



Versico Interlocking Rubber Paver Roofing System

November, 2008

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Installation Details

Versico Interlocking Rubber Paver Roofing System

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THE INFORMATION CONTAINED IN THIS SECTION SHALL SERVE AS CRITERIA FOR SPECIFIERS AND AUTHORIZED CONTRACTORS REGARDING THE DESIGN AND INSTALLATION OF THE VERSIGARD RUBBER PAVER ROOFING SYSTEM. AUTHORIZED CONTRACTORS MUST ALSO REFERENCE PART II, "APPLICATION" SECTION, OF THE VERSIGARD LOOSE LAID BALLASTED ROOFING SYSTEM SPECIFICATION FOR SPECIFIC INSTALLATION CRITERIA PERTAINING TO MEMBRANE APPLICATION.

PART I GENERAL

1.01 Description

This Interlocking Rubber Paver Roofing System incorporates .045 inch (1 mm) thick or .060 inch (1.5 mm) thick VersiGard (black) non-reinforced or reinforced EPDM membrane. Both the EPDM membrane and acceptable insulation are loose laid over the substrate. Adjoining sheets of EPDM membrane are spliced together a minimum of 3 inches (8 cm) using Versico's Seam Adhesive, or Versico's EPDM Primer and QA Seam Tape. Versico's Interlocking Rubber Pavers (2' X 2' X 2") (61 cm X 61 cm X 5 cm), weighing approximately 6 pounds per square foot (30 kg/m²), are loose laid over the membrane and interlocked together.

Note: In lieu of EPDM membrane, VersiWeld Membrane may be loose laid over loose laid insulation. Refer to Versiweld specifications for the required substrate preparation, compatible underlayments, membrane placement and heat welding procedures.

1.02 Design Criteria

In addition to the criteria listed below, General Design and Planning, Part I, for VersiGard Roofing Systems must also be referenced for design considerations pertaining to substrate preparation, vapor retarder criteria, drainage and flashing. When VersiWeld membrane is to be used, refer to the General Design and Planning Section of the VersiWeld specifications.

- A. The maximum roof height for this roofing system shall not exceed 40 feet (12 m).
- B. Projects in a wind zones greater than 80 MPH (128 km/h) may require additional enhancement. Such projects must be submitted to Versico for a Wind Design Review.
- C. Projects with metal edging at deck level should be submitted to Versico for review to ensure proper securement of the Paver.
- D. On retrofit-recover projects, existing roofing material must be investigated and wet material must be removed. All existing Phenolic insulation must be removed.
- E. This roofing system **must not be applied** on portions of a project where the **slope exceeds 2 inches** in one horizontal foot (16 cm/m).
- F. On non-monolithic roof decks (steel, precast concrete without sealed joints, wood, etc.), an air barrier must be incorporated. On projects incorporating the use of a vapor retarder or when

existing roofing material is to be left in place, the use of an air barrier will not be required. When partial removal of existing roofing material is specified, the area must be filled and **sealed** to prevent air infiltration. Refer to Paragraph 3.03.D.

- G. Approved expanded or extruded polystyrene insulation can only be specified as a membrane underlayment on projects located in Alaska. The use of these insulations in locations other than Alaska must be reviewed by Versico.
- H. Additional perimeter securement of the Rubber Pavers is required when parapet height is less than 12 inches (31 cm) above the paver surface. Refer to Paragraph 3.04F.
- I. It is the responsibility of the specifier to review local, state and regional codes to determine their impact on this roofing system.

1.03 Quality Assurance

- A. This roofing system must be installed by a Versico Authorized Roofing Contractor in compliance with Versico published specifications or shop drawings as approved by Versico. Deviations cannot be made without the **PRIOR WRITTEN APPROVAL** of Versico.
- B. Upon completion of the installation, an inspection shall be conducted by a Technical Representative of Versico to ascertain the roofing system has been installed according to Versico's specifications and details.

1.04 Product Delivery, Storage and Handling

- A. Deliver materials to the job site in original, unopened containers.
- B. Job site storage temperatures in excess of 90° F (32° C) may affect shelf life of curable materials (i.e., uncured flashing, adhesives, sealants, primers, QA Seam Tape and QA Flashing/Accessories).
- C. Do not store adhesive containers with opened lids due to loss of solvent which will occur from flash off.
- D. When loading materials onto the roof, the Versico Authorized Roofing Contractor must comply with the requirements of the specifier/owner to prevent overloading and possible disturbance to the building structure.
- E. Cold temperatures will not restrict the installation of this roofing system. **When the temperature is expected to fall below 40° F (5° C)**, outside storage boxes should be provided on the roof for temporary storage of liquid adhesives, sealants, primers, QA Seam Tape and QA Flashing/Accessories. Adhesive, cement and sealant containers should be rotated to maintain their temperature above 40° F (5° C).
- F. Insulation/underlayment must be stored so that it is kept dry and is protected from the elements. Store insulation on a skid and completely cover with a breathable material such as tarp or canvas. If the insulation is lightweight, it should be weighted to prevent possible wind damage.

1.05 Warranty

All warranties are available for commercial projects only.

- A. A **5 or 10 year Membrane System Warranty** with a wind speed coverage up to 55 mph (88

km/h) peak gusts is available for a charge.

- B. **A 10 year Total System or 15 year Warranty** is available for a charge on projects utilizing all components manufactured or marketed by Versico. Projects will receive a maximum peak gust wind speed coverage of 55 mph (88 m/h) unless prior review is performed regarding extended coverage up to 72 MPH (115 km/h).
- C. Industrial pollutants and environmental dirt may discolor the surface of the Versigard Paver and result in minor color variations. Versico disclaims responsibility for cleanliness or discoloration caused by environmental conditions, including but not limited to, dirt, pollutants or biological agents.

PART 2 PRODUCTS

2.01 General

The components of Versico's Roofing Systems are to be products of Versico or accepted by Versico as compatible. The installation, performance or integrity of **products by others, when selected by the specifier and accepted by Versico**, is not the responsibility of Versico and is expressly disclaimed by the Versico Warranty.

2.02 Membrane

- A. VersiGard (black) .045 inch (1 mm) thick, maximum 50 foot (15.2 m) wide, non-reinforced EPDM (Ethylene, Propylene, Diene Terpolymer) is typically specified for use with this roofing system. VersiGard .060 inch (1.5 mm) thick non-reinforced EPDM membrane, maximum 50 foot wide or maximum 10 foot wide .045 inch/.060 inch thick reinforced EPDM membrane may also be specified.
- B. For physical properties of the various Versico EPDM membranes, refer to the "Products" Section of the Versico Technical Manual.
- C. Physical properties of the VersiWeld membrane can be found in "Attachment I" in Part I, General Design & Planning, of the VersiWeld Specifications.

2.03 Versico Interlocking Rubber Pavers

24" X 24" X 2" (61 cm X 61 cm X 5 cm) thick rubber paver weighing approximately 6 pounds per square foot (30 kg/m²) interlocked together. Each rubber paver has a premolded "U" channel on two sides for Interlocking. Pavers provide multi-directional drainage and are available in standard colors of black and terra cotta (red).

Property	Test Method	Typical Characteristics
Dimensions @ 78°F (26° C)	--	24" X 24" +/- 1/16" (61 cm X 61 cm +/- 1.6 mm)
Weight	--	6 lbs./sq. ft. (29.3 kg/m ²)
Wear Surface Density	--	50.0 lbs./cu. ft. min.(801 kg/cu. m)
Coefficient of Thermal Expansion	--	1.10 X 10 ⁻³ in/ft/° F
Tensile Strength	ASTM D412	107 psi (7.52 kg/cm ²)
Elongation, Ultimate	ASTM D412	65%
Tear Resistance	ASTM D624	33 lbs/in. (5.9 kg/cm)
Abrasion Testing, Taber Abrader, 1000 g wt., 2000 cycles H-22 wheel	ASTM D3389	.75 g loss
Resistance to Outdoor Ultraviolet Weathering	Xenon Arc, 500 hrs exposure, 178° (81° C), 50% relative humidity	85% tensile retention 100% elongation retention
Burning Pill Test	ASTM D2859	Pass
Water Permeation Rate	--	25 gals/sq ft/hr
Freeze/Thaw Cycling	RMA Weathering Cycle RP-10	No breakdown, cracking or loss of flexibility in 4 cycles

2.04 PL Premium Adhesive

PL Premium Adhesive is for use in the “U” Channel as show in detail VRP-4, to provide stable interlocking. The adhesive is available in quart tube containers and is applied in a 3/8” (1 cm) diameter bead. Coverage rate of the adhesive is 48 linear feet (14.6 m) per quart tube.

2.05 Other Related Products

Seam Adhesive, In-Seam Sealant, Primer, QA Seam Tape, Substrate Adhesive, Water Cut-Off Mastic, Pourable Sealer, Lap Sealant, QA Flashing, Seam Fastening Plates and RTS (with the corresponding fasteners) are required with this roofing system. Other Versico products such as insulation and Termination Bars are also required when a Total System is specified.

Note: When VersiWeld membrane is to be specified, refer to “Attachment I” in Part I, General Design & Planning of the VersiWeld specifications for other related Versiweld products.

For additional information on applicable Versico products, refer to Versico’s Technical Data Bulletins.

PART 3 EXECUTION

3.01 General

When feasible, begin the application at the highest point of the highest roof level and work to the lowest point to prevent moisture infiltration and to minimize construction traffic on completed sections. This will include completion of all flashings and terminations.

3.02 Roof Deck Criteria

- A. A proper substrate shall be provided by the building owner. The structure shall be sufficient to withstand normal construction loads and live loads.
- B. Defects in the roof deck must be reported and documented to the specifier, general contractor and building owner for assessment. The Versico Authorized Roofing Applicator shall not proceed unless the defects are corrected.

3.03 Substrate Preparation

- A. On retrofit-recover projects, cut and remove wet insulation, as identified by the specifier, and fill all voids with new insulation so it is relatively flush.
- B. For all projects, the substrate must be relatively even without noticeable high spots or depressions and must be free of accumulated water, ice or snow.
- C. Clear the substrate of debris and foreign material. Fresh bitumen-based roof cement must be removed or concealed.
- D. When required, an air barrier must be sealed around penetrations and roof edges and overlaid with an acceptable insulation. Air barriers may consist of 6 mil (.15 mm) polyethylene with sealed laps or other air impervious material marketed for such use.
 - 1. When a loose laid air barrier is specified on non-monolithic roof decks, fastening of insulation is required around the roof perimeter. Refer to Detail VRP-7 or fastening density and width of perimeter area.
 - 2. Due to the wide variety of material used as an air barrier and the various methods utilized in constructing parapet walls or edging, Versico may be consulted concerning air barrier installation details prior to proceeding with the installation.

3.04 Installation

Authorized Contractors must reference Part II, "Application" Section, of the Loose Laid Ballasted Roofing System Specification for step-by-step procedures for installing this roofing system. Information contained in this section is intended as a brief outline for use by specifiers as a specification guide.

Information pertaining to the Versico products utilized with this roofing system can be found in the "Products" Section included in the Versico Technical Manual. Refer to applicable Technical Data Bulletins and Material Safety Data Sheets for cautions and warnings.

A. Insulation Placement

- 1. Refer to Part I, General Design & Planning Section for VersiGard Roofing Systems for acceptable Insulation for use in conjunction with a loose laid membrane assembly. Expanded or extruded polystyrene may only be used as the membrane underlayment on projects located in Alaska unless approved in writing by Versico.
- 2. Insulation by others may be used only when the respective manufacturer has published a recommendation for their products successful performance as part of this roofing system and Versico accepts the use of the insulation as a compatible surface to which

the roofing system may be applied.

3. Insulation shall be loose laid except when installed in conjunction with a loose laid air barrier/vapor retarder over a non-monolithic roof deck. Fastening of insulation is only required around the perimeter using 2 or 3 inch (5 or 7.5 cm) diameter fastening plates and approved fasteners in accordance with Detail VRP-27.

Fastening plates must be overlaid with small sections of cured reinforced EPDM adhered over the plate and fastener with Versigard Lap Sealant or In-Seam Sealant.

B. Membrane Placement and Splicing

1. The EPDM membrane shall be loose laid over the acceptable insulation. Overlap adjacent EPDM membrane sheets approximately 4 inches (10.5 cm) and allow to relax approximately 30 minutes prior to splicing.

2. Membrane Splicing (Adhesive Splice)

- a. Clean the splice area with Weathered Membrane Cleaner or V-150 Primer
- b. Apply Seam Adhesive at the rate of approximately 150 linear feet (46 m) per 1 gallon (3.78 l) and allow to dry. Just prior to closing the splice, apply a bead of In-Seam Sealant no less than 1/8 inch (3 mm) and no more than 1/4 inch (6 mm) in diameter a minimum of 1/2 inch (13 mm) from the inside edge of the bottom membrane sheet and a minimum of 2 inches (5 cm) from the leading edge of the splice.

Note: Seam Adhesive coverage rate will vary based on splice width. For splice widths greater than 3 inches (8 cm), refer to Part II, "Application" Section, of the Loose Laid Ballasted Roofing System Specification.

- c. Roll the top membrane sheet onto mating surface and roll splice with a 2 inch (5 cm) wide steel roller.
- d. After adjoining membrane sheets have been spliced together, wait a minimum of 2 hours and apply a 5/16 inch (8 mm) diameter bead of Lap Sealant. Feather Lap Sealant to completely cover the splice edge.

3. Membrane Splicing (QA Seam Tape)

- a. Prime the splice area with Versico V-150 Primer.
- b. Apply QA Seam Tape to the bottom membrane sheet with the edge of the release film along a line marked 1/2 inch (13 mm) out from the top sheet.
- c. Press tape onto sheet using hand pressure, overlapping tape roll ends a minimum of 1 inch (2.5 cm).
- d. Remove the release film and press top sheet onto tape using hand pressure. Roll the splice with a 2 inch (5 cm) wide steel roller.
- e. Overlay Tape splices with a 6"x 6" section of QA/ uncured flashing. The use of Lap Sealant with seam tape splices is optional except at cut edges of reinforced membrane (where scrim reinforcement is exposed). Lap Sealant must be utilized

at this location. Refer to the Application Section of the Versico Technical Manual for installation requirements.

4. For Membrane Splicing for VersiWeld, refer to the heat welding procedures in the Application section of the Versiweld specification.

C. **Additional Membrane Securement**

The membrane must be secured at the perimeter of each roof level, roof section, curb, skylight, interior wall, penthouse, etc., at any angle change which exceeds 2 inches in one horizontal foot (16 cm/m), and at other penetrations in accordance with Versico's details. The additional membrane securement must be provided by RTS™ (Reinforced Termination Strip) or Seam Fastening Plates in accordance with Versico's published details.

D. **Membrane Flashing**

1. When feasible, flash all penetrations and walls with cured membrane
2. Uncured EPDM Flashing and QA Flashing must be limited to overlay vertical seams (as required at angle changes) or to flash inside and outside corners, scuppers, penetration pockets and other unusually shaped penetrations or walls where the use of cured membrane flashing is not practical.
3. Versico's prefabricated accessories (Molded Pipe Seals and QA Products such as Penetration Pockets and Inside/Outside Corners) should be used, when feasible, in lieu of uncured EPDM Flashing.
4. Terminate the flashing in accordance with an appropriate Versico C-9 Termination.

E. **Ballasting with Versico Interlocking Rubber Pavers for Parapets 12" or higher**

The use of temporary ballast during installation to prevent wind uplift is the responsibility of the Versico Authorized Applicator.

Care must be exercised during application of the Versigard Pavers. Heavily traveled areas during loading, staging or paver installation must be protected by placing temporary protection courses to prevent possible damage to the deck membrane and insulation.

1. **Starting at the corner** where paver installation should begin, snap chalk lines parallel to adjacent parapet walls to form a 90 degree right angle. The chalk lines should be approximately 2 inches (5 cm) from parapet walls so the top of the Paver is positioned approximately 1 inch (2.5 cm) away from the parapet wall to allow for expansion of Rubber Pavers.

Note: First row of pavers should be installed with "U" Channel male side facing parapet walls.

2. **Place** first paver into roof corner and align bottom edge of Paver along chalk lines. Loose lay the first continuous row of pavers while exercising care to ensure each paver is positioned properly in the "U" Channel area.
3. **Starting from the same corner, lift the second paver out of the "U" Channel and** apply a 3/8" (1 cm) diameter bead of adhesive along the "U" shaped channel lock edge

(female side) of the first paver. Coverage rate of the adhesive is 48 linear feet (14.6 m) per quart tube. Continue in a similar fashion along the first row so **every other paver is adhered**. Refer to Detail VRP-4B.

4. Prior to installing the second row of pavers, **mark** adhesive location with a light weight loose laid object such as an empty paint can to serve as a visual reference so adhesive application is continuous along the "U" Channels of the same row of pavers.
5. **Begin the second row** by loose laying the pavers and each piece into the channel lock edge. As this row of pavers is installed adhere each of these pavers with the first row of pavers. At the same time, following the adhesion of the first row, adhere every other paver down the row. When finished with the first two rows, the application should be in groups of four. Refer to Detail VRP-4B.
6. **Loose lay the third row** of pavers and interlock with the second row. **Do not** adhere the third row to the second row. Adhere every other paver of the third row as shown in Detail VRP-4B. When parapet height is less than 12", adhering the first 4 pavers of the third row to the second row is required to provide additional wind resistance. Refer to Detail VRP-4C and Paragraph F.
7. **Continue** to install Rubber Pavers and adhesive until paver installation is completed.
8. Protrusions such as vent pipes, conduits, equipment support posts may be addressed by cutting the paver to fit around each protrusion with approximately a 1 inch (2.5 cm) gap between the paver and protrusion.

When pavers are cut, a wood cutting surface must be used to allow for clearance and protection of the roofing membrane. The best cutting device for pavers is a saber saw with a 7-10 TPI wood cutting blade. A heavy duty utility or carpet knife may also be used.

9. Pavers may be discontinued at drain and scupper locations at any desired distance providing stone ballast is used for continuous membrane coverage.
10. If less than a full width paver is needed to complete the installation, pavers can be either cut to fit, or stone ballast may be utilized to fill this area. Minimum ballast size and weight shall conform to the requirements contained in Versico's Loose Laid Ballasted Roofing System Specification.

Note: When a cut row of pavers is installed within 10' (3 m) from the perimeter, the cut pavers must be adhered to a slip sheet of EPDM membrane using Versigard Primer and Seam Adhesive or with beads of PL Premium Adhesive applied to the underside round shaped nubs of the paver.

F. **Perimeter Paver Edge Securement for Parapets less than 12"**

Buildings with parapets heights less than 12" will require additional paver securement using adhesive or wall mounted metal strapping as follows:

1. **Adhesive Enhancement**

In addition to the installation instructions described in Paragraph E, adhesive must be applied in all "U" Channels of pavers located within each 8'x 8' corner and the first two rows of pavers around the perimeter. Refer to detail VRP-4C.

2. **Wall Mounted Metal Strapping**

In lieu of adhesive enhancement described above, continuous metal strapping, .063" (1.6 mm) mill finish aluminum or Kynar coated aluminum, may be incorporated to secure the rows of pavers adjacent to the perimeter. When installing straps, begin installation 6 inches (15.5 cm) to 12 inches (31 cm) from corners with gaps between consecutive sections not exceeding 4 inches (10.4 cm) to 6 inches (15.5 cm). Refer to detail RP-12B

- a. Strapping shall be fastened approximately 12 inches (31 cm) on center starting 1 to 2 inches (2.5 to 5 cm) from edges.
 - b. Strapping shall be anchored with compatible fasteners. Each fastener shall be sealed with Water Cut-Off Mastic (between strap and wall flashing) and Lap Sealant applied to each fastener head. Lap Sealant must also be applied continuously along the top edge of the strapping.
3. Other perimeter strapping methods may be utilized upon approval by Versico prior to installation.

G. **Other Related Work**

Copings, counterflashing and other metal work, not supplied by Versico, shall be fastened to prevent the metal from pulling free or buckling and sealed to prevent moisture from entering the roofing system or building.

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Review the appropriate Versico warranty for specific warranty coverage, terms, conditions and limitations.

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Installation Details

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