

SeamFree Liquid Membrane System

The SeamFree Liquid Membrane System consists of an asphalt/urethane base, activator and reinforced polyester scrim. The system provides an elastomeric, monolithic waterproofing ideal for plaza decks, garden roofs or as a stand-alone roof membrane. SeamFree is ideal for small irregular shaped roofs with many penetrations and is compatible with the PermaFlash Bituminous Flashing System. In addition to paving stones and garden roofs, SeamFree can also be surfaced with color granules, a cap sheet or a white roof coating delivering a cool roof.

This installation guide describes standard procedures for installing a Johns Manville (JM) SeamFree Liquid Membrane System and has been prepared for:

The Roofing Mechanic

JM recognizes that the success and long-term performance of our roofing systems depend upon the personal skill, experience and knowledge of the roofing mechanic.

The SeamFree Liquid Membrane System offers important advantages for roofing crews. The roofing system can be installed year-round with proper roof deck preparation and some adjustments for weather conditions.

How to Use This Guide

This guide is divided into five sections:

1. Equipment
2. Roof Preparation
3. Flashing Installation
4. Liquid Membrane Mixing Instructions
5. Liquid Membrane Installation

This guide is designed for your convenience. These step-by-step instructions should answer your installation questions and help you maintain top-quality craftsmanship when applying a SeamFree Liquid Membrane System.

SECTION 1 – EQUIPMENT

The following equipment may be needed to install the SeamFree Liquid Membrane System:

| | |
|-------------------------|-----------------------------|
| Hammer drill | Electric drill |
| Scissors | Wire brush |
| Snips | Shovel |
| Rivet gun | Chalk line |
| Gravel pusher | Pliers |
| Hammer | Tongs |
| Gravel-moving equipment | Serrated squeegee |
| Brooms (soft & stiff) | Drill bits (carbide, steel) |
| Reciprocal saw | Grounded extension cords |
| Gloves | Measuring tape |
| Ladder | First-aid kit |
| Utility knife | Rope |
| Screwdriver set | Eye protection |

| | |
|-------------------------------|-----------------------|
| Rubber mallet | Wood saw |
| Rags | Metal Crimpers |
| Writing/marketing instruments | Vise-grip pliers |
| T-square | Solvent-resistant pan |
| Rollers and brushes | Masking/painters tape |
| Aprons | Respirators |
| Soap and water | Hand cleaner |
| Portable fire extinguisher | Solvents |
| Trowels | Protective sheeting |
| Mud mixer | |

Refer to the Material Safety Data Sheet and product label prior to using each product.

SECTION 2 – ROOF PREPARATION

Surface Preparation

Proper roof deck preparation is essential to simplify installation and prevent future conditions which may lead to roof leaks. Mask off, with tape, any areas not intended to receive the SeamFree Liquid Membrane System.

All surfaces to receive the SeamFree Liquid Membrane System must be clean, dry and free of any dirt, dust, debris, rust and oils. Applying SeamFree Liquid Membrane to concrete that is not completely clean and dry will result in poor adhesion of SeamFree Liquid Membrane to the concrete which may lead to blistering and possible failures. Remove contaminants such as oils with a suitable solvent cleaner. For best results it is recommended that surfaces such as metals and plastics be abraded.

New Construction

New structural concrete decks must be dry and free of release agents and curing compounds prior to the installation of SeamFree Liquid Membrane. Due to the poor tensile properties of concrete laitance (the weak layer of fine particle accumulation on the surface of fresh concrete due to the upward movement of water used in the concrete mix), JM recommends removing any concrete laitance present before installing SeamFree Liquid Membrane. Properly prepare the concrete and remove any release agents or curing compounds by any of the recommend following methods:

1. Abrasive blasting as per ASTM D 4259-88
2. Water blasting (generally @ 5,000 psi min.) as per ASTM D 4259-88 and allow the concrete to dry
3. Shot blast as per ASTM D 4259-88 for horizontal surfaces

Re-roofing Application

Existing concrete decks must be clean, dry and free of oil, grease and loose powder or debris. JM recommends removing existing concrete laitance, if any present, by the suggested methods listed under New Construction.



SeamFree™ Liquid Membrane System Installation Guide (Continued)

Moisture

Moisture content of the concrete deck must be 5% or below. While the concrete deck may appear dry on the surface, an abundance of moisture may be present below. A presence of moisture in the deck will result in poor adhesion. JM recommends performing one or more of the following tests to confirm moisture levels in the concrete deck:

1. Moisture Meter
2. Plastic Sheet Method (ASTM D 4074)
3. Dryness Check Via Condensation on Glass found in NRCA Roofing and Waterproofing Manual, Fourth Edition, Volume 2 (pg. 1785)

SECTION 3 – FLASHING INSTALLATION

JM recommends installing the flashings prior to the liquid membrane system using the PermaFlash Bituminous Flashing System.

SeamFree Liquid Membrane Application over PermaFlash

SeamFree can be applied immediately over the PermaFlash Bituminous Flashing System.

If the PermaFlash details are allowed to cure for more than four hours, the following preparations must be done to ensure proper adhesion of the SeamFree Liquid Membrane to the PermaFlash:

1. Roughen the PermaFlash horizontal surface with a surface grinder or by other mechanical means
2. Wipe the roughened area with PermaFlash Primer and allow to flash off
3. Within one hour of the PermaFlash Primer flashing off, install SeamFree Liquid Membrane as outlined in Section 4.

SECTION 4 – LIQUID MEMBRANE MIXING INSTRUCTIONS

Mixing Instructions

SeamFree Liquid Membrane is prepared on-site by adding the SeamFree Liquid Membrane Activator to the SeamFree Liquid Membrane Base and mixing thoroughly for three (3) minutes. The adhesive is prepared in the SeamFree Liquid Membrane Base shipping container using a mud mixer, mounted on a ½-inch (minimum) drill motor. SeamFree Liquid Membrane Activator is packaged in premeasured bottles with the exact amount of material necessary to react with the SeamFree Liquid Membrane Base.

To ensure a complete mix, the SeamFree Liquid Membrane Activator must be poured SLOWLY into the vortex caused by the rotating mixer. ACTIVATOR MUST NOT BE DUMPED INTO THE PAIL IN ONE MOTION! The mix is complete in three (3) minutes. DO NOT OVER OR UNDER MIX! The pot life of the mixed liquid membrane is dependent on the temperature; extremes in temperature can shorten the pot life of the mix.

The mechanic will have to use the material in approximately:

| | | | | | | |
|------------------|----|----|----|----|----|-----|
| Temperature (°F) | 50 | 60 | 70 | 80 | 90 | 100 |
| (°C) | 10 | 16 | 21 | 27 | 32 | 38 |
| Minutes | 20 | 25 | 30 | 30 | 30 | 25 |

The mixing of individual pails of adhesive must be timed so that only one pail of freshly mixed adhesive is ready for each application crew. MIXED ADHESIVE MUST NOT BE STOCKPILED, AS THE MATERIAL WILL CURE TO AN UNWORKABLE CONSISTENCY. In cold weather, the material must be stored and mixed at room temperature. Although not recommended, mixing of quantities smaller than a full pail may be required. Using a clean container, mix the SeamFree Liquid Membrane Base and SeamFree Liquid Membrane Activator in the following quantities:

| | | |
|-----------|-----------------------|------------------|
| | Volume or | Weight |
| Base | 1 gal | 1 lb |
| Activator | 0.09 gal (11.3 fl oz) | 0.11 lb (1.8 oz) |

SECTION 5 – LIQUID MEMBRANE INSTALLATION

After mixing the activator with the base, spread evenly on the substrate with a squeegee to obtain a full coverage coating, without voids and a minimum thickness of 30 mils (0.76 mm). Immediately roll the reinforcing scrim into this layer while still wet. Brush with a broom to ensure the scrim is embedded into the liquid membrane without voids. Allow the first layer to dry to tack free (approximately two to four hours at 70°F [21°C]). Then apply a 60 mil (1.52 mm) layer evenly to completely cover the reinforcement scrim. The liquid membrane should extend 2" (51 mm) past the scrim in all directions. Allow an additional 8-12 hours before foot traffic.

Side and End Laps

All side laps and end laps of scrim must be a minimum of 4-inches (102 mm) with an application of liquid membrane installed between the lap surfaces.

Joints

Should the liquid membrane system not be able to be installed over the entire roof area in one day, the joint line left at the work stopping point must be clean and straight. When work resumes, roughen the joint area (minimum 6" [152 mm] wide) the length of the joint with a surface grinder or other mechanical means. Clean joint areas with PermaFlash Primer to remove any loose debris and allow to flash off. Within one hour of the PermaFlash Primer flashing off, begin the continued installation of the SeamFree Liquid Membrane System starting 6" (152 mm) from the joint edge (see detail SF-12).

Surfacing (if applicable)

After the SeamFree Liquid Membrane has fully cured, multiple surfacing options can be installed. Please refer to the specific specification for further details about the chosen surfacing options. Follow all instructions and guidelines for surfacing installation provided by the surfacing manufacturer.