

# ROOF MATE *Over* EPDM ROOFING MASTER GUIDE SPECIFICATION SECTION 07545

## 100% 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 for application of its roof coatings products, 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 similar in nature to the one proposed, 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 of elastomeric acrylic technology.
  - 2. Approved products shall be manufactured exclusively from Rohm and Haas 100% acrylic resins.
  - 3. Other Manufacturer's products shall be accepted for use on this project only after submittal of product data files to the Architect or Owner supporting quality, equality 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 elastomeric, 100% acrylic coating system must be U.L. tested and 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 U.L. follow-up service. The acrylic coating shall also be approved and listed by Factory Mutual as an acceptable recoating system over existing roof substrates, as well as ICBO.
  - 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, ICBO report number, 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. Literature shall show material specifications, physical properties (including ASTM test methods utilized), Manufacturer's 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 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 agencies.

- 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.

**1.05 ENVIRONMENTAL CONDITIONS**

- A. Install all materials in strict accordance with Manufacturer’s published safety, weather and temperature 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 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 work and other adjacent 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: During application of the elastomeric coating, the wet film thickness shall be measured and recorded daily, along with the quantity and batch numbers of the material applied and total square feet coated, on the Daily Quality Control form.

**PART 2 – PRODUCTS**

**2.01 DESCRIPTION**

A seamless, fluid applied acrylic membrane system designed for application over EPDM single-ply roof substrates. Approved system shall be UNITED COATINGS’ **ROOF MATE EPDM Roof Coating System** consisting of **ROOF MATE 100% Acrylic Elastomeric Roof Coating, ROOF MATE CAULK, ROOF MATE BUTTER GRADE, ADHERE-IT Water-Based Wash Primer, ROOF MATE MESH, ROOF MATE CAULK, ROOF MATE FABRIC, UNI-TAPE and ACRYSHEEN.**

**2.02 MATERIALS**

- A. Construction Grade Caulk: **ROOF MATE CAULK**, single package polyurethane sealant as supplied by Coating Manufacturer for use on termination bars and reglet counterflashings.
- B. Rinseable Primer: **ADHERE-IT**, single package, water-based wash primer as supplied by Coating Manufacturer for use in increasing the bond of the elastomeric coating to the EPDM substrate.
- C. Reinforcement Tape: **ROOF MATE MESH**, stitchbonded polyester or **UNI-TAPE**, butyl-backed fabric as supplied by Coating Manufacturer for reinforcing split seams, flashings, tears, protrusions and perimeter areas.
- D. Fluid Applied Reinforcement Mastic: **ROOF MATE BUTTER GRADE**, single package acrylic as supplied by Coating Manufacturer for use as an alternative to **ROOF MATE Mesh** and/or **UNI-TAPE** in reinforcing detail areas and in metal flanges at drip edges.
- E. Reinforcement Fabric: **ROOF MATE FABRIC**, stitchbonded polyester fabric as supplied by Coating Manufacturer for reinforcing large detail areas and protection of coating system when reapplying ballast to ballasted EPDM systems.
- F. Fluid Applied Elastomeric Topcoat: **UNITED COATINGS’ ROOF MATE 100% acrylic coating** as supplied by Coating Manufacturer to provide a seamless, weatherproof membrane over the existing EPDM substrate.
- G. Self-Cleaning Topcoat (optional): **ACRYSHEEN**, clear, semi-gloss 100% acrylic sealer as supplied by Coatings Manufacturer for increased dirt resistance.

**2.03 PERFORMANCE REQUIREMENTS – ELASTOMERIC COATING**

Fluid applied, 100% 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, Factory Mutual and ICBO. 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.

<b>Viscosity</b>	85 to 141 KU (ASTM D562) 12,000 - 85,000 cps (ASTM D2196)	<b>Fungi Resistance</b>	Zero Rating (ASTM G21)
<b>Volume Solids</b>	>50% (ASTM D2697)	<b>Permeance</b>	Maximum 50 perms (17.2 x 10 <sup>-10</sup> kg/s·m <sup>2</sup> ·Pa) (ASTM D1653)
<b>Weight Solids</b>	>60% (ASTM D1644)	<b>Water Swelling</b>	Maximum 20 % (mass) (ASTM D471)
<b>Initial % Elongation (break)</b>	Minimum 100% @ 73°F (23°C) (ASTM D2370)	<b>Accelerated Weathering</b>	No cracking/checking (ASTM D4798) (1000 hours)
<b>Initial Tensile Strength (minimum stress)</b>	Minimum 200 psi (1.38 Mpa) @ 73°F (23°C) (ASTM D2370)	<b>Adhesion (wet)</b>	Minimum 2.0 pli (350 N/m) (ASTM C794 or D903)
<b>Final % Elongation (break) after 1000 hours accelerated weathering</b>	Minimum 100% @ 73°F (23°C) (ASTM D2370)	<b>Tear Resistance</b>	>60 lbf/in. (21 kN/m) (ASTM D624)
		<b>Low Temp Flexibility</b>	Minimum pass ½ inch 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, katon based rubbers, Hypalons and butyls are not considered acceptable substitutes for materials specified herein.

## **PART 3 – EXECUTION**

### **3.01 SURFACE INSPECTION**

Inspect all roof surfaces to receive work specified under this section to ensure that the following conditions exist:

- A. Roof surfaces shall be clean, dry, structurally sound, stable and well secured.
- B. The roof surface shall be free of excessive ponding water. A roof surface that allows standing 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 of high moisture content 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, gravel, oil, surface chemicals or other contaminants that may interfere with optimum adhesion.
- B. Any unsound areas in the roof deck or insulation, including blisters, delamination, deterioration, excessive moisture content, etc., shall be repaired or replaced. After removing gravel from ballasted EPDM single-ply systems, spot ballast with sandbags to avoid excessive fluttering of the membrane.
- C. Remove heavy deposits of dirt, leaves, pine needles and other debris using a broom or air blower. Any rocks, branches or other large foreign objects should also be removed.
- D. Apply **Adhere-It** using a Hudson-type agricultural sprayer or airless spray equipment at the rate of 500 sq. ft. (12.2 m<sup>2</sup>/l) per gallon. If using a Hudson sprayer, adjust nozzle to achieve a uniform spray pattern with a 3 to 4 foot (1 to 1.3 m) arc. If using airless spray equipment, use a .015" to .019" (.38 to .48 mm) reversible tip with a 40 to 50° fan angle.
- E. Allow **Adhere-It** to stand a minimum of 10 minutes to wet out and react with the EPDM surface. It will not affect the effectiveness of **Adhere-It** if it is allowed to sit for a longer period of time, or if it is allowed to dry on the roof.
- F. Power rinse the roof with clean water using a minimum 2,000 psi (13,790 kPa) pressure washer. Begin the power rinse at the lowest point on the roof and work upwards, keeping the pressure washer tip within 12" (30 cm) of the EPDM surface. Once the highest point of the roof is reached, work down again with a final rinse to remove any excess mica from the roof surface. On flat roofs, work away from and then towards the roof drains so that surfaces receive a double rinse. **Adhere-It**, in its diluted form, is safe to rinse down roof drains.
- G. After cleaning, the roof should be "jet black" in color, which is an indication that the surface has been chemically altered for optimum adhesion characteristics. Allow roof surfaces to dry thoroughly prior to application of the **ROOF MATE**.
- H. Tighten or re-secure all terminations, and caulk termination bars and reglet counterflashings with **Roof Mate Caulk**.
- I. On all mechanically fastened, as well as fully adhered EPDM single-ply systems, remove and reinstall all fasteners that are backed out or "tenting". Relocate the fastener no more than six (6) inches (15 cm) from its original location. Use FMRC-approved stress plates and fasteners when replacing defective or worn fasteners.
- J. Repair all loose, torn or open seams in the EPDM membrane using **ROOF MATE** and **ROOF MATE Mesh** or **Uni-Tape**. If using **ROOF MATE** and **ROOF MATE Mesh**, use a brush or roller to apply **ROOF MATE** liberally to the affected seam and surrounding area. While the **ROOF MATE** is still wet, embed a strip of 4" or 6" (10 or 15 cm) **ROOF MATE Mesh**, centered over the seam. Work mesh into the **ROOF MATE**, applying additional material as necessary to totally encapsulate the reinforcing fabric. If using **Uni-Tape**, cut a length of 4" or 6" (10 or 15 cm) **Uni-Tape** to the desired length, peel off the release backing, center over the detail area and press firmly into place, removing all wrinkles and bubbles. A wallpaper seam roller is helpful in securing the **Uni-Tape** to the EPDM surface.
- K. Repair any tears, breaks, holes (including those from fastener relocation or protruding fasteners), or other openings in the EPDM membrane by applying **ROOF MATE** and 4", 6" or 12" (10, 15 or 30 cm) **ROOF MATE Mesh**, or 4" or 6" (10 or 15 cm) **Uni-Tape** in a similar manner as described above.
- L. Utilize **ROOF MATE** and **ROOF MATE Mesh**, or **Uni-Tape**, applied in a similar manner as described above, to reinforce detail areas, around the base of all vents, stacks, fans and other protrusions, around all drains and scuppers, and around the base of all HVAC units and other roof-mounted equipment.
- M. At drip edges, refasten all metal flanges and reinforce the area with **ROOF MATE** and **ROOF MATE Mesh**, 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 100% 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. It is often easier to visually see splits, tears or other damage in the EPDM surface after application of the first coat of **ROOF MATE**. For this reason the roof surface should be inspected after application of the first coat for any damage that was not detailed previously. These areas can be repaired and reinforced using **ROOF MATE Butter Grade**, applied using a brush or narrow roller at 60 to 80 dry mils (1,524 to 2,032 microns), over and around the detail area. **ROOF MATE Butter Grade** must be applied in a minimum of 2 separate coats, allowing adequate dry time in-between. If utilizing **ROOF MATE** and **ROOF MATE Mesh** to reinforce these areas, follow instructions under section 3.02 J.
- D. The entire roof substrate shall receive **ROOF MATE** 100% acrylic elastomer coating applied as follows:

*Include the following paragraphs only if specifying a 5-Year Standard Warranty*

1. Apply **ROOF MATE** Gray at a minimum rate of 1 gallon per 100 sq. ft. (.4 l/m<sup>2</sup>).
2. After allowing the base coat to dry, apply **ROOF MATE** White (or other specified topcoat color) at a minimum rate of 1.5 gallons per 100 sq. ft. (.6 l/m<sup>2</sup>). 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 – base coat/topcoat – minimum dry film thickness required at any location is 20 mils (508 microns).

***Include the following paragraphs only if specifying a 10-Year Standard or 5-Year System Warranty***

1. Apply **ROOF MATE** Gray at a minimum rate of 1.75 gallons per 100 sq. ft. (.7 l/m<sup>2</sup>).
2. After allowing the base coat to dry, apply **ROOF MATE** White (or other specified color) at a minimum rate of 1.75 gallons per 100 sq. ft. (.7 l/m<sup>2</sup>). 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 – base coat/topcoat – minimum dry film thickness required at any location is 28 mils (711 microns).

**OR**

1. Apply **ROOF MATE** Gray at a minimum rate of 1 gallon per 100 sq. ft. (.4 l/m<sup>2</sup>).
2. After allowing the base coat to dry, apply **ROOF MATE** Light Gray midcoat at a minimum rate of 1 gallon per 100 sq. ft. (.4 l/m<sup>2</sup>).
3. After allowing the midcoat to dry, apply **ROOF MATE** White (or other specified color) at a minimum rate of 1.5 gallons per 100 sq. ft. (.6 l/m<sup>2</sup>). 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.
4. The total – base coat/midcoat/topcoat – minimum dry mil film thickness required at any location is 28 mils (711 microns).

***Include the following paragraphs only if specifying a 15-Year Standard or 10-Year System Warranty***

1. Apply **ROOF MATE** Gray at a minimum rate of 1.5 gallons per 100 sq. ft. (.6 l/m<sup>2</sup>).
2. After allowing the base coat to dry, apply **ROOF MATE** Light Gray midcoat at a minimum rate of 1.5 gallons per 100 sq. ft. (.6 l/m<sup>2</sup>).
3. After allowing the midcoat to dry, apply **ROOF MATE** White (or other specified color) at a minimum rate of 1.5 gallons per 100 sq. ft. (.6 l/m<sup>2</sup>). 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.
4. The total – base coat/midcoat/topcoat – minimum dry film thickness required at any location is 36 mils (914 microns).

***Include the following paragraphs only if specifying a 15-Year System Warranty***

1. Apply two separate coats of **ROOF MATE** Gray at a minimum rate of 1.25 gallons per 100 sq. ft. (.5 l/m<sup>2</sup>).
  2. After allowing the base coats to dry, apply **ROOF MATE** Light Gray midcoat at a minimum rate of 1.5 gallons per 100 sq. ft. (.6 l/m<sup>2</sup>).
  3. After allowing the midcoat to dry, apply **ROOF MATE** White (or other specified color) at a minimum rate of 1.5 gallons per 100 sq. ft. (.6 l/m<sup>2</sup>).
  4. The total – base coats/midcoat/topcoat – minimum dry film thickness required at any location is 44 mils (1,118 microns).
- E. 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.
- F. As an option on roofs in industrial areas and/or subject 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 m<sup>2</sup>/l). **Acrysheen** imparts a slick, semi-gloss finish that aids in maintaining a clean surface.
- G. To provide a non-skid walk path on roofs subject to heavy foot traffic, demarcate walkways by applying an additional coat of **ROOF MATE**, using a medium-nap roller or airless spray, at the rate of 1 gallon per 100 sq. ft. (.4 l/m<sup>2</sup>) 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 breathable walk pads such as “Yellow Spaghetti”.
- H. On ballasted systems using crushed stone rather than river-washed stone, loose lay **ROOF MATE Fabric** over the entire roof surface prior to redistributing the ballast, overlapping all edges a minimum of 6 inches (15 cm).

**3.04 CLEANUP**

- A. Maintain work and work areas in a clean, safe condition at all times during reroofing 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.

