

The **ENGLERT ADVANTAGE** in Metal Roofing:

# GALVALUME

Aluminum-Zinc Alloy Coated Steel

The **BENEFITS** Of  
working with



## Environmentally friendly metal roofing solutions.

Englert systems permit complex roof configurations from ridge to eave, to ensure a crisp roof line and greater weather-tightness. Our metal roofing systems have earned the Energy Star® label, and reflect radiant heat back to the sun, reducing cooling requirements and lowering energy consumption.



## Sales and technical support whenever you need it.

You can count on responsible, experienced support at every stage of your project. We provide knowledgeable assistance with everything from product selection to installation support. Skilled technical advice and a list of nationwide certified installers are just a call away.

## Comprehensive warranty on metal and paint finish.

Virtually maintenance-free, Englert Galvalume roofing carries a 25 year limited warranty on the Galvalume substrate and 25-35 year limited warranty against chip, crack, check, peel, chalk, and fade on pre-painted Galvalume.

**1-800-ENGLERT**  
**[www.englertinc.com](http://www.englertinc.com)**

**Why is Galvalume Better?** Galvalume has enjoyed the fastest growth rate of any steel product on the world market. It has become the preferred material for roofing applications, which formerly would have utilized aluminum-coated or galvanized steel.

- **CUT EDGE PERFORMANCE** The composition of the Galvalume alloy coating creates highly corrosion-resistant sheet steel that delivers the optimum combination of features of aluminum and zinc: the barrier protection and long-term durability of aluminum and the sacrificial or galvanic protection of sheared edges that is characteristic of zinc.
- **EXCELLENT LONG-TERM DURABILITY** Galvalume has been subjected to long-term testing for resistance to normal atmospheric corrosion. Typical durability for Galvalume sheet is two to four times that of galvanized G90 sheet.
- **EXCELLENT ENERGY EFFICIENCY** Galvalume sheet's metallic surface provides excellent reflectivity. Also, a Galvalume standing seam roof enables the use of a generous amount of insulation. Together, these two factors result in a long-life, cost-effective, energy efficient roofing system.
- **EXCELLENT FORMABILITY** Galvalume can be formed about as readily as continuously annealed galvanized sheet steel. Lock forming and roll forming are readily accomplished.



## Technical Data

Galvalume sheet is produced according to ASTM Specification A792/A792M-97a "Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process." AZ50 or 0.50 oz/sq. ft. (150 g/sq. m.) coated Galvalume sheet is generally used for pre-painted architectural Galvalume Standing Seam Roofing (SSR) and AZ55 or 0.55 oz/sq. ft. (165 g/sq. m.) for unpainted structural Galvalume SSR.

Structural Galvalume steel used for SSR panels has the following range of mechanical properties:

- **YIELD STRENGTH:** 50+ ksi (414+ MPa)
- **TENSILE STRENGTH:** 55-70 ksi (379-483 MPa)
- **TOTAL ELONGATION:** 18-36%
- **HARDNESS:** 50-65 HRB

**Galvalume is an environmentally conscious product choice.** The Galvalume production process uses approximately 25 to 35 percent old steel (scrap) to make new steel. An estimate by the Steel Recycling Institute identifies the recycled scrap to average approximately 80% post-consumer and 20% post-industrial material.

## Finishes that meet any design objective.

Englert is one of the few single source metal roof manufacturers with an in-house coil coating line and an exceptionally broad range of finishes, whether the design calls for a natural weathered appearance or bright, high performance, full strength fluorocarbon colors.



## Englert—The Metal Experts.

Englert is one of the nation's leading forces in metal roofing, rainware, coil coating and portable roll-forming equipment. Since 1966, we've been a pioneer in construction products, from the development of LeafGuard®, the revolutionary debris-shedding gutter system, to fully integrated metal roofing with an in-house, continuous coil coating line.



1200 Amboy Ave.  
Perth Amboy, NJ 08861  
Phone: 732-826-8614  
Fax: 732-826-8865  
[www.englertinc.com](http://www.englertinc.com)  
[info@englertinc.com](mailto:info@englertinc.com)



## Data Sheet

### PRODUCT NAME

Galvalume® Sheet  
Galvalume® Plus Sheet

### MANUFACTURER

Bethlehem Steel Corporation  
Sparrows Point Division  
Sparrows Point, MD 21219  
Phone: (800) 521-4789  
Website: [www.bethsteel.com](http://www.bethsteel.com)

### PRODUCT DESCRIPTION

**Coating:** "Galvalume" is the registered trade name for a patented sheet steel product having a coating of corrosion-resistant aluminum-zinc alloy applied by a continuous hot dipping process. The alloy coating of aluminum and zinc provides an optimum balance between (a) the long-term general corrosion resistance, high temperature oxidation resistance and heat reflectivity of aluminum, and (b) the galvanic protection of zinc at scratches and cut edges.

"Galvalume Plus" is the registered trade name for a bare Galvalume sheet product with a thin, clear acrylic coating. This product offers several advantages, including:

- Can be rollformed dry, with no vanishing oil applied in our coating line or at the rollforming line. In fact, Galvalume Plus should only be roll formed dry.
- Panels will be delivered to the jobsite dry, with no vanishing oil on the surface.
- Resists fingerprinting and smudging during handling and installation at the jobsite.
- Provides excellent resistance to storage stain and transit corrosion.
- Provides a bright appearance which will weather uniformly.

**Basic Use:** Galvalume sheet -- bare, acrylic-coated and pre-painted -- is intended for applications where superior corrosion resistance is required, as in roofing, siding, pre-engineered buildings, appliances, air conditioner housings and other uses. Bare Galvalume sheet is also used for applications where resistance to oxidation at elevated temperatures is important, such as fireplaces, toasters and automotive exhaust systems.

**Limitations:** Based on experience to date, Bethlehem advises against contact of Galvalume sheet with lead, copper, graphite, unprotected steel, uncured concrete, or wet, green or pressure-treated wood; exposure of Galvalume sheet to water run-down from copper and the use of Galvalume sheet in harsh chemical or intensive animal confinement environs.

### TECHNICAL DATA

**Coating:** The composition of the Galvalume sheet coating is typically 55% aluminum, 1.6% silicon and the balance zinc, nominal percentages by weight. The product is described in ASTM Specification A 792 and is available in three coating weights:

#### ASTM Designation AZ50 AZ55 AZ60

Triple Spot Average Minimum	oz/sq ft	0.50	0.55	0.60
Single Spot Minimum	oz/sq ft	0.43	0.50	0.52

A nominal coating weight of 0.50 oz/sq ft (total both sides) is equivalent to 0.8 mil thickness per side.

The coating is available as regular spangle or extra smooth surface, with or without chemical treatment. An oil coating may also be specified on bare Galvalume sheet.

Galvalume Plus begins with Bethlehem's standard high-quality bare Galvalume sheet and goes a step further. As a final step in the hot-dip coating process, a very thin acrylic coating is applied to both sides of the sheet using a sophisticated roll coater. This acrylic coating provides excellent resistance to storage stain and transit corrosion. Galvalume Plus eliminates the need for conventional chemical treatment and vanishing oil.

**Atmospheric Corrosion Resistance:** Based on 30-year atmospheric test results, it is estimated that Galvalume sheet will outlast G90 galvanized by two to four times in marine, industrial and rural atmospheres. When compared to aluminum coated sheet steel, Galvalume sheet has superior corrosion resistance at sheared edges.

**Salt Spray Corrosion Resistance:** With cut edges protected, the coating on Galvalume sheet steel lasts five to ten times longer than the coating on G90 galvanized. In salt spray tests conducted with bare cut edges exposed, the corrosion resistance is typically three to four times that of G90 galvanized.

**High Temperature Behavior:** Bare Galvalume sheet can be used at temperatures up to 600°F without discoloration and up to 1250°F without heavy oxidation and scaling. Prolonged exposure to temperatures above 600°F can result in changes to the base metal characteristics of conventional Galvalume sheet. Galvalume H.T. Sheet (UL listed) will resist base metal change. Galvalume sheet applications subjected to these temperatures should be reviewed with a Bethlehem Sales representative.

**Formability:** Galvalume sheet can be formed about as readily as continuously annealed galvanized sheet. Lock forming and roll forming are readily accomplished.

**Weldability:** Galvalume sheet is readily weldable with conventional resistance and arc welding processes. Conditions for resistance welding are similar to those used on galvanized steel. Spot welding electrodes should be redressed as required to maintain nugget size. RWMA Class 2 or dispersion-strengthened copper alloy electrodes are suggested. Galvalume sheet can be arc welded with the shielded metal-arc and gas metal-arc processes. The lower zinc content of the coating of Galvalume sheet results in considerably less fuming during arc welding, providing reduced fume hazards to welders. For further information on welding, contact a Bethlehem Sales representative.

**Appearance:** Uniform visual appearance of unpainted Galvalume sheet cannot be guaranteed. Even with Galvalume Plus, the normally occurring variations in surface appearance typical of all hot-dip products will still be present and will not be masked by the thin, clear acrylic film. If uniform visual appearance is critical, then prepainted Galvalume sheet should be ordered.

**Paintability:** Prepainted Galvalume sheet is an ideal product for many applications where the aesthetic appearance of a painted product is desired along with excellent atmospheric corrosion resistance. Such applications include pre-engineered metal buildings, architectural panels, roofing and siding, and other building components. For more information, consult Bethlehem's Data Sheet on Prepainted Galvalume Sheet.

Galvalume sheet may be field-painted with most paints suitable

for galvanized: zinc-dust primers, butyral wash primers and acrylic latex paints.

Galvalume Plus may be field painted using water-based acrylic primers and/or topcoats. Note that field painting of either Galvalume or Galvalume Plus may have warranty implications.

#### **Typical Mechanical Properties:**

(Commercial Steel)	
Yield Strength	38 - 53 ksi
Tensile Strength	50 - 65 ksi
Total Elongation	20-36%
Hardness	50-65 HRB

(Structural steels, including 50 ksi and 80 ksi minimum yield strengths, are also available.)

#### **INSTALLATION**

To preserve the surface appearance of Galvalume sheet, only clean, dry gloves should be used during handling. Care should also be exercised to prevent the sheets from sliding over rough surfaces or each other. Fasteners and other component parts should have equivalent corrosion resistance. Galvalume sheet steel joints can be effectively closed using appropriate sealants such as neutral-curing silicone rubber. If other types of sealants are considered, they should possess the long-term durability, adhesion and non-corrosive properties of neutral-cure silicone rubber. Soldering is not recommended.

#### **AVAILABILITY AND COST**

**Availability:** Galvalume sheet is available from our plants at Sparrows Point, MD and Jackson, MS. It can be obtained in thicknesses from 0.014" to 0.055" and in widths up to 48". Inquire for heavier thicknesses.

Galvalume Plus is available from our plant at Sparrows Point, MD. It can be obtained in thicknesses

from 0.015" to 0.030" and in widths up to 48".

**Cost:** Galvalume sheet is priced competitively with G90 galvanized on a per square foot (or per part) basis. Specific price quotations for Bethlehem Galvalume sheet will be furnished upon request.

#### **WARRANTY**

Galvalume sheet conforms to the requirements of ASTM Specification A 792. Galvalume sheet is a component recognized by the American Gas Association and by Underwriters Laboratories, Inc. under File No. MH9372.

Galvalume sheet is conditionally warranted against rupture, structural failure or perforation due to corrosion for a period of up to 25 years and six months when used for building panel applications

#### **MAINTENANCE**

Properly installed Galvalume sheet requires no special maintenance. Galvalume sheet, like galvanized, is subject to wet storage staining and turns gray to black if moisture is trapped between coil laps, cut length sheets, or roll formed parts during shipping and storage. The mill treats Galvalume sheet to retard wet storage staining (unless otherwise requested); however, the user should take precautions to keep Galvalume sheet dry in transit, in storage and at work sites.

#### **TECHNICAL SERVICES**

For more information, call Bethlehem Steel at (800) 521-4789 or write: Bethlehem Steel Corp., Coated Sheet Marketing, 5111 North Point Boulevard, Sparrows Point, MD 21219; or visit our website at [www.bethsteel.com](http://www.bethsteel.com).

# SPECIFICATIONS SYSTEM SPECIFIER

[www.englert.com](http://www.englert.com)

## DISTRIBUTOR

**ENGLERT, INC.**  
1200 Amboy Avenue  
Perth Amboy, New Jersey 08861  
Tel: (732) 826-8614  
Fax: (732) 826-8865

**Galvalume Plus®** - Aluminum zinc alloy coated steel conforming to ASTM-A-792, Class AZ55 coating, Grade 50b, with 55% aluminum and 45% zinc in the coating.

## I. PRODUCT DESCRIPTION

Galvalume Plus is a coated sheet product that combines the excellent corrosion resistance of a Galvalume coating with a clear organic surface treatment that is applied over the Galvalume coating. The surface treatment is essentially invisible, but it provides excellent characteristics to enhance the performance and applicability of unpainted Galvalume coated sheet.

These enhancements include:

- Good rollformability without the need for oils
- Excellent transit and field-storage performance without darkening or staining.
- The practical elimination of fingerprinting and foot-marking during installation.
- Long term surface brightness when exposed to the environment to help retain heat reflectivity.

## II. TECHNICAL DATA

The Galvalume Plus steel coating is a specially formulated water based resin film, which is factory applied over a chromate passivated Galvalume steel surface. In the cured state the coating is colorless, odorless and imparts a satin finish to the surface of the product.

The resin film in combination with the passivation layer, has excellent adhesion to the substrate with very good impact resistance and flexibility.

When it is used without post painting, the natural weathering process will gradually erode the clear coating from the surface over a period of 12 - 18 months, without powdering, peeling or cracking. No significant changes in surface appearance will be evident.

The clear resin film is applied wet, using state-of-the-art roll coaters installed between the chromate application station and the delivery section. The roll coaters are similar in design and operation to those used on a coil coating line. The film is cured using computer controlled ovens. This ensures that optimum coating properties are achieved prior to rewinding and shipping.



This specification guide is designed to assist in the proper specification of Galvalume Plus®. This guide is formatted to match the CSI Spec Data System, however is not part of that program.

**GALVALUME PLUS®**

TRIPOD/SPEC/GALV-PLUS  
90311M

## Corrosion Performance

The results of accelerated corrosion tests show the superiority of Galvalume Plus when compared with today's conventional chemically-treated Galvalume.

<b><u>WET-STACK TEST</u></b>			
<ul style="list-style-type: none"> <li>Designed to simulate storage of sheets in either a coil form or as a stacked bundle at the jobsite.</li> <li>Test samples stacked tightly in a bundle. Wetted between the individual panels every two (2) days with deionized water.</li> <li>Tested at 100°F for 750 hours.</li> </ul>			
Hours In Test	Galvalume Plus	CT 1	CT 2
250	Light Haze	Light Surface Spots	Dark Black Spots And Edges
500	Light Haze	Light Surface Patches	Heavy Black Patches
750	Light Haze	Uniform Surface Darkening	Heavy, Dark Black Patches
<b><u>WATER IMMERSION TEST</u></b>			
<ul style="list-style-type: none"> <li>Designed to simulate ponding of water on a low slope.</li> <li>Samples immersed in deionized water</li> <li>Water temperature - 100°F</li> <li>Test duration - 2,000 hours.</li> </ul>			
Hours In Test	Galvalume Plus	CT 1	CT 2
500	Slight Dulling	Initial Dark Spots	Dark Patches
1,000	White Patches With Dark Edges	Dark And Light Stains	Completely Blackened
2,000	Light Haze	Uniform Surface Darkening	Heavy, Dark Black Patches
<b><u>SALT SPRAY TEST</u></b>			
<ul style="list-style-type: none"> <li>Tested per ASTM B117.</li> <li>5% salt solution.</li> <li>30-day test duration</li> </ul>			
Hours In Test	Galvalume Plus	CT 1	CT 2
250	No Activity	White Haze With Small Black Spots	White Haze With Small Black Spots
500	Tiny Spots, Evidence Of Initial Activity	White Haze With Black Streaks	Uniform Haze With Black Streaks
720	Small Spots With Local Light Streaks	Light Haze With Dark Spots	Dark Haze With Dark Spots

## Cut Edge Protection

The Galvalume Plus coating provides the same galvanic protection to bare steel edges in a manner similar to Galvalume coatings. Galvalume Plus steel will resist cut edge corrosion as effectively as Galvalume.

## Field Painting

Both Galvalume steel and Galvalume Plus steel are readily over painted provided paint manufacturers recommendations are followed and appropriate consideration is given to environmental conditions, end use, location and product application. Traditionally Galvalume steel, like Galvanized, required that the surface to be painted also be washed with a suitable solvent to remove traces of residual rollforming lubricant, and that a suitable metal primer be applied before the application of a decorative topcoat.

Galvalume Plus steel removes the requirement to use solvent to clean up surfaces. A simple detergent wash is satisfactory, and eliminates the need to prime the surface.

Galvalume Plus steel can be readily overpainted with a high quality water based acrylic topcoat without priming, provided a lubricant has not been used in the forming process and the surface is clean and dry.

Solvent based finish coat systems may be used, however, these must be applied after the material has been primed with a water based, solvent resistant primer. If the material is correctly primed a number of coats may be applied. Surface preparation and priming must be in accordance with the paint manufacturer's instructions.

### **Powder Coating**

Galvalume Plus steel is suitable for direct powder coating, provided the surface to be coated is clean and powders requiring a peak metal temperature in excess of 390°F are not used. It is recommended that a brief water wash serve as the only pretreatment step, rather than another form of solvent based cleaning solution.

### **Rollforming Characteristics**

Lubricants are rarely required during the rollforming of Galvalume Plus steel because the clear resin film acts as a solid lubricant. The need for additional lubricant must be determined, however, on a case to case basis. Variables that should be considered include rollformer design, (number of stands and severity of each incremental shape change) speed, surface condition of rolls and general machine maintenance.

It has been our experience that most common roof and sidewall shapes do not require additional lubrication if the rollformer is well maintained and correctly set up.

### **The Benefits Of Using Galvalume Plus Steel Include:**

- a. **No Pickup** - the reduction or absence of pickup during forming due to the resin film means the reduction or elimination of time consuming cleanup.
- b. **Increased Tool Life** - Reduced pickup combined with the lubricating benefits of the resin film will contribute to improved tool life in manufacturing and rollforming applications.
- c. **Scheduling Flexibility** - Galvalume Plus steel can typically be rollformed interchangeably with prepainted steel avoiding the need for intermediate roll cleaning. This provides greater scheduling flexibility.
- d. **Removal of Hazardous Work Place Chemicals** - Hazardous substances such as kerosene and other lubricants can be removed from the work environment improving occupational health and safety practices.
- e. **Less Slippery** - The resin film is less slippery than a lubricated steel surface particularly with the absence of residual lubricant left over from rollforming. This will make the product safer to walk on while installing, particularly in wet conditions.
- f. **Improved Final Appearance** - Residual lubricants can often create a patchy visual appearance as the result of uneven drying off of the lubricant. This problem can usually be avoided with Galvalume Plus steel.

### **Resistance to Marking**

Galvalume Plus steel resists marking and stains that can easily occur during manufacturing, handling or fixing. The coating acts as a surface sealant, protecting the metal surface from hand and boot marking.

### **High Temperatures**

The maximum recommended continuous service temperature is 390°F. Service temperatures exceeding 390°F will be detrimental to the coating. Applications requiring operating temperatures up to the 600°F safe limit for Galvalume steel should be specified without the resin film.

### **General Corrosion Characteristics**

The Galvalume Plus coating does not improve the general corrosion characteristics of Galvalume steel. The coating is temporary when exposed to the ultra violet light. The resin film will not negatively impact on the superior corrosion performance of Galvalume steel.

## **III. INSTALLATION / WORKMANSHIP**

### **Bending**

Laboratory tests confirm excellent adherence of the aluminum zinc and acrylic coating to the steel substrate during bending. Folding, bending, and brake pressing are all done commercially as with conventional Galvanized products.

### **Rollforming**

Galvalume Plus steel is readily rollformed. The Galvalume Plus resin coating has excellent lubricating qualities; meaning, rollformers rarely require additional lubricants. Roll pick up and the need for roll cleaning prior to running pre-painted sheet is virtually eliminated. The resin also puts an end to the need for rollformers to use and store potentially hazardous chemicals used for lubrication in rollforming. The resin coating on Galvalume Plus steel means less wear and tear on rolls and dies. It also reduces the chance of the roll surface being marked during the process.

### **Lock Seaming**

Galvalume Plus is easily Pittsburgh lock seamed.

### **Joining**

In exterior applications, fasteners should have a corrosion resistance at least equivalent to the life of the sheet. Also, be sure to use fasteners that are compatible with Galvalume Plus steel. Follow these additional fastener guidelines:

- Blind rivets should be waterproof or sealed and made of aluminum.
- Electro-galvanized zinc coated steel rivets lack sufficient metallic coating for long term exposure.
- Copper, brass, and monel metal rivets are not recommended.
- Sealing washers must be graphite free.

### **Sealants**

The best sealed joints for roofing and rainwater products are made by using neutral-cure silicone rubber sealants in conjunction with mechanical fasteners such as blind rivets. It is important to note that the sealant must be a neutral curing type (amine and acetic acid free).

### **Welding**

Using machine adjustments similar to those used for Galvanize, Galvalume Plus steel is readily resistance spot welded. To maximize the welding equipment tip life, a correct method for cooling water, tip configuration settings, and reconditioning should be observed.

### **Slitting Galvalume Plus Steel**

Where friction drag pads are used to maintain processing tension during slitting/recoiling, pickup of the passivant can occur. Some chromate is present in this pickup, as it is with most Galvalume steel, therefore, the following guidelines are recommended:

- Minimal frictional forces should be applied to the pads.
- If drag pads are used then the minimum pad width should be 6" to minimize frictional forces.
- If dust is produced by the drag pad then an appropriate and approved respiratory device is recommended for personnel working in close proximity (4-6 feet).
- Remove pickup from drag device and adjacent areas using appropriately designed apparatus.
- Drag pads should be disposed of in accordance with environmental or city regulations.

### **Product Mixing**

Galvalume steel and the Galvalume Plus steel should not be mixed in adjacent areas on the same building. The different surface finishes, both in the new and weathered conditions, will result in a contrasting appearance which may be objectionable.

### **Electrical Conductivity**

The resin film applied to Galvalume Plus steel can potentially cause an insulating effect between panels in grounded roofing applications. The insulating effect would normally be overcome with welding or mechanical fastening of components. However, manufacturers should be advised to ensure that products are adequately earthed.

## **IV. FLASHING AND MATERIALS**

Galvalume Plus steel's compatibility with other material is similar to that of conventionally Galvanized sheet. The exceptions are lead and copper, which may corrode the Galvalume coating. Lead washers, lead headed nails, and lead flashing should be avoided. Lead coated with a good quality paint is acceptable, provided the integrity of the barrier is maintained.

For flashings, the preferred alternatives are Galvalume steel or aluminum.

As with zinc coated steel, direct contact with, or water run off from copper, should be avoided. Run off from chemically treated lumber or contact with moist or undried lumber may also cause localized corrosion.

### **Installing Galvalume Plus Steel Roofing and Siding**

Installation techniques are similar to those used for Galvanized roofing and siding. However, due to increased life expectancy of Galvalume Plus steel, pay particular attention to the selection of fasteners and washers.

Sealing washers used with the screws should not be black, since the carbon pigment can promote an electrolytic reaction which leads to corrosion. As with Galvanized panels, it is recommended that supports such as purlins be made of Galvalume, Galvanized, or painted steel, particularly where underside corrosion is likely.

The Galvalume Plus coating provides excellent mark resistant qualities. For the rollformer, roof installer, and contractor, marks caused by handling and traffic during installation can also be eliminated. This results in a more attractive product for the building owner.

### **V. FIELD MAINTENANCE OF GALVALUME PLUS STEEL ROOFING AND SIDING**

Minimum maintenance of all steel roofing and siding is required. The roof should be inspected at least once a year. Accumulated debris such as leaves, branches, trash, dirt, pollution fallout, etc., should be removed. This removal and the regular cleaning of both roofing and siding surfaces by hosing will help prevent the setting up of localized areas where accelerated corrosion might occur. In particular, accumulations of windborne salty deposits in seaside locations can have a particularly aggressive effect on steel products. Although fairly soluble, these salty deposits are readily removed by gently hosing with clean water.

#### **Proper Storage Of Galvalume Plus**

Although the Galvalume Plus steel coating minimizes staining problems associated with wet storage, it is a good idea to keep Galvalume Plus steel dry in transit. It is best stored clear of the ground, under cover, to prevent water or condensation from accumulating between surfaces, and raised at one end to ensure drainage. If packs do become wet, sheets should be separated, wiped with a dry, clean cloth, and placed where they can be air dried.

#### **Storage Guidelines**

1. Store off the ground.
2. Store indoors (or securely covered).
3. Store on a slope to drain moisture.
4. Inspect regularly.

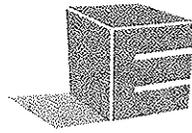
### **VI. UNSUITABLE APPLICATIONS FOR GALVALUME PLUS**

The performance of Galvalume Plus steel is superior to zinc coated steel in the majority of environments. However, there are a few specific conditions in which Galvalume Plus steel is less suitable than conventionally Galvanized sheets. These conditions are the result of particular micro-environments, such as: intensive animal shelters, wet concrete, and walling buried in soil or concrete.



New Product Launch

Specification Sheets



# ENGLERT®

## Premium Roofing Underlayment

Premium Nailable Roofing Underlayment made with NovaSeal coating Technology

### FABRIC SPECIFICATIONS

WEAVE	Woven white PP scrim (UV stabilized)
COATING	1.5 mil/1.2 mil average (35/28 g/m <sup>2</sup> /side)
COLOUR	beige/white or other colours available
WEIGHT	4.30 oz/yd <sup>2</sup> (146g/m <sup>2</sup> ) +/- 5 % ( 32 lb per roll)



### PERFORMANCE

GRAB TENSILE	Warp 170 lb 756 N	Weft 130 lb 578 N	ASTM D5034-95
STRIP TENSILE (N/5cm)	Warp 120 lb/in (1052)	Weft 85 lb/in (745)	ASTM D5035-95
TENSILE ELONGATION	Warp 20%	Weft 20%	ASTM D5035-95
TENSILE STRENGTH (N/5cm)	Warp 108 lb/in (950)	Weft 74 lb/in (650)	ASTM D828-97
TONGUE TEAR	Warp 55 lb 244 N	Weft 50 lb 222 N	ASTM D2261-96
TRAPEZOIDAL TEAR	Warp 55 lb 244 N	Weft 45 lb 200 N	ASTM D4533-04
MULLEN BURST	250 psi 1725 kPa		ASTM D3786-01
MOISTURE VAPOUR TRANSMISSION	0.06 perms (0.41 g/day-m <sup>2</sup> )		ASTM E96-00
NAIL SEAL ABILITY	Pass		ASTM D1970-01
PLIABILITY	No cracking (Pass)		ASTM D146-04
WATER PONDING	No dripping (Pass)		CAN/CSA A220.1
LOW TEMPERATURE FLEXIBILITY 15°C (5°F)	No cracking		ASTM D1970-01
PUNCTURE	5.5 Joules		T803
UV WEATHERING	UV stabilizer added to coating for improved UV resistance		
CLASS A FIRE RESISTANCE RATING	ASTM E108 (2004), UL 790 (1997), UBC 15-2 (1997)		
FLORIDA BUILDING CODE FL6902			
MIAMI-DADE COUNTY PRODUCT CONTROL APPROVED NOA 07-0307.09 exp. May 24, 2012	 ICC-ES, AC 133 "Acceptance Criteria for Roof Underlayments", ESR - 2185		
Meets the requirements of CAN/CSA A220.1			

### ROLL SPECIFICATIONS

CORES	2 inch cardboard.
WIDTH	48"
LENGTH	250 ft/roll (27.4 m)

These values are typical data and are not intended as limiting specifications.

NE2006(NovaSeal II)  
Rev13 12/23/2008

Englert, Inc.

1200 Amboy Ave., Perth Amboy, NJ 08861 · Tel: 732-826-8614 · Fax: 732-826-8865



BUILDING CODE COMPLIANCE OFFICE (BCCO)  
PRODUCT CONTROL DIVISION

MIAMI-DADE COUNTY, FLORIDA  
METRO-DADE FLAGLER BUILDING  
140 WEST FLAGLER STREET, SUITE 1603  
MIAMI, FLORIDA 33130-1563  
(305) 375-2901 FAX (305) 375-2908

**NOTICE OF ACCEPTANCE (NOA)**

**Intertape Polymer Corp.**  
50 Abbey Avenue  
Truro, Nova Scotia, Canada B2N 5G6

**SCOPE:**

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed by the BCCO and accepted by the Building Code and Product Review Committee to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Division (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. BORA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Division that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code and the High Velocity Hurricane Zone of the Florida Building Code.

**DESCRIPTION: Nova Seal Generation II Roofing Underlayment**

**LABELING:** Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

**RENEWAL** of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

**TERMINATION** of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

**ADVERTISEMENT:** The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

**INSPECTION:** A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA consists of pages 1 through 3.

The submitted documentation was reviewed by Jorge L. Acebo.

NOA No.: 07-0307.09  
Expiration Date: 05/24/12  
Approval Date:  
Page 1 of 3

## ROOFING ASSEMBLY APPROVAL

**Category:** Roofing  
**Sub-Category:** Underlayment  
**Material:** Polypropylene

### SCOPE:

This acceptance is for **Nova Seal Generation II Roofing Underlayment** as manufactured by Intertape Polymer Corporation, as described in this Notice of Acceptance, for use with approved prepared roof assemblies where ASTM D 226 Type II underlayment is specified. (See Limitations Below.)

### PRODUCT DESCRIPTION:

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
Nova Seal Generation II Roofing Underlayment	Width = 36", 38" up to 144" Length = min. 25'	ASTM D 226 Type I & II	A polymer coated, woven polypropylene roof underlayment that is comprised of a woven core coated on both sides with a polymer coating.

### EVIDENCE SUBMITTED:

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Test Name/Report</u>	<u>Date</u>
Intertek Testing Services	3092220	ASTM D 226 Type I & II	02/14/07
	3092220COQ-005A	TAS-104	06/16/06

### LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product
2. Nova Seal Generation II Roofing Underlayment can be used in any approved prepared roof assemblies where ASTM D 226 Type II underlayment is specified.
3. This acceptance is for prepared roofing applications. Minimum deck requirements shall be in compliance with applicable building code.
4. Nova Seal Generation II Roofing Underlayment shall not be used in Roof Tile assemblies, nor shall it be hot mopped, refer to manufacturer's published literature for product compatibility.

NOA No.: 07-0307.09  
Expiration Date: 05/24/12  
Approval Date:  
Page 2 of 3

## **INSTALLATION:**

1. Nova Seal Generation II Roofing Underlayment shall be installed in strict compliance with applicable Building Code.
2. Nova Seal Generation II Roofing Underlayment shall be installed with a minimum 4-inch head lap in a shingle layer fashion and a 6" end lap where required as specified by manufacturer's specifications.
3. Nova Seal Generation II Roofing Underlayment is a component used in roof assemblies. Roof assemblies are approved under specific assembly Notice of Acceptance.
4. Nova Seal Generation II Roofing Underlayment may be used with Asphaltic shingles, Wood shakes and shingles, Non-structural metal roofing, and quarry slate.
5. For fire classifications of specific roof assemblies using Nova Seal Generation II Roofing Underlayment refer to a current Approved Roofing Materials Directory for fire ratings of this product.

## **LABELING:**

All packaging shall bear the imprint or identifiable marking of the manufacturer's name or logo and the following statement: "Miami-Dade County Product Control Approved".

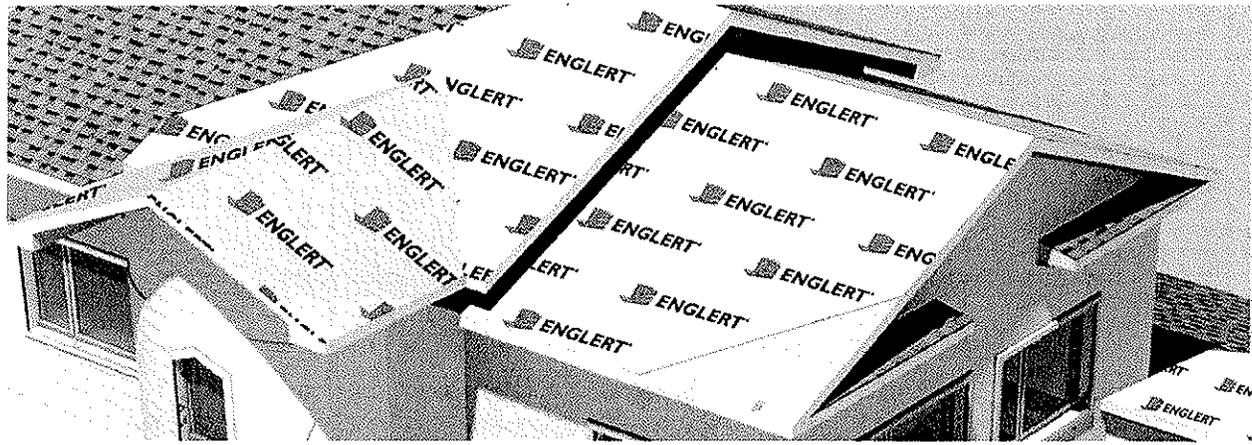
## **BUILDING PERMIT REQUIREMENTS:**

Application for building permit shall be accompanied by copies of the following:

1. This Notice of Acceptance.
2. Any other documents required by the Building Official or applicable building code in order to properly evaluate the installation of this material.

**END OF THIS ACCEPTANCE**

NOA No.: 07-0307.09  
Expiration Date: 05/24/12  
Approval Date:  
Page 3 of 3



## Englert Premium Underlayment:

- Does not support mold growth, rot or dry out as it contains no organic material and will not absorb moisture.
- Is 100% recyclable
- Is far stronger, lighter and less costly to install than #30 felt and has much greater coverage per roll.
- Requires fewer nails than conventional felt underlayments.

## Strength, Safety, Durability

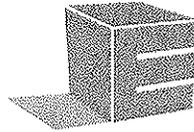
Englert Nailable Roofing Underlayment is a premium product that delivers exceptional long term weather barrier performance compared to traditional asphalt felt products and other synthetic underlayments.

Englert Premium Underlayment is 100% synthetic with slip-resistant coatings on both sides. The bottom is designed to reduce slippage between the underlayment and the roof sheathing. The **textured** top side contains a rubberized polyolefin coating that provides unsurpassed slip resistance ensuring a safer and more secure work surface...

And Englert Premium Underlayment can be left exposed to the elements for up to twelve (12) months.

## Englert Premium Underlayment System Benefits

- Exceptional Barrier Performance: Woven Synthetic Rubber Barrier engineered with 100% synthetic polypropylene weave and modified polyolefin coatings.
- Endurance: The underlayment withstands prolonged exposure in all climates.
- High Temperature Resistance: Withstands surface temperatures up to 250°F (120°C). Won't flow or leach out at high temperatures like some asphalt felts.
- Fire Resistance: Meets Class A under ASTM E1098/UL790.
- Six Month Exposure Period: Englert Premium Underlayment can remain exposed for up to one (1) year.
- Wind Uplift Resistance: Offers exceptional tear and puncture strength, tougher than felt in inclement weather.
- Low Temperature Application: Remains flexible in cold weather and will roll out without cracking or chatter when fastened.
- Slip Resistant Textured Surface: Coated on both sides with special slip resistant coatings that also provide a layer of toughness. The top side contains a rubber-modified polyolefin coating.



# ENGLERT®

## MATERIAL SAFETY DATA SHEET

PRODUCT NAME: Polypropylene Fabrics

PRODUCT CODE(S): Englert Premium Nailable Roofing Underlayment

WHMIS Classification: Not Controlled

HMS CODES: H F R P  
0 1 0 B

### SECTION I – MANUFACTURER IDENTIFICATION

<b>Manufacturer's Name:</b> Intertape Polymer Incorporated, ECP Division	
<b>Manufacturer's Address:</b> 50 Abbey Avenue, Truro, Nova Scotia, Canada	
<b>Emergency Phone:</b> 902-895-1686	<b>Information Phone:</b> 902-895-1686
<b>Date Prepared:</b> November 08, 2006	<b>Prepared by:</b> David Martin

### SECTION II – HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Non-hazardous, comprised mainly of polypropylene. Colored and printed fabrics contain small quantities of proprietary pigments that may be health hazards in concentrated form. Contained in the matrix of the fabric, they do not make the fabric hazardous. More details on specific colors may be available on request.

### SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

<b>Appearance and Odor:</b> Flexible sheet, slight odor	
<b>Boiling Point:</b> Not Available	<b>Specific Gravity:</b> 0.90 – 0.95
<b>Vapor Density:</b> Not Available	<b>Evaporation Rate:</b> Not Available
<b>Solubility in Water:</b> Insoluble in cold and hot water	<b>pH:</b> Not Available
<b>Vapor Pressure:</b> Not Available	<b>Freezing Point:</b> 120 to 170 °C
<b>Coefficient of Oil/Water Distribution:</b> Not soluble in water or oil.	

#### SECTION IV – FIRE AND EXPLOSION HAZARD DATA

**Flashpoint:** 315 °C.

**Flammable Limits in Air by Volume:** Lower: Not Available Upper: Not Available

**Extinguishing Media:** Foam, CO<sub>2</sub>, Dry Chemical, Water

**Special Firefighting Procedures:** All individuals required to enter the hazard area must wear full-face, NIOSH-approved self-contained breathing apparatus and appropriate protective clothing.

**Unusual Fire and Explosion Hazards:** Polypropylene products are not highly flammable, but will melt and/or burn when exposed to heat or open flame. Avoid contact with molten, dripping plastic. When heated to decomposition, product emits carbon monoxide, acrid smoke and irritating fumes. Material can accumulate static charges which can cause an electrical discharge.

#### SECTION V – REACTIVITY DATA

**Stability:** Stable. Decomposition temperature > 300 °C.

**Conditions to Avoid:** Temperatures above 80 °C (175 °F), oxidants.

**Incompatibilities (Conditions to Avoid):** Consult manufacturer before using as containment or barrier for chemicals other than water. Very slightly reactive with oxidizing agents, acids, alkalis.

**Hazardous Decomposition or Byproducts:** Carbon monoxide, carbon dioxide, oxides of nitrogen, and hydrocarbons may be generated during thermal decomposition and combustion.

**Hazardous Polymerization:** Will not occur.

#### SECTION VI – HEALTH HAZARD DATA

**Inhalation Health Risks, Symptoms of Exposure:** None at ambient temperatures (-18 to 38 °C; 0 to 100 °F). Vapors which may be formed at elevated temperatures may be irritating to eyes and respiratory tract.

**Skin/Eye Contact Health Risks, Symptoms of Exposure:** Prolonged and/or repetitive contact can cause abrasion and irritation. Contact with molten product will burn unprotected skin and eyes. Should a burn occur, cool burn area immediately with cool, clean, running water until no heat is emitted from burn area. Cover with light, dry dressing. Do not apply oily ointments or puncture blisters. Obtain medical assistance.

**Ingestion Health Risks, Symptoms of Exposure:** Products should not be eaten, nor used as food wrapping without consulting the manufacturer.

**Health Hazards (Acute and Chronic):** None.

**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

**Mutagenic Effects:** None known.

**Developmental Toxicity:** Not toxic.

**Teratogenic Effects:** None known.

**Medical Condition Generally Aggravated by Exposure:** None identified.

**Emergency and First Aid Procedures:** If in contact with hot or molten plastic, treat the effected area with cool water and seek medical attention.

### SECTION VII – PRECAUTIONS FOR SAFE HANDLING AND USE

**Steps to be Taken in Case Material is Released or Spilled:** Normal, good housekeeping practices. Use a shovel, or other appropriate instrument, to put the material into a convenient waste disposal container. Recycle to process, if possible. Spilled product may create a slipping hazard (especially if wet).

**Waste Disposal Method:** In accordance with local, state/provincial and federal regulations. Preferred disposal methods are (1) clean and reuse if possible; (2) contact plastic supplier; (4) incinerate with waste heat recovery, and/or (5) landfill.

**Precaution to be Taken in Handling and Storage:** Products may be slippery to walk on when wet. Charges of static electricity may be generated during handling and processing. Store in a cool, well-ventilated area away from incompatible materials. Do NOT store or handle near an open flame, heat or other sources of ignition.

### SECTION VIII – EXPOSURE CONTROLS, PERSONAL PROTECTION

**Respiratory Protection:** Not required under normal handling and ventilation. Should conditions exist that require respiratory protection, an organic vapor protection mask is recommended.

**Ventilation:** Local exhaust. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Small amounts of fines or dust may accumulate in material handling systems. If permitted to accumulate, these fines and dust can, under certain conditions, pose an explosion hazard. Every effort should be made to prevent the concentration or accumulation of fines or dust in, or around, material handling systems.

**Protective Gloves:** Recommended in cases of repetitive contact, such as sewing operations. Where contact may occur with hot material, wear thermal resistant gloves and arm protectors.

**Eye Protection:** Safety glasses or goggles with side shields where contact is likely at ambient temperatures (-18 to 38 °C; 0 to 100 °F). Where contact may occur with hot material, wear a face shield.

**Other Protective Equipment or Clothing:** None at ambient temperatures. Wear heat protective clothing if there is a potential for contact with molten material.

**Work/Hygienic Practices:** Wash hands after handling and before eating.

### SECTION IX – REGULATORY

**SARA Title III Hazard Category:** No applicable information found.

### DISCLAIMER

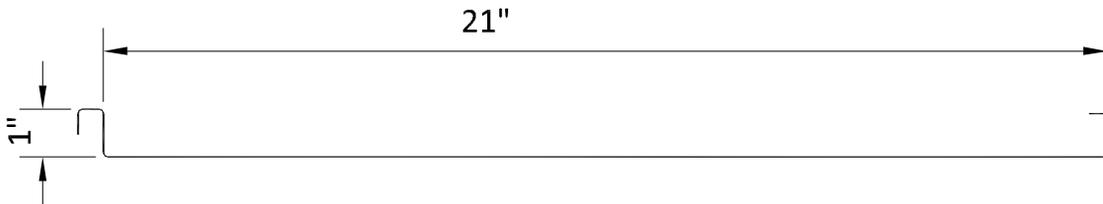
To the best of Intertape Polymer Incorporated's knowledge and belief, the information and recommendations contained herein is accurate and reliable as of the date issued. Intertape Polymer Incorporated furnishes this data in good faith without and liability or legal responsibility for it whatsoever, and no warranty or guarantee, expressed or implied, is made with respect to such data. Since conditions of use are beyond the control of Intertape Polymer Incorporated, the user assumes all responsibility and risk.

ENGLERT S1301 ROOF PANEL

PANEL MATERIAL SHALL BE:  
24 GA GALVALUME

180° MECHANICAL SEAMS SHALL BE  
1" HIGH AT 21" WIDE

COLOR Hartford Green



 **ENGLERT**<sup>™</sup>  
www.englertinc.com  
800-364-5378

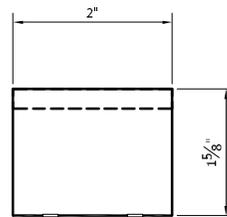
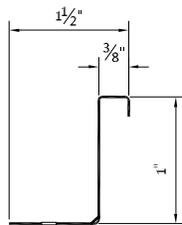
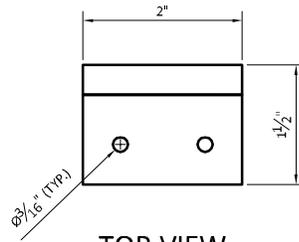
GENERIC BEST PRACTICE ASSEMBLY  
SHOWN. WATERTIGHTNESS  
WARRANTY NOT IMPLIED.  
WHEN SITE CONDITION DIFFERS,  
SPECIFIC ENGINEERING NECESSARY.

<b>ROOF PANEL PROFILE</b>	
SERIES S1301	

DETAIL SUBJECT TO CHANGE WITHOUT NOTICE.
Detail # <b>R01.13.1</b>

USE WITH: ENGLERT S1301 PANEL

PRODUCT# 05875A (.018" GALVALUME),



 **ENGLERT**<sup>™</sup>  
www.englertinc.com  
800-364-5378

## ROOF CLIP

SERIES S1301 - FIXED 1-1/2" (2-HOLE)

DETAIL SUBJECT TO CHANGE  
WITHOUT NOTICE.

Detail #

R02.13-x2

GENERIC BEST PRACTICE ASSEMBLY  
SHOWN. WATERTIGHTNESS  
WARRANTY NOT IMPLIED.  
WHEN SITE CONDITION DIFFERS,  
SPECIFIC ENGINEERING NECESSARY.

## Clip Fasteners

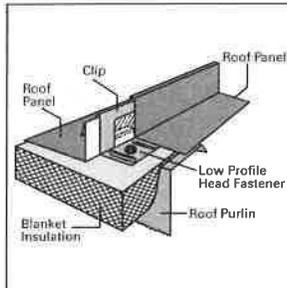
Clip attachment fasteners  
*For metal to metal, metal to wood*

- Designed with unique head styles, drill point configurations and material types to meet performance requirements to attach standing seam roof clips.

- Engineered profile features preventing panel damage from fastener head contact.
- Engineered installation torque drive control for uniform installation performance.

## Application

**#10 Type A: Pancake Head**  
**2/2 Phillips Square Drive**  
 Carbon Steel, Zinc Plated  
 Metal to wood

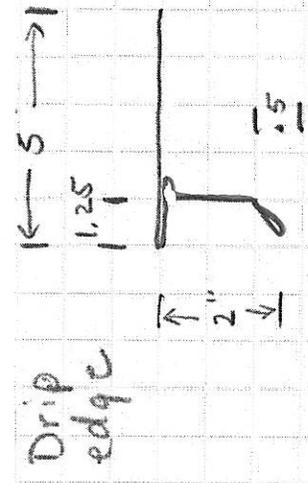


Head Height: .080 – .068  
 Head Dia: .447 – .423  
 Thread Major Dia: .194 – .188  
 Thread Minor Dia: .133 – .126

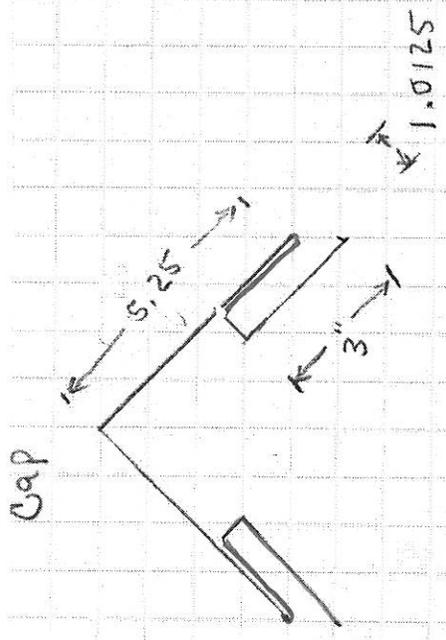
**Strength (lbs ult.): Carbon**  
 Tensile: 1825  
 Torsional: 48 in-lbs  
 Shear: 1535

**#10 Type A, Pull-out (lbs ult.):**

SPF wood:  
 1" penetration: 544

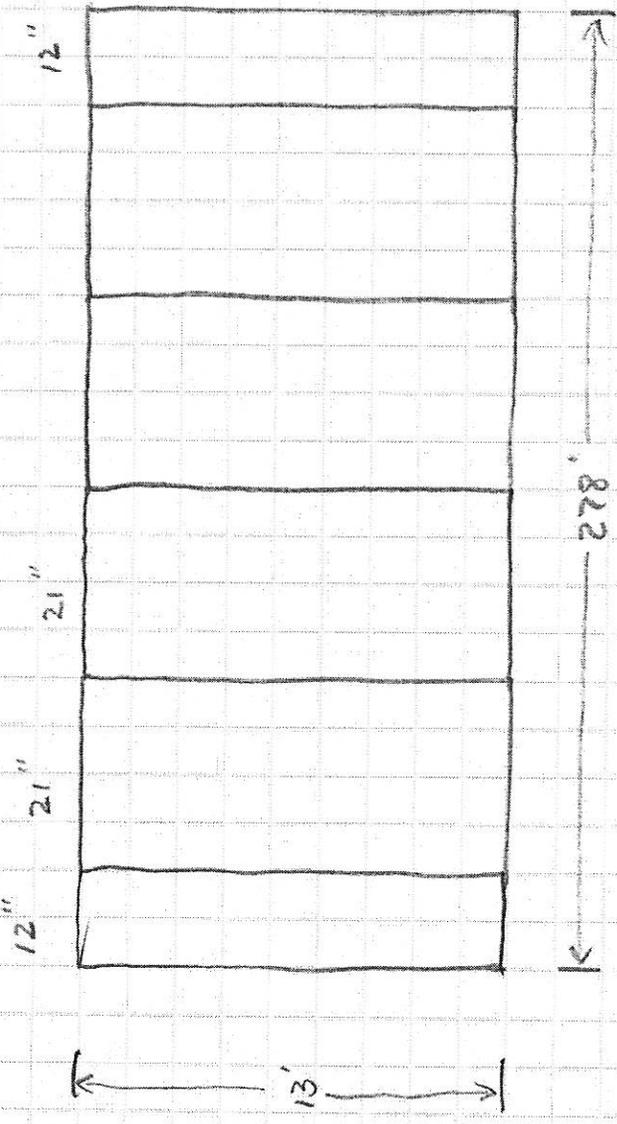


Drip edge



Cap

Layout



8 clips per panel

159 panels per side

Townshunds Scott Bridge Rt 30

Hartford Green 2016

**WALKER & COMPANY ROOFING AND CONSTRUCTION LLC**  
**Job References**

<b>Date</b>	<b>Type</b>	<b>Customer</b>	<b>Job Total</b>	<b>Job Name/City</b>	<b>State</b>	<b>Contact</b>	<b>Phone</b>
January 2010	SSMR	Dr. Alan & Debra Bachrach	\$ 33,864.00	Petersham	MA	Dr Alan Bachrach	978-724-0300
October 2010	IKO Shingles	Ingram Construction	\$ 38,095.20	Ledgewood Heights	VT	Jeff Ingram	603-357-0759
April 2011	SSMR	Akzo Noble	\$ 66,175.00	Conway	MA	Greg Frantianne	614-425-2540
August 2011	SSMR	LaPlante Construction	\$ 66,785.71	Kringle Candle Co	MA	Bill LaPlante	413-636-5281
March 2012	SSMR	Baybutt Construction Corp	\$ 40,000.00	Brattleboro Food Co-op	VT	John Edwards	603-479-8602
July 2012	SSMR	LaPlante Construction	\$ 22,000.00	Hanley-McCandless	MA	Bill LaPlante	413-636-5281
September 2012	IKO Shingles	VMS Construction	\$ 96,329.00	Ledgewood Heights Project	VT	Andrew Haselton	802-747-7010
October 2012	SSMR	Alan Rogers	\$ 28,853.00	Northfield	MA	Alan Rogers	413-498-2930
July 2013	IKO Shingles	Kate's Homemade Butter	\$ 161,080.00	Arundel	ME	Chris Patry	207-934-5134
August 2013	SSMR	DEW Construction Corp	\$ 26,000.00	Deerfield Valley School	VT	Tim Heinlein	802-764-2333
September 2013	SSMR	Cady & Dugan PC	\$ 155,377.00	Wilmington	VT	Chris Cady	802-464-0875
November 2013	IKO Shingles	Stratton Mountain School	\$ 61,378.00	Stratton	VT	Chris Kaltsas	802-297-1886
December 2013	SSMR	Susan Kelly, DVM	\$ 57,771.00	Halifax	VT	Dr. Susan Kelly	802-368-2244
December 2013	SSMR	Renaud Bros	\$ 219,711.27	Cersosimo - Hardwick	MA	Mike Renaud	802-257-7383
March 2014	SSMR	LaPlante Construction	\$ 69,004.80	Monticello	CT	Bill LaPlante	413-636-5281
June 2014	SSMR	Richard Rogers	\$ 35,978.00	South Deerfield	MA	Richard Rogers	413-665-7735
June 2014	SSMR	VMS Construction	\$ 35,863.15	Marble Mill, Manchester	VT	Andrew Haselton	802-747-7010
July 2014	SSMR	Penny Johnson	\$ 26,181.00	Haydenville	MA	Penny Johnson	413-268-9310
November 2014	SSMR	Eckman Construction	\$ 393,063.57	NH Job Corps	NH	Butch Thornton	603-623-1713
June 2015	EcoStar	Samson, Scott	\$ 83,302.00	Spofford	NH	Scott Samson	413-221-4806
November 2015	SSMR	Elwell Construction	\$ 36,081.00	Tamsen Merril Property	MA	Will Elwell	413-625-9975
September 2015	SSMR	Brendan Flannelly King	\$ 32,748.00	Ashfield	MA	Brendan	413-628-4506
January 2016	SSMR	Wendy Keyser	\$ 28,167.00	Ashfield	MA	Wendy	413-625-6797
January 2016	Rubber	TTARB 111 LLC	\$ 26,500.00	Brattleboro	VT	Chris Dugan	802-251-0099