using: One, No. 14 stainless steel screw.
			3. Overall Dimensions (LxWxH): 13-1/2 x 1-3/16 x 3 inches (343 x 30 x 76 mm).
		17. Product: Snow Bracket J - Classic:
			1. Roof Types: For metal/granule tiles which are installed using horizontal battens.
			2. Installed Using: One, No. 14 stainless steel screw.
			3. Overall Dimensions (LxWxH): 13-1/2 x 1-3/16 x 3 inches (343 x 30 x 76 mm).
		18. Product: Snow Bracket Slate Hook - Apex:
			1. Roof Types: For use with slate roofs. Retrofit applications.
			2. No fasteners required.
			3. Overall Dimensions (LxWxH): 18-11/16 x 1-3/16 x 3 inches (475 x 30 x 76 mm).
		19. Product: Snow Bracket Slate Hook - Classic:
			1. Roof Types: For use with slate roofs. Retrofit applications.
			2. No fasteners required.
			3. Overall Dimensions (LxWxH): 18-11/16 x 1-3/16 x 3 inches (475 x 30 x 76 mm).

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete products not required.

* 1. SNOW GUARDS (SNOW BRACKET - C, I CREST AND VALLEY)
		1. General Characteristics: Unless specified otherwise.
			1. Roof Types: Designed for use on corrugated metal roofs.
			2. Bracket tail bent to match panel corrugation.
			3. Installed using Two No. 14 fasteners.
			4. Material: Zinc Coated Steel per ASM A36: 16 ga.
			5. Material: Copper per ASTM B152: 48 oz.
			6. Material: Steel per ASTM A606: 16 ga.
			7. Material: Stainless Steel per ASTM A240: 16 ga.
			8. Finish: Zinc plated.
			9. Finish: Powder coated to match roofing material color. Color: Determined by the Architect from Manufacturer's color range.
		2. Product: Snow Bracket C-Bear:
			1. Roof Types: For any new or retrofit corrugated roofs.
			2. Installed using: Two, No. 14 screw that must penetrate the sheathing.
			3. All roof penetrations going through the underlayment are required to be flashed or sealed.
			4. Overall Dimensions (LxWxH): 5-11/16 x 2-1/2 x 3-15/16 inches (144 x 64 x 100 mm).
		3. Product: Snow Bracket C-Moose:
			1. Roof Types: For any new or retrofit corrugated roofs.
			2. Installed using: Two, No. 14 screw that must penetrate the sheathing.
			3. All roof penetrations going through the underlayment are required to be flashed or sealed.
			4. Overall Dimensions (LxWxH): 5-11/16 x 2-11/16 x 4-9/16 inches (144 x 68 x 116 mm).
		4. Product: Snow Bracket C-Mushroom:
			1. Roof Types: For any new or retrofit corrugated roofs.
			2. Installed using: Two, No. 14 screw that must penetrate the sheathing.
			3. All roof penetrations going through the underlayment are required to be flashed or sealed.
			4. Overall Dimensions (LxWxH): 4-7/16 x 1-1/4 x 3 inches (113 x 32 x 76 mm).
		5. Product: Snow Bracket C-Tree:
			1. Roof Types: For any new or retrofit corrugated roofs.
			2. Installed using: Two, No. 14 screw that must penetrate the sheathing.
			3. All roof penetrations going through the underlayment are required to be flashed or sealed.
			4. Overall Dimensions (LxWxH): 4-7/16 x 2-11/16 x 4-9/16 inches (113 x 68 x 116 mm).
		6. Product: Snow Bracket I Crest - Apex:
			1. Overall Dimensions (LxWxH): 11-9/16 x 2-1/4 x 2-61/64 inches (294 x 57 x 75 mm).
		7. Product: Snow Bracket I Crest - Classic:
			1. Overall Dimensions (LxWxH): 9.98 x 1.19 x 3.08 inches (253 x 30 x 78 mm).
		8. Product: Snow Bracket I Valley - Apex:
			1. Overall Dimensions (LxWxH): 11-9/16 x 2-3/16 x 2-55/64 inches (294 x 56 x 73 mm).
		9. Product: Snow Bracket I Valley - Classic:
			1. Overall Dimensions (LxWxH): 10 x 1-3/16 x 3 inches (254 x 310 x 76 mm).

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete products not required.

* 1. SNOW GUARDS (SNOW BRACKET - ATTACHMENTS)
		1. General Characteristics:
			1. Designed for TRA snow brackets as a decorative attachment.
			2. Material: Zinc Coated Steel per ASM A36: 16 ga.
			3. Material: Copper per ASTM B152: 48 oz.
			4. Material: Steel per ASTM A588: 16 ga.
			5. Finish: Zinc plated.
			6. Finish: Powder coated to match roofing material color.
			7. Color: Determined by the Architect from Manufacturer's color range.
			8. Product: Snow Bracket Maple Leaf Attachment.
			9. Product: Snow Bracket Sunburst Attachment.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete products not required.

* 1. SNOW GUARDS (SNOW BRACKET - L, S, and Universal)
		1. Snow Bracket - L:
			1. Roof Types: For asphalt shingles, cedar shingles, wood shakes, slate, simulated slate, and flat seam metal.
			2. Installed Using: Three No. 14 stainless steel screws that must penetrate the sheathing.
			3. Overall Dimensions (LxWxH): 3 x 2.75 x 3 inches (76 x 70 x 76 mm).
			4. Material: Aluminum H32 - ASTM B209: 3/16 inch (5 mm).
			5. Finish: Mill finish aluminum.
			6. Finish: Powder coated to match roofing material color.
			7. Color: Determined by the Architect from Manufacturer's color range.
		2. Product: Snow Bracket - S:
			1. Roof Types: For asphalt shingles, cedar shingles, wood shakes, slate, and simulated slate.
			2. Installed Using: Four, No. 14 stainless steel screws or 10 D galvanized nails that must penetrate the sheathing.
			3. Overall Dimensions (LxWxH): 16.16 x 3 x 4 inches (410 x 76x 102 mm).
			4. Can be manufactured in custom lengths.
			5. Material: Zinc Coated Steel per ASTM A653: 10 ga.
			6. Finish: Zinc plated.
			7. Finish: Powder coated to match roofing material color.
			8. Color: Determined by the Architect from Manufacturer's color range.
		3. Product: Snow Bracket - Universal Guard.
			1. Roof Types: For asphalt shingles, cedar shingles, wood shakes, slate, simulated slate, and flat seam metal.
			2. Installed Using: Three No. 14 stainless steel screws that must penetrate the sheathing.
			3. The face accepts a color insert providing a perfect color match.
			4. Overall Dimensions (LxWxH): 2-1/2 x 2-11/16 x 2-1/2 inches (64 x 68 x 64 mm).
			5. Material: Aluminum: 6005A-T6.
			6. Finish: Mill finish aluminum.
			7. Finish: Powder coated to match roofing material color.
			8. Color: Determined by the Architect from Manufacturer's color range.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly constructed and prepared.
		2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. INSTALLATION
		1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
	4. FIELD QUALITY CONTROL
		1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
	1. CLEANING AND PROTECTION
		1. Clean products in accordance with the manufacturers recommendations.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION