

BLOCK 672 LOT 8 QUALIFICATION CODE _____ ADDRESS (SITE) 51 Chambers Bridge PERMIT NO. 19-0988


CONSTRUCTION PERMIT APPLICATION

Applicant Completes: Sections I, II, III (optional), IV, VI, and VII

019-001317

I. IDENTIFICATION

1. Proposed Work Site at: 51 Chambers Bridge Road – Brick, NJ - partial roof

2. Name of Owner in Fee: Paramount Plaza @ Brick, LLC Bed Bath & Beyond
 Tel. (732) 886-1500 e-mail mz@paramountrealty.com
 Address 1195 Route 70, Suite 2000 Lakewood, NJ 08701
street municipality zip code

3. Ownership in Fee: Public _____ Private X

4. Principal Contractor: Fischer Roofing, LLC Tel. (732) 589-7663
 Address 276 South Hope Chapel Road e-mail sol@fischerroof.com
Jackson, NJ 08527

License No. OR, if new home, Builder Reg. No. 13VH05542200 Exp. Date 03/31/2020
 Home Improvement Contractor Registration No. or Exemption Reason (if applicable): _____
 Federal Emp. ID No. 271345201 FAX: (732) 810-0301

5. Architect or Engineer _____ Contact _____
 Address _____ e-mail _____
 Tel. _____ FAX: _____

6. Responsible Person in Charge once Work has Begun Solomon Fischer
 Tel. (732) 534-2963 FAX: (732) 810-0301

V. FEE SUMMARY (for office use only)

		Update	Update
1. Building	\$ <u>11740</u>		
2. Electrical			
3. Plumbing			
4. Fire Protection			
5. Elevator Devices			
6. Subtotal			
7. Less 20% for State Plan Review	\$		
8. Subtotal	\$		
9. State Permit Surcharge Fee	\$ <u>583</u>		
10. Subtotal	\$		
11. Cert. of Occupancy			
12. Other			
13. TOTAL	\$ <u>12,323</u>		

VI. BUILDING/SITE CHARACTERISTICS

	(office use only)
1. Number of Stories _____	
2. Height of Structure _____ ft.	
3. Area — Largest Floor _____ sq. ft.	
4. New Building Area _____ sq. ft.	
5. Volume of New Structure _____ cu. ft.	
6. Max. Live Load _____	
7. Max. Occupancy Load _____	
8. If Industrialized Building: State Approved _____ HUD _____	
9. Total Land Area Disturbed _____ sq. ft.	
10. Flood Hazard Zone _____	
11. Base Flood Elevation _____ ft.	
12. Wetlands yes _____ no _____	

IIa. PROPOSED WORK

- ☐ Minor Work ☐ New Building ☐ Addition ☐ Demolition
☐ Repair ☐ Alteration ☐ Renovation ☐ Reconstruction
☐ Asbestos Abat. -Subch. 8 ☐ Lead Hazard Abatement ☐ Radon Remediation ☐ Annual Permit

IIb. SUBCODES

(Check all that apply)

- ☐ Building
☐ Electrical
☐ Plumbing
☐ Fire Protection
☐ Elevator

FOR OFFICE USE ONLY (Optional)

Est. Cost	Plans Rec'd by	Date Rec'd	Rejection Date	Approval Date	Re-viewer	Resubmission Dates Approval	Rejection	Re-viewer
		<u>4/12/19</u>						

TOTAL COST \$0

III. PLAN REVIEW (optional)

DO YOU WANT:

- ☐ 1. Partial Releases
☐ 2. Prototype Processing

IV. DOES OR WILL YOUR BUILDING CONTAIN ANY OF THE FOLLOWING?

- ☐ 1. Elevators/Escalators/Lifts/ Dumbwaiters/Moving Walks
☐ 2. High Pressure Boilers
☐ 3. Pressure Vessels
☐ 4. Refrigeration Systems
☐ 5. Cross-Connections/Backflow Preventers
☐ 6. Hazardous Uses/Places of Assembly
☐ 7. Sprinklers/Standpipes
☐ 8. Smoke Control Systems in Open Wells
☐ 9. Underground Storage Tanks
☐ 10. Swimming Pools, Spas and Hot Tubs
☐ 11. LPGas Tanks
☐ 12. Fire Alarm

VII. DESCRIPTION OF BUILDING USE

A. RESIDENTIAL (primary use)

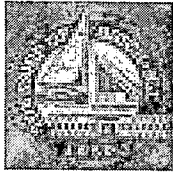
1. State Specific Use: _____
 2. Use Group, Proposed: _____
 3. Change in Use Group, Indicate Present: _____
 4. No. of dwelling units: Total Units Income-restricted
 Gained, Sale _____
 Gained, Rental _____
 Lost, Sale _____
 Lost, Rental _____

B. NON-RESIDENTIAL (primary use)

1. State Specific Use: _____
 2. Use Group, Proposed: _____
 3. Change in Use Group, Indicate Present: _____

C. MIXED USE -List secondary use(s):

- D. Construct. Classification: Present _____
 Proposed _____



Brick Township
401 Chambersbridge Rd
Brick, NJ 08723

Date Issued 12/12/2019
Control Number C-19-001317
Permit Number 19-0988
Permit Issue Date 4/23/2019
Certificate Number 19-0988

Certificate

Construction Code Division

(Certificate of Approval)

Identification

Work Site Location: 51 CHAMBERS BRIDGE RD Brick Township, NJ Block: 672 Lot: 8 Qual: _____

Owner in Fee: PARAMOUNT PLAZA AT BRICK LLC

Owner Address: 1195 ROUTE 70 LAKEWOOD NJ 08701

Telephone: (732) 886-1500

Contractor Fischer Roofing

Address 276 SOUTH HOPE CHAPEL RD JACKSON NJ 08527

Telephone: (732) 589-7663 Fax: _____

License Number or Builders Registration Number: _____ Federal Emp. Number: _____

Home Warranty Number: _____

Type of Warranty Plan: ☐ State ☐ Private

Use Group: M Construction Classification: _____

Maximum Live Load: 0 Maximum Occupancy Load: 0

Description of Work/Use: ROOFING - - BED BATH & BEYOND

Certificate Comments:

☐ Certificate of Occupancy

This serves notice that said building or structure has been constructed in accordance with the New Jersey Uniform Construction Code and is approved for occupancy.

☒ Certificate of Approval

This serves notice that the work completed has been constructed or installed in accordance with the New Jersey Uniform Construction Code and is approved. If the permit was issued for minor work, this certificate was based upon what was visible at the time of inspection.

☐ Certificate of Continued Occupancy

This serves notice that based on a general inspection of the visible parts of the building there are no imminent hazards and the building is approved for continued occupancy.

☐ Temporary Certificate of Compliance

The following conditions must be met no later than or the owner will be subject to fine or order to vacate:
This certificate has an expiration date of:
Conditions to be met:

☐ Certificate of Clearance - Lead Abatement 5:17

This serves notice that based on written certification, lead abatement was performed as per NJAC5:17 to the following extent.

- ☐ Total removal of lead-based paint hazards in scope of work
☐ Partial or limited time period (years); see file

☐ Certificate of Clearance - Asbestos Abatement

This serves notice that based on written certification, asbestos abatement was performed to the following extent.

- ☐ Total removal of asbestos hazards in scope of work
☐ Partial or limited time period (years); see file

☐ Certificate of Compliance

This serves notice that said potentially hazardous equipment has been installed and/or maintained in accordance with the New Jersey Uniform Construction Code and is approved for use until

☐ Temporary Certificate of Occupancy

The following conditions must be met no later than: or the owner will be subject to fine or order to vacate:
This certificate has an expiration date of:
Conditions to be met:

Construction Official

Fee: \$0.00
Check Number: _____
Collected By: _____

CERTIFICATION IN LIEU OF OATH

I. OWNER SECTION (to be completed if the applicant is the owner in fee)

I hereby certify that I am the owner in fee of the property listed on Page 1.

Mark the following applicable boxes:

- A. ☐ I further certify that a new home (private residence) will be constructed on this property for my own use and occupancy. This dwelling is to be occupied by myself and is not to be used for any purpose other than single family residential use. I attest that all construction, plumbing, or electrical work will be done, in whole or in part, by me or by subcontractors under my supervision, in accordance with all applicable laws; and, I further acknowledge that said new home is not covered under the New Home Warranty and Builders Registration Act (N.J.S.A. 46:3B-1 et seq.) and that such fact shall be disclosed to any person purchasing this property within ten years of the date of issuance of a certificate of occupancy.

I UNDERSTAND THAT IN MARKING BOX A, I ACKNOWLEDGE THAT I AM ASSUMING RESPONSIBILITY FOR THE WORK DONE ON SAID PROPERTY, THE CONDITION OF THE PROPERTY PRIOR TO, DURING, AND AFTER ANY WORK PERFORMED, AND FOR THE PERFORMANCE OF THE SUBCONTRACTORS I HIRE, EMPLOY, OR OTHERWISE CONTRACT OR WITH WHOM I MAKE AGREEMENTS TO PERFORM WORK. I AM VOLUNTARILY AND KNOWINGLY ASSUMING THIS RESPONSIBILITY.

- B. ☐ I further certify the following as required by the New Jersey Uniform Construction Code, N.J.A.C. 5:23-2.15(f)1.ix:

I personally prepared the plans submitted for: 1) the new home referred to in A.; or, 2) an addition, alteration, renovation, or repair to an existing single family residence owned and occupied by myself and located on the property listed on Page 1; or, 3) a new structure that will be physically separate from, but that will be deemed part of, an existing single family residence that is owned and occupied by myself and located on the property listed on Page 1.

- C. ☐ I further certify that I will perform or supervise the following work:

C.1. ☐ Building C.2. ☐ Fire Protection

I further certify that I will perform the following work:

C.3. ☐ Electrical C.4. ☐ Plumbing

- D. ☐ I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals have been given, including such certification as the construction official may require.

I understand that if any of the above statements are willfully false, I am subject to punishment.

Signature _____ Date _____

II. AGENT SECTION (to be completed if the applicant is not the owner in fee)

I hereby certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(d): the proposed work is authorized by the owner in fee; and I have been authorized by the owner in fee to make this application as his agent.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals have been given, including such certification as the construction official may require.

I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I understand that if any of the above statements are willfully false, I am subject to punishment.

☐ Check if contractor.

Agent Name Mark

Address 276 South Hope Chapel Road
Jackson, NJ 08527

Telephone 732 589 7663

Signature Mark Nuk

III. ☐ LEAD HAZARD ABATEMENT: Include Homeowner or Building Owner Affidavit as per N.J.A.C. 5:17.



CONSTRUCTION PERMIT

Date Issued 4/23/19
Control # C-19-001317
Permit # 19-00498

IDENTIFICATION Block: 672 Lot: 8 Qualifier _____
Work Site Location: 51 CHAMBERS BRIDGE RD Brick Township, NJ Contractor Fischer Roofing
Address 276 SOUTH HOPE CHAPEL RD JACKSON NJ 08527
Owner in Fee PARAMOUNT PLAZA AT BRICK LLC
1195 ROUTE 70 LAKEWOOD NJ 08701 Telephone: (732) 589-7663
Lic. No. or Bldrs. Reg. No. 13VH05542200
Telephone: (732) 886-1500 Federal Employee No. _____

Is hereby granted permission to perform the following work:

- | | | |
|--|--|--|
| ☒ BUILDING | ☐ PLUMBING | ☐ LEAD HAZARD ABATEMENT |
| ☐ ELECTRICAL | ☐ FIRE PROTECTION | ☐ DEMOLITION |
| ☐ ELEVATOR DEVICES | ☐ ASBESTOS ABATEMENT
(Subchapter 8 only) | ☐ OTHER |

DESCRIPTION OF WORK:

ROOFING - BED BATH & BEYOND

Note: If construction does not commence within one (1) year of date of issuance, or if construction ceases for a period of six (6) months, this permit is void.

Estimated Cost of Work \$306,850

D. Newman Jr.
Construction Official

4/15/19
Date

U.C.C. F170
equiv (rev 1/04)

1 WHITE - INSPECTOR

2 CANARY - OFFICE

3 PINK - TAX ASSESSOR

4 GOLD - APPLICANT

PAYMENTS (Office Use Only)

Building	\$11,740
Electrical	\$0
Plumbing	\$0
Fire Protection	\$0
Elevator Devices	\$0
Other	\$0.00
DCA Training Fee	\$583
CO Fee	
Other	\$0
Total	\$12,323
Check No:	<u>1913</u>
Cash	\$0
Credit	\$0
Collected By	<u>M. Fagen</u>

REQUIRED INSPECTIONS

Construction work must be inspected in accordance with the State Uniform Construction Code Regulations N.J.A.C. 5:23-2.18. This agency will carry out such periodic inspections during the progress of work as are necessary to insure that the work installed conforms with the requirements of the Uniform Construction Code.

The owner or other responsible person in charge of work must notify this agency when work is ready for any required inspections specified below. Requests for inspections must be made at least 24 hours prior to the time the inspection is desired. Inspections will be performed within three business days of the time for which they are requested. The work must not proceed in a manner which will preclude the inspection until it has been made and approval granted.

☐ Required inspections for all subcodes for one- and two-family dwellings are as follows:

1. The bottom of footing trenches before placement of footings, except that in cases of pile foundations, inspections shall be made in accordance with the requirements of the building subcode.
2. Foundations and all walls up to grade level prior to back filling.
3. All structural framing, connections, wall and roof sheathing and insulation; electrical rough wiring, panel and service installation; rough plumbing. The framing inspection shall take place after the rough electrical and plumbing inspections and after the installation of the heating, ventilation and /or air conditioning duct system. The insulation inspection shall be performed after all other subcode rough inspections and prior to the installation of any interior finish material.
4. Installation of all finished materials, sealings of exterior joints, plumbing piping, trim and fixtures; electrical wiring, devices and fixtures; mechanical systems equipment.

Additional required inspections for all subcodes of construction, for other than one- and two-family dwellings, are fire suppression systems, heat producing devices and Barrier Free subcode accessibility, if applicable.

☐ Required special inspections. The applicant by accepting the permit will be deemed to have consented to these requirements:

☒ A final inspection is required for each applicable subcode area before a final Certificate of Occupancy or Approval may be issued. The final inspections include the installation of all interior and exterior finish materials, sealing of exterior joints, mechanical system and other required equipment; electrical wiring, devices and fixtures; plumbing pipes, trim and fixtures; tests required by any provision of the adopted subcodes, Barrier Free accessibility, if applicable; and verification of compliance with NJAC 5:23-3.5, "Posting structures".

☐ A complete copy of released plans must be kept on the job site.

If you do not understand any of this information, please ask.

THIS DOCUMENT IS PRINTED ON WATERMARKED PAPER WITH A MULTI-COLORED BACKGROUND AND MULTIPLE SECURITY FEATURES. PLEASE VERIFY AUTHENTICITY.

NOT AN
ELECTRICIAN'S
OR PLUMBER'S
LICENSE

State Of New Jersey
New Jersey Office of the Attorney General
Division of Consumer Affairs

THIS IS TO CERTIFY THAT THE
Home Improvement Contractors

HAS REGISTERED

FISCHER ROOFING LLC
Isarel Zajac
212 2nd St
Suite 401a
Lakewood NJ 08701

FOR PRACTICE IN NEW JERSEY AS A(N): Home Improvement Contractor

02/07/2019 TO 03/31/2020
VALID

13VH05542200
LICENSE/REGISTRATION/CERTIFICATION #

Signature of Licensee/Registrant/Certificate Holder

ACTING DIRECTOR

New Jersey Office of the Attorney General
Division of Consumer Affairs
THIS IS TO CERTIFY THAT THE
Home Improvement Contractors
HAS REGISTERED
FISCHER ROOFING LLC
Home Improvement Contractor

NOT AN ELECTRICIAN'S OR PLUMBER'S LICENSE

02/07/2019 TO 03/31/2020

VALID

SIGNATURE

13VH05542200

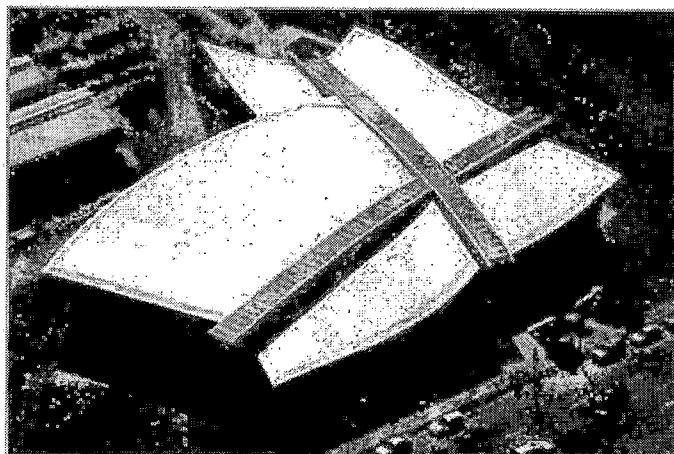
License/Registration/Certificate #

ACTING DIRECTOR

PLEASE DETACH HERE
IF YOUR LICENSE/REGISTRATION/
CERTIFICATE ID CARD IS LOST
PLEASE NOTIFY:
Home Improvement Contractors
P.O. Box 45016
Newark, NJ 07101

PLEASE DETACH HERE

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/ES) membrane is formulated with additional flame retardant for higher-slope fire code approvals. VersiWeld Plus is 80-mils thick for significantly higher strength and weatherability.

Versico's 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 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 creates a consistent, watertight, monolithic roof assembly. The membrane is environmentally friendly and safe to install.

VersiWeld TPO Standard and HS/ES membranes are available in highly reflective white, tan and gray, in both 45-mil and 60-mil. 80-mil VersiWeld Plus is also offered in white, gray and tan colors. Sixteen special colors are also available (see Versico TPO Color Palette brochure). Versico's TPO is offered in 4- and 6-ft perimeter sheets

and 8-, 10- and 12-ft field sheets.

Versico's tan and white TPO membranes are ENERGY STAR®-qualified and California Title 24 compliant and can contribute toward LEED® (Leadership in Energy and Environmental Design) credits.

Features and Benefits

- Outstanding puncture resistance
- Chlorine-free with no halogenated flame retardants
- Plasticizer-free; does not contain liquid or polymeric plasticizers
- Excellent resistance to impact and low temperature
- 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
- 100% recyclable (refer to Versico's Recyclability Statement)
- Enhanced with the OctaGuard XT weathering package



Installation

1. VersiWeld TPO Roofing Systems are quick to install, as minimal labor and few components are required. TPO systems may be installed using an automatic heat welder, making sheet welding fast, clean, consistent, and easy to learn, while reducing strain on the roofing technician.
2. **The Versico Mechanically Attached Roof System** installation starts by fastening the insulation with a minimum of 4 fasteners per 4' by 8' board. The membrane is mechanically fastened to the deck using HPVX Fasteners and HPVX Plates or HPV-XL Fasteners and HPV-XL Plates. Adjoining sheets of membrane are overlapped over the fasteners and plates and joined together with a minimum 1½"-wide (4cm) hot-air weld.



A SINGLE SOURCE FOR SINGLE-PLY ROOFING

Versico, PO Box 1289, Carlisle, PA 17013
Tel: 800.992.7663 Fax: 717.960.4036 Web: www.versico.com

3. **The Versico Fully Ahered Roofing System** installation begins by fastening the insulation at the required density necessary to meet the appropriate wind load requirement. The substrate and membrane are coated with an appropriate VersiWeld TPO bonding adhesive and the membrane is rolled into place.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

1. 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.
2. Surfaces may become slippery due to frost and ice buildup. Exercise caution during cold conditions to prevent falls.
3. Care must be exercised when working close to a roof edge when surrounding area is snow-covered as the roof edge may not be clearly visible.
4. Use proper stacking procedures to ensure sufficient stability of the rolls.
5. Exercise caution when walking on wet membrane. Membranes may be slippery when wet.
6. Store membrane in the original undisturbed plastic wrap in a cool, shaded area and cover the 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.
7. 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.
8. Maximum sustained temperature not to exceed 160°F (71°C) for TPO membrane.

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 D6878 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)
Breaking strength, lbf (kN) ASTM D751 grab method	220 (976 N) min	225 (1.0) min 320 (1.4) typ	250 (1.1) min 360 (1.6) typ	350 (1.6) min 425 (1.9) typ
Elongation break of reinforcement, % ASTM D751 grab method	15 min	15 min 25 typ	15 min 25 typ	15 min 25 typ
Tearing strength, lbf (N) ASTM D751 proc. B 8 in. x 8 in.	55 (245) min	55 (245) min 130 (578) typ	55 (245) min 130 (578) typ	55 (245) min 130 (578) typ
Brittleness point, °F (°C) ASTM D2137	-40 (-40) max	-40 (-40) max -50 (-46) typ	-40 (-40) max -50 (-46) typ	-40 (-40) max -50 (-46) typ
Linear dimensional change, % ASTM D1204, 6 hours at 158°F	± 1 max	± 1 max -0.2 typ	± 1 max -0.2 typ	± 1 max -0.2 typ
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 0.9 typ	± 3.0 max 0.9 typ	± 3.0 max 0.9 typ
Factory seam strength, lbf/in (kN/m) 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) typ	25 (4.4) min 60 (10.5) typ	40 (7.0) min 70 (12.3) typ
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
Puncture resistance, lbf (kN) FTM 101C, method 2031 (see supplemental section)	No requirement	250 (1.1) min 325 (1.4) typ	300 (1.3) min 350 (1.6) typ	400 (1.8) min 450 (2.0) typ
Properties after heat aging ASTM D573, 5,376 hours @ 240°F				
Breaking strength, % retained	198 (881) 90% min	205 (912) min	225 (1,000) min	315 (1,400) min
Elongation reinf., % retained	13.5 (90%) min	13.5 min	13.5 min	13.5 min
Tearing Strength, % retained	33 (60%) min	33 min	33 min	33 min
Weight change, %	± 1.0 max	1.0 max	1.0 max	1.0 max
Typical Weights		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.

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 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 EXTREME TESTING – HEAT AGING

		ASTM Requirement	VersiWeld Requirement
ASTM TEST	240°F	32 weeks*	52 weeks

*Comparable to 1,024 weeks (20 yrs) at 185°F for 6 hrs/day.

- Test specimen is 1" by 4" piece of 45-mil membrane unbacked, placed in a circulating hot-air oven.
- Criterion - no visible cracks after bending aged test specimen around 0.25"-diameter mandrel.

Xenon-Arc exposes the membrane samples to the combined effect of UV, visible and infrared radiation as well as ozone, heat and water spray to greatly accelerate the effects of outdoor weathering. The radiation dose is measured in kilojoules per square meter (kJ/m²) at 340 nm machine UV wavelength. The irradiance power of the xenon-arc lamp is measured in watts per square meter (W/m²).

VERSICO EXTREME TESTING – XENON-ARC

		VersiWeld Results		
ASTM TEST	ASTM D6878 REQUIREMENT	45-MIL	60-MIL	80-MIL
kJ/m ² at 340 nm	10,080	17,640	20,160	27,720

- Test specimen is 2.75" by 5.5" piece of membrane, unbacked, weathering side facing arc lamp.
- Criterion - no visible cracks viewed under 10x magnification while wrapped around 3"-diameter mandrel.

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
 - 5040 kJ/m² (2000 hrs at 0.70 W/m² irradiance) xenon-arc exposure

*Test specimen is 2.75" 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"-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. Radiative properties for ENERGY STAR, Cool Roof Rating Council (CRRC) and LEED.
3. VersiWeld TPO membranes conform to requirements of the USE.P.A. Toxic Leachate Test (40 CFR part 136) performed by an independent analytical laboratory.
4. VersiWeld TPO was tested for dynamic puncture resistance per ASTM D5635-04 using the most recently modified impact head. 45-mil was watertight after an impact energy of 12.5 J (9.2 ft-lbf) and 60-mil was watertight after 22.5 J (16.6 ft-lbf). The 80-mil product was watertight after an impact energy of 30.0 J (22.1 ft-lbf).

TECHNICAL DATA BULLETIN

LEED INFORMATION

Pre-consumer Recycled Content	10%
Post-consumer Recycled Content	0%
Manufacturing Location	Senatobia, MS Tooele, UT
Solar Reflective Index (SRI)	White: 99 Tan: 86 Gray: 53

RADIATIVE PROPERTIES FOR ENERGY STAR®, COOL ROOF RATING COUNCIL (CRRC) 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 (after cleaning)	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	ASTM E408	0.90	0.86	0.86
Solar Reflectance Index (SRI)	ASTM E1980	99	86	53

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.