Historic Preservation Services

Community Development & Neighborhood Services
281 North College Avenue
P.O. Box 580
Fort Collins, CO 80522.0580

970.416.4250
preservation@fcgov.com
fcgov.com/historicpreservation

CERTIFICATE OF APPROPRIATENESS – Minor Alteration
ISSUED: February 1, 2022
EXPIRATION: February 2, 2023

Housing Catalyst (Housing Authority of the City of Fort Collins)
1715 W Mountain Ave
Fort Collins, CO 80521

Dear Property Owner:

This letter provides you with certification that proposed work to your designated Fort Collins landmark property, the Benton-Schulz Duplex at 1016-1018 Morgan Street has been approved by the City's Historic Preservation Division (HPD) because the proposed work appears to meet the requirements of Chapter 14, Article IV of the Fort Collins Municipal Code.

The alterations reviewed include:

- Roof replacement (tar-and-gravel replaced with TPO product).
    - *Condition 1: Contractor will provide Historic Preservation Services photographs of the roof before and after installation, including views from the roof, and views from Morgan Street.*
    - *Note 1: Selection of a TPO product color that reasonably matches the existing gravel is encouraged.*

Notice of the approved application has been provided to building and zoning staff to facilitate the processing of any permits that are needed for the work. Please consider National Park Service Preservation Brief #4, *Roofing for Historic Buildings* as you complete this project.

Please note that work beyond that indicated in your permit application/correspondence requires additional approval. Items requiring further approval include, but are not limited to, the following activities:

- Work affecting, or repair of, a chimney;
- Repair or replacement of historic decorative or functional features on or near the roof, such as fascia, purlins, brackets, eaves, gutters, and dormers;
- Installation of roof insulation above the sheathing that will result in more than a 4-inch increase in the roof height; (note: uncovered portions at the eave should be covered with plain fascia or drip edge);
- Addition of new rooftop features including skylights, dormers, and large new vents (note: no further review is needed to install standard edge, ridge, or "turtle" vents required for meeting ventilation standards on new roofs).

If the approved work is not completed prior to the expiration date noted above, you may apply for an extension by contacting staff at least 30 days prior to expiration. Extensions may be granted for up to 12 additional months, based on a satisfactory staff review of the extension request.

If you have any questions regarding this approval, or if I may be of any assistance, please do not hesitate to contact me. I may be reached at jbertolini@fcgov.com or 970-416-4250.

Sincerely,

Jim Bertolini
Historic Preservation Planner

Jim Bertolini

From: Barbara King
Sent: Tuesday, February 1, 2022 10:08 AM
To: Jim Bertolini
Cc: gail@advancedroofingtech.com; Josh Suppes
Subject: FW: B2200643 - Roof for 1016-1018 Morgan St (City Landmark) - info needed
Attachments: Versico TPO Product Data Sheet.pdf

Hi Jim,

I'm the Project Coordinator for the roofing we are currently replacing in our portfolio. Advanced Roofing has provided answers to your questions. Please let us know if this will be acceptable.

Thank you,
Barbara

HOUSING CATALYST | 50 YEARS OF BUILDING COMMUNITY

Barbara King
Development Project Coordinator
Office: 970-416-2169| Cell: 970-988-6399 | Main: 970-416-2910
1715 West Mountain Ave | Fort Collins, CO 80521
HousingCatalyst.com

From: Adam Gazdik <Adam@advancedroofingtech.com>
Sent: Tuesday, February 1, 2022 9:58 AM
To: Barbara King <bking@housingcatalyst.com>
Subject: [EXTERNAL] RE: B2200643 - Roof for 1016-1018 Morgan St (City Landmark) - info needed

Hi Barbara,

Please see the attached Versico product sheet. To answer the second question tar and gravel roofs are an older technology and pretty much obsolete now. A lot of this is driven by the fire hazard it is to install. When these roofs get to the age yours is at the asphalt cracks and it becomes a never ending chase for leaks. Repairing is difficult as well since the gravel is embedded into the tar. All you really can do is use fabric and mastics to repair which isn't a long term or viable solution and like I said you'll continually be chasing leaks with the age the roof is at. The membrane we chose for this will be your longest lasting and most water-tight option. If you have any further questions on this let me know.

Thank you,

Adam Gazdik
Project Manager / Estimator
970.663.0203 Work
970.566.0887 Cell

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From: Barbara King <bking@housingcatalyst.com>
Sent: Tuesday, February 1, 2022 9:12 AM
To: Adam Gazdik <Adam@advancedroofingtech.com>
Subject: FW: B2200643 - Roof for 1016-1018 Morgan St (City Landmark) - info needed

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hi Adam,

Apparently the Morgan building is considered a City Landmark property and they are asking about the new roof. Can you please provide us with the information he's asking for?

Thank you,
Barbara

From: Josh Suppes <jsuppes@housingcatalyst.com>
Sent: Tuesday, February 1, 2022 9:09 AM
To: Barbara King <bking@housingcatalyst.com>
Cc: Preston Nakayama <pnakayama@housingcatalyst.com>; Carly Johansson <cjohansson@housingcatalyst.com>
Subject: FW: B2200643 - Roof for 1016-1018 Morgan St (City Landmark) - info needed

I didn't realize that Morgan was designated as a City Landmark! See email from the City regarding the roofing.

HOUSING CATALYST

Josh Suppes | Maintenance Manager

Office: 970-416-2186 Main: 970-416-2092
1400 Riverside Fort Collins, CO 80524
HousingCatalyst.com

From: Jim Bertolini <jbertolini@fcgov.com>
Sent: Tuesday, February 1, 2022 8:58 AM
To: gail@advancedroofingtech.com

Cc: Josh Suppes <jsuppes@housingcatalyst.com>
Subject: B2200643 - Roof for 1016-1018 Morgan St (City Landmark) - info needed

Gail,

I'm connecting from the City of Fort Collins Historic Preservation division about your pending roof permit for the building at 1016-1018 Morgan St., which is a City Landmark. I've copied Josh Suppes at Housing Catalyst so he's aware we're connecting.

It looks like the proposal is to change the roofing type from tar-and-gravel to a membrane roof. While our Standards typically discourage changing roof types on City Landmarks, we can approve those where there's a compelling building health reason for doing so, and where the new product will reasonably replicate the key features of the historic material. Could you email me back with the following information?:

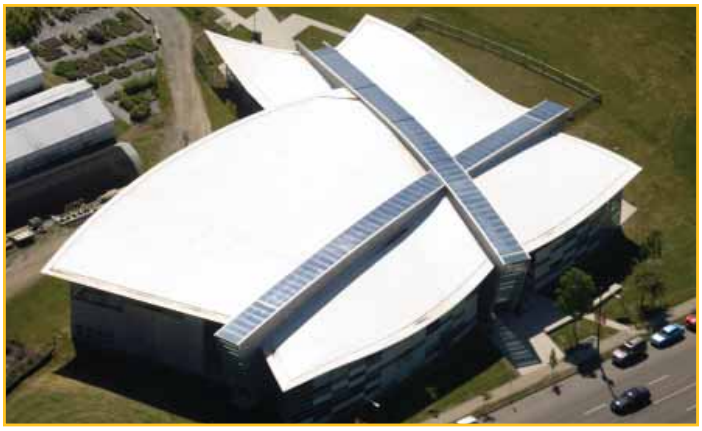
1. Could you send a copy of, or link to, the product specification sheet for the Versico membrane product being proposed?
2. Could you let me know what's driving the shift from the tar and gravel to membrane? Is it a concern about repairing current/future leaks or is there something else motivating the change? If there are existing leaks, is there a reason the project isn't simply repairing/patching those?

If you could email me back with that info as soon as you're able, I'd appreciate it. Thanks!

JIM BERTOLINI
Historic Preservation Planner
Community Development & Neighborhood Services
281 North College Avenue
970-416-4250 office
jbertolini@fcgov.com
Visit our website!

"The City of Fort Collins is an organization that supports equity for all, leading with race. We acknowledge the role of local government in helping create systems of oppression and racism and are committed to dismantling those same systems in pursuit of racial justice. Learn more."

VERSIWELD® TPO REINFORCED MEMBRANE



Overview

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

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

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

VersiWeld TPO Standard and HS 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. Special Color VersiWeld HS TPO membranes 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.

VersiWeld special color HS TPO membranes are available in limited sizes.

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.

Labor Saving Features and Benefits: Optional APEEL™ Protective Film

- Versico's VersiWeld TPO reinforced membrane is available with APEEL Protective Film, saving time and labor by eliminating the need for roof cleaning upon project completion. Versico's innovative APEEL Protective Film can be left in place for up to 90 days without affecting the integrity of the film, guarding the TPO membrane's surface from scuffs and dirt accumulation during installation. Durable and easy to remove, APEEL Protective Film improves aesthetics and long-term reflectivity and is ideal for re-roofing, re-cover, and new construction projects.

Features and Benefits

- Outstanding puncture resistance
- Excellent fire resistant assemblies
- Environmentally friendly and stable formulation
- 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

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

- APEEL Protective Film guards the TPO membrane's surface from scuffs and dirt accumulation during installation, improving the roof system's appearance and long-term performance
- APEEL Protective Film can be left in place for up to 90 days without degrading due to its excellent heat- and UV-resistance

OCTAGUARD XT™ WEATHERING PACKAGE

APEEL PROTECTIVE FILM

Installation

1. VersiWeld TPO roofing systems are quick to install, as minimal labor and few components are required. TPO systems are installed using an automatic heat welder, making sheet welding fast, clean, consistent, and easy to learn, while reducing strain on the roofing technician.
2. APEEL Protective Film should be removed from within areas that are to be heat-welded together. In areas that do not require heat-welding, the APEEL Protective Film can be left in place for up to 90 days. When the installation of the entire TPO roofing system is complete, remove and discard the APEEL Protective Film.
3. **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 (4 cm) hot-air weld.
4. **The Versico Fully Ahered Roofing System** installation begins by fastening the insulation at the required density necessary to meet the appropriate warranty or 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.

TYPICAL PROPERTIES AND CHARACTERISTICS

Physical Property	ASTM D6878 Requirement	45-mil	60-mil	80-mil
Tolerance on nominal thickness, % ASTM D751 test method	+15, -10	± 10	± 10	± 10
Thickness over scrim, in. (mm) ASTM D7635 optical method, average of 3 areas	0.015 min (0.380)	0.018 typ (0.457)	0.024 typ (0.610)	0.034 typ (0.864)
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 (N) ASTM D751 grab method	66 (290) min	66 (290) min	66 (290) min	66 (290) min
Field seam strength, lbf/in (kN/m) ASTM D1876 tested in peel	No requirement	25 (4.4) min 50 (8.8) 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, 32 weeks @ 240°F or 8 weeks @ 275°F No cracking when bent around 3" diameter mandrel Weight change, %	 PASS No cracking ± 1.5 max	 PASS No cracking 1.0 max	 PASS No cracking 1.0 max	 PASS No cracking 1.0 max
Typical Weights		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.

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.
9. Do not use razor blades or other sharp tools to cut the APEEL Protective Film while it is still adhered to the TPO membrane as damage to the underlying membrane may occur. Pull the protective film away from the membrane prior to cutting.
10. Remove APEEL Protective Film by pulling toward the center of the roof. Do not remove the film by pulling toward the roof edge.
11. A static electric charge may develop when removing APEEL Protective Film from the surface of the membrane sheet. To avoid the possibility of ignition, lids must be closed on any flammable products and a fire extinguisher should be readily available.
12. Color membranes will 'fade' over time mainly due to the ultraviolet portion of sunlight. Since most roof surfaces are exposed to variable sunlight, some areas will be more susceptible to color changes caused by UV fading. Warranties for color membranes do not cover fading of colors.

Extreme Testing for Severe Climates

ASTM Standard D6878 is the material specification for Thermoplastic Polyolefin-Based Sheet Roofing. It covers material property requirements for TPO roof sheeting and includes initial and aged properties after heat and xenon-arc exposure. As stated in the scope of the standard, "the tests 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*	>128 weeks

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

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

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

VERSICO EXTREME TESTING – Q-TRAC

ASTM TEST	ASTM D6878 REQUIREMENT	VersiWeld Requirements
N/A	N/A	Equivalent of 40 years of exposure

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

- ASTM requirement - none
- Versico EXTREME test*:
  - 10 days heat aging at 240°F (116°C) followed by
  - 5 days water immersion at 158°F (70°C) followed by
  - 5,040 kJ/m² (2000 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 US E.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 was watertight after an impact energy of 30.0 J (22.1 ft-lbf).
5. NSF-P151 Certification for rainwater catchment system components.

   - Plant 91/White Only

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

RADIATIVE PROPERTIES FOR ENERGY STAR* AND LEED®				
	Test Method	White TPO	Tan TPO	Gray TPO
ENERGY STAR initial solar reflectance	Solar Spectrum Reflectometer	0.79	0.71	N/A
ENERGY STAR initial solar reflectance after 3 years	Solar Spectrum Reflectometer (uncleaned)	0.70	0.64	N/A
CRRC initial solar reflectance	ASTM C1549	0.79	0.71	0.46
CRRC solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.70	0.64	0.43
CRRC initial thermal emittance	ASTM C1371	0.90	0.86	0.89
CRRC thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	0.87	0.88
LEED thermal emittance	ASTM E408	0.90	0.86	0.85
Solar Reflectance Index (SRI) inital	ASTM E1980	99	86	53
Solar Reflectance Index (SRI) 3 years aged		85	77	48

RADIATIVE PROPERTIES (INITIAL) FOR SPECIAL COLORS			
	Reflectance	Emittance	SRI
Medium Bronze	0.28	0.86	29
Rock Brown	0.25	0.87	26
Slate Gray	0.38	0.87	42
Terra Cotta	0.25	0.86	25
Patina Green	0.25	0.88	25

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