Gaco Western
SINCE 1955

Application Specification:

RC- MB,SBUR-38-GF21
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Supersedes 09/16

DIVISION 07 01 50.61:
GACO WESTERN GACOFLEX S21 ELASTOMERIC SILICONE COATING FOR RESTORING MODIFIED AND SMOOTH BUILT UP ROOFING MEMBRANES

PART 1 - GENERAL

1.1 SUMMARY

NOTE TO ARCHITECTS AND ENGINEERS: This specification provides a remedial coating system for application over smooth and mineral surfaced modified bitumen roof covers and smooth built up roof membranes (BUR). The use is restricted to circumstances where the membrane surface is in sound condition, but requires a renewal of the membrane surface due to the normal effect of aging and use.

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. GacoFlex A4207 BleedTrap encapsulates the oil that commonly exudes from these substrates and effectively traps it within the sealer to inhibit bleed-through to GacoFlex Solvent-Free Silicone Coatings.

When properly applied, GacoFlex S21 Series Silicone Coating System provides a weather tight membrane that protects the substrate from degradation caused by ultra violet light, (UV), water and other normal weathering hazards. The deck should have at least a ¼" (0.64 cm) to the foot slope for positive drainage.

Conditions to check and corrections to consider are:

The type of the existing system must be identified.

All existing membranes must be well adhered and intact.

On a roof judged by Gaco Western to be acceptable for a coating application, a Gaco Western Field Service Technician must perform adhesion tests. The number of adhesion tests required will be one for every 10000 square feet with a minimum of two. The tests will be performed in accordance with ASTM D903 Procedures. Clean an area at least 12" x 12". Prime the area with GacoFlex A4207 and let it cure for 24 hours. While the GacoFlex A4207 is still wet embed a strip of 1" or 2" wide GacoFlex 66-S Polyester Flashing Tape across the test patch leaving a 4" to 6" dry section of the polyester fabric tape outside the test patch. Attach an appropriate scale to the end of the dry polyester fabric tape and pull. A minimum of ten pounds of pull resistance must be achieved. No further work shall be performed until the evaluation test results indicate that the adhesion is adequate. The pull test results must be recorded and sent to Gaco Western for final approval.

1.2 RELATED SECTIONS

A. Cast-In-Place Concrete:	Division 03 30 00	F. Vapor barriers/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,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 "Qualified Applicator" Certificate from the specified waterproofing manufacturer.

C. Warranty must be supplied by product manufacturer.

D. Substrate Conditions:

1. Manufacturer's representative to present to owner a completed inspection form verifying substrate condition and any noted defects not specifically addressed in regard to this installation.

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 installation.

3. Applicator shall complete a substrate inspection prior to start of roofing. The architect/owner and applicator shall accept the surface. 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 "Qualified Applicator" Certificate from the specified waterproofing manufacturer.

C. Pre-Bid Conference: 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 amendment issued 5 working days prior to the bid opening. No other changes to 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 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.

E. Pre-Installation Conference: Just prior to commencement of the installation, meet at the job-site with a representative of the coating manufacturer, the waterproofing contractor, the general contractor, the architect and other parties affected by this section. Review methods and procedures, substrate conditions, scheduling and safety.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver all materials in sufficient quantities so as not to cause delays in application of the roofing system. Owner/owner's representative shall reject damaged materials not conforming. Rejected materials shall be removed immediately from the job site and replaced at no additional cost to the owner.

B. Store materials as recommended by the manufacturer and conforming to applicable safety regulatory agencies: town, state, and federal. Refer to all applicable data including, but not limited to MSDS, 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 site applications.

1.6 WARRANTY

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

B. Warranty must be supplied by product manufacturer.

C. Protection of building and occupants:

1. All surfaces not to receive 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 applications preventing collection and moisture.

2. Contractor is 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 Manufacturers:
Gaco Western, www.gaco.com

2.2 MATERIALS

A. Cleaner: GacoFlex GacoWash Concentrated Cleaner

B. Asphalt Bleed Blocker: Gacoflex A4207 Bleed Trap

C. Primer: GacoFlex E5320 Epoxy Primer.

D. Flashing Tape: Gaco Western GacoFlex 66S Polyester Flashing Tape, GacoFlex SF2000 SeamSeal, GacoFlashFoam

E. Coating**:** Gaco Western GacoFlex S21 Series Silicone Coating having the following physical properties:

Property	**Value**	**Test Method**
Tensile Strength	292 psi	ASTM D-412
Elongation	125%	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 ± 10% Minimum permeance requirement is 2.5 U.S. perms	ASTM E-96
Volume Solids	95% ± 1%	Calculated
Reflectance	0.82	ASTM C-1549
Emittance	0.90	ASTM C-1371

PART 3 - EXECUTION

3.1 EXAMINATION

A. A mandatory nuclear or infrared scan has been performed and any wet insulation has been removed and replaced.

B. Repair to the structural components of the roof is complete.

C. Verify that drains, vents, ducts, gutters, metal cap flashing or other penetrations have been replaced or modified.

3.2 PREPARATION

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

A. 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.

B. 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. **Never mix this product with other cleaning chemicals and always avoid contact with any chlorine-based cleaners as the combination of these cleaners may produce a toxic gas release.**

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. 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.

3.3 INSTALLATION

A. Technical Advice: The installation of this system willl be accomplished in the presence of, or with the advice of the manufacturer's technical representative. Contact the nearest Gaco Western Regional Office for assistance.

B. Bleed Blocker: A4207 BleedTrap may be brushed, rolled or spray applied at the rate of one gallon per 100 square feet. Continuous 8 dry mil coverage is very important to ensure complete blocking of oil migration to the surface. Allow A4207 to dry to tacky continuous film (12-24 hrs) prior to the application of E-5320 Primer. BleedTrap encapsulates the oil that commonly exudes from these substrates and effectively traps it within the sealer to inhibit bleed-through to GacoFlex Solvent-Free Silicone Coatings.

C. Primer: apply one coat of GacoFlex E5320 Primer by spray or roller at the rate of 1 gallon per 250 square feet per pass.

Allow the primer to dry a minimum of 12 hours before the GacoFlex S21 Silicone Coating is applied. The cure time will vary depending upon UV and humidity conditions. Stop the application two (2) hours before any rain or dew point is reached.

D. Flashing, seams, cracks, penetrations or terminations; choose one of the following**:**

1. On any open seams apply GacoFlex SF-2000 Liquid Seam Seal (4") at a minimum rate of 64 wet mils, 60 dry mils before the top coat or coats are applied.

2. GacoFlex GacoFlashFoam: Apply GacoFlashFoam to the desired thickness, minimum ¾" (+- ¼") and not to exceed 1- 1/4 inches (+- ¼") per pass.

Note: For further details or installation refer to the Operating Instructions in the GacoFlashFoam kits.

3. Taping reinforced with a layer of GacoFlex 66-S Spun-laced Polyester Tape embedded in two coats of GacoFlex S21 Series Silicone Coating**.**

E. Seams: After the specified top coat has been applied the contractor must walk the roof and make sure all seams are encapsulated. If any open seams are discovered, additional coating must be brushed on the seam until it is completely sealed.

F. 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 as long as the curb is a minimum of 8" above the deck.

G. Any units that are sitting on 4"x4" wooden sleepers will be lifted so that the membrane underneath the units can be cleaned, primed and coated. 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 warranty.

H. Areas of wet insulation and defective roof substrate: The existing membrane will have to be cut back on 3 sides and pulled back. The wet insulation and/or defective substrate will be removed and replaced, the old membrane put back into place and fastened to the deck 6" on center with screws and barbed plates. The centerline is to be caulked with a 100% silicone sealant and stripped in with 6" wide GacoFlex 66-S Polyester Flashing Tape and GacoFlex S21 Series Silicone Coating. An approved peel and stick tape may be substituted.

I. Coating:

On modified bitumen and smooth BUR: Apply one (1) coat of GacoFlex S21 Series Silicone Coating at the average rate of 2.5 gallons per one hundred (100) square feet to obtain thirty (38) dry mils. Coat all surfaces including expansion joint covers and flashings.

Optional WalkPad: Apply one coat of GacoFlex WalkPad SF-2036 at a rate of 4 gallons per 100 sq. ft. (64 wet mils); Broadcast GacoWalkPad 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.

J. For details, follow the published guidelines or contact Gaco Western's Technical Department.

Note: Unlike single ply membranes, modified bitumen and built up roofs, (BUR), have varying degrees of ultra violet cracks in the asphalt and bleed out on the seams. More than a 2.5 to 3 gallon application may be necessary to obtain the required coverage of the roof surface with a minimum of 38 dry mils everywhere. With this system it is highly recommended that a test patch be installed to determine how much coating per square will be needed because these roof surfaces vary due to weathering. It is the contractor's responsibility to calculate the required gallons per square to obtain the minimum of 38 dry mils.

3.4 FIELD QUALITY CONTROL

A. 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 roofing contractor.