WESTERN COLLOID

LOS ANGELES, CA
800-464-8292
Fax 323-231-7648

OAKLAND, CA
800-956-4899
Fax 510-636-1323

"WESTERN COOL ROOF SYSTEMS"

Sustainable - Energy Efficient

"GLAS-SHIELD"
FLUID APPLIED REINFORCED ROOF SYSTEM

SPECIFICATION NO. GR-1P-18-3-**

RECOVER GRAVEL SURFACE

1 PLY POLYESTER & GLASS FIBER ROVING REINFORCED – REFLECTIVE SURFACE

PART 1 - GENERAL

1.1 APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1.1.1 American Society for Testing and Materials Publication (ASTM)
1.1.2 Underwriters Laboratories Inc. (U.L.)
1.1.3 Western Colloid Details, Drawings and Notes
1.1.4 ENERGY STAR® guidelines for energy efficiency (Roof Coatings)
1.1.5 CRRC – Cool Roof Rating Council

1.2 QUALITY CONTROL

1.2.1 Pre-Roofing Conference: Prior to starting the application of the roofing system, there will be a pre-roofing conference with the owner's representative to assure a clear understanding of the specifications. The conference shall be attended by the Contractor(s) and the Membrane Manufacturer's representative.

1.2.2 Warranty: The contractor shall warrant for 2 years, from the date of completion, that the roofing system is free of defective materials and workmanship. Repairs that become necessity because of defective materials and/or workmanship while this roofing is under warranty shall be performed by the contractor. Any additional warrantees shall be provided by the contractor to the owner.

1.2.3 Manufacturer shall certify that materials submitted have been used in like application and that they have been actively engaged in the manufacture of these materials for a minimum period of 15 years prior to submittals, as required. The manufacturer shall certify that the contractor is authorized and approved for the application of their materials.

1.3 SUBMITTALS:

1.3.1 Descriptive literature: Submit manufacturer's application instructions and technical data sheets or catalog cuts on materials.

** Add **A** for SilverWhite Aluminum as reflective coat or Add **E** for ElastaHyde as reflective coat.

1.4 DELIVERY, STORAGE AND HANDLING:

1.4.1 Storage: Prior to and during project, protect all materials from inclement weather conditions. Keep lids tightly closed on all containers when not in use. Locate materials temporarily stored on the roof in approved areas and distribute the load to stay within the live load limits of the roof construction.

1.4.2 Handling: Select and operate materials handling equipment so as not to damage existing construction and applied roofing. Handle roll materials in a manner to prevent damage to edges and ends.

1.5 ENVIRONMENTAL CONDITIONS: This Fluid Applied Reinforced Roof System is water based and should be applied when weather conditions permit proper application and drying. Application will not be permitted during inclement weather (wet, rain, snow, freeze). The temperature during application shall be a minimum of 55 degrees Fahrenheit (F) and rising. Do not attempt application when rain, inclement weather or temperatures below 40 degrees F are expected within 48 hours after application. The system should not be applied if there is ice or frost on the roof surface/deck. The preparation and repair portion of the system that does not include water based materials may be applied immediately prior to inclement weather if necessary.

1.6 PROTECTION OF PROPERTY:

1.6.1 Protective Coverings: Contractor shall take proper precautions to protect owners property against damage and overspray. The use of shield boards, maskings and protective coverings shall be used as necessary. Western Colloid Products is not responsible for damages caused by the overspray of any of its products.

SYSTEM COMPONENTS AND WEIGHTS

No.	Component	Amount	Dry Weight Lb.**
	Fill coat #298 Emulsion (as needed)	8-12 Gallons	3.75 per gal.
1	Base Coat #298 Emulsion	6 Gallons	23.
2	Polyester Fabric	1 Ply	2.5
3	Top Coat #298 Emulsion (1 or 2 applications)	12 Gallons	46.
4	Chopped Glass Fiber Roving (in Top Coat)	3 Lbs.	3.
5	Reflective Surface Coating - SilverWhite Aluminum	1.5 Gallon	4.5
	Total System Dry Weight		79.0 lbs
	Total System Dry Mils (approximate) – (fill not included)	155 mils	
	(alternate)		
5a	Reflective Surface Coating - ElastaHyde White Acrylic	3. Gallons	21.
	Total System Dry Weight		95.5
	Total System Dry Mils (approximate) - (fill not included)	175 mils	

** weight approximate (per 100 sq. ft.)

PART 2 - PRODUCTS

2.1 DESCRIPTION OF ROOF SYSTEMS:

2.1.1 This specified assembly is a cold process method to upgrade existing roofing. The system is water based and environmentally friendly. It has very low odor. It is reinforced with tough, light weight polyester fabrics and fiber glass strands. It is intended to significantly extend the life of applicable existing roof membranes. This system eliminates or indefinitely delays the need to remove existing roof membranes which reduces land fill usage. The system is surfaced with a highly reflective elastomeric coating. This type of reflective surface has proven to significantly reduce temperatures and save energy on many types of commercial structures.

2.2 MATERIALS: Shall conform to the respective specifications and to the requirements herein.

2.2.1 Polyester Fabric: Shall be Western Colloid's 2.75 ounce soft or 3.0 ounce soft, stitchbonded polyester fabric used as a reinforcing fabric in asphalt emulsion.

2.2.2 Fiber Glass Roving: A continuous strand fiber glass roving, specifically designed for use in chopped glass spray guns.

2.2.3 SBS Fiber Glass Base Sheet: Shall be minimum 25 lb., SBS asphalt coated, G-2 type base sheet conforming to ASTM D 4601-95.

2.2.4 SBS Modified Bitumen Cap Sheet: Shall be minimum 4mm., granule surfaced, SBS modified with fiberglass and or polyester reinforcement(s).

2.2.5 Asphalt Flashing Compound: Asbestos free, cut back roof mastic reinforced with non asbestos fibers. ASTM D 4586-86 Type 1.

2.2.6 Modified Asphalt Flashing Compound: Asbestos free, cut back roof mastic reinforced with non asbestos fibers. Modified to form a permanently rubberized compound.

2.2.7 Elastic Cement #800: Elastomeric Flashing & Sealing Compound: A water base, highly concentrated acrylic resinous plastic emulsion with inert mineral pigments and fillers as manufactured by Western Colloid. For application to all exposed terminations, metal joints and any areas needing a tough, highly flexible sealing compound. Available in white or black.

2.2.8 #298 Asphalt Emulsion: A premium clay stabilized asphalt emulsion ASTM D 1227 Type III as manufactured by Western Colloid. Produced in a continuous colloid mill process without any added surfactants or additives. Also known as Glas-Shield Waterproofing Compound for cold process roofing.

2.2.9 SilverWhite #525: A specially formulated aluminum asphaltic emulsion for use as a protective coating where a high degree of reflectivity and weatherproofing is desired. SilverWhite is a unique formula that is manufactured from #298 Emulsion, special resins, the highest quality ingredients and polished aluminum flake. Manufactured by Western Colloid.

Alternate for White Acrylic Surface

2.2.9 ElastaHyde #770 AXP: High performance, 100% acrylic roof coating. A premium, elastomeric acrylic, white reflective coating. ElastaHyde #770 AXP is designed for smooth asphalt, modified bitumen and anywhere ponding or wet conditions exist. ElastaHyde is manufactured from premium resins, pigments and components producing an acrylic coating of the highest quality. ElastaHyde is a durable coating that will resist rigorous weather conditions while protecting roof surfaces and contributing to substantial energy savings. Western Colloid has determined that ElastaHyde #770 AXP meets the ENERGY STAR® guidelines for energy efficiency (white only). ElastaHyde #770 AXP meets the requirements of a "Cool Roof" and is listed by the "Cool Roof Rating Council". Manufactured by Western Colloid.

** Refer to current Technical bulletins for complete product data and proper application methods.
** Refer to MSDS for proper handling procedures.

PART 3 - EXECUTION

3.1 PREPARATION:

3.1.1 Roof membrane shall be repaired and made sound and watertight prior to application of the fluid applied reinforced roofing membrane using one or more of the following steps.

3.1.2 Remove all loose gravel, dirt, dust and foreign debris by vacuum, washing, sweeping or power blower. The entire surface shall be properly cleaned so as to receive proper attachment of the new fluid applied membrane. Areas of light dirt and dust may require only sweeping or power blowing. Areas of heavier dirt, dried mud or contamination may require washing. Use strongest cleaning method necessary to achieve best results.

3.1.3 Valleys and ponding areas shall be washed and may require priming so as to receive a positive attachment of the system. If priming is necessary to any area, use #298 Asphalt Emulsion diluted 20 to 30 percent with water as primer. Apply vigorously with brush and allow to dry.

Surfaces that are very rough or have embedded gravel require an application #298 emulsion as a fill coat. The #298 should be applied at a rate of 8 to 12 gallons per 100 sq. ft. as needed. (Refer to Western Colloid details – notes)

Valley and ponding areas shall receive an extra ply of polyester set in #298 Asphalt Emulsion prior to the application of the membrane.

3.1.4 All blisters are to be repaired using the “floating patch” (or other approved) method with asphalt flashing compound and modified base or cap sheet. Remove blisters with flat shovel, scraper or knife. Embed modified base or cap sheet in application of asphalt flashing compound. Apply pressure to smooth and achieve complete contact of sheet and flashing compound. Edges of sheet shall extend at least 6 inches beyond widest point of blister being repaired. Apply asphalt flashing compound to seal edge of sheet.

3.1.5 Large splits are to be repaired using the “floating patch” (or other approved) method with asphalt flashing compound and modified base or cap sheet. Make cuts in the membrane 2 to 3 inches long at the end of each split. Make cut at right angle to split to stop the split from continuing. Embed modified base or cap sheet in application of asphalt flashing compound Apply pressure to smooth and achieve complete contact of sheet and flashing compound. Edges of sheet shall extend at least 6 inches beyond widest point of split being repaired. Apply asphalt flashing compound to seal edge of sheet.

3.1.6 Repair and dress roof area as needed with special attention to penetrations, pipes, terminations and flashings.

Apply #800 Elastic Cement to all pipe flashings, cones, exposed metal joints and flanges using brush or trowel. Also apply #800 Elastic Cement to all corners at curbs and skylight flashings or any are that has been previously repaired with roofing mastic.

Small splits and irregularities are to be repaired using a three course method with #800 Elastic Cement. To the area needing repair apply #800 at a rate of 5 gallons per 100 sq. ft.(aprox. 1/8 in. thick). Into the wet #800 embed 1 ply of polyester fabric. Brush the fabric into the #800 to insure full saturation having no wrinkles or voids. Over the fabric apply another coat of #800 at a rate of 4 gal. per 100 sq.ft.. Allow to dry.

3.2 APPLICATION

3.2.1 Base and Wall Flashings: Prior to the application of the membrane, install one ply of Polyester Fabric into a full coat of 5 gallons per 100 sq.ft.(per ply) of #298 Asphalt Emulsion achieving full saturation. Polyester ply shall extend over cant onto deck and continue up wall to terminate as necessary, under counter flashing, reglet or wall cap flashing per Western Colloid details.

3.2.2 Edge Flashings: Remove and replace gravel stops and metal edge where necessary. Where gravel stop is replaced, replace with low or no rise metal edge. Metal edge shall be nailed at 4" O.C.. Strip-in the metal with modified base sheet set in asphalt flashing compound making sure to cover all nails. Leave at least 2” of metal bare at edge to insure positive attachment and seal of polyester fabric in emulsion. Where edge flashing is left in place, cut back roofing to provide for a positive attachment of the new membrane per Western Colloid details.

3.2.3 Vent and Pipe Flashings: If flange is removed and replaced or new flange is installed, set flange of metal "jack" in a bed of asphalt flashing compound and attach with nails. Strip-in the metal with modified base or cap sheet set in asphalt flashing compound making sure to cover all nails. Continue new membrane up to base of cone. Apply #800 Elastic Cement to top of cone extending onto pipe and insure complete seal is achieved.

3.2.4 Roof Drains (clamping type): Prior to the application of the roofing membrane, remove clamping ring and clean as necessary. Embed modified cap sheet in application of modified asphalt flashing compound into the drain bowl and extending a minimum of 18" from center of drain onto the deck (or as necessary to extend beyond drain sump). Apply pressure to smooth and achieve complete contact of cap sheet and modified asphalt flashing compound. Replace clamping ring. The roofing membrane system is to be installed leaving approximately 2 to 3 inches distance from the drain ring. Apply a thin bead of # 800 Elastic Cement to the membrane termination after it has dried. Be sure to feather the #800 so as not to cause water to dam.

Optional: The new membrane may be terminated at the drain bowl and clamped with the drain clamping ring. Omit the SBS membrane and add an extra ply of polyester fabric set in #298 to the drain area. The polyester shall extend at least 18 inches from the center of the drain or as necessary to extend beyond the drain sump or ponding area. The new membrane must be allowed to dry before setting the clamping ring.

3.2.5 Misc. Flashings: Where sign anchors, equipment supports or other projections penetrate the roof membrane, seal with #800 Elastic Cement creating a "cone" shaped seal. Where large voids must be bridged use 1 ply of polyester fabric in the #800. Misc. flashings to be of #800 Elastic Cement and Polyester Fabric and to be constructed in a manner acceptable to the membrane manufacturer as necessary to meet the needs of each flashing detail.

Refer to Western Colloid detail drawings and notes for additional details and application information.

3.2.6 MEMBRANE: Over the properly prepared surface, apply a coat of #298 asphalt emulsion at a rate of 6 gallons per 100 sq.ft.. Immediately following and starting at the low edge of the roof, embed a full width of Polyester Fabric continuing up the roof with full width sheets. Overlap each ply a minimum of 3". End laps shall overlap a minimum of 4". Polyester shall terminate 2 inches above cant. Do Not walk on the polyester during application while emulsion is still wet causing displacement of the #298 Asphalt Emulsion. Over the polyester fabric apply a coat of #298 Emulsion at a rate of 3 gallons per 100 square feet.

GLAS-SHIELD: Over the ply felts apply the Glas-Shield System. Employing the For-Tron Gun, apply separately yet simultaneously 9 gallons of #298 Emulsion with 3 lbs. fiberglass roving cut into approximately 1½ inch lengths, per 100 square feet. Extra attention shall be given to intersections, repairs, cants and walls. These areas shall receive an increased amount of fiberglass roving. Allow to cure.

3.2.7 Reflective Coating - SilverWhite #525: After roof has cured, apply reflective coating. To prevent damage to the membrane, the reflective coating should be applied early in the day prior to the heating and softening of the emulsion surface. If surface becomes soft and sticks to equipment or feet, discontinue application. Wash roof surface to remove any asphaltic residue that may cause lack of adhesion or "tobacco staining". Apply over the entire roof surface, SilverWhite #525 aluminum reflective roof coating at a rate of 1½ gallon per 100 sq. ft.. For best results, spray apply. (For roller or brush touch-up, use SilverWhite #530.)

Or (Alternate - White Acrylic)

3.2.7a Special Areas of Ponding: Areas around drains, scuppers and any locations where water ponds for more than 48 hours shall receive an extra ply of polyester fabric set in the ElastaHyde acrylic coating. The extra ply is to extend 12 inches beyond the ponding area. To this area set 1 ply of polyester into a 3 gallon per 100 sq. ft. application of ElastaHyde and broom lightly to achieve full saturation having no wrinkles or voids. This application shall be applied after the roof membrane and prior to the final coating of ElastaHyde.

3.2.7b Reflective Coating - ElastaHyde: After roof has cured apply reflective coating. To prevent damage to the membrane, the reflective coating should be applied early in the day prior to the heating and softening of the emulsion surface. If surface becomes soft and sticks to equipment or feet, discontinue application. Wash roof surface to remove any asphaltic residue that may cause lack of adhesion or "tobacco staining". Apply over the entire roof surface, a base coat of **ElastaHyde #770 AXP** elastomeric roof coating at a rate of 1½ gallons per 100 sq. ft. and allow to dry. Over the base coat apply the **ElastaHyde #770 AXP** reflective surface coating at a rate of 1½ gallons per 100 sq. ft.. This shall be done in a "cross hatch" manner (each coat shall be at a right angle to the previous). Before application, mix well and strain if spray applying. Do not thin or dilute.

3.2.8 CLEANUP: Each day, remove from the job site, debris, scraps, containers and any rubbish resulting from the installation of the roofing system.