SPECIFICATION FOR SEALGUARD VFI-991 FLUID APPLIED SILICONE MEMBRANE FOR EXISTING COATED ROOFS WITH UNLIMITED SLOPE

1. GENERAL:

1.01. General System Description

A. SEALGUARD VFI-991 SILICONE Restoration Coating System is recommended for existing coated roofs. 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.

1.02. Contractor to:

A. Provide all labor and materials, equipment, and accessories necessary to repair, clean and prepare existing metal 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 (1.06)
2. Preparation of the surface to receive work (3.02)
3. Wash the surface of the existing substrate as recommended by VFI (3.03)
4. Prime other materials as recommended by VFI (3.04)
5. Preparation of seams, cracks, terminations, and penetrations (3.05)

6. Fiberglass Skylight Renewal (3.06)
7. Install Silicone Coating System (3.07)
8. Traffic areas and walkways (3.08)

1.03. Approved Materials and Contractors:

A. The contractor and materials associated with the project shall be used only if approved by VFI and Owner.

B. Primary waterproofing materials shall be the products of a single manufacturer and produced domestically. Coating supplier must have minimum 10 years' experience in the manufacture of specified product. Private label products or materials produced outside the US are not acceptable. Secondary products shall be recommended and approved by primary manufacturer. The coating system shall have UL Listing, Miami-Dade NOA and Florida Building Code approval. CRRC, ENERGY STAR where applicable (White topcoat).

C. Installer must be a current Qualified Applicator of the coating manufacturer.

D. The contractor is to ensure all personnel are properly trained and understand all OSHA safety requirements. Contractor to submit proof of insurance to 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.

1.04. Submittals:

A. Manufacturer:

1. VFI's published technical data sheets, SDS, installation instructions and certified data to support published ratings.
2. Supply specific no leak warranty paperwork and sample warranty prior to start of the job.
3. Contractor's certification certificate issued prior to bid date from VFI.
4. VFI's Technical Representative shall provide written instructions on care, maintenance, and repair of the coating system within the scope of the maintenance agreement or guarantee.

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. 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 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. 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 finished structural guaranteed request: General Weather Conditions (i.e. cloudy, sunny, rainy, etc.) Surface Temperature, Surface Moisture, Ambient Temperature, Relative Humidity and Wind Velocity

B. Do not install coating materials under the following conditions:

1. Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed.
2. Install SEALGUARD VFI-991 SILICONE 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, Wisconsin.

1. Seam Tape: BR TAPE 4" or 6" Butyl Reinforced Seam Tape approved by VFI
2. Polyester Fabric: PF Mesh 4" or 6" polyester fabric approved by VFI
3. Primer: VFI-#11 Water Based Epoxy Primer
4. SEALGUARD VFI-993 Flashing Grade Silicone
5. Coating: SEALGUARD VFI-991 SILICONE roof coating, in manufacturer's standard white color

Mean Technical Requirements		
Solids	By Volume	64%
Tensile	ASTM D-412	434 psi
Elongation	ASTM D-412	246%
Permanent Set	ASTM D-412	1% max
Tear Resistance	ASTM D-624	41 pli
Water Vapor Permeability	ASTM E-96 @20 MIL	9.9 perms

6. Granules: Use #11, 3M Roofing Granules or equivalent. Use Lucas Fire White #11 granules for Cool Roof Rating
7. SEALGUARD VFI-991 SILICONE with reinforcing fibers purchased from Volatile Free, Inc. can be used as a caulk for pre-approved areas.
8. SEALGUARD VFI-991 SILICONE Walk Pad (Safety Yellow)
9. Skylight Renewal coating: SEALGUARD VFI-994 Clear Silicone
10. Yellow Spaghetti Walk pad as provided by VFI
11. Granules (Safety Yellow)
12. Reinforcing fibers

3. EXECUTION

3.01. Examination

A. Identify slope and drainage patterns.

B. Inspect for missing or loose fasteners.

C. Identify seam and flashing failures.

D. Inspect for rust and metal integrity/damage.

E. Identify type of existing coating.

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 adhesion and application of roofing materials, should be removed. Care must be taken to remove all loose paint, rust and scale.

B. Power wash as needed with a minimum pressure 2,000 psi or mechanical abrasion.

C. The existing coated roof is to be repaired and structural components of the roof should be complete. 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. Gaps and deflection between panels shall be eliminated by installing additional screws or rivets as necessary to restrict deflection to ¼" or less.

E. Loose or backed-out fasteners must be tightened or replaced with oversized fasteners.

3.03. Surface Wash:

A. Areas containing grease, oil, animal fats or other surface contaminants shall be scrubbed with liquid detergent or tri-sodium phosphate until clean.

B. Use concentrated chlorine solution to treat areas of mildew, fungus, or algae.

C. All cleaning agents must be rinsed off the roof and allow the roof to dry before proceeding.

3.04. Priming

A. Application levels of VFI-#11

1. Apply at a rate of 0.25 gallons per square.

B. Allow it to dry a minimum of 12 hours prior to silicone coating. Cure time will vary depending on ambient temperature and humidity. No substrate should be exposed. Primer must be coated within 7 days after application. If primer is not coated within 7 days, the primed surface should be cleaned and re-primed. The designed temperature is for 50°F or above. Stop the application a minimum of two hours before rain or when the dew point would be reached.

3.05. Seams, Crack, Terminations and Penetrations:

A. Seams:

1: Apply SEALGUARD VFI-991 SILICONE base coat centered on the seam at a rate of 1.25 gallon/sq. ft. The base coat should be applied wide enough to support a 6-inch-wide polyester fabric. Once the base coat is applied, lay the fabric into the wet coating making sure there are no defects. Take care not to have fish mouths, wrinkles, or bubbles and that the fabric is completely smooth. When the fabric is in place, apply the SEALGUARD VFI-991 SILICONE topcoat to the fabric. Wet out the fabric with approximately 1.25gallon/sq. ft. of SEALGUARD VFI-991 SILICONE topcoat.

B. **Penetrations, Terminations and Protrusions:** Repair can be accomplished with SEALGUARD VFI-993 Flashing Grade Silicone. If additional reinforcement is needed, a base coat of SEALGUARD VFI-991 SILICONE, polyester fabric and a topcoat of SEALGUARD VFI-991 SILICONE may be used when following the above-mentioned application rates, standards and procedures.

C. **Exposed Mechanical Fasteners:** Apply SEALGUARD VFI-993 Flashing Grade SILICONE to completely encapsulate the fastener head and seal the base of the fastener to the metal roof.

3.06. Fiberglass Skylight Renewal:

A. Apply SEALGUARD VFI-994 Clear SILICONE at a rate of .75 gallons per 100 sq. ft. over the skylight surface with a medium nap roller or brush. Allow the Skylight Renewal to cure for a minimum of 24 hours. After it is cured, apply a second coat at the identical application rate. Volatile Free, Inc. Skylight Renewal is for use on roofs that are strictly coated with SEALGUARD VFI-994 Clear SILICONE series

B. Ensure surface is dry and all previous primer and coating are completely cured.

C. Calculate loss factor due to surface profile/stretch factor and wind loss to ensure proper application rates for desired DFT (Dry film thickness)

D. Check film thickness with wet mil gauge during application.

3.07. Coating Application

A. Install silicone coating over entire roof surface in multiple passes to achieve the desired warranty requirement in DFT (Dry film thickness):

1. **21 mils minimum DFT for a 5-year warranty**
2. **21 mils minimum DFT for a 10-year warranty**
3. **26 mils minimum DFT for a 15-year warranty**
4. **31 mils minimum DFT for a 20-year warranty**

B. Recoat time is between 4 to 48 hours. Longer recoat times may result in poor intercoat adhesion and delamination from surface contamination**.**

3.08. Traffic Areas and Walkways

A. **Option 1**: Low Impact-Apply SEALGUARD VFI-991 SILICONE Walk Pad at a rate of 30-35 wet mills (1.9-2.2 gal/sq. ft.) broadcast Walk Pad granules supplied by Volatile free, Inc. at 40lbs per 100 sq. ft. **High impact**-Apply SEALGUARD VFI-991 SILICONE Walk Pad at a

rate of 40-45 wet mills. (2.5-2.81 gal/sq. 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-991 SILICONE Walk Pad until desired consistency is achieved. Apply product at a rate of 64 wet mils. (4 gal/sq. ft.) Broadcast VFI supplied Walk Pad granules at 60lbs per 100 sq. ft.

C. Option 3: Yellow Spaghetti factory-formed walkway pads to be used in walkway areas and around rooftop equipment as identified by owners rep. Spot adhere the pads or rolls to the finished roof surface with generous ribbons of silicone sealant as provided by Volatile Free, Inc.

D. After the Walk Pad has cured, sweep away any loose or excess granules.

4. FIELD QUALITY CONTROL:

4.01. Inspection:

A. Volatile Free, Inc. will organize an inspection with the contractor for a specified date where the contractor would need to notify the building representative of the inspection.

4.02. Job Site Clean-Up:

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

B. 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.

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