

Application Specification:

MR-22-GF21
October 2016
Supersedes 10/15

DIVISION 07 01 50.61:
GACO WESTERN GACOFLEX S21 ELASTOMERIC SILICONE COATING
FOR REHABILITATION OF AGED METAL ROOFS

PART 1 - GENERAL

1.1 SUMMARY

- A. This specification provides a waterproof, weather resistant, color-stable silicone elastomeric membrane for renovation of aged metal roofs of all types and shapes. GacoFlex Silicone Coatings, along with primer and joint treatment, will provide excellent protection for metal roofs, effectively sealing seams and fastener penetrations and renewing the overall finish in order to extend the useful life of the roof assembly.
- B. GacoFlex® S2100 White Cleanable Solvent-Free Silicone Coating is the first high-solids 100% silicone coating to resist dirt pick-up even after years of exposure, thereby maintaining significantly higher whiteness and solar reflectivity than other silicones. It exhibits self-cleaning properties resulting from local rainfall, and if necessary, can be easily cleaned with GacoWash Concentrated Cleaner. Improved rheology provides better film build on high spots and over granulated or uneven surfaces. GacoFlex S2100 develops water sheeting action that allows roofs to dry more quickly, thus reducing dust and dirt interactions with the coating. Like all GacoFlex Silicone Coatings, it withstands permanent ponding water. **GacoFlex S2100 contains 37% recycled content and does not contain crystalline silica.**
- C. Suitable surfaces to receive the system include steel, aged one year or treated galvanized steel, anodized aluminum and pre-finished metal (other than siliconized and fluorocarbon finishes). The system is designed to renew an existing finish or add a high performance finish to bare metal.

1.2 RELATED SECTIONS

- A. Cast-In-Place Concrete: Division 03 3 000
- B. Flashing and Sheet Metal: Division 07 60 00
- C. Drains, Vents, and Penetrations: Division 07 72 00

1.3 SUBMITTALS

- A. Product Data: Submit manufacturers' standard submittal package including specification, installation instructions, and general information for each waterproofing material.
- B. Applicator Qualifications: Submit current "Qualified Applicator" Certificate from the specified waterproofing manufacturer.
- C. Warranty must be supplied by product manufacturer.

1.4 QUALIFICATIONS

- A. Primary waterproofing materials shall be a product of a single source manufacturer. The primary manufacturer shall recommend secondary materials. **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 this type specified.** Applicator shall possess a current "Qualified Applicator" Certificate from the specified waterproofing manufacturer.
- C. Pre Bid Conference: 10 working days prior to bid opening there is to be a mandatory Pre-Bid Conference. Anyone 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 of installation or specifications must be presented at the Pre-Bid Conference. If a change in the specification is accepted, it will be considered as an alternate and will be presented as a bid amendment issued 5 working days prior to the bid opening. No other changes to the specification or bid documents will be accepted.
- D. Pre-Installation Conference: Just prior to commencement of the fluid application waterproofing system, meet at the site with a representative of the coating manufacture, the waterproofing contractor, the general contractor, the architect and other parties affected by this section. Review methods and procedures, substrate conditions, scheduling and safety.
- E. Materials other than those specified shall be submitted to the architect/owner for approval no later than ten 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 alternative 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.
- F. Meets Energy Star performance levels for reflectivity and Recycled Content.
- G. Primary waterproofing products must be made in the USA.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Store all coating materials in the original unopened containers at 50° - 80°F (10° - 27°C) until ready for use.
- B. Follow the special handling or storage requirements of the manufacturer for cold weather, hot weather, etc.
- C. Safety: Refer to all applicable data, including, but not limited to MSDS, PDS, product labels, and specific instructions for specific personal protection requirements.
- D. Ventilation: General room ventilation is satisfactory.
- E. Environmental requirements: Proceed with work of this section only when existing and forecasted weather conditions will permit the application to be performed in accordance with the manufacturer's recommendations.

1.6 WARRANTY

- A. The contractor shall guarantee that all work performed under this section will be free from defects in material and workmanship. Upon notice of a defect in writing to the contractor within one year after completion of the work, the contractor shall, at his own expense, make the necessary repair or replacement of the defective work.
- B. Warranty must be supplied by product manufacturer.
- C. A warranty is available with this system provided it has been installed by a Gaco Western Qualified Applicator and is installed according to this specification. An application for Warranty must be made prior to starting the job.
- D. Protection of building and occupants:
1. All surfaces not to receive the system specified shall be protected from overspray hazard i.e. windows, doors, exterior and vehicles. Protective coverings shall be secured against wind and shall be vented if used in conjunction with the application preventing collection and moisture.

2. The contractor is to post signs noting a potential overspray hazard within 400' (121.90 m) of the application.
 3. All air intake ventilation equipment shall be turned off to prevent fumes from entering the building.
 4. All surfaces damaged during the application shall be restored at no expense to the owner.
 5. No smoking signs are to be posted as mandated by local fire officials.
- E. Substrate: Proceed with the work as specified only after the substrate construction, preparation, and detail work has been completed.
- F. Equipment: All equipment used during the 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 the operations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Gaco Western, www.gaco.com

2.2 MATERIALS:

- A. Cleaner: GacoFlex Concentrated Cleaner
- B. Primer: GacoFlex E-5320 Epoxy Primer
- C. Sacrificial Tape: 3M Scotchblue Industrial Adhesive Masking Tape 2750 or equal.
- D. Tape: GacoFlex SF2000 SeamSeal brush applied, or GacoFlex 66S Polyester Tape embedded in two coats of GacoFlex S20 Series Silicone.
- E. Coating: GacoFlex S21 Series Silicone Coating having the following physical properties:

Property	Value	Test Method
Tensile Strength	292 psi	ASTM D-412
Elongation @ 0 deg	175%	ASTM D-412
Tear Resistance	21 pli	ASTM D-624
Water Vapor Permeability	5.5 perms Procedure B at 0.5 mm (20 mils) thickness \pm 10% Minimum permeance requirement is 2.5 U.S. perms	ASTM E-96
Volume Solids	95% \pm 1%	Calculated
Initial SRI	103	E1980
Emittance	0.90	ASTM C-1371

PART 3. - EXECUTION

3.1 EXAMINATION:

- A. Verify that substrate is ready to receive work; surface is clean, dry and free of substances that could affect bond.
- B. Verify that all other work involved with this area, done under other sections, has been completed and accepted by the architect and general contractor prior to starting the waterproofing application.

3.2 PREPARATION

It is extremely important to get the roof clean and dry.

- A. Inspect Fasteners: Tighten and/or replace all loose metal deck fasteners.
- B. First remove heavy deposits of dirt, leaves and other debris from the roof using broom or air broomer, then inspect the entire roof surface and flashings for any open seams, tears, cuts, etc. Repair these flaws so water is not blown in under membrane during the cleaning process. Pressure wash roof with water and allow to dry completely.
- C. For general cleaning, 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.
- D. 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.
- E. Drying: Allow surfaces to thoroughly dry to prevent blistering. Examine roof, paying particular attention to areas of physical damage to determine that residual water has in fact dried before applying GacoFlex S21 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.

- F. Substrate Condition: Loose paint, powdery or friable rust and scale must be completely removed by power brushing to provide a sound, tight surface. Soft asphalt, and/or bitumastics and silicone caulking shall be completely removed.

NOTE: Care must be taken to insure that the substrate is structurally sound and is properly prepared. The owner and/or contractor must correct any defect in the condition of the substrate existing prior to the coating; otherwise these defects may adversely affect the condition of the coating over time, necessitating maintenance and/or repair.

3.3 INSTALLATION

- A. Exposed Fasteners:
All exposed fasteners must be retightened or replaced as needed.
- B. General Primer:
 - 1. No rust: Apply 1 coat of GacoFlex E-5320 Primer at a rate of one gallon per 300 sq. ft.
 - 2. Minimal rust: Apply 2 coats of GacoFlex E-5320 Primer at a rate one gallon per 300 sq. ft per pass, resulting in a total of one gallon per 150 sq. ft. of finished primer.
 - 3. Pronounced rusting: Apply 2 coats of GacoFlex E-5320 Primer at one gallon per 150 sq. ft. per pass, resulting in one gallon per 75 sq. ft. of finished product.

NOTE: Mixed GacoFlex E-5230 in accordance to directions on the can.

NOTE: Allow drying to the touch, but no more than 72 hours prior to coating. If more than 72 hours pass, mechanically abrade surface and recoat with GacoFlex E-5320 Primer at one gallon per 300 sq ft.

C. Waterproofing:

1. All exposed fasteners must be waterproofed by applying GacoFlex SF-2000 SeamSeal to the fastener heads by brush.
2. All seams, flashings, protrusions and terminations must be waterproofed by one of the following methods:
 - a. Taping: Apply a 6" wide strip of GacoFlex S21 Series Silicone at a rate of 1.5 gal per 100 square feet, centered on the seam. Immediately embed GacoFlex 66-S polyester tape in to the wet coating, and apply another coat of GacoFlex S21 Silicone at a rate of 1.5 gal per 100 square feet to completely cover the polyester tape. The tape must be applied smooth, without wrinkles, "fish mouths", blisters or pin holes.
 - b. GacoFlex SF-2000 SeamSeal, applied by brush or roller, 4" wide, centered on the seam, at 1 gal per 75-100 sq.ft. Please note that on horizontal seams (end laps) and other details where significant movement due to expansion, contraction, or other factors may occur; it is necessary to apply sacrificial tape prior to the application of GacoFlex SF-2000 SeamSeal.

D. Coating:

Apply one coat of GacoFlex S21 Series Silicone Coating at a coverage rate of 1.5 gallons per 100 square feet to achieve a nominal film thickness of 22 dry mils. Double coat flashings and edge terminations.

NOTE: Application rate based on theoretical coverage, 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 22 dry mils.

NOTE: The base coat shall be allowed to cure a minimum of 2 to 6 hours. For best results, apply at temperatures above 50°F. (10°C) to a dry, frost free surface. The surface must be dry, clean & free of debris between coats.

NOTE: The topcoat must completely cover the base coat (the base coat must be an alternate color from the top coat) including expansion joint covers and flashing.

Optional Granular Coat: An additional granular coat may be added. Apply one coat of GacoFlex S21 Series Silicone Coating at the rate of not less than .5 gallon per 100 square feet (1.89 L / 9.3m²), (8 mils dry (.20 mm)). Immediately broadcast roofing granules into the finish coat at the rate of 30 lbs per 100 square feet. (13.6 kg / 9.3m²).

Optional WalkPad: Apply one coat of GacoFlex WalkPad SF-2036 at a rate of 4 gallons per 100 sq. ft. (64 wet mils); Broadcast GacoFlex WalkPad safety yellow granules into wet coating at a rate of 0.5 lb. per 100 square feet to help ensure good traction.

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

Note: GacoFlex WalkPad SF-2036 is the only walk pad system approved for use with GacoFlex coating systems

Caution: While the use of granules will improve traction, caution should still be exercised when walking on WalkPad, especially in wet conditions.

- G. No traffic shall be permitted on the coated surface for a minimum of 3 days. Damage to the surface by other trades shall not be the responsibility of the roofing contractor.

3.4 FIELD QUALITY CONTROL

- A. Coating Thickness: The finished dry film thickness will measure a minimum of 22 dry mils
- B. Defects: There shall be no blisters, pinholes, voids or membrane defects of any kind.
- C. Variations: Any variations from specified procedures or limits found by the contractor or representatives of Gaco Western, Inc. or the owner shall be immediately corrected by the contractor.