



COLD FLUID APPLIED MEMBRANE ROOFING SECTION 07500

SECTION 07-56-01 TRITOFLEX ROOF RESTORATION MEMBRANE SYSTEM

**FOR INSTALLATION OVER: EPDM, PVC, TPO, SMOOTH BUR, MODIFIED BITUMEN OR CAP SHEET
SUBSTRATES**

This specification works as a guideline and may be modified, as necessary, by the “Designer of Record” to fulfill the needs of the individual project. Any changes or improvements to the content of this specification should be made only with the written consent of the “Designer of Record.”

PART ONE - GENERAL

1.1. Description

- A. Furnish and install an instant-setting, fluid-applied, roof recover/restoration waterproofing system complete, in place, as shown on the drawings, specified herein, or needed for a complete and proper watertight and warrantable installation. TritoFlex™ 2K Rubber roof restoration system shall be monolithically applied in one spray coat to the field and flashing areas at specified rate to create a membrane. TritoFlex™ 1K Brush-Grade Rubber is used as a patching and flashing reinforcement compound as needed to the system after it has cured. An energy efficient, sustainable, and sacrificial elastomeric top coating, TritoCryl™ or TritoTherm™, may then be applied in one or two coats. In some climate zones, there are options for either a granulated wear layer or no top coat.

1.2. Quality Assurance

- A. Standards: Comply with standards specified in this section and as listed in the General Requirements.
- B. Qualifications of Manufacturer: The core products used in the roofing work and included in this section shall be manufactured directly by the manufacturer and not through a third-party mixing company or private label. Quality control measures include testing and retaining samples of every product batch by the manufacturer.
- C. Qualifications of Installers: The Contractor and his personnel shall be currently approved by the manufacturer and only those spray technicians that have been certified through the manufacturers’ training program are to spray the roof membrane.
- D. Roofing Inspections: Make all required notifications and secure all required inspections by the manufacturer of the approved materials to facilitate issuance of the specified roof warranty.
- E. Manufacturer’s Pre-Review: The manufacturer shall review and approve the existing roof substrate that is to be recovered with the TritoFlex 2K system with respect to the appropriateness of the substrate for use of their recover system on this project.
- F. Spray Equipment: The TritoFlex 2K liquid roof membrane may only be applied with spray equipment specifically manufactured for TritoFlex 2K and supplied by Triton Inc.

1.3. Submittals

- A. Product Data: Prior to project starting, submit:





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- i. Complete material list of all items proposed to be furnished and installed under this section, along with product data sheets for each.
- ii. Manufacturer's pre-review comments and other data required to demonstrate compliance with specified requirements.
- iii. Moisture scan findings using a Tramex moisture meter or an infrared camera to check for pre-existing moisture in the old roofing system that will require replacement prior to installation of the TritoFlex 2K restoration system over it.

1.4. Product Handling

- A. Delivery and Storage:
 - i. Deliver all packaged materials to the job site in their original, unopened containers with all labels intact and legible at the time of the inspection.
 - ii. Store all materials in an approved manner and protected from freezing or extreme heat. Storage temperature to be maintained above 50 degrees Fahrenheit.
 - iii. Protect materials during handling and application to prevent damage or contamination.
- B. Protection: Use all necessary means to protect the materials in this section before, during, and after installation, and to protect the work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of and at no additional cost to the Owner.

1.5. Scheduling

- A. Work is to be performed on a daily basis with appropriate scheduling of product applications to prevent contamination of the surfaces between applications. Products shall be installed only if temperatures do not dip below freezing for 72 hours after applying, and daytime temperature reaches 50 degrees Fahrenheit or higher.
- B. Final completion of work shall be defined as the installation of all specified primer, roof membrane, top coating, flashings, counterflashings, sheet metal, fasteners, and caulking.
- C. Contractor shall complete installation of TritoFlex 2K membrane within two (2) days after cleaning the existing substrate. After installation of the membrane, a light rinsing of the surface to remove dry accelerator is required prior to top coating, no earlier than 6 hours after TritoFlex 2K installation. Top coating not to occur before TritoFlex 2K is completely dried. If top coating is performed later than three (3) days after completion of TritoFlex 2K membrane, another rinsing may be required to remove dust and dirt accumulations depending on the environment.

1.6. Warranty

- A. As part of the work of this section, pay all required fees, secure all required inspections, and complete all items necessary to secure and deliver to the Owner a manufacturer's warranty of 10 years, 15 years, or 20 years as requested. Note that 10-year or 15-year warranties with a top coat may be eligible for 10-year extensions.



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PART TWO - PRODUCTS

2.1. General

- A. Minimum product requirements have been listed. All of these components must be used and bid. Products not supplied by the manufacturer are to be purchased from a manufacturer approved source.

2.2. Products Supplied by Warranty Manufacturer

- A. Liquid Membrane – Two-Component, Cold Spray-Applied Rubber (TritoFlex 2K)

Spray-applied instant setting liquid waterproofing manufactured by Triton Inc.™ and applied by a manufacturer certified installer to create a roof membrane. The liquid TritoFlex™ 2K product is water based and solvent free which transforms into an instant-setting seamless rubberized roof membrane as it is spray-applied to the substrate and catalyzed by an accelerator component. The liquid is spray-applied in a single coat to achieve a minimum monolithic membrane thickness of either 60 dry mils for 10-year or 15-year warranties, or 80 dry mils for 20-year warranties, and possess physical properties of no less than the values listed below:

Property	Test Method	Value
Solid Content	Vacuum cure	63%
Flame Exposure	ASTM E108	Class A, Self-Extinguishing
Water Vapor Permeability	ASTM E96	0.1 perms
Elongation	ASTM D412	1200% or greater
Hydrostatic Pressure	BS EN 12390-8	Pass – No penetration
Impact and Hail Resistance	ASTM D3746	Pass
Dynamic Puncture Resistance	ASTM D5635	2.80 J/mm or greater
Adhesion to Concrete	ASTM D903	42 lbf
Adhesion to Cap Sheet	ASTM D4541	729 psi
UV Exposure (Xenon)	ASTM G155	No effect
Cured to the Touch	After Sprayed	Instantly
VOC Content	--	None
Wind, Fire, Hail, Foot Traffic, UV	FM 4470	Pass (1-990, Class A, Severe Hail)

- B. Patching and Flashing Membrane – One-Component, Brush-Applied Rubber

- i. TritoFlex 1K Brush-Grade Rubber – Brush-applied, flexible waterproofing membrane manufactured by Triton Inc. that is water-based and solvent free. Product is used for touch-up patching and reinforcing of flashing areas in the TritoFlex 2K membrane.

- C. Reflective/ Protective Topcoat (Select the appropriate coating that meets the building requirements)

- i. TritoTherm: Thermal insulating and reflective white top coating that is a water-based acrylic elastomer. Ceramic and glass microspheres within the top coating not only reflect UV rays, but also reduce heat transfer through it, making it a superior energy saving solution used as part of the TritoFlex 2K roof membrane system; manufactured by Triton Inc.
- ii. TritoCryl: Highly reflective acrylic elastomeric EnergyStar top coat that is water-based and available in both 1K or 2K instant-set form. Typically provided in white and manufactured by Triton Inc.



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D. Catalyst (Accelerator)

- i. **ACCELERATOR:** Specialty Calcium Chloride water mixture used as the catalyst component in conjunction with spraying the TritoFlex 2K and TritoCryl 2K products that produces an instant setting membrane, allowing for the rapid build-up of the membrane to thickness desired in one coat. The dry CaCl pellets are supplied by Triton, Inc. and the applicator mixes with water per the manufacturers' requirements on the job site. Alternative catalysts are in no way allowed, as they will cause damage to the final product.

E. Repair Tape

- i. **TritoBond Repair Tape:** Premium-grade butyl repair tape with TPO-facer, available in black or white. Used to repair existing substrate in a variety of situations; supplied by Triton Inc.

2.4. Equipment Supplied by Manufacturer

A. Spray machine and testing gauges/meters

- i. **Triton Standard Spray Machine:** dual-component spray rig consisting of spray gun, hoses, pumps, and cart, specifically manufactured and supplied by Triton, Inc.
- ii. **TritoFlex 2K mil gauge** for testing wet mil thickness while spraying liquid membrane.

PART THREE - EXECUTION

3.1. Description

- A. The latest manufacturer application techniques are to be followed along with the following requirements. These specific minimum requirements must be included in the bid and are not to be altered.

3.2. Inspection

- A. Examine the existing roof conditions under which work in this section will be installed. Correct conditions detrimental to the proper and timely completion of the work such as wet underlying insulation, loose membrane, and severe degradation. Do not proceed until such conditions have been corrected.

3.3. Surface Conditions

- A. Surfaces scheduled to receive waterproofing are to be sound, clean, dry and free of any dust, grease, oil, laitance, and other contaminants.
- B. Substrate is to be free of sharp projections and free of loose components.
- C. The existing roof system is to be scanned for moisture to locate and replace any wet areas of insulation or roofing with new insulation and membrane to match existing. Insulation and membrane replacement must be properly attached prior to application of TritoFlex 2K system over it.

3.4. Installation – Preparation of Substrate



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- A. Protect all adjacent surfaces from overspray at all times. Taping off surfaces with painter plastic to prevent overspray onto surfaces and to establish clean straight edge termination lines on the new liquid membrane flashings is required.
- B. Repair all defects in existing substrates including; loose field membrane laps and flashings as required by manufacturer. Like materials to the existing roof type are recommended.
- C. All existing metal flashings that are specified to remain must be inspected for water tightness. Any flashing metal such as counterflashing, termination bar, coping caps, edge metal, etc., shall be properly repaired to achieve a watertight condition.
- D. Remove all dirt, debris, and loose materials from the surface of the roof.
- E. Existing surfaces shall be cleaned with pressure washing equipment to a condition conducive of positive adhesion of the TritoFlex 2K, per manufacturers' requirements prior to application of primer and/or fluid applied system. Unapproved curing compound, form release agents, petroleum distillates, animal fats and other contaminants shall not come into contact with approved substrate after cleaning. Contractor shall complete installation of TritoFlex 2K membrane within two (2) days after cleaning of substrate.
- F. Verify the substrate is visibly dry on the surface and free of moisture within its components. Moisture meters, infrared scanning, or capillary moisture tested by plastic sheet method according to ASTM D-4263, may be necessary. If moisture is present on the substrate it must be allowed to dry prior to proceeding with TritoFlex 2K application. If moisture is present within the old roofing system components it must be removed and replaced with same materials prior to installation of TritoFlex 2K. It is critical that all single-ply membrane materials (PVC, TPO, EPDM) be patched with same material as the old roof material and same method of seaming such as heat welding for PVC and TPO. It is also important that shrinkage or stress in the old roofing material be relieved after it is cut open to prevent additional movement/shrinkage after installation.
- G. If there is existing insulation in the roof and it is not already properly vented, install one-way vents, such as supplied by OlyVent, every 1200 sq. ft. This is to relieve vapor pressure in the old roof system after it is restored. Cut a 4" diameter hole through the existing membrane and remove the insulation in that area. Install loose fiberglass insulation in the opening to prevent condensation at opened area. The vents should either be mechanically attached to the existing deck or adhered down with roof cement or other approved adhesive. The vents should then be immediately sprayed and sealed with TritoFlex 2K Rubber.
- H. Existing substrate to only be primed prior to installing the TritoFlex 2K roof membrane if required by Manufacturer.

3.5. Installation of Liquid Membrane

- A. General:
 - i. Stir materials prior to application in accordance with manufacturer's instructions.
 - ii. Spray two-component TritoFlex 2K instant-setting system as a continuous, monolithic and seamless membrane of uniform thickness, beginning at the lowest point and terminating at the highest point. Final membrane thickness after full cure must be a minimum, on all surfaces, 60 mils for 10-year or 15-year warranty, and 80 mils for a 20-year warranty.
 - iii. When a spot repair is required during application, re-spray defect area within 15 minutes of initial spray



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application so entire membrane cures monolithically.

B. Horizontal and Vertical Application:

- i. Spray-apply one continuous layer of TritoFlex 2K two-component waterproofing membrane, covering all areas of the field and flashings to achieve a cured dry mil membrane thickness of 60 or 80 mils, depending on warranty requirements.
- ii. Perform wet mil thickness tests (with a manufacturer supplied mil gauge) at regular intervals while spraying to assure a minimum of 97 wet mils throughout for 60 dry mils, and 130 wet mils for 80 dry mils. Immediately re-spray spots checked with gauge to fill in void.
- iii. If necessary, chalk-line or spray-paint a grid across the roof prior to application to gauge product use per drum within a particular section of the roof area. One drum of material per section of grid based on the manufacturers' application rates should be used as a gauge. To achieve 60 mils dry, the typical gauge shall be 800 sq ft per drum on rougher surfaces being sprayed over such as modified bitumen, BUR or cap sheet and 850 sq ft per drum for smoother single-ply membranes.
- iv. Refer to manufacturer's recommendations and details for proper membrane terminations.

C. Final Check and Top Coating

- i. After the TritoFlex 2K membrane has fully dried and can be walked on without leaving indentations, apply TritoFlex 1K Brush-Grade Rubber to any visible voids or thin spots in TritoFlex 2K membrane prior to rinsing and applying top coatings. TritoFlex 1K to be installed by brush, roller, or trowel at 97 wet mils to achieve 60 mils dry. After TritoFlex 1K has fully dried throughout, lightly rinse dried accelerator from all surfaces. Surface should be completely dry prior to applying top coatings.
- ii. Following the application of TritoFlex 2K roof membrane described above, apply the TritoTherm or TritoCryl reflective and sacrificial coating in two coats to achieve a final minimum dry film thickness of 20 mils. First coat to be back-rolled when applying by sprayer to assure adhesion to textured TritoFlex surface. If applying TritoCryl 2K, install in one coat to 30 wet mils to achieve 20 dry mils.
- iii. For 20-year warranties, top coat must be applied at 30 dry mils total.
- iv. Installation of top coating shall occur after the TritoFlex 2K membrane and TritoFlex 1K Brush-Grade flashings are cured black and light rinsing of Accelerator has dried, and no later than ten (10) days after completion of TritoFlex 2K membrane. If top coating is performed later than three (3) days after completion of TritoFlex 2K membrane, another rinsing may be required to remove dust and dirt accumulations depending on the environment.
- v. In certain climate zones, a reflective top coat may not be required when approved in writing by Triton Inc. In this event, a light rinsing of Accelerator should still occur after TritoFlex 2K and TritoFlex 1K are applied.
- vi. If applying a granulated wear layer, broadcast 40-50 lbs. of roof granules per 100 sf in a 15 wet mil layer of TritoFlex 1K Spray-Grade. The granules must be supplied by Triton Inc. and approved for use in the specific climate zone and project location.

3.6. Installation of Liquid Patch & Flashings



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- A. Transition Detailing and Flashing, including Inside and Outside Corners, Pipes, Vents, Steel Sightscreen Supports, and Curbs: All flashing details and transition changes shall be prepared as follows:
 - i. After TritoFlex 2K roof membrane installation and proper cure time, all flashing transitions shall receive an additional brush application of TritoFlex 1K Brush-Grade prior to top coating.
 - a. Brush apply a 97 wet mil course of TritoFlex 1K Brush-Grade to extend 3" on each side of all curb corner transitions, 90 degree angles, under metal flashings, base and top edge of all pipe penetrations.
 - b. The field of the roof shall be checked over for imperfections in the TritoFlex 2K spray application and TritoFlex 1K shall be brush-applied wherever needed to reinforce suspected thin spots or spray defects. TritoFlex 1K shall be allowed to cure fully prior to top coating applications. Typical cure time allowance is 24 hours with good weather conditions. Use cure meter to determine full cure.
- B. Roof Drain Flashing:
 - i. Check existing drain ring bolts and ensure all are tight. After TritoFlex 2K roof membrane installation is completed on area outside of drain and after proper cure time and rinsing, TritoFlex 1K Brush-Grade shall be applied around inside and outside of the drain ring as well as within the drain bowl to fully seal under the existing membrane to prevent water back-up under the membrane.
 - a. Apply a 60 mil dry course of TritoFlex 1K over TritoFlex 2K roof membrane, extending from inside of drain to 3" outside of clamping ring.

3.7. Field Quality Control

- A. Use of specialized equipment such as a mil gauge supplied by the manufacturer to check the liquid membrane thickness during application and a good quality digital camera to provide photos to manufacturer of installation is required.
- B. Contractor to provide photographs of areas to receive liquid membrane before start of work, during surface preparation, during spray application, and at completion of work for warranty acceptance.

3.8. Clean-Up

- A. All debris shall be removed from the premises promptly and the construction area left clean daily.
- B. All overspray of products must be cleaned from surfaces not scheduled to receive the waterproofing membrane.
- C. At the completion of the contract, Contractor is to remove and dispose of all equipment or temporary facilities related to their contract within 3 days.

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- END OF SECTION -



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