

SECTION 07560

FLUID APPLIED ROOFING (OVER EXISTING SUBSTRATES)

PART 1 DESCRIPTION

1.1 DESCRIPTION OF EXISTING SUBSTRATES

This specification is only intended for the application of the PremiumCoat® System over the following fully adhered roof membranes; Modified Bitumen (smooth & granulated), Smooth Built Up, EPDM (Ethylene Propylene Diene Monomer), PVC (Polyvinyl Chloride), TPO (Thermoplastic Olefin), and Hypalon™ (chlorosulfonated polyethylene) roofing systems.

1.2 DESCRIPTION OF FLUID APPLIED ROOFING SYSTEM

The fluid applied roofing system must consist of a reinforced elastomeric system specifically designed for use on a roof. The system must have been approved by FMRC (Factory Mutual Research Corporation) according to Standard 4470 for Class 1 Roof Constructions which includes- Spread of Flame Fire, Windstorm Pressure, Windstorm Pull, Hail Damage, Resistance to Foot Traffic, and Susceptibility to Leakage Classifications.

1.3 SECTION INCLUDES

1. Fluid applied flexible acrylic waterproofing system over the existing roofing system. This work shall include the preparation of the roof deck, application of the roof system, flashing system, and clean up.

1.4 RELATED WORK

1. The contractor shall review all sections of these specifications to determine items of work that will interface with the application of this roofing system. Coordination and execution of related sections shall be the responsibility of the contractor.

1.5 REFERENCES

1. ASTM B117 - Test Method of Salt Spray (Fog) Testing.
2. ASTM G-29 - Test Methods for Algae Resistance.
3. ASTM E-108 - Test Method for Fire Test of Roof Coverings.
4. ASTM D-1653 - Water Vapor Transmission of Materials.
5. ASTM G26 - Practice for Operating Light- and Water-Exposure Apparatus (Xenon Arc Type) for Exposure of Nonmetallic Materials.

6. ASTM D-412- Ultimate Tensile Strength at Break.
7. ASTM D-6083- Standard Specification for Liquid Applied Acrylic Coatings used in roofing.
8. ASTM C1549- Standard test method for determination of solar reflectance near ambient temperature using a portable solar reflectometer
9. ASTM C1371- Standard test method for determination of emittance of materials near room temperature using portable emissometers
10. FM 4470- Standard for Class 1 Spread of Flame Fire, Windstorm Pressure, Windstorm Pull, Hail Damage, Resistance to Foot Traffic, and Susceptibility to Leakage Classifications.

1.6 SUBMITTALS

1. Shop Drawings: Submit a scaled drawing showing the layout of joint reinforcing and all flashing details.
2. Product Data: Provide manufacturer's technical literature on products that make up the roofing system. This shall include, but is not limited to, coatings, reinforcing fabrics, flashing materials, roof drains, fasteners, etc.
3. Manufacturer's Installation Instructions: Submit all data sheets available from the manufacturer on the installation of the roofing system applicable to the work.
4. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.7 QUALIFICATIONS

1. Applicator Qualifications: The applicator of the roofing material specified herein shall be an approved applicator (designated by Quest Construction Products, LLC.). Proof of this qualification shall be provided in written form from the manufacturer of the roofing system.

1.8 QUALITY CONTROL

1. Codes and Standards: The contractor shall make him / herself thoroughly familiar with all codes, regulations, and standards governing the specified work. Any contradiction between the manufacturer's requirements and these specifications shall be brought to the attention of the manufacturer and the specifier. The proper application/installation shall be the sole responsibility of the contractor.
2. Deviations: There shall not be any deviations from these specifications unless the deviation is submitted in writing to the specifier. The request for deviation must have a letter from the roofing manufacturer's technical department approving the details of the deviation.

3. An Approved Applicator (as designated by Quest Construction Products) shall be on site during all applications of any Hydro-Stop products.
4. Manufacturer's Technical Representative: An employee of the roofing material manufacturer shall be on site at least once every 7-calendar days during the work specified herein. Upon request the technical representative shall provide a written inspection report, during each site visit and submit the reports to the owner/owner's representative. The manufacturer's representative must approve the application process at specific stages before the contractor may continue including: Pre-Bid Inspection, Start-Up Inspection, at the completion of the FoundationCoat & fabric components, and completed FinishCoat inspection. It shall be the responsibility of the Contractor to notify the Technical Representative of these scheduled times.
5. Dry Mil Test: After 120 hours of curing time the Contracting Officer (or representative) shall select a minimum of three random locations for the manufacturer's technical representative to remove samples of the roof system (each sample shall be 2" x 1") and each sample shall be cut in half (1" x 1"). The technical representative shall provide half of the samples to the Contracting Officer. The technical representative shall immediately test the mil thickness of the samples in the presence of the Contracting Officer to affirm that the roof system's mil thickness is correct. If the dry mil thickness is not the required thickness to meet both the specification's minimum mil thickness and the required FM 4470 mil thickness, the contractor shall reapply the finish coat until the mil thickness is achieved.

1.9 DELIVERY, STORAGE, AND HANDLING

1. Deliver materials to site in manufacturer's unopened and undamaged containers bearing the following information:
 1. Name of manufacturer.
 2. Name of contents and products code.
 3. Net volume of contents.
 4. Lot or batch number.
 5. VOC content
 6. Storage temperature limits.
 7. Shelf life expiration date.
 8. Mixing instructions and proportions of contents.
 9. Safety information and instructions.
2. Store and protect materials from damage and weather in accordance with manufacturer's instructions.
3. Store materials at temperatures between 50-90 degrees F (10.0-32.2 degrees Celsius). Keep out of direct sunlight.
4. Support stored material containers on pallets and cover with tarpaulin tied to bottom of pallets.

1.10 ENVIRONMENTAL REQUIREMENTS

1. Do not apply if ambient temperatures are expected to fall below 40 degrees F (4.5 degrees Celsius) or if rain is expected before the application has time to cure.

1.11 WARRANTY

1. Provide ten-year manufacturer's Material or Labor & Material warranty.

PART 2 PRODUCTS

2.1 MANUFACTURER

- | | | |
|-----------------------------------|------------|--------------------|
| 1. Hydro-Stop a | Toll Free: | (800) 739-5566 |
| Quest Construction Products brand | Phone: | (843) 745-9600 |
| 1465 Pipefitter Street | Fax: | (843) 745-9602 |
| North Charleston, SC 29405 | Web: | www.hydro-stop.com |

2.2 MEMBRANE COMPOUND MATERIAL

1. Waterproofing Material: PremiumCoat three-stage, fabric reinforced, flexible acrylic coating, fluid applied in successive stages to form one continuous, seamless, watertight membrane; 40 mil (.04 inches / 1.016 millimeters) minimum cured total system thickness; comprised of the following:

1. Foundation and Saturation Coats: PremiumCoat FoundationCoat (highly flexible water based 100% pure acrylic polymer resin coatings).
2. Fabric: Hydro-Stop polyester, non-woven, stitch-bonded, and heat-set fabric.
3. Finish Coat: PremiumCoat FinishCoat (ultraviolet light resistant, blend of highly flexible water based 100% pure acrylic polymer resin coating); color as selected from manufacturer's standard colors.

2. Reinforcing Fabric: This material shall be non-woven 100% polyester, stitch bonded, heat set fabric with the following characteristics:

Weight:	3 oz / per square yard (106.31 grams / square meter)		
Tensile Strength	Warp	74 lbs. (33.60 kg)	per ASTM D 5034
	Fill	45 lbs. (20.43 kg)	
Elongation @ Break	Warp	21.3%	per ASTM D 5034
	Fill	51.3%	
Ball Burst	111 lbs.	(50.39 kg)	per ASTM D 3787
Trapezoid	Warp	13.5 lbs. (6.13 kg)	per ASTM D 117
	Fill	24.2 lbs. (10.99 kg)	
Thickness	.018 inches	(.457 mm)	per ASTM D-1777

3. Cured Membrane Characteristics:

<u>PROPERTY</u>	<u>TEST</u>	<u>RESULT</u>
Elongation	ASTM D638	>300% elastomeric
Tensile Strength (cured)	ASTM D412	>2000 PSI (13,789 kPA)
Density:		12.1 lb/gal
Volume Solids:		> or = 53 %
Weight Solids:		> or = 66%
Algae Resistance	ASTM G29	No Growth Supported
Moisture Vapor	ASTM E96	3 Perms
Weathering	ASTM G26	No effect after 3,000 hours.
Salt Spray Test	ASTM B117	No effect.
Fire Rating	ASTM E108	Class A
VOC (calculated):		< 72 g/L
Susceptibility to Leakage	FM 4470	No signs of water leakage.
Windstorm Pressure	FM 4470	Meets Class 1- 90
Windstorm Pull	FM 4470	Class 1-225 on Polyisocyanurate
“	“	Class 1-270 on Expanded Polystyrene
“	“	Class 1-375 on Lightweight Concrete
“	“	Class 1-735 on Structural Concrete
Severe Hail Test	FM 4470	No separation or rupture 1-SH
Resistance to Foot Traffic	FM 4470	No sign of tearing or cracking.
Liquid Applied Acrylic	ASTM D6083	Approved
Solar Reflectance	ASTM C1549	> or = 0.79
Thermal Emittance	ASTM C1371	> or = 0.90
OTC (Ozone Transport Commission)		Compliant
California Title 24		Compliant
CRRC (Cool Roof Rating Council)		Approved
Energy Star (Dept. of Energy)		Approved

(White or Cotton Finish Coat Only)

2.3 ACCESSORIES

1. HydroClean™: Cleaning agent for the proper cleaning of existing surfaces and coatings. Promotes adhesion of primers and coatings and has specific functional ingredients for degreasing removing soils and biological residues.
2. Cant Strips: Approved composition materials are EPS (Expanded Polystyrene), ISO (Polyisocyanurate), and wood (Non-Pressure Treated). Cant strips are to be installed at all internal corners, around curbs, and at all 90 degree angles specified by Hydro-Stop.
3. Moisture Breathers: Install moisture breathers as recommended by Hydro-Stop Technical Personal.

4. HydroFiber: Bulking material used in conjunction with Foundation Coat or BarrierGuard slurry (as specified by Hydro-Stop Technical Representative) to fill cracks, voids, or low depressions on various substrates.
5. StableRust Primer: water based surfactant-free primer used in direct metal applications to stabilize and protect metal surfaces.
6. UniBase Primer: bonding primer to enhance adhesion and acts as asphalt bleed blocker.
7. CleanAct Primer: water based cleaner used on EPDM surface preparation.
8. SureBond Primer: bonding primer used for sealing chalky surfaces and enhance adhesion over white single ply membranes
9. ButterGrade: to fill cracks, voids and low depressions (as specified by Hydro-Stop Technical Representative)
10. Surface Sealer: ACRY SHEEN is a water-based, penetrating sealer designed to produce a clear, semi-gloss surface sheen and provide dirt resistance and weather protection.

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify substrate surfaces are durable, free of frozen matter, dampness, loose particles, cracks, pits, projections, or foreign matter detrimental to adhesion or application of waterproofing system.
2. Verify that substrate surfaces are smooth and not detrimental to full contact bond of waterproofing materials.
3. Verify items that penetrate surfaces to receive waterproofing are securely installed.
4. Verify that substrate areas are adequately supported and firmly fastened in place.
5. Verify that roof deck has a minimum slope of .25 inch / foot (2.083cm/meter)
6. Verify that roof does not have ponding water areas.
7. Verify that all attached vertical walls are properly waterproofed.

3.2 PREPARATION

1. Protect adjacent surfaces not designated to receive waterproofing.

2. As a minimum, clean and prepare surfaces to receive waterproofing by removing all loose and flaking particles, grease and laitance with the use of a stiff bristle push broom and or washing with HydroClean™ as per manufacturer instructions. Care should be taken not to inject water into the substrate during washing. In some cases additional drying time may be required after the cleaning process. Please consult your Hydro-Stop Technical Sales Representative for additional advice on cleaning various roofing substrates. It is the sole responsibility of the contractor to comply with all applicable codes with regard to discharging of pressure wash water and preparation of surfaces to be waterproofed before application of the system begins. Contractor shall immediately inform the Contracting Officer and the Manufacture's Technical Representative of any unsuitable surface conditions.
3. Coordinate work with that of other trades to ensure that components which are to be incorporated into the waterproofing system, are available to prevent delays or interruptions as the work progresses. Verify existing conditions in advance.
4. Make all necessary repairs to existing substrate. Contact Hydro-Stop Technical Representative for assistance.
5. All rusted metal shall be wire brushed and treated with Hydro-Stop StableRust Primer
6. Do not apply waterproofing to surfaces unacceptable to manufacturer.

3.3 SPECIAL PRECAUTION

1. Do not apply waterproofing to surfaces unacceptable to manufacturer.
2. Do not allow contact between various materials through application equipment. Do not containing the remains of previous material.

3.4 APPLICATION

1. Surface Primers- if necessary apply one of the following primers at the proper coverage rates. Contact Hydro-Stop Technical Representative to verify if a primer is required.

EPDM – Apply CleanAct Primer at the following coverage rates.

Maximum coverage = 200 ft²/ gal (4.755 m²/ liter) CleanAct should only remain on the EPDM surface 10-30 minutes followed by two power washes @ 3000 psi. (20680 kPA)

Rusted Metal – Apply to all rusted metal areas at the following coverage rates.

Maximum coverage = 200 ft²/ gal (4.755 m²/ liter)

Modified Bitumen & Smooth Built Up - These roofing membranes generally do not require a primer. Over granulated surfaces UniBase Primer is a cost effective method of locking down loose granules thereby maximizing adhesion of PremiumCoat® System and also acts as an excellent asphalt bleed blocker.

PVC, TPO, and Hypalon - Apply SureBond Primer at the following coverage rates.
Maximum coverage = 200 ft²/ gal (4.755 m²/ liter)

All Types of Concrete – Please see Hydro-Stop specification “Over Lightweight, structural, and precast concrete” or contact Technical Sales Representative.

2. Foundation Coat & Fabric Components- Consist of one coat of FoundationCoat applied to the substrate, Hydro-Stop PremiumCoat Fabric (sizes vary) laid into the wet FoundationCoat, and finally a second coat of FoundationCoat saturating the fabric from above. Care should be given to ensure that adjacent runs of fabric are overlapped a minimum of 4 inches (10.16 cm). Foundation Coats are applied at a total rate of 25-40 ft²/gal (.594 - .951 m²/liter) depending on substrate. FoundationCoat should only be applied with the use of approved roof brushes. Rolling and spraying of the FoundationCoat are absolutely forbidden. Fabric to cut with scissors only, all terminations are to be cut neat, clean and level. On vertical surfaces, apply fabric plumb vertically; overlap seams equal and consistent.
 - A. Roof Perimeter- Using 12 inch (30.48 centimeters) fabric and the Foundation components (described above), waterproof entire roof perimeter. Continue waterproofing up vertical surfaces and onto deck a minimum of 6 inches (15.24 centimeters) in each direction.
 - B. Roof Penetrations- Using 12 inch (30.48 centimeters) fabric and the Foundation components (described above) seal items projecting through waterproofing material watertight. Waterproof up penetrations a minimum of 6” (15.24 centimeters)
 - C. Roof Field- Using 40 in. (1.016 m) fabric and the Foundation components (as described above) seal the entire roof field. Overlap adjacent runs of fabric 4 inches (10.16 cm) minimum
3. Finish Coat Component- Apply 2 coats of FinishCoat at a combined total rate of 70 ft²/gal (1.664 m²/liter) over entire roof area. Minimum milage requirements are 11.5 mils (.0115 inches / .292 millimeters) wet and 6.1 mils (.0061 inches / .155 millimeters) dry per coat. Allow to dry between coats. Total Finish Coat dry thickness should be a minimum of 12.2 mils (.0122 inches / .31 millimeters).
4. Completed PremiumCoat System & Dry Mil Test - System must be installed to a minimum 40 mil (.04 inches / 1.016 millimeters) total cured thickness. Mandatory Quality Control Dry Mil Test is to be performed by technical representative for manufacturer warranties to affirm PremiumCoat® System’s mil thickness is correct. (see Part 1, 1.8 Quality Controls for details)
5. Traffic Coat– (roof walk pads when applicable) Apply 2 coats of TrafficCoat at a combined total minimum rate of 65 ft²/gal (1.54 m²/liter). Allow to dry between coats. Color to be selected by Owner.

6. Acrysheen Clear Finish - (optional) Apply this clear sealer to the FinishCoat and/ or TrafficCoat. Using a 9” roller with 1/2 inch nap, apply two “thin” coats of sealer. This will improve the maintenance of the roof surface and ease in cleaning

3.5 PROTECTION OF FINISHED WORK

1. Monitor finished system for 7 day, sweeping off birdbaths to allow for full cure.

3.6 CLEANING

1. Immediately clean unscheduled surfaces receiving waterproofing in accordance with manufacturer's instructions.

PART 4 RECOMMENDED ANNUAL MAINTENANCE PROGRAM

The following are recommendations for maintaining a Hydro-Stop PremiumCoat® Roof System. Quest Construction Products, LLC recommends that all roofs carrying a manufacturer warranty to maintain a maintenance agreement between the Building Owner and an approved Hydro-Stop applicator. If you have any questions please contact our corporate office at 1-800-739-5566 or the Technical Sales Representative.

- PremiumCoat® System may only be cleaned using HydroClean™, a safe and biodegradable cleaning agent. HydroClean™ has specific functional ingredients for degreasing and removing soils and biological residues from the PremiumCoat® System for improved reflectivity & preservation of PremiumCoat® System, when properly applied as per manufacturer instructions
- Protect the Hydro-Stop PremiumCoat® System from unauthorized access, monitor any and all activity by other service contractors in order to protect & preserve the Hydro-Stop PremiumCoat® System from damage.
- Remove all debris from the roof surface. This includes vegetation, dirt, loose nails, screws and unused equipment.
- Inspect the entire roof surface for ponding water areas. If ponding is occurring then contact an approved Hydro-Stop applicator to service or correct the ponding area.
- Inspect roof surface for any punctures especially around HVAC units. If any punctures are found then contact an approved Hydro-Stop applicator for repair work.
- Keep all gutters, scuppers and roof drains free of debris. Make sure that the downspouts are draining properly by water testing them.
- Trim back any overhanging tree branches.

- Check all caulking and sealants on flashings and copings. Scrape and remove any caulking that is weather cracked and damaged. Clean the area thoroughly. Use a wire brush if necessary. Reapply polyurethane caulking such Vulkem, NP-1, or equivalent.
- Check the mortar on chimneys and parapet walls, both in between the brick and on top. If it's damaged or deteriorated, have it tuck-pointed. Any mason can perform this work.

END OF SECTION