
TEN YEAR SPECIFICATION FOR SEALGUARD VFI-991 FLUID APPLIED SILICONE MEMBRANE FOR REHABILITATION OF MODIFIED BITUMEN AND BUILT-UP (BUR) ROOFS

1 GENERAL:

1.01 General System Description

- A. *SEALGUARD* VFI-991 SILICONE Restoration Coating System is recommended for smooth or granule surfaced modified bitumen roof covers and smooth built-up roof membranes (BUR). Consult with Volatile Free, Inc. (VFI[®]) for additional information when restoring previously restored projects.
- B. Restoring with *SEALGUARD* VFI-991 SILICONE will preserve and extend the useful life of the roof by protecting the roof's exposure to common degrading elements and weather conditions. The use is restricted to circumstances where the roof surface is in sound condition, but requires a renewal of the roof surface due to the normal effect 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, 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.
- E. Conditions to check and corrections to consider are: The type of the existing system must be identified and all existing membranes must be well adhered and intact.

1.02 Contractor to:

- A. Provide all labor and materials, equipment and accessories necessary to repair, clean and prepare existing smooth or rough surfaced modified bitumen roof covers and smooth built up roof membranes' (BUR) weathered surfaces. Install Volatile Free, Inc.'s primer and Silicone Roof Coating System in accordance with this specification and manufacturer's instructions. Reference the following sections for more detailed information.
 - 1. Environmental requirements (1.08)
 - 2. Quality Preparation Program (1.09)
 - 3. Preparation of the surface to receive work. (3.01)
 - 4. Wash the surface of the existing membrane as recommended by VFI. (3.02)
 - 5. Prime surfaces as recommended by VFI. (3.03)
 - 6. Install Silicone Coating System. (3.04 - 3.07)

7. Traffic areas and walkways. (3.08)

8. Warranty (5.0)

1.03 Work Excluded:

- A. Repair to structural components of the roof
- B. Replacement of or modification to drains, vents, ducts, metal caps or other penetrations
- C. Installation of materials to change slope or otherwise facilitate water drainage

1.04 Approved Materials and Contractors:

- A. The contractor and materials associated with the project shall be used only if approved by VFI and Owner.
- B. A minimum of five years experience is required from the applicator in order to apply the waterproofing materials specified. The applicator must have a current Certification certificate from Volatile Free, Inc.
- C. VFI shall be a single source of the roofing system.
- D. The contractor's qualifications and equipment must be approved by VFI.
- E. Unspecified materials shall be submitted to the architect/owner 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. The manufacturer shall have a minimum of five years manufacturing experience.
- F. Products used must have Miami Dade NOA or Florida Product Approval.

1.05 Submittals:

A. Customer:

- 1. The VFI pre-job form should be filled out and sent to VFI for approval.
- 2. **Signed and filled out application rates on Warranty Specification/Affirmation Signatures Form, see page 10.**

B. Manufacture:

- 1. VFI's published technical data, and certified data to support published ratings.
- 2. Contractor's certification certificate issued prior to bid date from VFI.
- 3. VFI's Technical Representative shall provide written instructions on care and maintenance and repair of the coating system, within the scope of the maintenance agreement or guarantee.

1.06 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. Contractor shall have materials delivered in sufficient quantities so as not to cause delays in the work.
- C. Contractors shall be responsible for 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 product 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.
- D. It is the responsibility of the contractor to calculate and add a loss factor due to wind, surface profile and overspray.

1.07 Pre-Construction Conference:

- A. Adhesion tests may be required if a labor and material warranty is requested or if the roof was previously coated or has other defects in the existing substrate deemed questionable by the contractor, owner, or VFI. All results will be recorded and saved by Volatile Free, Inc. One pull test must be conducted for every 10,000 sq. ft.
- B. Prior to the start of the project, a meeting shall be held at the job site attended by the Contractor's Representative, Technical representation of VFI, and the Owner's representative to review materials, application procedures, and all items associated to this phase of the work. **(Optional)**
- C. The installation of this system shall be accomplished periodically in the presence of, or with the advice of the Manufacturer's Technical Representative. Contact VFI for assistance.

1.08 Environmental Requirements:

- A. Install all materials in strict accordance with all published safety, weather and temperature precautions given by VFI.
- B. The contractor is to take precautions to protect this building project, other adjacent facilities and property.
- C. All air intake ventilation equipment shall be turned off or otherwise modified to prevent fumes from entering building.
- D. Blowers, air conditioning units, and evaporative coolers shall be disconnected or otherwise modified to prevent fumes from penetrating into the building or from contaminating the roof surface with condensing water.
- E. No smoking signs to be posted as mandated by local fire officials
- F. Do not install coating materials under the following conditions:
 - 1. When surfaces are wet or rain is imminent
 - 2. **Spray Application-** When wind velocity is above fifteen (15) MPH without using a windscreen. In conjunction with a wind screen, protective coverings must be

fastened to stay secure in wind and be vented if used in conjunction with preventing moisture collection.

3. Do not install *SEALGUARD* VFI-991 SILICONE below 40°F/ 4.5°C and do not install VFI-#11 below 50°F/ 10°C.

1.09 Quality Preparation Program:

- A. Roof shall be free of debris and fixtures not secured as part of roof mounted equipment.
- B. Lift all non-secured units for access beneath them for the entire project.
- C. All preexisting membranes must be fully adhered and existing systems must be identified.
- D. Install all materials to change the pitch or otherwise facilitate water drainage.
- E. When a labor and material warranty is requested the following environmental conditions, including the overall weather conditions, shall be recorded by the contractor on the Daily Quality Control Report and submitted with the finish structured guarantee request: General Weather Conditions (i.e. cloudy, sunny, rainy, etc.), Surface Temperature, Surface Moisture, Ambient Temperature, Relative Humidity and Wind Velocity.
- F. All products must be mixed with proper equipment on the day of application. See product label or Product Data Sheet for instructions.
- G. Coating thickness shall be checked during application for proper thickness per specification; as stated on the warranty procedures or on work order, whichever is greater.

2 PRODUCTS:

2.01 Materials:

- A. All products listed are manufactured, supplied, or approved by VFI of Brookfield, Wisconsin.
 1. Seam Tape: BR TAPE Fabric Backed Butyl Tape provided by VFI
 2. Polyester Fabric: PF Mesh non-woven polyester fabric provided by VFI
 3. Wash: VFI-1009 Cleaning Concentrate
 4. Primer: VFI-607
 5. Coating: *SEALGUARD* VFI-991 SILICONE roof coating, in manufacturer's standard white color.

This coating, shall meet the following mean technical requirements:

a. Solids:	by Volume	70% +/- 1
b. Tensile:	ASTM D-412	380 psi
c. Elongation:	ASTM D-412	250% min.
d. Permanent Set:	ASTM D-412	1% max.
e. Hardness Shore A	ASTM D-2240	60
f. Tear Resistance	ASTM D-624	40 pli
g. Water Vapor Permeability	ASTM E-96 @ 20 MIL	5 perms

6. *SEALGUARD* VFI-991 SILICONE with reinforcing fibers purchased from Volatile Free, Inc. can be used as a caulk for pre-approved areas.
7. Reinforcing fibers
8. *SEALGUARD* VFI-993 Flashing Grade Silicone

2.02 Other Materials Required:

- A. All other materials shall be approved by VFI as per Section 1.04, A.

3 EXECUTION:

NOTE: Care must be taken to ensure that the substrate is dry and properly prepared. The owner and/or contractor must correct any defect in the condition of the existing substrate prior to the coating, otherwise, these defects may adversely affect the condition of the coating over time, necessitating maintenance and/or repair and affecting the warranty. The contractor is responsible in making sure the existing roof is sound, stable and a well-secured surface. If this criteria is not met, *SEALGUARD* VFI-991 SILICONE rehabilitation is not recommended.

3.01 Membrane Preparation:

- A. The use is restricted to circumstances where the membrane surface is in sound condition, but requires a renewal of the membrane surface due to the normal effect of aging and use.
- B. Remove large volumes of dirt, leaves and other debris with a broom and or air blower.
- C. The existing membrane is to be repaired and structural components of the roof should be complete. Particular care should be taken when inspecting field fabricated seams, flashing and terminations. All damaged drains, vents, ducts, gutters, metal caps, flashing or other penetrations must be replaced or modified.
- D. Inspect flashing, seams, cracks, penetrations and terminations for damage or stress caused by membrane shrinkage and repair. Inspect the entire roof surface and flashings for any open seams, tears, cuts or other damage. Repair any damage to avoid water getting blown under the membrane during the cleaning process.
- E. An infrared scan may be required by the owner or VFI to identify areas of wet insulation. Any wet insulation has been removed and replaced.
- F. Loose or backed-out fasteners in flashings must be tightened or replaced with oversized fasteners.
- G. Remove dirt, roof cements and cold applied materials detrimental to adhesion and application of roofing materials.
- H. The installation of materials to change the pitch or otherwise facilitate the water drainage has been completed.

Caution: When pressure washing old membrane, care must be taken not to damage membrane or exposed reinforcement.

3.02 Surface Wash:

- A. Remove large volumes of dirt, leaves and other debris with a broom or blower. Inspect the roof surface and flashings for any open seams, tears and cuts. All defects must be repaired to prevent material from being blown under the membrane during the cleaning process.

NOTE: Allow roof to dry before applying VFI-1009 Cleaning Concentrate

- B. VFI-1009 Cleaning Concentrate should be diluted at a 1:10 ratio with water. Apply the diluted cleaning solution to the dry substrate under low pressure using a Hudson type agricultural sprayer **at the rate of 2,000 sq. ft. per gallon of VFI-1009**. Allow the solution to stand for a minimum of 15 minutes. Low areas and depressions in the substrate having excessive dirt build-up may require additional solution and/or scrubbing with a stiff-bristled broom. Extremely stubborn areas may require treatment with a more concentrated dilution. Using a pressure washer with 2,000 psi, start washing at the lower end and work up to the top of the roof. Keep the tip close enough to loosen all contaminants. Rinse back down the slope to remove contaminants and wash the solution from the roof. (See Product Data Sheet)
- C. Attach a wand or extension to the high pressure hose and use a standard spray tip to achieve maximum cleaning of the substrate. Repeat rinsing as required to remove all cleaning solution. Allow the substrate to completely dry prior to the application of any coating materials including primer.
- D. Areas containing grease, oil, animal fats or other surface contaminants shall be scrubbed with liquid degreaser or tri-sodium phosphate until clean.
- E. Use concentrated chlorine solution to treat areas of mildew, fungus, or algae.
- F. All cleaning agents must be rinsed off of roof and allow the roof to dry before proceeding.
- G. Pitch pans which are slack filled shall be filled with *SEALGUARD* VFI-993 FLASHING GRADE SILICONE.

NOTE: It is crucial to ensure that the preexisting substrate is clean and dry prior to coating with the VFI system. Prime the entire roof prior to making any repairs with coatings.

3.03 Priming:

- A. Use VFI-607 primer to the washed surface **at a rate of 0.8 gallons per 100 sq. ft.** Allow it to dry a minimum of 4 hours. Cure time will vary depending on ambient temperature and humidity. No substrate should be exposed. The designed temperature of the substrate is 50°F or above. Stop the application a minimum of two hours before rain or when the dew point would be reached.

3.04 Seams, Cracks, Terminations & Penetrations:

- A. **Option 1:** Apply *SEALGUARD* VFI-991 SILICONE in one coat. Install appropriate sized polyester fabric into wet coating then apply another coat of *SEALGUARD* VFI-991 SILICONE to encapsulate the fabric.
6", 12", and 20" fabric are packaged in 300 lineal foot rolls.
Each roll of 6" fabric will require 1 five gallon pail of VFI-991 to install.

Each roll of 12” fabric will require 2 five gallon pails of VFI-991 to install.
Each roll of 20” fabric will require 3.3 five gallon pails of VFI-991 to install.

- B. **Option 2:** Apply VFI’s 4”, 6”, or 12” Fabric-Backed Butyl Tape. Apply one coat of *SEALGUARD* VFI-991 SILICONE over butyl tape.
4”, 6”, and 12” Fabric-Backed Butyl Tape are packaged in 50 lineal foot rolls. Each five gallon pail of VFI-991 will apply 250 lineal ft. of 4”, 150 lineal ft. of 6”, and 75 lineal ft. of 12” Fabric-Backed Butyl Tape.
- C. **Option 3:** Apply *SEALGUARD* VFI-993 Flashing Grade to all gaps ¼” or less. Brush or roll the reinforced products into the seams, then work the product out until a smooth transition is accomplished.
One Gallon of VFI-993 will treat approximately 150 lineal feet of seams.

3.05 Roof Drains and Scuppers:

A. **Option 1:** Remove drain ring. Clean drain or scupper to remove all previously applied cold process repair products and prepare for accepting coating. Prime all metal parts with VFI-#11 primer. Apply VFI-993 Flashing Grade Silicone to entire drain assembly. Pay particular attention to the transition from the existing roofing system to the drain assembly. Ensure that there are no openings, voids or fish mouths at this transition.

One gallon of VFI-993 will treat approximately 4 drains.

B. **Option 2:** Remove drain ring. Clean drain or scupper to remove all previously applied cold process repair products and prepare for accepting coating. Prime all metal parts with VFI-#11 primer. Apply VFI’s Fabric-Backed Butyl Tape in appropriate size to encapsulate the transition from the existing roof cover into the drain bowl or scupper. Apply *SEALGUARD* VFI-991 SILICONE taking care to cover the butyl tape and fill any and all voids and fish mouths in the butyl tape.

4”, 6”, and 12” Fabric-Backed Butyl Tape are packaged in 50 lineal foot rolls. Each five gallon pail of VFI-991 will apply 250 lineal ft. of 4”, 150 lineal ft. of 6”, and 75 lineal ft. of 12” Fabric-Backed Butyl Tape.

3.06 Coping Cap (optional):

A. **Option 1:** Prime seam area with VFI-#11 primer extending past the seam on both sides a minimum of minimum of 4 inches. Apply *SEALGUARD* VFI-991 SILICONE to extend past the seam on both sides a minimum of 4 inches. Apply 6 inch polyester fabric into wet coating centering the seam in the middle of the fabric. Use a brush or roller to remove wrinkles in fabric. Allow to dry. Apply an additional coat of *SEALGUARD* VFI-991 SILICONE over the fabric.

6” fabric is packaged in 300 lineal foot rolls.

Each roll of 6” fabric will require 1 five gallon pail of VFI-991 to install

B. **Option 2:** Prime seam area with VFI-#11 primer extending past the seam a minimum of 4 inches. Apply VFI’s 6 inch Fabric-Backed Butyl Tape centering the seam in the middle of the tape. Apply *SEALGUARD* VFI-993 FLASHING GRADE SILICONE taking care to cover the butyl tape and fill any and all voids and fish mouths in the butyl tape.

6” Fabric-Backed Butyl Tape is packaged in 50 lineal ft. rolls

Each five gallon pail of VFI-991 will apply 150 lineal ft. of 6” Fabric-Backed Butyl Tape.

C. **Option 3:** Prime seam area with VFI-#11 primer extending past the seam a minimum of 4 inches. Apply VFI-993 Flashing Grade Silicone to all seams with less

than ¼" deflection.

1 gallon of VFI-993 Flashing Grade Silicone will cover approximately 150 lineal feet of seams.

3.07 Coating Application:

- A. Keep material temperature at or above 65° F (18° C). Recoat time is between 4 to 48 hours. Longer recoat times may result in poor intercoat adhesion and delamination unless the surface is again rinsed free of potential contaminants.

Apply two coats to the entire roof of *SEALGUARD* VFI-991 SILICONE coating. **The coverage rate shall be no less than 2.0 gallon per 100 sq. ft. (32 wet mils, 22 dry mils)**

Optional Granule Coat: An additional granular coat may be added. Apply one coat of *SEALGUARD* VFI-991 SILICONE **at a rate of not less than .5 gallons per 100 sq. ft.** Immediately broadcast roofing granules into wet coating **at the rate of 30-40 lbs. per 100 sq. ft.** Sweep off excess granules the next day so gutters and drains are not clogged.

3.08 Traffic areas and walkways

A. **Option 1:**

Low Impact- Apply *SEALGUARD* VFI-990 SILICONE Walk Pad **at a rate of 30-35 wet mils (1.9-2.2 gal/ 100sq. ft.)**. Broadcast Walk Pad granules supplied by Volatile free, Inc. **at 40lbs per 100 sq. feet.**

High impact- Apply *SEALGUARD* VFI-990 SILICONE Walk Pad **at a rate of 40-45 wet mils. (2.5-2.81 gal/ 100sq. ft.)**. Broadcast Walk Pad granules supplied by Volatile Free, Inc. **at 60lbs per 100 sq. ft.**

B. **Option 2:**

Add reinforcing fibers supplied by Volatile Free, Inc. to *SEALGUARD* VFI-990 SILICONE Walk Pad until desired consistency is achieved. **Apply product at a rate of 64 wet mils. (4 gal/ 100 sq. ft.)**. Broadcast VFI supplied Walk Pad granules **at 60lbs per 100 sq. ft.**

- C. **After the Walk Pad has cured, sweep away any loose or excess granules.**

NOTE: VFI recommends adding a loss factor due to wind, surface profile and overspray. It is the responsibility of the contractor to calculate the correct amount of material to achieve the required dry film mils as per specification.

4 FIELD QUALITY CONTROL:

4.01 Inspection:

- A. **Coating Thickness:** The finished dry film thickness will measure a minimum of 22 mils.

- B. No traffic shall be permitted on the coated surface for a minimum of three (3) days.** Damage to the surface by other trades shall not be the responsibility of the roofing contractor or Volatile Free, Inc.
- C. Defects:** There shall be no delamination, lifting blisters, pinholes, voids, or membrane defects of any kind.
- D. Variations:** Any variations from specified procedures or limits found by the contractor, representatives of VFI, or the owner, shall be immediately corrected by the contractor at their own expense.

4.02 Job Site Clean up

- A.** Clean up all debris, excess materials and equipment and remove from site.

5 WARRANTY:

5.01 Requirements:

- A.** VFI warrants that the material supplied will meet or exceed physical properties as published.
- B.** The contractor shall warrant that all work performed will be free from defects in materials and workmanship for a period of two years. Upon notice of defect in writing to the contractor, the contractor shall make necessary repairs or replacements of the defective work in question.
- C.** A leak-free warranty by VFI is available for commercial projects. The contractor must make application to VFI in accordance with the published warranty policy prior to start of work, to qualify the project for a no leak warranty.

5.02 Inspection by Manufacturer

- A.** A final inspection of the roof will be conducted by VFI's Technical Representative to confirm the watertight integrity of the installation of the Roofing System.

**TEN YEAR SPECIFICATION FOR
SEALGUARD VFI-991 SILICONE**

**SUSTAINABILITY.
DURABILITY.
FLEXIBILITY.**

WARRANTY SPECIFICATION/AFFIRMATION OF SIGNATURES

Type of Warranty:

- A. Volatile Free, Inc. Ten Year Warranty shall be issued within thirty (30) days of final payment and successful roof inspection.

Substrate selected:

Primer application rate required:

Application method:

Basecoat application rate required:

Topcoat application rate required:

Volatile Free Inc.

Printed Name:

Title:

Date Approved:

Warranty Project #

Applicator

Printed Name:

Title:

Company:

Address:

City, State:

Telephone:

Please sign and date below to acknowledge that you read and understand the TEN YEAR SPECIFICATION FOR SEALGUARD VFI-991 SILICONE.

PLEASE SEND THIS SIGNED COPY TO VOLATILE FREE, INC.; 19500 JANACEK COURT, BROOKFIELD, WI 53045 OR FAX: 262-787-0500

Signature

DATE

TEN YEAR SPECIFICATION FOR SEALGUARD VFI-991 SILICONE

SUSTAINABILITY.
DURABILITY.
FLEXIBILITY.

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