

Question & Answer #1



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TERMINAL 7 WAREHOUSE REHABILITATION PROJECT NO. 091569 | CONTRACT NO. 070160

1. BIDDER QUESTION

Are we painting only the new exterior or the new and existing exterior?

RESPONSE

See Addendum No. 02 - Revise Note 1 on Drawing Sheet S3.0

2. BIDDER QUESTION

Substitution Request, Attachment A to this Q&A No. 01, for A full 10-20 Year Silicone Coating, spray-applied to the entire roof (Approx. 135,000 SF) after SBS Membrane Repairs.

RESPONSE

Substitution Request rejected - use specified materials

3. BIDDER QUESTION

Substitution Request, Attachment B to this Q&A No. 01, for 43,000 SF of SBS Membrane Repair. Tacoma Roofing & Waterproofing is a Master Certified Contractor w/ GAF Materials Corporation.

RESPONSE

See Addendum No. 03

4. BIDDER QUESTION

Will the shear rings be factory installed in the glulam chords?

RESPONSE

Yes

5. BIDDER QUESTION

There are 3 runs of expansion joints shown on the roof plan for the Terminal 7 projects, totaling about 550 LF. There is no new roofing shown next to the joints, but the detail shows new roofing. Does the detail apply to ALL expansion joint locations (about 550 LF), or are new expansion joints only required where the roof plan shows new roofing being installed (about 300 LF)?

RESPONSE

New expansion joints are required where the roof plan shows new roofing. Per a note on Sheet S2.1, the new expansion joints are to be heat welded to the existing expansion joint bellows.

6. BIDDER QUESTION

I notice there is no requirement to repair the existing sliding doors on the warehouse but we are to paint them. Is some other work order being used to repair the plywood on the doors? Also I cannot find the thickness of the plywood on the roof or the end wall where it is required.

RESPONSE

The end wall gets a double layer, 1 layer as ½" plywood and 1 layer as 5/8" T1-11. Roof plywood thickness is 5/8". Refer to Drawing G1.2 General Notes under Sheathing for specifics. Drawing S2.1 Roof Plan indicates to remove the western half of the door.

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS
SECTION 00 43 25 - SUBSTITUTION REQUEST FORM - DURING BIDDING

Project Title	<u>Terminal 7 Warehouse Rehabililitaion</u>	Project No.	<u>091569</u>
Submitted By:	<u>Tacoma Roofing & Waterproofing</u>	Contract No.	
Prime/Sub/Supplier:	<u>Sub</u>	Date:	

Specification Title:	<u>Silicone Coating</u>	Section No.	<u>DIVISION 07 01 50.61</u>
Description:	<u>38 Mil Silicone Spray-Applied Coating System</u>	Paragraph:	
		Page No.	

Proposed Substitution: GacoFlex S-20

Trade Name: S-20

Model No.: S-2000

Manufacturer: Gaco Western

Address: 200 W Mercer St #202, Seattle, WA 98119

Phone No.: (206) 575-0450

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted By: Allen Sensel

Signed By: 

Firm: Tacoma Roofing & Waterproofing

Address: 7006 W 27th St, Suite E
University Place, WA 98387

Telephone: 425-280-4372

Email: Allen@TacomaRoofCo.Com

Supporting Data Attached:

☐ Drawings ☒ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ Other _____

ENGINEER'S REVIEW AND ACTION

- ☐ Substitution approved
- ☐ Substitution approved as noted
- ☒ Substitution rejected - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed by: 

Date: 4-11-2016

Application Specification:

RC-MB,SBUR-30-GF20

August 2014

Supersedes 10/11

DIVISION 07 01 50.61:
GACO WESTERN GACOFLEX S-20 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.

When properly applied, GacoFlex S-20 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.

The GacoFlex S-20 Series Silicone Coating System discussed in this specification has a moderate rate of water vapor transmission. They are not recommended for use on cold storage or cryogenic structures. They may have constant high water vapor drive causing long-term accumulation of moisture in the insulation. Consult Gaco Western for vapor retardant systems to use on refrigerated structures.

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 E5320 Primer and let it cure for 24 hours. Brush apply a GacoFlex S-20 Series Silicone Coating at a rate of 1 gallon per square (16 wet mils). While the GacoFlex S-20 Series Silicone Coating 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. Apply additional GacoFlex S-20 Series Silicone Coating to totally encapsulate the polyester fabric tape. Allow the coating to cure for a minimum of 4 days then 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. 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 LLC, www.gaco.com

2.2 MATERIALS

- A. Cleaner: GacoFlex GacoWash Concentrated Cleaner
- B. Primer: GacoFlex E-5320 Epoxy Primer.
- C. Flashing Tape: Gaco Western GacoFlex 66-S Polyester Flashing Tape, GacoFlex SF-2000 SeamSeal
- D. Coating: Gaco Western GacoFlex S-20 Series Silicone Coating having the following physical properties:

<u>Property</u>	<u>Value</u>	<u>Test Method</u>	<u>S-2000 Immersed in Water @150°F(66°C) for 1 year per ASTM D-471:</u>
Tensile Strength	550 psi	ASTM D-412	Strength:463psi(3.19MPa)
Elongation	150%	ASTM D-412	Elongation: 125%
Tear Resistance	21 pli	ASTM D-624	Permanent Set At Break: 0%
Hardness	55 Shore A	ASTM D-676	
Water Vapor Permeability	5.3 perms	ASTM E-96	
	Procedure B at 0.5 mm (20 mils) thickness ± 10%		
	Minimum permeance requirement is 2.5 U.S. perms		

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Volume Solids	95% ± 1%	Calculated
Reflectance	0.88	ASTM C-1549
Emittance	0.87	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.
- 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 S-20 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 will 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. Primer: On granulated surfaces apply Two coat of GacoFlex E-5320 Primer by spray or roller at the rate of 1 gallon per 200 square feet per pass.
On smooth surface apply one coat of GacoFlex E-5320 Primer by spray or roller at the rate of 1 gallon per 250 square feet per pass.

Note: 2 coats are required to prevent possible bleed through.

Allow the primer to dry a minimum of 12 hours before the GacoFlex S20 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.

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

1. GacoFlex SF-2000 Liquid Seam Seal 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 $\frac{3}{4}$ " (+- $\frac{1}{4}$ ") and not to exceed 1- $\frac{1}{4}$ inches (+- $\frac{1}{4}$ ") 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 S-20 Series Silicone Coating.
- D. Seams: After the specified top coat has been applied the contractor must walk the roof and make sure all seams are fully encapsulated. If any open seams are discovered additional coating must be brushed on the seam until it becomes encapsulated.
- E. Any flashing or field membrane that has stress cracks will be reinforced with a layer of GacoFlex 66-S Polyester Tape embedded in two coats of GacoFlex S-20 Silicone before the other coats are applied.
- F. Existing HVAC Units and other equipment on curbs with membrane: Membrane must be coated up to the bottom of the metal cap of the unit and caulked 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 caulked with a 100% silicone sealant and stripped in with 6" wide GacoFlex 66-S Polyester Flashing Tape and GacoFlex S-20 Series Silicone Coating. An approved peel and stick tape may be substituted.

I. Coating:

On smooth, modified bitumen and smooth BUR: Apply one (1) coat of GacoFlex S-20 Series Silicone Coating at the average rate of 2 gallons per one hundred (100) square feet to obtain thirty (30) dry mils. Coat all surfaces including expansion joint covers and flashings.

On granulated and other rough surfaces, apply one (1) coat of GacoFlex S-20 Series Silicone Coating at the average rate of two and half (2.5) gallons per one hundred (100) square feet to obtain thirty (30) dry mils. Ensure that the coating has fully encapsulated all the granules.

Optional System: On granulated and other rough surfaces, apply two (2) coats of GacoFlex S-20 Series Silicone Coating in contrasting colors at the average rate of one and a quarter (1.25) gallon per one hundred (100) square feet. Allow the first coat to dry a minimum of four (4) hours at 55°F (13°C) or higher or until it can be safely walked on. (GacoFlex S-20 Series Silicone Coating is a moisture curing product. (Low humidity will result in longer drying times); recoat within four (4) to forty-eight (48) hours.

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 2.25 gallon application may be necessary to obtain the required coverage of the roof surface with a minimum of 30 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 30 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.

GacoFlex S20 Roof Coating System

GacoFlex GacoWash Concentrated Cleaner
GacoFlex E5320 2-Part Epoxy Primer/Filler
GacoFlex SF2000 SeamSeal Solvent-Free Silicone Sealant
GacoFlex 66S Reinforcing Polyester Mesh
GacoFlashFoam Spray-Applied 3 lb. Polyurethane Foam Flashing
GacoFlex S20 Series Solvent-Free 100% Silicone Roof Coating
GacoFlex SF2036 WalkPad Solvent-Free Silicone Walkway System
GacoFlex WalkPad Granules
GacoFlex Silicone Solvent



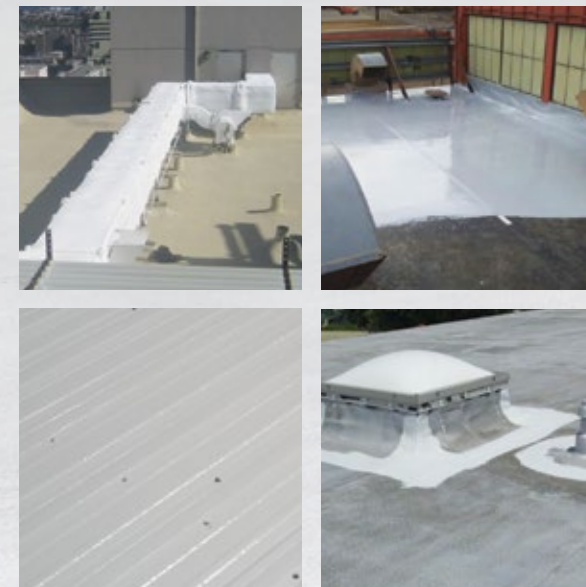
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SINCE 1955

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Gaco Western is a recognized leader in innovative silicone roofing systems, and offers best-of-class waterproofing and insulation solutions for a variety of commercial, industrial and residential applications. Founded in 1955, Gaco Western remains today a family-owned business with its roots in technology and product innovation.

MKGF1002 1214

The solvent-free
alternative to replacing
your weathered roof.



GacoFlex
S20 Silicone Roof Coating System

Decades of proven performance
and protection. **Guaranteed.**



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Whether your roof is large or small, flat or sloped,

the **GacoFlex S20 Roof Coating System** provides a proven, guaranteed solution for renewing your weathered roof. It can be applied to virtually any existing roofing surface to create a seamless membrane that protects against permanent ponding water, ultraviolet light and severe weather.

How to use the GacoFlex S20 Roof Coating System

The key advantages of using silicone:

- 1 Silicone is permanent and will not degrade, chalk or crack under harsh UV rays.
- 2 Silicone forms a seamless membrane that withstands permanent ponding water without softening.
- 3 Silicone creates a smooth surface that offers excellent resistance to mold, mildew and staining.

We stand behind our products.

Gaco Western offers our Qualified Applicators a full-system labor and material warranty on the GacoFlex S20 Roof Coating System when applied according to Gaco Western specifications. Warranties of various lengths are available to meet your specific project needs AND a warranty can be renewed with periodic recoats.

What makes our warranty the best in the business is what's **NOT** in it:

- A ponding water exclusion
- A pro-rated compensation formula

We stand behind our products with the best warranties in the business. We were the first in our industry to offer a 50-year limited material warranty and Gaco Western has issued labor and materials warranties with no ponding water exclusion for over 100 million square feet of roofs.



STEP 1

Start with a clean surface.

It's extremely important to complete any necessary repairs prior to cleaning the roof and applying the coating system. **GacoFlex GacoWash Concentrated Cleaner** is specially formulated for use with GacoFlex Silicone Coatings. Please refer to GacoFlex S20 product labels and/or Gaco Western specifications for detailed instructions.



STEP 2

Prime the surface.

Use **GacoFlex E5320 2-Part Epoxy Primer/Filler** to provide an excellent adhesive base for GacoFlex Silicone Coatings. It bonds to most surfaces – including metal roofs (and metal surfaces such as flashing).

On asphalt-based surfaces, E5320 may help prevent bleed-through and when top-coated will help prevent corrosion. It can also be used as a masonry block filler when combined with ordinary sand.

Applying silicone to an existing silicone surface? No primer needed!



STEP 3

Prepare seams and fasteners and create or repair flashings.

GacoFlex SF2000 SeamSeal Solvent-Free Silicone Sealant adheres to seams, fasteners and other roof details in a single application. This is an effective, time-saving waterproof alternative to fabric and/or elastomeric sheet tape.

SF2000 SeamSeal can be used as a substitute for caulk on a variety of roof surfaces and can even be a filler over existing "alligatored" smooth BUR. It will repair blisters in spray polyurethane foam up to 4 inches in diameter and it works perfectly as a tape-seal over cracked polyurethane foam insulation.

GacoFlex 66S Reinforcing Polyester Mesh is also available for uneven surfaces and difficult situations.



Quick and easy to install, **GacoFlashFoam Spray-Applied 3 lb. Polyurethane Foam Flashing** provides an economical and superior alternative to labor intensive seam tapes. The convenient self-contained kit is designed for use as spray-applied flashings at curbs, parapets, walls and penetrations prior to application of GacoFlex Coatings.

GacoFlashFoam bonds to any shape or substrate and eliminates common sources of leaks often experienced with other flashings. It may also be used to repair existing spray foam roofing systems.

The kit does not need power and is light and portable; carry it in one hand and spray with the other.



STEP 4

Apply coating.

GacoFlex S20 Series Solvent-Free 100% Silicone Roof Coating is 95% solids by volume and ideal for use as a maintenance coating over existing roofs in sound condition. Use it to cover elastomeric roof coatings, metal roofs, built-up roofing, mineral cap sheet, weathered single-ply membranes (EPDM, Hypalon® and TPO/CPA), sprayed-in-place polyurethane foam, concrete, and many other coatings.

When properly applied, S20 Series Solvent-Free Silicone provides a seamless, weather-tight seal.



STEP 5

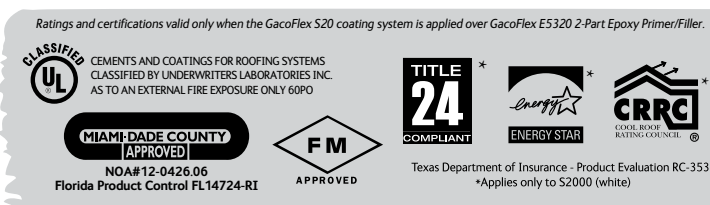
Add a rooftop walkway for pedestrian maintenance traffic.

When applied on top of GacoFlex Silicone Coatings, **GacoFlex SF2036 WalkPad Solvent-Free Silicone Walkway System** provides the durability needed to create a rooftop walkway for pedestrian maintenance traffic. Unlike conventional mats that must be adhered and can blow off, WalkPad becomes an integral part of the roof and the yellow color provides a highly visible walkway.

Add **GacoFlex WalkPad Granules** on top of the WalkPad while it's still wet to provide traction and resistance to wear under pedestrian maintenance traffic.

Clean up.

GacoFlex Silicone Solvent is 100% water-free and alcohol-free and makes clean up easy. Can be used on any tools or spray equipment used to apply GacoFlex Silicone Coatings.



Gaco Western

S I N C E 1 9 5 5

Product Data Sheet:

GacoFlex S20 Series

June 2015

Supersedes 5/14

GACOFLEX® S20 SERIES SOLVENT-FREE 100% SILICONE COATING

- DESCRIPTION:** GacoFlex S20 Series coatings are solvent-free, single-component waterproof elastomeric moisture-curing silicone coatings.
- USAGE:** GacoFlex S20 Series are ideal for use as a maintenance coating system over pre-existing elastomeric roof coatings, metal roofs, built-up roofing, mineral cap sheet, and weathered single ply membranes (EPDM, PVC, Hypalon®, and TPO/CPA) on a roofing substrate 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 S20 Series Coatings are the standard specification for liquid applied silicone coating used in sprayed-in-place polyurethane foam roofing systems.
- GacoFlex S20 Series Coatings may also be used over concrete, coatings, and over plywood decking when properly applied over an approved base coat; please contact Gaco Western for specific recommendation.
- When properly applied, the coating system provides a seamless weather-tight seal that protects the substrate from degradation caused by ultraviolet light, water and other normal weathering hazards.
- COLOR:** S2000 White, S2022 Gray, S2048 Tan
S2029 Dark Gray available as special order only.

APPLIED PRODUCT DATA

- WEATHERABILITY:** Excellent durability, color stability and chalk resistance.
- TOXICITY:** Not for use in contact with edible substances or potable water.
- CHEMICAL RESISTANCE:** Excellent solvent and chemical resistance.
- APPROVALS:** Underwriters Laboratory – UL790-Class A
Factory Mutual – FM4470 Class 1, ASTM E108 Class A
- Approved with GacoRoofFoam F2733 and F273
 - Approved maintenance coating and cover over FM approved single ply roofs, BUR, cap sheets and metal roofs.
- EnergyStar
Cool Roof Rating Council – CRRC 0740-0012
Miami-Dade Product Control – NOA 12-0426
Florida Product Control – FL14724-RI
Texas Department of Insurance – RC-353



CEMENTS AND COATINGS FOR ROOFING
SYSTEMS CLASSIFIED BY UNDERWRITERS
LABORATORIES INC. AS TO AN EXTERNAL
FIRE EXPOSURE ONLY 60PO



NOA#12-0426.06
Florida Product Control FL14724-RI



Texas Department of Insurance - Product Evaluation RC-353

*Applies only to S2000 (white)



PHYSICAL PROPERTIES:

Physical Properties	ASTM Test	Result	ASTM D6694 Requirement
Tensile Strength @ 73°F	D412	450 psi	150 min
Elongation at Break @ 73°F	D412	174 %	100 min
Tensile Strength @ 0°F	D412	574 psi	150 min
Elongation at Break @ 0°F	D412	169 %	100 min
Tear Resistance (Die C)	D624	35.8 lbs/inch	20 min
Crack Bridging - Low Temperature @ -15°F	D522	Pass	Pass
Permeance – 20 mils DFT @ 73°F/50% RH	E96 – B	5.0 Perms	2.5 min
Wet Adhesion			
Spray Polyurethane Foam	C 794/D 903	Pass	2.0 min
Acrylic Coating		Pass	2.0 min
Galvanized Metal with E5320 Primer		Pass	2.0 min
BUR with E5320 Primer		Pass	2.0 min
EPDM with E5320 Primer		Pass	2.0 min
PVC with E5320 Primer		Pass	2.0 min
8,670 Hour Immersion in 150°F Water	D471		Not required
Tensile Strength	D412	450 psi	Not required
Elongation at Break	D412	125 %	Not Required
1000 Hrs. Accelerated Weathering	G154		
Elongation at Break @ 73°F	D412	371 %	100 min
Elongation at Break @ 0°F	D412	124 %	100 min
5000 Hrs. Accelerated Weathering	G154		
Elongation at Break @ 73°F	D 412	126 %	Min 50%
Elongation at Break @ 0°F	D 412	124 %	Min 50%
Appearance	D6694	Pass	No Cracking or Checking

Solar Performance

GacoFlex S2000 (white) meets the cool roof requirements of California Title 24 and the International Energy Conservation Code.

Property	ASTM Method	Initial
Solar Reflectance	C1549	0.88
Thermal Emittance	C1371	0.87
Solar Reflectivity Index (SRI)	E1980	111



PACKAGED PRODUCT DATA

THEORETICAL COVERAGE:	1.45 gallons per 100 sq. ft. provides 22 dry mils	
	NOTE: Actual coverage may be less due to surface profile, losses due to overspray and wind and residual coating left in the container.	
SOLIDS:	Weight: Method 4041	96.5%
	Fed. Std. 141	
	Volume:	95%
VOC:	35 g/l	
FLASH POINT:	ASTM D3278	178°F (81°C)
STORAGE STABILITY:	Two years from date of manufacture when stored in sealed containers between 0°F to 80°F (-17°C to 26°C)	

APPLICATION

MIXING:	Mix before application to ensure uniform color and consistency.
THINNING:	Product should not be thinned.
PRIMER:	Existing silicone coatings should not be primed. On all other substrates, apply GacoFlex E5320 2-Part Epoxy Primer/Filler according to label directions.
APPLICATION:	<p>Apply by brush or $\frac{3}{4}$" nap woven roller as received. For spray application, use as received; consult Gaco Western's Silicone Spray Guide SG-Silicone for more information. For cold weather application, keep material stored above 65°F (18°C). Do not apply if rain is expected within 1 hour. For application in temperatures below freezing or above 120°F (49°C), contact Gaco Western.</p> <ul style="list-style-type: none">- On smooth surfaces, apply one coat at the rate of 1.5 gallons per 100 square feet to achieve approximately 22 dry mils.- On granulated and other rough surfaces, apply two separate coats at the rate of 1 gallon per 100 square feet per coat. Allow first coat to dry a minimum of 4 hours at 55°F (13°C) or higher, or until it can be safely walked on (product is moisture cure, low humidity will result in longer dry times); recoat within 4 to 48 hours.- Coat all surfaces including expansion joint covers and flashings. Extra material is required at all edges and penetrations if neoprene sheet flashing is not used. <p>NOTE: Application rate is job-specific and losses due to overspray, surface profile and wind may occur. Additional material may be required to achieve 22 dry mils.</p>
DRY TIME:	Final coat should be allowed to cure 24 to 48 hours, depending on temperature and humidity, before suitable for light foot traffic.
CLEAN UP:	Clean application tools and equipment with GacoFlex Silicone Solvent. Recirculate through lines and gun until residual coating is removed. DO NOT USE WATER OR RECLAIMED SOLVENTS.

For specific Safety and Health information please refer to Safety Data Sheet.



Gaco Western

S I N C E 1 9 5 5

Product Data Sheet:

GacoFlex E-5320

May 2015

Supersedes 1/14

GACOFLEX® E5320 2-PART EPOXY PRIMER/FILLER

DESCRIPTION:	GacoFlex E5320 is a two-component water-based epoxy.
USAGE:	This multi-purpose primer offers excellent adhesion to most surfaces including metal roofs, metal flashing, other coatings, wood, masonry, single-ply membranes and more. It improves adhesion of GacoFlex Silicone Coatings and other top coats. On asphalt-based surfaces it may help prevent bleed-through; when top coated it will help prevent corrosion. It can also be used as a masonry block filler when combined with ordinary sand.
COLOR:	Part A is white. Part B is brown. The combined product is light pink.
CONSISTENCY:	Part A is slurry with soft settling characteristics. Part B is a viscous liquid. When combined, the resulting product becomes a creamy, easy spreading mixture.

APPLIED PRODUCT DATA

WEATHERABILITY:	Must be top-coated when used in exterior applications.
CHEMICAL RESISTANCE:	Good solvent resistance and excellent alkali resistance.
HARDNESS:	Cures to form a hard coating material.
ADHESION:	Excellent adhesion to most surfaces. Most coatings have excellent adhesion to cured GacoFlex E5320.

PACKAGED PRODUCT DATA

THEORETICAL COVERAGE:	When used unreduced as a block filler, the coverage is 70-100 sq. ft. per gallon (6.5 to 9.3 m ² / 3.78 L). When reduced with one pint of water per gallon (0.5 L per 3.78L) of mixed GacoFlex E5320 and applied to smooth concrete, the coverage is 200-250 sq. ft. per gallon (18.6 to 23.2m ² / 3.78 L).
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NOTE: Actual coverage may be less due to surface profile, losses due to overspray and wind, and residual coating left in the container.

SOLIDS:	Weight: 60.5%
	Volume: 44%
VOC:	<100g/l (Part A and B Combined)
FLASH POINT:	TOC >200°F (93°C).

STORAGE STABILITY:	Uncombined Material: One year from date of manufacture when stored in sealed containers between 50°F - 80°F (10°C - 26°C). Protect from freezing in shipment and storage.
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APPLICATION

- MIXING:** GacoFlex E5320 is a two-component material; Equal parts by volume of Part A and Part B must be properly combined prior to application according to the following directions. Mix Part A well for 3-5 minutes. Mix Part B for 3-5 minutes. Pour Part B into a clean, empty pail. Pour Part A into the same pail. It will sink. Mix both together for 3-5 minutes. Mixture will appear thin and light pink in color. Power mixing is recommended when combining more than one gallon (3.79 L) each of Part A and Part B.
- POT LIFE:** Pot life after mixing is 1.5 hours at 75°F (24°C); the pot life will double at 55°F (13°C), however at 100°F (38°C) pot life is reduced to 45 minutes.
- THINNING:** Thinning is not normally required for roller application. When thinning is necessary to extend pot life for spraying, for application at cool temperatures, or to achieve recommended application rates, thin combined material with 10%-20% clean water and mix thoroughly. Do not thin more than 20%.
- APPLICATION:** Product may be applied by brush, roller or spray. On smooth surfaces, use a 1/4" to 3/8" nap roller or nylon brush. When applying E5320 as block filler for porous concrete, use a 1" to 1-1/4" nap roller. If blow holes form as the primer dries, make a second pass with a relatively dry roller; allow 5 to 10 minutes between passes. Contact Gaco Western for application utilizing equipment. Do not apply to surfaces which are below 50°F (10°C).
- On single ply membrane roofs, apply one coat at the rate of 1 gallon per 500 sq. ft. (combined material will need to be thinned 10%-20% with water to achieve this spread rate).
 - On metal, apply one coat at the rate of 1 gallon per 300 sq. ft.
 - On asphalt-based surfaces including smooth cap sheet, apply 2 separate coats of 1 gallon per 250 sq. ft. For granulated surfaces, apply 2 separate coats of 1 gallon per 200 sq. ft.
- NOTE:** Application rate is job-specific. Additional material may be required.
- DRY TIME:** Allow the first coat to dry for a minimum of 2 hours before application of the second coat. Allow to dry a minimum of 6 hours before application of top coat. Dry time is dependent upon temperature and humidity.
- Note:** Where maximum solvent resistance is needed, apply two coats a minimum of two hours apart. Let cure for two days with a daily maximum temperature of 70°F (21°C) or higher. For 60°F (16°C) days, allow one week. Full cure and dry time can be longer when there is poor air ventilation such as in tanks or enclosed reservoirs.
- APPLICATION OF TOP COATS:** GacoFlex Silicone Coatings and most other coatings will adhere well to cured E5320 films up to one week old, provided that the surface is clean, dry and free of chalk. Note: Neoprene should not be applied directly to GacoFlex E5320 until it has cured overnight.
- CLEAN UP:** Clean brushes and rollers with soap and water; a small amount of vinegar may be added to make clean up easier. Late in the pot life or in hot weather, clean-up is impractical and brushes and rollers should be disposed of. Clean spray equipment with water supplemented with a small amount of vinegar and recirculate through lines and gun until residual coating is removed.
- TOXICITY:** Part B contains a polyamide resin that is normally non-sensitizing; however, care should be taken to thoroughly clean with soap and water any skin areas that are contacted by GacoFlex E5320. If you experience difficulty breathing, leave the area to obtain fresh air. If difficulty continues, seek medical assistance immediately. In case of eye contact, flush immediately with plenty of water for at least 15 minutes and seek medical attention; for skin, wash thoroughly with soap and water.
- During application, the use of chemical protective clothing and gloves is recommended. A properly fitted respirator (NIOSH/MSHA approved) is recommended during spray application.
- FLAMMABILITY:** Non Flammable
- For specific Safety and Health information please refer to Material Safety Data Sheet.



Gaco Western

S I N C E 1 9 5 5

Product Data Sheet:

GacoFlex SF-2000 SeamSeal

May 2014

Supersedes 1/14

GACOFLEX® SF2000 SEAMSEAL SOLVENT-FREE 100% SILICONE SEALANT

DESCRIPTION:	GacoFlex SF2000 SeamSeal is a silicone-based, solvent-free, single-component waterproof elastomeric moisture-curing sealant combined with a reinforcing agent.
USAGE:	SeamSeal is intended for application over cleaned and primed roofs as a joint and fastener treatment in place of fabric and/or elastomeric sheet tape. It may also be used to repair blisters in spray polyurethane foam up to 4" in diameter, as a tape-seal over cracked polyurethane foam insulation, and as filler for applications over existing "alligatored" smooth BUR. SeamSeal is UV stable and may be used to repair most clean and dry roofing surfaces. It can also serve as a substitute for caulk on a variety of substrates.
LIMITATIONS:	Not intended to be used to repair blisters in polyurethane foam larger than 4" in diameter.
COLOR:	White

APPLIED PRODUCT DATA

WEATHERABILITY:	Excellent durability, color stability and chalk resistance.
TOXICITY:	Not for use in contact with edible substances or potable water.
ADHESION:	Adhesion is excellent to polyurethane foam. A primer may be required for adhesion to built-up roofing, modified bitumen capsheet, single ply roofing (EPDM, TPO, PVC and Hypalon®), masonry, concrete, and wood. A primer must be used on all ferrous metals to prevent corrosion. Contact Gaco Western's Technical Department for specific recommendations.

**The following physical properties tests were performed
in accordance with ASTM D-6694 with a film thickness of 20 dry mils.**

TENSILE:	ASTM D2370	
	Initial Tensile Strength:	306 ± 10 psi
	Elongation:	130%
TEAR RESISTANCE:	ASTM D624 Die C	25 lbs per square inch
HARDNESS:	ASTM D2240 Shore A	55
WATER VAPOR PERMEANCE:	ASTM E96 Procedure B	7.0 perms
WET ADHESION TO POLYURETHANE FOAM:	ASTM D903	3.5 lbs per linear inch
LOW TEMPERATURE FLEX:	ASTM D522 Method B	Pass

PACKAGED PRODUCT DATA

SOLIDS:	By Weight	96%
	By Volume	95%
VOC:	35 g/l	
FLASH POINT:	ASTM D3278	178°F (81°C)
STORAGE STABILITY:	Two years from date of manufacture when stored in sealed containers between 0°F - 80°F (-17°C - 26°C)	

APPLICATION

MIXING:	Mix before application to ensure uniform color and consistency.
THINNING:	Product is not intended to be thinned.
PRIMER:	Existing silicone coatings should not be primed. On all other substrates, apply GacoFlex E5320 2-Part Epoxy Primer/Filler according to label directions.
APPLICATION:	<p>Apply by brush, trowel, piping bag or roller as received. For application utilizing equipment contact Gaco Western. For cold weather application, keep material stored above 65°F (18°C). Do not apply if rain is expected within 1 hour. For application in temperatures below freezing or above 120°F (49°C) contact Gaco Western.</p> <ul style="list-style-type: none">- Apply SeamSeal on all metal seams, joints, fasteners and penetrations at 75 to 100 linear feet of seams per gallon or 450 fasteners per gallon.- Coat all surfaces including expansion joint covers and flashings. Extra material is required at all edges and penetrations if neoprene sheet flashing is not used. <p>NOTE: Application rate is job-specific. Additional material may be required due to surface profile, losses due to overspray and wind, and residual coating left in the container.</p>
DRY TIME:	Allow to dry a minimum of 4 hours at 55°F (13°C) or higher before coating with GacoFlex Solvent-Free Silicone Coating (product is moisture cure, low humidity will result in longer dry times); coat within 4 to 48 hours.
CLEAN UP:	Clean up application tools and equipment with GacoFlex Silicone Solvent. DO NOT USE WATER OR RECLAIMED SOLVENTS.

For specific Safety and Health information please refer to Material Safety Data Sheet.

Gaco Western

S I N C E 1 9 5 5

Product Data Sheet:

GacoFlex 66B

October 2011

Supersedes 12/06

GACOFLEX® 66B POLYESTER REINFORCING TAPE

DESCRIPTION:	GacoFlex 66B parchment-like texture tape is made of fusion bonded fabric polyester fibers laid in random orientation. It exhibits a high tensile strength, good elongation and a low profile.
USAGE:	Plywood joints, concrete construction joints, concrete cracks, and joints between metal, fiberglass or insulation, and combinations of the above substrates in roof, deck and wall specifications. The 66B tape can also be used for flashing at changes of plane; however, installation into inside corners requires special care.
COLOR:	White

APPLIED PRODUCT DATA

TENSILE:	ASTM D-412-68	400 psi (2.76 MPa) Transverse 800 psi (5.52 MPa) Longitudinal
ELONGATION:	ASTM D-412-68	60%
ADHESION:	ASTM D-903-49	Same as that of Primer used.
SOLVENT SWELL:	None measurable.	
HEAT SHRINKAGE:	None after 6 months at 150°F (66°C).	

PACKAGED PRODUCT DATA

LENGTH:	100 Yards per roll (91.44 m)
THICKNESS:	5 Mils (.13mm)
STORAGE:	Store in a cool, dry place.

APPLICATION

Refer to General Instructions GW-1-2 and Details GW-5-D2.



Terminal 7 Warehouse
Project Title Rehabilitaion **Project No.** 091569
Submitted By: Tacoma Roofing & Waterproofing **Contract No.** _____
Prime/Sub/Supplier: Sub **Date:** _____

Specification Title: SBS Roofing **Section No.** 075216
Description: 2ply SBS Torch Applied 20yr System **Paragraph:** 2.03
Page No. 3

Proposed Substitution: Ruberoid SBS HW Smooth & HWGFR
Trade Name: Ruberoid **Model No.:** I02HWGFR
Manufacturer: GAF
Address: _____ **Phone No.:** 800-522-9224

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted By: Allen Sensel
Signed By: _____ **Firm:** Tacoma Roofing & Waterproofing
Address: 7006 W 27th St, Suite E
University Place, WA 98387
Telephone: 425-280-4372 **Email:** Allen@TacomaRoofCo.Com

Supporting Data Attached:

☐ Drawings ☒ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ Other _____

ENGINEER'S REVIEW AND ACTION

- ☒ Substitution approved
☐ Substitution approved as noted
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: Allen Howard **Date:** 4-11-2016



METALASTIC[®]

EXPANSION JOINT COVERS

Reduce Field Splices—And Risk Of Leaks

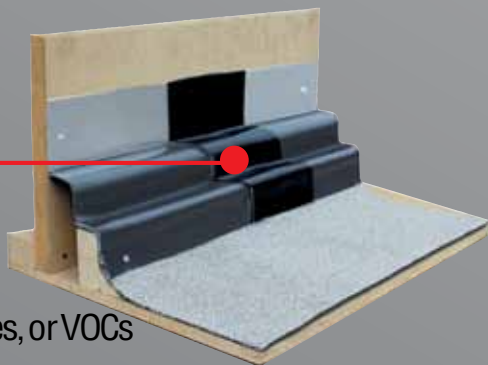
- **Saves Labor...** Installs in up to $\frac{1}{3}$ the time of traditional products
- **Easy Installation Featuring Splice-Lock[™] Technology...** No primers, adhesives, or VOCs to worry about!
- **Reduces Embarrassing Callbacks...** Fewer seams means less potential for leaks
- **Versatile...** Works with all types of roofing systems

Comes In Continuous Lengths Up To 250' ft.

With These Special Features:

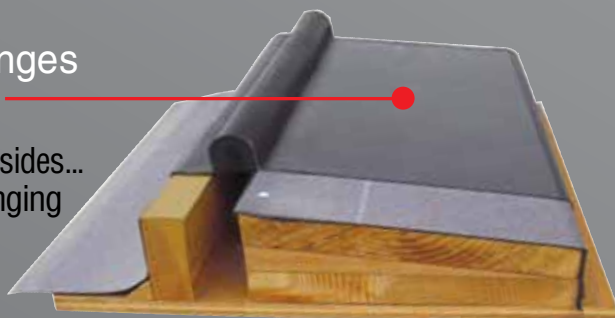
Splice-Lock[™] Instant Splices

- No waiting... saves time and labor
- No primers, adhesives, or VOCs



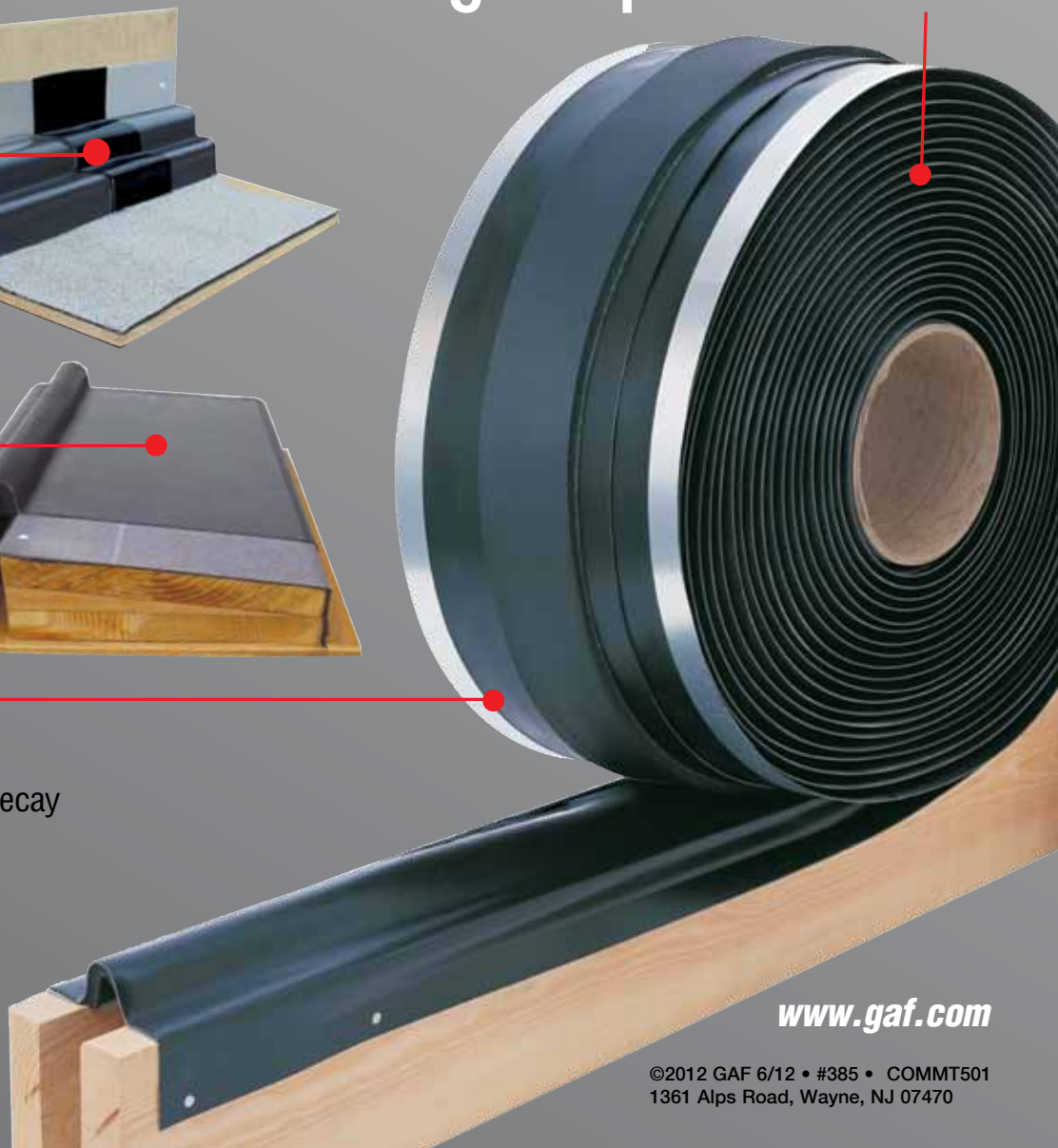
Wide Flanges Available

- Either or both sides... without changing bellows



Protected Nailing Strips

- Self-sealed when installed
- Fewer problems from rust and decay



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1361 Alps Road, Wayne, NJ 07470

**Ruberoid®/GAFGLAS® Diamond Pledge™
NDLRoof Guarantee - Specimen
(COMTS587)**

Updated: 2/16



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RUBEROID®/GAFGLAS® DIAMOND PLEDGE™ NDL ROOF GUARANTEE



No. _____

OWNER: _____ PERIOD OF COVERAGE: _____ YEARS

NAME AND TYPE OF BUILDING: _____

ADDRESS OF BUILDING: _____

ROOF SPECIFICATION: _____ AREA OF ROOF: _____ SQUARES

APPLIED BY: _____

DATE OF COMPLETION: _____ GUARANTEE EXPIRATION DATE: _____

THE GUARANTEE/SOLE AND EXCLUSIVE REMEDY

GAF guarantees to you, the owner of the building described above, that GAF will provide “Edge To Edge” protection by repairing leaks through the GAF roofing membrane, liquid-applied membrane or coating, base flashing, insulation, expansion joint covers, preflashed accessories, and metal flashings used by the contractor of record that meet SMACNA standards (the “GAF Roofing Materials”) resulting from a manufacturing defect, ordinary wear and tear, or workmanship in applying the GAF Roofing Materials. There is no dollar limit on covered repairs. Leaks caused by any non-GAF materials, such as the roof deck or non-GAF insulation, are not covered.

GUARANTEE PERIOD

This guarantee ends on the expiration date listed above. **NOTE:** Lexsuco® and uncoated M-Curb™ flashings are covered by this guarantee **ONLY** for the first ten years.

OWNER RESPONSIBILITIES

Notification of Leaks

In the event of a leak through the GAF Roofing Materials, you **MUST** make sure that GAF is notified directly about the leak, in writing, within **30 days** by e-mail (preferred) at guaranteeleak@gaf.com or by postal mail to GAF Guarantee Services, 1 Campus Drive, Parsippany, NJ 07054, or GAF will have no responsibility for making repairs. **NOTE:** The roofing contractor is **NOT** an agent of GAF; notice to the roofing contractor is **NOT** notice to GAF.

By notifying GAF, you authorize GAF to investigate the cause of the leak. If the investigation reveals that the leak is not covered by this guarantee, you agree to pay an investigation cost of \$500. This guarantee will be cancelled if you fail to pay this cost within 30 days of receipt of an invoice for it.

Preventative Maintenance and Repairs

- You must perform regular inspections and maintenance and keep records of this work.
- To keep this guarantee in effect, you must repair any conditions in the building structure or roofing system that are not covered by this guarantee but that GAF concludes may be threatening the integrity of the GAF Roofing Materials. Any such repairs must be performed by a GAF-certified roofing contractor. Failure to make timely repairs may jeopardize guarantee coverage.
- You may make temporary repairs to minimize damage to the building or its contents in an emergency, at your sole expense. These repairs will not result in cancellation of the guarantee as long as they are reasonable and customary and do not result in permanent damage to the GAF Roofing Materials.
- Any equipment or material that impedes any inspection or repair must be removed at your expense so that GAF can perform inspections or repairs.

EXCLUSIONS FROM COVERAGE

(e.g., items that are not “ordinary wear and tear” or are beyond GAF’s control)

This guarantee does **NOT** cover conditions other than leaks. This guarantee also does **NOT** cover leaks caused by any of the following:

- Inadequate roof maintenance, that is, the failure to follow the Scheduled Maintenance Checklists provided with this guarantee (extra copies available by calling Guarantee Services at 1-800-ROOF-411) or the failure to repair owner responsibility items.
- Unusual weather conditions or natural disasters including, but not limited to, winds in excess of 54 miles per hour, hail, floods, hurricanes, lightning, tornados, and earthquakes, unless specifically covered by an addendum to this guarantee.
- Impact of foreign objects or physical damage caused by any intentional or negligent acts, accidents, misuse, abuse or the like.
- Damage to the roof constructed of the GAF Roofing Materials due to:
(a) Movement, cracking, or other failure of the roof deck or building; (b) improper installation or failure of any non-GAF insulation or materials; (c) condensation or infiltration of moisture through or around the walls, copings, building structure, or surrounding materials except where high wall GAF waterproofing flashings are installed; (d) chemical attack on the membrane, including, but not limited to, exposure to grease or oil; (e) the failure of wood nailers to remain attached to the structure; (f) moisture migration from the building interior or any building component other than the GAF Roofing Materials; (g) use of materials that are incompatible with the GAF Roofing Materials; or (h) architectural, engineering, or design defects or flaws.
- Traffic of any nature on the roof unless using GAF walkways applied in accordance with GAF’s published application instructions.
- Blisters in the GAF Roofing Materials that have not resulted in leaks unless (a) the blister is between the base sheet and insulation and a Stratavent® Perforated Venting Base Sheet is installed directly over isocyanurate insulation, or (b) the blister is in a seam and may affect the watertight integrity of the GAF Roofing Materials.
- Changes in the use of the building or any repairs, modifications, or additions to the GAF Roofing Materials after the roof is completed, unless approved in advance in writing by GAF.
- Conditions that prevent positive drainage or result from ponding water.

No representative, employee, or agent of GAF, or any other person, has the authority to assume any additional or other liability or responsibility for GAF, unless it is in writing and signed by an authorized GAF Field Services Manager or Director. GAF does not practice engineering or architecture. Neither the issuance of this guarantee, nor any review of the roof constructed of the GAF Roofing Materials (or the plans for the roof) by GAF shall constitute any warranty of such plans, specifications or construction or the suitability or code compliance of the GAF Roofing Materials for any particular structure. **NOTE:** Any inspections made by GAF are limited to a surface inspection only, are for GAF’s sole benefit, and do not constitute a waiver or extension of any of the terms and conditions of this guarantee.

This guarantee MAY BE SUSPENDED OR CANCELLED IF THE ROOF IS DAMAGED BY any cause listed above as AN EXCLUSION FROM COVERAGE that may affect the integrity or watertightness of the roof.

TRANSFERABILITY

You may transfer or assign this guarantee to a subsequent owner of this building for the remaining term only if: 1) the request is in writing to GAF at the address listed below within 60 days after ownership transfer; 2) you make any repairs to the GAF Roofing Materials or other roofing or building components that are identified by GAF after an inspection as necessary to preserve the integrity of the GAF Roofing Materials; and 3) you pay an assignment fee of \$500. This guarantee is NOT otherwise transferable or assignable by contract or operation of law, either directly or indirectly.

LIMITATION OF DAMAGES; MEDIATION; JURISDICTION; CHOICE OF LAW

THIS GUARANTEE IS EXPRESSLY IN LIEU OF ANY OTHER GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, and of any other obligations or liability of GAF, whether any claim against it is based upon negligence, breach of warranty, or any other theory. In NO event shall GAF be liable for any CONSEQUENTIAL OR INCIDENTAL DAMAGES of any kind, including, but not limited to, interior or exterior damages and/or mold growth. The parties agree that, as a condition precedent to litigation, any controversy or claim relating to this guarantee shall be first submitted to mediation before a mutually acceptable mediator. In the event that mediation is unsuccessful, the parties agree that neither one will commence or prosecute any lawsuit or proceeding other than before the appropriate state or federal court in the State of New Jersey. This guarantee shall be governed by the laws of the State of New Jersey, without regard to principles of conflicts of laws. Each party irrevocably consents to the jurisdiction and venue of the above identified courts.

NOTE: GAF shall have no obligation under this guarantee unless and until all bills for installation and supplies have been paid in full to the roofing contractor and materials suppliers, and the guarantee charge has been paid to GAF.

This guarantee must have a raised seal to be valid.

GAF
1 CAMPUS DRIVE
PARSIPPANY, NJ 07054

By: _____
Authorized Signature Date



RUBEROID®/GAFLAS® Diamond Pledge™ NDL Roof Guarantee With True “Edge-To-Edge” Coverage

Important Information On Your Guarantee Coverage...

Congratulations on selecting a GAF RUBEROID®/GAFLAS® Diamond Pledge™ NDL Roof Guarantee. GAF is proud to provide you with extraordinary guarantee coverage for your new roofing system.

- The RUBEROID®/GAFLAS® Diamond Pledge™ NDL Roof Guarantee provides you with comprehensive system protection so that if your new GAF roofing system leaks from a manufacturing defect or workmanship error, the costs of repair are 100% covered (see your RUBEROID®/GAFLAS® Diamond Pledge™ NDL Roof Guarantee for complete coverage and restrictions).

First, let's understand the responsibilities of ownership...

- It's common sense... if you own something and you want it to perform, you have to maintain it. After all, you wouldn't expect...
 - a smoke alarm to go off with a dead battery
 - your furnace to perform efficiently if you never changed the filter
 - your car to run if you never changed the oil

Your new roof is no exception.

Simply put... maintenance is a responsibility of ownership. Without basic maintenance, your assets will diminish in value. With basic maintenance, you can preserve them and enjoy years of reliable service.

Your new roof is protected by the extraordinary RUBEROID®/GAFLAS® Diamond Pledge™ NDL Roof Guarantee coverage, plus you may be eligible for the added benefits of...

- Up to 25% of additional duration... with the WellRoof® Guarantee Extension¹

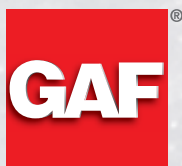
We've put together a program designed to help reduce the risk of the unexpected expense and unnecessary disruption that may occur if your roof leaks.

The WellRoof® Guarantee Extension can add up to 25% additional duration to your RUBEROID®/GAFLAS® Diamond Pledge™ NDL Roof Guarantee coverage, when you maintain your roof with the services of a **GAF Certified Maintenance Professional**.

Protect your asset and get longer protection from your guarantee with the WellRoof® Guarantee Extension and a maintenance program you can trust, executed by a GAF Certified Maintenance Professional. Call 1-800-ROOF-411 or visit gaf.com for information about a Certified Maintenance Professional in your area.

Need more info on saving money with a roof maintenance program? See the WellRoof® Brochure at gaf.com.

1. See the WellRoof® Guarantee Extension for complete coverage and restrictions.



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RUBEROID® EnergyCap™ HW Granule FR Membrane Data Sheet

Updated: 6/15



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RUBEROID®

HW GRANULE FR MEMBRANE

Formerly: RUBEROID® SBS HeatWeld™ 170 FR

Description

RUBEROID® HW Granule FR is a tough, fire-retarding SBS modified bitumen membrane that can be installed without the use of hot asphalt. Its core is a strong, resilient, non-woven polyester mat that is coated with an inherently fire-retardant polymer modified asphalt and surfaced with mineral granules.

Uses

RUBEROID® HW Granule FR is designed for new roofing and re-covering applications as well as the construction of flashings. RUBEROID® HW Granule FR is also an ideal product for repairs of built-up roofing membranes or other modified bitumen systems.

Advantages

- Typical system guarantees available for up to 15 years; select system constructions available with up to 20-year guarantee coverage.*
- Lightweight—installed roof designs weigh less than 2 pounds per square foot (9.8 kg/m²).
- Durable—specially formulated modified asphalt gives RUBEROID® HW Granule FR lasting performance.
- Specially formulated poly burn-off film allows for easy installation.
- Heat welding allows for kettle-free operation.

Advantages (Continued)

- Resilient—RUBEROID® HW Granule FR polyester mat core allows it to resist splits and tears due to its pliability and elongation characteristics.
- RUBEROID® SBS HEAT-WELD™ 170 FR membrane is backed by GAF, a company with over 100 years in the roofing business.
- No coatings required for Class A ratings from UL and FMRC.
- Available with granular surface: black, white.

* See applicable guarantee for complete coverage and restrictions.

Applicable Standards

FM Approved

Miami-Dade County Approved

UL/ULc Listed

Product Specifications (nominal)

Roll Size	1 square (107.7 gross sq. ft.) (10.0 m²)
Roll Length	32.6' (9.9 m)
Roll Width	39.625" (1.0 m)
Approx. Roll Weight	104 lbs (47.2 kg)
Product Thickness	0.161" (4.1 mm)



This product meets or exceeds the following ASTM D6164, Type I, Grade G, minimum requirements:

Property	Test Method	Value
Tensile Strength @ 0°F (min), lbf/in	ASTM D5147	70
Elongation @ 0°F (min), %	ASTM D5147	20
Low Temperature Flexibility (max), °F	ASTM D5147	0
Tear Strength (min), lbf	ASTM D5147	55
Dimensional Stability, (max)%	ASTM D5147	1

RUBEROID® HW SMOOTH MEMBRANE

Updated: 7/15



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gaf.com



RUBEROID®

HW SMOOTH MEMBRANE

Formerly RUBEROID® SBS HeatWeld™ Smooth

Description

RUBEROID® HW Smooth Membrane is a tough, resilient modified bitumen membrane manufactured to stringent GAF specifications. Its core is a strong, resilient non-woven polyester mat that is coated with flexible polymer modified asphalt and has a smooth surface. Smooth-surface installations must be protected with surfacing.

Uses

RUBEROID® HW Smooth Membrane is designed for new roofing and re-covering applications as well as the construction of flashings. RUBEROID® HW Smooth Membrane is also an ideal product for repairs of built-up roofing membranes or other modified bitumen systems.

Advantages

- System guarantees are available for up to 20 years.*
- Cost effective—The installed cost is less than most single-ply systems on the market today.
- Light weight—Installed roof designs weigh less than 2 pounds per square foot (9.8 kg/m²).

Advantages (Continued)

- Durable—Specially formulated modified asphalt gives lasting performance.
- Resilient polyester mat core allows it to resist splits and tears due to its pliability and elongation characteristics.
- RUBEROID® HW Smooth Membrane is backed by GAF, a company with over 125 years in the roofing business.

* See applicable guarantee for complete coverage and restrictions.

Applicable Standards

Meets ASTM D6164, Type I, Grade S
FM Approved
ICC ESR-1274
Miami-Dade County Product Control Approved
State of Florida Approved
UL/ULC Listed

Product Specifications (nominal)

Roll Size	1 square (107.7 gross sq. ft.) (10.0 m²)
Roll Length	32.6' (9.9 m)
Roll Width	39.625" (1.0 m)
Approx. Roll Weight	104 lbs (47.2 kg)
Product Thickness	0.165" (4.2 mm)

This product meets or exceeds the following ASTM D6164, Type I, Grade S, minimum requirements:

Property	Test Method	Value
Tensile Strength @ 0°F (min), lbf/in	ASTM D5147	70
Elongation @ 0°F (min), %	ASTM D5147	20
Low Temperature Flexibility (max), °F	ASTM D5147	0
Tear Strength (min), lbf	ASTM D5147	55
Dimensional Stability, (max)%	ASTM D5147	1

SECUROCK[®] Data Sheet

Updated: 8/15



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USG SECUROCK® BRAND

Gypsum-Fiber Roof Board (1 of 2)

Description

USG Securock® Brand Gypsum-Fiber Roof Board is a high-performance roof board for use in low-slope roofing systems. Its unique fiber-reinforced, homogenous composition gives the panel strength and water resistance through to the core. USG Securock Gypsum-Fiber Roof Board provides exceptional bond and low absorption in adhered systems, and its homogenous composition achieves high wind-uplift ratings with no risk of facer delamination. Made from 97% pre-consumer recycled materials, USG Securock Gypsum-Fiber Roof Board combines superior performance with sustainable design for all types of roofing systems, including single-ply, fluid-applied, built-up, spray foam, metal, and modified bitumen roofing.

Advantages

- Exceptional Strength... Engineered to provide superior wind-uplift performance for a wide variety of roof assemblies. USG Securock Gypsum-Fiber Roof Board has uniform composition, providing enhanced bond strength of membrane systems with reduced risk of facer delamination.
- Fire Performance... Provides excellent fire performance and demonstrates exceptional surface-burning characteristics (ASTM E84 [CAN/ULC-S102] Flame Spread 5, Smoke Developed 0).
- Moisture and Mold... Uniform water-resistant core ensures excellent moisture and mold resistance. Scored a maximum "10" for mold resistance on ASTM D3273.
- Versatile... Can be used as a component in single-ply, fluid-applied, built-up, spray foam, metal, and modified bitumen roofing.
- Sustainability... Made from 97% pre-consumer recycled materials and has earned independent certification from Scientific Certification Systems for this achievement.
- Consult roofing manufacturers for specific instructions on the application of their products to USG Securock Gypsum-Fiber Roof Board.
- Weather conditions, dew, application temperature, installation techniques, and moisture drive can have adverse effects on the performance of the roof system and are beyond the control of USG.
- Keep USG Securock Gypsum-Fiber Roof Board panels dry before, during, and after installation. USG Securock Gypsum-Fiber Roof Board should not be installed during rain, heavy fog, or any other condition that deposits moisture on the surface of the board. Apply only as much USG Securock Gypsum-Fiber Roof Board that can be covered by final roof membrane system in the same day. Avoid exposure to moisture from leaks or condensation.
- For reroof or re-cover applications, existing roofing system must be dry throughout prior to application of USG Securock Gypsum-Fiber Roof Board.
- Plastic or poly packaging applied at the plant to protect board during rail or other transit should be removed upon receipt to prevent condensation or trapping of moisture, which may cause application problems.
- USG Securock Gypsum-Fiber Roof Board should be stored flat and off the ground with protection from the weather. If stored outdoors, a breathable waterproof covering should be used.
- When applying solvent-based adhesives or primers, allow sufficient time for the solvent to evaporate to avoid damage to roofing components.
- USG allows the bonding of cold mastic modified bitumen and torching directly to the surface. Consult with the system manufacturer for recommendations on this application.
- USG recommends maximum asphalt application temperature for Type III asphalt of 455°F (235°C) when using USG Securock Gypsum-Fiber Roof Board. Application temperatures above these recommended temperatures may adversely affect roof system performance.

Limitations

- USG Securock Gypsum-Fiber Roof Board is engineered to perform within a properly designed roof system. The use of USG Securock Gypsum-Fiber Roof Board as a roofing component is the responsibility of the design professional.

Manufactured by:



The trademarks USG, Securock®, the USG logo, the design elements and colors, and related marks are trademarks of USG Corporation or its affiliates.



USG SECUROCK® BRAND

Gypsum-Fiber Roof Board (2 of 2)

Installation

Refer to roof system manufacturer's written instructions, local code requirements, and Factory Mutual Global (FMG) and/or Underwriters Laboratories (UL) requirements for proper installation techniques.

- Use fasteners specified in accordance with above requirements. Install approved fasteners with plates into the USG Securock® Brand Gypsum-Fiber Roof Board, flush with the surface. Fasteners should be installed in strict compliance with the roof system manufacturer's installation recommendations and FMG Loss Prevention Data Sheet 1-29. Proper fastener spacing is essential to achieve wind-uplift performance.

Fire Performance

UL Classified as to Surface Burning Characteristics and Non-Combustibility in accordance with ASTM E84 (CAN/ULC-S102).

- Spread 5 and Smoke Developed 0
- 1/4" (6.35 mm), 3/8" (9.53 mm), 1/2" (12.7 mm), and 5/8" (15.9 mm) thickness — Class A in accordance with UL790 (CAN/ULC-S107). See the UL Building Materials Directory for more information.
- 5/8" (15.9 mm) thickness — Meets requirements of Type X per ASTM C1278 and may be used in P series designs as a thermal barrier.

System Performance

FM Approved

- Complies with requirements of FM 4450 and FM 4470
- Meets FM Class 1

Standards Compliance

USG Securock Gypsum-Fiber Roof Board is manufactured to conform to ASTM C1278, "Standard Specification for Fiber-Reinforced Gypsum Panel."

PHYSICAL PROPERTIES				
	1/4" (6.35 mm)	3/8" (9.53 mm)	1/2" (12.7 mm)	5/8" (15.9 mm)
Width, standard	4' (1.21 m)	4' (1.21 m)	4' (1.21 m)	4' (1.21 m)
Length, standard	4' (1.21 m) 8' (2.44 m)	4' (1.21 m) 8' (2.44 m)	4' (1.21 m) 8' (2.44 m)	4' (1.21 m) 8' (2.44 m)
Pieces per unit for 4' x 8' (1.21 m x 2.44 m) sheets	50	40	30	24
Weight, nom. lbs./unit 4' x 8' (1.21 m x 2.44 m) sheets	2,575 (1,168 kg)	2,575 (1,168 kg)	2,725 (1,236 kg)	2,525 (1,145 kg)
Weight, nom. lbs./sq. ft.	1.57 (7.66 kg/m ²)	1.96 (9.57 kg/m ²)	2.76 (13.47 kg/m ²)	3.20 (15.62 kg/m ²)
Flexural strength, parallel, lbs. min., per ASTM C473	40 (18.14 kg)	70 (31.75 kg)	110 (50 kg)	161 (73 kg)
Compressive strength, psi nominal	1800	1800	1800	1800
Flute spannability per ASTM E661	2 5/8" (66.7 mm)	5" (127 mm)	8" (203 mm)	10" (254 mm)
Permeance, perms, per ASTM E96	30	26	26	24
R-Value per ASTM C518	0.2	0.3	0.5	0.6
Coefficient of thermal expansion, inches/inch • -6°F/-21.1°C, per ASTM E831	8" x 10" (203 mm x 254 mm)	8" x 10" (203 mm x 254 mm)	8" x 10" (203 mm x 254 mm)	8" x 10" (203 mm x 254 mm)
Linear variation with change in moisture, inches/inch • %RH, per ASTM D1037	8" x 10" (203 mm x 254 mm)	8" x 10" (203 mm x 254 mm)	8" x 10" (203 mm x 254 mm)	8" x 10" (203 mm x 254 mm)
Water absorption, % max, per ASTM C473	10	10	10	10
Surface water absorption, nominal grams, per ASTM C473	1.6	1.6	1.6	1.6
Mold resistance per ASTM D3273*	10	10	10	10
Bending Radius	25' (7.62 m)	25' (7.62 m)	25' (7.62 m)	30' (9.14 m)

*ASTM D3273 Mold Resistance Testing – In independent lab tests conducted on USG Securock® Brand Gypsum-Fiber Roof Board and Securock Glass-Mat Roof Board at the time of manufacture per ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber, both panels scored a 10. The ASTM lab test may not accurately represent the mold performance of building materials in actual use. Given unsuitable project conditions during storage, installation, or after completion, any building material can be overwhelmed by mold. To manage the growth of mold, the best and most cost-effective strategy is to protect building products from water exposure during storage and installation and after completion of the building. This can be accomplished by using good design and construction practices.

PARAPRO FLASHING RESIN



Commercial Product Data Sheet

Product Description

Parapro Flashing Resin is a high performance, multi-component, flexible PMMA resin for use in the Parapro 123 Flashing System.

Product Uses

Parapro Flashing Resin, when catalyzed, is combined with polyester fleece to form a monolithic, reinforced flashing membrane used with a variety of Siplast roofing and waterproofing systems for flashing and repairs.

Color

Parapro Flashing Resin is supplied in light gray (7035) and white (9010) colors.

Packaging

Parapro Flashing Resin is supplied in and 10-kg (22-lb) resealable drums with locking rings.

Coverage Rate

Smooth surfaces

Minimum total consumption: 0.31 kg/sf (3.3 kg/m²)

Base coat (minimum consumption): 0.19 kg/sf (2.0 kg/m²)

Top coat (minimum consumption): 0.12 kg/sf (1.3 kg/m²)

Granule surfaces

Minimum total consumption: 0.4 kg/sf (4.3 kg/m²)

Base coat (minimum consumption): 0.28 kg/sf (3.0 kg/m²)

Top coat (minimum consumption): 0.12 kg/sf (1.3 kg/m²)

See recommendations for specific applications. Yields will vary depending upon the system selected and the smoothness and absorbency of the substrate.

Application Conditions

Parapro Flashing Resin is available in summer and winter grades. Care should be taken to ensure that the correct formulation is used for the application based upon the ambient temperature.

Summer Grade

Summer Grade Parapro Flashing Resin can be applied when the ambient temperature is between 59°F (15°C) and 104°F (40°C) and the substrate temperature is between 59°F (15°C) and 122°F (50°C). Discontinue resin application when the ambient or substrate temperature is outside the ranges listed above. Provide adequate shade over the substrate area both prior to and during application as necessary to maintain substrate surface temperatures below 122°F (50°C)

Winter Grade

Winter Grade Parapro Flashing Resin can be applied when the ambient temperature is between 23°F (-5°C) and 68°F (20°C) and the substrate temperature is between 23°F (-5°C) and 77°F (25°C). Discontinue resin application when the ambient or substrate temperature is outside the ranges listed above.

Storage

Product shelf life is 6 months from ship date. Shelf life will be reduced if product is stored at temperatures above 77°F (25°C). Store indoors in a closed container in a well-ventilated, cool, dry area away from heat, open fire, any ignition source, direct sunlight, oxidizing agents, strong acids, and strong alkalis. Do not store in temperatures below 32°F (0°C). Product may auto-polymerize at temperatures greater than 140°F (60°C). Materials stored on the job site during application should be kept on a pallet in a shaded, well-ventilated area. In unshaded areas, materials should be covered with a white, reflective tarp in a manner that allows air circulation underneath the tarp.

Mixing & Catalyzing

If batch mixing, thoroughly mix the entire drum of resin for 2-3 minutes prior to pouring resin into a second container. Catalyze only the amount of resin that can be used within the anticipated pot life. Add pre-measured catalyst to the resin, stir for 2 minutes using a slow-speed mechanical agitator or mixing stick, and apply to the substrate. The amount of catalyst needed is based on the weight of the resin used, and varies with the ambient temperature as shown in the chart on the back of this sheet.

Pot Life

Parapro Flashing Resin pot life is approximately 15 minutes at 68°F (20°C). Pot life will be reduced if the resin is at higher temperatures. Pot life can be maximized by storing product under controlled conditions and ensuring that the resin is at the low range of minimum storage temperature during/after the addition of catalyst and prior to application.

Set (Cure) Times

Minimum set (cure) times noted below are approximate, and may vary. The information provided is based on laboratory conditions, and is intended for use as a guideline only. Actual set (cure) times should be established in the field, based on actual field conditions.

Rain Proof at 68°F (20°C): Approximately 30 minutes

Ready for Next Coat at 68°F (20°C): Approximately 45 minutes

Ready for Foot Traffic at 68°F (20°C): Approximately 2 hours

Tool Cleaning

When work is interrupted or completed, reusable tools must be thoroughly cleaned with Pro Prep before any catalyzed resin on the tools hardens.

Rev 5/2015

PARAPRO FLASHING RESIN

Handling

Do not smoke. Keep away from open fire, flame or any ignition source. Vapors may form explosive mixtures with air. Avoid skin and eye contact with this material. Avoid breathing fumes. Do not eat, drink, or smoke in the application area.

Consult the Safety Data Sheet (SDS) for additional information pertaining to this product.

Personal Protection Equipment (PPE)

Workers must wear a long sleeved shirt with long pants and work boots. Workers must use only butyl rubber or nitrile gloves when mixing or applying this product. Safety goggles are required for eye protection.

Use local exhaust ventilation to maintain worker exposure below TLV. If the airborne concentration poses a health hazard, becomes irritating, or exceeds recommended limits, use a NIOSH approved respirator in accordance with OSHA Respirator Protection requirements under 29 CFR 1910.134. Specific type of respirator will depend on the airborne concentration. A filtering face piece or dust mask is not acceptable for use with this product if TLV filtering levels have been exceeded.

Parapro Flashing Resin - Summer Grade Pro Catalyst Mixing Chart								
The amount of Pro Catalyst used with Parapro Flashing Resin varies from a minimum of 2% to 4% maximum by weight, depending upon the ambient temperatures as indicated in the following table:								
Resin Quantity	Summer Grade 2% Catalyst 68°F to 104°F (20°C to 40°C)				Summer Grade 4% Catalyst 59°F to 68°F (15°C to 20°C)			
	g	kg	Tblsp.	0.1-kg Bag	g	kg	Tblsp.	0.1-kg Bag
1.0 kg (0.72 liter)	20	.02	2	n/a	40	.04	4	n/a
5.0 kg (3.6 liter)	100	0.1	10	1	200	0.2	20	2
10.0 kg (7.2 liter)	200	0.2	20	2	400	0.4	40	4

Parapro Flashing Resin - Winter Grade Pro Catalyst Mixing Chart												
The amount of Pro Catalyst used with Winter Grade Parapro Flashing Resin varies from a minimum of 2% to 6% maximum by weight, depending upon the ambient temperatures as indicated in the following table:												
Resin Quantity	Winter Grade 2% Catalyst 59°F to 68°F (15°C to 20°C)				Winter Grade 4% Catalyst 41°F to 59°F (5°C to 15°C)				Winter Grade 6% Catalyst 23°F to 41°F (-5°C to 5°C)			
	g	kg	Tblsp.	0.1-kg Bags	g	kg	Tblsp.	0.1-kg Bags	g	kg	Tblsp.	0.1-kg Bags
1.0 kg (0.72 liter)	20	0.02	2	n/a	40	0.04	4	n/a	60	0.06	6	n/a
5.0 kg (3.6 liter)	100	0.1	10	1	200	0.2	20	2	300	0.3	30	3
10.0 kg (7.2 liter)	200	0.2	20	2	400	0.4	40	4	600	0.6	60	6
20.0 kg (14.3 liter)	400	0.4	40	4	800	0.8	80	8	1200	1.2	120	12
Substrate temperature range for application of Winter Grade Parapro Flashing Resin is 23°F to 77°F (-5°C to 25°C).												

Current copies of all Siplast Commercial Product Data Sheets are posted on the Siplast Web site at www.Siplast.com.