



# ACRYSHIELD® SPF ROOFING SYSTEM

## Installation Guide Specification SPF Vapor Barrier System 07500

*Saving Money, Safeguarding the Environment...One Roof at a Time.®*



### I. GENERAL

#### 1.01 SUMMARY

- A. Provide labor, materials, equipment and supervision necessary to install spray-applied polyurethane foam and spray-applied elastomeric, acrylic coating system as outlined in this specification to create a seamless waterproof vapor barrier roofing system.
- B. The manufacturer's application instructions for each product used are to be considered part of these specifications, and should be followed at all times.

#### 1.02 SUBMITTALS

- A. Submit product data sheets and literature verifying fire ratings and physical properties of materials.
- B. Submit material safety data sheets.

#### 1.03 QUALITY ASSURANCE

- A. Supplier Qualifications: The ACRYSHIELD® SPF Roofing System, as supplied by National Coatings Corporation, is approved for use on the project.
- B. Applicator Qualifications: The applicator shall be approved by National Coatings Corporation to apply the system. Manufacturer's written verification of applicator approval is required.

#### 1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Containers and Packaging: Deliver materials in original sealed containers, clearly marked with: manufacturer's logo; full product name; and lot number(s).
- B. Storage: Store materials between 40°F and 100°F with careful handling to prevent damage to products. If conditions exceed these ranges, special consideration in storage must be taken. Do not store at high temperatures in direct sunlight.
- C. Protection: Protect all materials from freezing and other damage during transit, handling, storage, and installation.

#### 1.05 PROJECT CONDITIONS

- A. For application details of polyurethane foam, consult the foam manufacturer for recommendations on the proper system to use on project substrate and at expected substrate and ambient temperatures. Under no conditions shall the foam be applied when the substrate temperature is expected to be below 50°F. Do not apply polyurethane foam when wind velocity is above 15 mph unless a wind screen is used.
- B. Do not proceed with application of coating materials when surface or ambient temperature is less than 50°F.

- C. Do not apply materials unless surface to receive foam and/or coating is clean and dry.
- D. Install all material in strict accordance with all published safety, weather, or applicable regulations of the manufacturer and/or local, state, and/or federal agencies which have jurisdiction.

**1.06 DETAIL WORK**

- A. This specification does not extensively outline procedures for preparation and finishing of drains, vents, ducts, flashings, parapet walls, etc. This work should be outlined by the contractor before work commences, and shall be performed observing good trade practices. In most cases the self-flashing attributes of the foam will be utilized without the need for additional flashing materials. In any case, the foam should never be applied in a manner that traps moisture or forces moisture to migrate underneath the system. Any needed sheet metal work shall be in accordance with the latest editions of SMACNA and/or NRCA Sheet Metal Manuals.

**II. PRODUCTS**

**2.01 POLYURETHANE FOAM**

- A. The foam shall be National Coatings NC245-2.7 or NC245-3.0.
- B. Physical Properties of Cured Foam:
  - 1. Polyurethane foam shall contain EPA-approved 245fa blowing agent and meet U.S. non-ozone-depleting requirements of the U.S. EPA mandate and International Montreal Protocol. No polyurethane foam with phased-out HCFC 141b blowing agent is acceptable.

| <b>Properties</b>  | <b>ASTM Test</b> | <b>Value</b> | <b>Units</b>                       |
|--|------------------|--------------|------------------------------------|
| Density  | D-1622           | 2.7 (min)    | Lbs/Ft                             |
| Compressive Strength   | D1621            | 47 (min)     | Lbs/Ft                             |
| Closed Cell Content  | D-2856           | 90 (min)     | %                                  |
| Thermal Conductivity   | C-177/C-158      | 0.18 (max)   | BTU/Ft-Hr-deb.F/Inch "K"<br>Factor |
| U.L. Listing   | UL 790*          | Class A*     | UL Rating                          |
| *These flame spread ratings are for test conditions, and are not intended to reflect hazards presented by this or any other material under actual fire conditions. |                  |              |                                    |

**2.02 SPRAY-APPLIED ELASTOMERIC, ACRYLIC COATING SYSTEM**

- A. The coating shall be the spray applied ACRYSHIELD elastomeric acrylic coating system, manufactured by National Coatings Corporation.
- B. Physical Properties of Cured Coating System:
  - 1. The coating system shall have good resistance to ponding water.
  - 2. The coating system shall contain no plasticizers.
  - 3. The coating system shall contain no migrating fire retardants.

4. The protective coating system shall also meet the following physical property requirements:

| Property                            | ASTM Method | Results         |
|-------------------------------------|-------------|-----------------|
| Tensile Strength, psi (Max @ 73°F)  | D6083       | Minimum 250     |
| % Elongation @ Break (73°F)         | D6083       | Minimum 250     |
| Wet adhesion to Specified Substrate | D6083       | Minimum 3.0 pli |
| Permeance, perms                    | D6083       | Maximum 1.0     |
| Volume Solids %                     | D6083       | > 50            |
| Weight Solids %                     |             | > 65            |

### 2.03 RELATED MATERIALS

- A. Flashing, adhesives, thinners, elastomeric caulking compounds, primers, and similar materials shall be approved by the manufacturer of the coating. All materials used shall be applied in accordance with its manufacturer's recommendations.

### 2.04 EQUIPMENT

- A. For recommended spray equipment guidelines, please refer to National Coatings Technical Paper "TP-102 Guide for Selecting Coating Spray Equipment", or consult the spray equipment manufacturer directly.

## III. EXECUTION

### 3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins and product guide specification instructions.

### 3.02 EXAMINATION

- A. Inspect surfaces which will receive urethane foam insulation to make sure they are clean, smooth, sound, properly prepared, and free of moisture, dirt, debris, or other contamination.
- B. Verify that all roof penetrations, mechanical equipment, cants, edge metal, and other on-roof items are in place and secure.
- C. Verify that all critical areas around the immediate vicinity of the spray area are suitably protected.
- D. Verify all roof drains are clean and in working order.
- E. Verify that all air conditioning and air intake vents are suitably protected or closed.

### 3.03 PREPARATION

- A. Prior to foam application, all existing non-embedded gravel surfacing material shall be removed by means of a stiff bristle street broom, powered mechanical sweeper, or vacuuming. Porous volcanic slag must be totally removed from the roof because it may hold moisture and cause bond failure and blisters. All loose dirt and dust remaining after gravel removal must be broomed and/or vacuumed from the roof. All blisters, ridges and other imperfections must be secured so that the surface will be clean and dry and a secure base for foam application.
- B. Existing low areas where water ponds and areas with obviously poor drainage to roof scuppers, drains, or roof edges should be corrected by filling and/or tapering the sprayed foam or by adding

drains. To prevent the ponding of water, the entire system must be well sloped into drains. Install additional drains as necessary.

- C. Priming may be required on some substrates. Discuss with a National Coatings Technical Consultant.
- D. Other types of Surfaces: Preparation of surfaces and use of materials may vary substantially with different types of new or existing roofs. Contact National Coatings for specific recommendations over other types of surfaces.
- E. .

### 3.04 APPLICATION

#### A. Polyurethane Foam Insulation:

1. Fill all low areas with foam as required to achieve proper water drainage. The foam should be applied in a manner to compliment designed drainage and to eliminate the accumulation of water. Minimum foam pass ½ inch.
2. To all properly prepared surfaces, apply the foam in minimum ½ inch lifts to reach the required thickness of at least 1 inch minimum thickness with a tolerance of + ¼ inch – 0 inch. Flash passes of less than ½ inch are not acceptable.
3. Extend foam up walls, around pipes, and other projections a minimum of 4 inches. The top edge of the foam shall extend all the way up the parapet wall.
4. In areas where obstacles do not permit normal spray techniques and the application tolerance specified above cannot be met, the contractor shall still apply the specified minimum thickness of foam required by a method that he shall select and is approved by the manufacturer. However, the completed application of foam shall be monolithic with adjacent areas of normal application.
5. Apply foam so that the finished surface is smooth and free of voids, pinholes and crevices with a maximum allowable roughness defined as “coarse orange peel”. “Treebark” or “popcorn” surfaces are not acceptable.

#### B. ACRYSHIELD VAPOR BARRIER A410 Base Coat:

1. Before the first base coat of ACRYSHIELD VAPOR BARRIER A410 is applied, the installed foam insulation must cure a minimum of 2 hours.
2. The first base coat of ACRYSHIELD VAPOR BARRIER A410 shall be applied the same day as the surface is foamed. In no case shall the coating be applied over oxidized foam.
3. The ACRYSHIELD coating shall be sprayed or roller applied in a cross hatch technique without causing runs or puddles.
4. The ACRYSHIELD VAPOR BARRIER A410 base coating shall be evenly applied in at least 2 separate coats of 1.5 to 2 gallons per 100 square feet in order to achieve a **minimum base of 40 mils dry film thickness. At least 40 dry mils of ACRYSHIELD VAPOR BARRIER A410 is required to achieve the vapor barrier performance.** Allow thorough dry time between coats.

#### C. ACRYSHIELD A500 Top Coat:

1. Once the ACRYSHIELD VAPOR BARRIER A410 base coat has dried thoroughly, a top coat of ACRYSHIELD A500 shall be evenly applied at the rate of 1.5 gallons per 100 square feet. Allow thorough dry time for the top coat.

2. These minimum recommendations for material usage are for ideal conditions. The number of gallons per 100 square feet may need to increase due to uneven application, rough surface texture, wind conditions while spraying, or other variables.
3. Coating shall terminate at least 2 inches above or beyond the edge of applied foam in a neat and uniform manner.
4. No coating shall be applied if weather will not allow it to dry prior to exposure to precipitation or freezing temperatures.

### **3.05 FIELD QUALITY REQUIREMENTS**

- A. Manufacturer's Field Services: Inspection by the coating manufacturer's technical representative shall be made to verify the proper installation of the system. Any areas that do not meet the minimum standards for application as specified herein shall be corrected at the contractor's expense. Manufacturer's inspection or verification shall not constitute acceptance of responsibility for any improper application of material.

### **3.06 CLEANING**

- A. Surfaces not intended to receive foam insulation and/or elastomeric coating materials shall be protected during the application of the system. Should this protection not be effective, or not be provided, the respective surfaces shall be restored to their proper conditions by cleaning, repairing or replacing. All debris from completion of work shall be completely removed from the project site. The site shall be left in a broom-clean condition.

## **IV. MATERIALS**

The following materials listed in these recommendations are available from National Coatings Corporation:

1. ACRYSHIELD<sup>®</sup> VAPOR BARRIER A410, 100% acrylic, high performance elastomeric roof coating.
2. ACRYSHIELD<sup>®</sup> A500, 100% acrylic, high performance elastomeric roof coating.
3. ACRYSHIELD<sup>®</sup> A450 black acrylic primer.
4. National Coatings' premium quality, high density polyurethane spray foam (NC245-2.7/3.0)

The suggestions and data in this specification are based on information we believe to be reliable. They are offered in good faith, but without guarantee, as conditions and methods of use are beyond our control. The prospective user should determine the suitability of our materials and installation recommendations before adopting them for commercial use.



As an ENERGY STAR<sup>®</sup> Partner, we have determined that many of our products meet the ENERGY STAR guidelines for energy efficiency and help save money, while protecting the environment.

