



Application Specification:

MR-S2100-38-20
Revised: 09/2020

DIVISION 07 01 50.61: GACOFLEX™ S2100 SERIES ELASTOMERIC SILICONE ROOF COATING FOR RESTORING AGED METAL ROOFING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. This specification provides a remedial roof coating for application over existing weathered metal roofing systems of all profiles. Application is restricted to circumstances in which the metal panel substrate is in sound condition, but requires a rejuvenation of the overall finish to prolong the useful life of the metal roofing system.

When properly applied in conjunction with seam restoration and fastener replacement, the GacoFlex S2100 Elastomeric Silicone Roof Coating provides a weathertight seal that protects the substrate from degradation caused by ultra violet light (UV), water, and other normal weathering hazards. The metal panels must be free of deflection and should have at least a 1/4" (0.64 cm) slope per foot to promote positive drainage.

Suitable metal surfaces to receive a GacoFlex S2100 Silicone Roof Coating include steel (aged at least one year or treated galvanized steel), anodized aluminum, and pre-finished metal (other than siliconized and fluorocarbon finishes). The S2100 Roof Coating is intended to renew an existing finish or add improved reflectivity to bare metal.

- B. The GacoFlex S2100 Elastomeric Silicone Roof Coatings discussed in this specification have a moderate rate of water vapor transmission and are not recommended for use on cold storage or cryogenic structures that may have constant high water vapor drive causing long-term accumulations of moisture.
- 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 existing metal panel roofing system must be identified.
- The existing metal panels must be fully secured and intact.
- Structural elements must be sound.

- D. Adhesion tests are strongly recommended prior to bidding. A coating Applicator 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, below.

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:**

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:**
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.
- F. Meets Energy Star performance levels for reflectivity and Recycled Content.

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. A Twenty (20) Year Material and Labor Warranty must be supplied by the 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 meters) 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 Manufacturer:
Gaco, www.gaco.com

2.2 MATERIALS

- A. **CLEANER:**
GacoFlex GacoWash Concentrated Cleaner
- B. **SACRIFICIAL TAPE:**
ScotchBlue™ Original Painter's Tape or equivalent (as needed)
- C. **PRIMER:**
GacoFlex E5320 2-Part Epoxy Primer/Filler
- D. **FLASHING:**
GacoFlex 66S Reinforcing Polyester Mesh
or
GacoFlex SF2000 SeamSeal
or
GacoPatch Silicone Roof Sealant
- E. **COATING:**
GacoFlex S2100 Silicone Roof Coating having the following physical properties:

S2100		
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
Recycled Content	37%	

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Metal panels must be structurally sound and securely fastened. Severe oxidation may render some panels unsuitable to serve as a proper substrate for the coating and should be replaced as needed.
- B. Verify that substrate is ready to receive work; surface is clean, dry and free of substances that could affect bond.
- C. Verify that all other work involved with this area, done under other sections, has been completed and accepted by the architect, general contractor, or owner prior to starting the waterproofing application.

3.2 PREPARATION

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

- A. Remove heavy deposits of dirt, leaves and other debris from the roof using a stiff broom. Inspect metal fasteners and retighten where possible. Where fasteners are missing, corroded, or neoprene grommets are deteriorated, replace with oversize screws. Inspect horizontal and vertical seams, panel end laps, and tension bars/straps. Where necessary, remove fasteners to separate the panels, remove existing sealant, add new butyl caulk, and re-secure with new fasteners to create a water-tight compression seal.
- B. Pressure wash the roof with water and allow to dry completely. 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 drainage devices. 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 or an existing coating should be treated with a solution of 1 part household bleach and 3 parts water, followed by a power wash rinse using clean water.
- D. Drying: Allow surfaces to dry thoroughly. Examine the roof, paying particular attention to areas of physical damage or previous repairs to determine that residual water has in fact dried before applying GacoFlex S2100 Roof 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.

- E. Structurally sound metal panels with moderate to extensive oxidation should be cleaned and/or lightly abraded to remove loose surface rust and treated with a rust-inhibiting primer to help prevent corrosion from spreading.

3.3 INSTALLATION

- A. Technical Advice: The installation of this coating shall be accomplished with the advice of, the manufacturer's technical representative. Contact Technical Services for assistance.
- B. Primer: Apply GacoFlex E5320 2-Part Epoxy Primer/Filler at a rate of 1.0 gal per 300 ft² (3.78 L / 27.8 m²) for a Dry Film Thickness (DFT) of 2-3 mils. **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 dry mils, but roller application using a ¼" to ⅜" 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 S2100 Silicone Coating.

NOTE: Oxidized metal panels that have been treated with a rust-inhibiting primer as described in 3.2.E must be primed with two (2) coats of GacoFlex E5320 2-Part Epoxy Primer/Filler.

NOTE: E5320 should be coated within 72 hours of application. If E5320 is exposed for greater than 72 hours, please contact Technical Services for assistance.

- C. At all seams and laps, choose one of the following:

1. Apply GacoFlex S2100 Silicone Coating by brush or roller at a minimum width of 6" centered on the seam at a minimum rate of 1.5 gal per 100 ft² (5.7 L / 9.3 m²) to achieve a Wet Film Thickness (WFT) of 24 mils (approximately 200 LF (61 m)). Immediately embed a 4" 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 S2100 Silicone Coating at a minimum rate of 1.5 gal per 100 ft² to completely encapsulate the Polyester Mesh. Allow to cure for a minimum of 24 hours (longer in overcast or low humidity conditions) before applying S2100 top coat.
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 to cure for a minimum of 4 hours (longer in overcast or low humidity conditions) before applying a top coat of GacoFlex S2100 Silicone Roof Coating.
3. Apply GacoPatch Silicone Roof Sealant 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 to cure for a minimum of 4 hours (longer in overcast or low humidity conditions) before applying a top coat of GacoFlex S2100 Elastomeric Silicone Roof Coating.

NOTE: After the S2100 top coat has been applied, the Applicator must walk the roof and make sure that all seams are covered. If any open seams are discovered, additional S2100 coating must be brushed on the seam until it is completely encapsulated. GacoFlex SF2000 SeamSeal is an acceptable alternate.

D. 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.

E. Coating: Apply one coat of GacoFlex S2100 Silicone Coating at the average rate of 2.5 gal per 100 ft² (9.5 L / 9.25 m²) to obtain 40 mils WFT (38 mils DFT). Coat all surfaces including expansion joint covers and flashings. At all edges and penetrations, an extra pass must be applied.

Optional Granular Coat: An additional granular coat may be added. Apply one coat of GacoFlex S2100 Silicone Series at the rate of not less than 0.5 gal per 100 ft² (1.89 L / 9.3m²) for a DFT of 8 mils. Immediately broadcast white roofing granules into finish coat at the rate of 30 Lbs per 100 ft² (13.6 kg / 9.3 m²).

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: Application rate is project-specific. Actual coverage may be less due to surface profile, losses due to overspray and wind, and residual coating left in the container. Additional material may be required to achieve a minimum of 38 mils DFT.

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 38 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.