

# Silicone Coating System Specifications

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## 100% Silicone Roof Coating System for Aged Smooth and Granulated Modified Bitumen Membrane Systems

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# System Specifications

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## 100% Silicone Roof Coating Restoration for Aged Smooth and Granulated Modified Bitumen Membrane Systems

### Part 1 General

December 2021

This specification is a guide for the application of a fluid applied roof coating system over aged, smooth and granulated Modified Bitumen (MB) roof systems utilizing the Mule-Hide 100% Silicone Roof Coating and accessory products.

#### 1.1 Scope of Work

- A. Contractor will provide all labor, equipment and Mule-Hide labeled materials necessary to install a 100% Silicone Roof Coating System.
- B. Mule-Hide's most current Product Data Sheets and installation instructions shall be followed in conjunction with this specification.
- C. Contractor to complete all necessary repairs to the existing roof system to restore it to a watertight condition using similar materials prior to installing the 100% Silicone Roof Coating System.

#### 1.2 Related Sections

- A. Related sections may or may not be applicable to this specification.
- B. Section 07 62 00: Sheet Metal Flashing and Trim: Metal flashing and counterflashing installation and requirements.
- C. Section 22 30 00: Plumbing: Roof drains, scuppers, gutters and downspout installation and requirements.

#### 1.3 References

- A. ASTM D6694 Standard Specification for Liquid-Applied Silicone Coating
- B. NRCA Roofing and Waterproofing Manual
- C. Underwriters Laboratories Building Materials Directory
- D. CRRC (Cool Roof Ratings Council)

#### 1.4 Submittals

- A. Submit Product Data Sheets (PDS) confirming physical and performance properties of each product used in the system.
- B. Submit Safety Data Sheets (SDS) for each product used in the system.
- C. Submit a roof survey including roof type, measurements and descriptions of the condition of the seams, penetrations, drains, gutters, known leaks and a moisture scan or test cuts with an indication of moisture content. Photographs of all conditions should be included in the submission.
- D. Submit a sample copy of the requested warranty type.

#### 1.5 Quality Assurance

- A. Manufacturer Qualifications: Mule-Hide Products Co., Inc. shall provide a roof coating system that meets or exceeds the criteria listed in this section.
- B. When a project requires an NDL ("No Dollar Limit") System Warranty the Mule-Hide Roof Coating System shall be installed in compliance with Mule-Hide published Specifications and Details exclusively by an independent Mule-Hide Warranty Eligible Contractor.
- C. Supplier shall retain batch samples of all coating products used in the system for a minimum of 5 years.
- D. Prior to work commencing, the Mule-Hide Warranty Eligible Contractor shall submit a fully completed Silicone Roof Coating System Warranty Application to the Mule-Hide Technical Department. Included shall be an accurately dimensioned roof drawing plus photos of any unusual flashing details or roof conditions.
- E. Contractor shall furnish all insurance, licenses, permits and certifications as required by local authorities and/or the property owner.

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- F. Contractor shall ensure that all work performed at the site shall be in accordance with National Roofing Contractors Association (NRCA) Low Slope Roofing Manual recommendations and all other pertinent guidelines issued by the NRCA in reference to other types of construction present at the job site.

### 1.6 Product Delivery, Storage and Handling

- A. All products delivered to the job site shall be in their original unopened containers or wrappings and clearly labeled with the manufacturer's name, product identification and date of manufacture.
- B. Store all materials in a dry, clean area protected from the elements and damage. Place all stored materials on pallets and cover with a tarpaulin. Keep out of direct contact with sunlight.
- C. All liquid products and caulks shall be stored at temperatures between 60°F and 80°F. Materials exposed to lower temperatures affect the workability and performance of the product. Products shall be restored to the above temperature prior to use.
- D. All flammable materials shall be stored in a cool, dry area away from open flames and sparks. Follow precautions outlined on containers or supplied by the material manufacturer/supplier.
- E. All materials determined as being damaged (confirmed by Mule-Hide) due to improper storage on the job site are to be replaced with new materials.

### 1.7 Job Conditions

- A. The roof must be substantially sound clean, dry and free of areas of ponding water, ice, snow, rain or dew, oils, grease, particulate matter or other debris.
- B. Roof must be inspected for the following existing conditions:
  1. Ridges, blisters, or other membrane or system defects
  2. Peeling and chalking of previous coatings
  3. Poorly attached vents or other projections
  4. Open seams and side laps
  5. Insufficient slope, damaged membrane or insulation
  6. Areas of ponding water – areas of dirt/debris accumulation
  7. Broken or improperly flashed pipes
  8. Broken or missing drain components
  9. Loose or damaged perimeter edge metal
  10. Deteriorated, damaged, or loose flashings
  11. Damaged or wet insulation or substrates
- C. All deficiencies including all sources of leaks must be properly corrected prior to the installation of the new silicone roof coating system.
- D. The contractor shall follow and comply with all safety regulations as recommended by OSHA.
- E. Any unusual or concealed condition discovered during the preparation of the existing roof surface or installation of the silicone roof coating system is to be reported to the owner and Mule-Hide immediately in writing. Work is to be halted until the owner has responded with a solution to the problems.
- F. All local building codes and requirements should be followed where applicable. It is the roofing contractor's sole responsibility to determine and ensure that the roofing system selected complies with all local codes and requirements.
- G. All air intake ventilation equipment should be shut off and all ductwork openings should be temporarily sealed during product application.

### 1.8 Precautions

- A. Coatings may require mixing immediately prior to application. If mixing is required, mix at low speed to avoid entraining air into the coating. Coatings shall be mixed no more than 1 (one) hour prior to use.
- B. This product cures through absorption of moisture from the air. Avoid entraining air when mixing. Do not mix at high speeds.
- C. Remixing of 100% Silicone Roof Coating is permitted as necessary.
- D. Remixing of Mule-Hide 2-Part Epoxy Primer after expiration of its pot life is not permitted.
- E. No products with a "Flash Point" below 100°F shall be permitted due to associated fire hazard.
- F. No products with chlorinated "Toxic Exempt" solvents including perchloroethylene, 111 trichloroethane or methylene chloride or isocyanates shall be utilized due to the associated health hazards to workers and building occupants.
- G. No asphalt or vegetable based oils may be used in the production of any product included in this specification.
- H. Materials should be maintained at a minimum temperature of 50°F for 24 hours prior to the application to ensure the optimal application qualities.
- I. Do not apply coating when ambient temperature is within 5°F of the dew point.

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- J. Do not apply coatings during or just before rain, inclement weather or on frost covered or wet surfaces.
- K. The roof surface must be a minimum of 35°F to ensure that frozen condensation is not present on the roof surface.
- L. The roof surface should not exceed a maximum of 100°F to avoid blisters and pinholes.

### 1.9 Protection of Buildings and Adjacent Areas

- A. It is the sole responsibility of the installing contractor to protect all surfaces adjacent to the surfaces to be coated including but not limited to, windows, doors, equipment and wall surfaces, either from overspray, brushing or rolling of the coatings being installed.
- B. All roof top air intake equipment should be turned off and all openings should be sealed to prevent any fumes from entering the building.
- C. When spraying, parking lots adjoining the building should be blocked off sufficiently to protect vehicles from wind borne overspray.

### 1.10 Warranties

Mule-Hide Roof Coating NDL System Warranties (“System Warranties”) are available for commercial projects when approved by Mule-Hide and installed in compliance with Mule-Hide’s published specifications and details. System warranties are only available when applied for and installed by Mule-Hide Warranty Eligible Contractors. System Warranties are not available for residential projects. The 50-yr Silicone Limited Material Warranty is available for both residential and commercial projects. Mule-Hide defines a residential project as a single-family dwelling.

- A. Roof Coatings Warranty Application forms must be fully completed and submitted to the Mule-Hide Technical Department prior to beginning the project. Issuance of a warranty will be dependent upon completion of the project to the satisfaction of Mule-Hide and payment of any required warranty fees. Mule-Hide reserves the right to decline to issue any warranties for projects completed before the submittal of the proper Warranty Application to Mule-Hide.
- B. Mule-Hide 50-year Silicone Limited Material Warranty
  1. Mule-Hide offers a 50-year Silicone Limited Material Warranty for residential and commercial projects. This warranty maintains that the silicone coating, when applied at a minimum rate of 1.5 gallons per 100 sf. will retain its physical properties for the specified period, be free of manufacturing defects and not breakdown due to normal environmental conditions. This warranty does not include coverage for labor costs, leaks due to workmanship of the installed products, leaks caused by movement or deterioration of the existing roof surface to which the Silicone Roof Coating has been applied, leaks caused by other substrate conditions, other components not supplied by Mule-Hide and does not cover the appearance, cleanliness, discoloration or staining of the coating for any reason.
  2. Mule-Hide does not perform inspections of the installation before issuing the 50-year Silicone Limited Material Warranty. A Mule-Hide Warranty Application and proof of purchase (invoice) must be submitted to Mule-Hide to obtain this warranty. See the Mule-Hide 50-year Silicone Limited Material Warranty sample for specific terms and conditions. This warranty is not transferrable.
- C. Mule-Hide’s Roof Coatings NDL System Warranties for Commercial Buildings
  1. Mule-Hide offers a 10, 15 or 20-year Roof Coatings NDL System Warranties. The Roof Coatings NDL System Warranty is available through Mule-Hide Warranty Eligible Contractors only for commercial projects. This warranty is not available for residential projects. This warranty covers leaks due to manufacturing defects, premature weathering and the contractor’s workmanship of the installed product. This warranty does not cover leaks due to movement or deterioration of the existing roof surface to which the Silicone Roof Coating System has been applied, leaks caused by other substrate conditions, components not supplied by Mule-Hide and does not cover the appearance, cleanliness, discoloration or staining of the coating for any reason.
  2. See the Mule-Hide Roof Coatings NDL System Warranty sample for specific terms and conditions. Please contact the Mule-Hide Technical Department for information and requirements regarding the Mule-Hide Roof Coatings System Warranty Program.

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Mule-Hide Silicone Roof Coatings System warranties require the following minimum application rates:

**Table 1: Smooth Modified Bitumen systems**

Smooth Surface Modified Bitumen				
Warranty Type	Cleaner	Primer	Seams	100% Silicone Roof Coating
10-year	Clean with 115 Cleaner applied with low pressure sprayer then power washed.	If priming, use 1 coat @ .25 gal/100 sf 2-part epoxy or 1 coat @ 1.5 gal/100 sf Multibase SB	100% Silicone Sealant brush applied 4" wide @ 3.3 gal/100 linear feet centered over seam edge. Or 100% Silicone Roof Coating applied 4" wide @ 2.3 gal/100 linear feet centered over seam edge.	1 coat @ 1.5 gal/100 sf (24 wet mils, 23 dry mils)
15-year	Clean with 115 Cleaner applied with low pressure sprayer then power washed.	If priming, use 1 coat @ .25 gal/100 sf 2-part epoxy or 1 coat @ 1.5 gal/100 sf Multibase SB	100% Silicone Sealant brush applied 4" wide @ 3.3 gal/100 linear feet centered over seam edge. Or 100% Silicone Roof Coating applied 4" wide @ 2.3 gal/100 linear feet centered over seam edge.	1 coat @ 2.0 gal/100 sf (32 wet mils, 31 dry mils)
20-year	Clean with 115 Cleaner applied with low pressure sprayer then power washed.	If priming, use 1 coat @ .25 gal/100 sf 2-part epoxy or 1 coat @ 1.5 gal/100 sf Multibase SB	100% Silicone Sealant brush applied 4" wide @ 3.3 gal/100 linear feet centered over seam edge. Or 100% Silicone Roof Coating applied 4" wide @ 2.3 gal/100 linear feet centered over seam edge.	1 coat @ 2.5 gal/100 sf or (40 wet mils, 38 dry mils)

**Table 2: Granule Surface Modified Bitumen systems**

Granule Surface Modified Bitumen				
Warranty Type	Cleaner	Primer	Seams	100% Silicone Roof Coating
10-year	Clean with 115 Cleaner applied with low pressure sprayer then power washed.	If priming, use 1 coat of Multibase SB @ 1.5 gal/100 sf minimum	100% Silicone Sealant brush applied 4" wide @ 3.3 gal/100 linear feet centered over seam edge. Or 100% Silicone Roof Coating applied 4" wide @ 2.3 gal/100 linear feet centered over seam edge.	1 coat @ 1.5 gal/100 sf (24 wet mils, 23 dry mils)
15-year	Clean with 115 Cleaner applied with low pressure sprayer then power washed.	If priming, use 1 coat of Multibase SB @ 1.5 gal/100 sf minimum	100% Silicone Sealant brush applied 4" wide @ 3.3 gal/100 linear feet centered over seam edge. Or 100% Silicone Roof Coating applied 4" wide @ 2.3 gal/100 linear feet centered over seam edge.	1 coat @ 2.0 gal/100 sf (32 wet mils, 31 dry mils)
20-year	Clean with 115 Cleaner applied with low pressure sprayer then power washed.	If priming, use 1 coat of Multibase SB @ 1.5 gal/100 sf minimum	100% Silicone Sealant brush applied 4" wide @ 3.3 gal/100 linear feet centered over seam edge. Or 100% Silicone Roof Coating applied 4" wide @ 2.3 gal/100 linear feet centered over seam edge.	1 coat @ 2.5 gal/100 sf or (40 wet mils, 38 dry mils)

**Notes:**

- Minimum application rates listed do not include thickness of primers or areas where additional coatings are required.
- All side-laps and end-laps of the roofing membrane that are in the low-sloped plane of the roof are to be inspected with a seam probe. Seams that are determined to be improperly installed or have lost their performance need to be repaired with like membrane and then treated with the required seam-sealer, flashing compound or silicone coating at the application rates listed above.
- When priming granulated surfaces additional primer may be required due to the surface roughness. Dried color of the primer should be uniform in appearance over the entire surface. Dark areas may require additional primer.

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### Part 2 Products

#### 2.1 General

- A. The components of the Mule-Hide Silicone Roof Coating System shall be products manufactured or supplied by Mule-Hide Products Co., Inc.
- B. Components other than those supplied or manufactured by Mule-Hide may be submitted for review and acceptance by Mule-Hide's Technical Department. Any product requested for review and acceptance must be submitted prior to the job start. Mule-Hide's acceptance of any other product is based solely on chemical compatibility and published performance data provided by the component manufacturer. Other components may be considered on a job-by-job basis and must be approved in writing by Mule-Hide's Technical Department. Mule-Hide offers no warranty or guarantee for the performance or suitability of any component not supplied or manufactured by Mule-Hide.

#### 2.2 Products

The following Mule-Hide materials must be used to install Mule-Hide Silicone Roof Coating Systems. Mule-Hide will not warrant any application where another manufacturer's product is substituted for a Mule-Hide product. All products listed below are physically and chemically compatible with each other.

- A. **115 Cleaner** – a biodegradable detergent wash suitable for cleaning and preparing metal and aged roof surfaces (including but not limited to smooth BUR, modified bitumen, EPDM, TPO, Hypalon (CSPE) and PVC roof systems).
- B. **Si 2-Part Epoxy Primer** – a 2-part epoxy intended for preparing existing smooth surfaced asphalt roofs and modified bitumen prior to coating with Mule-Hide's 100% Silicone Roof Coating or 100% Silicone Sealant. The application rate is .25 gal/100 sf for smooth and granulated surfaces.
- C. **Multibase SB** – a one-component acrylic coating used as primer for granulated and smooth modified surfaces. The application rate is 1.5 gal/100 sf for smooth and granulated surfaces.
- D. **100% Silicone Sealant** – a high solids, moisture-cure silicone sealant intended for sealing joints in masonry, architectural metal, metal roof seams and fasteners and miscellaneous repairs prior to coating.
- E. **100% Silicone Roof Coating** - This product is a 100% silicone based, single-component roof coating that creates a barrier that is resistant to normal weathering, is durable, breathable and weatherproof. This product meets or exceeds the requirements of ASTM D6694. Refer to the Mule-Hide Product Data Sheets for physical properties and additional information.
- F. **MP Liquid Sealant** – a single component, non-shrink, polyurethane sealant used for filling/topping pitch pans.
- G. **ShapeShift Pitch Pans** – high-strength polymer straight and outside corner sections that snap-lock together to create custom sized pitch pans to seal around various roof penetrations.
- H. **Walkway Granules** – Mule-Hide Walkways granules are colored EPDM granules available in gray or safety yellow used with the 100% Silicone Roof Coating to provide a non-slip surface over a Mule-Hide Silicone Roof Coating System in areas of foot traffic or service areas.
- I. **Tietex® 325 Poly Fabric** – a stitch-bonded polyester product that offers high-strength properties with good elongation for excellent thermal stress force accommodations. Tietex 325 Poly Fabric is a soft polyester that will readily conform to surface irregularities and is easy to handle.

#### 2.3 Equipment

- A. Spray Equipment (optional) – Mule-Hide recommends the Graco GH 933ES Hi-Flo Big Rig sprayer with a Monarch 5:1 pump, 3/4" material hose (7,250 psi) up to 250 ft., 1/2" whip, XHF spray gun (7,250 psi) with a XDF 7,250 psi tip (.029 - .035). The recommended pressure at the gun should be 3,000 psi while spraying (Note: Pump lower must be set to maximum lower-ball travel).  
Note: Use of the Monarch pump requires the use of an air compressor capable of delivering 20CFM @ 90 psi.
- B. Miscellaneous equipment includes 3/4" to 1-1/4" nap, lint free, 9" and 4" roller covers and frames, 6' handles, 4" double wide chip brushes, roofers' trowels, scissors for cutting fabric and a 1/2" power drill with mixing attachment.
- C. Miscellaneous hand and power tools may be required to complete any repairs to the existing roof.

### Part 3 Execution

#### 3.1 Examination

- A. Prior to bidding the project a pre-inspection of the roof should take place with the Warranty Eligible Contractor and a Mule-Hide representative to review the conditions of the roof and determine if the roof is suitable for the application of a Mule-Hide Silicone Roof Coating System.
- B. Adhesion Tests

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1. The decision to perform adhesion tests should be determined at the time of the pre-inspection. Any metal roof systems having an existing coating covering the roof surface shall be required to have adhesion tests performed. While adhesion tests are not always needed when coating a bare metal roof, they are required when the metal panels are pre-painted or are covered with an existing coating applied that will not be removed. While there is no actual ASTM test method for field testing of adhesion for roof coatings, many manufacturers will reference ATSM D903 or ASTM D3359. Mule-Hide follows ASTM D903 and ASTM D6083 with modifications.
2. When an adhesion test is needed follow the procedure outlined in Mule-Hide Technical Bulletin 1803, Roof Coating Adhesion Test and submit the test results to the Mule-Hide Technical Department for review and comment.

### 3.2 Existing Conditions and Remedies

- A. Prior to the commencement of work, the roof shall be re-inspected and any conditions not included in the roof survey shall be added and noted. All new information must be communicated to the Mule-Hide prior to starting work.
- B. The existing roof assembly must be structurally sound, watertight and free of shrinkage, buckling, unacceptable ponding conditions, encapsulated moisture, open seams, open or damaged flashings, loose terminations or other serious defects. Do not install the Silicone Roof Coating System over saturated substrates or insulation.
- C. Defects and leaks shall be remedied prior to the installation of the Silicone Roof Coating System. Follow original manufacturers repair methods, refer to the NRCA Repair Manual for Low-Slope Membrane Roof Systems for individual condition repairs of defects or contact Mule-Hide Technical Department for recommendations. If repairs are extensive, contact Mule-Hide Technical Department for recommendations.
- D. Drains are recommended to be installed to allow positive drainage of the roof surface. Retained water may not cover more than 5% of the roof surface. If it is not possible to install drains, areas of ponding (must evaporate within 48 hours as defined by NRCA) may be eliminated by filling with insulation and installing new Mod Bit materials similar to the existing roof system before installing the Silicone Roof Coating System. Any areas where ponding remains beyond 48 hours shall require an increased rate of at least 1 (one) additional gallon per 100 sf.
- E. Existing insulation, membrane and all fasteners shall be inspected for insulation damage, membrane damage and fastener back out. Should any of these conditions exist, contact Mule-Hide Technical Department to determine a proper repair procedure.
- F. Any wet insulation must be removed and replaced with similar new insulation and new Mod Bit materials installed in the same manner as the Mod Bit membrane removed. Mule-Hide recommends following NRCA published guidelines for completing repairs and replacement of any area containing damaged or wet insulation or substrate. Depending on the extent of wet insulation, a complete replacement of the existing roof system may be required. Mule-Hide requires moisture scans be completed followed with core cuts to confirm the condition of the insulation and substrate.
- G. Existing flashings shall be properly terminated according to NRCA guidelines or the original membrane manufacturer's specifications. Defective terminations shall be remedied. Damaged flashings shall be repaired prior to installation of the Silicone Roof Coating System.
- H. Curbs and penetrations must not interrupt the flow of water off the roof. If defects are present, install crickets to divert water around the penetrations.
- I. If the existing roof surface contains aluminum coating, pressure wash the substrate, utilizing the 115 Cleaner as needed, to remove the loose aluminum flakes from the substrate. A change in color from silver to bronze will occur when the loose aluminum has been sufficiently removed. When the surface can be wiped or touched and no aluminum dust remains, the surface is sufficiently prepared to accept the Silicone Roof Coating System.
- J. If the existing roof surface has been coated with asphalt emulsion, the roof is not acceptable for direct application of the Silicone Roof Coating System. However, if polyester reinforcing fabric is floated on the surface of the existing asphalt emulsion, then a Silicone Roof Coating System may be installed (see section 3.4 C).
- K. The existing roof system must be returned to a sound, watertight condition prior to installation of the Silicone Roof Coating System.

### 3.3 Surface Preparation

- A. Mechanically remove all loose coatings and/or patching material as is possible. Wire brush to remove any areas of scaly rust on any metal surfaces to be coated. Remove all debris, dirt and other loose contaminants from the roof surface prior to cleaning.
- B. The roof surface shall be cleaned with Mule-Hide 115 Cleaner in accordance with Mule-Hide's most current Product Data Sheet. **Do not dilute the 115 Cleaner.** Apply direct to the roof with a mop, pump sprayer or other suitable low-pressure sprayer at a rate of 1 gallon per 100 square feet. Avoid contact with painted surfaces or vinyl siding. Allow wet contact with the roof surface for a minimum of 15 minutes. Areas that are heavily contaminated or working in hotter temperatures may require an increased application rate from 1 to 2 gallons per 100 square feet. Rewet the membrane with additional cleaner if needed. Agitate roof surface with stiff bristle broom or orbital scrubber. Heavily contaminated areas may require multiple cleanings with scrubbing to obtain a clean membrane.

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- C. Rinse the roof surface with clean water and a minimum 2,000 psi power washer until no 115 Cleaner residue remains. Allow roof to dry completely prior to system installation. Spot check the dried membrane with a clean rag by wiping the surface of the membrane to determine if any residue remains. If the cloth shows signs of residue (dirt or chalk) then repeat the rinsing of the membrane. A second cleaning application may be required.
- D. The contractor must be careful not to damage the existing membrane or inject water into the system while cleaning.
- E. Check local building ordinances for acceptable disposal of the rinse water. Many areas do not permit discharge into sewer systems or water containment areas. Compliance with local building codes and ordinances is the sole responsibility of the contractor.
- F. All repairs to the existing roof surface made with similar Mod Bit products may be primed upon completion of the repair. There is not a delay to priming unless there are exposed asphalts (60-day cure time) or asphalt based roof mastics (90-day cure time).
- G. Areas of the roof surface where there is exposed roof mastic from recent repairs will require a 90-day cure time prior to application of the Si 2-Part Epoxy Primer, Multibase SB or 100% Silicone Roof Coating. Priming roof mastics with less than a 90-day cure may cause cracking of the Silicone Roof Coating System.
- H. After cleaning of any substrate in preparation for the application of coating system components (primer, flashing grade, base and top coat) the application should begin as soon as practical and weather conditions allow. If this cannot occur within three to five days of cleaning, the substrate must be checked to ensure it has not become contaminated prior to the installation of these components. Rainfalls during this period can allow items like dust and pollen to be deposited on a freshly cleaned substrate causing contamination that will require additional cleaning.
- I. Coating system components must be applied to clean, dry substrates.
- J. When priming Mod Bit roof surfaces and flashings with a recommended primer. Apply 1 coat of primer at the recommended application rate. Allow a minimum of 8 hours of drying time. Lower temperatures or high humidity may require longer drying times.

### 3.4 Application

- A. Mule-Hide recommends all Mod Bit roof surfaces, Mod Bit flashings and cleaned rusted metal intended to be coated with silicone coatings or sealants be primed with Mule-Hide Si 2-Part Epoxy Primer or Multibase SB to prevent staining or bleed through of asphalt or rust.
- B. If asphalt roof mastic has been used for repairs, exposed mastic must be allowed to cure for a 90-day period prior to priming.
- C. If the existing roof surface is aged emulsion, a layer of polyester fabric must be adhered (floated) to the existing roof surface prior to the application of the primer or the silicone coatings. Apply a coat of emulsion at the rate of 3 gal/100 sf. for smooth surfaces 6 gal/100sf. for granulated surfaces. Immediately lay the polyester fabric into the wet emulsion. Only apply enough pressure to the polyester to make positive contact with the emulsion. Do not try to fully embed the fabric into the emulsion. Allow the emulsion to dry. Apply the new primer or silicone at the recommended rates listed in section 1.10, Tables 1 and 2.
- D. If priming, begin the roof application by applying 1 coat of primer using application rates in section 1.10, Tables 1 and 2. To all surfaces to be coated with the silicone coating. Allow to dry until the next day (minimum of 8 hours drying time) prior to applying the 100% Silicone Roof Coating.
- E. All Mod Bit and asphaltic roof surfaces that have proper drainage (no ponding exists) may be primed with Multibase SB (where permitted).
- F. It is recommended that all details including but not limited to: curbs, parapets, penetrations, drains, scuppers, pitch pans, valleys, waterways, pipes, and light ponding areas are properly prepared as follows prior to coating the roof:
  - 1. Seams.
    - a. All partially separated Modified Bitumen seams (including but not limited to seams, end laps and edges of all flashings) shall be caulked with Mule-Hide 100% Silicone Sealant. Sealant is applied approximately 1/8" thick, 4" wide centering over the seam edge and tapered on the edges at an application of 3.3 gal/100 lf (linear feet).
    - b. An option to 100% Silicone Sealant is to strip seams and end laps with Mule-Hide 100% Silicone Roof Coating. After priming the roof surface with the Si 2-Part Epoxy Primer or with Multibase SB (where permitted), the 100% Silicone Roof Coating shall be applied in a strip 4" wide centering over the seam edge at an application rate of 2.3 gal/100 linear feet. (112 wet mils). Allow to dry until the next day (minimum of 12 hours) before coating the roof surface with the 100% Silicone Roof Coating.
    - c. The seam repairs and reinforcement installation above are used as the basis for all other stripping and flashing applications, if not specified, the overlaps and minimum reinforcements from this section should be used.
  - 2. Flashings and Penetrations
    - a. Corners of curbs and parapets are coated with 100% Silicone Sealant at a rate of 1/8<sup>th</sup> of an inch thick (125 wet mils). Apply with a brush or trowel 4" wide (2" out from the corner on each side) and 1/8" to 1/4" thick



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- tapering all edges. Allow to dry until the next day (minimum of 12 hours) prior to applying the 100% Silicone Roof Coating.
- b. Curbs flashed with Mod Bit Cap Sheet shall have all seams/edges of flashings sealed with the 100% Silicone Sealant. After primer has dried, Sealant is applied 4" wide the entire length of each seam with a 4" brush, applied approximately 1/8" thick and tapered on the edges.
  - c. Scuppers are flashed using 100% Silicone Roof Sealant installed a minimum of 2" into the throat of the scupper, 3" minimum onto the wall or deck surrounding the scupper opening and approximately 1/8" thick.
  - d. Pipes are flashed using 100% Silicone Roof Sealant. If priming, allow primer to dry a minimum of 6 hours prior to application of the 100% Silicone Roof Sealant.
    - i. If the pipe flashings are in sound condition, 100% Silicone Sealant may be applied with a brush or trowel approximately 1/8" thick around the pipe base extending from the base of the pipe out approximately 3". The sealant shall also be applied vertically a minimum 8" (where possible) encapsulating the existing flashing to the point of termination.
  - e. Sealant pockets are flashed similar to pipes. The entire top of the pocket and penetrations (minimum 1" onto the penetration) are coated with 100% Silicone Roof Coating.
  - f. Sealant pockets in sound condition may be coated with the 100% Silicone Sealant applied with a brush or trowel 1/8" to 1/4" thick fully encapsulating the sealant pocket. Sealant should extend out from the base of the pocket a minimum of 3" on all sides with edges tapered to provide a smooth transition for the 100% Silicone Roof Coating.
  - g. Drains shall have a bead of 100% Silicone Sealant applied and feathered at the rear of the drain ring. Installation of the 100% Silicone Roof Coating shall be installed onto the feathered sealant.
4. Waterways, Valleys, and Areas Which Retain Water
- a. Areas identified, after being primed as necessary, should be treated with an additional 1.0 gallon per 100 sf of 100% Silicone Roof Coating beyond the recommended application rate required for the specified warranty duration.
5. Application over Blistered Areas
- a. Blisters which occur in the cap ply of the Mod Bit which exposes the existing insulation must be repaired using like materials prior to the installation of the 100% Silicone Roof Coating.
  - b. If there are additional waterproofing plies below the cap sheet, the blisters can be removed and the area left can be treated similar to a Waterway in the previous section.
  - c. The step-off of the plies shall be treated with 100% Silicone Sealant feathered to provide a smooth transition to the area removed prior to the installation of the 100% Silicone Roof Coating.
- G. Silicone Roof Coating Application
1. Make sure all roof surfaces to receive the roof coating, are clean, free of any contamination or debris and are dry. Make sure all prep work is completed and dry prior to starting coating of the roof surface.
  2. Thoroughly stir all containers of 100% Silicone Roof Coating prior to application. Do not thin this product. This product cures through absorption of moisture from the air. Avoid entraining air when mixing. Do not mix at high speeds. Dry time will be faster in humid conditions. Do not apply this product over damp or wet surfaces.
  3. Open and partially full containers will skin over quickly. If this occurs, remove skin and continue using the remaining product. Mule-Hide recommends applying the 100% Silicone Roof Coating either by spraying or rolling.
  4. Apply 100% Silicone Roof Coating at the application rate as determined by the warranty requirements. See Section 1.10 Warranties for application rates. Material is fast drying. Do not distribute excessive amounts onto the roof surface prior to rolling. Do not over roll as a textured finish will result. Allow coating to dry. Typical drying time in 60 - 70°F temperatures is 2 to 4 hours depending on the thickness of the application.
  6. If spraying, use a multi-pass technique to obtain even results. Protect unintended surfaces from overspray. It is not recommended to use a spray application if any wind is occurring.
  7. Use a wet film thickness gauge during installation to confirm application rates.
  8. See Section 1.10 Warranties for information on wet/dry film thickness requirements for the various warranties available from Mule-Hide.
- H. Walkway Areas
1. Walkways may be constructed over newly installed silicone roof coatings with the use of the Mule-Hide Walkway granules and additional silicone coating.
  2. Create outlines for the walkways by taping these areas off with masking or painters tape.
  3. Apply a fresh coat of 100% Silicone Roof Coating at a rate of 2 gal/sq.
  4. As soon as the silicone is applied immediately broadcast the granules into the wet coating at a minimum rate of 15 lbs. per 100 square feet. Make sure the granules completely cover the new coating.
  5. As soon as the granules are broadcast, remove the tape. Do not wait for the silicone to dry.
  6. Do not let the silicone skin over before applying the granules as the granules will not adhere to the silicone. The silicone must be wet.

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7. Allow the coating to dry until the next day. Once dry, vacuum the loose granules to prevent the excess from going into drains or gutters.
8. Over time, walkway surfaces may wear, but can easily be repaired or resurfaced by applying additional 100% Silicone Roof Coating and new granules.

Note: Walkways are maintenance items not covered by Mule-Hide warranties. Additional coating and granules and their application are the responsibility of the building owner.

### 3.5 Protection

Always follow OSHA guidelines for proper safety clothing and equipment when spraying products.

### 3.6 Clean-Up

Remove all containers, equipment, and debris from the rooftop and project site upon project completion. Refer to each individual Product Data Sheet for clean-up of each individual product.

**Note: When estimating materials necessary to complete a Silicone Roof Coating System it is the Contractor's responsibility to include material calculations for waste.**

**END OF SECTION**