# ROOF MATE Over MODIFIED BITUMEN ROOFING MASTER GUIDE SPECIFICATION

SECTION 07545



## Advanced Acrylic Fluid-Applied Elastomeric Coating System

## PART 1 – GENERAL

### 1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Rough Carpentry: Section 06100
B. Board-Stock Roof Insulation: Section 07220
C. Flashing & Sheet Metal: Section 07620
D. Roof Accessories: Section 07800
E. Prefabricated Expansion Joints: Section 07860
F. Painting: Section 09900

### 1.02 QUALITY ASSURANCE

A. Qualifications of Contractor
   1. The Contractor shall be approved by the Coatings Manufacturer, and shall have a minimum of three (3) years experience in the application of acrylic elastomeric roof coatings.
   2. The Contractor shall provide a list of project references, including contact names and telephone numbers.

B. Qualifications of Manufacturer
   1. Manufacturer of the fluid-applied elastomeric acrylic coating system shall have a proven 20 year track record of successful installations using advanced elastomeric acrylic technology in the roofing industry.
   2. Approved products shall be manufactured exclusively from Rohm and Haas advanced acrylic resins.
   3. Other Manufacturer's products shall be considered only after submittal of product data supporting quality and full compliance with specifications herein. The Architect or Owner reserves the right to reject the substitution proposals should it be determined the submittals do not provide all functions required for application.

C. Testing & Labeling
   1. The coating system must be U.L. 790 classified as a Class A fluid-applied system for maintenance and repair of existing Class A, B or C roofing construction, and be subject to Underwriters Laboratory follow-up service. The acrylic coating shall also be approved and listed by Factory Mutual as an acceptable recoating system over existing roof substrates, and approved by Miami-Dade County.
   2. The Manufacturer shall also provide recognized, third party independent test results confirming the coating systems conformance to ASTM D6083.
   3. Individual container labels must include the following information or they will be rejected at the jobsite: Manufacturer's name, product name, type and class of material, U.L. sticker with classification issue number, Factory Mutual logo, batch or lot number, mixing and application instructions, and precautions.

### 1.03 SUBMITTALS

A. Submit Manufacturer's literature, certificates and samples in a single package to the Architect or Owner in accordance with requirements specified in General Conditions.
B. Manufacturer's Literature: Literature on the protective coating, as well as related primers, sealants, reinforcement, etc., shall be submitted for review before work is started. Include material specifications, physical properties (including ASTM test methods utilized), estimated application rate for required dry mil thickness per warranty requirements, current application instructions and MSDS.
C. Applicator's Qualifications: Submit a copy of Approved Applicator letter and/or certificate as issued by the Manufacturer of the elastomeric acrylic coating system.
D. Warranty: Submit a copy of the Coating Manufacturer's warranty to meet project specifications.

### 1.04 PRODUCT DELIVERY, STORAGE & HANDLING

A. Delivery of Materials: Materials shall be delivered to the jobsite in Manufacturer's original, sealed containers with labels legible and intact.
B. Storage of Materials: Materials shall be stored in an area specifically designated for that purpose, in accordance with Manufacturer's recommendations, where temperatures will not be less than 50°F (10°C) or higher than 100°F (38°C).
C. Material Handling: Materials shall be handled, stored and installed per Manufacturer's instructions and all applicable safety regulatory requirements.
D. Damaged Materials: Contaminated, damaged or unsealed materials, or materials not conforming to the specified requirements, shall not be used in the installation. Rejected containers shall be immediately removed from the jobsite and replaced at no additional cost to the Owner.



QUEST CONSTRUCTION PRODUCTS

**1.05 ENVIRONMENTAL CONDITIONS**

A. Install all materials in strict accordance with Manufacturer's published safety and weather precautions.
B. Do not apply elastomeric acrylic coating system components when the ambient and/or surface temperature is below 50°F (10°C) or above 110°F (43°C), if any surface moisture is present, when the dew point is within 5°F (3°C) of the surface temperature or when there is a possibility of temperatures falling below 32°F (0°C) within a 24 hour period. Do not apply if weather conditions will not permit complete cure before rain, dew, fog or freezing temperatures occur. Do not spray apply if the wind velocity exceeds 10 mph (16 kph) without taking precautions to eliminate overspray.
C. Take all measures necessary to protect unrelated surfaces from coating overspray or spillage.

**1.06 FIELD QUALITY CONTROL**

A. The overall weather conditions, including surface temperature, surface moisture, ambient temperature, relative humidity and wind velocity shall be recorded by the Contractor, at designated time intervals, on the Daily Quality Control Report Form if so requested by the Architect or Owner.
B. Verification of Protective Coating Thickness: The wet film thickness shall be measured and recorded daily, along with the quantity, batch numbers and total square feet applied, on the Daily Quality Control Form.

# ***PART 2 – PRODUCTS***

**2.01 DESCRIPTION**

A seamless, fluid-applied acrylic membrane system designed for application over modified bitumen roof substrates. Approved system shall be UNITED COATINGS' **ROOF MATE Modified Bitumen Roof Coating System** consisting of **ROOF MATE** Advanced Acrylic Elastomer Basecoat and Topcoat, **UNIBASE** Fabric Adhesive and Primer and/or **ROOF MATE LP**, **ROOF MATE BUTTER GRADE**, approved caulking, **ROOF MATE MESH**, **ROOF MATE FABRIC** and **UNITED CLEANING CONCENTRATE (UCC)**.

**2.02 MATERIALS**

A. Biodegradable Cleaner: **UNITED CLEANING CONCENTRATE (UCC)**, water-reducible non-phosphate cleaner, as supplied by Coating Manufacturer for use in cleaning modified bitumen substrates prior to coating.
B. Adhesive Enhancing, Bleed-Blocking Primer: **ROOF MATE LP** and/or **UNIBASE**, single package acrylics, as supplied by Coating Manufacturer for use in adhering and embedding reinforcing fabric, enhancing adhesion over modified bitumen roof substrates and blocking asphaltic bleed-through.
C. Reinforcement Fabric: **ROOF MATE MESH** and **ROOF MATE FABRIC**, stitchbonded polyester, as supplied by Coating Manufacturer for reinforcing detail areas, or for full reinforcement of coating membrane.
D. Fluid-Applied Reinforcement Mastic: **ROOF MATE Butter Grade**, single package acrylic, as supplied by Coating Manufacturer for use as an option to reinforcement fabric in reinforcing certain detail areas and for use in leveling rough textured areas.
E. Construction Grade Caulk: Single package polyurethane sealant, as approved by Coating Manufacturer for use in filling cracks, splits or voids, and for sealing reglet counterflashings.
F. Fluid-Applied Elastomeric Finish: UNITED COATINGS' **ROOF MATE**, advanced acrylic coating, as supplied by Coating Manufacturer to provide a weatherproof membrane over the existing modified bitumen substrate.
G. Self-Cleaning Topcoat (optional): **ACRYSHEEN**, clear, semi-gloss advanced acrylic sealer, as supplied by Coatings Manufacturer for increased dirt release characteristics.

**2.03 PERFORMANCE REQUIREMENTS – FLUID-APPLIED ELASTOMERIC COATING**

Fluid-applied, advanced pure acrylic elastomeric topcoat in the specified finish color, shall be internally plasticized to provide a permanently flexible, weather-resistant topcoat. It shall possess a Class "A" fire rating, as tested and certified by UL 790 and Factory Mutual. Coating shall meet or exceed all properties specified in ASTM D6083, Table 1, "Liquid Property Requirements", and Table 2, "Film Physical Property Requirements for Acrylic Roof Coatings", as follows, and shall be verified by a certified independent testing agency.

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| **Viscosity** | 85 to 141 KU (ASTM D562)<br>12,000 - 85,000 cps (ASTM D2196) | **Fungi Resistance** | Zero Rating (ASTM G21) |
| **Volume Solids** | >50% (ASTM D2697) | **Permeance** | Maximum 50 perms (17.2 x 10 - 10 kg/s·m2·Pa) (ASTM D1653) |
| **Weight Solids** | >60% (ASTM D1644) | **Water Swelling** | Maximum 20% (mass) (ASTM D471) |
| **Initial % Elongation** (break) | Minimum 100% @ 73°F (23°C) (ASTM D2370) | **Accelerated Weathering** (1000 hours) | No cracking/checking (ASTM D4798) |
| **Initial Tensile Strength** (minimum stress) | Minimum 200 psi (1.38 MPa) @ 73°F (23°C) (ASTM D2370) | **Adhesion** | Minimum 2.0 pli (350 N/m) (wet)<br>4.0 pli (700 N/m) (dry)<br>(ASTM C794 or D903) |
| **Final % Elongation** (break) after 1000 hours accelerated weathering | Minimum 100% @ 73°F (23°C) (ASTM D2370) | **Tear Resistance** | >60 lbf/in. (21 kN/m) (ASTM D624) |
| | | **Low Temp Flexibility** after 1000 hours | Minimum pass ½ inch (1.2 cm) mandrel @ -15°F (-18°C) (ASTM D522) |

**2.04 SUBSTITUTIONS**

Acrylic coatings extended with styrene, vinyl or other ingredients are not allowed. Materials such as cementitious, ceramic-filled or asphalt modified coatings, moisture-cured urethanes, Kraton-based rubbers, Hypalons and butyls are not considered acceptable substitutes for materials specified herein.

# ***PART 3 – EXECUTION***

**3.01 SURFACE INSPECTION**

A. Roof surfaces shall be clean, dry, structurally sound, stable and well secured.

B. The roof surface shall be free of excessive ponding water. Roof surfaces that pond water 48 hours after a rain shall be considered unacceptable. All water shall be allowed positive drainage from the roof.
C. Inspect condition of flashing details adjacent to protrusions, penetrations, roof mounted equipment, curbs, walls, parapets, drains and roof edge to ensure that details are acceptable and will maintain a weather-tight installation after being properly detailed and coated.
D. Determine moisture content of existing substrate, insulation and deck. A moisture content of 15% or greater indicates a potential problem. Work shall not proceed until the cause is verified and the condition is corrected.

**3.02 SURFACE PREPARATION**

A. All surfaces shall be clean and dry, and free of any dirt, dust, oil, surface chemicals or other contaminants that may interfere with optimum adhesion. Mineral surfaced modified bitumen membranes shall be swept clean to remove all loose or partially embedded mineral. Care shall be taken to preserve the integrity of the existing asphalt membrane whenever possible.
B. All modified bitumen roofing surfaces shall be cleaned using **United Cleaning Concentrate (UCC)**. Dilute at the rate of 1 part concentrate to 10 parts water. Apply the dilute mixture under low pressure spray at the rate of 200 sq. ft. per gallon (.2 l/m²). After allowing to sit for 15 to 20 minutes, rinse thoroughly with fresh water under high pressure (minimum 2,000 psi/13,790 kPa) to remove the solution from the roof and achieve a "jet black" clean surface. Heavy deposits of dirt or contamination may require agitation with a stiff-bristle broom or similar mechanical scrubber. Allow the roof to dry thoroughly.
C. Any unsound areas in the roof deck or insulation, including blisters, delamination, deterioration, excessive moisture content, etc. shall be repaired or replaced. All blisters, delaminations, wrinkles and loose areas shall either be cut away and removed, or cut open and nailed flat to the deck.
D. If the roof has been coated with aluminized asphalt, prime with UNITED COATINGS' **Uniseal**, applied by airless spray at the rate of 300 to 400 sq. ft. per gallon (7.3 to 9.8 m²/l) to eliminate potential "leafing".
E. Reinforce repaired areas by liberally applying a coat of **Unibase** or **ROOF MATE LP** around the repaired area using a brush or roller. While the coating is still wet, embed an appropriate-size piece of **ROOF MATE Mesh** or **ROOF MATE Fabric** into the material, totally covering the repaired area. Work the fabric into the wet coating, applying additional material as necessary to totally encapsulate the reinforcing fabric. Repaired areas can also be reinforced by liberally applying a minimum of 2 coats of **ROOF MATE Butter Grade** around the repaired area, using a brush or roller, to a total thickness of 60 to 80 dry mils (1,524 to 2,032 microns).
F. Roof deck areas shall have positive slope-to-drain. Tapered insulation, cant strips, spray-applied polyurethane foam or other similar materials shall be used to build up affected roof surfaces as necessary to provide adequate drainage.
G. Severely deteriorated flashings shall be removed and either replaced or repaired utilizing spray-applied polyurethane foam. Seal reglet counterflashings with approved caulking.
H. All cracks, splits, voids or holes larger than 1/8" (3 mm) in width shall be filled and leveled with approved caulking. Rough textured areas shall be leveled using **ROOF MATE Butter Grade**.
I. Reinforce all split seams, roof termination points, openings, around the base of all vents, pipes and other protrusions, as well as HVAC units and other roof mounted equipment with either **ROOF MATE Mesh** embedded into **Unibase** or **ROOF MATE LP**, or with **ROOF MATE Butter Grade**. Apply **Unibase** or **ROOF MATE LP** liberally around the area to be detailed. Embed an appropriate-size strip of **ROOF MATE Mesh** or **ROOF MATE Fabric** into the wet material. Work reinforcing fabric into the wet coating using a brush, roller or soft-bristle broom to eliminate air pockets, wrinkles and gaps, applying additional material as necessary to totally encapsulate the fabric. If using **ROOF MATE Butter Grade**, liberally apply a minimum of 2 coats with a brush or roller to a total thickness of 60 to 80 dry mils (1,524 to 2,032 microns) over and around the affected area as previously described.

**3.03 ELASTOMERIC COATING APPLICATION**

A. All roof preparation materials shall be allowed to fully dry prior to full roof surface application of the advanced acrylic elastomeric coating system.
B. Immediately prior to application of the acrylic coating system, all dust, dirt and other contaminants shall be blown off the roof surfaces to be coated using high pressure compressed air.
C. At drip edges, refasten all metal flanges and reinforce the area with either **ROOF MATE Mesh** or **ROOF MATE Fabric** embedded into **Unibase** or **ROOF MATE LP**, or by using **ROOF MATE Butter Grade** as previously described.

***Include the following paragraph only if a full fabric reinforced system is specified***

D. Over aged modified bitumen, apply **Unibase** or **ROOF MATE LP** to a small section of roof where the fabric reinforcement will begin. Embed and encapsulate the end of the **ROOF MATE Fabric** roll so that it is anchored at that point. If using **Unibase**, roll out 4 to 10 feet (1.2 to 2.5 m) of fabric at a time and either spray apply or pour **Unibase** evenly over the top side at the rate of 2 to 3 gallons per 100 sq. ft. (.8 to 1.2 l/m²), allowing the fabric to conform to the surface contours. If using **ROOF MATE LP**, roll the fabric between 2 coats of material, each applied at the rate of 1 to 1.5 gallons per 100 sq. ft. (.4 to .6 l/m²). Work the **Unibase** or **ROOF MATE LP** evenly throughout the fabric using a roller or broom so that it is totally encapsulated, eliminating any air pockets, wrinkles or gaps. Take extra care to ensure that edges of the fabric are well saturated and adhered. Overlap consecutive passes of **ROOF MATE Fabric** a minimum of 2" (5 cm) on each side. Substrate porosity and texture will determine the amount of **Unibase** or **ROOF MATE LP** required to encapsulate the reinforcing fabric. **ROOF MATE Basecoat** can also be used for encapsulating the reinforcement fabric over aged modified bitumen substrates, following the procedure described under Section 3.02 E above. **ROOF MATE LP** must be used over new modified bitumen substrates. Allow the **Unibase**, **ROOF MATE LP** or **ROOF MATE Basecoat** to dry thoroughly prior to applying any subsequent acrylic coatings to the roof.

***Or***

***Include the following paragraph only if a full fabric reinforced system is <u>not</u> specified***

D. Over aged modified bitumen, apply **Unibase** or **ROOF MATE LP** to all modified bitumen and adjacent roof surfaces that will receive the acrylic coating system, using a medium-nap roller or airless spray, at the rate of 100 to 200 sq. ft. per gallon (.4 to .2 l/m²) depending upon surface texture and porosity. Allow the **Unibase** or **ROOF MATE LP** to dry thoroughly prior to applying any subsequent acrylic coatings to the roof. **ROOF MATE LP** must be used over new modified bitumen substrates.
E. The entire roof substrate shall receive **ROOF MATE** advanced acrylic elastomer coating applied as follows:

***Include the following paragraphs only if specifying a 5-Year Standard Warranty without full fabric reinforcement****

1. Apply **ROOF MATE Basecoat** Gray at a minimum rate of 1.6 gallons per 100 sq. ft. (.65 l/m²).
2. After allowing the base coat to dry, apply **ROOF MATE** White (or other specified color) at a minimum rate of 1.6 gallons per 100 sq. ft. (.65 l/m²). Use a medium-nap roller or airless spray to apply the elastomeric coating. Application of the top coat shall be in a perpendicular direction to the base coat.
3. The total – **Unibase** or **ROOF MATE LP**/base coat/top coat – minimum dry film thickness required at any location is 25 mils (620 microns).

***Include the following paragraphs only if specifying a 10-Year Standard or 5-Year System Warranty without full fabric reinforcement****

1. Apply **ROOF MATE Basecoat** Gray at a minimum rate of 1.75 gallons per 100 sq. ft. (.7 l/m²).
2. After allowing the base coat to dry, apply two separate coats of **ROOF MATE** White (or other specified color) at the minimum rate of 1.25 gallons per 100 sq. ft. (.5 l/m²) each, allowing adequate dry time between coats. Use a medium-nap roller or airless spray to apply the elastomeric coating. Apply consecutive coats of **ROOF MATE** in a perpendicular direction to the previous coat.
3. The total – **Unibase** or **ROOF MATE LP**/base coat/top coats – minimum dry film thickness required at any location is 33 mils (838 microns).

***Include the following paragraphs only if specifying a 15-Year Standard or 10-Year System Warranty without full fabric reinforcement****

1. Apply two separate coats of **ROOF MATE Basecoat** Gray at a minimum rate of 1.1 gallons per 100 sq. ft. (.44 l/m²) each, allowing adequate dry time between coats.
2. After allowing the base coats to dry, apply two separate coats of **ROOF MATE** White (or other specified color) at a minimum rate of 1.5 gallons per 100 sq. ft. (.6 l/m²) each, allowing adequate dry time between coats. Use a medium-nap roller or airless spray to apply the elastomeric coating. Apply consecutive coats of **ROOF MATE** in a perpendicular direction to the previous coat.
3. The total – **Unibase** or **ROOF MATE LP**/base coas/top coats – minimum dry film thickness required at any location is 40 mils (1,016 microns).

***Include the following paragraphs only if specifying a 15-Year System Warranty without full fabric reinforcement***

1. Apply two separate coats of **ROOF MATE Basecoat** Gray at a minimum rate of 1.5 gallons per 100 sq. ft. (.6 l/m²) each, allowing adequate dry time between coats.
2. After allowing the base coats to dry, apply two separate coats of **ROOF MATE** White (or other specified color) at the minimum rate of 1.6 gallons per 100 sq. ft. (.65 l/m²) each, allowing adequate dry time between coats. Use a medium-nap roller or airless spray to apply the elastomeric coating. Apply consecutive coats of **ROOF MATE** in a perpendicular direction to the previous coat.
3. The total – **Unibase** or **ROOF MATE LP**/base coats/top coats – minimum dry film thickness required at any location is 48 mils (1,219 microns).

****Note: On applications incorporating full fabric reinforcement, chose the appropriate procedure above based on the desired warranty, and eliminate application of the 1st coat of ROOF MATE Basecoat***

F . The **ROOF MATE** topcoat shall extend up and over all roof substrates on vent pipes, parapets and other protrusions to terminate a minimum of 3" (8 cm) above the substrate, creating a self-terminating flashing, and to provide an aesthetically pleasing appearance.

G. As an option on roofs located in industrial areas and/or subjected to high levels of pollutants, dirt, dust or other contaminants, apply a coat of **Acrysheen** at the rate of 200 to 250 sq. ft. per gallon (4.8 to 6.1 m²/l). **Acrysheen** imparts a slick, semi-gloss finish that aids in maintaining a clean surface.

H. To provide a non-skid walk path on roofs subject to heavy foot traffic, demarcate walkways by applying an additional coat of **ROOF MATE** at the rate of 1 gallon per 100 sq. ft. (.4 l/m²) along the designated traffic area. While the coating is still wet, broadcast 3M #11 ceramic roofing granules to the point of refusal. UNITED COATINGS' **Rhino Top**, a non-skid colored acrylic topping, can also be used to demarcate walkways, as can **Wall-Bond** or breathable walk pads such as "Yellow Spaghetti".

**3.04 CLEANUP**

A. Maintain work and work areas in a clean, safe condition at all times during coating installation. Remove excess materials, trash and debris from the jobsite daily.

B. At the completion of the project, clean area of any spills and containers, and clean up all roofing debris, leaving jobsite in a clean and orderly condition.

**3.05 WARRANTY**

A. Upon completion of the roof coating system, the Coating Manufacturer's Representative, Owner's Representative, Architect and Applicator shall make a final inspection to determine the dry film thickness of the fluid-applied acrylic membrane and to verify that the system meets the Manufacturer's requirements for warranty. The Contractor shall notify all interested parties in advance of said inspection.

B. As a condition of the project's completion and acceptance, deliver to the Owner a copy of the fully executed, specified warranty from the Coating Manufacturer, following individual warranty guidelines.

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