siplast®

Paraflex Liquid Membrane

Installer's Guide

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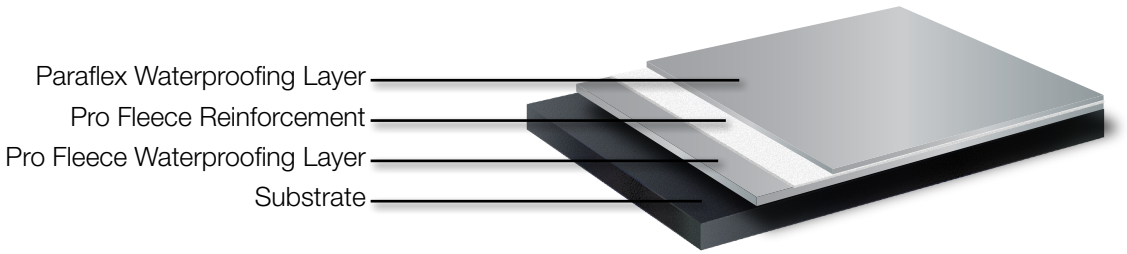
I. System Overview and Products

System Overview
The Paraflex Liquid Membrane System is a reinforced, liquid-applied, silane-terminated, polymer-based system (STP) designed to provide waterproofing protection in low slope and sloped roofing and waterproofing applications. The Paraflex Liquid Membrane system is used in conjunction with Paraflex 531 Liquid Flashing. The Paraflex Liquid Membrane System is a layered application consisting of waterproofing layers reinforced with polyester fleece fabric.

Paraflex Liquid Membrane System



Products
The following products are used in the Paraflex Liquid Membrane System:

Primers
- Pro Primer AC
- Pro Primer E

Flashing Membrane
- Paraflex 531 Liquid Flashing

SBS Ply Sheets
- Pro Base Series Sheets (See table below)

Reinforcement
- Pro Fleece

Surfacing Aggregates
- Siplast No. 11 Roofing Granules

Other
- PS-715 NS Elastomeric Sealant

Product	Description	Application Method
Pro Base LP	Low-profile SBS-modified base ply with Syntan acrylic coating on the top surface and sanded bottom surface.	Approved mopping asphalt or SFT Adhesive
Pro Base LP TG	Low-profile SBS-modified base ply with Syntan acrylic coating on the top surface and torch-grade asphalt on bottom surface.	Torch or heat weld
Pro Base LP SA	Low-profile SBS-modified base ply with Syntan acrylic coating on the top surface and self-adhesive blend/release film on the bottom surface.	Self-adhesive
Pro Base	SBS-modified base ply with Syntan™ acrylic coating on the top surface and sanded bottom surface.	Approved mopping asphalt or SFT Adhesive
Pro Base TG	SBS-modified base ply with Syntan acrylic coating on the top surface and torch-grade asphalt on the bottom surface.	Torch or heat weld
Pro Base TS	Semi-adhered SBS-modified base ply with Syntan acrylic coating on the top surface and stripes of torch-grade asphalt on the bottom surface.	Torch or heat weld
Pro Base SA	SBS-modified base ply with Syntan acrylic coating on the top surface and self-adhesive blend/release film on the bottom surface.	Self-adhesive
Pro Base TS SA	Semi-adhered SBS-modified base ply with Syntan acrylic coating on the top surface and stripes of self-adhesive blend/release film on the bottom surface.	Self-adhesive

II. Personal Protection

Safety and Protection
Refer to the applicable Safety Data Sheet (SDS) for each Paraflex or Pro product for specific PPE information. Paraflex and Pro products may be harmful if inhaled, swallowed, or absorbed through the skin and may cause skin and eye irritation,

Do not ingest Paraflex or Pro products, and avoid contact with eyes, skin, and clothing. Wear suitable gloves and eye/face protection. Wash thoroughly after handling the products. Keep the products out of reach of children.

See Paraflex and Pro product Safety Data Sheets (available at siplast.com) and product containers for detailed information.

III. Storage

Storage
Store Paraflex and Pro products indoors in closed containers in a well-ventilated, cool, dry area away from direct sunlight and heat. The shelf life of Paraflex Liquid Membrane is 6 months if stored properly at 40°F to 90°F (5°C to 32°C). The shelf life of Pro Primer AC is 18 months if stored properly at 40°F to 90°F (5°C to 32°C). Do not allow Pro Primer AC to freeze. The shelf life of Pro Primer E is 24 months. Proper storage is important to help ensure that product remains usable and to maintain product quality.

A "skin" of partially cured product may form on the surface of less than full pails of Paraflex Liquid Membrane. Peel away and dispose of the layer of partially cured Paraflex Liquid Membrane to expose fluid product prior to stirring.

Materials stored on the job site during application should be kept on a pallet in a shaded, well-ventilated area. In unshaded areas, cover materials with a white, reflective tarp in a manner that allows air circulation beneath the tarp.

IV. Installation Materials, Tools, and Equipment

Substrate Preparation
- Blower, vacuum, and broom
- Drum scarifier
- Shot blaster with dust collector/air pulse compressor
- Hand grinders with carbide disk or diamond cup wheel
- Pro Prep M

Mixing
- Plastic tarps or sheeting
- Variable speed drill with 1/2-inch chuck or double gauge mortar mixer
- Mixing agitator or stir sticks

Application
- Tape (masking, duct, or gaffers tape)
- Stub roller (base coat application)
- Application rollers (4" & 9")
- Heavy duty scissors
- Disposable butyl rubber or nitrile gloves
- Pro Tape or Eternabond Webseal

Miscellaneous
- Clean cotton rags
- Infrared thermometer
- Pro Prep CC
- Pro Prep M

V. Substrate Requirements, Preparation, and Repair

Roof Deck Requirements
General
Structural roof decks should be properly designed to provide sufficient strength to support anticipated dead and live loads and normal construction traffic without excessive deflection or movement. Provisions for structural expansion and contraction should be incorporated into the design. All openings, walls, or projections through the roof deck should be completed before application of the roof membrane is begun. The deck should be constructed according to the deck manufacturer's specifications and best-established practices. Any Siplast acceptance of a substrate as satisfactory to receive roofing or waterproofing materials is based strictly on the condition of the surface to be roofed/waterproofed. The design of the roof deck/substrate is the responsibility of the architect, engineer, or building owner.

Roofing over Lightweight Insulating Concrete Surfaces
Siplast requires that one ply of Parabase Plus, Parabase, Parabase FS, or Parabase Plus P be laid dry and fastened over all lightweight insulating concrete substrates prior to application of the applicable Pro Base layer and Paraflex Liquid Membrane System. All fastening should be done with Zono-tite fasteners for ZIC and Insulcel Lightweight Insulating Concrete substrates having a minimum 2- inch thickness, and with NVS Fasteners for NVS substrates having a minimum 1-inch thickness. The applicable Pro Base ply sheet is then fully adhered over the nailed base sheet.

Pro Base 20 TS and Pro Base TS SA Applications over Poured Reinforced Concrete
The concrete deck should be fully cured, dry, frost-free, smooth, and free from release or curing agents. When a Pro Base series sheet is used, the deck should be primed with PA-1125 or PA-917 LS at the rate of 1 gallon per 100 - 400 sf and allowed to dry thoroughly. Pro Base TS is torch applied or Pro Base 20 TS SA is adhered directly to the prepared/primed concrete substrate prior to application of the Paraflex Liquid Membrane System.

Paraflex Liquid Membrane System Applied Directly to Poured Reinforced Concrete
The concrete substrate must have a minimum compressive strength of 3500 psi (25 N/mm^2), provide for bottom-side venting, and have a maximum moisture content as indicated in the section of this guide titled Moisture Content Guidelines for a direct application of Paraflex.

Polymer-modified concrete products are acceptable provided that they have been tested/approved in advance by Siplast. Contact Siplast Technical Support for a list of products that have been tested and approved.

Concrete substrates that do **not** meet Siplast standard guidelines to receive a Siplast primer are listed below. Contact Siplast Technical Support for qualification options.

- Split-slabs with a between-slab vapor impermeable membrane.
- Slab-on-grade construction.
- Concrete placed over a metal pan (including vented metal).
- Concrete utilizing porous aggregate (LWSC) or aggregate containing hydrocarbons (trap rock).
- Concrete with a moisture content exceeding published maximums.
- Concrete that has been treated with curing/waterproofing agents.
- Concrete contaminated/affected by hydrocarbons, organic compounds such as bitumen (asphalt) or coal tar, alkaline silica reaction (ASR), or unreacted silicates.
- Concrete "T"-type constructions without an overlay of reinforced concrete topping due to concerns about differential movement between sections.
- Pre-cast concrete panels.

New Concrete Pours
The mix design for new concrete pours to receive a direct application of Paraflex Liquid Membrane should be submitted to Siplast for review. New concrete must be allowed to hydrate for a minimum of 28 days in accordance with American Concrete Institute (ACI) Bulletin 308 – Guide to Curing Concrete, in addition to being below the maximum moisture content. Concrete should not utilize curing agents or penetrating release agents, or be treated with waterproofing materials as these materials can affect primer and/or Paraflex penetration and/or adhesion.

New concrete pours may require an extended exposure time before an acceptable moisture content is reached. To prevent delays in system installation, the use of Pro Primer E or an approved epoxy-based moisture mitigation system should be considered when the moisture content is expected to be above the published maximum at the time of roofing/waterproofing application.

Existing Concrete Substrates
Existing concrete to be considered as a substrate for a direct application of Paraflex Liquid Membrane should be cored (3 inches in diameter with a depth of 2 inches) and evaluated by an accredited lab. The number of cores should be sufficient to provide a representation of all areas to be roofed/waterproofed. Testing procedures should include ion chromatography, infrared spectroscopy, x- ray diffraction, and thin-section petrographic analysis. The depth of carbonation should also be calculated. The presence of contaminants or carbonated concrete may affect adhesion of the roofing/waterproofing system. Contaminants include hydrocarbons or other organic compounds, concrete affected by alkaline silica reaction (ASR), alkaline aggregate reaction (AAR) or unreacted silicates. The lab should provide an executive summary, including recommendations for remedial work required to bring the concrete substrate into a condition suitable to receive the roofing/waterproofing system. Reviewing the performance of an existing coating, roofing or waterproofing system is also recommended when evaluating a concrete substrate. If blistering or loss of adhesion of the existing coating/waterproofing is evident, the source of the problem should be investigated and addressed with a plan of action before the existing system is removed and a new system applied.

Moisture Content Guidelines For a Direct Application of Paraflex Liquid Membrane to Concrete Substrates
High moisture levels in both new and existing concrete substrates can adversely affect the adhesion of a

roofing/waterproofing system. The presence of moisture can affect initial adhesion and create pin-holing in primers. Additionally, the presence of moisture can transport soluble salts into the condensation zone beneath the membrane, resulting in osmosis, which can disbond the system from the concrete surface after the system has been in service for a period of time.

Siplast recommends testing for moisture content in the form of measuring relative humidity within the concrete slab. Relative humidity testing requires specific ambient conditions for the testing period. This may preclude performing moisture testing under hot, cold, or wet weather conditions.

ASTM F2170 "Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes" requires that holes be drilled through the concrete slab. Plastic sleeves are then inserted into the holes. Relative humidity levels within the sleeved cavity are then measured over an equilibrium period. The depth of penetration allows for an understanding of the percent of moisture throughout the core of the substrate, rather than the near-surface readings calculated using other test methods.

Relative humidity testing must be performed under specific ambient conditions to yield proper results.

For a direct application of Paraflex Liquid Membrane, the following are Siplast guidelines for maximum relative humidity (RH) based upon testing in accordance with the above-listed protocol. The use of Pro Primer E or an approved epoxy-based moisture mitigation system should be considered when the moisture content is expected to be above the published maximum at the time of roofing/waterproofing application.

ASTM Method	Maximum Limit
ASTM F2170	75% Relative Humidity

Siplast does not perform moisture content evaluations. The above tests are offered by most independent labs that provide services to design firms that utilize concrete in construction. The choice of test method and final acceptance of the concrete substrate is the responsibility of the design authority and/or roofing/waterproofing contractor.

Preparation of Concrete Substrates to Receive a Direct Application of Paraflex Liquid Membrane
Concrete preparation methods should be chosen based upon how much of the surface requires removal and the desired concrete surface profile (CSP). For existing concrete substrates, core testing will provide the information needed to determine the amount (depth) of concrete to be removed from the surface. Concrete affected by carbonation and/or contamination must be removed in its entirety. Concrete surfaces should be prepared to a profile designated by the International Concrete Repair Institute (ICRI) as CSP-3.

Preparation methods for concrete substrates include shotblasting or scarification followed by shotblasting. Multiple passes with scarification and shotblasting equipment may be required to remove materials from the concrete surface and achieve the desired concrete preparation depth and surface profile. Grinding can be considered for preparation of concrete flashing substrates, but it is important to note that generation of the desired surface profile can prove difficult using this method.

Concrete preparation should be immediately followed by application of the roofing/waterproofing system. Exposure of the prepared concrete surface to the elements may result in contamination, which can adversely affect system adhesion.

Concrete Crack and Joint Treatment
Before application of the Paraflex Liquid Membrane System, cracks and joints should be prepared and treated in accordance with Siplast details. Siplast recommendations for crack and joint preparation/treatment are intended to provide methods on a best effort basis to construct a watertight roofing/waterproofing system. Differential movement at cracks and between divided areas can potentially compromise long-term system performance. Dynamic (moving) cracks should be investigated and the causes addressed before system application. Mechanical expansion joint systems should be considered for waterproofing structural expansion joints.

Wood Decks
Wood decks should be constructed of dry, well-seasoned lumber of a minimum 1-inch thickness, tongue and groove, and ship-lap or splined together at side joints, and matched at end joints. Boards should have a bearing on rafters at each end and be securely nailed. Cracks wider than 1/4-inch and knotholes larger than one inch in diameter should be covered with sheet metal.

Siplast requires that one ply of an approved base sheet be laid dry and fastened prior to application of the Pro Base ply sheet and Paraflex Liquid Membrane System. All nailing should be done with annular-threaded or spiral-threaded type nails having attached caps of minimum 1-inch diameter. Siplast recommends that a fastener withdrawal test be performed by the contractor on site to verify the appropriateness of the fastener to meet applicable roof design criteria. The applicable Pro Base ply sheet is then applied over the approved mechanically attached base sheet prior to Paraflex Liquid Membrane System application.

Plywood
Plywood decks should be designed and fabricated in accordance with the recommendations of the APA – The Engineered Wood Association. Each panel should be identified with the appropriate APA trademark, and

must meet the requirements of the latest edition of the U.S. Product Standard PS-1 for Construction and Industrial Plywood.

Plywood panels must meet or exceed a span rating of 32/16 and be a minimum of 15/32-inch thick. Panels should be fabricated to meet or exceed the requirements of Exposure 1 Durability Classification.

Plywood panels should be applied at right angles to rafters, continuous over two or more spans with either solid backing or panel clips stiffening all joints between rafters. Rafter spacing should be a maximum of 24 inches.

Siplast requires that one ply of an approved base sheet be laid dry and fastened prior to application of the Pro Base ply sheet and Paraflex Liquid Membrane System. All nailing should be done with annular-threaded or spiral-threaded type nails having attached caps of minimum 1-inch diameter. Siplast recommends that a fastener pullout test be performed by the contractor on site to verify the appropriateness of the fastener to meet applicable roof design criteria. The applicable Pro Base ply sheet is then applied over the approved mechanically attached base sheet prior to Paraflex Liquid Membrane System application.

Pre-cast Hollow Core Slabs or Pre-cast Concrete
Pre-cast hollow core slabs or pre-cast concrete should be dry, fully cured, clean, and free of imperfections. Slabs should be securely fastened to the sub frame to prevent movement or sagging, and should be set level with all joints aligned and closely butted to provide a smooth, even surface. Grout all joints between uneven slabs to a slope not to exceed 1/8-inch per foot on the low member. For asphalt applications, prime the deck surface with PA-1125 Primer or PA-917 LS Primer at the rate of 1 gallon per 100 square feet; keep the primer back 4 inches from joints. Cover all of the joints with an 8-inch wide strip of Parabase Plus or Parabase, adhered on one side only with SFT Cement. Pre-cast hollow core slabs or pre-cast concrete decks must be covered by a lightweight insulating concrete fill or an acceptable rigid roof insulation prior to membrane application.

Prestressed T or Double T Sections
Prestressed T or Double T sections shall be dry, fully cured, clean, and free from excessive camber or "set." Prestressed sections should be securely anchored against uplift and lateral movement. Welding plates should be positioned next to the edge and on the top surface of the member for mid-span securement. Camber differential resulting in offset edges in excess of 1/4-inch should be corrected using an approved repair mortar prior to the application of rigid insulation and roofing/waterproofing materials. Grout all joints between uneven units to a slope not to exceed 1/8-inch per foot on the low member. For asphalt applications, prime the deck surface with PA-1125 Primer or PA-917 LS Primer at the rate of 1 gallon per 100 square feet; keep the primer back 4 inches from the joints. Cover all of the joints with an 8-inch wide strip of Parabase Plus or Parabase, adhered on one side only with SFT Cement. Prestressed T or Double T decks must be covered by a lightweight insulating concrete fill or an acceptable rigid roof insulation.

Steel
Steel roof decks should be constructed in accordance with the FM Approvals structural requirements listed in the current Factory Mutual Loss Prevention Data Sheet 1-29. Steel roof decks should be 22-gauge minimum, and factory galvanized or factory coated with aluminum zinc alloy for corrosion protection. When specifying galvanized protection, the designer should specify a coating that complies with ASTM A525, Class G-60 or Class G-90. When specifying aluminum zinc alloy protection, the designer should specify a deck complying with ASTM A792. Deck manufacturers should be contacted when specifying decks where highly corrosive atmospheric conditions exist. Steel decks should be clean and dry, and the ribs of the deck should be free of snow, ice, and water. The top flanges of installed steel decks should be flat. Mechanical fastening should be provided at all of the side laps; spacing between the side lap fasteners and bar joists or beams should not exceed 3 feet. Siplast recommends that insulation fastener pullout tests be performed by the contractor on site to verify the appropriateness of the fastener to meet all applicable roof design criteria. Steel decks must be covered by an acceptable FM Approvals Class I rigid roof insulation or a lightweight insulating concrete pour.

New or Unusual Roof Decks
Approval must be secured from the Siplast Technical Department prior to the installation of roofing over new or unusual decks.

Rigid Roof Insulation
Rigid roof insulation should be kept dry at all times. Edges of the insulation panels should be butted without forcing, and cut to fit neatly against adjoining surfaces. The insulation layer should present a smooth surface to accept the roof membrane. No more insulation should be installed than can be covered in the same day. Insulation panels should be installed strictly according to the insulation manufacturer's recommendations and FM Approvals requirements (if applicable). Improperly attached insulation can result in roof blow-offs. Siplast will not be responsible for (and the standard Siplast guarantee does not include) roof blow-offs due to loss of adhesion of the insulation layer or performance failure of the insulation itself. Polyisocyanurates and other materials used as a roofing substrate must be specifically approved by Siplast prior to use, and a coverboard is required over all polyisocyanurate panels prior to installation of the applicable Pro Base ply sheet, and Paraflex Liquid Membrane System. When insulation panels are

applied with hot asphalt over sloped roof decks, insulation stops may be required. Consult with the insulation and insulation adhesive manufacturer regarding requirements for, and the construction and spacing of, insulation stops. Paratherm and other Siplast-supplied rigid insulation products, when incorporated into a full Siplast Roof System construction and attached with Parafast Fasteners and / or approved insulation adhesives and coverboards are eligible for coverage under a Siplast Membrane/System Guarantee.

Insulation Adhesives
Insulation adhesives should be properly stored and applied according to the specifications and job-specific recommendations of the insulation adhesive manufacturer. The insulation adhesive manufacturer should be contacted regarding any required guarantee that covers the performance of the insulation adhesive itself. Siplast will not be responsible for (and the standard Siplast guarantee does not cover) roof blow-offs due to failure of insulation adhesives. Para-Stik and Parafast Adhesives, when incorporated into a full Siplast Roof System construction, are eligible for coverage under a Siplast Membrane/System Guarantee.

Re-cover Construction
Because Siplast materials are light in weight, they are especially suitable and widely used for re-cover applications. Each re-cover application is unique and should be considered individually. Contact Siplast Technical Support for information on re-cover options.

General Substrate Preparation
All substrates must be free from gross irregularities, loose material, unsound material, foreign material (such as dirt, ice, snow, water, grease, oil, release agents, lacquers, paint coverings), or any other condition that would be detrimental to the adhesion of the roofing/waterproofing system to the substrate. Some surfaces may require shotblasting, scarification followed by shotblasting, or grinding to achieve a suitable substrate.

Substrate preparation guidelines appear in the chart below. However, requirements can vary for a particular situation. In applications where adhesion to a substrate not listed in the chart is required, please contact the Siplast Technical Department at 1-800-922-8800 for information on evaluating/testing such substrates for adhesion by performing a field bond test.

Substrate	Preparation Guidelines	Pro Primer AC Recommended as a Bleed Blocker	Rust-Oleum V2100 Primer Required
Aluminum, Copper, Stainless Steel	1, 2, 3, 4, 13, 14		•
Lead, Steel	1, 2, 3, 4		
Galvanized Steel	1, 2, 3, 4		
Paint/Coating	7		
Mopping Asphalt, Smooth SBS, Rubberized Asphalt	1, 10, 11	•	
Concrete (Normal-Weight)	1, 5, 15		
Polymer-modified Concrete	1, 8		
Clay/Ceramic Tile, Brick	1, 6		
Wood/BC Plywood	1, 12	•	
DensDeck Prime, Approved Cementitious Boards	1, 9		
Irex/Paradiene 20 Base Plies	1, 12	•	
Paradiene 20 P/Pro Base (Exposed bitumen at laps)	1, 11	•	
Siplast Granule-Surfaced Finish/Flashing Sheets	1, 12	•	

Key to Preparation Guidelines
1. Substrate must be clean and dry, and free from gross irregularities, loose material, unsound material, or any foreign material (such as dirt, ice, snow, water, grease, bitumen/coal tar, oil, release agents, paint coverings), or any other condition that would be detrimental to the adhesion of the catalyzed primer and/or resin to the substrate.
2. Remove rust or other oxidation layers.
3. Abrade surface to bright finish prior to cleaning with Pro Prep M. Do not use a wire-wheel for substrate preparation.
4. Wipe down thoroughly with Pro Prep M prior to application of resins. Allow Pro Prep M a minimum of 20 minutes drying time after application before continuing. The next application process should be completed within 60 minutes of cleaning with Pro Prep.
5. See substrate preparation and repair guidelines on pages 3 and 4.
6. Grind surface to remove glaze. Tiles must be fully bonded to a sound foundation. Ensure that no moisture is present beneath tiles.
7. All paint coverings and existing coatings must be

removed.

8. Refer to polymer concrete or repair mortar manufacturer's requirements for suitability for a specific application. Prepare by shotblasting or grinding to a minimum CSP-2. Contact Siplast for a list of approved concrete products.
9. Tape all joints between panels and panel edges at all walls, perimeters, and penetrations using gaffer's tape. Application of Eternabond® Webseal® after priming with Pro Primer AC is an acceptable alternative.
10. Mopping asphalt residue should be removed from the primary substrate that will receive the Paraflex and accessory materials.
11. Priming is recommended over raw asphalt if aesthetics is a concern.
12. Prime asphaltic wood and plywood substrates using Pro Primer AC prior to application of Paraflex products to maintain a consistent aesthetic appearance and to avoid bleed-through.
13. A peel test is recommended to ensure that adhesion is acceptable.
14. Qualify/prepare substrate and prime with Rust-Oleum™ High Performance V2100 System Enamel Spray Primer (Rust-Oleum™ Part#V2182838 Flat Gray) in accordance with Rust-Oleum™ specifications.
15. Concrete having an internal relative humidity in excess of 75% will require the use of Pro Primer E.

Substrate Preparation and Repair

Masonry Walls
Masonry walls should be prepared in the same manner as concrete substrates (see page 4). Do not apply Paraflex materials over soft or scaling brick or masonry, faulty mortar joints, or walls with broken, damaged or leaking coping. Laitance and contaminants must be completely removed by grinding.

Metal & Rigid Plastic
Lightly abrade and clean metal and rigid plastic substrates. Extend the preparation area a minimum of 1⁄4-inch (7 mm) beyond the termination of the Paraflex materials.

Cracks, Joints, and Small Indentations
Before application of the Paraflex 531 Liquid Flashing System and Paraflex Liquid Membrane System (and after priming, if required), all joints, cracks, voids, fractures, depressions, and small indentations in the substrate must be filled. Siplast recommends the use of PS-715 NS for such substrate repairs. The use of additional reinforcement in the form of strips of Paraflex Liquid Membrane/Pro Fleece/ Paraflex Liquid Membrane is recommended over joints or cracks subject to movement. The Paraflex 531 Liquid Flashing and Paraflex Liquid Membrane may then be applied immediately after the sealant and/or reinforcing strip(s) cure(s).

Refer to Siplast Standard details for crack and joint preparation.(Available at siplast.com)

Pro Base Ply Sheets
Pro Base products are SBS ply sheets that provide a layer of elastomeric waterproofing, simplify substrate preparation and allow for short-term phased application. The Paraflex Liquid Membrane is applied over the Pro Base ply sheet. The table in Section I lists each sheet and its corresponding description and application method.

VI. Pro Primer AC

General Application Guidelines
Prime wood, plywood, and asphaltic substrates with Pro Primer AC prior to application of Paraflex 531 Liquid Flashing or Paraflex Liquid Membrane to maintain a consistent aesthetic appearance.

If contents have separated, thoroughly mix the Pro Primer AC before each use to redistribute liquids/solids.

Pro Primer AC can be applied when the ambient and substrate temperature is within the range noted below. Discontinue primer application when the ambient or substrate temperature is outside of the specified range or if conditions will not allow for complete cure before rain, dew, or freezing temperatures occur. Do not apply Pro Primer AC if ambient or substrate temperatures are below 50°F (10°C), if there is a possibility that ambient temperatures may fall to 32ºF (0ºC) within 2 hours of application, if the substrate is within 5ºF of the dew point, or if the relative humidity is above 90%. Cool temperatures and high humidity will slow the drying process.

- Application Temperature Range (ambient and substrate): 50°F to 105°F (10°C to 40°C)
- Dry Time to Touch: 20-30 minutes @ 75ºF (24ºC)/50% RH (ASTM D1640)
- Cure Time for Application of Subsequent Coats of Primer or Paraflex: Typically 1 hour (depending on ambient conditions)

See Section XII (Application Data) for information on application rates over specific substrates.

It is important to note that application/coverage rates may vary depending upon the specific substrate and the texture/porosity of the substrate.

VII. Pro Primer E Resin

General Application Guidelines
Priming with Pro Primer E is recommended prior to application of Paraflex products over approved concrete substrates where the moisture content is higher than that allowable for a direct application of Paraflex materials.

Mixing Pro Primer E
Pro Primer E is supplied in kit form that requires mixing in full batch quantities. Pro Primer E should be a minimum of 60ºF (15ºC) at the time of mixing. Pierce a hole through the rubber membrane in the lid and continue through the bottom of the lid well. Ensure that Part B in the upper reservoir fully drains into the lower reservoir containing Part A – this may require several piercings. Stir mixture for 5 minutes using a Jiffy Mixer at low speed (approximately 300 rpm) to generate a homogeneous, streak-free consistency. Keep the mixer blades fully submerged during stirring to avoid trapping air. Pour the mixed material into a clean, secondary container and mix again for an additional 30 seconds. Ensure that the bottom and sides of the container are fully scraped to disperse any materials that may have settled.

Application of Pro Primer E
See the information below for ambient and substrate temperature limitations when applying Pro Primer E.

Minimum ambient and substrate temperature: 45°F (8°C)
Maximum ambient and substrate temperature: 95°F (35°C)

In warm temperatures, the substrate should be shaded for a sufficient period of time, as necessary, to maintain substrate temperatures below 95ºF (35ºC). Pro Primer E should always be applied when ambient and substrate temperatures are falling rather than rising to minimize the potential for the formation of pinholes in the applied primer. Ensure that the primer system will be protected from direct sunlight, wind, precipitation/condensation, and bond-inhibiting surface contaminants (dust, dirt and tear-off debris) during the curing process.

Prior to application of Pro Primer E, wet the qualified/prepared concrete substrate and ensure that it is in a saturated-surface-dry (SSD) condition. Saturated-surface-dry is a condition in which the substrate is wetted but no standing/ ponding water is present. For flashing applications, Pro Primer E is applied with a brush or roller. Use a scrub brush to scrub the primer into the concrete surface. Follow the scrubbing process by using a non-shed roller to ensure that the Pro Primer E is distributed evenly and that there is a continuous layer of primer. Allow the primer to cure for 12 hours. Pro Primer E must be overlaid with Paraflex Liquid Membrane within 48 hours of primer application without exception. Thoroughly clean the Pro Primer E surface with warm water or Pro Prep M prior to application of Paraflex Liquid Membrane. The water and/or Pro Prep M should be allowed to fully dry before application of flashing materials

Pot Life of Pro Primer E
The pot life Pro Primer E is approximately 30 minutes when the liquid is at 68ºF (20ºC).

Typical Application/Coverage Rates for Pro Primer E

Pro Primer E Coverage/Consumption Rate —
0.046 kg/sf - 4.6 kg/sq - 0.5 kg/m^2

NOTE: Application rates vary with substrate type, surface profile, and porosity. In all cases, a continuous film of cured primer is required prior to application of subsequent layers of Parapro and Pro resins.

Set/Cure Time for Pro Primer E
Typical cure time prior to application of Parapro or Pro Resins: 12 hours

Maximum exposure time prior to application of Paraflex Liquid Membrane: 48 hours

VIII. Pro Fleece

Pro Fleece
Pro Fleece is the reinforcement layer used in Paraflex Liquid Membrane and Paraflex 531 Liquid Flashing applications.

Pro Fleece Sizes
Pro Fleece is available in three widths: 12-inch (315 mm), 25-inch (630 mm), and 41-inch (1050 mm).

IX. Paraflex 531 Liquid Flashing Membrane

Paraflex 531 Liquid Flashing Membrane General Application Guidelines
Paraflex 531 Liquid Flashing Membrane is combined with Pro Fleece fabric to form a monolithic, reinforced flashing membrane used for flashing details. See the Paraflex 531 Liquid Flashing Installers Guide for detailed information.

If contents have separated, thoroughly mix the entire drum of Paraflex 531 Liquid Flashing Membrane before each use to redistribute liquids/solids.

Paraflex 531 Liquid Flashing Membrane may be applied under the following conditions.

- Minimum Temperature of product at time of application: 55°F (13°C)
- Minimum Application Temperature (ambient and substrate): 40°F (5°C)
- Do not apply Paraflex 531 Liquid Flashing Membrane if the ambient or substrate temperature is within 5°F of the dew point.

Apply an even, generous base coat of Paraflex 531 Liquid Flashing Membrane to the substrate with a roller or brush. Pro Fleece reinforcement is then worked into the wet base coat using a roller or brush to fully embed the fleece and remove trapped air. Overlap Pro Fleece a minimum of two inches (50 mm). An additional coat of Paraflex 531 Liquid Flashing Membrane must be placed between all layers of overlapping fleece. Extend Paraflex 531 Liquid Flashing Membrane a maximum of 1⁄4-inch beyond the Pro Fleece reinforcement. Apply an even, generous top coat of Paraflex 531 Liquid Flashing Membrane immediately following embedment of the fleece to ensure full saturation of the fleece reinforcement. See Section XII (Paraflex application data) for information on application/coverage rates.

If work is interrupted for more than 12 hours, or the surface of the previously applied and cured Paraflex 531 Liquid Flashing Membrane becomes dirty or contaminated from exposure to the elements, thoroughly clean the transition area with Pro Prep M. Pro Prep M should be allowed a minimum of 20 minutes evaporation time after application before continuing work.

Coverage and Overlap Requirements

- Maintain a minimum 2-inch (50 mm) fleece overlap at all laps.
- The Paraflex 531 Liquid Flashing Membrane should terminate a minimum of 6 inches (150 mm) above the horizontal when applied in a vertical orientation.
- The Paraflex 531 Liquid Flashing Membrane should not be used in conjunction with Siplast membranes applied in solvent-based adhesives. Siplast SFT Adhesive should be used in lieu of solvent-based products in such cases and the applicable SFT Adhesive product must be allowed to fully cure before application of Siplast Paraflex 531 Liquid Flashing Membrane.

General Application Information

- Pot life: 1 hour
  Dry Time to Touch: 30 minutes
- Rainproof after: 90 minutes
- Cure Time Prior to Application of Subsequent Coats of Paraflex 531 Liquid Flashing Membrane Resin: 6 hours
- Trafficable after: 6 hours
- Full cure after: 72 hours

All of the above times are approximate and are based upon application of product at 75ºF and 50% RH.

X. Paraflex Liquid Membrane

Product Description
Paraflex Liquid Membrane is combined with Pro Fleece to form a monolithic, reinforced roofing/waterproofing membrane.

If contents have separated, thoroughly mix the entire pail of Paraflex Liquid Membrane before each use to redistribute liquids/solids.

Paraflex Liquid Membrane may be applied under the conditions follows:
- Minimum Temperature of Product at Time of Application: 55°F (13°C)
- Minimum Application Temperature (ambient and substrate): 40°F (5°C)
- **NOTE:** Do not apply Paraflex Liquid Membrane if the ambient or substrate temperature is within 5°F of the dew point.

Apply an even, generous base coat of Paraflex Liquid Membrane to the substrate using an approved stub roller. Pro Fleece reinforcement is then worked into the wet base coat using a roller or brush to fully embed the fleece and remove trapped air. Overlap Pro Fleece a minimum of two inches (50 mm). An additional coat of Paraflex Liquid Membrane must be placed between all layers of overlapping fleece. Apply an even, generous top coat of Paraflex Liquid Membrane using an approved roller immediately following embedment of the fleece to ensure full saturation of the fleece reinforcement. If work is interrupted for more than 12 hours, or the surface of the previously applied and cured Paraflex Liquid Membrane becomes dirty or contaminated from exposure to the elements, thoroughly clean the transition area with Pro Prep M. Pro Prep M should be allowed a minimum of 20 minutes evaporation time after application before continuing work. Following the drying time, complete the next application process within 1 hour.

Coverage and Overlap Requirements
- Maintain a minimum 2-inch (50 mm) fleece overlap at all laps.
- The Paraflex Liquid Membrane System should not be used in conjunction with Siplast SBS sheets applied in solvent-based adhesives. Siplast SFT Adhesive should be used in lieu of solvent-based products in such cases and the applicable SFT Adhesive product must be allowed to fully cure before application of the Siplast Paraflex Liquid Membrane.

General Application Information
- Pot Life: 1 hour
- Dry Time to Touch: 30 minutes
- Rainproof After: 90 minutes
- Cure Time Prior to Application of Subsequent Coats of Paraflex Liquid Membrane: 6 hours
- Trafficable after: 6 hours
- Full Cure After: 72 hours

All of the above times are approximate and are based upon application of product at 75ºF and 50% RH.

Consumption/Coverage Rates and Summary of Application Information

See Tables in Section XII (Paraflex Application Data)

See Siplast specifications and details for specific applications. Consumption/coverage rates do not include waste or overage factors, including materials required to saturate roller covers or brushes.

Night Seals
Night seals are necessary to ensure that water does not migrate beneath the new membrane during breaks in application. At the end of the day's work, or when precipitation is imminent, a night seal must be installed at all open edges. Such tie-ins can be built using Paraflex (or other materials comparable with the existing roof) constructed to withstand protracted periods of service. Refer to the substrate preparation table or contact the Siplast Technical Department for information on compatibility with special materials not shown. Night seals must be completely removed prior to the resumption of work.

XI. Siplast No. 11 Granule Surfacing

Optional Surfacing
A walkway can be constructed using a supplemental embedment layer of Paraflex Liquid Membrane, followed by broadcast of Siplast No. 11 Roofing Granules to refusal before the liquid sets (cures). Following cure, loose granules are then swept/removed, exposing the trafficable surface.

Embedment Layer
(for embedment of aggregate to rejection):
Minimum Consumption: 0.019 gal/sf - 1.9 gal/square

Aggregate Surfacing Application Rate
No. 11 Roofing Granules – 1 lb per square foot - 100 lb/square

XII. Paraflex Application Data

Minimum Consumption/Coverage Rates*				
Layer	gal/sf^2	gal/sq	liter/m^2	sf/unit
Pro Primer AC over smooth asphaltic substrates	0.006	0.6	0.24	714 sf (5-gal pail)
Pro Primer AC over wood/plywood	0.004	0.4	0.17	1250 sf (5-gal pail)
Paraflex 531 Liquid Flashing over smooth surfaces	0.056	5.6	2.31	35 sf (2-gal pail)
Paraflex 531 Liquid Flashing base layer	0.037	3.7	1.52	
Paraflex 531 Liquid Flashing top layer	0.019	1.9	0.79	
Paraflex Liquid Membrane over smooth surfaces	0.056	5.6	2.31	70 sf (4-gal pail)
Paraflex Liquid Membrane base layer	0.037	3.7	1.52	
Paraflex Liquid Membrane top layer	0.019	1.9	0.79	
Layer	gal/sf^2	kg/sq	liter/m^2	sf/unit
Pro Primer E (Concrete with 75% to 100% RH)	0.046	4.6	0.456	215 sf (10-kg unit)
Pro Primer E (Concrete with up to 75% RH)	0.032	3.2	0.317	310 sf (10-kg unit)

*The application/consumption rates above do not include waste, overage due to uneven/rough substrates, product needed to treat cracks/joints/overlaps and material required to saturate roller covers.

Shelf Life* & Storage Temperatures		
Product	Shelf Life	Storage Temperature Range
Pro Primer AC	18 Months	40°F to 90°F (5°C to 32°C)
Paraflex Liquid Flashing Membrane	6 Months	40°F to 90°F (5°C to 32°C)
Pro Primer E	24 Months	40°F to 90°F (5°C to 32°C)

*Shelf life if properly stored.

Product and Ambient/Substrate Temperatures		
Product	Product Temperature at the time of application	Ambient/substrate Temperature range at the time of application
Pro Primer AC	50°F to 105°F (10°C to 40°C)	50°F to 105°F (10°C to 40°C)
Paraflex Liquid Flashing Membrane	55°F (minimum) (13°C)	40°F (minimum) (5°C)
Pro Primer E	60°F (minimum) (15°C)	45°F to 95°F (8°C to 35°C)

Paraflex Weight	
Product	lb/gal
Paraflex Liquid Membrane and Paraflex 531 Liquid Flashing	12.5

Paraflex Liquid Membrane Coverage Data* Application over Smooth Substrates					
Paraflex Layer	gal/sf	lb/sf	gal/sq	lb/sq	sf cvg/4-gal pail
Total	0.056	0.702	5.60	70.17	70
Base	0.037	0.464	3.70	46.36	
Top	0.019	0.238	1.90	23.81	

*See Siplast specifications and details for specific applications. Consumption/coverage rates do not include waste or overage factors, including materials required to saturate roller covers or brushes.

XIII. Paraflex Liquid Membrane Applied Over Pro Base Series Products

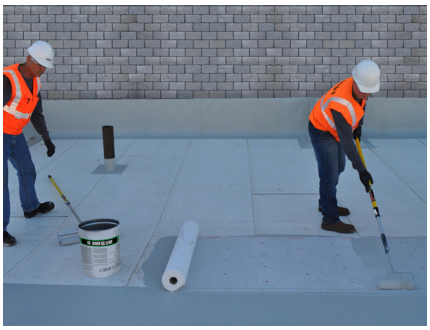
NOTE: Flashing membrane application is typically accomplished prior to application of the Paraflex field membrane. See the Paraflex 531 Liquid Flashing Membrane Installer's Guide for information regarding detailed application of flashing materials.

1. Using Pro Prep M, wipe/clean existing Paraflex surfaces to receive an overlap of the Paraflex materials. Allow Pro Prep M a minimum 20 minutes drying time after application before continuing.

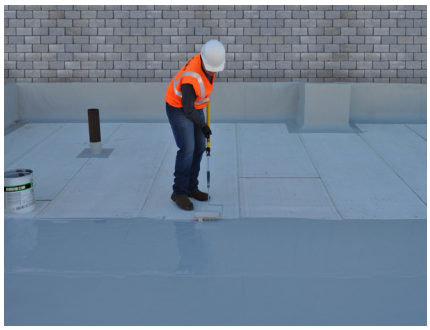
2. Apply a base coat of Paraflex Liquid Membrane using an approved roller or stub roller. Refer to the chart on page 11 for application rates.

3. Evenly spread the Paraflex Liquid Membrane, avoiding puddles or dry/thin areas of application.

4. Embed a layer of Pro Fleece into the base layer of wet Paraflex Liquid Membrane.



5. Use a roller to fully embed the fleece into the liquid membrane and remove trapped air. Lap fleece layers a minimum of 2 inches, and apply an additional coat of Paraflex Liquid Membrane between layers of overlapping fleece.



6. Apply a top coat of Paraflex Liquid Membrane using an approved roller immediately following embedment of the fleece to ensure full saturation. Refer to the chart on page 11 for application rates.

Siplast
1000 Rochelle Blvd.
Irving, Texas 75062
469-995-2200
Facsimile: 469-995-2205

In Canada:
201 Bewicke Ave., Suite 208
Vancouver, BC,
Canada V7M 3M7
604-929-7687

Customer Service in
North America:
Toll Free 1-800-922-8800

www.siplast.com

For information on Siplast Roofing and Waterproofing Systems, scan our QR Code.

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