

# ROOF MATE *Over* METAL 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, 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 shall have a proven 20 year track record utilizing elastomeric acrylic technology.
  - 2. Approved products shall be manufactured exclusively from Rohm and Haas 100% 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 substitution proposals should it be determined they do not provide all functions required for application.
- C. Testing & Labeling
  - 1. The system must be U.L. 790 classified as Class A for maintenance and repair of existing Class A, B or C roofing construction, and be subject to U.L. follow-up service. The coating shall also be 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 Manufacturer's name, product name, type and class of material, U.L. sticker with classification number, F.M. logo, ICBO report number, batch 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 original, sealed containers.
- B. Storage of Materials: Materials shall be stored in accordance with Manufacturer's recommendations.
- C. Material Handling: Materials shall be handled and installed per Manufacturer's printed instructions.
- D. Damaged Materials: Contaminated, damaged or unsealed materials, or materials not conforming to the specified requirements shall be immediately removed from the jobsite and replaced.

#### **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 spray apply if the wind velocity exceeds 10 mph (16 kph) without taking appropriate 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 metal roof substrates. Approved system shall be UNITED COATINGS' **ROOF MATE Metal Roof Coating System** consisting of **ROOF MATE 100%** Acrylic Single Component Elastomeric Roof Coating, **ROOF MATE BUTTER GRADE** and/or **SEAMSEAL**, **ROOF MATE CAULK**, **ROOF MATE MESH** and/or **UNI-TAPE**, **UNI-CAPS**, **ACRYLEX 300** and/or **ALUMISEAL** Primer, **ACRYSHEEN** and **UNITED CLEANING CONCENTRATE**.

### 2.02 MATERIALS

- A. Biodegradable Cleaner: **UNITED CLEANING CONCENTRATE (UCC)**, water-reducible non-phosphate cleaner as supplied by Coating Manufacturer for use in cleaning metal substrates prior to coating.
- B. Corrosion Resistant Primer: **ACRYLEX 300** or **ALUMISEAL**, single package metal primers as supplied by Coating Manufacturer to provide corrosion protection, flash rust resistance and enhanced adhesion over steel, aluminum and galvanized metal surfaces.
- C. Construction Grade Caulk: **ROOF MATE CAULK**, single package polyurethane sealant as supplied by Coating Manufacturer for use in sealing gaps, joints, protrusions and skylights.
- D. Reinforcement Tape: **ROOF MATE MESH**, stitchbonded polyester or **UNI-TAPE**, self-adhesive butyl-backed fabric as supplied by Coating Manufacturer for reinforcing joints, horizontal and non-crimped vertical seams, damaged areas, roof terminations and flashings, skylights and other openings, vents, conduits, HVAC equipment and other protrusions.
- E. Fluid Applied Reinforcement Mastic: **SEAMSEAL**, single package polyurethane or **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. Also used as an alternative to **Uni-Caps** in sealing around fastener heads.
- F. Self-Adhesive Fastener Reinforcement: **UNI-CAPS**, butyl-backed, foil-faced discs as supplied by Coating Manufacturer for use as an alternative to **Seamseal** or **ROOF MATE Butter Grade** in sealing fastener heads.
- G. Fluid Applied Elastomeric Topcoat: **UNITED COATINGS' ROOF MATE**, 100% acrylic coating as supplied by Coating Manufacturer to provide a weatherproof membrane over the existing metal substrate.
- H. Skylight Sealer: **ACRYSHEEN**, single package acrylic coating as supplied by Coating Manufacturer to reseal and rejuvenate acrylic and fiberglass skylight panels.
- I. Self-Cleaning Topcoat (optional): **ACRYSHEEN**, clear, semi-gloss 100% acrylic sealer as supplied by Coatings Manufacturer for increased dirt release characteristics.

### 2.03 PERFORMANCE REQUIREMENTS – FLUID APPLIED 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 (1000 hours)</b>	No cracking/checking (ASTM D4798)
<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 after 1000 hours</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, 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 reinforced and coated.

### **3.02 SURFACE PREPARATION**

- A. Metal surfaces to be coated shall be clean, dry, sound, and free of dirt, grease, oil and any other contaminants that might interfere with the adhesion of the elastomeric acrylic coating.
- B. All mechanical fasteners shall be checked for integrity. Retighten or replace as necessary. "Stripped out" fasteners shall be replaced using a larger diameter fastener.
- C. Unsound rust shall be wire brushed, sandblasted or mechanically abraded to remove all loose rust. Metal panels deteriorated to the point that their structural integrity is compromised shall be replaced.
- D. Remove excessive amounts of asphaltic-based or other deteriorated patching/flashing materials if present.
- E. Check all seams to ensure that they are tight and flush. Excessive gaps or deflection between panels shall be eliminated by installing additional screws or rivets as necessary to restrict deflection to ¼" (6 mm) or less.
- F. All metal surfaces, whether new or existing, shall be cleaned using **United Cleaning Concentrate (UCC)**. Dilute **UCC** 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/m<sup>2</sup>). 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, along with any existing loose paint or coating. Heavy deposits of dirt or contamination may require agitation with a stiff-bristle broom or other mechanical scrubber. Allow the roof to dry thoroughly.
- G. All existing "sound" rusted areas shall be primed with either **Acrylex 300** or **Alumiseal**.
  1. Flash or Lightly Rusted Areas: Apply **Acrylex 300** using airless spray equipment at the rate of approximately 200 sq. ft. per gallon (.2 l/m<sup>2</sup>).
  2. Medium to Heavily Rusted Areas: Apply **Alumiseal** using airless spray equipment at the rate of approximately 300 sq. ft. per gallon (7.3 m<sup>2</sup>/l), or spray apply two (2) coats of **Acrylex 300** at the approximate rate of 300 sq. ft. per gallon (7.3 m<sup>2</sup>/l) per coat.
- H. If the roof has been coated with aluminized asphalt, prime with UNITED COATINGS' **Uni-Tile Sealer**, applied by airless spray at the rate of 300 to 400 sq. ft. per gallon (7.3 to 9.8 m<sup>2</sup>/l) to eliminate potential "leafing".
- I. Fill gaps between ¼" and ½" (6 and 13 mm) at panel seams, joints and protrusions with **ROOF MATE Caulk**. Fill gaps larger than ½" (13 mm) such as at the ridge cap, roof edge and/or interface of dissimilar materials using polyethylene backer rod or spray-applied polyurethane foam.
- J. Reinforce all horizontal (end-lap) seams and vertical (side-lap) seams that have not been factory crimped or presealed, roof terminations and flashings, around drains, scuppers and skylights, and the base of all vents, conduits, HVAC equipment and other protrusions using one or more of the following methods:
  1. Apply **ROOF MATE** acrylic elastomer liberally, using a brush or roller, along the area to be detailed. While the **ROOF MATE** is still wet, embed a strip of 2", 4", 6" or 12" (5, 10, 15 or 30 cm) **ROOF MATE Mesh**, as per detail requirements, centered over the seam, joint or interface. Work the mesh into the **ROOF MATE**, applying additional material as necessary to totally encapsulate the reinforcing fabric.
  2. Cut a length of 2", 4" or 6" (5, 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 metal deck.
  3. Apply **Seamseal** or **ROOF MATE Butter Grade**, using a brush, roller or airless spray, to a thickness of 60 to 80 dry mils (1,524 to 2,032 microns) over the detail area. Extend the sealant a minimum of 1" (2.5 cm) on either side of seams, joints and interfaces. **ROOF MATE Butter Grade** must be applied in a minimum of 2 coats.
- K. At the interface of any metal with a dissimilar material, detail the joint using one of the following methods:
  1. Apply 6" (15 cm) **ROOF MATE Mesh** embedded into **ROOF MATE** as described in Section 3.02 J1.
  2. Apply a strip of 6" (15 cm) **Uni-Tape** as previously described under Section 3.02 J2.
  3. Apply **Seamseal** or **ROOF MATE Butter Grade** to a thickness of 60 to 80 dry mils (1,524 to 2,032 microns) as previously described under section 3.02 J3.
- L. All mechanical fastener heads shall be treated using one of the following methods:
  1. Apply **Seamseal** or **ROOF MATE Butter Grade** to completely encapsulate the screw head and seal the base of the fastener to the metal deck.
  2. Apply **Uni-Caps** by centering the cap over the fastener head and pressing firmly into place using a **Uni-Cap Tool** or other similar device to seal the cap flush around base of the fastener head.

### **3.03 ELASTOMERIC COATING APPLICATION**

- A. All roof preparation materials shall be allowed to dry prior to application of the acrylic coating.
- 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. 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 basecoat at a minimum rate of 1 gallon per 100 sq. ft. (.4 l/m<sup>2</sup>).
2. After allowing the basecoat to dry, apply **ROOF MATE** White (or other specified color) at a minimum rate of 1 gallon per 100 sq. ft. (.4 l/m<sup>2</sup>). Apply elastomeric coating by airless spray, using multi-pass spray technique to ensure even coating application to all sides of metal panel corrugation. Make a conscious effort to apply coating into crimped or presealed vertical (side-lap) seams that have not been detailed.
3. The total – basecoat/topcoat – minimum dry film thickness required at any location is 15 mils (381 microns).

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

1. Apply **ROOF MATE** Gray basecoat at a minimum rate of 1 gallon per 100 sq. ft. (.4 l/m<sup>2</sup>).
2. After allowing the basecoat to dry, apply **ROOF MATE** White (or other specified color) at a minimum rate of 1½ gallons per 100 sq. ft. (.6 l/m<sup>2</sup>). Apply elastomeric coating by airless spray, using multi-pass spray technique to ensure even coating application to all sides of metal panel corrugation. Make a conscious effort to apply coating into crimped or presealed vertical (side-lap) seams that have not been detailed.
3. The total – basecoat/topcoat – minimum dry film thickness required at any location is 20 mils (508 microns).

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

1. Apply **ROOF MATE** Gray basecoat at a minimum rate of 1½ gallons per 100 sq. ft. (.6 l/m<sup>2</sup>).
2. After allowing the basecoat to dry, apply **ROOF MATE** White (or other specified color) at a minimum rate of 1½ gallons per 100 sq. ft. (.6 l/m<sup>2</sup>). Apply elastomeric coating by airless spray, using multi-pass spray technique to ensure even coating application to all sides of metal panel corrugation. Make a conscious effort to apply coating into crimped or presealed vertical (side-lap) seams that have not been detailed.
3. The total – basecoat/topcoat – minimum dry film thickness required at any location is 25 mils (620 microns).

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

1. Apply **ROOF MATE** Gray basecoat at a minimum rate of 1.25 gallons per 100 sq. ft. (.5 l/m<sup>2</sup>).
  2. After allowing the basecoat to dry, apply **ROOF MATE** Light Gray midcoat at a minimum rate of 1.25 gallons per 100 sq. ft. (.5 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>). Apply the elastomeric coating by airless spray, using multi-pass spray technique to ensure even application to all sides of metal panel corrugation. Make a conscious effort to apply coating into crimped or presealed vertical (side-lap) seams that have not been detailed.
  4. The total – basecoat/midcoat/topcoat – minimum dry film thickness required at any location is 33 mils (838 microns).
- D. 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.
- E. Apply **Acrysheen** to existing, deteriorated skylight panels using a brush, roller or airless spray, at the rate of 200 sq. ft. per gallon (.2 l/m<sup>2</sup>). Heavily oxidized skylights may require a second application to fully seal the panel.
- F. As an option on roofs located in industrial areas and/or subjected to high levels of pollutants, dirt, dust or other contaminants, spray apply a topcoat 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".

**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.

