



## SILICONE REINFORCED SYSTEM (VFI-990) OVER CONCRETE

### 1. GENERAL SPECIFICATION:

#### 1.01. General System Description

- A. The Silicone Reinforced System is recommended for concrete roof decks with unlimited slope and is fully reinforced with polyester fabric for increased strength. **See section 2 for a list of materials used in the system.** Consult Volatile Free, Inc. (VFI®) for more information on restoring previously restored projects.
- B. Restoring with the Silicone Reinforced System will preserve and extend the useful life of the roof by protecting it from exposure to common degrading elements and weather conditions. The use of this system is restricted to circumstances where the roof surface is in sound condition but requires renewal due to the normal effects of aging and use.
- C. Specifications here include guidelines for preparation, priming, and reinforcing all seams and flashings integrally related to the roof. This is a general installation guide specification and is not a project-specific specification. It is the responsibility of the owner/building representative, project manager, and contractor to ensure that this general installation guide is followed when work pertains to the project.
- D. A Volatile Free, Inc. Technical Representative shall approve, in writing, any material substitutions, deviations from, and/or addendums to this specification.

#### 1.02. Contractor to:

- A. Provide all labor, materials, equipment, and accessories necessary to repair, clean, and prepare existing concrete surfaces. Install Volatile Free, Inc.'s primer and Silicone Reinforced System in accordance with this specification and the manufacturer's instructions. Reference the following sections for more detailed information.
  - 1. Environmental Requirements (1.06)
  - 2. Surface Preparation (3.02)
  - 3. Surface Wash (3.03)
  - 4. Priming (3.04)
  - 5. Seams, Cracks, Terminations, and Penetrations (3.05)
  - 6. Coating Application (3.06)
  - 7. Traffic Areas and Walkways (3.07)

#### 1.03. Approved Materials:



- A. Primary waterproofing materials shall be the products of a single manufacturer and produced domestically. A coating supplier must have a minimum of 10 years of experience in the manufacture of a specified product. Private-label products or materials produced outside the US are not acceptable. Secondary products shall be recommended and approved by the primary manufacturer. The coating system shall have UL Listing, Miami-Dade NOA, and Florida Building Code approval. CRRC and ENERGY STAR approvals are also required where applicable (white topcoat).
- B. Unspecified materials shall be submitted to the architect and owner/building representative for approval prior to the bid date. In requesting approval, a letter of certification must be signed by an officer of the manufacturer, stating that the alternative material is equal to or better than the specified product.

**1.04. Submittals:**

**A. Manufacturer:**

- 1. Provide VFI's published technical data sheets, safety data sheets, installation instructions, and certified data to support published ratings.
- 2. Supply warranty paperwork in accordance with application rates and requirements.

**1.05. Product Delivery, Storage, and Handling:**

- A. Deliver VFI materials in unopened containers with VFI labels affixed. Include the following on the label of each container: manufacturer's name, product name, product type, lot number, mixing instructions, and precautions.
- B. Contractors shall be responsible for the storage and protection of all materials required. Materials shall be stored in a manner so as not to exceed the VFI-specified temperature limitations (see drum label or data sheet). In all cases, the storage and handling of materials shall conform to the requirements of VFI and the applicable safety regulatory agencies.

**1.06. Environmental Requirements:**

- A. Install the coating materials under the following conditions:
  - 1. When existing and forecasted weather conditions permit it.
  - 2. Install VFI-990 above 40°F/4.5°C and VFI-#11 above 50°F/10°C.

**2. PRODUCTS:**

**2.01. Materials:**

A. All products listed are manufactured, supplied, or approved by VFI of Brookfield, WI.

1. Surface Cleaner: VFI-1009 Cleaning Detergent
2. Polyester Fabric: PF Mesh 4", 6", 12", 20", or 40" Polyester Fabric
3. Primer: VFI-#11 9:1 Epoxy Primer
4. Flashing Grade: SEALGUARD VFI-993 Silicone Flashing Grade
5. Coating: SEALGUARD VFI-990 High Solids Silicone, in manufacturer's standard white

a. The system can be used with various premium and custom colors, but VFI does not guarantee color stability unless otherwise stated.

| <b>VFI-990 Mean Technical Requirements</b> |                  |           |
|--|------------------|-----------|
| <b>Solids</b>                              | By Volume        | 93%       |
| <b>Tensile</b>                             | ASTM D412        | 426 psi   |
| <b>Elongation</b>                          | ASTM D412        | 187%      |
| <b>Permanent Set</b>                       | ASTM D412        | 1% max    |
| <b>Tear Resistance</b>                     | ASTM D624        | 29 pli    |
| <b>Water Vapor Permeability</b>            | ASTM E96 @20 MIL | 8.8 perms |

6. Traffic Walkways: SEALGUARD VFI-990 High Solids Silicone Walk Pad (Safety Yellow) and Granules (Safety Yellow) or Yellow Spaghetti Walk Pad from VFI

**3. EXECUTION**

**3.01. Examination**

- A. Identify slope and drainage patterns.
- B. Inspect for missing or loose fasteners.
- C. Identify seam and flashing failures.

**3.02. Surface Preparation**

- A. Remove large volumes of dirt, leaves, and other debris with a broom. Roof cements and cold-applied materials, detrimental to the adhesion and application of roofing materials, should be removed. Take care to remove all loose paint, rust, and scale.
- B. Power wash as needed with a minimum pressure of 2,000 psi or mechanical abrasion.

- C. The existing concrete roof and its structural components must be repaired. All damaged drains, vents, ducts, gutters, metal caps, flashing, or other penetrations must be replaced or modified.
- D. All gaps should be repaired to be tight and flush.

**3.03. Surface Wash:**

- A. Areas containing grease, oil, animal fats, or other surface contaminants shall be scrubbed with non-sudsing, biodegradable liquid detergent (VFI-1009).
- B. Use concentrated chlorine solution to treat areas of mildew, fungus, or algae.
- C. All cleaning agents must be rinsed off the roof. Allow the roof to dry before proceeding.

**3.04. Priming**

- A. Apply VFI-#11 9:1 Epoxy Primer at a rate of 0.5 gallons per square.
- B. Allow the primer to dry for a minimum of 8 hours prior to coating. Cure time will vary depending on ambient temperature and humidity. No substrate should be exposed. The primer must be coated within 7 days after application. If the primer is not coated within 7 days, the primed surface should be cleaned and re-primed. The designed temperature is 50°F or above. Do not apply if rain is in the forecast before a topcoat can be applied.

**3.05. Seams, Cracks, Terminations/Parapets, and Penetrations:**

**A. Seams & Cracks:**

1. For stress cracks or expansion joints larger than ¼", insert a backer rod into the crack. Apply VFI-5011 80 A Expansion Joint Filler to the crack or use a comparable urethane caulk.
2. For stress cracks smaller than ¼", apply SEALGUARD VFI-993 Silicone Flashing Grade into the crack and 1 inch on each side of the crack.

**B. Penetrations and Protrusions:** Repair can be accomplished with VFI-993. If additional reinforcement is needed, a base coat of SEALGUARD VFI-990 High Solids Silicone, polyester fabric, and a topcoat of VFI-990 can be applied.

**C. Terminations and Parapets Walls:**

1. **Option 1:** Apply a three coarse coating with fabric reinforcement. Apply VFI-990 at a rate of 1 gal/sq and install fabric into the wet coating, then apply another coat of VFI-990 at a rate of 1 gal/sq to encapsulate the fabric.
2. **Option 2:** Apply VFI-993 onto parapets using a brush or putty knife.



### 3.06. Coating Application

- A. Ensure adhesion tests are completed and meet VFI requirements.
- B. Check wet film thickness during application with a mil gauge.
- C. Install SEALGUARD VFI-990 High Solids Silicone over the entire roof surface. Embed fabric in a base coat of VFI-990 and apply a wet-on-wet coat of the silicone over the fabric to achieve the desired warranty requirement in DFT (Dry film thickness):
  - 1. **22 mils minimum DFT for a 10-year warranty (1.5 gallons per square)**
  - 2. **30 mils minimum DFT for a 15-year warranty (2 gallons per square)**
- D. Recoat time is between 2 to 48 hours, depending on environmental conditions and cure speed. Longer recoat times may result in poor intercoat adhesion and delamination from surface contamination.
- E. No traffic shall be permitted on the coated surface for a minimum of one (1) day. Damage to the surface by other trades shall not be the responsibility of the roofing contractor or Volatile Free, Inc.

### 3.07. Traffic Areas and Walkways

- A. **Option 1:**
  - 1. **Low Impact** - Apply VFI-990 Safety Yellow Walk Pad at a rate of 2 gal/sq. Broadcast Safety Yellow Granules at 40 lb/sq.
  - 2. **High Impact** - Apply VFI-990 Safety Yellow Walk Pad at a rate of 2.5 gal/sq. Broadcast Safety Yellow Granules at 60 lb/sq.
  - 3. **After the Walk Pad has cured, sweep away any loose or excess granules.**
- B. **Option 2:** Yellow spaghetti factory-formed walkway pads are to be used in walkway areas and around rooftop equipment as identified by the owner's representative. Spot adhere the pads or rolls to the finished roof surface with generous ribbons of silicone sealant as provided by Volatile Free, Inc.

THIS INFORMATION AND TECHNICAL ADVICE PROVIDED HEREIN ARE BELIEVED TO BE RELIABLE AND ACCURATE TO THE BEST KNOWLEDGE OF VOLATILE FREE, INC., AS BASED ON TESTS AND SHOULD SERVE ONLY AS A RECOMMENDATION. AS THE MANUFACTURER, VOLATILE FREE, INC. MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR USE OR A PARTICULAR PURPOSE FOR THE PRODUCT. VOLATILE FREE, INC. MAKES NO REPRESENTATIONS OR WARRANTIES AS TO THE RESULTS OF THE USE OF THE PRODUCT AND ASSUMES NO OBLIGATION OR LIABILITY IN CONNECTION THEREWITH. VOLATILE FREE, INC. IS NOT LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY SORT FROM USE OF THIS PRODUCT. THE INFORMATION PROVIDED HEREIN IS SUBJECT TO CHANGE AT ANYTIME WITHOUT NOTICE. INFORMATION CHANGES MAY INCLUDE, BUT ARE NOT LIMITED TO, COMMERCIAL AND TECHNICAL CHANGES, CHANGES IN PRICING, PHYSICAL CHARACTERISTICS AND PACKAGING.

Corporate Office: P.O. Box 344 . Brookfield, WI 53008 . (800) 307-9218 . (262) 787-0400 . Fax (262) 787-0500  
[www.volatilefree.com](http://www.volatilefree.com)