



Application Specification:

ASP-S2000-22-10

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GACOFLEX™ S2000 ELASTOMERIC SILICONE COATING FOR RESTORING MODIFIED BITUMEN AND SMOOTH BUILT-UP ROOFING MEMBRANE ASSEMBLIES

PART 1 – GENERAL

1.1 SUMMARY

- A. This specification provides a remedial roof coating for application over existing smooth and granule-surfaced modified bitumen and smooth built-up roofing membranes (BUR), including mineral surfaced cap sheets (but excluding gravel-surfaced built-up roofs). Application is restricted to circumstances in which the membrane substrate is in sound condition but requires a renewal of the surface due to the normal effects of aging and use.

NOTE: This specification only includes GacoFlex S2000 White Elastomeric Silicone Roof Coating. Non-white (i.e., colored) silicones are not approved for use on asphalt substrates.

When properly applied, the GacoFlex S2000 Elastomeric Silicone Roof Coating provides a weathertight membrane that protects the substrate from degradation caused by ultra violet light (UV), water, and other normal weathering hazards. The substrate should have at least a 1/4" slope per foot to promote positive drainage.

- B. The GacoFlex S2000 Elastomeric Silicone Roof Coating discussed in this specification has a moderate rate of water vapor transmission and is not recommended for use on cold storage or cryogenic structures that may have constant high water vapor drive causing long-term accumulation of moisture in the roofing system that serves as a substrate for the GacoFlex S2000 Elastomeric Silicone Roof Coating.
- C. This specification is intended only as a guide for the development of a project specification. The suitability of this specification for a particular project must be determined by a qualified representative of the owner.

Conditions to check and corrections to consider are:

- The type of pre-existing system must be identified.
- All pre-existing membranes must be fully adhered or mechanically attached and intact.
- The structural decking must be sound.

Elements of this specification may require modification in order to clearly delineate project requirements. Sections that are not pertinent may be deleted.

- D. Adhesion tests are strongly recommended prior to bidding. A Coating Applicator that is licensed by the product manufacturer should perform wet and dry adhesion tests as instructed in GacoFlex General Instructions GW-1-3 Adhesion Testing Procedures using the products listed in Section 2.2.

1.2 RELATED SECTIONS

A. Cast-In-Place Concrete:	Division 03 30 00	F. Vapor /Air Barriers:	Division 07 25 00
B. Flashing/Sheet Metal:	Division 07 60 00	G. Board Insulation:	Division 07 22 00
C. Roof Accessories:	Division 07 72 00	H. Skylights:	Division 08 60 00
D. Rough Carpentry/Wood Blocking:	Division 06 10 00	I. Metal Decking:	Division 05 30 00
E. Drains, Vents and Penetrations:	Division 22 14 26.13		

1.3 SUBMITTALS

- A. **Product Data:** Submit manufacturer's standard submittal package including specification, installation instructions and general information for each waterproofing material.
- B. **Applicator Qualifications:** Submit current Letter of Good Standing from the specified waterproofing manufacturer.
- C. Warranty must be supplied by product manufacturer
- D. **Substrate Conditions:**
 - 1. Applicator to present to owner a completed inspection report verifying substrate condition and any noted defects not specifically addressed in regard to the installation of the coating.
 - 2. Surface shall be free from loose dirt, stone, debris, moisture, and shall be in stable condition. Any work on the area to receive this application shall be completed prior to the installation of the coating.
 - 3. Applicator shall complete a substrate inspection prior to the start of the installation of the coating. The architect/owner and Applicator shall accept the substrate. Start of the work constitutes acceptance.

1.4 QUALIFICATIONS

- A. Primary waterproofing materials shall be the products of a single manufacturer. Secondary materials shall be recommended by the primary manufacturer. The manufacturer shall have a minimum of 10 years' experience in the manufacture of materials of this type.
- B. Applicators shall have a minimum of 5 years' experience in the application of waterproofing materials of the type specified. The Applicator shall possess a current Letter of Good Standing from the specified waterproofing manufacturer.
- C. **Pre-Bid Conference:** Ten (10) working days prior to the bid opening there is to be a mandatory Pre-Bid Conference. Those not attending the Pre-Bid Conference will not be allowed to bid the project. All products considered an equal to the specified product or any changes in the scope of work, installation, or specifications must be presented at the Pre-Bid Conference. If a change in the specifications is accepted, it will be considered as an alternate and will be presented as a bid addendum issued five (5) working days prior to the bid opening. No other changes to the specification or bid documents will be accepted.
- D. Materials other than those specified shall be submitted to the architect/owner for approval no later than ten (10) days prior to the bid date. In requesting prior approval, it shall be necessary to submit:
 - 1. A letter of certification, signed by an officer of the manufacturer, stating that the alternate material is equal to or better than the specified product.
 - 2. Independent laboratory test data giving physical property values in comparison to the specified material.
- E. **Pre-Installation Conference:** Just prior to the commencement of the installation, meet at the job-site with a representative of the coating manufacturer, Applicator, general contractor, architect, and other parties affected by this section. Review the methods and procedures, substrate conditions, scheduling, and safety.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Owner/owner's representative shall reject damaged or non-conforming materials. Rejected materials must be removed immediately from the job site.
- B. Store the coating materials as recommended by the manufacturer and conforming to applicable safety regulatory agencies: town or city, state, and federal. Refer to all applicable data including, but not limited to: Safety Data Sheets, Product Data Sheets, product labels, and specific instructions for personal protection.
- C. Provide adequate ventilation, protection from hazardous fumes, and overspray potential to workers and associated trades in close proximity of the site application.

1.6 WARRANTY

- A. Manufacturer warrants that the material supplied will meet or exceed physical properties as published. The Applicator guarantees that workmanship will be free of defects in coating application. Since performance of previously applied coatings is beyond the control of Manufacturer and Applicator, requests for additional warranty coverage shall be subject to prior approval by Manufacturer.

- B. Warranty must be supplied by product manufacturer.
- C. **Protection of building and occupants:**
1. All surfaces not to receive the coating specified shall be protected from overspray hazard, e.g., windows, doors, exterior surfaces and facades, parking lots, and vehicles. Protective coverings shall be secured against wind and shall be vented if used in conjunction with applications preventing collection and moisture.
 2. Applicator to post signs noting potential overspray hazard within 400' (121.90 m) of applications.
 3. All air intake ventilation equipment shall be turned off to prevent fumes from entering building.
 4. Surfaces damaged during application shall be restored at no expense to the owner.
 5. No smoking signs to be posted as mandated by local fire officials.
- D. **Substrate:** Proceed with work as specified only after substrate construction, preparation, and detail work has been completed.
- E. **Equipment:** All equipment used during operations shall be located so as not to adversely affect the daily operations or endanger occupants, structure, or materials on-site. All spray equipment must be grounded during operations.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

Acceptable Manufacturers:

Gaco, www.gaco.com

2.2 MATERIALS

- A. **Bleed Blocker:** GacoFlex A4271 BleedTrap™ Base Coat (as needed)
- B. **Primer:** GacoFlex E5320 2-Part Epoxy Primer/Filler
- C. **Flashing:** *Select one of the following:*
1. GacoFlex 66S Reinforcing Polyester Mesh
 - or
 2. GacoFlex SF2000 SeamSeal
 - or
 3. GacoPatch Silicone Roof Sealant
- D. **Coating:** GacoFlex S2000 Elastomeric Silicone Coating having the following physical properties:

GacoFlex S2000 Elastomeric Silicone Coating		
PROPERTY	VALUE	TEST METHOD
Tensile Strength	450 psi	ASTM D412
Elongation	169 %	ASTM D412
Solids	96.5% by weight 95% by volume	ASTM D1644 ASTM D2697
VOC	< 50 Grams/liter	EPA Method 24
Reflectance	0.87 initial	ASTM Method 4041 Fed. Std. 141
Water Vapor Permeability	5.0 Perms	ASTM E96-B

PART 3 – EXECUTION

3.1 EXAMINATION

- A. A nuclear or infrared scan must be performed and any wet roofing materials must be removed and replaced.
- B. Repair to the structural components of the roof should be completed.
- C. Verify that the drains, vents, ducts, gutters, metal cap flashing or other penetrations have been replaced or modified.
- D. An aged reinforced single ply membrane exhibiting significant millage loss to the point that the reinforcement scrim is exposed must be disqualified as a suitable substrate to receive a coating system. Aged thermoplastic membranes that shrink or have become brittle due to plasticizer loss must be disqualified as suitable substrates to receive a coating system. Please contact Technical Services for recommendations.

3.2 PREPARATION

NOTE: It is extremely important for the roof to be clean and dry.

- A. First remove heavy deposits of dirt, leaves and other debris from the roof using a stiff broom or air broom, then inspect the entire roof surface and flashings for any open seams, tears, cuts, etc. Repair these defects using “like” materials recommended by the membrane manufacturer so water does not enter the roofing system during the cleaning process. Pressure wash roof with water and allow to dry completely.
- B. After the roof is dry from initial cleaning, apply GacoWash Concentrated Cleaner according to label instructions with sprayer of choice, using a 3-4 foot (0.91-1.22 m) arc pattern. A Hudson-type agricultural sprayer, conventional pressure sprayer or airless sprayer is recommended. Allow solution to stand for 10-15 minutes, adding a light mist of water to prevent drying. While it sets, lightly agitate any heavily soiled areas with a broom or brush. Do not allow dirt to settle in low areas. Use a commercial power washer >3,000 psi (20.69 MPa) to remove debris and continue rinsing until all suds are gone. Start at the lowest point of the roof and work towards the highest point. For low-sloped roofs, work away from and then back towards, roof drains. It is important to keep the surface wet until all of the GacoWash and other residue has been completely rinsed off and the surface is clean. After cleaning and rinsing the roof, ensure no dirt or debris is present.
- C. **Biological Control:** Areas of algae, mildew or fungus on the roof membrane or the existing coating should be treated with a solution of 1-part household bleach and 3-parts water, followed by a power washer rinse using clear water.
- D. **Drying:** Allow surfaces to thoroughly dry to prevent blistering of the GacoFlex S2000 Elastomeric Silicone Coating. Examine roof, paying particular attention to areas of physical damage to determine that residual water has in fact dried before applying GacoFlex S2000 Elastomeric Silicone Coating.

NOTE: Drying time depends on weather conditions such as temperature, humidity and air movement. The above drying times assume good weather (70 °F / 21 °C daytime temperature) and no rain. Conditions of lower temperature and rain will require a longer period for drying.

3.3 PREPARATION

- A. **Technical Advice:** The installation of this system shall be accomplished with the advice of, the manufacturer's technical representative. Contact Technical Services for assistance.
- B. **Repairs:**
 - 1. Inspect the roofing system for open field seams, open side laps, open flashings, or voids and perform repairs using granule surfaced APP membrane that is torch-applied or heat fused, regardless of the existing asphalt membrane type. Fish mouths should be cut and allowed to lie flat prior to repair.
 - 2. Areas of delaminated, warped, bowed or saturated insulation must be removed down to the structural decking, replaced with compatible materials and appropriately attached. The roofing membrane should be repaired using granule surfaced APP membrane that is torch-applied or heat fused, regardless of the existing asphalt membrane type.
 - 3. Repair or replace defective edge attachments or base tie-ins and wall or penetration flashings using granule surfaced APP membrane that is torch-applied or heat fused, regardless of the existing asphalt

membrane type.

4. Remove defective pitch pan filler, metal flashing sealants or termination caulking and replace with appropriate materials.
 5. **NOTE:** Only torch-applied or heat fused granule surfaced APP membrane may be used for repairs to the asphalt roofing substrate prior to the installation of GacoFlex S2000 Silicone Roof Coating, regardless of the existing asphalt membrane type. Do not use SBS, smooth APP or self-adhering membranes. Do not use asphalt mastics or cold adhesives as part of remedial roof repairs.
 6. **NOTE:** All areas repaired with new granule surfaced APP membrane must be coated with two (2) applications of A4271 BleedTrap Base Coat and primed with E5320 2-Part Epoxy Primer/Filler prior to the installation of GacoFlex S2000 Silicone Roof Coating.
- C. **Bleed Blocker:** BleedTrap may be brushed, rolled, or spray applied at an approximate rate of 1 gal / 100 ft² (3.79 L / 9.29 m²). Additional material may be required over rough or granular surfaces. A continuous dry film thickness (DFT) of 6 mil is important to help prevent the migration of oils to the surface. See Product Data Sheet for specific application instructions.
- NOTE:** Manufacturer's warranty does not cover discoloration or blistering of GacoFlex S2000 Silicone Roof Coating caused by oil migration or "off-gasing," so BleedTrap is strongly recommended over APP, Smooth BUR, and Mineral Surface Cap Sheets. BleedTrap is required over all SBS roofing substrates. For previously coated asphalt substrates, contact Technical Services for BleedTrap requirements.
- D. **Primer:** Apply GacoFlex E5320 2-Part Epoxy Primer/Filler at a rate of 1 gal / 600-800 ft² (3.79 L / 55.74-74.32 m²) – for SMOOTH substrates or 1 gal / 250 ft² (3.79 L/23 m²) for ROUGH SURFACES to produce a DFT of 1-2 mil. **Do not over-apply.** When properly mixed and applied, E5320 Primer should remain a translucent pink color in its cured state. Spray application of E5320 Primer (i.e., a non-continuous dusting) is preferred to achieve the required coverage rate, but roller application using a 1/4" (6.4 mm) to 3/8" (9.5 mm) nap roller or nylon brush is permitted. Allow E5320 Primer to cure for a minimum of 6 hours (longer in overcast or humid conditions) before the application of the GacoFlex S2000 Silicone Roof Coating.
- E. **At all flashing seams, corners, and vertical/side laps, choose one of the following:**
1. Apply GacoFlex S2000 Elastomeric Silicone Roof Coating by brush or roller at a minimum width of 6" (152 mm) centered on the seam at minimum rate of 1.5 gal/100 ft² (5.75 L/9.25 m²) to obtain a Wet Film Thickness (WFT) of 24 mils (approx. 200 LF/gal). Immediately embed a 4" (102 mm) strip GacoFlex 66S Reinforcing Polyester Mesh into the wet coating until the Polyester Mesh is completely saturated. The Polyester Mesh must be smoothly applied without wrinkles, "fish mouths," blisters, or pin holes. Once the Coating with embedded Polyester Mesh is firm to the touch, apply another coat of GacoFlex S2000 Elastomeric Silicone Roof Coating at a minimum rate of 1.5 gal/100 ft² (5.75 L/9.3 m²) to completely encapsulate the Polyester Mesh. Allow to cure for a minimum of 24 hours (longer in overcast or low humidity conditions) before applying a top coat of GacoFlex S2000 Silicone Roof Coating.
 2. Apply GacoFlex SF2000 SeamSeal applied at a minimum of 4" (102 mm) wide, crested and centered at the seam, with a minimum thickness at the center of 64 wet mils (approx. 70 LF/gal). Allow SF2000 to cure for a minimum of 4 hours (longer in overcast or low humidity conditions) before applying a top coat of GacoFlex S2000 Silicone Roof Coating.
 3. Apply GacoPatch Silicone Roof Sealant by brush, trowel or putty knife as received at a minimum wet thickness of 1/8" (3.2 mm) and spread at least 3" (76.2 mm) in all directions from the affected area for an approximate coverage rate of 12 ft² per gallon. For cold weather applications (ambient temperature <40 °F (4° C)), keep GacoPatch stored above 65 °F (18 °C) until just prior to application and do not apply to substrates with temperatures below freezing or above 120 °F (49 °C).
- F. **HVAC / Electrical:** Existing HVAC Units and other equipment on curbs with a membrane flashing: The membrane flashing must be coated up to the bottom of the metal cap of the unit and sealed underneath with a 100% silicone sealant. Curbs must be a minimum of 8" (203 mm) above the roofing membrane.
- G. **Sleepers:** Any units that are sitting on sleepers must be lifted so that the membrane underneath the units can be cleaned, primed and coated. An approved slip sheet must be placed under the sleepers to protect the coating. If the

units are not lifted off the deck so as to be able to accomplish this procedure, the untreated area will be excluded from the manufacturer's warranty.

H. Silicone Coating:

1. **FOR SMOOTH MODIFIED BITUMEN AND SMOOTH BUR:** Apply one (1) coat of GacoFlex S2000 Silicone Roof Coating at the average rate of 1.5 gal / 100 ft² (5.7 L / 9.25 m²) to obtain 24 mils WFT (for 22 mils DFT). Coat all surfaces including expansion joint covers and flashings. At all edges and penetrations, an extra pass must be applied.

or

2. **FOR GRANULAR AND/OR ROUGH SURFACES:** Apply one (1) coat of GacoFlex S2000 Elastomeric Silicone Roof Coating at a rate 2 gal / 100 ft² (8.5 L / 9.25 m²) to obtain 24 mils WFT (for 22 mils DFT). Ensure that the coating has fully encapsulated all granules. Coating mils will be lost due to encapsulation.

Optional Granular Coat: An additional granular coat may be added. Apply one coat of GacoFlex S2000 Silicone Coating at a minimum rate of 0.5 gal / 100 ft² (1.9 L / 9.25 m²). Immediately broadcast white roofing granules into the wet coating at the rate of 30 lbs / 100 ft² (13.6 kg / 9.25 m²).

Optional WalkPad: *THESE INSTRUCTIONS APPLY TO APP and BUR(S) membranes only**

Apply one coat of GacoFlex SF2036 WalkPad at a rate of 4 gal / 100 ft² (15.2 L / 9.25 m²) to obtain 64 mil WFT. Immediately broadcast GacoWalkPad safety yellow granules into wet coating at a rate of 0.5 lb / 100 ft² (0.23 kg / 9.25 m²) improve traction.

CAUTION: While the use of granules will improve traction, caution should still be exercised when walking on the coated roofing system, especially in wet conditions.

NOTE: Tape off WalkPad area using duct tape. Remove duct tape while coating is still wet.

NOTE: GacoFlex WalkPad SF2036 is the *only* walk pad system approved for use with GacoFlex S2000 Silicone Roof Coating. However, WalkPad may not be used on coated SBS roofing membranes.

NOTE: Unlike single ply membranes, modified bitumen and built up roofs have varying degrees of cracks in the surface of the asphalt and bleed out at the seams. More than 1.5 gal / 100 ft² (5.7 L / 9.25 m²) application may be necessary to obtain the required 22 mils DFT everywhere. With this application it is highly recommended that a test patch be installed to determine how much coating will be needed because asphalt roof surface profiles vary due to weathering and other factors.

3.4 FIELD QUALITY CONTROL

- A. Any variations from the specified limits found by the Applicator or owner's representative shall be corrected by the Applicator.
- B. **Dry Film Thickness:** The total dry mil thickness of the coating, without a granular coat, shall measure a minimum of 22 dry mils. Gaco suggests adding a 10% variance factor to obtain the minimum dry mils required. It is the Applicator's responsibility to calculate the amount of coating needed to obtain the required minimum dry mils.
- C. 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 Applicator.