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SECTION 07 5600 – FLUID-APPLIED ROOFING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. [Fibered] or [Non-fibered] fluid-applied aluminum roof coating

1.02 RELATED REQUIREMENTS

- A. Section 01 7419 – Construction Waste Management and Disposal: Proper disposal of work related waste material.
- B. Section 07 5100 – Built-Up Bituminous Roofing: Substrate roofing system.
- C. Section 07 5213 – Atactic-Polypropylene-Modified Bituminous Membrane Roofing: Substrate roofing system.
- D. Section 07 6113 – Standing Seam Sheet Metal Roofing: Substrate roofing system.
- E. Section 07 6200 – Sheet Metal Flashing and Trim: Metal roof edge, penetration and counter-flashing.

1.03 REFERENCE STANDARDS

- A. ASTM International, formerly known as the American Society for Testing and Materials (ASTM)
 - 1. ASTM D41 - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing; 2011
 - 2. ASTM D93 - Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester; 2011
 - 3. ASTM D962 - Standard Specification for Aluminum Powder and Paste Pigments for Paints; 2008
 - 4. ASTM D2824/D2824M - Standard Specification for Aluminum-Pigmented Asphalt Roof Coatings, Non-Fibered, Asbestos Fibered, and Fibered without Asbestos; 2012
 - 5. ASTM D3409 – Standard Test Method for Adhesion of Asphalt-Roof Cement to Damp, Wet, or Underwater Surfaces; 2008
 - 6. ASTM D4586/D4586M – Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2012
 - 7. ASTM E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces; 2011
- B. Military Paint Specifications
 - 1. TT-P-320D – Pigment, Aluminum Powder and Paste, for Paint
 - a. Type II – At least 65 percent pigment
 - b. Class 2 – Extra fine lining

1.04 SUBMITTALS

- A. See Section 01 3300 – Submittal Procedures.
- B. Product Data: Submit for each product indicated.
- C. Shop Drawings: For roofing system, including plans, elevations, sections, details, and attachments to other work.
- D. Sample Warranties: For manufacturer's special warranties.

1.05 QUALITY ASSURANCE

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- A. Installer Qualifications: Installer that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

1.06 MOCK-UP

- A. Provide fluid-applied roofing system mock-up of **[10 feet by 10 feet]** or **[__ sq ft]**, including accessories.
- B. Locate where directed.
- C. Mockup may remain as part of the Work.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Furnish materials wrapped in manufacturer's original packaging.
- B. Store materials raised or separated from the ground and in a dry location, protected until installation in accordance with manufacturer's instructions.

1.08 FIELD [or] SITE CONDITIONS

- A. Maintain ambient temperatures above 60 degrees F during application with no rain in weather forecast for at least 24 hours.
- B. Allow asphalt roof surfaces to weather for at least 90 days before applying aluminum coating to surface.
- C. Allow asphalt emulsion roof coatings to cure for 5 to 10 days before applying aluminum coating to surface.

1.09 WARRANTY

- A. Standard manufacturer's warranty that indicates manufacturer will replace aluminum coating materials that are found defective within specified warranty period.
 - 1. Warranty Period: 5 years

PART 2- PRODUCTS

2.01 MANUFACTURERS

- A. Alco Products, LLC: www.alco-products.com.
 - 1. Product: **[ALUMAGARD Non-Fibered Aluminum Roof Coating – No. 214]** or **[ALUMAGARD Fibered Aluminum Roof Coating – No. 215]**.
- B. Substitutions: **[See Section 01 6000 – Product Requirements]** or **[Not permitted]**.

2.02 MATERIALS

- A. Non-Fibered Aluminum Roof Coating: Oxidized cutback asphalt with aluminum pigments that flake and float to upper surface upon application; ASTM D2824/D2824M, Type I, non-fibered.
 - 1. Flash Point: Above 100 degrees F; ASTM D93.
 - 2. Weight per Gallon: 8.5 lbs.
 - 3. Viscosity: 20 to 30 KU (Kreb Units) at 77 degrees F; ASTM D2824/D2824M.
 - 4. Approximate Coverage: **[Metal Roof – 125 to 200 sf per gallon]** **[Built-up Roof (BUR) – 75 to 150 sf per gallon]** or **[APP-modified bitumen Roof – 75 to 100 sf per gallon]**.
 - 5. Percent of Asphalt: Greater than 25.
 - 6. Percent of Metallic Aluminum Leafing Paste: Greater than 26.

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7. Percent of Solids, by Weight: At least 30.
 8. Type of Aluminum Paste: TT-P-320D, Type II, Class 2 and ASTM D962, Type II, Class C.
 9. Non-Volatile Matter (NVM): At least 40 percent.
 10. Volatile Organic Compounds (VOC): Less than 500 g/L (4 lbs per gallon).
 11. Film Thickness, 1 Gallon per 100 SF: 1/64 inch.
 12. Reflectivity: Greater than 50 percent; ASTM E1980.
 13. Drying Time: Overnight.
 14. Service Temperature: Range of minus 20 degrees F to plus 180 degrees F.
 15. Resistance to Oils, Solvents and Chemicals: Poor.
 16. Resistance to Sunlight: Excellent.
 17. Effect of Weathering: Slow erosion; acid rain and corrosive atmospheric conditions will discolor or darken coating.
 18. Resistance to Water:
 - a. Excellent, when drainage conditions are good.
 - b. Not recommended, under continuous submersion conditions.
- B. Fibered Aluminum Roof Coating: Oxidized cutback asphalt, fiber fillers with aluminum pigments that flake and float to upper surface upon application; ASTM D2824/D2824M, Type III, non-asbestos fibered.
1. Flash Point: Above 100 degrees F; ASTM D93.
 2. Weight per Gallon: 8.5 lbs.
 3. Viscosity: 50 to 90 KU (Kreb Units) at 77 degrees F; ASTM D2824/D2824M.
 4. Approximate Coverage: **[Metal Roof – 125 to 200 sf per gallon] [Built-up Roof (BUR) – 75 to 150 sf per gallon] or [APP-modified bitumen Roof – 75 to 100 sf per gallon].**
 5. Percent of Asphalt: Greater than 25.
 6. Percent of Metallic Aluminum Leafing Paste: Greater than 25.
 7. Percent of Solids, by Weight: At least 40.
 8. Type of Aluminum Paste: TT-P-320D, Type II, Class 2 and ASTM D962, Type II, Class C.
 9. Non-Volatile Matter (NVM): At least 40 percent.
 10. Volatile Organic Compounds (VOC): Less than 500 g/L (4 lbs per gallon).
 11. Film Thickness, 1 Gallon per 100 SF: 1/64 inch.
 12. Reflectivity: Greater than 50 percent required; ASTM E1980.
 - a. Actual Reflectivity Averaged: Initial is 58.1 percent, and aged is 71.1 percent.
 13. Drying Time: Overnight.
 14. Service Temperature: Range of minus 20 degrees F to plus 180 degrees F.
 15. Resistance to Oils, Solvents and Chemicals: Poor.
 16. Resistance to Sunlight: Excellent.
 17. Effect of Weathering: Slow erosion; acid rain and corrosive atmospheric conditions will discolor or darken coating.
 18. Resistance to Water:
 - a. Excellent, when drainage conditions are good.
 - b. Not recommended, under continuous submersion conditions.

2.03 ACCESSORIES

- A. Built-Up Bituminous Roofing: Refer to Section 07 5100.
- B. Modified Bituminous APP Membrane Roofing: Refer to Section 07 5213.
- C. Standing Seam Sheet Metal Roofing: Refer to Section 07 6113.
- D. Asphalt Primer: Brush or spray-on asphalt primer, complies with ASTM D41.
 1. Coverage: 75 to 100 sf per gallon, depending upon the porosity of surface.
 2. Product; Asphalt Roof Primer – No. 207 manufactured by Alco Products, LLC.

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- E. Flashing Cement: Comply with ASTM D4586/D4586M, Type I for 1/8 inch film thickness, and ASTM D3409 for 1/4 inch film thickness.

- 1. Product; Wet-Dry Flashing Cement manufactured by Alco Products, LLC.

PART 3- EXECUTION

3.01 VERIFICATION OF CONDITIONS

- A. Prior to application, verify that roof surface is free of moisture, frost, dust and dirt, loose nails, and other protrusions.
- B. Wire brush metal surfaces and sweep clean to ensure proper adhesion.
- C. Do not apply over wood or roof systems coated with coal tar.
- D. Verify that roofing system does not have the potential for ponding water and roof drains and overflows are each working properly.
- E. Verify with manufacturer of single-ply roofing membranes for compatibility with aluminum coating system.

3.02 PREPARATION

- A. Apply asphalt primer over dried out built-up roofing in preparation for installation of aluminum coating as recommended by manufacturer.
 - 1. Apply second coat if initial coating becomes completely absorbed.
 - 2. Allow for at least 24 hour drying period before application of aluminum coating.
- B. Apply flashing cement over damaged flashing, blisters or voids, and fill cracks in existing roofing system in preparation for installation of aluminum coating as recommended by manufacturer.
 - 1. On large cracks or voids imbed a membrane cloth into base layer and then apply another layer over entire repair area.
 - 2. Allow for at least 48 hour drying period before application of aluminum coating.

3.03 APPLICATION

- A. Apply asphalt aluminum coating in accordance with Roof Coatings Manufacturers Association (RCMA) recommended procedures.
- B. Apply aluminum coating direct from container onto properly prepared roofing system in accordance with manufacturers written installation instruction.
- C. Mix contents thoroughly to ensure complete dispersion of aluminum pigments, do not thin.
- D. Pour aluminum coating on roof, a small amount at a time, and brush material onto surface in one direction only, and do not over brush.

3.04 WASTE MANAGEMENT

- A. Upon completion of this work, comply with requirements of Section 01 7419.

END OF SECTION