SECTION 07560

FLUID APPLIED ROOFING
(Historic Standing Seam Metal Roofs)

PART 1 DESCRIPTION

1.1 DESCRIPTION OF APPLICABLE SUBSTRATES

This specification is only intended for the application of the PremiumCoat system to an historic standing seam metal roof (also known as terne metal). These roofs were generally made with copper, lead, tin-coated iron, and terne-coated steel. This specification does not apply to any type of commercial standing seam, "R" Panel, or 5v metal roofs.

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 existing metal 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 Hydro-Stop). 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.

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 Hydro-Stop) 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.

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 Labor and Material warranty.

PART 2 PRODUCTS

2.1 MANUFACTURER

1. Hydro-Stop, a
   Quest Construction Products brand
   1465 Pipefitter Street
   North Charleston, SC 29405

   Toll Free: (800) 739-5566
   Phone: (843) 745-9600
   Fax: (843) 745-9602
   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. Fill 45 lbs.	(33.60 kg) (20.43 kg)	per ASTM D 5034
Elongation @ Break	Warp 21.3% Fill 51.3%		per ASTM D 5034
Ball Burst	111 lbs.	(50.39 kg)	per ASTM D 3787
Trapezoid	Warp 13.5 lbs. Fill 24.2 lbs.	(6.13 kg) (10.99 kg)	per ASTM D 117
Thickness	.018 inches	(.457 mm)	per ASTM D-1777

3. Cured Membrane Characteristics:

PROPERTY	TEST	RESULT
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. 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.

2. Hydro-Fiber: 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.

3. StableRust Primer: water based surfactant-free primer used in direct metal applications to stabilize and protect metal surfaces.

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 roofing panels have 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. Power-washing at 3000 psi is recommend on most metal substrates; however occasionally there will be a substrate that will need mechanical preparation such as wire brushing. Please contact you Hydro-Stop Technical Representative for recommendation.

   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.

3. Make all necessary repairs to existing substrate. Contact Hydro-Stop Technical Representative for assistance.

4. Do not apply waterproofing to surfaces unacceptable to manufacturer.

3.3 APPLICATION

1. Bare Metal or Clean Rusted Metal: Remove all scale and apply StableRust Primer at a rate of 200 ft^2/ gal (4.755 m^2/ liter) to the entire roof surface. Allow to dry. Protect from weather until dry.

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 40 ft^2/gal (.951 m^2/liter). FoundationCoat should only be applied with the use of approved roof brushes. Rolling, and spraying of the FoundationCoat are absolutely forbidden.

   A. 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)

   B. Valleys and Peaks- Using 12, 16 or 24 inch (30.48, 40.6, or 61.0 centimeters) fabric and the Foundation components (described above) seal all valleys and peaks. Foundation Coat & Fabric components must be centered in the valleys or on the peaks overlapping adjoining fabrics. Protect from weather until dry.

   C. Vertical Seams- Using 6 inch (15.24 centimeters) fabric and the Foundation components (described above) seal all vertical seams. Foundation Coat & Fabric components must be centered on the panel seams. Protect from weather until dry.

   D. Vertical Pans- Using 16 or 24 inch (40.6 or 61.0 centimeters) fabric and the Foundation components (described above) seal all vertical pans. Foundation Coat & Fabric components must be centered in the vertical pans overlapping both adjoining 6" fabrics used on the vertical seams. Protect from weather until dry. *(Note: most historic standing seam metal roofs have standing seams that are centered on 17" (43.2 cm) or 25" (63.5 cm). For seams centered on 17"(43.2 cm) use 16" (40.6 cm) fabric, and for 25" (63.5 cm) seams use 24" (61 cm) fabric.)*

   E. Parapet & Vertical Wall Junctions- Using 12 inch (30.48 centimeters) fabric and the Foundation components (described above), waterproof roof/wall junctions. Continue waterproofing up vertical surfaces and onto the roof surface a minimum of 6 inches (15.24 centimeters) in each direction.

3. Finish Coat Component- Apply 2 coats of FinishCoat at a combined total rate of 70 ft^2/gal (1.664 m^2/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- System must be installed to a minimum 40 mil (.04 inches / 1.016 millimeters) total cured thickness over all seams, laps, fasteners, wall

junctions, and penetrations. Non-fabric areas of the roof must have a minimum of 15 mils (.015 inches /.381 millimeters) total cured thickness.

3.4 PROTECTION OF FINISHED WORK

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

3.5 CLEANING

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

END OF SECTION