

ALDO PRODUCTS COMPANY INC.

Installation Guide Specification for

Recoating

ALDOCOAT Acrylic Elastomeric Coating and Spray Polyurethane Foam Roof System

PART 1 — GENERAL

1.01 SUMMARY

- A. This guide specification is for the recoating and renewal of existing acrylic coated, spray polyurethane foam (SPF) roof systems with ALDOCOAT acrylic elastomeric roof coating to extend the life of the existing roof. The recoat/renewal requires maintenance of the existing spray-applied polyurethane foam and a multiple-layer acrylic elastomeric coating system application, with optional granules, to insulate, waterproof and provide a reflective surface.
- B. The ALDOCOAT Roof System is designed to provide a UL Class A system. The choice of this system for any given situation is the responsibility of the Contractor, Specifier, or Building Owner. It is the responsibility of the Contractor, Specifier, or Building Owner to (1) evaluate the load bearing capacity of the roof to insure safe weight limits are not exceeded; and (2) evaluate the wind uplift resistance of the existing roof to insure it complies with local building codes.
- C. Scope: Recoating and renewal of a spray-applied polyurethane foam (SPF) roof system coated with a acrylic elastomeric coating system with an optional topping of roofing granules.

1.02 DEFINITIONS

- A. Ponding: Standing water on a roof surface following 48 hours of conditions conducive to drying after a rain event.

1.03 SUBMITTALS

- A. Product Data: Technical Data Sheets and SDSs for all products used on project.
- B. Shop Drawings: Drawings indicating scope of work and roofing details.
- C. Samples: Cured SPF and coating samples.
- D. Sample Warranty
- E. Daily Roofing Checklists (job progression reports)

1.04 QUALITY ASSURANCE

- A. Manufacturer: Coating products will be obtained from ALDO Products Company, Inc., Salisbury, NC. SPF products will be approved in advance by ALDO Products Company, Inc.
- B. SPF Applicator/Contractor: The SPF applicator and/or contractor shall be approved in advance by ALDO Products Company, Inc.
- C. Building Codes: SPF Applicator/Contractor will conform to all local building codes, obtain required licenses and permits, and verify that the roof deck and support structural capacity will accommodate the roof recovery.

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- D. Inspections: ALDO Products Company, Inc., at its option, shall conduct pre-job, construction, and post-job inspections as it deems appropriate to assure that these specifications were followed and the work has proceeded in a workmanlike manner. All defects noted as a result of these inspections will be corrected in a timely manner by the SPF Applicator/Contractor.
- E. Environmental Conditions: In general, do not apply SPF or acrylic coatings when ambient temperature and humidity is outside the recommended limits set by ALDO Products Company, Inc.
1. The SPF and acrylic coating shall not be applied during periods of inclement weather (rain, snow, fog, mist).
 2. Do not apply the SPF when substrate or ambient air temperatures are below 50°F (5°C) unless specifically approved in writing by ALDO Products Company, Inc.
 3. Do not apply acrylic coatings when ambient or substrate temperature is below 50°F (10°C) or when there is a possibility of temperatures dropping below 32°F (0°C) within a 24 hour period after application.
 4. When wind speeds exceed 10 mph or adversely affects the SPF application, windscreens shall be used during the application of the polyurethane foam and coatings to prevent overspray onto surfaces not intended to receive foam and coating. In any event, do not apply SPF or coatings when wind speeds exceed 15 mph.

1.05 DELIVERY, STORAGE AND PROTECTION OF MATERIALS

- A. Delivery: All products shall be clearly labeled and delivered to the project site in original, undamaged and unopened containers.
- B. Handling and Storage: Store SPF components between 50-80°F. Store acrylic coating between 45-90°F. Keep all products out of direct sunlight and protected from freezing temperatures.

1.06 Warranty

- A. Provide manufacturer's warranty.
- B. Warranty does not cover roof areas where ponding water is evident on the SPF and acrylic coated roof system.

PART 2 — PRODUCTS

2.01 SPRAY-APPLIED POLYURETHANE FOAM

- A. Manufacturer will be as recommended by ALDO Products Company, Inc.
- B. Physical Properties shall be as indicated in the table below.

Property	Value	Test Method
Density	2.7-2.9 lb/ft ³	ASTM D 1622
Compressive Strength	40-50 lb/in ²	ASTM D 1621
Tensile Strength	> 40 lb/in ²	ASTM D 1623
Closed Cell Content	> 90 %	ASTM D 6226

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Property	Value	Test Method
R-value (aged)	> 5.8	ASTM C 518
Dimensional Stability	< 15 % total change	ASTM D 2126
Surface Burning Characteristics	≤ 75 flame-spread index*	ASTM E 84
*This flame-spread index is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.		

- C. SPF System Speed: Use the SPF system speed appropriate to the ambient conditions and consistent with the manufacturer's recommendations.

2.02 ACRYLIC ELASTOMERIC COATING

- A. Base Coat: ALDOCOAT 374 Acrylic Contractor Grade, ALDO Products Company, Inc., Kannapolis, NC
- B. Top Coat: ALDOCOAT 400 Premium Acrylic, ALDO Products Company, Inc., Kannapolis, NC
- C. Refer to the ALDOCOAT 374 and ALDOCOAT 400 Technical Data Sheets for physical property information.

2.03 Granules: Number 11, ceramic roofing granules as manufactured by 3M or equal.

2.04 Primer:

- A. ALDOPRIME 708 Acrylic Primer

2.05 ACCESSORY MATERIALS

- A. ALDOSEAL 750 Acrylic Seam Seal, ALDO Products Company, Inc., Kannapolis, NC
- B. ALDOSEAL 1602 Seam Tape, ALDO Products Company, Inc., Kannapolis, NC
- C. MDP Strips: Moisture Detection Paper strips, per SPF Manufacturer's recommendation.

PART 3 — EXECUTION

3.01 EXAMINATION

- A. Thoroughly inspect the SPF roof surfaces and determine items that need to be repaired, including:
1. Blistered and/or delaminated SPF
 2. Cracks (patterned or random) which may indicate building movement or other problem symptomatic of the existing SPF
 3. Ponding, drains, scuppers, gutters, etc.
 4. Flashings, penetrations, and metal details
 5. Areas of exposed SPF
 6. Areas of degraded coating (such as chalking, flaking, adhesion loss, etc.)

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7. Unacceptable substrates (such as areas repaired with asphaltic mastics or other unsuitable materials)
8. Debris, dirt and other surface contamination

3.02 SURFACE PREPARATION

- A. Remove loose debris and non-functional equipment from the roof surface.
- B. Repair or replace deteriorated flashing, roof jacks, curbs, equipment supports, metal work, drains, etc.
- C. Pressure wash the existing roof surface with water to remove all dirt, dust, flaking coatings, oils, greases, roof mastics, solvents and other contaminants that would adversely affect the adhesion of the SPF and/or coating.
- D. Mechanically remove (for example: wire brushing, scraping, etc.) any areas of contaminants that remain following pressure washing.
- E. Where SPF has been exposed due to damaged or weathered coating, check with ALDO Products Technical Department for specific recommendations.
- F. Remove and replace blistered and/or delaminated SPF and other substrate material using the following guidelines:
 1. Core the SPF in blistered/delaminated areas to determine the cause and extent of the problem.
 2. Cut out and remove SPF which exhibits blistering/delamination. In areas of multiple blisters, it may be advisable to cut out the entire section rather than cutting out individual blisters. Remove SPF down to the lowest SPF pass which is well bonded to the substrate and does not exhibit signs of weak knit lines or questionable cell structure. It may be necessary to remove all the SPF in areas where bonding to the substrate is poor. It may be necessary to remove the original substrate where it has delaminated from the roof deck.
 3. Carefully inspect the resulting exposed surfaces to assure they are dry, clean, stable and free of contamination which would affect adhesion of new SPF and/or acrylic coating. Prime as required.
 4. Spray-apply new SPF to fill repair areas in accordance with Section 3.03. Apply the repair SPF in a manner that leaves the final surface relatively flush with the existing SPF surface and that does not create any ponding conditions or drainage obstructions.
 5. Small blisters, cracks or breaks in the foam or coating may be repaired using caulk/sealant; consult with ALDO PRODUCTS for specific recommendations and guidance.
- G. Rusted metal substrates which are to receive SPF or coating shall be primed using ALDOPRIME 624.
- H. Lightning rods shall be masked prior to foaming. Lightning rod cables shall not be embedded in the polyurethane foam and should be removed prior to foaming. Electrical and mechanical conduits should be relocated or raised above the finished roof surface. Lightning protection equipment and electrical work must be performed by qualified personnel.

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3.03 POLYURETHANE FOAM APPLICATION

- A. The following procedures are to be used in areas requiring SPF repair.
- B. Application
 - 1. The polyurethane foam application shall not proceed during periods of inclement weather. The applicator shall not apply the polyurethane foam outside the temperature and humidity limits recommended by the manufacturer for ambient air and substrate. Wind barriers may be used if wind conditions could affect the quality of installation as recommended in Section 1.04.
 - 2. The spray polyurethane foam shall be applied in accordance with the manufacture's specification and instructions.
 - 3. The spray polyurethane foam must be applied in a minimal pass thickness of 1/2 inch.
 - 4. Spray polyurethane foam thickness shall approximately match that of the existing SPF. Apply the repair SPF in a manner that leaves the final surface relatively flush with the existing SPF surface and that does not create any ponding conditions or drainage obstructions.
 - 5. The spray polyurethane foam shall be uniformly terminated a minimum of six (6) inches or as required by the local building code above the roofline at all penetrations (except drains, parapet walls, or building junctions). Foamed in place cants shall be smooth and uniform to allow positive drainage.
 - 6. **When detailing skylights or high walls, it is particularly important not to cover weep holes or weep edges with SPF or coating.**
 - 7. **The full thickness of polyurethane foam in any area shall be completed and base coated prior to the end of each day.**
 - 8. Do not apply new SPF to an SPF surface which has been applied the previous calendar day or earlier without first preparing the surface: grind the surface skin off the existing SPF and prime the exposed surface. This procedure is to be followed for day to day tie-ins.
- C. Surface Finish
 - 1. The final sprayed polyurethane foam surface shall be "smooth, orange peel, or coarse orange peel." Polyurethane foam surfaces termed "verge of popcorn," "popcorn" or "treebark" are not acceptable. These areas shall be removed, primed and refoamed to an acceptable surface. (See SPFA surface texture photos.)
 - 2. Any damage or defects to the polyurethane foam surface shall be repaired prior to the protective coating application.
 - 3. The polyurethane foam surface shall be free of moisture, frost, dust, debris, oils, tars, grease or other materials that will impair adhesion of the protective coating.

3.04 PROTECTIVE COATING APPLICATION

- A. The acrylic elastomeric coating shall be applied in a minimum of two coats. The base coat (ALDOCOAT 374 Gray and top coat (ALDOCOAT 400) will be of contrasting colors and achieve a total dry film thickness of 30 mils average, 25 mils minimum. Additional applications of top coat may be applied to achieve the required total dry film thickness. Approximately 3.5 gallons per

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100 square feet will be required to yield 30 mils dry film thickness. This application rate will vary depending on SPF surface texture and miscellaneous losses. In any event, to satisfy the requirements of this specification, dry film thickness will govern.

- B. (Optional) A final (third) coat matching the color of the top coat may be applied at a rate of 5-10 wet mils as a “tack coat” to secure roofing granules in place applied at a rate of 30 lb/100 ft².
- C. Inspection: Prior to the application of the protective coating the roof surface shall be inspected for suitability of base coat application as per Section 3.02. The polyurethane foam and existing coating shall be clean, dry, and sound.

D. Application

1. Base Coat

- 1) In areas which have been repaired with SPF, the base coat shall be applied the same day as the polyurethane foam application. In no case shall less than two hours elapse between application of the polyurethane foam and application of the base coat.
- 2) New polyurethane foam and existing coated surfaces shall be free of dust, dirt, contaminants and moisture before application of the base coat.
- 3) The base coat shall be applied at a uniform thickness with the rate of application being governed by the polyurethane foam surface texture. Coatings shall be applied at such a rate as to give the minimum dry film thickness specified by the protective coating manufacturer.
- 4) The coating shall be allowed to cure and be inspected for pinholes, thinly coated areas, uncured areas or other defects. Any defects should be repaired prior to subsequent applications. The base coat shall be free of dirt, dust, water, or other contaminants before application of the topcoat.
- 5) The coating application shall not proceed during periods of inclement weather. The applicator shall not apply the protective coating below the temperature and/or above the humidity specified by ALDO Products Company for ambient air and substrate. Wind barriers may be used if wind conditions could affect the quality of installation.

2. Top Coat and/or Subsequent Coats

- 1) Application: Top and/or subsequent coat(s) should be applied in a timely manner to insure proper adhesion between coats. Surface texture of polyurethane foam will affect dry film thickness—additional material may be required in areas of coarse foam profile.
- 2) Inspection: The cured dry film thickness of the finished multiple coat application shall be checked by taking slit samples and examining with an optical comparator. Areas that are found to have less than the thickness specified shall require additional coating.

3.05 GRANULE APPLICATION (OPTIONAL)

- A. Granules are to be embedded in the “tack coat.” Apply granules into the final layer of the coating while it is still wet. Granules shall be applied at a rate of 35 lb/100 ft².

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3.06 WALKWAYS AND WORK AREAS

- A. Install traffic mats in heavy traffic areas and around frequently serviced roof top units. Secure traffic mats in place with caulk following traffic mat manufacturer's recommendations.

3.07 SAFETY REQUIREMENTS

- A. See CPI Bulletin AX- 205, "Working with MDI and Polymeric MDI: What You Should Know" and CPI Bulletin AX-230, "Fire Safety Guidelines for Use of Rigid Polyurethane and Polyisocyanurate Foam Insulation in Building Construction."
- B. Refer to appropriate Materials Safety Data Sheets (MSDS) for additional safety information.
- C. Before starting to apply spray polyurethane foam or coating, any potential sources of air entry into the building must be sealed off. These units and any other potential sources of air entry into the building must be sealed.

3.08 CLEANUP

- A. Keep all work areas clean, clear and free of debris at all times.
- B. Do not allow trash, waste or debris to accumulate on the roof. Remove these items from the roof on a daily basis.
- C. Collect and properly store all tools and unused materials at the end of each workday.
- D. Dispose of or recycle all trash and excess material in a manner conforming to current EPA regulations and local laws.
- E. Properly clean the finished roof surface after completion and make sure the drains and gutters are not clogged.
- F. Clean and restore all damaged surfaces to their original condition.

3.09 FIELD QUALITY CONTROL (Warranted projects)

- A. Daily Roofing Checklists: For each day in which SPF, coating or granules are applied, submit a Daily Roofing Checklist to ALDO Products Company, Inc.
- B. Inspections: Projects are subject to initial, progress and final inspections consistent with ALDO Products Company, Inc. procedures.