



Addendum No. 2
July 22, 2023

Re-Bid Prosser Hamilton Lab Bldg Roof
Replacement
Washington State University
Prosser, WA

Project No. 1933-2023
Washington State University
Facilities Services, Capital

**Addendum No. 2
July 21, 2023****Re-Bid Prosser Hamilton Lab Bldg Roof Replacement
Washington State University
Prosser, WA****Bid Date: August 3, 2023**

1. This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated July 12, 2023, and any prior addenda, as noted below.
2. Please acknowledge receipt of this addendum on the Form of Proposal.

This Addendum consists of Seventy-eight total pages including the following Attachments:

TPO Roofing Substitution
07 53 23 Ethylene-Propylene-Diene-Monomer (EPDM) Roofing

Changes to prior Addenda:
None

Changes to Bidding Requirements:
None

Changes to Specifications:

SP 1-1. SECTION 00 01 10 – Table of Contents

Item 1. Add: 07 53 23 Ethylene-Propylene-Diene-Monomer (EPDM) Roofing

SP 1-2 SECTION 07 53 23 - Ethylene-Propylene-Diene-Monomer (EPDM) Roofing

Item 1. Add: Section in its entirety.

Approved Substitution Requests:

Drawing or Specification	Item	Acceptable Substitution Manufacturer or Product
07 54 00	TPO Roofing	Versico VersiWeld TPO Membrane - 60 mils

Changes to Drawings:
None

END OF ADDENDUM No. 2

CSI Form 1.5C

SUBSTITUTION REQUEST (During the Bid Period)

Project: Prosser Hamilton Lab Roof Replacement Substitution Request Number: _____
 From: Ken Stilwell / Brady Kincannon - Versico
 To: Craig Beaumont Date: 7/21/23
PDA A/E Project Number: _____
 Re: Roofing Substitution Request Contract For: _____
 Specification Title: TPO Roofing Description: TPO Membrane Roofing 60 mils
 Section: 075400 Page: 4 Article/Paragraph: 2.01A

Proposed Substitution: Versico VersiWeld TPO Membrane - 60 mils
 Manufacturer: Versico Address: 1285 Ritner Hwy, Carlisle, PA 17013 Phone: 800.992.7663
 Trade Name: Versico Roofing Systems - Carlisle Construction Companies (CCM) Model No.: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: Ken Stilwell
 Signed by: *Ken Stilwell*
 Firm: D-Seven, LLC (Versico Roofing Systems Manufacturer Representatives)
 Address: 2212 Queen Anne Avenue North #289
Seattle, WA 98109
 Telephone: 206.409.2421

A/E's REVIEW AND ACTION

- ☐ Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: *Craig Beaumont* Date: 7/21/23

Supporting Data Attached: ☒ Drawings ☒ Product Data ☐ Samples ☐ Tests ☐ Reports ☒ only letter

CSI Form 1.5C

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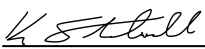
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Date: _____

Supporting Data Attached: ☒ Drawings ☒ Product Data ☐ Samples ☐ Tests ☐ Reports ☒ mfg letter

July 21, 2023

Washington State University McCluskey Services Building
PO Box 641150
2425 East Grimes Way
Pullman, WA 99164-1150

Re: WSU Prosser Hamilton Lab Building Roof Replacement

To whom it may concern,

At the request of our bidding Versico Authorized Contractors, we are submitting a Versico Substitution Request for the roofing assembly for the above roofing project. We have included a Substitution Form with the relevant documents for your consideration. We have thoroughly reviewed the specification and can verify that Versico will meet and/or exceed the specified roof assembly and warranty requirements. I can also confirm that there will be no changes in construction methods, construction schedule, or construction cost to the project if the Versico Roofing System is approved for the project.

<u>Spec Section</u>	<u>Spec Sub-Section - Title</u>	<u>Versico Substitution</u>	<u>Page</u>
07 54 00	2.01: TPO Membrane Roofing – Fully-Adhered	Versico VersiWeld TPO Membrane – 60 Mil	5
07 54 00	2.02: Auxiliary Membrane Roofing Materials	As Specified - Versico	10
07 54 00	2.03: Vapor Retarder/Temporary Roof	As Specified - Versico VapAir Seal 725 TR	43
07 54 00	2.04: Roof Insulation	As Specified - VersiCore Polyiso Insulation	49
07 54 00	2.05: Insulation Accessories	As Specified	53
07 54 00	2.06: Walkways	As Specified – TPO Heat Weldable Walkway Roll	57
Versico Total System Warranty and Letters			

The proposed substitution would meet the required 20-year NDL warranty as specified.

Please do not hesitate to contact me if you should have any questions and I also want to thank you for your consideration in this matter.

Ken Stilwell 206.409.2421
Brady Kincannon 206.409.1684
D-Seven, LLC – Versico Representatives
e: kenny@d-sevennw.com
brady@d-sevennw.com
www.d-sevennw.com

Substitution Proposal Letter

**Washington State University McCluskey Services Building
PO Box 641150
2425 East Grimes Way
Pullman, WA 99164-1150**

RE: WSU Prosser Hamilton Lab Building Roof Replacement

To Whom It May Concern,

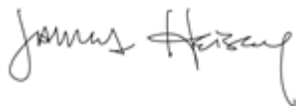
Versico, a division of Carlisle Construction Materials Incorporated, would like to provide a brief overview of its products and capabilities. It is our hope that you will include Versico products in your roofing specification.

Versico was formed in 1993 after the acquisition of Goodyear's roofing business. Versico manufactures a wide range of EPDM, TPO and PVC single-ply roofing systems, polyisocyanurate and expanded polystyrene insulation boards and offers a full line of accessory products and warranties. Versico products meet or exceed all applicable ASTM standards and offer an industry-leading array of code approvals.

Total System, No Dollar Limit (NDL) warranties are available on systems installed only by Versico Authorized Roofing Contractors and inspected and approved by Versico's Field Service Representatives. Versico maintains a large warranty reserve; as a division of a publicly held company (NYSE: CSL), this reserve is audited annually for its sufficiency.

We look forward to the inclusion of our products in your project specifications, and stand ready to provide sales and technical assistance when requested. Versico specification binders for EPDM, TPO and PVC are available at no charge and can be ordered using our online Literature and Sample Order form. Versico product information can also be accessed at www.versico.com.

Please do not hesitate to contact me personally, should you have any questions or require more information about our company.



James Heisey
Director of Sales

CARLISLE SYNTEC Sure-Weld TPO

VERSIKO VersiWeld TPO Membrane

Typical Properties and Characteristics

Physical Property	ASTM D6878 Requirement	45-mil	60-mil	80-mil EXTRA
Tolerance on Nominal Thickness, % ASTM D751 test method	+15, -10	± 10	± 10	± 10
Thickness Over Scrim, in. (mm) ASTM D7635 optical method, average of 3 areas	0.015 min (0.380)	0.018 typical (0.457)	0.024 typical (0.610)	0.034 typical (0.864)
Breaking Strength, lbf (kN) ASTM D751 grab	220 (976 N) min	225 (1.0) min 320 (1.4) typical	250 (1.1) min 360 (1.6) typical	350 (1.6) min 425 (1.9) typical
Elongation Break of Reinforcement, % ASTM D751 grab method	15 min	15 min 25 typical	15 min 25 typical	15 min 25 typical
Tearing Strength, lbf (N) ASTM D751 proc. B 8 in. x 8 in.	55 (245) min	55 (245) min 130 (578) typical	55 (245) min 130 (578) typical	55 (245) min 130 (578) typical
Brittleness Point, °F (°C) ASTM D2137	-40 (-40) max	-40 (-40) max -50 (-46) typical	-40 (-40) max -50 (-46) typical	-40 (-40) max -50 (-46) typical
Linear Dimensional Change, % ASTM D1204, 6 hours at 158°F	± 1 max	± 1 max -0.2 typical	± 1 max -0.2 typical	± 1 max -0.2 typical
Ozone Resistance, no cracks 7X ASTM D1149, 100 pphm, 168 hrs	PASS	PASS	PASS	PASS
Water Absorption Resistance, mass % ASTM D471 top surface only 166 hours at 158°F water	± 3.0 max	± 3.0 max 0.90 typical	± 3.0 max 0.90 typical	± 3.0 max 0.90 typical
Factory Seam Strength, lbf (N) ASTM D751 grab method	66 (290) min	66 (290) min	66 (290) min	66 (290) min
Field Seam Strength, lbf/in (kN/m) ASTM D1876 tested in peel	No requirement	25 (4.4) min 50 (8.8) typical	25 (4.4) min 60 (10.5) typical	40 (7.0) min 70 (12.3) typical
Water Vapor Permeance, Perms ASTM E96 proc. B	No requirement	0.10 max 0.05 typical	0.10 max 0.05 typical	0.10 max 0.05 typical
Puncture Resistance, lbf (kN) FTM 101C, method 2031 (see supplemental section)	No requirement	250 (1.1) min 325 (1.4) typical	300 (1.3) min 350 (1.6) typical	400 (1.8) min 450 (2.0) typical
Properties After Heat Aging ASTM D573, 32 weeks @ 240°F or 8 weeks @ 275°F No cracking when bent around 3" diameter mandrel Weight Change, %	PASS No cracking ± 1.5 max	PASS No cracking 1.0 max	PASS No cracking 1.0 max	PASS No cracking 1.0 max
Typical Weights lb/ft² (kg/m²)		0.23 (1.1)	0.29 (1.4)	0.40 (2.0)

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

Radiative Properties for ENERGY STAR®, and LEED

	Test Method	White TPO	Tan TPO	Gray TPO
ENERGY STAR – Initial solar reflectance	Solar Spectrum Reflectometer	0.79	0.71	N/A
ENERGY STAR – Initial solar reflectance after 3 years	Solar Spectrum Reflectometer (uncleaned)	0.70	0.64	N/A
CRRC – Initial solar reflectance	ASTM C1549	0.79	0.71	0.46
CRRC – Solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.70	0.64	0.43
CRRC – Initial thermal emittance	ASTM C1371	0.90	0.86	0.89
CRRC – Thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	0.87	0.88
LEED – Thermal emittance	PASS	0.90	0.86	0.85
SRI - Initial (Solar Reflectance Index)		99	86	53
SRI - 3 year aged (Solar Reflectance Index)		85	77	48

LEED Information

Pre-consumer Recycled Content	10%
Post-consumer Recycled Content	0%
Manufacturing Location	Senatobia, MS Tooele, UT Carlisle, PA
Solar Reflectance Index (SRI)	99 (white) 86 (tan)

TYPICAL PROPERTIES AND CHARACTERISTICS

Physical Property	ASTM D6878 Requirement	45-mil	60-mil	80-mil
Tolerance on nominal thickness, % ASTM D751 test method	+15, -10	± 10	± 10	± 10
Thickness over scrim, in. (mm) ASTM D7635 optical method, average of 3 areas	0.015 min (0.380)	0.018 typ (0.457)	0.024 typ (0.610)	0.034 typ (0.864)
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Water vapor permeance, Perms ASTM E96 proc. B	No requirement	0.10 max 0.05 typ	0.10 max 0.05 typ	0.10 max 0.05 typ
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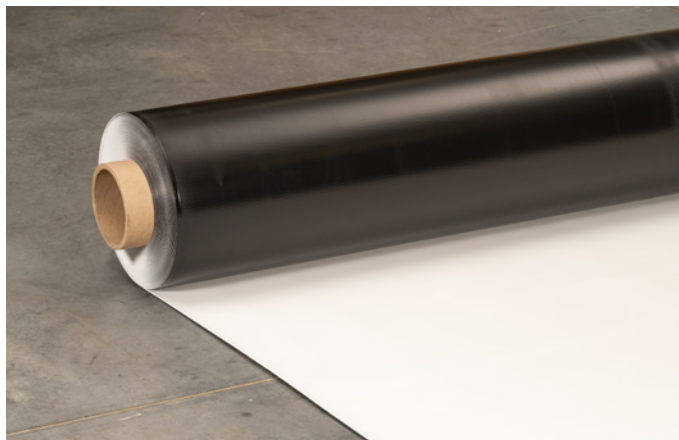
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CRRC initial thermal emittance	ASTM C1371	0.90	0.86	0.89
CRRC thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	0.87	0.88
LEED thermal emittance	ASTM E408	0.90	0.86	0.85
Solar Reflectance Index (SRI) initial	ASTM E1980	99	86	53
Solar Reflectance Index (SRI) 3 years aged		85	77	48

LEED INFORMATION

Pre-consumer Recycled Content	10%
Post-consumer Recycled Content	0%
Manufacturing Location	Senatobia, MS Tooele, UT Carlisle, PA
Solar Reflective Index (SRI)	White: 99 Tan: 86

VersiWeld® TPO Reinforced Membrane



Overview

Versico's VersiWeld TPO reinforced membrane is a premium, heat-weldable, single-ply thermoplastic polyolefin (TPO) sheet designed for new roof construction and re-roofing applications. VersiWeld High Slope (HS) membrane is formulated with additional flame retardant for higher-slope fire code approvals. VersiWeld Plus is 80 mils (2.03 mm) thick for significantly higher strength and weatherability.

VersiWeld TPO membranes use advanced polymerization technology that combines the flexibility of ethylene-propylene (EP) rubber with the heat weldability of polypropylene. All VersiWeld TPO membranes include OctaGuard XT™, an industry-leading, state-of-the-art weathering package. OctaGuard XT technology enables VersiWeld TPO to withstand the extreme weatherability testing that is intended to simulate exposure to severe climates.

Physical properties of the membrane are enhanced by a strong polyester fabric that is encapsulated between the TPO-based top and bottom plies. The combination of the fabric and TPO plies provides high breaking and tearing strength, as well as excellent puncture resistance. The relatively smooth surface of the membrane produces a total surface fusion weld that results in a consistent, watertight, monolithic roof assembly. The membrane is environmentally friendly and safe to install.

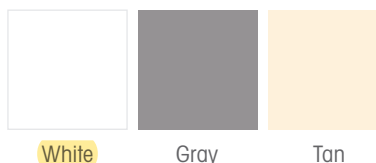
Features and Benefits

- Living Building Challenge "Red List Free" – Declare Label
- VersiWeld TPO is available in 4-, and 6-ft (121.92 cm and 182.88 cm) perimeter sheets and 8-, 10-, 12-, and 16-ft (243.84 cm, 304.80 cm, 365.76 cm, and 487.68 cm) VersiWeld field sheets*
- Outstanding puncture resistance

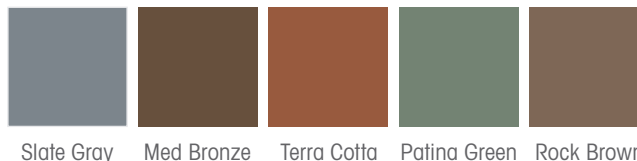
- Excellent fire resistant assemblies
- Environmentally friendly and stable formulation
- Excellent resistance to impact and low temperatures
- Excellent chemical resistance to acids, bases and restaurant exhaust emissions
- UL 2218 Class 4 hail rating
- Exceptional resistance to heat, solar UV, ozone and oxidation
- Manufactured using a hot-melt extrusion process for complete scrim encapsulation
- Enhanced with the OctaGuard XT weathering package



- Standard Colors:



- Special Colors:



*VersiWeld HS Special Color TPO membranes are available in limited sizes. Refer to Versico's VersiWeld HS TPO Special Color Program Sell Sheet for details.



Sustainable Attributes

Versico Roofing Systems' focus has always been innovation – Innovation to solve problems, improve performance, reduce labor, and above all, improve sustainability. Versico is committed to driving sustainable and efficient processes in the design and manufacturing of our products.

- Up to 10% pre-consumer recycled content
- Fully recyclable when used in mechanically attached systems
- 3rd-party verified Environmental Product Declaration available
- NSF P151 certification for rainwater catchment**
- California Title 24 compliant***
- Free of Living Building Challenge red list chemicals

** White only, produced in Tooele, UT

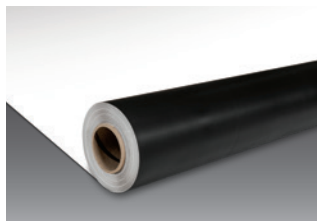
*** White and Tan only



VersiWeld TPO Reinforced Membrane

Wider is Better

Versico's 16-foot VersiWeld TPO delivers a leap in productivity on adhered and induction welded roofs by cutting down on the number of rolls needed and dramatically reducing the number of seams on the roof.



With fewer rolls to load, stage, and kick out, and fewer seams to weld, contractors can save significant time on each project, moving on to the next one sooner.

16-Foot TPO Benefits

- Fewer rolls to load and stage on a job saves crane time and labor at the beginning of each project
- Fewer rolls to position, kick-out, and align during installation saves labor
- Up to 60% fewer seams vs. 10-foot TPO
- Fewer seams to weld, probe, and inspect, saving considerable time during installation
- Fewer T-joint patches to install on each roof
- Less waste and trash from packaging
- Less time spent on each project, allowing contractors to complete more roofs and grow their business

Installation

VersiWeld TPO roofing systems are quick to install, as minimal labor and few components are required. TPO systems are installed using an Automatic Heat Welder, making sheet welding fast, clean, consistent, and easy to learn, while reducing strain on the roofing technician.

Fully-Adhered – membrane is adhered to a suitable substrate utilizing an appropriate bonding adhesive

Mechanically Attached – membrane is attached to the roof deck over a suitable substrate utilizing plates and fasteners which are overlapped with membrane

Induction-Welded – membrane is attached over a suitable substrate via an induction welding tool being placed over the membrane where

a fastened TPO induction welding plate is located to weld the two components together

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

- Sunglasses that filter out ultraviolet light are strongly recommended, as tan and white surfaces are highly reflective. Roofing technicians should dress appropriately and wear sunscreen.
- Surfaces may become slippery due to frost and ice buildup. Exercise caution during cold conditions to prevent falls. Exercise caution when walking on wet membrane. Membranes may be slippery when wet.
- Care must be exercised when working close to a roof edge when the surrounding area is snow-covered, as the roof edge may not be clearly visible.
- Use proper stacking procedures to ensure sufficient stability of the rolls.
- Store membrane in the original undisturbed plastic wrap in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins. Membrane that has been exposed to the weather must be prepared with Weathered Membrane Cleaner prior to hot-air welding.
- Take care not to stand or place heavy objects on the edge of folded-over membrane, as this could cause a hard crease in the membrane.
- Maximum sustained temperature not to exceed 160°F (71°C) for TPO membrane.
- Do not use razor blades or other sharp tools to cut the APEEL Protective Film while it is still adhered to the TPO membrane as damage to the underlying membrane may occur. Pull the protective film away from the membrane prior to cutting.
- Remove APEEL Protective Film by pulling towards the center of the roof. Do not remove the film by pulling towards the roof edge.
- A static electric charge may develop when removing APEEL Protective Film from the surface of the membrane sheet. To avoid the possibility of ignition, lids must be closed on any flammable products and a fire extinguisher should be readily available.
- Color membranes will 'fade' over time mainly due to the ultraviolet portion of sunlight. Since most roof surfaces are exposed to variable sunlight, some areas will be more susceptible to color changes caused by UV fading. Warranties for color membranes do not cover fading of colors.

Extreme Testing for Severe Climates

ASTM Standard D6878 is the material specification for Thermoplastic Polyolefin-Based Sheet Roofing. It covers material property requirements for TPO roof sheeting and includes initial and aged properties after heat and xenon-arc exposure. As stated in the scope of the standard, "the tests



VersiWeld TPO Reinforced Membrane

and property limits used to characterize the sheet are values intended to ensure minimum quality for the intended purpose.* Versico's goal is to produce TPO that delivers maximum performance for the intended purpose of roofing membranes. Maximum performance requires the membrane to far exceed the requirements of ASTM D6878.

Heat Aging accelerates the oxidation rate that roughly doubles for each 18°F (10°C) increase in roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials.

Versico Testing – Heat Aging

	ASTM Requirement	VersiWeld Requirement
ASTM Test 240°F	32 weeks**	>128 weeks

** Heat exposure comparable to 3,120 weeks (60 years) at 185°F for 8 hours/day.

- Test specimen is a 2" by 6" (50.8 mm by 152.4 mm) piece of 45-mil (1.14 mm) membrane unbacked, placed in circulating hot-air oven.
- Criterion – no visible cracks after bending aged test specimen around 3" (76.2 mm)-diameter mandrel.

Q-Trac testing combines accelerated weathering with real-world conditions using an array of ten mirrors to reflect and concentrate full spectrum sunlight onto membrane test specimens. The Q-Trac device automatically tracks the sun's path from morning to night. Also, it adjusts to compensate for seasonal changes in the sun's altitude. Eight years in Q-Trac testing is equal to 40 years of real-world exposure. Versico requires its VersiWeld TPO membranes to pass the equivalent of 40 years of exposure in the Q-Trac.

Versico Testing – Q-TRAC

	ASTM D6878 Requirement	VersiWeld Requirements
ASTM Test N/A	N/A	Equivalent of 40 years of exposure

Environmental Cycling subjects the membrane to repeated cycles of heat aging, hot-water immersion, and xenon-arc exposure.

- ASTM requirement – none
- Versico Extreme test*:
 - 10 days heat aging at 240°F (116°C) followed by
 - 5 days water immersion at 158°F (70°C) followed by
 - 5,040 kJ/m² (2000 hours at 0.70 W/m² irradiance) xenon-arc exposure

*Test specimen is 2.75" (69.85 mm by 140 mm) by 5.5" piece of membrane with edges sealed.

* Criterion – after 3 complete cycles, test specimens shall remain flexible and not have any cracking under 10x magnification while wrapped around a 3" (76.2 mm)-diameter mandrel.

Supplemental Approvals, Statements and Characteristics:

1. VersiWeld TPO meets or exceeds the requirements of ASTM D6878 Standard Specification for Thermoplastic Polyolefin-Based Sheet Roofing.
2. VersiWeld TPO membranes conform to requirements of the US E.P.A. Toxic Leachate Test (40 CFR part 136) performed by an independent analytical laboratory.
3. VersiWeld TPO was tested for dynamic puncture resistance per ASTM D5635-04 using the most recently modified impact head. 45-mil (1.14 mm) was watertight after an impact energy of 12.5 J (9.2 ft-lbf) and 60-mil (1.52 mm) was watertight after 22.5 J (16.6 ft-lbf). 80-mil (2.03 mm) Plus was watertight after an impact energy of 30.0 J (22.1 ft-lbf).
4. All FM approved assemblies have been tested to pass FM 4470 for foot traffic resistance.

Optional APEEL™ Protective Film:

Shield Versico's VersiWeld TPO membrane from dirt and scuffs during installation with APEEL Protective Film. Durable and easy to remove, APEEL eliminates the need for rooftop cleaning upon project completion.



- Ideal for re-roofing, re-cover, and new construction projects
- Simple and easy to remove
- Saves time and money when compared to pressure washing
- Protecting from dirt maintains maximum membrane reflectivity and long-term performance

Installation

Simply order membrane with APEEL, install, and remove the film to reveal a clean, new roof.

- APEEL Protective Film should be removed from within areas that are to be heat-welded together. In areas that do not require heat-welding, the APEEL Protective Film can be left in place for up to 90 days without degrading due to its excellent heat- and UV-resistance.
- When the installation of the entire TPO roofing system is complete, remove and discard the APEEL Protective Film.



VersiWeld TPO Reinforced Membrane

Typical Properties and Characteristics

Physical Property	ASTM D6878 Requirement	45-mil (1.14 mm)	60-mil (1.52 mm)	80-mil Plus (2.03 mm)
Tolerance on Nominal Thickness, % ASTM D751 test method	+15, -10	± 10	± 10	± 10
Thickness Over Scrim, in. (mm) ASTM D7635 optical method, average of 3 areas	0.015 min (0.380)	0.018 typical (0.457)	0.024 typical (0.610)	0.034 typical (0.864)
Breaking Strength, lbf (kN) ASTM D751 grab	220 (976 N) min	225 (1.0) min 320 (1.4) typical	250 (1.1) min 360 (1.6) typical	350 (1.6) min 425 (1.9) typical
Elongation Break of Reinforcement, % ASTM D751 grab method	15 min	15 min 25 typical	15 min 25 typical	15 min 25 typical
Tearing Strength, lbf (N) ASTM D751 proc. B 8 in. x 8 in.	55 (245) min	55 (245) min 130 (578) typical	55 (245) min 130 (578) typical	55 (245) min 130 (578) typical
Brittleness Point, °F (°C) ASTM D2137	-40 (-40) max	-40 (-40) max -50 (-46) typical	-40 (-40) max -50 (-46) typical	-40 (-40) max -50 (-46) typical
Linear Dimensional Change, % ASTM D1204, 6 hours at 158°F	± 1 max	± 1 max -0.2 typical	± 1 max -0.2 typical	± 1 max -0.2 typical
Ozone Resistance, no cracks 7X ASTM D1149, 100 pphm, 168 hrs	PASS	PASS	PASS	PASS
UV Exposure (Xenon Arc), no cracks 7X ASTM G155, min. exposure 10,080 kJ/m ² (4,000 hrs - 0.70 W/m ²)	PASS	PASS	PASS	PASS
Water Absorption Resistance, mass % ASTM D471 top surface only 166 hours at 158°F water	± 3.0 max	± 3.0 max 0.90 typical	± 3.0 max 0.90 typical	± 3.0 max 0.90 typical
Factory Seam Strength, lbf (N) ASTM D751 grab method	66 (290) min	66 (290) min	66 (290) min	66 (290) min
Field Seam Strength, lbf/in (kN/m) ASTM D1876 tested in peel	No requirement	25 (4.4) min 50 (8.8) typical	25 (4.4) min 60 (10.5) typical	40 (7.0) min 70 (12.3) typical
Water Vapor Permeance, Perms ASTM E96 proc. B	No requirement	0.10 max 0.05 typical	0.10 max 0.05 typical	0.10 max 0.05 typical
Puncture Resistance, lbf (kN) FTM 101C, method 2031 (see supplemental section)	No requirement	250 (1.1) min 325 (1.4) typical	300 (1.3) min 350 (1.6) typical	400 (1.8) min 450 (2.0) typical
Properties After Heat Aging ASTM D573, 32 weeks @ 240°F or 8 weeks @ 275°F No cracking when bent around 3" diameter mandrel Weight Change, %	PASS No cracking ± 1.5 max	PASS No cracking 1.0 max	PASS No cracking 1.0 max	PASS No cracking 1.0 max
Typical Weights lb/ft ² (kg/m ²)		0.25	0.33	0.45

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

VersiWeld TPO Reinforced Membrane

LEED® Information

Pre-consumer Recycled Content	10%
Post-consumer Recycled Content	0%
Manufacturing Location	Senatobia, MS Tooele, UT Carlisle, PA
Solar Reflective Index (SRI)	99 (white) 86 (tan)

Radiative Properties for Cool Roof Rating Council (CRRC) and LEED

	Test Method	White TPO	Tan TPO	Gray TPO
CRRC – Initial solar reflectance	ASTM C1549	0.79	0.71	0.46
CRRC – Solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.70	0.64	0.43
CRRC – Initial thermal emittance	ASTM C1371	0.90	0.86	0.89
CRRC – Thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	0.87	0.88
LEED – Thermal emittance	ASTM E408	0.9	0.86	0.85
SRI – Initial (Solar Reflectance Index)	ASTM E1980	99	86	53
SRI – 3 year aged (Solar Reflectance Index)		85	77	48

Radiative Properties (Initial) for Special Colors

	Reflectance	Emittance	SRI
Medium Bronze	0.28	0.86	29
Rock Brown	0.25	0.87	26
Slate Gray	0.38	0.87	42
Terra Cotta	0.25	0.86	25
Patina Green	0.25	0.88	25

Solar Reflectance Index (SRI) is calculated per ASTM E1980. The SRI is a measure of the roof's ability to reject solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. Materials with the highest SRI values are the coolest choices for roofing. Due to the way SRI is defined, particularly hot materials can even take slightly negative values and particularly cool materials can even exceed 100.



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VERSIWELD® TPO NON-REINFORCED FLASHING



Overview

Versico's VersiWeld TPO Non-Reinforced Flashing is a 60-mil thermoplastic polyolefin (TPO)-based membrane available in 12" and 24" by 50' rolls. When the use of prefabricated accessories is not feasible, this product can be used to create inside and outside corners, field-fabricated pipe flashings, sealant pockets, and scuppers. Standard colors are **white**, tan, and gray.

Features and Benefits

- New and improved TPO Flashing provides 35% more flexibility, making it easier to field-fabricate details
- Compounded with the same OctaGuard XT™ weathering package as Versico's VersiWeld TPO membranes for maximum longevity
- Superior weldability allows for consistent, high-quality seams in penetrations and other critical roof areas
- Available in white, gray, and tan colors to match Versico's VersiWeld TPO membranes

Installation

1. TPO Flashing is used to flash various roofing system details and penetrations. The specific installation method will vary based on the situation.
2. Use a lower temperature setting on the heat welder than when welding reinforced TPO membrane. Typically, a setting of "6" on a scale of "10" is appropriate for welding TPO Flashing.

3. Use the edge of the roller to crease the flashing into any membrane step-offs for a proper seal.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC APPLICATION REQUIREMENTS.

Precautions

1. Review the applicable Safety Data Sheet for complete safety information prior to use.
2. Sunglasses that filter out ultraviolet light are strongly recommended, as tan and white surfaces are highly reflective. Roofing technicians should dress appropriately and wear sunscreen.
3. Store TPO Flashing in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins. TPO Flashing that has been exposed to the weather for approximately 7 days or longer must be prepared with Weathered Membrane Cleaner prior to hot air welding.

TYPICAL PROPERTIES AND CHARACTERISTICS

Properties	ASTM Test Method	Specification
Tolerance on nominal thickness, %	D 412	plus 15/ minus 10
Weight, lb/ft ² (kg/m ²), typical		0.30 (1.5)
Tensile strength, min., psi (Mpa)	D 412 Die C	1200 (8.3)
Elongation, ultimate, min., %	D 412 Die C	600
Tear strength, min., lbf/in (kN/m)	D 624 Die C	250 (43.8)
Ozone resistance, 168h @ 100 pphm, 50% ext.	D 1149	No Cracks
Heat aging: 28 days at 240°F (116°C)	D 573	
Tensile strength, min., psi (MPa)	D 412	1000 (6.9)
Elongation, ultimate, min., %	D 412	500
Tear strength, min., lbf/in (kN/m)	D 624	200 (35.0)
Linear dimensional change, max. %	D 1204	±4
Resistance to Xenon-arc weathering	G 155	No Cracks
Xenon-Arc, 10,080 kJ/m ² total radiant exposure, visual condition at 10X	0.70 W/m ² 80°C B.P.T.	

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED® INFORMATION

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Greenville, IL
Solar Reflectance Index (SRI)	N/A



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10. Adhesive must be allowed to flash-off but not become over dry. If membrane is mated with the substrate prior to the adhesive flashing off, blistering will occur. If membrane is mated with the substrate after the adhesive has over-dried, loose or unadhered areas will occur. Thin application of adhesive increases risk of over-drying.

11. KEEP OUT OF THE REACH OF CHILDREN.

TYPICAL PROPERTIES AND CHARACTERISTICS

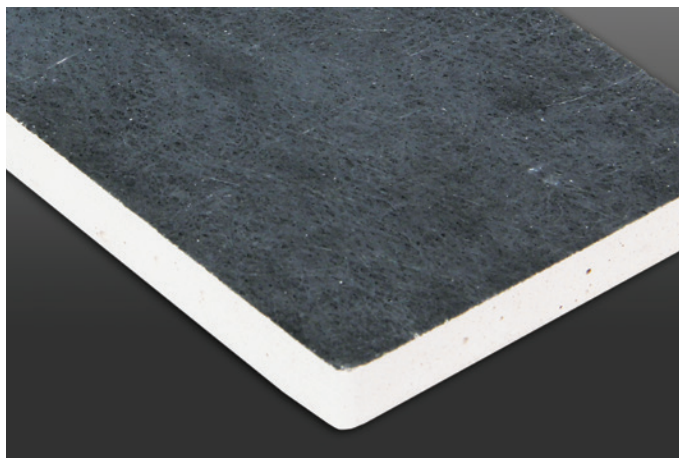
Property	Value
Base	Synthetic rubber
Color	Yellow
Solids	22.2%
VOC	250 g/l max
Flash Point	0°F (-17°C) closed cup
Brookfield Viscosity	2600 centipoise
Avg. Net Weight	8.1 lbs/gal (3.7 kg/gal)
Packaging	5-gal pail
Shelf Life	1 year

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED® INFORMATION

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Carlisle, PA
VOC Content	< 250 g/L

DensDeck® Prime Roof Board



Overview

DensDeck Prime Roof Board's patented design features a gypsum core with embedded glass mat facers on the top and bottom of the board. DensDeck Prime can be used in a variety of commercial roof systems and provides an excellent thermal barrier as well as exceptional fire, moisture, and wind uplift resistance properties.

DensDeck Prime is typically used as a cover board over insulation in fully adhered EPDM, TPO, and PVC applications. It is compatible with solvent-based bonding adhesives. For applications in which Versico's Flexible DASH Adhesive is used to attach insulation and a vapor barrier is specified, DensDeck Prime can be used as a base layer for Versico's VapAir™ Seal 725TR Air and Vapor Barrier (in conjunction with CCW 702-LV or CAV-GRIP® 3V Primer). DensDeck Prime is also compatible with hot asphalt and can be used as a membrane underlayment in hot mopped roofing systems or as a parapet wall substrate in all systems.

Features and Benefits

- UL code ratings available for high slopes and wood decks
- FM Approved
- Improves resistance to foot traffic and hail damage
- Excellent wind uplift ratings
- Resistant to deterioration, warping, and jobsite damage
- 5/8" DensDeck Prime can replace any generic type "X" gypsum board in any roof assembly in the UL Fire Resistance Directory under the prefix "P"

Installation

DensDeck Prime may be secured with Flexible DASH Adhesive, fastened in accordance with an approved fastening pattern, or mopped with Type III or IV asphalt.

Maximum asphalt application temperatures of 425°F to 450°F are recommended. Application temperatures above these recommended temperatures may adversely affect roof system performance.

Edge joints should be located on and parallel to deck ribs. End joints of adjacent lengths should be staggered.

1. This material shall be installed with ends and edges butted tightly.
2. When installed over combustible wood decks or insulations, all joints should be staggered.
3. In accordance with approved shop drawings, FM Approved fasteners shall be installed with plates through the roof board, flush with the surface.
4. When attaching VapAir Seal 725TR, use DensDeck Prime in conjunction with CCW-702, 702-LV, or CAV-GRIP 3V Primer.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

- Panels must be kept dry before, during and after installation. Apply only as much roof board as can be covered by roof membrane in the same day.
- When applying solvent-based adhesives or primers, allow sufficient time for the solvents to flash off.
- 1/4" DensDeck Prime is not recommended for vertical parapet applications.
- In ballasted roofing systems, DensDeck Prime is not an acceptable membrane underlayment.

Ratings and Certifications

- Manufactured to conform to ASTM C-1177
- Tested in accordance with ASTM E-84 or CAN/ULC-S102
- Non-combustible when tested in accordance with ASTM E-136
- UL Classified when tested in accordance with ASTM E-119



DensDeck Prime Roof Board

Typical Properties and Characteristics

Properties	¼" (6.4 mm)	½" (12.7 mm)	⅝" (15.9 mm)
Thickness, nominal	¼" (6.4 mm) ± ⅛" (1.6 mm)	½" (12.7 mm) ± ⅛" (.8 mm)	⅝" (15.9 mm) ± ⅛" (.8 mm)
Width, standard	4' (1219 mm) ± ⅛" (3 mm)	4' (1219 mm) ± ⅛" (3 mm)	4' (1219 mm) ± ⅛" (3 mm)
Length, standard	4' (1219 mm) 8' (2438 mm) ± ¼" (6.4 mm)	4' (1219 mm) 8' (2438 mm) ± ¼" (6.4 mm)	4' (1219 mm) 8' (2438 mm) ± ¼" (6.4 mm)
Weight, nominal, lbs./sq. ft. (Kg/m²) ⁷	1.2 (5.9)	2.0 (9.8)	2.5 (12.2)
Surfacing	Fiberglass mat with non-asphaltic coating	Fiberglass mat with non-asphaltic coating	Fiberglass mat with non-asphaltic coating
Flexural Strength ¹ , parallel, lbf. min. (N)	≥40 (178)	≥80 (356)	≥100 (444)
Flute Spanability ²	2⅝" (67 mm)	5" (127 mm)	8" (203 mm)
Permeance ³ , perms (ng/Pa•S•m²)	>30 (>1710)	>23 (>1300)	>17 (>970)
R Value ⁴ , ft²•°F•hr/BTU (m²•K/W)	0.28	0.56	0.67
Linear Variation with Change in Temp., in/in °F (mm/mm/°C)	8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶)	8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶)	8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶)
Linear Variation with Change in Moisture	6.25 x 10 ⁻⁶	6.25 x 10 ⁻⁶	6.25 x 10 ⁻⁶
Water Absorption ⁵ , % max	5	5	5
Compressive Strength ⁶ , psi nominal ¹	900	900	900
Surface Water Absorption, grams, nominal	1.0	1.0	1.0
Flame Spread, Smoke Developed (ASTM E84)	0/0	0/0	0/0
Bending Radius	4' (1219 mm)	6' (1829 mm)	8' (2438 mm)

¹Tested in accordance with ASTM C473 method B.

²Tested in accordance with ASTM E661.

³Tested in accordance with ASTM E96 (dry cup method).

⁴Tested in accordance with ASTM C518 (heat flow meter).

⁵Tested in accordance with ASTM C1177.

⁶Tested in accordance with ASTM C473.

⁷Represents approximate weight for design and shipping purposes. Actual weight may vary based on manufacturing location and other factors.

LEED® Information

Manufacturing Location ¹	Total Recycled Content ²	Pre-Consumer Recycled Content ²	Post-Consumer Recycled Content ²
Acme, TX	0%	0%	0%
Antioch, CA	0%	0%	0%
Ft. Dodge, IA	0%	0%	0%
Las Vegas, NV	0%	0%	0%
Lovell, WY	0%	0%	0%
Newington, NH	30%	30%	0%
Savannah, GA	0%	0%	0%
Tacoma, WA	14%	14%	0%
Wheatfield, IN	94%	94%	0%

¹Manufacturing locations subject to change. Please visit www.gpgypsum.com and click on Sustainability.

²Recycled content subject to change +/- 1.0%.

³Based on ICC Evaluation Service Verification of Attributes Report for Dens® brand products issued August 1, 2009. www.saveprogram.icc-es.org



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VersiWeld® Bonding Adhesive



Overview

VersiWeld Bonding Adhesive is a high-strength solvent-based contact adhesive that allows bonding of VersiWeld TPO membrane to various porous and non-porous substrates.

Features and Benefits

- Solvent-based bonding adhesive that allows for quick drying
- Can be roller-applied with medium nap roller
- Provides excellent adhesion to various substrates

Coverage Rate

60 sq. ft. (5.6 m²) per gallon finished surface. Coverage rates are average and may vary due to conditions on the jobsite. Porous surfaces and substrates may require more bonding adhesive than the typical coverage rate.

Mixing

Stir thoroughly until all settled pigments are dispersed and the adhesive is uniform in color. Minimum 5 minutes stirring is recommended.

Application

1. The surface, on or against which adhesive is to be applied, shall be clean, smooth, dry, free of fins, sharp edges, loose and foreign materials, oil and grease. Depressions greater than 1/4" (6 mm) should be feathered, using epoxy, mortar or other approved patching material. All sharp projections shall be removed by sweeping, blowing or vacuum cleaning.
2. After thorough stirring (minimum 5 minutes), apply VersiWeld Bonding Adhesive to substrate and membrane using a 9" (23 mm) medium nap roller. Application shall be continuous and uniform avoiding globs or puddles. An open time of 5 to 50 minutes, based on drying conditions is recommended before assembly. VersiWeld Bonding Adhesive must be allowed to dry until it does not string or stick to a dry finger touch. Any coated area which has been exposed to rain should be allowed to dry and then recoated. Do not apply adhesive to splice areas to be hot-air welded.
3. Roll the membrane onto the adhesive coated substrate while avoiding wrinkles. Immediately brush down the bonded portion of the sheet with a soft bristle push broom or a 150 lb. segmented roller to achieve maximum contact.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC APPLICATION REQUIREMENTS.

Precautions

1. Review the applicable Safety Data Sheet for complete safety information prior to use.
2. VersiWeld Bonding Adhesive is **EXTREMELY FLAMMABLE**. It contains solvents that are dangerous fire and explosion hazards when exposed to heat, flame or sparks. Do not smoke while applying. Do not use in a confined or unventilated area. Vapors are heavier than air and may travel along ground or may be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electrical motors, static discharge, or other ignition sources at locations distant from material handling point and flashback. All containers should be grounded when material is transferred from one container to another. A red caution label is required when shipping. A fire extinguisher should be available. In case of fire, use water spray, foam, dry chemical or carbon dioxide. Do not use a solid stream of water because it can scatter and spread the fire.
3. Avoid breathing vapors. Keep container closed when not in use. Use with adequate ventilation. If inhaled, remove to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately. During application, efforts must be made to prevent fumes from entering the building via air ventilation ducts. Do not place open containers or mix adhesive near fresh air intake units. When possible, shut down or seal off the closest units.

VersiWeld Bonding Adhesive

4. If swallowed, DO NOT INDUCE VOMITING. Call a physician immediately.
5. Avoid contact with eyes. Safety glasses or goggles are recommended. If splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
6. Avoid contact with skin. Wash hands thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water. Contact physician if irritation persists.

Note: Permeation-resistant gloves (that meet ANSI/ISEA 105-2005) are recommended to be worn when using this product to protect hands from irritating ingredients.

7. Do not thin VersiWeld Bonding Adhesive. Thinning will affect performance. Excessively thick or gelled material should be discarded.
8. Jobsite storage in excess of 90°F (32°C) may affect product shelf life. Should the VersiWeld Bonding Adhesive be stored at temperatures lower than 60°F (15°C), restore to room temperature prior to use.
9. Opened containers of VersiWeld Bonding Adhesive should be used within 48 hours. Adhesives will begin to thicken after this point, making it difficult, and eventually impossible, to control applied thickness. In hot weather, do not leave sealed containers on roof for prolonged periods of time. In cold weather, keep material at room temperature until ready to use. Stir adhesive occasionally while using.
10. Adhesive must be allowed to dry thoroughly. If membrane is mated with the substrate prior to the adhesive being dry, blistering will occur and not subside over time.
11. KEEP OUT OF THE REACH OF CHILDREN.

Typical Properties and Characteristics

Property	Value
Base	Synthetic Rubber
Color	Yellow
Solids	20%
Flash Point	-4°F (-20°C) Closed Cup
Brookfield Viscosity	2600 Centipoises
Avg. Net Weight	7.1 lbs/gal (3.2 kg)
Packaging	5-gallon pail
Shelf Life	1 year

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Carlisle, PA
VOC Content	670 g/L



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Flexible DASH Dual Tank Adhesive



Overview

Versico's Flexible DASH Dual Tank Adhesive is a two-component, construction-grade, low-rise polyurethane adhesive designed for bonding Versico's VersiFleece® membranes and/or insulation to various substrates. Now featuring an HFO blowing agent, Flexible DASH Dual Tanks have improved characteristics compared to products that use an HFC blowing agent.

Flexible DASH Dual Tank Adhesive is compatible with: Versico Recovery Board, VersiCore® Polyiso, SecurShield® Polyiso, SecurShield HD Plus, expanded polystyrene (EPS), extruded polystyrene (XPS), spray polyurethane foam (new or scarified SPF), DensDeck®, SECUROCK®, and DuraFaceR®.

Compatible deck types include concrete, cellular lightweight concrete (LWC), gypsum, cementitious wood fiber, wood, and painted or galvanized steel. Flexible DASH Dual Tank Adhesive is also compatible with the following roofing materials: smooth (previously exposed) BUR, mineral cap sheets, smooth (previously exposed) or granulated mod bit, aged EPDM, aged Hypalon®, and Versico's VapAir Seal™ 725TR Air and Vapor Barrier.

Labor Saving Features and Benefits

- Reduces labor by eliminating equipment maintenance and breakdowns
- Application time reduced up to 15% when compared to low-pressure dispensing machines
- Increased productivity when Dual Tanks are used simultaneously (each additional Dual Tank can increase productivity up to 100%)



Features and Benefits

- VOC free, self-contained system
- HFO blowing agent
 - Green alternative, offering low GWPs and zero ODPs
 - Easier and more efficient splatter application; dispenses in a more uniform pattern
 - Improved coverage rates by up to 16% versus other canister based insulation and membrane adhesives
 - Improved rise and cell structure
 - Improved and more obvious string time
- Non-penetrating, low noise, low odor
- Superior wind uplift performance
- Added puncture resistance of 33-50% compared to competitive two-component low-rise adhesives
- Consistent elongation properties up to 150%
- FM, UL, Miami Dade and Florida building approvals

Coverage Rate

VersiFleece membrane or insulation attachment to lightweight concrete, concrete, plywood and OSB, plank wood, steel, smooth BUR, mod-bit, mineral cap sheets, SPF, or multiple layers of insulation:

(Application rates may vary depending on ambient temperatures, surface, and substrate absorption rate.)

Approximate Coverage Rate (Sq. Ft.)	Splatter*	4" o.c.	6" o.c.	12" o.c.
	2,600–2,800	1,100–1,300	1,700–1,900	3,500–3,700

*Dual Tank splatter approved for membrane attachment to smooth flat surfaces only. Dual Tank splatter is not approved for insulation attachment.

May vary depending on climate, temperature, humidity, and equipment. Please consult Versico for project-specific bead widths and spacing.

Application

Substrate Preparation

- The surface to which adhesive is to be applied shall be dry, free of fins, protrusions, sharp edges, loose or foreign material, oil, and grease. Depressions greater than 1/4" shall be filled with adhesive or other approved patching material. All sharp projections shall be removed.
- Seal gap between the wall/penetrations and concrete deck with VapAir Seal 725TR, Flashing Foam, or other suitable material to avoid condensation or air infiltration issues.
- Apply Flexible DASH Dual Tank Adhesive when substrate and ambient temperature are 25°F or above.

Flexible DASH Dual Tank Adhesive

4. Bead spacing is minimum. Depending on warranty length and wind coverage, ribbon spacing may be reduced. Refer to published specification and warranty.

Setup

Note: When spraying the dispensing unit for the first time, or when starting a new kit, Versico recommends that users trigger the gun only a quarter to halfway open until the desired output and spray pattern is achieved. This allows complete control of the flow rate and spray pattern that best fits the application.

1. Spray gloves, long sleeves, and protective glasses should be worn during setup and dispensing.
2. In colder temperatures, it is recommended to utilize heated blankets to ensure the tanks are kept warm while dispensing the product.
3. Shake kits for 15–20 seconds before use.
4. Connect hoses to tanks prior to opening the A and B tank valves.
5. Before attaching the nozzle to the dispensing unit, apply a generous amount of petroleum jelly to the face. This will help to prevent contamination by cured foam or chemicals and will help to keep the sealing ports clean. Detailed instructions for attaching the nozzle are included in packaging for A-side tanks.
6. **When applying Flexible DASH Dual Tank Adhesive as a bead, the 14" extension nozzle is required and must be attached to the end of the gun tip before dispensing adhesive. Attach the nozzle extension by rotating the extension tip clockwise onto the end of the gun tip.**
7. **When applying Flexible DASH Dual Tank Adhesive as a splatter application, the 14" extension nozzle should not be used. Splatter application can be achieved by triggering the gun from a distance of 2'–3' off the deck. Adhesive should be dispersed using a horizontal back and forth motion, achieving 50% coverage of the substrate at 3.75 lbs/sq.**
8. Once the trigger is released, it **MUST BE REACTIVATED WITHIN 15 SECONDS** or a new nozzle must be installed. Failure to do this could result in chemical leakage, spills, or splashes which can ruin the dispensing unit and/or hoses.
9. After releasing the trigger, activate the trigger safety to prevent accidental discharge.
10. The dispensing unit face can be kept clean by using petroleum jelly on the face or using a soft cloth to remove residue.
11. **Do not remove the hoses from tanks. Do not flush or clean hoses with air, water, or solvent. Removing and/or cleaning the hoses will compromise the foam.**

Storage

1. Close tank valves.
2. Do not store at temperatures above 100°F or below 40°F for long periods of time.
3. The used nozzle should be removed and the dispensing unit should be cleaned with a splice wipe to help keep outlet ports clean and free from any dust, dirt, or chemicals that can affect the proper sealing of the nozzle. **ALWAYS** engage the trigger safety and close all supply valves during storage. Do not purge adhesive from hose.
4. Do not remove the hoses from tanks. Do not flush or clean hoses with air, water, or solvent. Removing and/or cleaning the hoses will compromise the foam.

Re-use of Dispensing Unit After Storage

1. Check the face of the dispensing unit to ensure outlet ports are clear and the face of the unit is free from dirt, chemicals, or other debris. If necessary, use a soft cloth or rag to remove any cured foam or chemicals from the face of the dispensing unit. The use of petroleum jelly is recommended to cover the face of the dispensing unit to prevent further contamination or if chemical is accidentally leaked into this area.
2. Attach a new or cleaned nozzle to the dispensing unit.
3. Shake kits for 15–20 seconds before use.



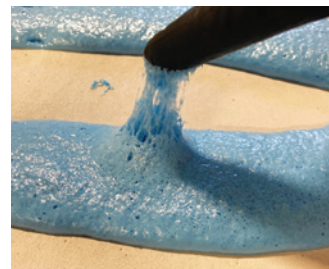
Application of petroleum jelly to spray gun



Shaking of A-side and B-side tanks



Apply using extension nozzle



Performing the string-time test

VersiFleece Membrane Attachment

Slide-in Method:

1. Unroll VersiFleece sheet and position. Fold the sheet back in half lengthwise (end-to-end).
2. Dispense Flexible DASH Adhesive to the substrate.
 - For splatter applications, splatter adhesive to obtain 50% coverage. Ensure end laps are protected from adhesive.
 - For bead applications, apply at 4", 6", or 12" on center with a min. 1.5" wide foamed bead. Ensure end laps are protected from adhesive.
3. Once "string time" occurs, gradually feed VersiFleece sheet into Flexible DASH Adhesive, checking for "string/body" every few feet. Stop feeding VersiFleece sheet into adhesive when applicator reaches adhesive that has NOT developed "string/body". Immediately begin to roll membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until VersiFleece sheet is fully installed.

Roll-in (Mod Bit) Method:

1. Keeping the VersiFleece sheet on the core, position roll of VersiFleece membrane at the designated starting point.
2. Dispense Flexible DASH Adhesive to the substrate.
 - For splatter applications, splatter adhesive to obtain 50% coverage. Ensure end laps are protected from adhesive.
 - For bead applications, apply at 4", 6", or 12" on center with a min. 1.5" wide foamed bead. Ensure end laps are protected from adhesive.
3. Once "string time" occurs, gradually roll VersiFleece membrane into Flexible DASH Adhesive, checking for "string/body" every few feet. Stop rolling VersiFleece into adhesive when applicator reaches adhesive that has NOT developed "string/body". Immediately begin to roll membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until VersiFleece sheet is fully installed.

Insulation Attachment:

1. Dispense Flexible DASH Dual Tank Adhesive at the appropriate coverage rate. For steel decks, beads of adhesive must run parallel with, and be on top of, all of the flutes.
2. Place insulation boards (maximum 4' x 4' insulation boards when adhesive is dispensed at 12" o.c. or when boards exceed 4" thickness, or 4' x 8' insulation boards when adhesive is applied at 4", or 6" beads) into adhesive after allowing it to rise and develop "string/body". String time will vary based on environmental conditions like temperature and humidity. Do not allow the adhesive to over-cure prior to setting insulation boards.

3. Bead spacing guidelines for 5-, 10-, or 15-year, 55-mph warranties are listed below. Previously unexposed asphalt must be primed with CAV-GRIP® 3V.

Building Height	Bead Spacing (Perimeter)	Bead Spacing (Field)
0' – 25'	6" o.c. - 4'	12" o.c.
25' – 50'	6" o.c. - 8'	12" o.c.
50' – 75'	6" o.c. - 12'	12" o.c.
75' – 100'	6" o.c. - 16'	12" o.c.
100' or greater: Contact Versico for bead spacing requirements		

4. Designate one person to walk boards into place and then roll with a 150-lb. segmented roller 5 to 7 minutes from the initial adhesive application. Boards may be temporarily weighted or relief cut where necessary to keep boards in constant contact with the adhesive until adhesive is cured.
5. At the beginning of the insulation attachment process and periodically throughout the day, check the adhesion of boards to ensure a tight bond has been created and maximum contact has been achieved.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC APPLICATION REQUIREMENTS.

Disposal Procedures

1. Eye protection and impervious gloves MUST be worn during disposal procedures.
2. **DO NOT dispose of, puncture, or incinerate cylinder tanks while under pressure.**
3. When the job is completed or tanks are empty, pressure must be released from the tanks.
4. With the tank valves open, trigger Dual Tank gun open 100%, discharging remaining adhesive, as well as pressure and propellant, into a lined waste container.
5. After cylinders are empty of all pressure and propellant, tanks must be vented. **CAUTION: tanks could still be under pressure.**
6. Close valves and release remaining pressure from hoses. Remove hoses, flip tank upside down, and with tank valve positioned AWAY from face and others, slowly reopen tank valve and allow excess pressure and or chemical to drain into a lined waste container and allow pressure to completely vent.

CAUTION: All pressure MUST be vented 100%. Empty tanks could contain potential vapor toxicity hazard. Provide adequate ventilation or respiratory protection (consult SDS).

Flexible DASH Dual Tank Adhesive

7. Once cylinder is empty and vented, carefully puncture the friable disc on the top of the cylinder. Cylinders should sit for 30 minutes prior to disposal.
8. DISPOSE OF EMPTY CYLINDERS AND EXCESS CHEMICAL ACCORDING TO APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
9. For recycling information, check with local municipality, or contact Clean Earth.

Clean Earth Locations

Address	City/State/Zip	Phone Number
1689 Shar-Cal Road	Calvert City, KY 42029	270-605-2105
1750 Morgantown Industrial Park	Morgantown, WV 26501	304-292-0659
402 Webster Chapel Road	Glencoe, AL 35905	800-739-9156
30677 Huntwood Avenue	Hayward, CA 94544	510-429-1129
1733 Morgan Road	Modesto, CA 95358	510-429-1129
4132 Pompano Road	Charlotte, NC 28216	704-395-9559

Precautions

- **Flexible DASH Dual Tank splatter application is NOT approved for walls.**
- Review the applicable Safety Data Sheet (SDS) for complete safety information prior to use.
- The foam produced is an organic material. It must be considered to be combustible and may constitute a fire hazard. Foam adhesive must not be left exposed or unprotected. Shield from heat and sparks.
- Do not smoke during application.
- Use with adequate ventilation. Avoid breathing vapors. Wear a NIOSH- or MSHA-approved respirator for organic vapors with prefilters and solvent-resistant cartridges if concentrations of MDI exceed the TLV or are unknown. Proper safety training is essential for all persons involved in the application process. If inhaled, remove to fresh air and administer oxygen if breathing is difficult. Consult a physician immediately.
- Avoid contact with eyes. Safety glasses or goggles are required. If splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.

- Avoid contact with skin. Wear long sleeves and pants. Wash thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water or corn oil.

NOTE: Nitrile gloves are required when handling Part A directly.

- Extended storage temperatures in excess of 90°F may affect product shelf life.
- Do not store in temperatures below 40°F.
- Do not allow material to freeze.
- If the components are stored at temperatures lower than 70°F, restore to 70°F before using adhesive.
- High-slope applications require adhesive to be applied to the back of the insulation board on a flat surface.
- KEEP OUT OF THE REACH OF CHILDREN.

Typical Properties and Characteristics

	Dual Tank-A	Dual Tank-B
Base	Polymeric Isocyanate	Polyols, Surfactants, Catalyst
Average Net Weight	9.8 lbs/gal	9.3 lbs/gal
Packaging	62 lbs (28.1kg)	54 lbs (24.5 kg)
Shelf Life	1 year	1 year

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Tomball, TX

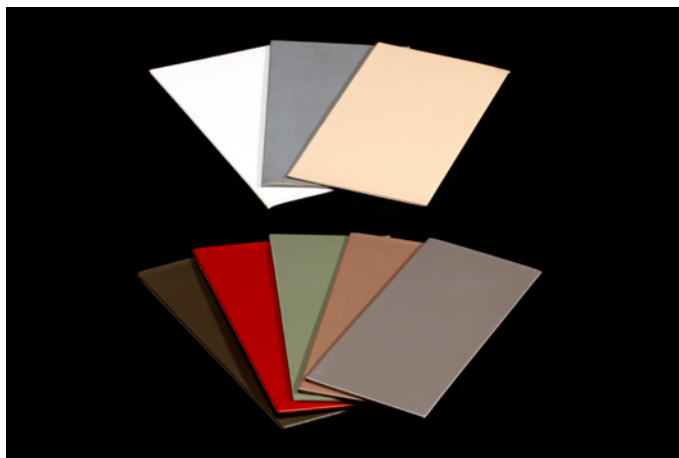
For more information on substrate compatibility, please refer to the chart found on the Flexible DASH Adhesive Technical Data Bulletin.



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VersiWeld® TPO Coated Metal



Overview

VersiWeld TPO Coated Metal is a 24-gauge (0.6 mm) galvanized steel sheet that is coated with a layer of .035" non-reinforced TPO flashing. TPO membrane may be welded directly to the coated metal, eliminating the need to strip in the metal with a separate piece of TPO Pressure-Sensitive Coverstrip. The sheet is cut into the appropriate width and used to fabricate metal drip edges or other roof perimeter edging profiles.

Versico's TPO Coated Metal is part of Versico's comprehensive TPO accessory offering that meets the stringent quality tolerances required to be included in a Versico warranted roofing system.

Features and Benefits

- Allows direct welding of TPO membrane to the metal, eliminating the need to strip in edging with additional TPO Pressure-Sensitive Coverstrip.
- Easy to cut and form for creating a variety of edge sizes and profiles.

Installation

1. Install TPO Coated Metal with 1/8" to 1/4" (3–6 mm) between adjoining sections.
2. Install 2"-wide (5 cm) duct tape over joints in TPO Coated Metal.
3. Heat weld 6"-wide (15.5 cm) piece of TPO non-reinforced flashing over joint.
4. Position TPO reinforced membrane and heat-weld to the TPO Coated Metal with a minimum 1 1/2" (4 cm) weld.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

Store coated metal in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins. TPO Coated Metal that has been exposed to the weather must be prepared with Weathered Membrane Cleaner prior to hot-air welding.

Typical Properties and Characteristics

Property	Value
Sheet Size	4' by 10' (1.2 m by 3.0 m)
Weight	1.1 lb/ft ² (5.4 kg/m ²)
Color	Gray, White, Tan, Patina Green, Rock Brown, Terra Cotta, Medium Bronze, and Slate Gray
Flashing Thickness	0.035" (0.9 mm) nominal
Steel Thickness	0.024" (0.6 mm) nominal (24 gauge)
Steel Type	Hot Dipped Galvanized Steel–G90
Conforms to ASTM A653	
Packaging	10 or 25 sheets per pallet - White, Gray, and Tan 5 sheets per pallet - Patina Green, Rock Brown, Terra Cotta, Medium Bronze, and Slate Gray

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED® Information

Pre-consumer Recycled Content	0
Post-consumer Recycled Content	0
Manufacturing Location	Franklin Park, IL
Solar Reflectance Index (SRI)	N/A



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CLEAR CUT-EDGE SEALANT



Overview

Versico's Cut-Edge Sealant is a medium solids content, free-flowing, polymeric material to be used for sealing cut edges of VersiWeld™ Reinforced Membrane. It is available in clear for use with various colors of VersiWeld Membrane.

Versico Cut-Edge Sealant is used to seal cut edges of TPO Membrane, providing a waterproof barrier where scrim reinforcement is exposed.

Features and Benefits

- Provides excellent sealing of exposed fabric at cut membrane edges
- Squeeze-bottle packaging allows easy, no-mess application
- Available in clear for use with various colors of VersiWeld membrane

Coverage Rates

Approximately 115'–140' (35–45 m) per 8-oz. bottle when applied with 1/8" (3 mm) bead. Approximately 225'–275' (70–85 m) per 16-oz. bottle when applied with 1/8" (3 mm) bead.

Application

1. All surfaces to be sealed with Cut-Edge Sealant must be clean, dry and free from oil, grease, dirt and other foreign materials.
2. Apply a 1/8" (3 mm) bead of Cut-Edge Sealant from the plastic squeeze bottle to seal cut edges of reinforced VersiWeld Membrane. Do not apply Cut-Edge Sealant on vertical surfaces.
3. Sealant should be tack-free in 2 hours and fully cured in 24 hours depending on weather conditions and application thickness.

NOTE: Clear Cut-Edge Sealant may not be compliant in all Low-VOC states.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC APPLICATION REQUIREMENTS.

Precautions

1. Review the applicable Material Safety Data Sheet for complete safety information.
2. Cut-Edge Sealant is FLAMMABLE – it contains solvents that are dangerous fire and explosion hazards when exposed to heat, flame or spark. Do not smoke while applying. Do not use in a confined area or unventilated area. Vapors are heavier than air and may travel along the ground to a distant ignition source and flashback.
3. Avoid breathing vapors. Keep container closed when not in use. Use with adequate ventilation. If inhaled, remove to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.
4. If swallowed, DO NOT INDUCE VOMITING. Call a physician immediately.

5. Avoid contact with eyes. Safety glasses or goggles are recommended. If splashed in eyes, immediately flush eyes with plenty of water for at least 15 minutes. Contact a physician immediately.
6. Avoid contact with skin. Permeation-resistant gloves (that meet ANSI/ISEA 105-2005) recommended. Wash thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water.
7. Jobsite storage temperatures in excess of 90°F (32°C) may affect product shelf life. Should the Cut-Edge Sealant be stored at temperatures below 60°F (15°C), restore to room temperature prior to use.
8. KEEP OUT OF THE REACH OF CHILDREN

TYPICAL PROPERTIES AND CHARACTERISTICS

Property	Value
Base	Synthetic Rubber
Color	Clear
Solids	14%
Viscosity	3,500 cps
Flash Point	39°F (4°C)
Net Weight Gallon	7.4 lbs (3.3 kg)
Resistance to:	
Ozone	Excellent
UV	Excellent
Water	Excellent
VOC	750 g/l
Packaging	Eight 16-oz. bottles/carton (3.8 L) Two 8-oz. bottles/carton
Shelf Life	1 year

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED® INFORMATION

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Rockland, MA
VOC Content	733 g/L

G-500 CM Water Cut-off Mastic



Overview

Let Versico simplify your next membrane installation with its Water Cut-Off Mastic. Water Cut-Off Mastic is a one-component, low-viscosity, self-wetting, butyl-blend mastic designed to be used in conjunction with roofing and waterproofing systems. It is primarily used as a sealing agent between various membranes and applicable when membrane is being terminated using a compression-type seal.

Water Cut-Off Mastic is an extremely tacky material and will remain as such when used with compression-type terminations.

Features and Benefits

- Extremely tacky
- Provides a durable compression-type seal between various membranes and parapet wall constructions

Coverage Rate

10 linear feet per tube at the recommended application rate of a ½" bead.

Application

1. All surfaces to be sealed with Water Cut-Off Mastic must be free of moisture, oil, dirt and other foreign materials. Water Cut-Off Mastic cannot be used on insulation.
2. Apply a ½" (13 mm) bead of Water Cut-Off Mastic between the substrate and the edge of the membrane.
3. Apply appropriate termination material and secure to provide constant compression for the Water Cut-Off Mastic.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC APPLICATION REQUIREMENTS.

Precautions

- Review the applicable Safety Data Sheet for complete safety information prior to use.
- Water Cut-Off Mastic is **FLAMMABLE** – It contains solvents that are dangerous fire and explosion hazards when exposed to heat, flame or sparks. Store and use away from all sources of heat, flame or sparks. Do not smoke while applying. Do not use in a confined or unventilated area. Vapors are heavier than air and may travel along ground to a distant ignition source and flashback.
- Avoid breathing vapors. Keep container closed when not in use. Use with adequate ventilation. If inhaled, remove to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.
- If swallowed, **DO NOT INDUCE VOMITING**. Call a physician immediately.
- Avoid contact with eyes. Safety glasses or goggles are recommended. If splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
- Avoid contact with skin. Wash hands thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water.
Note: Permeation-resistant gloves (that meet ANSI/ISEA 105-2005) are recommended to be worn when using this product to protect hands from irritating ingredients.

G-500 CM Water Cut-off Mastic

Typical Properties and Characteristics

Physical Property	Value
Color	Gray
Solids	80%
Flash Point	40°F (4°C) Closed Cup
Service Temperature	-40°F to 200°F (-40°C to 93°C)
Specific Gravity	1.29
Cold Weather Flexibility	Excellent
Average Brookfield Viscosity	1,320,000 cps
Packaging	25 tubes/carton
Clean Up	Weathered Membrane Cleaner
Average net weight/gallon	28 lbs (13 kg)
Shelf Life	1 year, unopened container

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Carlisle, PA
Solar Reflectance Index	250 g/L



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Universal Single-Ply Sealant



Overview

Versico's Universal Single-Ply Sealant is a 100% solids, solvent-free, one-part polyether sealant that provides a weather-tight seal to a variety of substrates. Universal Single-Ply Sealant can be used as a sealant above Termination Bar for VersiWeld® TPO, VersiFlex™ PVC, and White VersiGard® EPDM fully adhered and mechanically attached roofing systems. It is also excellent for use in counter flashing, coping, and scupper details. Available in White and Gray.

Features and Benefits

- Excellent adhesion to a variety of substrates
- Low VOC
- Wide range of applications
- Gray is approved for use as a lap sealant on Gray VersiGard Uncured EPDM Flashing

Coverage Rate

25' (7.6 m) per tube or 600' (183 m) per carton using a 1/4" (8 mm) bead.

Application

1. Universal Single-Ply Sealant is a one-component, ready-to-use material that requires no mixing or preparation.
2. Surface preparation: Surfaces shall be dry, clean, and free of all dust or contamination that may negatively affect adhesion. Cleaning with Versico's Weathered Membrane Cleaner or Low-VOC Membrane Cleaner may be required.
3. Use a high-quality caulking gun to ensure ease of application.
4. Universal Single-Ply Sealant typically is tack-free in 25 minutes and skins over within 45 minutes. Full cure occurs in 3 to 7 days, depending on temperature and humidity levels.
5. Clean up: Remove excess sealant adjacent to joint prior to cleaning with Versico's Weathered Membrane Cleaner or Low-VOC Membrane Cleaner.

IMPORTANT – Gray Universal Single-Ply Sealant is required for use as a lap sealant when installing Gray VersiGard QA Uncured Flashing to Gray TPO membrane. To ensure adequate adhesion, primer must be installed to the surface of the Uncured Flashing in any area that is to receive the Gray Universal Single-Ply Sealant.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC APPLICATION REQUIREMENTS.

Precautions

- Store in original, unopened containers in a cool, dry area. Protect unopened containers from heat and direct sunlight. Elevated temperatures will reduce shelf life.
- Do not use Universal Single-Ply Sealant in temperatures below 40°F (4°C).
- For industrial professional use only. May not be repackaged or resold for other than industrial or professional use.
- Avoid prolonged contact with skin.
- Uncured adhesive is an eye irritant. In case of contact with eyes, immediately flush with water.
- Do not ingest. If ingested, contact a physician immediately.

Universal Single-Ply Sealant

Typical Properties and Characteristics

Color	White or Gray
Viscosity	850,000 Cps.
Tack-Free Time	25 minutes depending on temp/humidity
Cure Time	3-7 days depending on temp/humidity
Flow, Sag, or Slump	None (¼" [8 mm] Bead)
Staining	None
Ozone Resistance	Good
UV Resistance	Excellent
Cured Hardness (Shore A)	17-55
Shear Strength	150-208 PSI
Weight per Carton	25 lbs (11.3kg) @ 24/ctn 12.5 lbs (5.7kg) @ 12/ctn
Packaging	White – 24 Cartridges, 10.1 fl. oz. (298 mL) each Gray – 12 Cartridges, 10.1 fl. oz. (298 mL) each
Shelf Life	12 months, unopened container @ 90°F (32°C)
VOC Content	22 g/L

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	MI
Solar Reflectance Index	N/A



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Fastening and Termination Bars

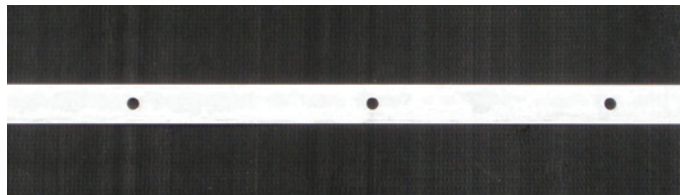


Polymer Batten Strip

The Polymer Batten Strip is an engineered polymer bar that is used to mechanically attach EPDM membranes per Versico Specifications. The bar is packaged in a 1" x 250' coil that has pre-punched holes every 3" on center. The strip can be easily cut to any desired length. When installing, make sure that all corners of cut strip are rounded. Install the strip using HPV or HPVX Fasteners.

Typical Properties and Characteristics

Material	Engineered Polymer
Dimensions	1" (25 mm) wide x 250' (76 m) long
Packaging	250 lf (76 m) per carton
Weight	10 lbs (5 kg) carton
Recycled Content	49% pre-consumer recycled content
Manufacturing Location	Cleveland, OH



Metal Fastening Bar

The Metal Fastening Bar is a Galvalume™ coated metal that is used to mechanically attach EPDM membranes per Versico Specifications. The bar is packaged in 1" x 10' lengths, 500 linear feet per package and has pre-punched holes every 6" on center. The bar can be easily cut to any desired length. When installing, make sure that all corners of cut bar are rounded. Install the bar using HPVX Fasteners.

Typical Properties and Characteristics

Material	Galvalume Coated Metal
Dimensions	1" (102 mm) wide x 10' (3 m) long
Packaging	50 pcs; 500 lf (152 m) per carton
Weight	85 lbs (39 kg) carton
Recycled Content	0% pre-consumer recycled content
Manufacturing Location	Addison, IL

Fastening and Termination Bars



Termination Bar

The Termination Bar is an extruded aluminum bar that is designed for securing and sealing compression type flashing terminations per Versico Specifications. The bar is packaged in 1" x 10' lengths, 500 linear feet per package and has pre-punched holes every 6" on center. This bar features a top edge for ease of applying Versico's Lap Sealant for EPDM installations or Universal Single Ply Sealant for TPO, PVC, and KEE HP installations. The bar can be easily cut to any desired length. When installing, make sure that all corners of cut bar are rounded. Install the bar using HPVX Fasteners, or Term-Bar Nail-In Fasteners.

Typical Properties and Characteristics

Material	6036-T6 Extruded Aluminum
Dimensions	1" (25 mm) wide x 10' (3 m) long
Packaging	50 pcs; 500 lf (152 m) per carton
Weight	69 lbs (31 kg) carton
Recycled Content	0% pre-consumer recycled content 15% post-consumer recycled content
Manufacturing Location	Cleveland, OH



Ballast Retaining Bar

The Ballast Retaining Bar is an extruded aluminum bar that is designed as a ballast retaining perimeter securement system, which comes packaged in 4" x 10' lengths, 250 linear feet per package. The ballast retaining bar has pre-punched holes every 6" on center for installation, and also has pre-punched drainage holes every 4" on center.

Typical Properties and Characteristics

Material	6036-T6 Extruded Aluminum
Dimensions	4" (102 mm) wide x 10' (3 m) long
Packaging	25 pcs; 250 lf (76 m) per carton
Weight	123 lbs (56 kg) carton

VERSIWELD® TPO PRESSURE-SENSITIVE COVERSTRIP



Features and Benefits

Pressure-sensitive adhesive is compatible with a variety of metal finishes and allows for a fast, simple installation with no welding required.

Installation

1. Clean the existing membrane (and metal if applicable) with Weathered Membrane Cleaner and Splice Wipes or other natural fiber rags. A Primer Pad may be necessary to remove a heavy build-up of dirt. Pour a small amount of Weathered Membrane Cleaner over a primer pad and rub area to be welded in a circular motion. Wipe away residual dirt with Splice Wipes or other natural fiber rags.
2. Roller-apply TPO Primer or Low-VOC TPO Primer to the area of the membrane to be flashed with a short nap-length paint roller. The properly primed area will be uniform in color without streaks and free of globs or puddles.
*Do not use V-150 Primer on TPO membrane
3. The entire surface where the flashing will be applied must be clean. The adhesive on the back of the TPO PS Coverstrip will not adhere to dusted/dirty surfaces. Any residual surface contamination will be detrimental to the bond strength of the adhesive.
4. Install TPO PS Coverstrip immediately after TPO Primer or Low-VOC TPO Primer flashes off to minimize potential dust contamination and to promote adhesion in colder weather.
5. Peel off 10-12" (250-300 mm) of the protective release liner from the PS Coverstrip. Position the flashing over the area to be covered and press down using firm, even hand pressure across the entire area. Continue this process until the full area to be flashed is completed. (Cut-Edge Sealant is not required on edges of TPO PS Coverstrip.)

Overview

VersiWeld TPO Pressure-Sensitive (PS) Coverstrip is a nominal 30-mil (0.76 mm) non-reinforced TPO flashing laminated to a nominal 30-mil (0.76 mm), fully cured synthetic rubber pressure-sensitive adhesive. PS Coverstrip is available in 6" (152 mm) wide x 100' (30.5 m) long rolls and three (3) membrane colors – white, gray, and tan.

TPO PS Coverstrip is intended to strip in flat metal flanges (i.e. drip edge or self-flashing curb flanges).

Note: TPO PS Coverstrip cannot be used for flashing corners, pipes, T-joints, butt joints or on VersiFleece TPO systems or any angled metal flanges such as gravel stops or other canted metal edgings.

Versico's VersiWeld TPO PS Coverstrip is part of the Certified Fabricated Accessory (CFA) program. Certified Fabricated Accessories are the only factory-fabricated TPO accessories that meet the stringent quality tolerances required to be included in a Versico warranted roofing system.



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6. Immediately roll the TPO PS Coverstrip with a 2"-wide (50-mm) silicone roller using positive pressure. Roll across the coverstrip edge, not parallel to it. In areas where the TPO PS Coverstrip crosses a metal joint, a membrane seam (T-joint) or at an end lap, use a hot air gun to heat the top surface (TPO flashing) of the TPO PS Coverstrip and crease the material into the step-off. This process reduces the possibility of a water channel forming.
7. To achieve proper adhesion of the TPO PS Coverstrip when jobsite temperatures fall below 40°F (5°C), heat the cleaned/primed area of the membrane with a hot air gun as the flashing is applied and pressed into place.

8. Do not allow waste products (petroleum, grease, oil, solvents, vegetable or mineral oil, animal fats, etc.) or direct steam venting to come in contact with the PS Coverstrip.
9. KEEP OUT OF THE REACH OF CHILDREN.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

1. TPO PS Coverstrip cannot be used for flashing corners, pipes, T-joints, butt joints or on VersiFleece TPO systems or any angled metal flanges such as gravel stops or other canted metal edgings.
2. Avoid prolonged contact with skin. In case of contact with skin, thoroughly wash affected area with soap and water.
3. Prolonged jobsite storage temperatures in excess of 90°F (32°C) may affect product shelf life.
4. In warm, sunny weather keep TPO PS Coverstrip rolls in their box or in a shaded area until ready to use.
5. Storage and use of TPO PS Coverstrip at temperatures below 40°F (4°C) will result in a loss of adhesive tack, and in extreme cases, will result in no bond to the substrate. Overnight storage must be available to keep the temperature of the TPO PS Coverstrip at a minimum of 60°F (15°C). Hot boxes for jobsite storage must be provided to maintain a minimum product temperature of 40°F (4°C).
6. TPO PS Coverstrip must be stored in a dry area.
7. Due to solvent flash-off, condensation may form on freshly applied TPO Primer when the ambient temperature is near the dew point. If condensation develops, the application of TPO Primer and TPO PS Coverstrip must be discontinued since proper adhesion will not be achieved. Allow the surface to dry and apply a thin freshener coat of TPO Primer to the previously coated surface and apply TPO PS Coverstrip when conditions allow.

TYPICAL PROPERTIES AND CHARACTERISTICS

Physical Property	Test Method	Typical
Tensile Strength, psi (MPa)	ASTM D412	2,500 (17.2) Minimum 2,900 (20.0) Typical
Elongation, %	ASTM D412	600 Minimum 750 Typical
Hardness, Shore A	ASTM D2240	Typical 80
Color		White, gray and tan
Base		Membrane - Non-reinforced TPO Adhesive - Synthetic Rubber
Solids		100%
Nominal Thickness		0.060" (1.52 mm)
Nominal Width		Membrane - 6" (152 mm) Adhesive - 6-1/4" (159 mm)
Nominal Length		100 ft. (30.5 m)
Net Weight per Roll		22 lbs. (10 kg)
Packaging		2 Rolls/Cartron
Shelf Life		1 Year

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED® INFORMATION

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Michigan Center, MI
Solar Reflectance Index (SRI)	N/A

WHITE ONE-PART POURABLE SEALER



Overview

Let Versico simplify your next white membrane installation with its White One-Part Pourable Sealer. White One-Part Pourable Sealer is a single-component, moisture-curing, elastomeric polyether sealant that is compatible with all Versico roofing membranes. The material is designed to provide a flexible, durable and long-lasting seal around hard-to-flash penetrations in Versico Roofing Systems. White One-Part Pourable Sealer provides rapid skin time when exposed to atmospheric moisture, forming a waterproof rubber surface in less than one (1) hour. Moisture curing continues until a two (2)-inch-deep solid rubber seal encases the penetration. Complete cure time will vary depending on relative humidity and temperature. The sealant's one-part, pourable consistency allows for quick pocket filling without mixing. Unused sealant remaining in the pouch will remain useable for up to 30 days if pouch is resealed with original cap.

Features and Benefits

- Ready to use, no mixing required
- Pouch can be resealed with original cap
- Provides a flexible, durable and long-lasting seal around hard-to-flash penetrations
- Provides a watertight seal in less than one hour

Coverage Rate

One 0.5-gallon (2-liter) pouch will fill 122 cubic inches of volume within a sealant pocket. For example, one (1) 6" Versico Pourable Sealer Pocket (56 cubic inches) will require 0.23 gallons (0.87 liters) of pourable sealer to fill completely (with no penetrations).

Application

1. Surfaces must be free of moisture, dirt and any contaminants. Any previously applied asphalt, caulking or sealants must be removed from the penetration(s).
2. Fill any voids in the roof deck around the penetration(s) to prevent sealant from seeping through the roof. Pourable Sealer must be a minimum of 2" (50 mm) deep. All penetrations must be a minimum of 1" (25 mm) from the sides of the pocket.
3. **For EPDM Installations**
Install Versico's Quick-Applied (QA) Pourable Sealer Pocket in accordance with the VGC-16.1 detail. Apply Versico's EPDM Primer to all surfaces, including the deck membrane, penetration and uncured flashing that will be in contact with the One-Part Pourable Sealer. Primer should not be applied to the blue plastic strip that forms the inside wall of the QA Pourable Sealer Pocket. Allow primer to flash-off until it does not transfer to a dry finger touch yet remains tacky.

For TPO Installations

Install Versico's TPO Molded Sealant Pockets in accordance with the TPC-16.1 detail. Apply Versico's TPO Primer to all surfaces, including the deck membrane, penetration and uncured flashing that will be in contact with the One-Part Pourable Sealer. Allow primer to flash-off until it does not transfer to a dry finger touch yet remains tacky.

For PVC Installations – Do not use Primer Install Versico's PVC Molded Sealant Pockets in accordance with the TPC-16.1 detail. Clean all surfaces with PVC cleaner, including the deck membrane, penetration and all surfaces of the pocket that will be in contact with the One-Part Pourable Sealer. Allow the PVC cleaner to dry.

4. Remove cap from 0.5-gallon (2-liter) pouch and pour One-Part Pourable Sealer directly into pocket. Fill pocket completely until rim is covered with One-Part Pourable Sealer, making sure all voids are filled.
5. To save unused sealant, squeeze air from pouch and replace cap. Unused sealant should be used within 30 days.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC APPLICATION REQUIREMENTS.

Precautions

6. Review the applicable Material Safety Data Sheet for complete safety information prior to use.
7. Avoid breathing vapors. Keep container closed when not in use. Use with adequate ventilation. If inhaled, remove to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.
8. If swallowed, DO NOT INDUCE VOMITING. Call a physician immediately.
9. Avoid contact with eyes. Safety glasses or goggles are recommended. If splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
10. Avoid contact with skin. Wash hands thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water.
11. Do not thin. Thinning will affect performance.
12. Shelf life is based on storage in original, unopened or undamaged containers at temperatures ranging from 60°F to 80°F (15°C to 26°C). Should the White One-Part Pourable Sealer be exposed to lower temperatures, restore to room temperature prior to use.
13. Coverage rates are average and may vary due to conditions of the jobsite.
14. KEEP OUT OF THE REACH OF CHILDREN.

TYPICAL PROPERTIES AND CHARACTERISTICS

Property	Value
Specific Gravity	1.37 (11.5 lbs/gal) – 1.44 (12 lbs/gal)
Viscosity (Brookfield RTV), cps	Self leveling 20,000 – 50,000
Color	White
Odor	Mild ester smell (mint) when wet. Odorless when dry.
Elongation @ Break, % ASTM D0412 (7-day ambient cure)	450
Hardness, (Shore A) ASTM C0661	25–35
Tack-Free Time ASTM C0679	Less than 1 hour
Low temperature flex PASS	Minus 20°F (-29°C)
Service temperature ASTM 2453	Minus 40°F to 200°F (-40°C to 93°C)
Packaging	4 0.5-gallon pouches per bucket 4 2-liter pouches
Weight per carton	29 lbs/bucket (13.15 kg)
Shelf life (unopened container)	12 months

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED® INFORMATION

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
VOC Content	<25 g/l
Manufacturing Location	Schoolcraft, MI

VersiWeld® Molded Sealant Pockets



Overview

Let Versico simplify your next VersiWeld TPO installation with VersiWeld TPO Molded Sealant Pockets. The Molded TPO Sealant Pockets consist of an interlocking, two-piece, injection molded flexible pocket with a rigid polypropylene vertical wall and pre-formed deck flanges. Pockets can be adjusted from 11 ½" to 7 ½" in length by following the cutting lines molded into the pocket. This product, in conjunction with TPO Primer and White One-Part Pourable Sealer, is used to waterproof pipe clusters or other odd shaped penetrations on VersiWeld TPO Roofing Systems.

Versico's VersiWeld TPO Molded Sealant Pockets are part of the Certified Fabricated Accessory (CFA) program. Certified Fabricated Accessories are the only factory-fabricated TPO accessories that meet the stringent quality tolerances required to be included in a Versico warranted roofing system.

Intended Uses

TPO Molded Sealant Pockets are interlocking, two-piece, injection molded weldable pockets and are used to waterproof pipe clusters or other odd shaped penetrations.

Features and Benefits

- Provides substantial labor savings compared to field fabricating a sealant pocket from coated metal or other material
- Provides a reliable method to permanently waterproof odd shaped penetrations
- Size may be enlarged with the use of VersiWeld Pocket Extensions
- Professional finished appearance
- Built-in extension legs provide size flexibility
- Molded in place cutting lines allows for four different Sealant Pocket sizes

Installation

1. Place the TPO Molded Sealant Pocket around the penetration to determine if reduction of size is required (a minimum of 1" from penetration(s) is needed on any side). Pocket may be adjusted in size by cutting the vertical wall and pre-formed deck flange along any of the molded cutting lines.
2. Clean all the areas of the Molded TPO Sealant Pocket that will be welded (along with all inside surfaces), as well as the deck membrane and penetration(s) with Weathered Membrane Cleaner. (Use a Primer Pad with the cleaner if the membrane has been exposed for an extended period of time).
3. Place the Molded TPO Sealant Pocket around penetration(s), overlapping the two sections of the pocket.
4. Cut a piece of cardboard (approx. 4" x 4") and place between the overlapping area of the Molded TPO Sealant Pocket and the deck membrane. The cardboard prevents the pocket from welding to the membrane when first welding the overlaps.
5. Using a hand-welder, weld the angle change in overlap area. Using the end of a seam probe assists in this process. (The hand-welder temperature setting should be between 5 and 6).
6. Hand-weld the remainder of the horizontal overlap.
7. Repeat steps 4 and 5 to weld the overlap on the other side of the Molded TPO Sealant Pocket.
8. Position the Molded TPO Sealant Pocket so the vertical overlap is against the penetration. This will allow proper pressure to be applied to the overlap with the 2" silicone roller.
9. Weld both vertical overlaps starting at the angle change and progressing to the top of the pocket.
10. After properly positioning the pocket, make tack-welds on all four sides of the flange to hold it in place during the final welding process.



VersiWeld Molded Sealant Pockets

11. Weld the entire horizontal flange to the deck membrane.
12. Once completely cool, using seam probe, check all splices for voids and cold-welds. Make any needed repairs.
13. Apply a thin coat of TPO Primer to the inside and around the top rim of the pocket, to the deck membrane enclosed by the pocket and to the penetration using a small paint brush.
14. Fill the pocket with sealant. Use an adequate amount of sealant to ensure that contact is made with the top rim of the pocket.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

- Temperature of penetration shall not exceed 160°F (71°C).
- The inside of the sealant pocket and all penetrations must be cleaned with Weathered Membrane Cleaner then coated with TPO Primer prior to filling with sealant.
- Versico's White One-Part Pourable Sealer must completely fill sealant pocket.
- The walls of the sealant pocket must be a minimum of 1" from any penetration.
- UV filtering sunglasses are strongly recommended when working on VersiWeld Roofing Systems.
- Store sealant pockets in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins. Sealant Pockets or membrane that has been exposed to the weather must be prepared with Weathered Membrane Cleaner prior to hot air welding. (Primer pads must be used if the membrane has been exposed for an extended period of time.)

Typical Properties and Characteristics

Size	6" wide x 2" high. Can be adjusted from 7½" to 11½" in length.
Packaging	5 pockets/Ctn.
Weight (each)	0.75 lbs. (0.34 kg)
Material	Injection Molded TPO
Color	White, Gray, Tan

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Bloomington, IL
Solar Reflectance Index (SRI)	N/A



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VERSIWELD® TPO PIPE SEALS



Overview

Let Versico simplify your next VersiWeld TPO installation with TPO Molded Pipe Seals. TPO Pipe Seals are injection molded, pre-formed flashings for pipes $\frac{3}{4}$ " (19.0 mm) to 8" (203.2 mm) in diameter. TPO Pipe Seals are packaged in boxes of eight and come with universal stainless steel clamping rings.

VersiWeld TPO Molded Pipe Seals are part of the Certified Fabricated Accessory (CFA) program. Certified Fabricated Accessories are the only factory-fabricated TPO accessories that meet the stringent quality tolerances required to be included in a Versico warranted roofing system.

Features and Benefits

- Provides a reliable method of waterproofing round pipe penetrations
- Provides a substantial labor savings compared to field fabricating from non-reinforced flashing
- Provides more consistent appearance than field-fabricated pipe flashings
- Double-ribbed cutting guide provides easier, smoother and straighter cuts
- Rib design also keeps the clamp in the proper position for the life of the roofing system

Installation

1. Cut pipe seal between the two raised "ribs" to the desired diameter as illustrated on the flange of the pipe seal. (Do not cut off both raised "ribs").
2. Pull pipe seal over pipe until base flange is in contact with the membrane. (Application of heat to the top portion of the pipe seal may be necessary to allow installation over the pipe).
3. Mark pipe around the top of the TPO Pipe Seal.
4. Pull TPO Pipe Seal upwards on pipe until mark on the pipe is visible.
5. Install Water Cut-off Mastic below mark which indicates the top of the installed TPO Pipe Seal.
6. Pull TPO Pipe Seal back down over pipe and into position.
7. Heat weld the TPO Pipe Seal base flange to deck membrane (the hand-welder temperature setting should be between 5 and 6).
8. Install a stainless steel universal clamping ring to provide constant compression of the sealant.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

1. Remove all lead and other flashing.
2. Temperature of pipe must not exceed 160°F (71°C).
3. When used with mechanically attached membrane, install a minimum of four fastening plates around pipe penetrations. Position fastening plates around the penetration so the plates are covered by the pipe seal flange. A minimum 1½-inch wide weld must be maintained around the outer edge of the flange beyond the plates. If fastening plates cannot be installed in a manner to allow a minimum 1½-inch weld, the plates must be placed outside the TPO Pipe Seal flange and covered with a reinforced VersiWeld overlay.
4. Store pre-molded pipe seals in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins. TPO Pipe Seals or membrane that has been exposed to the weather prior to use must be prepared with Weathered Membrane Cleaner prior to hot-air welding.

TYPICAL PROPERTIES AND CHARACTERISTICS

Sizes	¾" to 8" O.D. pipe (19.0 to 203.2 mm)
Packaging	8 per box
Weight (each)	0.63 lbs (0.3 kg)
Material	Injection molded TPO
Color	White, gray and tan

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification or specification range for any particular property of this product.

LEED® INFORMATION

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Bloomington, IL
Solar Reflectance Index (SRI)	N/A

Please use the chart below to cross reference your pipe size with the proper step to cut as shown.

Copper Tubing (C.T.S.)

Nominal tube size	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"
Pipe O.D.	.88	1.13	1.38	1.63	2.13	2.63	3.13	4.13	5.13	6.13	N/A
Step of boot used	1	1	1	1½	2	2	3	4	5	6	N/A

Schedule 40 / 80 Steel Pipe - PVC Standard - Polyethylene Pipe IPS

Nominal tube size	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"
Pipe O.D.	1.05	1.32	1.66	1.90	2.38	2.88	3.50	4.50	5.56	6.63	8.63
Step of boot used	1	1	1½	1½	2	3	3	4	5	6	8

Cast Iron Pipe

	Pit Class A & Spun 100–250					Pit Class B, C & D					
Nominal tube size	2"	3"	4"	6"	8"	2"	3"	4"	6"	8"	
Pipe O.D.	2.50	3.96	4.80	6.90	9.50	N/A	3.96	5.00	7.10	9.30	
Step of boot used	2	4	5	6	N/A	N/A	4	5	6	N/A	

Sewer - Soil Pipe

PVC Plastic SDR 35 & 41 - Cast Iron Soil Pipe no hub - service weight & extra heavy

Nominal tube size	4"	4"	4"	4"	6"	6"	6"	6"	8"	8"	8"	8"
Pipe O.D.	4.22	4.38	4.30	4.62	6.28	6.30	6.30	6.62	8.40	8.38	8.38	8.75
Step of boot used	4	4	4	4	6	6	6	6	8	8	8	8

Conduit EMT

Nominal tube size	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"
Pipe O.D.	.922	1.16	1.51	1.74	2.19	2.88	3.50	4.00	4.50
Step of boot used	1	1	1	1½	2	3	3	4	4

Conduit IMC

Nominal tube size	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"
Pipe O.D.	1.02	1.29	1.63	1.74	2.36	2.85	3.47	3.97	4.46
Step of boot used	1	1	1½	1½	2	3	3	4	4

Conduit Rigid

Nominal tube size	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"	5"
Pipe O.D.	1.05	1.32	1.66	1.90	2.37	2.87	3.5	4	4.5	5.56
Step of boot used	1	1	1½	1½	2	3	3	4	4	5

VersiWeld® TPO Primer



Overview

Versico's TPO Primer is a high-solids-content, clear (translucent color), polymer-based splice primer used to prepare TPO membrane for improved adhesion to pressure-sensitive (PS) TPO accessories.

Features and Benefits

- One-step primer allows for excellent adhesion of PS TPO accessories to TPO membrane
- Quick flash-off time for faster installation

Coverage Rates

200–250 ft² (19–24 m²) (one surface) per gallon

Application

1. Thoroughly stir this product until all settled pigment is blended into the solution. Solids suspended in TPO Primer tend to settle; stir or agitate the solution frequently during use.
2. The surface to which the TPO Primer is being applied should be dry and clean. TPO membrane can be cleaned with Weathered Membrane Cleaner prior to primer application.

3. Apply TPO Primer using a paintbrush or medium-nap paint roller. The membrane surface should be uniform in color with no streaking or puddling. Apply primer to a wider area than the actual splice area to ensure complete coverage.
4. Allow primer to flash off completely before applying PS TPO accessories. Drying conditions will vary depending on ambient air conditions.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC APPLICATION REQUIREMENTS.

Precautions

- WARNING! HARMFUL IF SWALLOWED. FLAMMABLE LIQUID. MAY BE IRRITATING TO SKIN AND EYES.
- Wash thoroughly after handling. Avoid contact with eyes, skin and clothing. Use of permeation-resistant gloves (that meet ANSI/ISEA 105-2005) and safety glasses recommended. Keep away from heat, sparks, motors and open flame. DO NOT SMOKE WHILE USING. Keep lid closed when not in use.
- If swallowed, DO NOT INDUCE VOMITING. Call physician immediately. In case of eye contact, flush with water for at least 15 minutes. In case of skin contact, wash with soap and water. If irritation develops, call physician.
- In case of fire, handle as a solvent or gasoline fire. Use dry chemical, carbon dioxide or foam fire extinguishers. Water fog or spray may be used to smother the fire and cool containers. Do not use a solid stream of water to fight fire because it can scatter and spread the fire.
- Use TPO Primer full strength. Do not thin. Thinning will affect performance.
- Jobsite storage temperatures in excess of 90°F (32°C) may affect product shelf life. Should the primer be stored at temperatures lower than 60°F (15°C), restore to room temperature prior to use.
- KEEP OUT OF THE REACH OF CHILDREN.
- REVIEW THE MATERIAL SAFETY DATA SHEET FOR COMPLETE SAFETY INFORMATION PRIOR TO USE.

VersiWeld TPO Primer

Typical Properties And Characteristics

Color	Clear/Translucent
Appearance	Smooth, no lumps
Solids Content	15%
Weight Per Gallon	6.5 lbs (2.95 Kg)
Packaging	6 1-gallon cans per carton
Shelf Life	1 year in unopened container
Flash Point	40°F (4°C)

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED® Information

Post-industrial Recycled Content	0%
Pre-consumer Recycled Content	0%
VOC Content	645 g/l
Manufacturing Location(s)	Carlisle, PA



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Weathered Membrane Cleaner



Overview

Let Versico simplify your next EPDM or TPO installation with Weathered Membrane Cleaner. Weathered Membrane Cleaner is used to clean both new and in-service VersiGard® EPDM black and white membrane and VersiWeld® TPO membrane prior to the seaming process. It helps to loosen and remove dirt and other contaminants from the surface of the EPDM and TPO membranes and leaves a suitable surface for welding or the subsequent application of primer. Weathered Membrane Cleaner should be used when preparing EPDM membranes for application of primer, adhesives, QA Seam Tape and flashing. Do not use Weathered Membrane Cleaner on PVC membranes – instead use PVC Membrane Cleaner.

Features and Benefits

- Easily removes dirt and other contaminants from EPDM and TPO membranes
- Prepares EPDM membrane for application of primer, adhesives and tape
- Prepares aged or contaminated TPO membrane for welding

Coverage Rate

Coverage rate depends on the age of the membrane and the amount of dirt/debris on the surface. Assume 400 ft² (37 m²) (one surface) per gallon.

Application

EPDM

1. Remove as much loose material as possible from the membrane surface where the adhesive or pressure-sensitive product will be applied by brooming or wiping the area with a dry rag. Extreme conditions of accumulated dirt may require a low sudsing detergent and water cleaning (rinse area thoroughly with CLEAN water and allow to dry).
2. Saturate a clean Splice Wipe (or equivalent) with Weathered Membrane Cleaner. SCRUB the area in a circular motion. Continue to clean the area, changing wipes frequently, until the surface is a consistent color with no streaking. Additional cleaning is required at factory seams (scrub parallel to the seam). Allow to dry.
3. Apply primer according to product instructions and/or roofing system specification.

TPO

Weathered Membrane Cleaner may be used to remove construction dirt or to prepare aged TPO membrane prior to welding.

New TPO

1. Saturate a clean Splice Wipe (or equivalent) with Weathered Membrane Cleaner.
2. Wipe the area to be cleaned until the membrane is a consistent color with no streaking and allow to dry.
3. Weld the cleaned material together with an appropriate hot-air welder.

Welding Aged Material

1. Using a Primer Pad and Weathered Membrane Cleaner, scrub the area to be welded. (The cleaner will become white with membrane residue during this step of the procedure.)
2. Clean all residue from the area to be welded with a Splice Wipe (or equivalent). Allow to dry.
3. Weld the cleaned material together with an appropriate hot-air welder.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC APPLICATION REQUIREMENTS.

Weathered Membrane Cleaner

Precautions

- Review the applicable Safety Data Sheet for complete safety information prior to use.
- Weathered Membrane Cleaner is **EXTREMELY FLAMMABLE**. This product contains materials that are fire and explosion hazards when exposed to heat, flame or sparks. Store and use away from all sources of heat, flame or sparks. Do not smoke while applying. Do not use in a confined or unventilated area. Vapors are heavier than air and may travel along ground to a distant ignition source and flash back. A red caution label is required when shipping.
- During application, efforts must be made to prevent fumes from entering the building via air ventilation ducts. Do not place open containers or mix adhesive near fresh-air intake units. When possible, shut down or seal off the closest units.
- Avoid breathing vapors. Keep container closed when not in use. Use with adequate ventilation. If inhaled, remove to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.
- If swallowed, **DO NOT INDUCE VOMITING**. Call a physician immediately.
- Avoid contact with eyes. Safety glasses or goggles are recommended. If splashed in eyes, immediately flush eyes with plenty of water for at least 15 minutes. Contact a physician immediately.
- Avoid contact with skin. Wash hands thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water.
Note: Permeation-resistant gloves (that meet ANSI/ISEA 105-2005) are recommended to be worn when using this product to protect hands from irritating ingredients.
- **KEEP OUT OF THE REACH OF CHILDREN.**

Typical Properties and Characteristics

Physical Property	Value
Color	Clear
Solids	0%
Flash Point	65°F (18°C)
Boiling Point	260°F (127°C)
Packaging	5-gallon (18.9 L) closed top pail 2 x 1-gallon (3.8 L) closed top pail
Shelf Life	None

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Carlisle, PA
VOC Content*	755 g/l

*This product is exempt from VOC regulations.



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VERSIWELD and



VERSIFLEX

TPO/PVC Accessories



Non-Reinforced Flashing

60-mil non-reinforced thermoplastic membrane used to field-fabricate pipe flashings and scuppers when the use of a pre-molded accessory is not feasible.

TPO Sizes Available: 12" x 50' and 24" x 50' - White, Gray, and Tan

PVC Sizes Available: 12" x 50' and 24" x 50' - White/Gray and White/Tan
Quantity Per Box: 1 Roll



TPO and PVC Split Pipe-Seals

Fabricated flashings made of 60-mil reinforced VersiWeld membrane for flashing pipes with an obstruction that prevents the installation of a molded pipe seal. Includes stainless steel clamping rings.

Sizes Available: 1", 2", 3", 4", 5" and 6" diameter. White, Gray and Tan
Additional sizes and colors available through special order.
Quantity Per Box: 8



Molded Pipe Seals

Injection-molded, pre-formed flashings for pipes. Includes stainless steel clamping rings.

Sizes Available: ¾" to 8" in diameter
Colors Available: White, Gray, and Tan
Quantity Per Box: 8



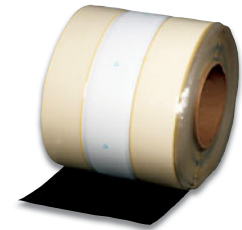
TPO Pressure-Sensitive Cover Strip

Non-reinforced TPO laminated to a pressure-sensitive tape used for stripping in flat metal flanges such as drip edge.

Yellow PS Warning Strip

Non-reinforced TPO flashing laminated to a pressure-sensitive adhesive and can be applied to EPDM or TPO systems to provide a visual warning of an impending hazard.

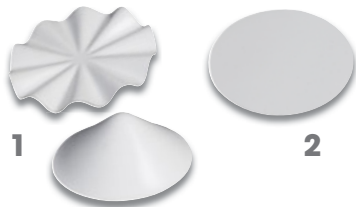
Sizes Available: 6" x 100'
Quantity Per Box: 2 rolls



TPO Pressure-Sensitive RUSS

10" RUSS (shown) is used in place of narrow width sheets to secure membrane in the perimeter of the roof. 6" RUSS is used to secure membrane at the base of vertical walls without penetrating the sheet.

Sizes Available: 6" x 100' and 10" x 100'
Quantity Per Box: 1 roll (10"), 2 rolls (6")



1-Inside/Outside Corners

Pre-molded and used for flashing inside and outside corners on a variety of details.

TPO: White, Gray, and Tan

PVC: White/Gray and White/Tan
Quantity Per Box: 12

2-T-Joint Covers

Injection-molded non-reinforced flashings used to seal T-Joint splice intersections.

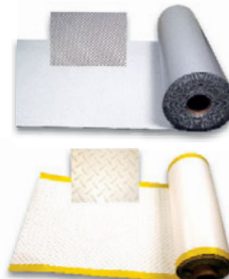
TPO & PVC: White, Gray, and Tan
Sizes Available: 4½" diameter
Quantity Per Box: 100



Molded Sealant Pockets

Interlocking, two-piece, injection molded weldable pockets and are used to waterproof pipe clusters or other odd shaped penetrations.

Sizes Available: 6" wide x 2" high
Can be adjusted from 7½" to 11½" in length
Quantity Per Box: 5 complete pockets



Walkway Rolls

Heat-weldable walkway rolls designed to protect Versico's TPO and PVC membrane in areas exposed to repetitive foot traffic and other hazards.

Sizes Available:
TPO: 34" x 50' - White, Gray and Tan
PVC: 36" x 60' - Gray 34" x 50' rolls
Quantity Per Box: 1 roll



PVC Pressure-Sensitive Cover Strip

Non-reinforced KEE HP flashing laminated to a nominal 35-mil, fully cured, pressure-sensitive synthetic rubber adhesive used to strip-in flat metal edging.

Sizes Available: 6" x 100' - White, Gray, and Tan
Quantity Per Box: 2 rolls



TPO and PVC Curb Wrap Corners

Fabricated flashings made of either VersiWeld detail membrane or VersiFlex membrane designed to reduce curb flashing time. Each corner has a 6"-wide base flange and a 12" overall height. One curb will require 4 corners.

Sizes Available: 7" wrap for 12" curb, 13" wrap for 24" curb, 19" wrap for 36" curb. Other sizes and colors available through special orders. Can also be ordered in 1- or 2-piece wraps
Quantity Per Box: 12 pieces (3 complete curbs)



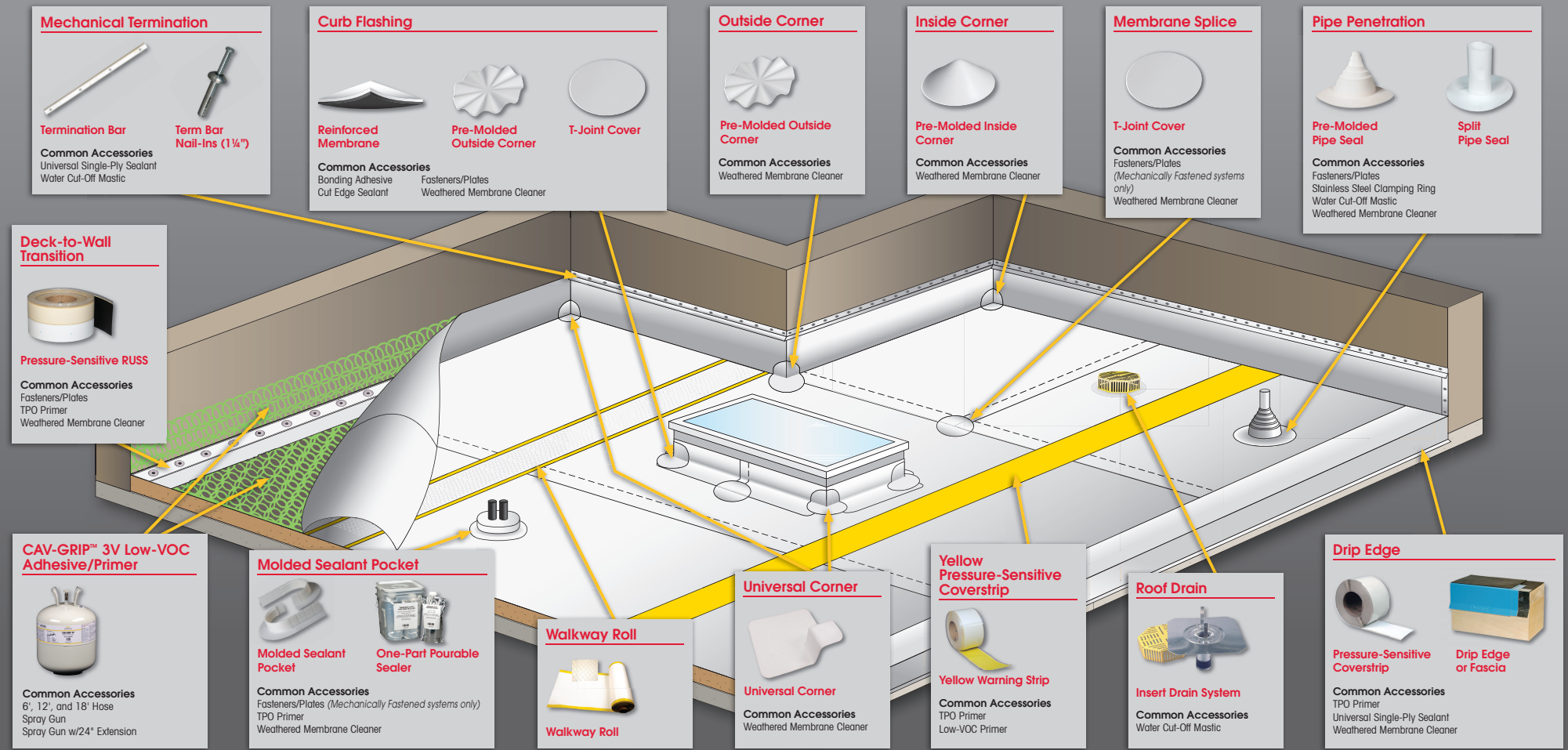
TPO and PVC Universal Corners

Pre-molded corners, used for flashing outside or inside corners on new construction installations where right-angled conditions are more common. Installation is fast and easy with no stretching required.

Sizes Available: one size
Colors Available: White, Gray, and Tan
Quantity Per Box: 20



TPO COMMON DETAILS AND ACCESSORIES



Common Accessories



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VapAir Seal™ 725TR

Air & Vapor Barrier/Temporary Roof



Overview

Versico's VapAir Seal 725TR Air & Vapor Barrier/Temporary Roof is a 40-mil composite consisting of 35 mils of self-adhering rubberized asphalt laminated to a 5-mil woven polypropylene film. A one-piece silicone poly release liner is applied to SBS adhesive to prevent material from bonding to itself. VapAir Seal 725TR is available in a 325-square-foot roll with dimensions of 39" x 100'. The factory-controlled thickness of the membrane ensures uniform barrier properties on the job; the woven polypropylene film increases strength and has a non-skid surface suitable for the bonding of subsequent layers. Approved Versico adhesives for attaching insulation to VapAir Seal 725TR are:

- Flexible DASH™ Adhesive
- OlyBond 500™

VapAir Seal 725TR can be used on concrete, plywood, exterior gypsum, DensDeck® Prime, SECUROCK® or other approved substrates in conjunction with Versico roofing systems. Gypsum decks may require additional securement with mechanical fasteners. Use of CAV-GRIP® 3V Low-VOC Adhesive/Primer, CCW-702 or CCW-702LV is required on all substrates. VapAir Seal 725TR may be installed directly over a nailed Versico modified base sheet when primed with CAV-GRIP 3V.

VapAir Seal 725TR must be covered with roofing membrane within 120 days. T-joints must be sealed with an internal bead of Versico Lap Sealant. Versico does not accept responsibility for the watertight integrity of the VapAir Seal 725TR related to workmanship issues or physical damage. For unusual situations, contact the Project Review and Warranty Services Department prior to specifying this material.

Installation

Surface Preparation: The concrete surface shall be completely dry; dryness shall be determined by a qualified owner's representative. The surface shall have a smooth finish and be free of voids, spalled areas, sharp protrusions, loose aggregate, laitance and form-release agents. Some curing compounds may interfere with proper adhesion, so an adhesion test is recommended. In the event of rain, concrete must be allowed to dry before the application of primer. **Artificial drying methods such as torches are not acceptable.**

Adhesive: Surfaces to receive VapAir Seal 725TR must be clean and dry. Use of CAV-GRIP 3V, CCW-702, or CCW-702LV is required on all substrates. Approved Versico adhesives for attaching insulation to VapAir Seal 725TR are: Flexible DASH Adhesive and OlyBond 500.

Application: VapAir Seal 725TR material must be stored and kept above 60°F prior to installation. Apply VapAir Seal 725TR from low to high points in a shingle fashion so that the laps will shed water. Overlap all edges by at least 2". End laps should be staggered. Position membrane carefully to avoid fish-mouths and wrinkles. **Roll the VapAir Seal 725TR membrane immediately after installation with a 100-150-pound roller wrapped in a resilient material.** When the VapAir Seal 725TR is applied to a vertical surface, hand-rolling with a 2" or 4" hand roller is required. Vertical surfaces must be prepared in the same fashion as horizontal surfaces.

Note: For applications below 40°F – all materials must be kept above 60°F prior to installation and CAV-GRIP 3V Primer must be used.

Seaming: Apply a 2"-long bead of lap sealant internally along any T-joints or step-offs. Use a hand roller or stand-up seam roller to mate the seam together, ensuring the seam's leading edge is rolled properly. Be sure to pay particular attention to the T-joints and step-offs. If seam surface is contaminated, clean and prime with CCW-702, CCW-702LV, or CAV-GRIP 3V.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

VapAir Seal 725TR

Air & Vapor Barrier/Temporary Roof

Precautions

- Use proper stacking procedures to ensure sufficient stability of the materials.
- Exercise caution when walking on wet membrane. Membranes are slippery when wet.
- VapAir Seal 725TR membrane must be dry prior to installation of subsequent layers.
- VapAir Seal 725TR should be installed using CAV-GRIP 3V adhesive when temperatures are below 40°F.
- VapAir 725TR membrane and primers must be stored above 60°F prior to installation.
- Avoid moving or stacking heavy loads on the installed membrane, particularly in hot weather. This could thin out the self-adhering barrier layer.
- Refer to applicable Safety Data Sheets before using any Versico products.
- Do not apply CAV-GRIP 3V, CCW-702, or membrane to damp or contaminated surfaces.
- Do not apply CAV-GRIP 3V, CCW-702, or membrane to frozen substrates.
- Primers must be allowed to completely flash off. Refer to the primer TDB for flash-off times.

Typical Properties and Characteristics

Physical Property	Test Method	Typical Property
Thickness	ASTM D1970	40 mils
Tensile Strength	ASTM D412	250 psi
Elongation	ASTM D412	250%
Peel Adhesion	ASTM D903	5 lbs/in
Puncture Resistance	ASTM E154	60 lbs
Permeability	ASTM D1970*	0.015 perms
Air Permeance	ASTM E2178	0.000 L *m ² @ 75 Pa
Shelf Life	N/A	1 year

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

*D1970 is tested to E96 standards for permeability.

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Terrell, TX
VOC Content	0 g/L
Solar Reflectance Index	N/A

Packaging

Product	725TR Air & Vapor Barrier/Temporary Roof
Size/Weight	39" x 100' / 89 lbs
Actual Coverage Rate	305 ft ²
Part Number	330170



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CAV-GRIP® 3V Adhesive/Primer



Overview

Versico's CAV-GRIP 3V is a low-VOC (<250 g/L), California-compliant, spray applied aerosol contact adhesive and primer used for a variety of applications: adhering standard TPO and EPDM membranes to horizontal and vertical surfaces, adhering VersiFleece membranes to vertical surfaces, as a primer for VapAir Seal 725TR, and as an unexposed asphalt primer for Flexible DASH. CAV-GRIP 3V is available in disposable/recyclable #40 size cylinders and in returnable/refillable #85 size cylinders.

CAV-GRIP 3V is applied using a self-contained spray system for quick and even coverage with an excellent open time and requires minimal clean-up or maintenance. A spray gun with an extension wand is available for field of roof applications and a standard spray gun is available for wall applications. **Please note: CAV-GRIP 3V, spray guns and hoses are each sold separately.**

Features and Benefits

- Excellent option for adhering TPO and EPDM to horizontal and vertical surfaces and all VersiFleece membranes to vertical surfaces
- Can be used in temperatures as low as 25°F (-4°C) when used as an adhesive and 15°F (-9°C) when used as a primer
- Easy setup
- Easy cleanup
- Low odor

Labor Saving Features and Benefits:

- Quick application with spray gun
- Fast flash-off and great open time
- No stirring
- Up to 60% labor savings compared to traditional bonding adhesive
- Compatible with 5' and 10' wide spray carts



Specifications

Membrane	Wall	Field
VersiWeld® TPO	✓	✓
VersiGard® EPDM	✓	✓
VersiFlex™ PVC	X	X
VersiFleece®	✓	X

Installation

1. Connect spray gun to hose and connect hose to cylinder. Use lithium grease or petroleum jelly on all fittings and be careful to avoid cross-threading. Open valve on cylinder to check fittings for leaks. **Keep cylinder valve open to maintain pressure in the hose/spray gun when not in use.**
2. CAV-GRIP 3V can be applied at ambient temperature of 25°F and above. **Propellant in cylinders must be kept above 70°F for the product to spray properly. Utilize power-heated blankets and hot boxes when necessary. Ensure that cylinder temperatures stay below 110°F.** Substrate shall be clean, dry, and free of debris and contaminants.
3. For applications taking place in ambient temperature below 70°F, store cylinders in heated space and move to project area during application. Cylinders must be kept warm on the jobsite. Dispense product from cylinder while it is still warm. When product in cylinder becomes too cold, it will begin to spit rather than spray. If this occurs, swap cold cylinder for warmer one and return cold cylinder to heated area. When changing cylinder, close the valve on the cylinder and depressurize the hose. Remove the hose and attach to the new cylinder. Open valve and do a test spray.
4. Apply CAV-GRIP 3V in an even coat to substrate (refer to the drawing on the next page), keeping the spray tip approximately 12" (30 cm) away and perpendicular to the surface during spray. Avoid high thickness buildup that can skin over, trap solvent, and create a blister.



CAV-GRIP 3V Adhesive/Primer

5. Allow heavy areas of CAV-GRIP 3V to flash-off until it does not transfer to your finger when touched and pushed. Limit application of CAV-GRIP 3V to surfaces that will be covered with membrane or Versico's VapAir Seal™ 725TR the same day.
6. Solvent flash-off can lower the surface temperature below the dew point causing moisture to form on the adhesive. Slide your hand across the flashed-off adhesive on the insulation or cover board to ensure moisture has evaporated and the adhesive surface is dry and tacky prior to installing the membrane.

Vertical Applications of Standard TPO, EPDM, or any VersiFleece membrane:

Acceptable substrates include: Versico's VersiCore® Polyiso, SecurShield® Polyiso, SecurShield HD, SecurShield HD Plus, DensDeck® Prime, SECUROCK®, OSB, plywood, metal, residual asphalt, and clean concrete block. To improve adhesion and reduce the potential for asphalt bleed-through on vertical surfaces with residual asphalt, apply an initial "sealing" base coat of CAV-GRIP 3V and allow to flash off properly; then, apply a second coat of CAV-GRIP 3V to the vertical surface. Contact Versico before using on substrates other than those listed above.

There are no vertical height restrictions when using CAV-GRIP 3V.

1. Spray wall and back of the membrane, utilizing a 50% overlapping spray pattern.
2. Do not apply adhesive to splice areas.
3. Allow adhesive to flash-off so it does not transfer to fingers when touched and pushed.
4. Mate membrane with the wall from the center of the sheet towards the edges, smoothing by hand.
5. Broom the membrane with a soft-bristle broom.
6. Roll in with a hand roller or extendable floor roller.

Horizontal Application of Standard TPO or EPDM Membranes

Acceptable substrates include: Versico's VersiCore Polyiso, SecurShield Polyiso, SecurShield HD, SecurShield HD Plus, DensDeck Prime, SECUROCK, OSB, and plywood. Please see Versico's Specifications for a complete list of acceptable substrates.

The surface, on or against which adhesive is to be applied, shall be clean, smooth, dry, free of films, sharp edges, loose and foreign materials, oil and grease. Depressions greater than 1/4" (6 mm) should be feathered, using epoxy, mortar or other approved patching material. All sharp projections shall be removed by sweeping, blowing or vacuum cleaning.

Application shall be continuous and uniform, avoiding globs or puddles.

1. Spray substrate and back of the membrane with enough overlap to ensure 100% coverage.
2. Do not apply adhesive to splice areas to be hot-air welded.
3. Allow heavy areas of adhesive to flash-off so the adhesive does not transfer to your finger when touched and pushed.
4. Roll the membrane onto the adhesive-coated substrate while avoiding wrinkles. **Immediately brush down the bonded portion of the sheet with a soft-bristle push broom and then roll the membrane with a weighted segmented roller to achieve maximum contact.**

CLEANUP: Versico's Low-VOC UN-TACK™ solvent or mineral spirits can be used to clean tools and surfaces. If the spray gun valve becomes stuck, attach hose and spray gun to cylinder of Citrus Cleaner or Low-VOC UN-TACK and trigger spray gun repeatedly until operation is smooth. If the spray gun is clogged, a small-gauge wire or torch clean-out tool is helpful after soaking the brass fitting in Low-VOC UN-TACK.

STORAGE: Store cylinders in protected, conditioned space with temperature maintained above 70°F. Do not store or heat cylinders where temperatures reach 110°F or higher. Contents are flammable. Store in accordance with local, state, and federal regulations. **Keep cylinder valve open to maintain pressure in the hose and spray gun.** Periodically spray in a safe manner to help prevent possible clogging. Keep spray gun trigger locked when not in use. Flush gun and hose with Low-VOC UN-TACK for long-term storage beyond 30 days.

Return Instructions for #85 Cylinders:

1. A minimum of 12 empty cylinders are required for a free return.
2. Arrange 12 empty #85 cylinders upright on a pallet.
3. Secure and shrink-wrap the entire pallet (including cylinders) to ensure safe shipment.
4. Call the 1-800 number listed on the #85 cylinder to schedule the pick-up of the pallet.
5. Please note: A forklift or loading dock is the preferred method to load the pallet onto the truck. If a forklift or loading dock is not available, discuss alternative methods when arranging the return.

CYLINDER DISPOSAL: When all adhesive/primer in the cylinder has been used, close cylinder valve and evacuate hose and spray gun before disconnecting hose from cylinder. If hose is not to be connected to a new cylinder immediately, do not evacuate hose and spray gun to ensure material does not harden in spray gun and hose. Clean up adhesive/primer residue, spray gun, and spray tips with Low-VOC UN-TACK or mineral spirits. In most areas, the empty cylinder can be disposed as an aerosol can or recycled as scrap metal. If disposal is not allowed in your area, contact your distributor for disposal arrangements. Federal law forbids transportation if refilled.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.



CAV-GRIP 3V Adhesive/Primer

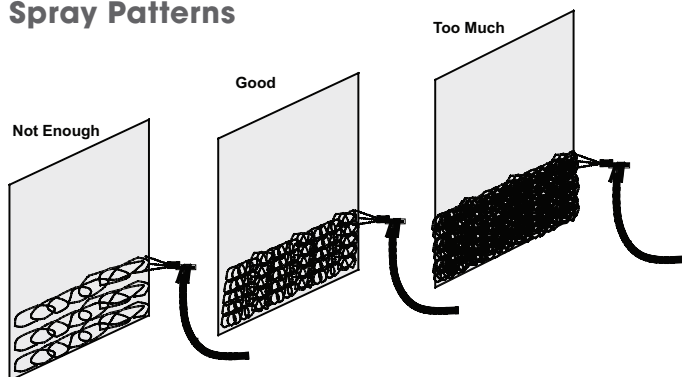
Precautions

CAV-GRIP 3V is a flammable liquid propellant and vapor. Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electrical motors, static discharge, or other ignition sources at locations distant from the material handling point and flashback. Keep away from open flame. Use with adequate ventilation. Avoid inhalation of spray mist or vapors. Harmful or fatal if swallowed. May cause eye irritation. Keep out of reach of children. Review Safety Data Sheet for complete safety information prior to use. Use of goggles and gloves is required. #40 aerosol cylinders are not refillable and when empty are harmless and disposable. Dispose according to local codes and laws. Read safety precautions and warnings on cylinder label. Wear gloves and goggles before using this product. Do not aim spray gun at people or animals at any time. PPE Gloves must be used while handling material.

For industrial professional use only.

*Important note: cylinder, hoses, and gun are each sold separately

Spray Patterns



Proper Coverage on Membrane



Proper Coverage on Insulation

Packaging

Product	Size/Weight	Part Number
CAV-GRIP 3V	#40 Aerosol Cylinder Fill Weight: 30 lbs of adhesive	330420
CAV-GRIP 3V #85 (returnable cylinder)	#85 Cylinder Fill Weight: 60 lbs of adhesive	332800
6' Hose	6' Length	304302
12' Hose	12' Length	304303
18' Hose	18' Length	304304
Spray Gun with Extension	—	330912
Spray Gun - Adjustable	—	307490
Low-VOC UN-TACK	#8 Aerosol Cylinder	330793

Typical Properties and Characteristics

Physical Property	Typical Value
Color	Light Green
Consistency	Aerosol Spray
Spray Pattern	Variable Web
Odor	Low
Base	Rubber/Solvent Blend
Coverage Rate #40 Cylinder	1-Sided Primer - 2000-2500 ft ² when used with air and vapor barriers* 2-Sided Adhesive - Walls - 750 ft ² * 2-Sided Adhesive - Field - 1000 ft ² *
Coverage Rate #85 Cylinder	1-Sided Primer - 4000-5000 ft ² * 2-Sided Adhesive - Walls - 1500 ft ² * 2-Sided Adhesive - Field - 2000 ft ² *
Adhesion	Excellent
Flammability	Flammable when wet. Non-flammable when dry.
Water Resistance	Excellent
Mildew Resistance	Excellent
Shelf Life	12 months (unopened container)

* Approximate Coverage

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Lynchburg, VA
VOC	248 g/L

Low-VOC UN-TACK Adhesive Remover and Cleaner



Typical Properties and Characteristics

Color	Clear
Consistency	Aerosol Spray
Odor	Slight Solvent
VOC	33 g/l
Application Temperature	25°F to 100°F
Packaging	#8 Aerosol Cylinder
Part Number	330793

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product. Versico's Low-VOC UN-TACK Adhesive Remover and Cleaner CANNOT be used to clean CAV-PRIME pressurized cylinders.

*For application procedures and precautions please see the Low-VOC UN-TACK Adhesive Remover and Cleaner Technical Data Bulletin.

Overview

Versico's Low-VOC UN-TACK Adhesive Remover and Cleaner is designed to remove adhesives from a variety of surfaces including single-ply membranes, accessories, metal, plastic, rubber, and glass. Low-VOC UN-TACK is used to clean spray guns and hoses when an opened CAV-GRIP 3V cylinder is going to be stored for more than 30 days.

Features and Benefits

- Clears clogged spray guns and hoses
- Allows easy cleanup of excess adhesive and overspray
- VOC Compliant in all 50 states

Coverage Rate

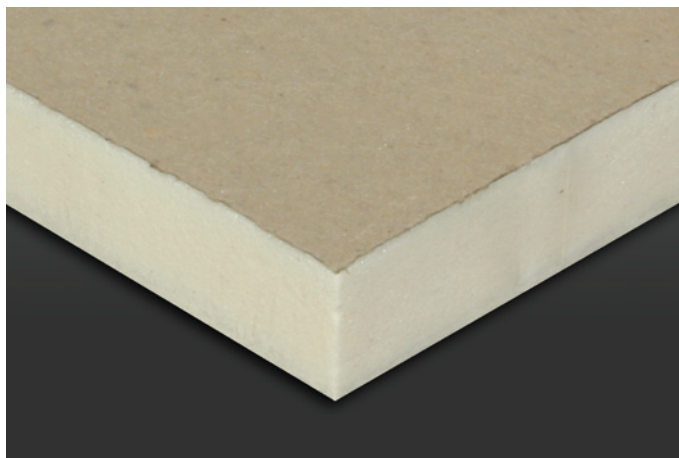
250–300 ft² surface area to be cleaned per Low-VOC UN-TACK cylinder.



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VersiCore® Polyiso



Overview

VersiCore is a rigid-roof insulation panel composed of a closed-cell polyisocyanurate foam core bonded on each side to glass-reinforced felt (GRF).

Features and Benefits

- VersiCore polyiso insulation provides the highest R-value per inch of commercially available insulation products
- Zero ozone-depleting components, HFC- and HCFC-free formulation
- Approved for direct application to steel decks

Panel Characteristics

- Available in 4' x 4' (1220 mm x 1220 mm) and 4' x 8' (1220 mm x 2440 mm) panels in thickness of ½" (13 mm) to 4.5" (115 mm)

Applications

- Single-Ply Roof Systems (Ballasted, Mechanically Attached, Fully Adhered)

Installation

Ballasted Single-Ply Systems

Each VersiCore panel is loosely laid on the roof deck. Butt edges and stagger joints of adjacent panels. Install the roof membrane according to Versico's specifications.

Mechanically Attached Single-Ply Systems

VersiCore panels must be secured to the roof deck with fasteners and plates (appropriate to the deck type). Butt edges and stagger joints of adjacent panels. Install the roof membrane according to Versico's specifications.

Fully Adhered Single-Ply Systems

VersiCore panels must be secured to the roof deck with fasteners and plates (appropriate to deck type). Butt edges and stagger joints of adjacent panels. Install the roof membrane according to Versico's specifications.

VersiCore 4' x 8' panels can be secured to the roof deck with Versico's Flexible DASH® Adhesive, either full coverage or bead spacing.

VersiCore 4' x 4' panels may be adhered to prepared concrete deck with a full mopping of Type III or IV asphalt.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Codes and Compliances

- **ASTM C1289, Type II, Class 1, Grade 2 (20 psi)**, Grade 3 (25 psi)
- International Building Code (IBC) Section 2603
- UL Standard 790, 263 and 1256: Component of Class A Roof Systems (refer to UL Roof Materials' system directory)
- FM® Standards 4450/4470: Class 1 approval for steel roof-deck constructions (refer to FM RoofNavSM)
- California Code of Regulations, Title 24, Insulation Quality Standard License #TI-1418
- Third-party certification with the PIMA Quality Mark for Long-Term Thermal Resistance (LTTR) values
- CAN/ULC S704, Type 2, Class 3 (20 psi), Type 3, Class 3 (25 psi)
- Florida Building Code Approval
- CDPH compliant for maximum allowable concentrations of target VOCs

Precautions

Insulation must be protected from open flame and kept dry at all times. Install only as much insulation as can be covered the same day by completed roof-covering material. Protect installed product from excessive foot traffic. Versico will not be responsible for specific building and roof design by others, for deficiencies in construction or workmanship, for dangerous conditions on the job site or for improper storage and handling. Technical specifications shown in this literature are intended to be used as general guidelines only and are subject to change without notice. Call Versico for more specific details, or refer to PIMA Technical Bulletin No. 109: Storage & Handling Recommendations for Polyiso Roof Insulation.

VersiCore Polyiso

Typical Properties and Characteristics

Physical Property	Test Method	Value
Compressive Strength	ASTM D1621	20 psi* minimum (138 kPa, Grade 2)
Dimensional Stability	ASTM D2126	2% linear change (7 days)
Moisture Vapor Permeance	ASTM E96	<1 perm (57.5 ng/(Pa•s•m ²))
Water Absorption	C1763	<1% volume

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

*Also available in 25 psi minimum, Grade 3



Foamed plastic as roof deck construction material with resistance to an internal fire exposure only for use in construction no.(s) 120 and 123. See UL Directory of Products Certified for Canada and UL Roofing Materials and Systems Directory. 99DL.



VersiCore Polyiso Thermal Values

Thickness (inches)	LTTR R-value	Thickness (inches)	LTTR R-value
0.5	2.8	2.75	15.9
0.75	4.2	2.8	16.2
1	5.7	2.9	16.8
1.1	6.3	3	17.4
1.2	6.8	3.1	18
1.25	7.1	3.2	18.6
1.3	7.4	3.25	18.9
1.4	8	3.3	19.2
1.5	8.6	3.4	19.9
1.6	9.1	3.5	20.5
1.7	9.7	3.6	21.1
1.75	10	3.7	21.7
1.8	10.3	3.75	22
1.9	10.8	3.8	22.3
2	11.4	3.9	23
2.1	12	4	23.6
2.2	12.6	4.1	24.2
2.25	12.9	4.2	24.9
2.3	13.2	4.25	25.2
2.4	13.8	4.3	25.5
2.5	14.4	4.4	26.1
2.6	15	4.5	26.8
2.7	15.6	—	—

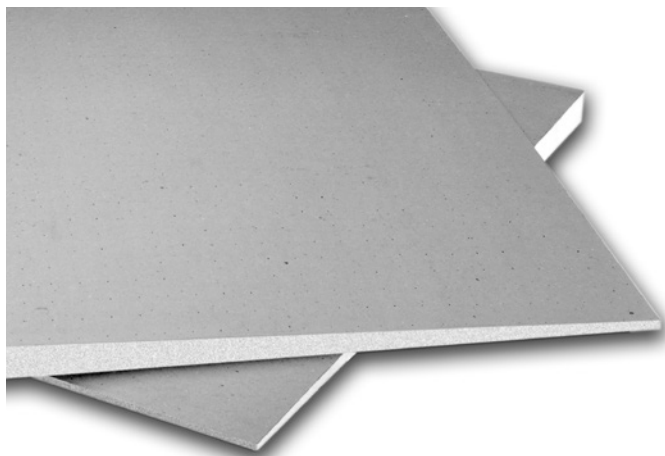
Flute Spanability is 2½" for 1.4" or thickness or smaller. Flute Spanability is 4½" for 1.5" thickness or greater.



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VersiCore® Tapered Polyiso



Overview

VersiCore Tapered is a sloped rigid roof insulation panel composed of a closed cell polyisocyanurate foam core bonded to glass reinforced felt (GRF) facers.

Features and Benefits

- VersiCore Tapered polyiso insulation provides the highest R-value per inch of commercially available insulation products
- Environmentally friendly construction with 0% ozone depleting components and CFC free
- Approved for direct application to steel decks

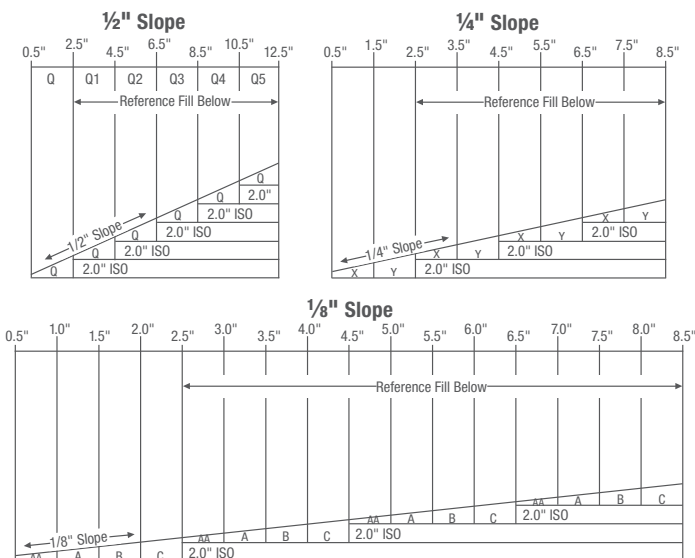
Panel Characteristics

- Available in 4' x 4' (1220 mm x 1220 mm) in thickness of 1/2" (12 mm) minimum to 4.5" (115 mm) maximum
- Available slopes (per foot):
 - 1/16" (2 mm)
 - 1/8" (3 mm)
 - 3/16" (5 mm)
 - 1/4" (6 mm)
 - 3/8" (10 mm)
 - 1/2" (12 mm)

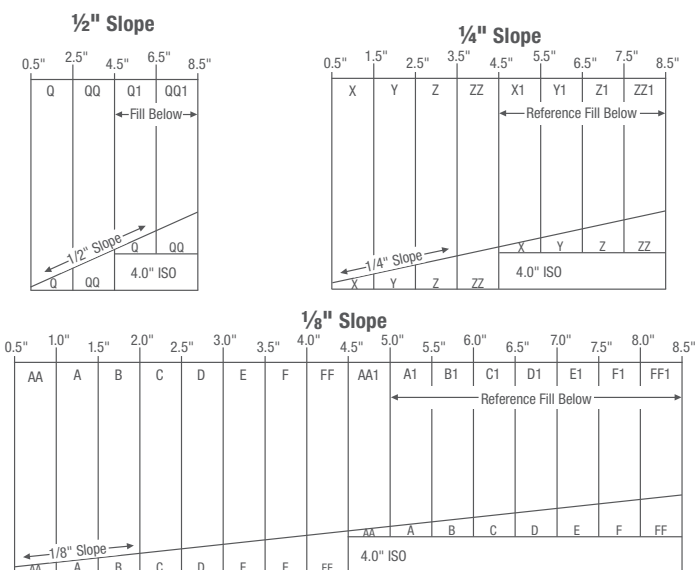
Applications

Single-Ply Roof Systems (Ballasted, Mechanically Attached, Fully Adhered)

Standard Panel Profiles



Extended Panel Profiles



VersiCore Tapered Polyiso

Installation

Ballasted Single-Ply Systems

Each VersiCore Tapered panel is loosely laid on the roof deck. Butt edges and stagger joints of adjacent panels. Install the roof membrane according to Versico's specifications.

Mechanically Attached & Fully Adhered Single-Ply Systems

Secure each VersiCore Tapered panel to the roof deck with Versico's Flexible DASH adhesive or the appropriate plate and fastener. Butt edges and stagger joints of adjacent panels. Install the roof membrane according to Versico's specifications.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Codes and Approvals

- ASTM C1289, Type II, Class 1, Grade 2 (20 psi), Grade 3 (25 psi)
- International Building Code (IBC) Section 2603
- UL Standard 790, 263 and 1256: Component of Class A Roof Systems (refer to UL Roof Materials' system director)
- CAN/ULC S704, Type 2 & 3, Class 2
- Third-party certification with the PIMA Quality Mark for Long-Term Thermal Resistance (LTTR) values
- FM® Standards 4450/4470: Class 1 approval for steel roof-deck constructions (refer to FM RoofNavSM)
- FLORIDA BUILDING CODE APPROVAL FL#1296
- MIAMI-DADE COUNTY, FLORIDA NOA NO: 04-1018.01

Precautions

Insulation must be protected from open flame and kept dry at all times. Install only as much insulation as can be covered the same day by completed roof-covering material. Versico will not be responsible for specific building and roof design by others, for deficiencies in construction or workmanship, for dangerous conditions on the jobsite or for improper storage and handling. Technical specifications shown in this literature are intended to be used as general guidelines only and are subject to change without notice. Call Versico for more specific details, or refer to PIMA Technical Bulletin No. 109: Storage & Handling Recommendations for Polyiso Roof Insulation.

Typical Properties and Characteristics

Property	Test Method	Value
Compressive Strength	ASTM D1621 ASTM 1289	20 psi minimum (138 kPa, Grade 2)
Dimensional Stability	ASTM D2126	2% linear change (7 days)
Moisture Vapor Transmission	ASTM E96 12.10	<1 perm (57.5ng/(Pa•s•m²))
Water Absorption	ASTM C209	<1% volume
Service Temperature		-100° to 250°F (-73°C to 122°C)

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.



Foamed plastic as roof deck construction material with resistance to an internal fire exposure only for use in construction no.(s) 120 and 123. See UL Directory of Products Certified for Canada and UL Roofing Materials and Systems Directory. 99DL.



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FASTENERS & PLATES

SYSTEM ACCESSORIES

Versico offers a wide variety of fasteners and plates to enhance our roofing systems. From pre-assembled choices for VersiGard® installations to Purlin fasteners for Metal Retrofit Systems and HPVX plates for VersiWeld® options, our focus is to provide all components necessary for the application of a long-lasting, single-ply roofing system from Versico.

PRODUCT	DECK TYPE	USAGE	DESCRIPTION	SIZE	PACKAGING	
					SIZE	# PER CTN
HPV Fastener 	Steel (22 gauge & heavier) Wood Plank Decks CDX Plywood	VersiGard Membrane, Insulation Securement, RTS	• #3 Square Drive Recess • Flat Wafer Style Head and Buttfress Threads • Mini Drill Point	• 1 1/4", 2"- 15" (1" Increments) • Longer Fastener Sizes Available As Special Order	1 1/4" 2"- 6" 7"- 12" 13"- 15"	1000 1000 500 250
Insultite 	Wood Decks Steel (22 gauge & heavier)	Insulation Only	• #3 Phillips Head • Deep Buttfress Threads	• 1 5/8", 2 1/4" • 3"- 8" (1" Increments)	1 5/8", 2 1/4" 3"- 8"	1000 1000
GypTec Fastener 	Cementitious Wood Fiber Lightweight Concrete Gypsum	VersiGard, VersiFlex™ & VersiWeld Membranes, Insulation Securement GypTec Plate (not shown) 1000/ctn 2" Steel Plate for Membrane Attachment 3" Steel Plate for Insulation Attachment	• 1/4" Square Drive • Glass Filled Nylon Fastener	• 2 1/2"- 10" (1/2" Increments)	2 1/2"- 7" 7 1/2"- 10"	500 250


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FASTENERS & PLATES

PRODUCT	DECK TYPE	USAGE	DESCRIPTION	SIZE	PACKAGING	
					SIZE	# PER CTN
MP 14-10 Fastener 	Structural Concrete	VersiGard, VersiFlex, VersiWeld Membranes Securement over Wood & Concrete Decks, Insulation Securement Over Steel Decks	#3 Phillips - Truss Head	2"– 12" (1" Increments) 14"– 24" (2" Increments)	2"– 4"	1000
	Steel				5"– 11"	500
	CDX Plywood				12"– 24"	250
HP Lite Deck Fasteners 	Cementitious Wood Fiber	VersiGard and VersiWeld Membranes Insulation Only	Threaded Oversize Diameter Fastener with #3 Square Drive	2 5/8", 3", 4" 5"– 8" (1" Increments) 9"– 12" (1" Increments)		500
	Lightweight Concrete					250
	Gypsum					125
HPVX Fastener 	Steel	VersiGard, VersiWeld & VersiFlex Membranes	#3 Phillips - Truss Head - Buttress Threads - Mini-Drill Point	2"–12" (1" Increments) 14"– 16"	2"– 4"	1000
	Wood Decks				5"– 12"	500
	CDX Plywood				14"– 16"	250
HPV-XL Fastener 	Steel	VersiGard, VersiWeld & VersiFlex Membranes	#3 Phillips Oversized Truss Head - Buttress Threads - Mini-Drill Point	2"– 8" (1" Increments)	2"– 6"	500
	Wood Decks				7", 8"	250
	CDX Plywood					
CD 10 Nail-In Fastener 	Concrete Decks	VersiGard, VersiFlex and VersiWeld Membranes, & Insulation Securement	- Hammer Driven - Compression Type Fastener - Diamond Point For Easy Installation	2"– 6" (1/2" Increments) 7"– 12" (1" Increments)	2"– 8"	500
					9"– 12"	250

SYSTEM ACCESSORIES

PRODUCT	DECK TYPE	USAGE	DESCRIPTION	SIZE	PACKAGING	
					SIZE	# PER CTN
Purlin Fasteners 	Structural Steel Purlin (12 gauge max.)	VersiGard, VersiFlex and VersiWeld Metal Retrofit Membrane Securement	• ¼" Hex Head • Elongated Self-Drilling Point • Use with HPVX or Insulation Fastening Plates	• 3" – 5" (1" Increments) • 6¼", 7¼"	3" – 7¼"	500
Zinc Nail-In Anchors 	Concrete Brick Block Walls	VersiGard, VersiFlex and VersiWeld Membranes & Insulation Securement	• Zinc Plated Steel Pin with a Zinc Alloy Outer Body	• 1¼" x ¼"		1000
Insultite ASAP 	Steel Wood Decks	Insulation Only	• #3 Phillips Head • Buttfress Threads • Insultite Fastener • Pre-Assembled with Plastic Insulation Plate	• 2¼", 3"– 8" (1" Increments) • 9"–14" <i>Available As Special Order</i>	2¼"– 8"	250
HPV ASAP 	Steel Wood Decks CDX Plywood	VersiGard Membrane Securement	• #3 Square Drive • Wafer Style Head • Buttfress Threads • Mini Drill Point • Pre-assembled HPV Fastener with Polymer Seam Plate	• 2"–12" (1" Increments) • <i>Longer Fastener Sizes Available As Special Order</i>	2" 3" 4", 5" 6" 7", 8" 9" 10"– 12"	500 450 400 350 300 250 200
HPVX ASAP 	Steel Wood Decks CDX Plywood	VersiWeld & VersiFlex Membranes	• #3 Phillips Truss Head • Buttfress Threads • Mini-Drill Point • Pre-Assembled with HPVX Plate	• 2"– 10" (1" Increments) • 12"– 16" (2" Increments)	2"– 9" 10"– 12" 14"– 16"	250 200 150



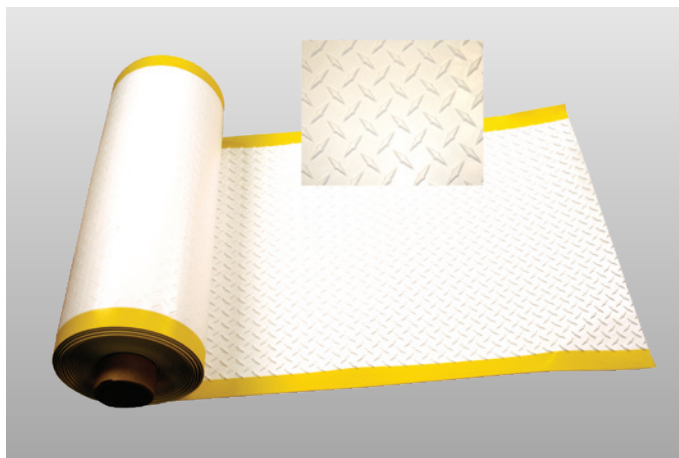
FASTENERS & PLATES

SYSTEM ACCESSORIES

PRODUCT	USED WITH	USAGE	DESCRIPTION	SIZE	PACKAGING
					# PER CTN
HPVX-Plate 	HPVX Fastener	VersiWeld and VersiFlex Membranes, Steel, Concrete, Wood	20 Gauge Metal Plate with Reinforcing Ribs and 12 "Gripping Teeth"	• 2 3/8" (Diameter)	1000
HPV-XL Plate 	HPV-XL Fastener	VersiWeld and VersiFlex Membranes, Steel	20 Gauge Metal Plate with Reinforcing Ribs and 12 "Gripping Teeth" - Oversized Hole to Accommodate HPV-XL Fastener	• 2 3/8" (Diameter)	1000
Polymer Seam Plate 	HPV Fastener	VersiGard Membrane Mechanically Attached Systems, RTS Attachment	Round Nylon Plate with 16 Barb Profile on Underside	• 2" (Diameter)	1000
Seam Fastening Plate 	HPV Fastener MP14-10, CD-10	VersiGard Membranes Mechanically Attached Systems, (Excluding Steel Decks), RTS Attachment (Excluding Mechanically Attached Systems Over Steel Decks)	20 Gauge, Round Metal Plate with Aluminized Coating	• 2" (Diameter)	1000
Insulation Fastening Plate 	Insul-Tite	Insulation Only Standard Heavy-Duty CD-10 Fluted Nail, Steel, Wood, Concrete	26 Gauge - Round Metal Plate with Aluminized Coating	• 3"	1000
Oval Barbed Plate 	HPVX Fastener	VersiFlex and VersiFlex-E Membranes, Mechanically Attached Systems, Metal, Wood, Concrete, Steel	8-gauge - GALVALUME® corrosion-resistant metal barbed plate	• 1.5" x 2.75"	500



TPO Heat Weldable Walkway Rolls



Overview

Versico's VersiWeld® TPO Heat Weldable Walkway Roll is designed to protect the VersiWeld TPO membrane in areas exposed to repetitive foot traffic and other hazards. Walkways must be installed at all traffic concentration points (i.e. roof hatches, access doors, rooftop ladders, etc.) regardless of traffic frequency. Walkways must also be installed if regular maintenance (once a month or more) is necessary to service rooftop equipment.

Versico's VersiWeld TPO Walkway Rolls are part of the Certified Fabricated Accessory (CFA) program. Certified Fabricated Accessories are the only factory-fabricated TPO accessories that meet the stringent quality tolerances required by Versico.

Features and Benefits

- Increased slip resistance created with a diamond- plate tread pattern
- Walkway edges are trimmed in safety yellow to better define the designated traffic flow
- The yellow edges are smooth without tread lugs for easier welding
- Superior weathering package for long-term performance
- Stocked in white, tan and gray, special colors available (minimum quantities apply)

Installation

1. Use Weathered Membrane Cleaner to prepare the membrane area that will be welded to the walkway material.
2. Position the walkway material. Cut the Walkway Rolls into maximum 10' lengths and position with a minimum 1" gap between adjacent pieces to allow for water drainage. Cut the walkway so a 4" minimum gap is created over any field splices. Since the attachment of the walkway to the membrane is permanent, this will allow access to the field seams.
3. Using an automated welder, **weld all four sides of the walkway material to the membrane.** Typically the same speed and temperature settings will be used for this procedure as for welding membrane to membrane. A test weld is always recommended prior to performing welds to the installed membrane. A hand-held welder may be utilized; however, productivity will be decreased.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

- Walkway Rolls are a maintenance item and are not covered under the Versico membrane systems warranty.
- This product is to be used as a walkway only and is not designed as a perimeter warning line or a substitute for ballast. For safety reasons, walkway rolls should not be installed within 10' (3m) of the roof perimeter.
- Allow the walkway to relax and warm up in the sun prior to welding in place.
- When possible, weld the walkway rolls when the ambient temperature is above 60° F (16° C) to help prevent wrinkles.

TPO Heat Weldable Walkway Rolls

Typical Properties and Characteristics

Physical Property	Test Method	Typical Properties	
		Minimum	Maximum
Dimensional Conformance Thickness, in. (mm)	ASTM D412	0.160 (4.06)	0.180 (4.5)
Density, lbs./ft ³ ; (gr/cm ³ ;))	ASTM D792	80.5 (1.29)	84.3 (1.35)
Tensile Strength, psi (MPa)	ASTM D638	600 (4.1)	
Tear Strength, lbf/in (kN/m)	ASTM D624	100 (17.5)	
Sizes	34" wide x 50' long		
Packaging	9 per skid, each roll individually bagged		
Weight (each)	97 lbs.		
Thickness	80-mil at bottom of tread, 80-mil at yellow welding edge, 170-mil overall		
Color	White, gray and tan		

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification or specification range for any particular property of this product.

LEED® Information

Pre-consumer Recycled Content	10%
Post-consumer Recycled Content	0%
Manufacturing Location	Greenville, IL

Radiative Properties for Cool Roof Rating Council (CRRC) and LEED

	Test Method	White TPO	Tan TPO	Gray TPO
CRRC initial solar reflectance	ASTM C1549	0.79	0.71	0.46
CRRC solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.7	0.64	0.43
CRRC initial thermal emittance	ASTM C1371	0.9	0.86	0.89
CRRC thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	0.87	0.88
LEED thermal emittance	ASTM E408	0.9	0.86	0.85
Solar Reflectance Index (SRI) initial	ASTM E1980	99	86	53
Solar Reflectance Index (SRI) 3 years aged	ASTM E1980	85	77	48

Solar Reflectance Index (SRI) is calculated per ASTM E1980. The SRI is a measure of the roof's ability to reject solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. Materials with the highest SRI values are the coolest choices for roofing. Due to the way SRI is defined, particularly hot materials can even take slightly negative values and particularly cool materials can even exceed 100.



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WARRANTY NO.:**BUILDING OWNER:****NAME OF BUILDING:****BUILDING ADDRESS:****DATE OF COMPLETION OF THE VERSICO TOTAL ROOFING SYSTEM:****DATE OF ISSUE:**

Versico, a division of Carlisle Construction Materials Incorporated (Versico), warrants to the Building Owner (Owner) of the above described building, that; subject to the terms, conditions, and limitations stated in this warranty, Versico will repair any leak in the Versico Roofing System (Versico Total Roofing System) installed by a Versico Authorized Roofing Contractor for a period of -- years, commencing with the date of Versico's acceptance of the Versico Total Roofing System installation. However, in no event shall Versico's obligations extend beyond -- years, subsequent to the date of substantial completion of the Versico Total Roofing System. See below for exact date of warranty expiration.

The Versico Total Roofing System is defined as the following Versico brand materials: Membrane, Flashings, Adhesives and Sealants, Insulation, Cover Boards, Fasteners, Fastener Plates, Fastening Bars, Insulation Adhesives and any other Versico brand products utilized in this installation.

TERMS, CONDITIONS, LIMITATIONS

1. Owner shall provide Versico with written notice via letter, fax or email within thirty (30) days of any leak in the Versico Total Roofing System. Owner should send written notice of a leak to Versico's Warranty Services Department at the address set forth at the bottom of this warranty. By so notifying Versico, the Owner authorizes Versico or its designee to investigate the cause of the leak. Should the investigation reveal the cause of the leak to be outside the scope of this Warranty, investigation and repair costs for this service shall be paid by the Owner.
2. If, upon inspection, Versico determines that the leak is caused by a defect in the Versico Total Roofing System's materials, or workmanship of the Versico Authorized Roofing Contractor in installing the same, Owner's remedies and Versico's liability shall be limited to Versico's repair of the leak. Versico shall have sole responsibility in determining the method of repair of the area.
3. This warranty shall not be applicable if, upon Versico's inspection, Versico determines that any of the following has occurred:
 - (a) The Versico Total Roofing System is damaged by: natural disasters, lightning, fire, insects, animals, windblown debris or objects, earthquakes, tornados, hail, hurricanes, and winds of (3 second) peak gust speeds of -- mph or higher measured at 10 meters above ground; or
 - (b) Loss of integrity of the building envelope and/or structure, including, but not limited to, partial or complete loss of roof decking, wall siding, windows, roof top units, doors or other envelope components; or
 - (c) All associated building components, including but not limited to the deck substrate, joists, columns and foundation, must also meet wind speed design requirements.
 - (d) The Versico Total Roofing System is damaged by any acts, accidents, misuse, abuse, vandalism, civil disobedience or the like; or
 - (e) Deterioration or failure of building components, including, but not limited to, the roof substrate, walls, mortar, HVAC units, non Versico brand metal work, etc., occurs and causes a leak, or otherwise damages the Versico Total Roofing System; or
 - (f) Deterioration of metal materials and accessories caused by marine salt water, atmosphere, or by regular spray of either salt or fresh water; or

- (g) Acids, oils, harmful chemicals and the like come in contact with the Versico Total Roofing System and cause a leak, or otherwise damage the Versico Total Roofing System; or
- (h) The Versico Total Roofing System encounters leaks or is otherwise damaged by condensation resulting from any condition within the building that may generate moisture; or
- (i) The Versico Authorized Contractor or any additional contractor or subcontractor failed to follow Versico's published specifications and details for the approved system assembly or failure to correct all installation deficiencies listed in any Versico inspection report.

4. This Warranty shall be null and void if any of the following shall occur:

- (a) If, after installation of the Versico Total Roofing System by a Versico Authorized Roofing Contractor, there are any alterations or repairs made on or through the roof or objects such as, but not limited to, structures, fixtures, solar arrays, wind turbines, roof gardens or utilities are placed upon or attached to the roof without first obtaining written authorization from Versico; or
- (b) Failure by the Owner to use reasonable care in maintaining the roof, said maintenance to include, but not be limited to, those items listed on Versico's Care & Maintenance Guide which accompanies this Warranty.

5. In addition, it shall be Owner's sole responsibility to remove and re-install at Owner's expense, all obstructions, including, but not limited to, structures, fixtures, solar arrays, wind turbines, roof gardens, utilities or other overburden from the affected area as determined by Versico that would hinder or impede repairs being made in the most expedient and least expensive manner possible. Owner shall be responsible for all costs associated with any loss of power generation in the event that removal of a solar array is required to repair the roofing system.

6. During the term of this Warranty, Versico shall have free access to the roof during regular business hours.

7. Versico shall have no obligation under this Warranty while any bills for installation, supplies, service, and/or warranty charges have not been paid in full to the Versico Authorized Roofing Contractor, Versico, or material suppliers.

8. Versico's failure at any time to enforce any of the terms or conditions stated herein shall not be construed to be a waiver of such provision.

9. Versico shall not be responsible for the cleanliness or discoloration of the Versico Total Roofing System caused by environmental conditions including, but not limited to, dirt, pollutants or biological agents.

10. Versico shall have no liability under any theory of law for any claims, repairs, restoration, or other damages including, but not limited to, consequential or incidental damages relating, directly or indirectly, to the presence of any irritants, contaminants, vapors, fumes, molds, fungi, bacteria, spores, mycotoxins, or the like in the building or in the air, land, or water serving the building.

11. This warranty shall be transferable upon a change in ownership of the building when the Owner has completed certain procedures, including a transfer fee and an inspection of the Roofing System by a Versico representative.

12. Any dispute, controversy or claim between the Owner and Versico concerning this Limited Warranty shall be settled by mediation. In the event that the Owner and Versico do not resolve the dispute, controversy or claim in mediation, the Owner and Versico agree that any and all suits, proceedings, or claims shall be filed in either the state courts of Cumberland County, Pennsylvania or in the United States District Court for the Middle District of Pennsylvania. Each party irrevocably consents to the jurisdiction and venue of the above-identified courts.

13. Roof System Design Assembly: Versico, as manufacturer of commercial roofing products with the sole purpose of offering products for an Owner, design professional, architect, consultant, or engineer when designing/choosing a roof system assembly, assumes no liability nor implies to the suitability of the products for any particular assembly or specific building operation or structure. The Owner, design professional, architect, consultant, or engineer is solely responsible for the assembly chosen for a particular building structure to include the responsibility to properly calculate wind uplift values, design dead loads and live loads, and suitability and condition of building envelope substrate, decking, parapets, drainage, slope, and other attributes pertaining to the performance of the roof system assembly.

14. The Versico Authorized Contractor or any additional contractor or subcontractor are not agents of Versico.

VERSICO DOES NOT WARRANT PRODUCTS UTILIZED IN THIS INSTALLATION WHICH IT HAS NOT FURNISHED AND SPECIFICALLY DISCLAIMS LIABILITY, UNDER ANY THEORY OF LAW, ARISING OUT OF THE INSTALLATION AND PERFORMANCE OF, OR DAMAGES SUSTAINED BY OR CAUSED BY, PRODUCTS NOT FURNISHED BY VERSICO OR THE PRIOR EXISTING ROOFING MATERIAL OVER WHICH THE VERSICO ROOFING SYSTEM HAS BEEN INSTALLED.

THE REMEDIES STATED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES FOR FAILURE OF THE VERSICO TOTAL ROOFING SYSTEM OR ITS COMPONENTS. THERE ARE NO WARRANTIES EITHER EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY, WHICH EXTEND BEYOND THE FACE HEREOF. VERSICO SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR DAMAGE TO THE BUILDING OR ITS CONTENTS UNDER ANY THEORY OF LAW.

BY: Lorraine Russ

AUTHORIZED SIGNATURE

TITLE: General Manager

This Warranty Expires:

Versico Care and Maintenance Guide

In order to ensure the long-term performance of your Roofing System and continued warranty service and coverage, regular rooftop maintenance inspections are necessary. While normal aging will occur on all roofs, if not detected early, problems stemming from abuse, contamination, accidents and severe weather can result in extensive and costly repairs or premature failure of the roofing system. Single-ply Roofing Systems are typically low-slope and easy to inspect, but caution must be taken to ensure safety. Versico disclaims and assumes no liability for any rooftop activity.

- Owner must retain records related to the Roofing System. Such records include, but are not limited to: the warranty document and serial number, maintenance inspection logs, rooftop traffic logs, service logs, and invoices for work performed on the roofing system.
- Inspect the roof at least every six months (preferably spring and fall) and immediately following any weather event that includes excessive rainfall, high winds and/or hail warnings. Increased number of rooftop maintenance inspections may be required on some roofs as the location may dictate, such as higher trees near the building which will accumulate leaves and debris on the roof and have adverse effects on drainage. In addition, rooftop maintenance inspections should occur after regular maintenance of any rooftop unit.

When inspecting the Roofing System, pay special attention to the following:

- Walls/Parapets/Roof Edge – Wind damage often begins at the perimeter of the roof. Ensure all membrane terminations and edge metal and copings are secure.
- Roof Deck Membrane – Inspect the field of the roof, scanning for damage caused by wind-blown debris or traffic.
- Penetrations/Rooftop Units – Inspect the membrane, flashings and terminations around penetrations and rooftop units for possible damage from service work. Ensure the units and terminations are secure.
- Remove debris (leaves, dirt, trash, etc.) – Good roofing practice dictates that water should drain from the roof and that ponded water should evaporate within 48 to 72 hours after a rainfall. Debris can inhibit drainage.

Additional Maintenance Items:

- Foot Traffic – Walkways must be provided if regular traffic is required or if rooftop equipment has a regular thirty (30) day or less maintenance schedule.
- Petroleum Products & Chemicals - Keep all liquids containing petroleum products or chemicals off the membrane to avoid product degradation.
- Animal Fats/Vegetable Oils: EPDM Membranes - Do not exhaust animal fats/vegetable oils directly onto EPDM roof surfaces. TPO & PVC Membranes – Animal fats/vegetable oils must be regularly removed and the rooftop surface cleaned with a mixture of soap and water.

What to do if a leak occurs:

- After verifying the leak is through the roofing system, contact Versico at 1-800-233-0551 or at www.versico.com.
- If minor, emergency temporary repairs are made to a suspected leak area, use Versico's Lap Sealant or a good-grade rubber caulk to address the repair area (do not use asphaltic roof cement). Please note, Versico is not responsible for the cost associated with any emergency temporary repairs.

Alterations to the Roofing System:

- Alterations to the Roofing System must be completed by a Versico Authorized Contractor. The Versico Authorized Contractor must notify Versico when the revision work is complete. The necessary form can be found on the Versico website via the Authorized Contractors login.

Warranty Transfer:

- Warranties shall be transferable upon a change in ownership of the building when the Owner has completed certain procedures. This form can be found on the Versico website for additional guidelines.

Washington State - Warranted Projects - 60 Mil TPO Adhered

Job Name	Owner Name	Address Line 1	City	State / Province	Zipcode	System Warranty Term	System Type	Membrane Type
LARSON APARTMENTS	UNIVERSITY PLACE INVESTORS, LLC	3720 BRIDGEPORT WAY LOT 3	UNIVERSITY PLACE	WA	98466	20	ADHERED	60-MIL VERSIWELD TPO
LARSON APARTMENTS	UNIVERSITY PLACE INVESTORS, LLC	3720 BRIDGEPORT WAY LOT 3	UNIVERSITY PLACE	WA	98466	20	ADHERED	60-MIL VERSIWELD TPO
LARSON APARTMENTS	UNIVERSITY PLACE INVESTORS, LLC	3720 BRIDGEPORT WAY LOT 3	UNIVERSITY PLACE	WA	98466	20	ADHERED	60-MIL VERSIWELD TPO
RENTAL & BIKE PAVILION SPRING DISTRICT	WR-SRI 120 NORTH LLC	12040 NE SPRING BLVD	BELLEVUE	WA	98005	20	ADHERED	60-MIL VERSIWELD TPO
RENTAL & BIKE PAVILION SPRING DISTRICT	WR-SRI 120 NORTH LLC	12040 NE SPRING BLVD	BELLEVUE	WA	98005	20	ADHERED	60-MIL VERSIWELD TPO
NORTHSHORE CHRISTIAN ACADEMY	NORTHSHORE CHRISTIAN ACADEMY	5700 23RD DR W	EVERETT	WA	98203	20	ADHERED	60-MIL VERSIWELD TPO
HARVARD-DENNY APARTMENTS	102 HARVARD LLC	800 E DENNY WAY	SEATTLE	WA	98122	20	ADHERED	60-MIL VERSIWELD TPO
NORTHSHORE CHRISTIAN CHURCH & ACADEMY	NORTHSHORE CHRISTIAN CHURCH & ACADEMY	5700 23RD DRIVE WEST EVERETT	EVERETT	WA	98203	20	ADHERED	60-MIL VERSIWELD TPO
MAIN CONTROL ROOM	BP CHERRY POINT REFINERY	4519 GRANDVIEW ROAD	BLAINE	WA	98230	20	ADHERED	60-MIL VERSIWELD TPO
US BANK VANCOUVER	US BANK NATIONAL ASSOCIATION	7003 NE 40TH ST	VANCOUVER	WA	98661	20	ADHERED	60-MIL VERSIWELD TPO
HOLDEN MANOR APARTMENTS	ASSOCIATION	1213 SW HOLDEN STREET	SEATTLE	WA	98106	25	ADHERED	60-MIL VERSIWELD TPO
ASPECT	FAIRFIELD REALTY 111, LLC	12550 120TH AVE NE	KIRKLAND	WA	98034		ADHERED	60-MIL VERSIWELD TPO
CHARTER HOUSE	VASHON HOUSEHOLD	17305 96TH. PLACE SW	VASHON ISLAND	WA	98070	20	ADHERED	60-MIL VERSIWELD TPO

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. The general provisions of the Contract, including Washington State University General Conditions for Washington State Facility Construction, Special Provisions and General Requirements, apply to the work specific in this section.

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Adhered membrane roofing system.
 - 2. Vapor Retarder.
 - 3. Roof Insulation.
 - 4. Base Flashing.
 - 5. Walkways.
 - 6. Fall Protection
 - 7. Retrofit Roof Drains

1.025 PRODUCT SUBSTITUTIONS

- A. This Section includes administrative and procedural requirements for substitutions.
- B. Substitutions: Changes in products, materials, equipment and methods of construction from those required by the Contract Documents and proposed by the Contractor.
- C. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be substituted. Include specification section and the following as applicable:
 - 1. Substitution Request Form: CSI Form 1.5C.
 - 2. Detailed comparison of the significant qualities of the proposed substitution with those of the work specified.
 - 3. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - 4. Samples, where applicable or requested.
 - 5. List of similar installations for completed projects with project names and addresses and project contact.

- 6. The proposer shall certify:
 - a. Proposed substitution has been fully investigated and determined to be equal or superior in all respects to the specified product(s).
 - b. Same warranty shall be furnished for proposed substitution as for specified product.
 - c. Same maintenance service and source of replacement parts, as applicable, is available.
 - d. Proposed substitution does not affect dimensions and functional clearances.
- D. The proposer shall be responsible for costs associated with design and contract documents for the substitution. Proposed design and contract documents for substitution shall be approved by WSU.
- D. The proposer shall be responsible for regulatory approval of the substituted design and contract documents as they relate to changes in the work specified.

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Base flashing and membrane terminations.
 - 2. Tapered insulation including scopes.
 - 3. Roof plan showing orientation of membrane roofing.
 - 4. Insulation fastening patterns.
- C. Samples: For each product included in the roofing system.
- D. Installer Certificates: Signed by roofing system manufacturer certifying that installer is approved, authorized or licensed by manufacturer to install roofing system.
- E. Research/evaluation reports: For components of membrane roofing system.
- F. Field quality-control reports.
- G. Maintenance data: For roofing system to include in maintenance manuals.
- H. Material Safety Data Sheets for all chemicals used to WSU for review.

This information must be made available to building occupants prior to their use on the roof.

1.04 QUALITY ASSURANCE

- A. **Installer Qualifications:** A qualified installer that has specialized in installing roofing systems similar to those required for this project. Installer must be acceptable to or licensed by manufacturer of primary roofing material. The bidder shall provide documentation from the manufacturer of the roofing product of the following:
 - 1. The bidder shall have installed 200,000 square feet of warranted manufacturers roofing within the past five (5) calendar years.
 - 2. Completion of the Manufacturer's "Contractor" training course.
 - 3. Manufacturer's certification to install the product and meet warranty requirements.
 - 4. Proof of "Good Standing" with the Manufacturer.
- B. **Manufacturer Qualifications:** A qualified manufacturer that has FMG approval for membrane roofing system identical to that used for this Project.
- C. **Fire Test-Response Characteristics:** Provide labeled materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
 - 1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
- D. **Pre-Installation Roofing Conference:** Before the start of work, attend the Pre-Installation Roofing conference to review project requirements as described in Section 01 31 19.
- E. In addition to the bidder responsibility criteria above, the bidder must also meet the following relevant supplemental bidder responsibility criteria applicable to the project:

1.05 QUALITY CONTROL

- A. Contractor shall make the following items part of the Contractor's Quality Control Plan.

1. Source Limitations: Obtain components for membrane roofing system from same manufacturer as roofing membrane.
2. Contractor shall verify that all shop drawings, samples and other submittals are complete and have been reviewed by the Architect prior to beginning installation of membrane roofing.
3. Prior to start of work, Contractor shall verify that materials are as specified and undamaged. Contractor shall inspect preparatory work and ensure that it is acceptable for subsequent follow on installation.
4. Contractor shall have the manufacturer perform a final inspection of all installations prior to Substantial Completion to ensure the installation meets the manufacturer installation requirements, make all necessary corrections and ensure completion prior to calling the Owner for final inspection.

1.06 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Contractor should coordinate with Facilities Services-Capital Planning & Development Project Manager. The Project Manager will be charged with interface with the university and all notifications to same and building occupants for when chemicals will be applied. Coordination should include: shut down of HVAC system; sealing air intakes; informing building occupants of chemical hazards and times of use; notifying chemically sensitive occupants and occupants with breathing difficulties; and coordination of possible alternate times for work to reduce impact on building occupants.
- C. It is recommended that a procedure be put in place to handle any IAQ complaints. This may involve Facilities Services-Capital Planning & Development Project Manager and EH&S. Consider using the Facilities Services-Capital Planning & Development Project Manager for response to IAQ complaints as needed.
- D. Contractor must have adequate spill supplies and a contingency plan for any spills of the chemicals being used.
- E. If fumes and/or odors become a problem, suggest the building air system be operating through the night, when work is not being done, to flush out and dilute odors before occupants return in the morning. Buildings will be

occupied 24/7.

1.07 WARRANTY

- A. Special Warranty: Manufacturer's standard or customized form, without monetary limitation in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specific warranty period or below specified wind speed. Peak gust wind speed coverage shall be 100 mph.
 - 1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners, vapor barrier/temporary roof, insulation adhesive cover boards, roofing accessories, and other components of membrane roofing system. Special warranty to include an R-Value Warranty term.
 - 2. Warranty Period: 20 years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 EPDM MEMBRANE ROOFING – FULLY-ADHERED

- A. EPDM Roofing Manufacturers:
 - 1. Carlisle SynTec Systems "Sure-Seal™ EPDM".
 - 2. Firestone Rubbergard.
 - 3. Johns Manville EPDM NR.
 - 4. Versico EPDM Membrane.
 - 5. Substitutions: Per requirements of Section 00 21 13, Instructions to Bidders, Article 1.06, Specified Products and Section 1.025. Note that systems other than EPDM Membrane Roofing – Fully Adhered will be considered based upon documentation required in the above-referenced requirements. Full documentation as noted will be required for consideration of alternate materials, methods and product substitutions.
- B. Thickness: 60 mils, nominal.
- C. Exposed Face Color: Black.

- D. Membrane: Ethylene propylene diene monomer (EPDM) membrane roofing sheet; unreinforced; 60 mils thick; manufacturer's standard width and roll length; black color; conforming to the following criteria:

Properties	Test	Results
Breaking Strength, min., lbf	ASTM D751	90 lbf min.
Elongation, Ultimate, min. %	ASTM D751	250 % min.
Tear Strength	ASTM D751	10 lbf min.
Moisture Vapor Perms	ASTM E96	0.10 max.
Brittleness Temp, max., deg. F	ASTM D2137	-49 F (-45 degrees C)

2.02 AUXILIARY MEMBRANE ROOFING MATERIALS

- A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
- B. Board or approved equal; gypsum core with fiberglass mat surfaces both sides; 5/8 inch thickness; 4 feet x 4 feet panel size; weight of 1.95 lbs. per sq. ft.; 500-900 pounds per square inch compressive strength; FM Class I, flame spread/smoke developed 0/0 per ASTM E84.
- C. Sheet Flashing: 60 mil thick EPDM, partially cured or cured, according to application.
- D. Seaming Material: Manufacturer's standard adhesive tape with release film.
- E. Bonding Adhesive: Manufacturer's standard high-strength, synthetic rubber adhesive.
- F. Insulation and Re-Cover Board Adhesive: Manufacturer's standard two-component polyurethane, construction grade, low-rise expanding foam adhesive.
- G. Base Flashings: 60 mil unreinforced EPDM. Use field sheet or match field sheet.

- H. Counterflashings: Pre-Finished Galvanized Steel – see Section 07 62 00.
- I. Miscellaneous Accessories: Provide lap sealant, water cutoff mastic, metal termination bars, metal battens, pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, reinforced EPDM securement strips, T-joint covers, expansion joint support, in-seam sealants, termination reglets, cover strips, and other accessories.

2.03 VAPOR RETARDER/TEMPORARY ROOF

- A. 40 mil minimum composite air and vapor barrier/temporary roof consisting of 35 mils of self adhering rubberized asphalt laminated to a 5 mil polyethylene film. Adhere with manufacturer's standard adhesive installed per manufacturer's recommendations.

2.04 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by EPDM membrane roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of minimum thickness of 2".
- B. Polyisocyanurate Board Insulation: ASTM C 1289 Type II, Class I, Grade 2, felt or glass fiber mat facer on both major surfaces.
- C. Tapered Insulation: Provide factory tapered insulation boards fabricated to slope of 3/8" per 12" unless otherwise indicated.
- D. Metal Deck: Fasten tapered insulation to metal deck with minimum 16 fasteners per 4' x 8' board size. Attachment to metal deck to conform to Carlisle 20 year warranty and 100 mph peak gust wind warranty requirements. Contractor to confirm and avoid all building components below deck (i.e. conduit, ductwork, etc.) when attaching tapered insulation to metal deck.
- E. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
- F. Roof insulation layout and design to be confirmed by manufacturer/installer to meet all requirements of manufacturer's tapered

insulation system. And be specific to this project.

2.05 INSULATION ACCESSORIES

- A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with membrane roofing.
- B. Spray or extrude applied two component polyurethane, low rise expanding foam adhesive used for attaching approved insulations to compatible substrates.
- C. Protection Mat: Woven or non-woven polypropylene, polyolefin, or polyester fabric, water permeable and resistant to UV degradation, type and weight as recommended by roofing system manufacturer for application.

2.06 WALKWAYS

- A. Flexible Walkways: Factory formed, non porous, heavy duty, solid rubber, slip resisting, surface textured walkway pads, approximately 3/16" (5 mm) thick, and acceptable to membrane roofing system manufacturer. Secure walkway pads to roof as recommended by manufacturer.

2.07 FALL PROTECTION

- A. Fall Protection Anchor Points: Galvanized steel stanchions with steel base plate designed for anchorage over reinforced concrete and/or structural steel base; Guardian Fall Protection CB-18 or approved equal. Any welding to be in accordance with AWS Standards and performed by AWS/WABO certified welders. Special inspection per 2012 IBC as required.
- B. Fall Protection Swivel Anchors: Galvanized steel wall anchors for anchorage into reinforced concrete; Guardian Fall Protection Swivel Anchor Model 00293, anchored per manufacturer's recommendations.
- C. Provide fall protection anchors designed to resist at least 5,000 pounds applied in any direction at a height of approximately 8 inches above top of roof deck. Provide on-site testing of all fall protection devices that effectively measures applied tension force as recommended by the manufacturer.
- D. Install per manufacturer's written instructions for installations over reinforced concrete deck. Fall protection stanchions to be certified and tagged by fall protection manufacturer.

2.07 RETROFIT ROOF DRAINS

- A. Retrofit Roof Drains: Hercules Roof Drain, manufactured by OMG, Inc., Agawam, Massachusetts, 1-800-633-3800 or approved equal. Field Drains: One piece, 11 GA. spun aluminum, 12" drain stem length with cast aluminum strainer dome. Size varies and to field verified by contractor. Wall Drains: .080 thick aluminum, 10" stem with drains size to match existing.
- B. Install per manufacturer's written instructions, including all applicable installation and functional accessories.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing systems:
 - 1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
 - 2. Verify that wood blocking, curbs and nailers are securely anchored to roof deck at penetrations and terminations and that nailers and built up framing match insulation thickness.

3.02 PREPARATION

- A. Clean substrate of dust, debris, moisture, old adhesives and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto other surfaces of construction.

3.03 VAPOR RETARDER INSTALLATION

- A. Install composite vapor retarder in a single layer over area to receive vapor retarder, side and end lapping each sheet a minimum of 2-1/2 inches. Bond vapor retarder to deck as follows:

1. Apply adhesive at rate recommended by vapor retarder manufacturer. Seal laps with adhesive.
- B. Completely seal vapor retarder at terminations, obstructions and penetrations to prevent air movement into membrane roofing system according to manufacturers published details.

3.04 INSULATION INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.
- C. Install tapered insulation under area of roofing to conform to slopes indicated.
- D. Install one or more layers of insulation under the area of roofing to achieve required thickness. Where insulation is 2 inches or greater, install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict water.

3.05 ADHERED MEMBRANE ROOFING INSTALLATION

- A. Install membrane roofing over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll membrane roofing and allow to relax before installing.
- B. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- C. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing.
- D. Mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing.
- E. Tape Seam Installation: Clean and prime both faces of splice areas, apply

splice tape, and firmly roll side and end laps of overlapping membrane roofing according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of membrane roofing terminations.

- F. Replace material where tears, voids, and lapped seams in roofing occur, that does not comply with requirements.

3.06 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
- E. Terminate and seal top of sheet flashings.

3.07 WALKWAY INSTALLATION

- A. Install walkway products in locations indicated. Adhere walkway products to substrate with compatible adhesive products according to manufacturer's written instructions.

3.08 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspection agency to perform inspections.
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion at or prior to Substantial Completion. Architect and Facilities Services-Capital Planning & Development Project Manager shall be in attendance.

Contractor shall submit Final Inspection report to Facilities Services-Capital Planning & Development.

- C. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.

3.09 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

END OF SECTION 07 53 23