



COLD FLUID APPLIED MEMBRANE ROOFING SECTION 07500

SECTION 07-56-01 TRITOFLEX 2K – METAL & STEEL ROOF RESTORATION SYSTEM

FOR INSTALLATION OVER METAL AND STEEL 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 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 and sustainable elastomeric top coating, TritoTherm™ or TritoCryl™ 1K/2K, may then be applied.

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 techs that have been certified through the manufacturers' training program are to spray apply 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 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:
 - i. Complete material list of all items proposed to be furnished and installed under this section along with product data sheets for each.



TRITON INCORPORATED

250 33rd Street Drive SE | Cedar Rapids, IA 52403 | TEL 319-861-5233 FAX 319-396-3804 | TRITONWP.COM



COLD FLUID APPLIED MEMBRANE ROOFING SECTION 07500

- ii. Manufacturer's pre-review comments, specific application guides, and other data such as photos required to demonstrate compliance with specified requirements.

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 (10°C).
 - 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 (10 C) 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 and 15-year warranties with a top coat may be eligible for 10-year extensions.

PART TWO - PRODUCTS

2.1. General



TRITON INCORPORATED

250 33rd Street Drive SE | Cedar Rapids, IA 52403 | TEL 319-861-5233 FAX 319-396-3804 | TRITONWP.COM



COLD FLUID APPLIED MEMBRANE ROOFING SECTION 07500

- 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 Synthetic Rubber (TritoFlex™ 2K)

Spray-applied, instant-setting liquid waterproofing manufactured by Triton Inc.™ and applied by a manufacturer certified installer to create a waterproofing 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	.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
Pull-Off Adhesion to Steel	ASTM D4541	2,300 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, single-component 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 spheres 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 roof membrane system; manufactured by Triton Inc.
- ii. TritoCryl: Highly reflective acrylic elastomeric EnergyStar top coat that is water-based and available in 1K or 2K instant-set form. Typically provided in bright white and manufactured by Triton Inc.

- D. Catalyst (Accelerator)

- i. ACCELERATOR: Specialty salt water mixture used as the catalyst component in conjunction with spraying the TritoFlex 2K Rubber that produces an instant setting membrane, allowing for the rapid build-up of the membrane to thickness desired in one coat. The dry salt mixture is supplied by Triton, Inc. and the applicator mixes with water per the manufacturers' requirements on the job site.



TRITON INCORPORATED

250 33rd Street Drive SE | Cedar Rapids, IA 52403 | TEL 319-861-5233 FAX 319-396-3804 | TRITONWP.COM



COLD FLUID APPLIED MEMBRANE ROOFING SECTION 07500

E. Primer

- i. TritoPrime METAL: Durable, rust-resistant, solvent-based coating and primer for galvanized and uncoated steel, supplied by Triton Inc.

F. Reinforcement Tape

- i. TritoBond Repair Tape: Premium-grade, high-strength butyl tape, used as a seam tape and/or flashing tape under the TritoFlex 2K membrane to add extra reinforcement on high stress areas of the roof.

2.3. 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 loose fasteners, open joints and seams, loose patchwork, and severe degradation and rust. 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.

3.4. Installation – Preparation of Substrate

- 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 or missing fasteners, severe rust and degradation of the substrate, loose or peeling repairs and patches, existing silicone products, and open seams.



TRITON INCORPORATED

250 33rd Street Drive SE | Cedar Rapids, IA 52403 | TEL 319-861-5233 FAX 319-396-3804 | TRITONWP.COM



COLD FLUID APPLIED MEMBRANE ROOFING SECTION 07500

- C. All existing metal flashings that are specified to remain must be inspected for water tightness. Any flashing metal such as counterflashings, termination bars, 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 fluid applied system. Unapproved curing compounds, 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.
- G. Apply one coat of TritoPrime Metal at 350 square feet per gallon to a 2 mil dry thickness by brush, roller, or airless sprayer. Needs to dry for 6 hours before covering with TritoFlex 2K. Any areas of metal with existing acrylic coating or other materials should not be primed. The primer is only for direct contact with metal and steel surfaces. Please see Manufacturer's data sheets for additional information and safety precautions.

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 and Accelerator instant-set products 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 20-year warranty.
 - iii. When a spot repair is required during application, re-spray defect area within 15 minutes of initial spray application so entire membrane cures monolithically.
- B. Horizontal and Vertical Application:
 - i. Spray-apply one continuous layer of TritoFlex 2K Rubber 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 mil (1.5 mm) dry, the average rate shall be 825 sq ft (80 m2) per drum. To achieve 80 mil (2 mm) dry, the average rate shall be 625 sq. ft. (60 m2) per drum. This application rate will vary based on number of seams, penetrations, etc.



TRITON INCORPORATED

250 33rd Street Drive SE | Cedar Rapids, IA 52403 | TEL 319-861-5233 FAX 319-396-3804 | TRITONWP.COM



COLD FLUID APPLIED MEMBRANE ROOFING SECTION 07500

iv. Refer to manufacturer's recommendations and details for proper membrane terminations.

C. Final Check and Top Coating

- i. After the TritoFlex 2K membrane is fully dry to the touch with no moisture coming out of the membrane when pressed on with a hand, apply TritoFlex 1K Brush-Grade to any visible voids or thin spots in TritoFlex 2K membrane prior to rinsing and applying top coatings. TritoFlex 1K Brush-Grade to be installed by brush, roller, or trowel at 97 wet mils to achieve 60 mils dry. After TritoFlex 1K Brush-Grade has fully dried and cured through, lightly rinse dried accelerator from all surfaces with clean water. 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, sacrificial top coat per Triton's guidelines to achieve a final minimum dry film thickness of 20 mils. If installing TritoTherm or TritoCryl 1K Top Coat, the first coat is to be back-rolled, when applying by sprayer, to assure full coverage to textured TritoFlex surface. For a 20-year warranty, the top coat must be applied to 30 mils dry.
- iii. Installation of top coating shall occur after the TritoFlex 2K membrane and TritoFlex 1K Brush-Grade flashings are fully dry, cured, 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.

3.6. Installation of Liquid Patch & Flashings

- 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 Rubber prior to top coating.
 - a. Brush apply a 97 wet mil course of TritoFlex 1K Brush-Grade to extend 3 inches 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. Typical cure time allowance is 24 hours with good weather conditions.

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.



TRITON INCORPORATED

250 33rd Street Drive SE | Cedar Rapids, IA 52403 | TEL 319-861-5233 FAX 319-396-3804 | TRITONWP.COM



COLD FLUID APPLIED MEMBRANE ROOFING SECTION 07500

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.

Triton, Inc. products are intended for use by qualified professional contractors, not consumers, as a component of a larger construction assembly as specified by a qualified design professional, general contractor or builder. They should be installed in accordance with those specifications and Triton, Inc. instructions. Triton, Inc. disclaims all, and assumes no, liability for on-site inspections, for its products applied improperly, or by unqualified persons or entities, or as part of an improperly designed or constructed building, for the nonperformance of adjacent building components or assemblies, or for other construction activities beyond Triton's control. Improper use of Triton, Inc. products or use as part of an improperly designed or constructed larger assembly or building may result in serious damage to Triton Inc. products, and to the structure of the building or its components. TRITON INC. DISCLAIMS ALL WARRANTIES EXPRESS OR IMPLIED EXCEPT FOR EXPLICIT LIMITED WRITTEN WARRANTIES ISSUED TO AND ACCEPTED BY BUILDING OWNERS IN ACCORDANCE WITH TRITON'S WARRANTY PROGRAMS WHICH ARE SUBJECT TO CHANGE FROM TIME TO TIME.

- END OF SECTION -



TRITON INCORPORATED

250 33rd Street Drive SE | Cedar Rapids, IA 52403 | TEL 319-861-5233 FAX 319-396-3804 | TRITONWP.COM