DIVISION 07 01 50.61:
GACO WESTERN GACOFLEX™ S4200 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 coating system for application over smooth and granule surfaced modified bitumen and smooth built-up roofing membranes (BUR), including mineral surface cap sheets. 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 effects of aging and use.

When properly applied, the GacoFlex S4200 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.

B. The GacoFlex S4200 Silicone Coating System discussed in this specification has a moderate rate of water vapor transmission. The GacoFlex S4200 coating system 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 S4200 coating system. Contact Gaco Western for recommendations on vapor retardant systems to use on refrigerated structures.

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 the existing system must be identified.
- The existing membrane substrate must be well adhered 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. On a Modified Bitumen or Smooth Built-Up Roofing system judged to be acceptable for a coating application, a Coating Applicator must perform adhesion tests. The number of adhesion tests should be one for every 10,000 square feet, with a minimum of two. The tests should be performed in a manner consistent with ASTM D903 Procedures: Clean an area at least 12” x 12”. Brush apply GacoFlex S4200 Silicone Coating at a rate of 1 gallon per square (16 wet mils). While the GacoFlex S4200 Silicone Coating is still wet, embed a strip of 1” or 2” wide GacoFlex 66S Polyester Flashing Tape across the test patch leaving a 4” to 6” dry section of the polyester fabric tape outside the test patch. Apply additional GacoFlex S4200 Silicone Coating to totally encapsulate the polyester fabric tape. [NOTE: If A4271 BleedTrap™ Base Coat will be included in the coating system, apply it first at a rate of 1 gallon per square (16 wet mils) and allow A4271 BleedTrap to cure at least 4 hours before applying S4200.] Allow the S4200 test patch to cure for a minimum of 4 days, then attach an appropriate scale to the end of the dry polyester fabric tape and pull at a...
180° angle. A minimum of ten pounds of pull resistance must be achieved. If the minimum pull resistance is not achieved, repeat the test but first prime the substrate (or A4271 BleedTrap) with GacoFlex E5302 2-Part Epoxy Primer/Filler and let it cure for a minimum of 6 hours before applying GacoFlex S4200 and 66S Polyester Flashing Tape. No work shall be performed until the evaluation test results indicate that adhesion to the roofing membrane system is adequate. The pull test results must be recorded and sent to Gaco Western with the application for warranty.

1.2 RELATED SECTIONS
A. Cast-In-Place Concrete: Division 03 30 00
B. Flashing/Sheet Metal: Division 07 60 00
C. Roof Accessories: Division 07 72 00
D. Rough carpentry/wood blocking Division 06 10 00
E. Drains, vents and penetrations Division 22 14
F. Vapor barriers/air barriers: Division 07 25 00
G. Board Insulation: Division 07 22 00
H. Skylights: Division 08 60 00
I. Metal decking Division 05 30 00

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. Applicator to present to owner a completed inspection form 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 “Qualified Applicator” Certificate 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. The application of the coating system. Owner/owner’s representative shall reject damaged or non-conforming materials. Rejected materials must be removed immediately from the job site and replaced at no additional cost to the owner.

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 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. Bleed Blocker: GacoFlex A4271 BleedTrap™ Base Coat (as needed)

B. Primer: GacoFlex E5320 2-Part Epoxy Primer/Filler (as needed)

C. Flashing: GacoFlex 66S Polyester Flashing Tape, GacoFlex SF4200 SeamSeal, GacoFlashFoam™

D. Coating: GacoFlex S4200 Silicone Coating having the following physical properties:

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>VALUE</th>
<th>TEST METHOD</th>
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<tbody>
<tr>
<td>Tensile Strength</td>
<td>254 psi</td>
<td>ASTM D2370</td>
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<tr>
<td>Elongation</td>
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<td>ASTM D2370</td>
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<tr>
<td>Solids</td>
<td>96% by weight</td>
<td>ASTM D1644</td>
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<td>ASTM C1549 S4200 White</td>
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<tr>
<td></td>
<td>0.812 after soiling</td>
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</tr>
<tr>
<td>SRI</td>
<td>110 initial</td>
<td>ASTM E1980 S4200 White</td>
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<tr>
<td></td>
<td>101 after soiling</td>
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<tr>
<td>Water Vapor Permeability</td>
<td>5.0 Perms</td>
<td>ASTM E96 (20 mils DFT) (inch pounds)</td>
</tr>
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</table>

PART 3 - EXECUTION

3.1 EXAMINATION

A. A mandatory nuclear or infrared scan has been performed and any wet roofing materials have been removed and replaced.

B. Repairs to the structural components of the roof are 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. Asphalt substrates shall be prepared by mechanically brushing away loose dirt, debris and granules, and removing via a power broom and/or industrial vacuum. The roof surface must be clean and completely dry, especially in areas of ponding water.

B. Biological Control: Areas of algae, mildew or fungus on the roof membrane or the existing coating please contact your local Gaco Representative for detailed instructions.

NOTE: With the exception of cleaning to remove biological residue, do not wash the asphaltic roofing substrate, to include pressure washing or the use of cleaners.

3.3 INSTALLATION

A. Technical Advice: The installation of this system will 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 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.

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.

**NOTE:** Only granule surface APP membrane may be used for repairs to the asphalt roofing substrate prior to the installation of the GacoFlex S4200 coating system, 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.

**NOTE:** All areas repaired with new granule surfaced APP membrane must be coated with two (2) applications of A4271 BleedTrap Base Coat prior to the installation of the GacoFlex S4200 coating system.

C. Bleed Blocker: BleedTrap may be brushed, rolled or spray applied at the rate of one per 100 square feet. Continuous 6 dry mil coverage is important to help prevent the migration of oils to the surface. BleedTrap encapsulates the oils that commonly exude from asphaltic substrates and effectively traps them within the sealer to inhibit bleed-through to GacoFlex Solvent-Free Silicone Roof Coatings.

**NOTE:** The Manufacturer’s warranty does not cover discoloration or blistering of the GacoFlex S4200 coating system 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.

D. If adhesion testing indicated the need for a primer, apply GacoFlex E5320 2-Part Epoxy Primer/Filler at a rate of 1 Gal per 600-800 SF (1-2 mils DFT). **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 ⅛" 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 S4200 coating system.

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

1. GacoFlex SF4200 SeamSeal applied at a minimum of 4" wide, crested and centered at the seam, with a minimum thickness at the center of 64 wet mils before the S4200 top coat is applied.

2. GacoFlex GacoFlashFoam: Apply GacoFlashFoam to the desired thickness, minimum ¾" (+- ¼") and not to exceed 1¼ 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 66S Spun-laced Polyester Tape embedded in two coats of GacoFlex S4200 Silicone Coating.

After the S4200 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 S4200 Silicone Coating must be brushed on the seam until it is completely encapsulated. GacoFlex SF4200 SeamSeal is an acceptable alternate.
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. Curbs must be a minimum of 8” above the roofing membrane.

G. 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 shall be placed under the sleepers to protect the coating system. 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. Coating:

On smooth, modified bitumen and smooth BUR: Apply one (1) coat of GacoFlex S4200 Silicone Coating at the average rate of 2.25 gallons per one hundred (100) square feet to obtain 34 dry mils. Coat all surfaces including expansion joint covers and flashings.

On granulated and other rough surfaces, apply one (1) coat of GacoFlex S4200 Silicone Coating at the average rate of 2.75 gallons per one hundred (100) square feet to obtain a minimum of 34 dry mils. Ensure that the coating has fully encapsulated all the granules. Coating mils will be lost due to encapsulation.

Optional Granular Coat: An additional granular coat may be added. Apply one coat of GacoFlex S4200 Silicone Coating at the rate of not less than 0.5 gallons per 100 square feet (8 mils dry). Immediately broadcast white roofing granules into the finish coat at the rate of 30 lbs per 100 square feet.

Optional WalkPad: Apply one coat of GacoFlex SF4236 WalkPad 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 SF4236 is the only walk pad system approved for use with GacoFlex S42 coating systems. However, SF4236 WalkPad may not be used on coated SBS roofing membranes.

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: Unlike single ply membranes, modified bitumen and built up roofs, (BUR) have varying degrees of cracks in the surface of the asphalt and bleed out at the seams. More than a 2.25 gallons per square application may be necessary to obtain the required coverage of the roof surface with a minimum of 34 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.

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 34 dry mils. Gaco Western suggests adding a 10% variance factor to obtain the minimum dry mils required. It is the applicator’s responsibility to calculate the gallons 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.