
VersiFleece TPO Adhered Form-Spec

July 2026

Note to the User: Some text has been colored and underlined so the specifier can customize a specification for a specific project. This information must be edited by the specifier to create a final draft of the project specification.

PART 1 GENERAL

1.01 DESCRIPTION

- A. The Project Name is located at Address in City and State. Name of Project Manager, Project Manager/Coordinator, is the Owner's Representative and may be contacted regarding any questions or for a pre-bid job site inspection, phone Phone Number.
- B. The project consists of installing Versico's VersiFleece TPO white, gray or tan 100 or 115 or 135 membrane adhered with Flexible DASH Adhesive as outlined below:

(choose the appropriate paragraph and delete remainder)

Apply the VersiFleece TPO Adhered Roofing System in conjunction with Insulation Type over the new Deck Type roof deck.

OR

Apply the VersiFleece TPO Adhered Roofing System directly to the new Deck Type roof deck.

OR

Apply the VersiFleece TPO Adhered Roofing System in conjunction with Insulation Type over the existing Material Type roof.

OR

Apply the VersiFleece TPO Adhered Roofing System directly to the existing Material Type roof.

OR

Apply the VersiFleece TPO Adhered Roofing System in conjunction with Insulation Type after tear off of the existing Material Type roof to expose the Deck Type for verification of suitable substrate as specified in this specification.

1.02 EXTENT OF WORK

- A. Provide all labor, materials, tools, equipment, and supervision necessary to complete the installation of the VersiFleece TPO Adhered Roofing System including flashings and insulation as specified herein and as indicated on the drawings in accordance with the manufacturer's most current specifications and details.
- B. The roofing contractor shall be fully knowledgeable of all requirements of the contract documents and shall make themselves aware of all job site conditions that will affect their work.

- C. The roofing contractor shall confirm all given information and advise the building owner, prior to bid, of any conflicts that will affect their cost proposal.
- D. Any contractor who intends to submit a bid using a roofing system other than the approved manufacturer must submit for pre-qualification in writing fourteen (14) days prior to the bid date. Any contractor who fails to submit all information as requested will be subject to rejection. Bids stating "as per plans and specs" will be unacceptable.

1.03 SUBMITTALS

- A. Prior to starting work, the roofing contractor must submit the following:
 - 1. Shop drawings showing layout, details of construction and identification of materials.
 - 2. A sample of the manufacturer's Membrane System Warranty.
 - 3. Submit a letter of certification from the manufacturer which certifies the roofing contractor is authorized to install the manufacturer's roofing system and lists foremen who have received training from the manufacturer along with the dates training was received.
 - 4. Certification from the membrane manufacturer indicating the membrane thickness over the reinforcing scrim (top ply membrane thickness) is nominal .015-mil or thicker.
 - 5. Certification of the manufacturer's warranty reserve.
- B. Upon completion of the installed work, submit copies of the manufacturer's final inspection to the specifier prior to the issuance of the manufacturer's warranty.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, unopened containers or wrappings with the manufacturer's name, brand name and installation instructions intact and legible. Deliver in sufficient quantity to permit work to continue without interruption.
- B. Comply with the manufacturer's written instructions for proper material storage.
 - 1. Store VersiFleece TPO membrane in a dry, cool, shaded area in the original undisturbed plastic. VersiFleece TPO membrane that has been exposed to the elements for approximately 7 days must be prepared with Weathered Membrane Cleaner prior to hot air welding.
 - 2. Store curable materials (adhesives and sealants) between 60°F and 80°F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60°F minimum temperature before using.
 - 3. Store materials containing solvents in dry, well ventilated spaces with proper fire and safety precautions. Keep lids on tight. Use before expiration of their shelf life.
- C. Insulation must be on pallets, off the ground and tightly covered with waterproof materials.
- D. Any materials which are found to be damaged shall be removed and replaced at the applicator's expense.

1.05 WORK SEQUENCE

- A. Schedule and execute work to prevent leaks and excessive traffic on completed roof sections. Care should be exercised to provide protection for the interior of the building and to ensure water does not flow beneath or wick into any completed sections of the membrane system.
- B. Do not disrupt activities in occupied spaces.

1.06 USE OF THE PREMISES

- A. Before beginning work, the roofing contractor must secure approval from the building owner's representative for the following:
 - 1. Areas permitted for personnel parking.
 - 2. Access to the site.
 - 3. Areas permitted for storage of materials and debris.
 - 4. Areas permitted for the location of cranes, hoists and chutes for loading and unloading materials to and from the roof.
- B. Interior stairs or elevators may not be used for removing debris or delivering materials, except as authorized by the building superintendent.

1.07 EXISTING CONDITIONS

If discrepancies are discovered between the existing conditions and those noted on the drawings, immediately notify the owner's representative by phone and solicit the manufacturer's approval prior to commencing with the work. Necessary steps shall be taken to make the building watertight until the discrepancies are resolved.

1.08 PRECONSTRUCTION CONFERENCE

- A. A pre-bid meeting will be held at the job site on Date at Time. Contact the owner's representative, Name and Title, at Phone Number if there are any questions.
- B. Prior to bid submittal, the roofing contractor should schedule a job site inspection to observe actual conditions and verify all dimensions on the roof. The job site inspection may occur on the day of the pre-bid meeting or prior to such a meeting. Should access to the roof be necessary before or after the pre-bid meeting, the contractor must contact the owner's representative, Name and Title, at Phone Number to coordinate an appropriate time.
- C. Bids must be forwarded to the following address no later than Time on Date:

Name and Address
- D. Any conditions which are not shown on the shop drawings should be indicated on a copy of the shop drawing and included with bid submittal if necessary to clarify any conditions not shown.

1.09 TEMPORARY FACILITIES AND CONTROLS

- A. Temporary Utilities:
 - 1. Water, power for construction purposes and lighting are/are not available at the site and will/will not be made available to the roofing contractor.
 - 2. Provide all hoses, valves and connections for water from a source designated by the owner when made available.
 - 3. When available, electrical power should be extended as required from the source. Provide all trailers, connections and fused disconnects.
- B. Temporary, Sanitary Facilities

Sanitary facilities will not be available at the job site. The roofing contractor shall be responsible for the

provision and maintenance of portable toilets or their equal.

C. Building Site:

1. The roofing contractor shall use reasonable care and responsibility to protect the building and site against damages. The contractor shall be responsible for the correction of any damage incurred as a result of the performance of the contract.
2. The roofing contractor shall remove all debris from the job site in a timely and legally acceptable manner so as to not detract from the aesthetics or the functions of the building.

D. Security:

Obey the owner's requirements for personnel identification, inspection and other security measures.

1.10 JOB SITE PROTECTION

- A. The roofing contractor shall adequately protect building, paved areas, service drives, lawn, shrubs, trees, etc. from damage while performing the required work. Provide canvas, boards and sheet metal (properly secured) as necessary for protection and remove protection material at completion. The contractor shall repair or be responsible for costs to repair all property damaged during the roofing application.
- B. During the roofing contractor's performance of the work, the building owner will continue to occupy the existing building. The contractor shall take precautions to prevent the spread of dust and debris, particularly where such material may sift into the building. The roofing contractor shall provide labor and materials to construct, maintain and remove necessary, temporary enclosures to prevent dust or debris in the construction area(s) from entering the remainder of the building.
- C. Do not overload any portion of the building, by either use of or placement of equipment, storage of debris, or storage of materials.
- D. Protect against fire and flame spread. Maintain proper and adequate fire extinguishers.
- E. Take precautions to prevent drains from clogging during the roofing application. Remove debris at the completion of each day's work and clean drains, if required. At completion, test drains to ensure the system is free running and drains are watertight. Remove strainers and plug drains in areas where work is in progress. Install flags or other telltales on plugs. Remove plugs each night and screen drain.
- F. Store moisture susceptible materials above ground and protect with waterproof coverings.
- G. Remove all traces of piled bulk material and return the job site to its original condition upon completion of the work.

1.11 SAFETY

The roofing contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, state and federal requirements that are safety related. **Safety shall be the responsibility of the roofing contractor.** All related personnel shall be instructed daily to be mindful of the full time requirement to maintain a safe environment for the facility's occupants including staff, visitors, customers and the occurrence of the general public on or near the site.

1.12 WORKMANSHIP

- A. Applicators installing new roof, flashing and related work shall be factory trained and approved by the manufacturer they are representing.
- B. All work shall be of highest quality and in strict accordance with the manufacturer's published specifications and to the building owner's satisfaction.

- C. There shall be a supervisor on the job site at all times while work is in progress.

1.13 QUALITY ASSURANCE

- A. The VersiFleece TPO Membrane Roofing System must achieve a UL Class A, B or C.

- B. (choose the appropriate paragraph and delete remainder)

The specified roofing assembly must have been successfully tested by a qualified testing agency to resist the design uplift pressures calculated according to

ANSI/SPRI WD-1 "Wind Design Standard Practice for Roofing Assemblies"
American Society of Civil Engineers (ASCE 7)
International Building Code (IBC)
DORA (Directory of Roof Assemblies)

and after multiplying the results with a safety factor of (determined by designing professional).

OR

The specified roofing assembly must be rated by Factory Mutual Global (FMG) to meet or exceed the factored uplift pressures outlined in FMG Property Loss Prevention Data Sheet 1-28, and complies with FMG Property Loss Prevention Data Sheet 1-29 for enhancements at the perimeter and corners.

- C. The membrane must be manufactured by the material supplier. Manufacturer's supplying membrane made by others are not acceptable.
- D. Unless otherwise noted in this specification, the roofing contractor must strictly comply with the manufacturer's current specifications and details.
- E. The roofing system must be installed by an applicator authorized and trained by the manufacturer in compliance with shop drawings as approved by the manufacturer. The roofing applicator shall be thoroughly experienced and upon request be able to provide evidence of having at least five (5) years successful experience installing single-ply roofing systems and having installed at least one (1) roofing application or several similar systems of equal or greater size within one year.
- F. Provide adequate number of experienced workmen regularly engaged in this type of work who are skilled in the application techniques of the materials specified. Provide at least one thoroughly trained and an experienced superintendent on the job at all times roofing work is in progress.
- G. There shall be no deviations made from this specification or the approved shop drawings without the prior written approval of the specifier. Any deviation from the manufacturer's installation procedures must be supported by written certification on manufacturer's letterhead and presented for the specifier's consideration.
- H. The VersiWeld TPO White membrane meets CRRC (Cool Roof Rating Council) for reflectance and emittance. When tested in accordance with ASTM C1549, the VersiWeld White material has an initial solar reflectance of 0.79 and a 3-year aged reflectance of 0.70. The material has also been tested for emittance in accordance with ASTM C1371; an initial emittance of .90 and a 3-year aged emittance of 0.86 were achieved.
- I. The VersiWeld White TPO membrane meets the emittance requirements set forth by the USGBC (U. S. Green Building Council) for their LEED (Leadership in Energy and Environmental Design) Program. The VersiWeld White TPO material has an emittance of 0.90 (when tested in accordance with ASTM E408) and an SRI (solar reflectance index) of 99 (calculated using ASTM E 1980).
- J. The VersiWeld TPO Tan membrane meets CRRC (Cool Roof Rating Council) for reflectance and emittance. When tested in accordance with ASTM C1549, the VersiWeld Tan material has an initial solar reflectance of 0.71. The material has also been tested for emittance in accordance with ASTM C1371; an

initial emittance of 0.87 was achieved.

- K. The VersiWeld Tan TPO membrane meets the emittance requirements set forth by the USGBC (U. S. Green Building Council) for their LEED (Leadership in Energy and Environmental Design) Program. The VersiWeld Tan TPO material has an emittance of 0.86 (when tested in accordance with ASTM E408) and an SRI (solar reflectance index) of 86 (calculated using ASTM E 1980).
- L. Upon completion of the installation, the applicator shall arrange for an inspection to be made by a non-sales technical representative of the membrane manufacturer in order to determine whether or not corrective work will be required before the warranty will be issued. Notify the building owner seventy-two (72) hours prior to the manufacturer's final inspection.

1.14 JOB CONDITIONS, CAUTIONS AND WARNINGS

Refer to Versico's VersiFleece Adhered Roofing System specification for General Job Site Considerations.

- A. Safety Data Sheets (SDS) must be on location at all times during the transportation, storage and application of materials.
- B. **Do not apply Flexible DASH Adhesive** when surface and/or ambient temperatures are **below 25°F**.
- C. The contractor must exercise caution during adhesive spraying to avoid overspray.

Use a non-atomizing spray tip such as the Graco Spatter Tip and reduce spray pressure to 500 – 800 psi to increase adhesive droplet size and reduce airborne mist. Maintain hand held wind screens on-site for use as necessary.

Extruding Flexible DASH Adhesive method may be used to eliminate overspray concerns.
- D. When positioning membrane sheets, exercise care to locate all field splices away from low spots and out of drain sumps. All field splices should be shingled to prevent bucking of water.
- E. When loading materials onto the roof, the Versico Authorized Roofing Applicator must comply with the requirements of the building owner to prevent overloading and possible disturbance to the building structure.
- F. Proceed with roofing work only when weather conditions are in compliance with the manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with the manufacturer's requirements and recommendations.
- G. Proceed with work so new roofing materials are not subject to construction traffic. When necessary, new roof sections shall be protected and inspected upon completion for possible damage. Provide protection, such as 3/4 inch thick plywood, for all roof areas exposed to traffic during construction. Plywood must be smooth and free of fasteners and splinters.
- H. The surface on which the insulation or roofing membrane is to be applied shall be clean, smooth, dry, and free of projections or contaminants that would prevent proper application of or be incompatible with the new installation, such as fins, sharp edges, foreign materials, oil and grease.
- J. New roofing shall be complete and weather tight at the end of the work day. Care must be taken to avoid wicking water through the fleece by properly sealing exposed edges of the membrane
- K. Contaminants such as grease, fats and oils shall not be allowed to come in direct contact with the roofing membrane.

1.15 WARRANTY

- A. Provide manufacturer's 10 year, 15 year, 20 year, or 30 year Total System Warranty covering both labor and material with no dollar limitation. The maximum wind speed coverage shall be peak gusts of 55, 72, 80, 90, 100, 110 or 120 mph measured at 10 meters above ground level. Certification is required with bid submittal

indicating the manufacturer has reviewed and agreed to such wind coverage.

Note: For projects specified with warranties greater than 20 year and/or wind coverage specified greater than 80 mph, additional design enhancements are required. Refer to Versico published VersiFleece Specifications

Note:

Warranty Length	Minimum Membrane Thickness
10 or 15 year	100-mil VersiFleece TPO
20 year	115-mil VersiFleece TPO
25 year	135-mil VersiFleece TPO
30 year	135-mil VersiFleece TPO

- B. Warranty shall also cover leaks caused by accidental punctures:
- 8 man-hours per year for 100-mil VersiFleece
 - 16 man-hours per year for 115-mil VersiFleece
 - 32 man-hours per year for 135-mil VersiFleece.
- C. Versico's Accidental Puncture Warranty covers labor hours and material used during the repair. Maximum labor and material hours are dependent upon system design. Refer to the Warranty Availability Quick Reference Guide for coverage.
- D. Warranty shall also cover leaks caused by hail:
- Hail up to 1" diameter when 100-mil VersiFleece is installed
 - Hail up to 2" diameter hail when 115-mil VersiFleece is installed
 - Hail up to 3" diameter hail when 135-mil VersiFleece is installed.
 - When Flexible DASH is specified and installed an additional 1" diameter hail can be included.
- E. When white VersiFleece TPO membrane is specified, a Reflectivity Warranty Amendment is available indicating the membrane will meet the Energy Star program reflectivity guidelines for both new and aged membrane for a period of 10 years.
- F. Pro-rated System Warranties shall not be accepted.
- G. Evidence of the manufacturer's warranty reserve shall be included as part of the project submittals for the specifier's approval.

PART 2 PRODUCTS

2.01 GENERAL

- A. All components of the specified roofing system shall be products of Versico or accepted by Versico as compatible.
- B. Unless otherwise approved by the specifier and accepted by the membrane manufacturer, all products (including adhesives, insulation, fasteners, fastening plates and edgings) must be **manufactured and supplied** by the roofing system manufacturer and covered by the warranty.

2.02 MEMBRANE

Note: Special Color TPO (Medium Bronze, Rock Brown, Terra Cotta, Slate Gray and Patina Green) is available in 115-mil and 12' wide x 100' long membrane ONLY. Special Color VersiFleece TPO is available by special order and a lead time will be required.

- A. Furnish 100-mil, 115-mil, or 135-mil VersiFleece TPO white, gray, tan or Special Color reinforced TPO (Thermoplastic Polyolefin) membrane. Membrane thickness over the reinforcing scrim (top-ply thickness) shall be nominal .015-mil or thicker.
- B. Membrane Color: White top surface with SRI (solar reflectance index) not less than 110, tested in accordance with ASTM E 1980.
- C. Membrane Weathering Performance: The TPO membrane shall be formulated with Octaguard XT Weathering Package to withstand 60 days of exposure at a 275° F temperature and a minimum of 17,000 kj/m xenon arc resistance at 80°F without cracking or showing signs of material failure, exceeding ASTM 6878.
- D. White TPO Membrane Sheets are 6' wide by 75' or 100' long, and 12' wide by 50', 75' or 100' long.
- E. Gray or Tan Membrane Sheets are 12' wide by 75' or 100' long.
- F. Special Color TPO (Medium Bronze, Rock Brown, Terra Cotta, Slate Gray and Patina Green) Membrane Sheets are 12' wide by 100' long.

2.03 INSULATION/UNDERLAYMENT

- A. When applicable, insulation shall be installed in multiple layers and mechanically fastened or secured with DASH Adhesive to the substrate in accordance with manufacturer's published specifications.
- B. Insulation shall be Type of Insulation as supplied by Versico. Minimum R-value required is Note R-Value.

(choose the appropriate paragraph and delete remainder)

1. **Versico Versicore / MP-H Polyiso** – A foam core insulation board covered on both sides with a medium weight fiber-reinforced felt facer meeting ASTM C 1289-06, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4' x 8' standard size with a thickness from 1 to 4 inches. 4' x 4' tapered panels are also available.
2. **Versico Versicore / MP-H NH Polyisocyanurate** – A foam core insulation board covered on both sides with a medium weight fiber-reinforced felt facer meeting ASTM C 1289-06, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4' x 8' standard size with a thickness from 1 to 4 inches. 4' x 4' tapered panels are also available. This product contains zero halogenated flame retardants and is Living Building Challenge (LBC) “Red List Free”.
3. **Versico VersiCore Eco** - A bio-based (5%), polyisocyanurate insulation, InsulBase ECO is a rigid, foam core, insulation board composed of a closed-cell polyisocyanurate foam core covered on both sides with glass-reinforced felt (GRF) facers, meeting ASTM C 1289, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4' x 8' standard size with a thickness from 1 to 4 inches. 4' x 4' tapered panels are also available.
4. **Versico VersiCore HD** – a closed-cell polyisocyanurate foam core insulation board covered on both sides with glass-reinforced felt (GRF) facer meeting ASTM C 1289, Type II, Class 1, Grade 3. The product is available in 4' x 4' and 4' x 8' standard sizes with a thickness of one-half inch.
5. **Versico VersiCore HD Eco** - A bio-based (5%), polyisocyanurate insulation product, InsulBase HD Eco is a high-density (80 psi), rigid roof insulation cover board composed of a high-density closed-cell polyisocyanurate foam core bonded to glass-reinforced felt (GRF) facers, meeting ASTM C1289, Type II, Class 1, Grade 3. UL and FM approved for direct application over steel decks. Available in 1/2" thick, 4' x 4' and 4' x 8' panels with an R-value of 2.5.

6. **Versico SecurShield Polyisocyanurate**– A foam core insulation board covered on both sides with a moisture resistant coated glass fiber mat facer meeting ASTM C 1289-06, Type II, Class 2, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4' x 8' standard size with a thickness from 1 to 4 inches. 4' x 4' tapered panels are also available.
7. **Versico SecurShield Eco** – A bio-based (5%), rigid roof insulation panel composed of a closed-cell polyisocyanurate foam core bonded to high performance, coated glass facers (CGF). Achieves a UL Class A fire rating direct to combustible deck. ASTM C 1289, Type II, Class 2, Grade 2 (20 psi) or Grade 3 (25 psi), available in 4' x 8' standard size with a thickness from 1 to 4 inches. 4' x 4' tapered panels are also available.
8. **Versico SecurShield HD Cover Board**– a rigid insulation panel composed of a high-density (109 psi max), closed-cell polyisocyanurate foam core laminated to moisture resistant coated-glass fiber-mat facer for use as a cover board or recover board meeting ASTM 1289-06, Type II, Class 2. Available 1/2" thick 4' x 8' panel weight 11 lbs with an R-value of 2.5.
9. **Versico SecurShield HD Eco** – A bio-based (5%), rigid roof insulation panel composed of ½" high-density (109 psi max), closed-cell polyisocyanurate foam core bonded to a coated glass facer (CGF), meeting ASTM C1289, Type II, Class 4, Grade 1. Specifically designed for use as a cover board. Achieves a UL Class A fire rating direct to combustible deck. Available in 1/2" thick, 4' x 4' (5.5 lbs) and 4' x 8' (11 lbs) panels with an R-value of 2.5.
10. **Versico SecurShield HD Plus** - a rigid insulation panel composed of a high-density (109 psi max), closed-cell polyisocyanurate foam core laminated to premium-performance coated-glass fiber-mat facer for use as a cover board or recover board. Available 1/2" thick 4' x 8' panel weight 11 lbs with an R-value of 2.5. Meets an FM 1-90 using only 8 fasteners per 4' x 8' board.
11. **Versico SecurShield HD Composite** – Composite insulation panel comprised of a ½" top surface of the Versico SecurShield HD Cover Board (109 psi max) that is laminated during the manufacturing process to SecurShield rigid Polyiso roof insulation meeting ASTM C1289 Type II, Class2, Grade 2 (20 psi) or Grade 3 (25 psi). Available in 4' x 8' boards with thickness from 2" to 4.5". 4' x 4' panels are also available.
12. **Versico SecurShield NH** – A rigid roof insulation panel composed of a closed-cell polyisocyanurate foam core bonded on each side to premium performance coated glass facers (CGF). SecurShield NH contains zero halogenated flame retardants. Available in 4' x 4' and 4' x 8' boards with thicknesses of 1/2" to 4".
13. **Versico ImpactR-7™ GRF Polyisocyanurate** – A foam core insulation board covered on both sides with a medium weight fiber-reinforced felt facer meeting ASTM C 1289, Type II, Class 1, Grade 2 (20 psi). The product is available in 4' x 4' and 4' x 8' standard size with a thickness from 1.45 to 2.5 inches. ImpactR-7 GRF Polyisocyanurate formulation has approximately 30 percent higher R-Value per inch than standard Polyisocyanurate.
14. **Versico ImpactR-7™ CGF Polyisocyanurate** – A foam core insulation board covered on both sides with a coated glass fiber mat facer meeting ASTM C 1289, Type II, Class 2, Grade 2 (20 psi). The product is available in 4' x 4' and 4' x 8' standard size with a thickness from 1.45 to 2.5 inches. These flat board products feature a dark-colored coated-glass facer (CGF) on one side of the insulation board and a light-colored CGF on the other, labeled Ready Flash. Ready Flash Technology allows applicators to manage adhesive flash-off times by choosing between two different-colored facers on every board. ImpactR-7 CGF Polyisocyanurate formulation has approximately 30 percent higher R-Value per inch than standard Polyisocyanurate.
15. **Versico DuraFaceR Polyiso Composite (OSB)** – Polyiso insulation bonded on the bottom side with a medium weight fiber reinforced felt facer and laminated with a top surface of 7/16" or 5/8" thick Oriented Strand Board (OSB) meeting ASTM C 1289-06, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi). Available in 4' x 8' boards with a thickness from 1-1/2" to 4".

16. **OPTIM-R® Vacuum Insulated Panel (VIP)** – a high R-Value vacuum insulated panel (VIP) used to provide a low-profile solution when height restrictions exist, such as windows, doors, equipment curbs, etc. Provides an R-38 insulating value in a 2.6” system thickness with up to 35% infill (non-VIP material). Available in 23.6” x 23.6” and 23.6” x 47.2” board sizes. Insulation is installed with 1/2” layer of SecurShield HD coverboard adhered to the top and bottom of the **OPTIM-R®**, for a total of system thickness of 2.6”. For Adhered projects only. Note: **OPTIM-R®** VIP cannot be cut or punctured.
17. **ADVANC-R® VIP** – a thin, rigid, high R-value, non-structural vacuum insulated panel. Provides a low-profile solution for height restricted roof conditions such as penthouse doors, windowsills, equipment curbs and parapet walls. Provides a R-66 insulating value in a 0.94” thick panel. Available in 22.4” x 24.0” and 22.4” x 48.0” panel sizes. Note: **ADVANC-R®** VIP cannot be cut or punctured.
18. **InsulFoam I (EPS: Expanded Polystyrene)** – A closed-cell lightweight expanded polystyrene (EPS) that meets ASTM C578, Type I. Nominal density of 1.0 lbs/cubic ft (pcf) available in 4’ x 4’ or 4’ x 8’ sizes with thickness from ¼” to 40”. Custom lengths, widths and tapered boards are available. Specified beneath Versico HP Recovery Board, Dens-Deck Prime, Securock or DEXcell.
19. **InsulFoam VIII (EPS: Expanded Polystyrene)** – A closed-cell lightweight expanded polystyrene (EPS) that meets ASTM C578, Type VIII. Nominal density of 1.25 lbs/cubic ft (pcf) available in 4’ x 4’ or 4’ x 8’ sizes with thickness from ¼” to 40”. Custom lengths, widths and tapered boards are available. Specified beneath Versico HP Recovery Board, Dens-Deck Prime, Securock or DEXcell.
20. **InsulFoam II (EPS: Expanded Polystyrene)** – A closed-cell lightweight expanded polystyrene (EPS) that meets ASTM C578, Type II. Nominal density of 1.5 lbs/cubic ft (pcf) available in 4’ x 4’ or 4’ x 8’ sizes with thickness from ¼” to 40”. Custom lengths, widths and tapered boards are available. Specified beneath Versico HP Recovery Board, Dens-Deck Prime, Securock or DEXcell.
21. **InsulFoam IX (EPS: Expanded Polystyrene)** – A closed-cell lightweight expanded polystyrene (EPS) that meets ASTM C578, Type IX. Nominal density of 2.0 lbs/cubic ft (pcf) available in 4’ x 4’ or 4’ x 8’ sizes with thickness from ¼” to 40”. Custom lengths, widths and tapered boards are available. Specified beneath Versico HP Recovery Board, Dens-Deck Prime, Securock or DEXcell.
22. **InsulFoam HD Composite** – InsulFoam expanded polystyrene (EPS) insulation laminated with a top surface of 1/2” thick SecurShield HD. Available in 4’ x 8’ boards with thickness from 1-1/2” to 7”.
23. **InsulLam** – InsulFoam expanded polystyrene (EPS) insulation laminated with a top surface of 7/16” or 5/8” thick Oriented Strand Board (OSB), 1/2” Dens Deck Prime, 1/2” Securock, or 1/2” HP Recovery Board. Available in 4’ x 8’ boards with thickness from 1-1/2” to 7”.
24. **Versico EPS (Flute-Filler):** A custom-made, high performance insulation consisting of a superior closed-cell, lightweight expanded polystyrene (EPS) that meets the requirements of ASTM C578. The product offers a long-term, stable R-Value and has excellent dimensional stability, compressive strength and water resistant properties. It is custom-manufactured for each specific application, and is readily available in a variety of lengths, widths and shapes to meet virtually any job condition.
25. **XPS: Extruded Polystyrene** – Available through Carlisle is dimensionally stable with high thermal and low water absorption performance capability. XPS is available in varying compressive strengths thicknesses and sizes. Refer to specific product data sheets for physical properties and additional technical information. Specified beneath Sure-Seal HP Recovery Board, DensDeck Prime or Securock
 - a. Thermapink 18 or 25 Extruded Polystyrene
 - b. Foamular 400 or Durapink Extruded Polystyrene
 - c. Dow Recovermate, Dow Styrofoam Deckmate, or Dow Styrofoam Deckmate Plus Extruded Polystyrene
26. **Securock Roof Board** – A uniform composition of fiber-reinforced gypsum, without a facer, for use as a cover board or a thermal barrier in mechanically fastened and fully adhered roofing systems. Meets ASTM E84 for flame spread and smoke development; Class A fire performance per UL 790. Available

in 1/4" to 5/8" thick and 4' x 4' or 4' x 8' size boards. 5/8" meets requirements of Type X per ASTM C1177. Long uninterrupted runs (>200') may require slight gapping due to thermal expansion.

27. **Securock UltraLight Glass-Mat Roof Board** – A fire-resistant, moisture and mold-resistant roof board used in mechanically fastened, low-slope roofing systems, featuring a specially treated lightweight core and high-performance glass-mat facer. Meets ASTM E84 for flame spread and smoke development; Class A fire performance per UL 790. Available in 4' x 8' size boards; 1/4", 1/2" and 5/8" thicknesses available. 5/8" meets requirements of Type X per ASTM C1177.
28. **Securock UltraLight Coated Glass-Mat Roof Board** - A fire-resistant, moisture and mold-resistant roof board used in fully adhered, low-slope roofing systems, featuring a specially treated lightweight core. The special coating on the high-performance glass-mat facer provides an exceptional adhesive bond and reduces facer delamination. Meets ASTM E84 for flame spread and smoke development; Class A fire performance per UL 790. Available in 1/4", 1/2" and 5/8" Type X and 4' x 8' size boards. 5/8" meets requirements of Type X per ASTM C1177.
29. **Securock® Weather Defense™ Roof Board** - A reinforced gypsum cover board with an enhanced, moisture-resistant core and high-performance, coated glass mat facers (CGF) on the top and bottom side. The top surface is pre-primed and provides excellent bond strength for adhered membrane for use as a cover board. Securock® Weather Defense™ Roof Board is extremely durable and is approved for use in assemblies meeting FM's Very Severe Hail (VSH) Classification. Available in 5/8" thickness and 4' x 4' or 4' x 8' size boards. Meets requirements of Type X per ASTM C1177. Meets ASTM E84 for flame spread and smoke development; Class A fire performance per UL 790; FM Approvals Class 1.
30. **DensDeck Roof Board** - gypsum core that incorporates embedded glass-mat facings on the top and bottom side for use as a cover board when applied over insulation in a mechanically fastened roof application or directly over the roof deck as a thermal barrier. Available in 1/4", 1/2" to 5/8" thickness and 4' x 8' size boards.
31. **DensDeck Prime Roof Board** – gypsum core that incorporates glass-mat facings on the top and bottom side. The top surface is pre-primed and provides excellent bond strength for adhered membrane for use as a cover board or as a thermal barrier. Available in 1/4" to 5/8" and 4' x 4' or 4' x 8' size boards.
32. **DensDeck StormX Prime** – a reinforced gypsum cover board with an enhanced, moisture-resistant core and coated glass mat facers on the top and bottom side. The top surface is pre-primed and provides excellent bond strength for adhered membrane for use as a cover board. DensDeck StormX Prime is extremely durable and is approved for use in assemblies meeting FM's Very Severe Hail (VSH) Classification. Available in 5/8" thickness and 4' x 4' or 4' x 8' size boards.
33. **DensDeck® ProFast™ Prime Roof Board** - A fire-resistant, moisture and mold-resistant roof board used in fully adhered or mechanically fastened, low-slope roofing systems, featuring a specially treated lightweight core. (20% lighter than 1/2" gypsum boards). The special coating on the high-performance glass-mat facer provides an exceptional adhesive bond and reduces facer delamination. Non-combustible per ASTM E108 and meets ASTM E84 for flame spread and smoke development; Class A fire performance per UL 790. Available in 3/8" thickness and 4' x 8' size boards.
34. **DuraStorm VSH Cover Board** – an engineered composite building material made from a proprietary blend of plastic and cellulose fiber sourced from post-industrial and post-consumer waste streams. DuraStorm VSH is a durable, extremely moisture and mold resistant building material with a core that does not disintegrate or delaminate in the presence of water. Available in 1/2" thick and 4' x 8' size board.
35. **DEXcell** – A mold & mildew resistant, gypsum substrate board with coated fiberglass facers, used for thermal protection and acoustical enhancement of roof systems. May be used as a substrate for a vapor retarder and /or the continuous substrate for the application of commercial roofing applications. Available in 1/4", 1/2" and 5/8" thicknesses in 4' x 8' boards.
36. **DEXcell FA** – A mold & mildew resistant, gypsum substrate board with heavy duty, coated fiberglass facers, used for thermal protection and acoustical enhancement of roof systems. May be used as a

substrate for a vapor retarder and /or the continuous substrate for the application of commercial roofing applications. The precoated, fiberglass facers are designed to increase adhesive coverage and enhance performance of the bond strength of the system. Available in 1/4", 1/2" and 5/8" thicknesses in 4' x 4' and 4' x 8' boards.

37. **DEXcell Cement Roof Board** – A mold & mildew resistant, Portland Cement, lightweight aggregate roof board with heavy-duty fiberglass mesh facers used as a substrate board, thermal barrier and cover board for commercial roofing applications. Available in 7/16" and 5/8" thicknesses in 4' x 4' and 4' x 8' boards.
38. **DEXcell FA VSH** – A reinforced gypsum panel with enhanced moisture resistant gypsum core and heavy duty coated glass facers used as a substrate board, thermal barrier and cover board for commercial roofing applications, approved for use in single-ply and multi-ply assemblies meeting FM Very Severe Hail rating. Available in 5/8" thickness in 4' x 4' and 4' x 8' boards.

2.04 FASTENING COMPONENTS

To be used for mechanical attachment of insulation and to provide additional membrane securement:

(Delete the Fastener/Insulation Plate OR Adhesives which will not be used)

A. Fasteners, Plates and Bars

1. **HPV- Fasteners:** a threaded, #14 fastener with a #3 phillips drive used with steel and wood roof decks.
2. **HPVX Fasteners:** A heavy duty #15 threaded fastener with a #3 phillips drive used for membrane or insulation securement into steel, wood plank or minimum 15/32 inch thick plywood when increased pullout resistance is desired.
3. **HPV-XL Fastener:** an oversized diameter (.315) steel threaded fastener with a #3 phillips drive used in conjunction with HPV-XL Plates for membrane securement into steel or wood decks.
4. **Pre-Assembled ASAP Fasteners:** A pre-assembled 3" diameter Plastic Plate and # 12 threaded fastener with a #3 drive used for insulation attachment into steel or wood decks. Installed using OMG Fastening Tools.
5. **InsulTite Fasteners:** A threaded #12 fastener with #3 phillips drive used for insulation attachment into steel or wood decks.
6. **CD-10 Fasteners:** A non-threaded, hammer driven fastener used with structural concrete roof decks rated 3,000 psi or greater.
7. **MP 14-10 Fasteners:** A #14 threaded fastener with a #3 phillips drive used for minimum 3,000 psi concrete decks.
8. **Polymer Gyptec Fasteners:** A non-penetrating, plastic fastener and corresponding 3" diameter plate used with lightweight deck substrates such as cementitious wood fiber, gypsum, and lightweight insulating concrete.
9. **Term Bar Nail-Ins:** A 1-1/4" long expansion anchor with a zinc plated steel drive pin used for fastening the Versico Termination Bar or Seam Fastening Plates to concrete, brick, or block walls.
10. **HPVX Plates:** A 2-3/8" diameter metal barbed fastening plate used with Versico HPVX or MP-14-10 Fasteners for membrane securement. This plate can be used for insulation securement.
11. **HPV-XL Plates:** A 2-3/8" diameter metal barbed fastening plate with an oversized hole for use with HPV-XL Fasteners for membrane securement.

12. **Insulation Fastening Plates:** a nominal 3 inch diameter plastic or metal plate used for insulation attachment.

B. **Insulation Adhesive:**

(choose the appropriate paragraph and delete remainder)

1. **Flexible DASH Adhesive:** A two component insulating urethane adhesive used to attach insulation and VersiFleece membrane. Packaging formats include 50 and 15 gallon drums as well as Dual Tanks, Dual Cartridges and 5 gallon Jug formats.

2.05 ADHESIVES, CLEANERS AND SEALANTS

All products shall be furnished by Versico and specifically formulated for the intended purpose.

(Delete the Adhesive, Primer or Cleaner which will not be used)

- A. **Flexible DASH Adhesive:** A two component insulating urethane adhesive used to attach insulation and VersiFleece membrane. Packaging formats include 50 and 15 gallon drums as well as Dual Tanks, Dual Cartridges and 5 gallon Jug formats.
- B. **VersiWeld Bonding Adhesive:** A high-strength, synthetic rubber adhesive used for bonding VersiWeld membrane to various surfaces. The adhesive is applied to both the membrane and the substrate at a coverage rate of approximately 60 square feet per gallon per finished surface (includes coverage on both surfaces).
- C. **Low VOC Bonding Adhesive for TPO:** This product meets the <250 gpl VOC (volatile organic compound) content requirements of the OTC Model Rule for Single-Ply Roofing Adhesives. A high strength, solvent-based contact adhesive that allows bonding of TPO membrane to various porous and non-porous substrates. Apply at a rate of 60 ft² per gallon finished surface. Available in 5 gallon pails. This product does not comply with southern California counties with additional restrictions on solvents. See Versico's Product Data Sheet for a listing of the counties involved.
- D. **Low VOC Bonding Adhesive 1168:** This product meets the <250 gpl VOC (volatile organic compound) content requirements of the OTC Model Rule for Single Ply Roofing Adhesives. A high strength, solvent-based contact adhesive the allows bonding of TPO membrane to various porous and non-porous substrates. Apply at a rate of 60 ft² per gallon finished surface. Available in 5-gallon cans. This product complies with southern California counties with additional restrictions on solvents. See Versico's Product Data Sheet for a listing of the counties involved.
- E. **Aqua Base 120 Bonding Adhesive:** A semi pressure-sensitive, water based adhesive used as a two-sided contact adhesive. Coverage rate is 120 square feet per gallon finished surface (applied to membrane and substrate). Refer to Spec Supplement G-09-17 "Aqua Base 120 Bonding Adhesive" for Warranty limitations and other considerations.
- F. **CAV-GRIP 3V Low-VOC Aerosol Contact Adhesive/Primer:** a low-VOC, methylene chloride-free adhesive that can be used for a variety of applications including: bonding Sure-Weld membrane to various surfaces, enhancing the bond between Versico's VapAir Seal 725TR and various substrates, priming unexposed asphalt prior to applying Flexible DASH Adhesive and for adhering VersiWeld/VersiFlex FleeceBACK and VersiWeld TPO membrane to vertical walls. Coverage rate is approximately 2,000-2,500 sq. ft. per #40 cylinder and 4,000-5,000 sq. ft. per #85 cylinder as a primer, in a single-sided application and 750 sq. ft. per #40 cylinder and 1,500 sq. ft. per #85 cylinder as an adhesive for vertical walls, in a double-sided application.
- G. **Cut-Edge Sealant:** A white or clear colored sealant used to seal cut edges of reinforced VersiFleece TPO membrane. A coverage rate of approximately 225 - 275 linear feet per squeeze bottle can be achieved when a 1/8" diameter bead is applied.

- H. **Water Cut-Off Mastic:** Used as a mastic to prevent moisture migration at drains, compression terminations and beneath conventional metal edging (at a coverage rate of approximately 10' per tube or 100' per gallon).
- I. **Universal Single-Ply Sealant:** A 100% solids, solvent free, voc free, one part polyether sealant that provides a weather tight seal to a variety of building materials. It is white in color and is used for general caulking such as above termination bars and metal counter flashings and at scuppers.
- J. **Thermoplastic One-Part Pourable Sealer:** A one-part, moisture curing, elastomeric polyether sealant used to fill TPO Molded Pourable Sealant Pockets. Packaged in 4, 2-liter foil pouches inside a reusable plastic bucket. 1 pouch will fill 2 TPO Molded Pourable Sealant Pockets.
- K. **Weathered Membrane Cleaner:** Used to prepare membrane for heat welding that has been exposed to the elements or to remove general construction dirt at an approximate coverage rate of 400 square feet per gallon (one surface).
- L. **TPO Primer:** A solvent-based primer used to prepare the surface of VersiFleece TPO Membrane prior to application of Pressure-Sensitive Coverstrip and TPO Pressure-Sensitive RUSS.
- M. **TPO Low VOC Primer::** A solvent-based, low solids primer used to prepare the surface of VersiFleece TPO Membrane prior to application of Pressure-Sensitive Coverstrip and TPO Pressure-Sensitive RUSS. This low VOC product is ideal for use in states where environmental issues are a concern.

(choose the appropriate Primer and delete remainder)

- N. CCW 702 Primer and 702LV Primer (Low VOC): A single component, solvent based, high-tack primer used to provide maximum adhesion between VapAir Seal 725TR Air and Vapor Barrier and an approved substrate. Applied by spray or long nap roller with a coverage rating ranging from approximately 300 to 350 square feet per gallon on smooth finishes (i.e., concrete) to 75 square feet per gallon on porous surfaces (i.e., DensDeck Prime gypsum board). Available in 5-gallon containers. CCW 702LV Primer contains less than 250g/L VOCs and meets South Coast Air Quality Management District (SCAQMD) and Leadership in Energy and Environmental Design (LEED) Requirements for Volatile Organic Compounds.
- O. **CCW 702 WB:** a high-tack, water-based contact adhesive for promoting adhesion of Versico air/vapor barrier membranes and an approved substrate (i.e., concrete, DensDeck Prime and Securock). Applied by roller, brush or spray with an application rate of approximately 200 sq. ft. per gallon. Available in 5-gallon containers. CCW 702 WB Primer contains 57g/L VOCs and meets South Coast Air Quality Management District (SCAQMD) and Leadership in Energy and Environmental Design (LEED) Requirements for Volatile Organic Compounds.
- P. **CAV-GRIP 3V Low-VOC Aerosol Contact Adhesive/Primer:** a low-VOC, methylene chloride-free adhesive that can be used for a variety of applications including: bonding VersiWeld membrane to various surfaces, enhancing the bond between Versico's VapAir Seal 725TR and various substrates, priming unexposed asphalt prior to applying Flexible DASH Adhesive and for adhering VersiGard FleeceBACK and VersiGard EPDM membrane to vertical walls. Coverage rate is approximately 2,000-2,500 sq. ft. per #40 cylinder and 4,000-5,000 sq. ft. per #85 cylinder as a primer, in a single-sided application and 750 sq. ft. per #40 cylinder and 1,500 sq. ft. per #85 cylinder as an adhesive for vertical walls, in a double-sided application.

2.06 METAL EDGING AND MEMBRANE TERMINATIONS

(Choose the appropriate type of metal edging or membrane termination and delete the types which will not be used)

- A. **General:** All metal edgings shall be tested and meet ANSI/SPRI ES-1 standards and comply with International Building Code.

(The products below have been grouped by suppliers and performance priority, as well as their code ratings. Make your selection and delete remainder.)
- B. (OMG Supplied -Remove name after selection)

- b. **VersiTrim 300:** a coping or fascia, snap-on edge system consisting of a 24 gauge galvanized metal water dam and .050" or .063" thick Kynar 500, clear and colored anodized finish or 24 gauge steel, Kynar 500 finish. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified. Coping FM Approved 1-90 with 20 ga. Cleat, 1-180 with 16 ga. Cleat. Fascia FM Approved 1-225.
- c. **VersiTrim 3000:** a metal fascia system with a 20 gauge steel retainer bar and .032", .040" or .050" thick aluminum or 24 gauge galvanized steel fascia. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified. 3000 Coping FM Approved 1-465 with .050 aluminum retainer, 1-180 with 20 ga. Steel retainer. 3000 XT Coping FM Approved 1-315.

C. (Metal Era Supplied – Remove name after selection)

- 1. **VersiTrim 200:** a coping or fascia, snap-on edge system consisting of a 24 gauge galvanized metal water dam and .040", .050" or .063" thick Kynar 500, clear and colored anodized finish or 24 gauge steel, Kynar 500 finish. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified. Coping FM Approved 1-90. Fascia FM Approved 1-195.
- 2. **VersiTrim 2000:** a metal fascia system with an extruded aluminum anchor bar and .040" thick aluminum or 24 gauge galvanized steel fascia. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified. 2000 Fascia FM Approved 1-645. 2000 Extended Fascia FM Approved 1-270. 2000 Canted Fascia FM Approved 1-270.

D. (Metal Era Supplied – Remove name after selection)(NO FM Rating Available)

- 1. **VersiTrim One Fascia:** A snap-on edge system consisting of a 20 gauge retainer bar, corrosion resistant fasteners and a 24 gauge or 0.040 aluminum Kynar finished fascia cover. A spring clip holds the fascia cover in place. Available in sizes up to 8" fascia height 12' long. Metal fascia color shall be designated by the Owner's Representative. ANSI/SPRI ES-1 Certified.
- 2. **VersiTrim One Coping:** A snap-on coping edge system consisting of a 24 gauge retainer bar (face side only), corrosion resistant fasteners and a 24 gauge or 0.040 aluminum Kynar finished coping cover. The coping cover is secured by clipping on the retainer bar and fastened on the backside with corrosion resistant fasteners (with rubber washer). Available for wall thicknesses up to 30". Metal coping cap color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified.

- E. **Drip Edge:** a metal fascia/edge system with a 22 or 24 gauge continuous anchor cleat and .032 inch thick aluminum or 24 gauge steel fascia. Metal fascia color shall be as designated by the Owner's Representative.
- F. **VersiTrim Coping:** incorporates a 20 gauge anchor cleat with 4 pre-slotted holes, a concealed joint cover and 10 foot continuous sections of coping cap; can accommodate minimum 5 " wide parapet walls. Metal coping cap color shall be as designated by the Owner's Representative.
- G. **Termination Bar:** a 1" wide and .098" thick extruded aluminum bar pre-punched 6" on center; incorporates a sealant ledge to support Lap Sealant and provide increased stability for membrane terminations.
- H. **VersiTrim Term Bar Fascia:** A 1.75" wide formed aluminum termination bar with pre-slotted fastening holes for ease of locating and installing. The decorative cover is available in 0.040" aluminum or 24-gauge galvanized steel. VersiTrim Term Bar Fascia is manufactured in 12' lengths for fewer joints/seams, fewer sections to handle and faster installation.

2.07 WALKWAYS

Protective surfacing for roof traffic shall be VersiFleece TPO Walkway Rolls installed per manufacturer's requirements or concrete pavers loose laid over an approved slip sheet (pavers not recommended for slopes greater than 2" in 12").

2.08 OTHER MATERIALS

- A. **Versico VapAir Seal 725TR Air & Vapor Barrier / Temporary Roof:** 725TR is a 40-mil composite consisting of 35-mils of self-adhering rubberized asphalt factory laminated to a 5-mil polyethylene film with an adhesion textured surface. 725TR roll dimensions are 39" x 100' and the product is applied after priming an acceptable substrate with **CCW 702, 702-LV or CAV-GRIP 3V primer.**
- B. **Versico VapAir Seal MD Air and Vapor Barrier:** a reinforced composite aluminum foil with self-adhesive SBS backing and removable poly release film. Used for direct application over metal decks. Available in rolls 42.5" wide by 131.23" long (460 square feet).
- C. **VersiWeld TPO Rib Profile:** Used to obtain the appearance of standing seam metal roofing with the performance of a TPO single-ply membrane. The Rib Profile measures 1-1/4" tall and 2-1/8" wide, including the welding flanges, while the vertical profile is a substantial 3/8" thick. The profile has a continuous 1/8" diameter alignment hole, for use with fiberglass connecting pins, as well as a 1/8" fiberglass reinforcing cord for added strength. The Rib Profile is available in white, gray and tan, 10' lengths and packaged 20 per carton.
- D. (Metal Flashing, if required, and miscellaneous items needed to fulfill the project requirements)

PART 3 EXECUTION

3.01 GENERAL

- A. Comply with the manufacturer's published instructions for the installation of the membrane roofing system including proper substrate preparation, job site considerations and weather restrictions.
- B. Position sheets to accommodate contours of the roof deck and shingle splices to avoid bucking water.

3.02 VAPOR RETARDERS

- A. **General:**

The use of a vapor retarder to protect insulation and reduce moisture accumulation within an insulated roofing assembly should be investigated, especially on projects with high interior humidity, such as, swimming pools, breweries, pulp mills, etc.
- B. In the generally temperate climate of the United States, during the winter months, water vapor flows upward from a heated, more humid interior toward a colder, drier exterior. Vapor retarders are more commonly required in northern climates than in southern regions, where downward vapor pressure may be expected and the roofing membrane itself becomes the vapor retarder.
- C. On cold storage/freezer facilities, the perimeter details must be selected to provide an air seal and prevent outside air from infiltrating and condensing within the roofing assembly.
- D. Consult the latest publications by ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.) and NRCA (National Roofing Contractors Association) for specific information.
- E. If insulation is to be adhered to the vapor retarder with Flexible DASH Adhesive, the 725 TR vapor retarder must be compatible and shall be fully adhered to the substrate. Available products include Versico supplied "peel and stick" rubberized asphalt membrane with compatible film coating (Versico VapAir Seal 725TR Air and Vapor Barrier), and spray or roller applied butyl coatings. Installation requirements for Versico's 725 Air and Vapor Barrier are identified in Versico published specification.
- F. **VapAir Seal 725TR Installation:**
 - 1. **Surface Preparation:** Concrete shall be in place for 7 days minimum and the substrate must be dry. The surface shall have a smooth finish and be free of voids, spalled areas, sharp protrusions, loose

aggregate, laitance and form release agents. In the event of rain, concrete must be allowed to dry before primer is applied.

2. **Primer:** Surfaces to receive Versico VapAir Seal 725TR Air and Vapor Barrier must be clean and dry. Prime with CCW 702 or 702LV or CAV-GRIP 3V Primer. Apply Primer by spray, brush or with a long nap roller at the applicable coverage rate noted above. At 75° F allow primer to dry 1 hour minimum. Primer has a satisfactory cure when it will not transfer when touched. Prime only areas to be waterproofed the same day. Re-prime if area becomes dirty.
 3. **Application:** Apply Versico VapAir Seal 725TR Air and Vapor Barrier from low to high point, in a shingle fashion, so that laps will shed water. Overlap all edges at least 2-1/2". End laps shall be staggered. Place membrane carefully so as to avoid wrinkles and fishmouths. Immediately after installation, roll with a 150 pound segmented steel roller.
 4. **Insulation Installation:** Ensure surface of Versico VapAir Seal 725TR Air and Vapor Barrier is dry prior to installing insulation. Place insulation over the surface and mechanically fasten to the roof deck or adhere to the vapor barrier with Flexible DASH Adhesive in accordance with this Versico Specification.
 5. **Installation at angle changes:** For VersiFleece Systems where insulation is adhered to the vapor retarder, one of the following options must be incorporated to ensure continuous seal is provided during climatic changes, especially in northern regions:
 - a. Option One: Mechanically secure the first course of insulation (bottom layer) with insulation fasteners and plates. A row of fasteners shall be installed within 6" of the angle change spaced 12" O.C.
 - b. Option Two: In lieu of fastening, install a 3" diameter backer rod along the angle change to accommodate for movement and prevent the effect of the vapor retarder pulling away from angle change.

Note: Maintain mylar backing at the sponge tubing to prevent the 725TR from adhering to the tubing. As shown in the applicable Versico Detail.
 - c. Option Three: In lieu of fastening and when the use of backer rod is not possible, the 725TR can be installed with a double fold, allowing extra material to accommodate for structural movement.

Note: Maintain mylar backing within the fold to allow for material expansion in the event of movement. Refer to applicable Versico Detail.
- G. For metal decks, VapAir Seal MD Air and Vapor Barrier is specifically designed for direct application to fluted steel decks. It may also be used in conjunction with either Versico's CAV-GRIP 3V on vertical wall surfaces, such as structural concrete, gypsum, Securock, DensDeck Prime, DensDeck StormX Prime and plywood substrates.

H. **VapAir Seal MD Installation:**

1. **Surface Preparation:** The surface shall have a smooth finish and be free of voids, spalled areas, sharp protrusions, loose aggregate, laitance and form release agents. In the event of rain, concrete must be allowed to dry before primer is applied.
2. **Primer:** Surfaces to receive VapAir Seal MD Air and Vapor Barrier must be clean and dry. Prime with CCW 702 or 702LV or CAV-GRIP 3V Primer. Apply Primer by spray, brush or with a long nap roller at the applicable coverage rate noted above. At 75° F allow primer to dry 1 hour minimum. Primer has a satisfactory cure when it will not transfer when touched. Prime only areas to be waterproofed the same day. Re-prime if area becomes dirty.
3. **Application:** Apply VapAir Seal MD Air and Vapor Barrier to the metal deck from low to high point, in a shingle fashion, so that laps will shed water. Overlap all edges at least 2-1/2". End laps shall be

staggered. Place either a 6" wide section of 24 gauge sheet metal or a 6" wide section of VapAir Seal MD directly on the metal under each end lap, perpendicular to the end lap, to ensure a solid surface to roll the end lap together. Seams and end laps must be rolled with a 2" seam roller or stand-up seam roller. Place membrane carefully so as to avoid wrinkles and fish mouths. Immediately after installation, broom the sheet to ensure proper contact to the metal.

4. **Insulation Installation:** Ensure surface of VapAir Seal MD Air and Vapor Barrier is dry prior to installing insulation. Place insulation over the surface and mechanically fasten to the roof deck accordance with this Versico Specification.

3.03 INSULATION PLACEMENT

- A. Install insulation or membrane underlayment over the substrate with boards butted together. Fill joints or gaps greater than 1/4 inch with Flexible DASH Adhesive. Stagger joints both horizontally and vertically if multiple layers are provided.
- B. Secure insulation to the substrate with Flexible DASH Adhesive or mechanical fasteners in accordance with the manufacturer's specifications.

3.04 MEMBRANE PLACEMENT AND BONDING

- A. Position and unroll successive sheets and align to provide a minimum 2 inch overlap (use pre-marked overlap line) along the selvage edge. At end laps (along the width of the sheet), membrane shall be butted together which will be overlaid with 6 inch wide VersiFleece TPO Reinforced Membrane and hot air welded on all edges.
- B. VersiFleece Membrane shall be fully adhered to an acceptable substrate with Versico Flexible DASH Adhesive. The adhesive is spray applied or extruded to the substrate only and the membrane is rolled into the wet adhesive once it has foamed up and reached string/gel time (approximately 2 minutes). Roll the membrane with a 150 pound segmented steel roller to set the membrane into the adhesive.

Note: Exercise care to prevent overspray onto the membrane. If Flexible DASH Adhesive should contaminate the splice area, immediately (while the adhesive is still in liquid form) clean with Weathered Membrane Cleaner or allow Flexible DASH Adhesive to cure and remove with a paint-type scraper.

- C. Position adjoining sheets to allow a minimum overlap of 2 inches to provide a minimum 1-1/2" hot air weld.
- D. Continue to install adjoining membrane sheets in the same manner, overlapping edges a minimum of 2 inches and complete the bonding procedures as stated previously.

3.05 MEMBRANE HOT AIR WELDING PROCEDURES

A. General

The VersiFleece membrane has a selvage edge (the fleece-backing is discontinued) along the length of the sheet for membrane splicing. Selvage edges are not provided along the width of the membrane; adjoining membrane sheets must be butted together and overlaid with 6 inch wide VersiFleece TPO Reinforced membrane heat welded on all sides.

B. Hot Air Welding Procedures

1. Hot air weld the VersiFleece TPO membrane using an Automatic Hot Air Welding Machine or Hot Air Hand Welder in accordance with the manufacturer's specifications. At all splice intersections, roll the seam with a silicone roller to ensure a continuous hot air welded seam.

Note: When using 115-mil thick or thicker membrane, all splice intersections shall be overlaid with VersiFleece TPO T-Joint covers or non-reinforced flashing

2. Probe all seams once the hot air welds have thoroughly cooled (approximately 30 minutes).
3. Repair all seam deficiencies the same day they are discovered.
4. Apply Cut Edge Sealant on all cut edges of reinforced membrane (where the scrim reinforcement is exposed) after seam probing is complete. Cut Edge Sealant is not required on vertical splices.

3.06 FLASHING

- A. Flashing of parapets, curbs, expansion joints and other parts of the roof must be performed using VersiFleece TPO membrane or VersiFleece TPO reinforced membrane. VersiFleece TPO non-reinforced membrane can be used for flashing pipe penetrations, Sealant Pockets, and scuppers, as well as inside and outside corners, when the use of pre-molded accessories is not feasible.
- B. Follow manufacturer's typical flashing procedures for all wall, curb, and penetration flashing including metal edging/coping and roof drain applications.

(Note: When specifying Rib Profile use installation procedure below.)

C. VersiWeld TPO Rib Profile Installation

(Note: The Rib Profile is recommended for use with VersiFleece adhered roofing systems.)

- a. The VersiWeld Rib Profiles should be positioned parallel to the laps of the installed TPO roofing system and parallel with the roof slope where possible.
- b. Ensure that all welding surfaces are clean and dry. Inspect all seam areas for proper weld prior to installation.
- c. Set spacing according to project drawings.
- d. Connecting multiple ribs is achieved by using fiberglass pins. Insert a pin half-way into the end of one profile. Connect the adjoining rib by inserting the exposed end of the pin into the alignment hole. Repeat previous steps for additional TPO Rib profiles.
- e. Consult the VersiWeld Rib Profile installation guides for instructions on proper welding installation techniques.

3.07 WALKWAYS

- A. Install walkways at all traffic concentration points (such as roof hatches, access doors, rooftop ladders, etc.) and all locations as identified on the specifier's drawing.
- B. Hot air weld walkway pads to the membrane or install concrete pavers, loose laid over an approved protection sheet in accordance with the manufacturer's specifications.

Note: Pavers are not recommended when the roof slope exceeds 2 inches in 12 inches

3.08 DAILY SEAL

- A. On phased roofing, when the completion of flashings and terminations is not achieved by the end of the work day, a daily seal must be performed to temporarily close the membrane to prevent water infiltration.
- B. Use Flexible DASH Adhesive or other similar material in accordance with the manufacturer's requirements.

3.09 CLEAN UP

- A. Perform daily clean up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.

- B. Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

END OF SPECIFICATION