



SWD URETHANE COATED FOAM ROOFING SYSTEM
MASTER ROOF SPECIFICATION
SECTION 075700

Part 1 GENERAL

SUMMARY

Section Includes: Coated foam roofing system and acceptable alternative applications as specified herein.

SYSTEM DESCRIPTION

- A. Roofing system shall be Class A over non-combustible deck. Roofing system shall be UL-790 (ASTM E-108) compliant and conform to 2006 or later UBC sections 1501-1510.
- B. System shall meet UL-1256 construction methods #136, #181 and #206. Roofing system shall meet TAS 114-D standard for wind uplift and UL-2218 standard impact resistance.
- C. Roofing system shall meet required ICC Revised AC-377 approval criteria, and/or, FM Global approval standards (if applicable), Energy Star and CRRC guidelines.
- D. Roofing system shall be Class B over combustible deck and conform to ASTM test standards, ICC and UBC requirements.
- E. Various warranty systems available depending on specification used. Contact manufacturer for details.

SUBMITTALS

- A. Product Data: Submit manufacturer's product data sheets, material specifications, installation instructions and evidence of (when applicable) UL, ICC, CRRC, Energy Star and/or FM ratings for roofing system.
- B. Provide specimen copy of the applicable warranty for this project, as specified herein.
- C. Submit evidence that coated foam roofing system is approved in accordance with UL-790 Class A Testing.
- D. Submit evidence that coated foam roofing system is approved in accordance with UL-2218 impact resistance testing.
- E. Submit evidence that coated foam roofing system is approved in accordance with UL Reports P-733, P-826 or P-904 for hourly fire resistance design ratings on specific decks, where applicable.
- F. Submit evidence that top coatings on coated foam roofing system are approved in accordance with Energy Star and/or CRRC standards for the pertinent jurisdiction requirements.

- G. LEED Submittals. If required, submit information from manufacturer regarding recycled content, manufacturing location and/or any other LEED required information.

RELATED SECTIONS

- A. Section 07590 – Membrane roof repairs
- B. Section 07620 – Sheet metal flashing and trim
- C. Section 07650 – Flexible flashing
- D. Section 07710 – Manufactured roof specialties
- E. Section 072736 - Sprayed foam air barrier
- F. Section 072000 – Thermal protection

QUALITY ASSURANCE

- A. Qualifications:
 - 1. Manufacturer: Company specializing in manufacturing roofing products, with minimum 20 years documented experience.
 - 2. Applicator: Roofing applicator with 5 years experience in work of similar scope and nature to that specified or approved by manufacturer of roofing material.
- B. Pre-Installation Conference:
 - 1. Convene a pre-installation conference to review roofing specifications, installation procedures and workflow with the architect, contractor, roofer and other trades relative to the work, prior to ordering materials.

DELIVERY, STORAGE AND HANDLING

- A. Delivery
 - 1. Deliver materials unopened and protected from freezing, excessive heat, direct sunlight and moisture to job site intact with proper labels as delivered by the manufacturer.
 - 2. Deliver so that stocks of materials on the site will permit uninterrupted progress of the work.
- B. Storage and Handling
 - 1. Adequately protect against damage, exposure to freezing, excessive heat, direct sunlight and moisture while stored at the job-site.
 - 2. Comply with manufacturer's storage instructions.

PROJECT & SITE CONDITIONS

- A. Do not install products under environmental conditions outside of manufacturer's specifications. Environmental condition (ambient and surface temperatures and humidity) logs should be maintained for compliance with manufacturer application and warranty criteria.

- B. Polyurethane foam shall not be sprayed during inclement weather and when the following conditions exist:
 - 1. If surface temperature is above 200° F or below 40° F or when the dew point is less than 5° F above the surface temperature.
 - 2. If surface moisture is present, or during rain, snow fog or mist.
 - 3. If wind velocity is above 12 miles per hour, windscreens are required; for wind velocity at or above 25 miles per hour, work shall be suspended.
- C. Do not apply silicone roof coatings when temperatures are below 40° F.
- D. Do not apply acrylic or cementitious roof coatings when temperatures are below 50° F or when there is a possibility of temperatures falling below freezing (32° F) within a 24 hour period.

WARRANTY

- A. Furnish SWD Urethane warranty on coated foam roofing system. Warranty shall cover repairs necessary to maintain roof system in a water-tight condition during the warranty period.
- B. Acceptable warranties:
 - 1. Material Limited Warranty
 - 2. System Limited Warranty
 - 3. NDL System Limited Warranty

END OF SECTION



Part 2 PRODUCTS

MANUFACTURERS

- A. Roofing products shall be manufactured by the following accepted manufacturer:
 - 1. SWD Urethane, 539 S Drew St, Mesa, Arizona 85210.
800-828-1394 Web site: www.swdurethane.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

MATERIALS

- A. Polyurethane Foam
 - 1. Two component rigid foam, designed to be an insulation and waterproof seal over a substrate when properly applied with foam dispensing equipment, meeting the following minimum physical properties:

<u>Property</u>	<u>Procedures</u>	<u>Values</u>
Density, pcf nominal	ASTM D-1622	2.5
Compressive, psi	ASTM D-1621	40-50
Tensile, psi	ASTM D-1623	75
Shear, psi	ASTM C-273	51.9
Closed Cell Content %	ASTM D-2856	91
Permeance, perm/in	ASTM E-96	1 perm 1.4"
Wind Uplift	TAS 114-D	>250 psf
Noise Reduction Coefficient	ASTM C-423	.20
R Value	ASTM C-518	6.3

- 2. Polyurethane foam density and compressive strength shall be uniform and consistent with specification.
 - 3. Quik-Shield 125 polyurethane foam is acceptable.
- B. Acrylic Coating
 - 1. Acrylic coating system shall be single component coating uniquely formulated as a protective coating over spray polyurethane foam, modified bituminous, built-up, masonry, concrete, metal and single ply roofing membranes.
 - 2. Quik-Shield 1929 acrylic elastomeric coatings are acceptable.
 - 3. Acrylic coatings must meet the following minimum physical properties:

Property	Procedures	Quik-Shield 1929F Values
Solids Content:		
By Weight	ASTM D-1353	70+5%
By Volume	ASTM D-2697	60+5%
Solar Reflectance	ASTM E-903	82%
Solar Reflectance Index	ASTM E-1980	103%
Thermal Emittance	ASTM E-408	91%
Tensile Strength:		
psi @75°	ASTM D-412	280
Elongation at break: psi @75°	ASTM D-412	355
Water Absorption	ASTM D-2842	5%
Permeance: perms @ 20 mils	ASTM E-96	3.5
Hardness: Shore A	ASTM D-2240	60

C. Silicone Coating

1. Silicone coating system shall be single component silicone coating designed as a weather seal coating over spray polyurethane foam roof systems.
2. Silicone coating system shall be high solids silicone coating designed to provide a weather seal coating for vertical walls, masonry, concrete, metal, single ply membranes and spray polyurethane foam roof systems.
3. SWD Urethane Quik-Shield 2110 and 2120 are acceptable.
4. Silicone coatings must meet the following minimum physical properties:

Property	Procedures	Quik-Shield	Quik-Shield
		2110 Values	2120 Values
Solids Content:			
By Weight	ASTM D-1644	80±2%	96±2%
By Volume	ASTM D-2697	69±2%	96±2%
Solar Reflectance	ASTM C-1549	85%	87%
Solar Reflectance Index	ASTM E-1980	105%	110%
Thermal Emittance	ASTM C-1371	85%	89%
Tensile Strength: psi @73°	ASTM D-412	486	331
Elongation: psi @73°	ASTM D-412	267%	192%
Water Absorption	ASTM D-2842	0.1%	0.1%
Permeance: @ 20 mils	ASTM E-96	5.9	5.9
Hardness: Shore A	ASTM D-2240	50±5	50±5

D. Cementitious Coating

1. Cementitious coating system shall be acrylic coating topped with cementitious roof coating designed as a protective, renewable coating over spray polyurethane foam, modified bituminous, metal and single ply roofing membranes.
2. Quik-Shield 2313 is an acceptable product.
3. Cementitious coating system must meet the following physical properties:

Property	Procedures	Quik-Shield 2313 Values
Solar Reflectance	ASTM E-903	81%
Solar Reflectance Index	ASTM E-1980	101%
Thermal Emittance	ASTM E-408	87%
UV Resistance	ASTM E-822	2000 hr – no effect
High temp stability	ASTM D- 794	No effect

E. Granules

1. Granules may be used within any of the coating systems as a non-slip additive or to increase the performance of the coating system.
2. Numbers 6, 9 or 11 screen sized limestone or ceramic coated granules are acceptable.
3. Ceramic coated granules must be completely encapsulated or “locked in” by coating.

F. Primer

1. Primer designed to enhance adhesion of polyurethane foam to various surfaces, as required by manufacturer.
2. SWD Quik-Shield 1000 or SWD Quik-Shield 2000 Primer is acceptable.

G. Accessories

1. Acceptable roofing accessories, including flashing, preformed pipe vent boots, fasteners and other roofing accessory materials should be reviewed and approved by the roof system manufacturer to ensure compliance with warranty terms.

END OF SECTION



Part 3 EXECUTION

EXAMINATION

- A. Verification of Conditions:
 - 1. Roofing contractor shall examine the roof deck, flashings and other surfaces that are to receive roofing materials prior to application to ensure that surfaces are dry and free of dust, dirt, debris, oil, solvents and other materials that may adversely affect the adhesion of the polyurethane foam.
 - 2. All penetrations through the roof, including drains, scuppers, miscellaneous pipe and vent penetrations and electrical conduits, shall be completed prior to starting of work.
- B. Application of roofing material shall constitute the roofing contractor's acceptance of surfaces and flashings to receive the materials.
- C. Coordinate with other work, which affects, connects with or will be concealed by this work.

PREPARATION

- A. New Construction
 - 1. General Area:
 - a. Clean surfaces thoroughly prior to installation of the roofing system.
 - b. Prepare the substrates and surfaces using manufacturer recommended methods for best result product performance.
 - c. Mask work area as necessary to protect from possible overspray. Mask building surfaces to terminate the foam and coating in a neat, straight line.
 - d. Use appropriate barricading methods to shelter walking traffic from the work area's equipment and overspray.
 - e. Follow appropriate industry safety requirements
 - i) Provide adequate ventilation for all areas being worked.
 - ii) Provide fire extinguishers at the job site at all times.
 - f. Finished surfaces are not to be installed before the polyurethane foam is to be applied.
 - 2. Surface Preparation for New Construction Roof Decks
 - a. Wood Deck
 - i) Deck shall be dry and free of dirt, dust, grease, oil and any other contaminants that may affect proper foam adhesion to the substrate.

- ii) Remove loose dirt by use of compressed air, vacuum, hand or power broom. No washing is permitted.
- iii) Remove grease, oil or other contaminants by use of proper chemical solvents.
- iv) Plywood joints in excess of ¼" shall be taped or filled with a suitable sealant material, prior to application of polyurethane foam.
- v) Tongue & groove sheathing or planking: Overlay may be necessary if existing deck is damaged. Overlay should be minimum ¼" thick exterior grade plywood or other suitable covering.
- vi) Prime the wood deck with Quik-Shield 1000 or 2000 at the rate of ½ gallon per 100 square feet if needed or required by manufacturer.

b. Concrete Deck

- i) Remove loose dirt, dust and debris by using compressed air, vacuum equipment or a broom. Oil and grease or other contaminants shall be removed with proper cleaning solutions.
- ii) Concrete decks shall be minimum 2,500 psi compressive strength structural concrete that has been cured a minimum of 28 days. Concrete may be either pre-cast or poured in-place.
- iii) All joint openings in concrete decks that exceed ¼" shall be grouted or caulked prior to application of polyurethane foam.
- iv) Concrete surface should be smooth and dense with a firm hard surface. Loose granular finishes are not acceptable.
- v) Priming is required on concrete surfaces. Prime the wood deck with Quik-Shield 1000 or 2000 at the rate of ½ gallon per 100 square feet.

c. Metal Deck

- i) The metal roof deck shall be constructed of minimum 22-gauge steel. Construction shall conform to local building codes.
- ii) Metal surfaces shall be free of all rust, scale, dirt, grease, oil, chalking, paint or other contaminants.
- iii) Clean metal deck free of loose scale, rust, or chalking paint using compressed air-jet, vacuum equipment, hand or power-broom. Grease, oil or other contaminants shall be removed with proper cleaning solutions.
- iv) Fluted metal decks require a suitable method of covering or filling the flute prior to polyurethane foam application. Flutes may be covered with a suitable board stock, tape, or filled with spray-applied polyurethane foam.

- v) Metal flutes up to three (3) inches in width, may be taped with 4" construction grade adhesive tape, then sprayed with a minimum of 1 ½" of foam.
 - vi) Priming is required on metal surfaces. Prime the metal deck with Quik-Shield 1000 or 2000 at the rate of ½ gallon per 100 square feet.
- d. Other Surfaces (i.e. Cement Fiber Board, Gypsum Board, Isocyanurate Board, etc.)
- i) Materials installed over metal decks must be installed with mechanical fasteners or adhesives required to meet the local building codes.
 - ii) Fasteners shall be installed to meet Factory Mutual wind uplift criteria or the appropriate local building code criteria.
 - iii) Boards shall be staggered and firmly butted together along edges without gaps or openings. Joints exceeding ¼" shall be caulked with a suitable sealant material.
 - iv) Protect mineral, cement or gypsum board from getting wet in storage on the job-site and after installation, prior to being protected by foam. Wet or moist materials shall be replaced prior to application of foam.
 - v) Protect installed materials from spills of contaminants such as oil, grease and solvents prior to application of the foam. Contaminated materials shall be replaced prior to application of foam.
 - vi) Remove loose dirt and debris by using compressed air, vacuum or broom. No power-broom is permitted due to possibility of damage.
 - vii) Surfaces may require priming. See manufacturer recommendations for a primer suitable for use with the assembly.

B. Retro Fit

1. General Area:

- a. Thoroughly inspect the entire existing roof. Cut out and remove any wet substrate. Inspect any masonry or other surfaces for structural soundness.
- b. Power wash, power broom and vacuum or otherwise remove all loose gravel, dirt, dust, oil, solvents, grease, or anything else that may interfere with the adhesion between the polyurethane foam and the substrate.
- c. Remove and replace any wood nailers or other structural members that have lost their integrity.
- d. Insure the existing roof deck is properly cleaned, dried and primed prior to applying foam and coating.

- e. Verify that existing edge metal is properly and securely attached to a sound substrate.
- f. Remove, or mechanically fasten all loose, slumping or otherwise deteriorated wall and penetration flashings with appropriate fasteners and plates.
- g. Remove, raise or otherwise modify as required by code or as is necessary all existing roof installed equipment to allow for proper installation of the roof system.
- h. Mask, cover or otherwise protect all immovable objects and air intakes within the spray area.
- i. Ensure all roof drains and scuppers are at the correct elevation to match the specified height of the installed foam roof system for proper roof drainage.
- j. Verify that all roof drains and pipes are free of debris and properly drain prior to installing the new roof system.
- k. Mark existing low areas where ponding water occurs and areas of poor drainage. Ponding water is defined as “the excessive accumulation of water at low-lying areas on a roof that remains after 48 hours after precipitation under conditions conducive to drying”. Correct these areas during roof system installation by the sufficient thickness of foam to level these areas.
- l. Mask work area as necessary to protect from possible overspray. Mask building surfaces and existing rooftop equipment to terminate the foam and coating in a neat, straight line.
- m. Do not allow fumes or dust from the foam and coating applications to enter the building.
- n. Turn off HVAC equipment and cover all intake vents and other potential sources of air entry into the building.

2. Existing Built-up Roof.

- a. All loose gravel, dust and residue shall be removed using power vacuum equipment, power sweeper, air blowing or other suitable means.
- b. Exercise care in removing of gravel so that the top layer of roofing felts is not damaged. Do not allow large amounts of gravel to accumulate in one area of the roof such that the roof deck structure exceeds its weight rating.
- c. The existing roof shall be thoroughly inspected for adhesion between felts, insulation and deck. Areas of poor adhesion should be secured with fasteners.
- d. Blisters, buckles, ridges, punctures, wrinkles and fish-mouths shall be cut out and/or secured with fasteners and repaired in an industry acceptable manner.

- e. Repair membrane splits by cleaning an area 6 inches wide on both sides of the split and mechanically attaching the membrane on each side of the split.
- f. Remove or re-fasten all loose base flashing, counter-flashing and gravel-stops, as required by manufacturer's recommendations.
- g. Examine substrate thoroughly for moisture. Wet or moist substrate shall be cut out, deck properly cleaned, dried and primed prior to applying the foam roof system.
- h. If needed, prime the existing asphaltic substrates with Quik-Shield 1000 or 2000 at the rate of ½ gallon per 100 square feet as needed or required by manufacturer.

3. Existing Fully Adhered Single Ply Roof

- a. All loose gravel, dust and residue shall be removed using power vacuum equipment, power sweeper, air blowing or other suitable means.
- b. Blisters, buckles, ridges, punctures, wrinkles and fish-mouths shall be cut out and/or secured with fasteners and repaired in an industry acceptable manner.
- c. Repair membrane splits by cleaning an area 6 inches wide on both sides of the split and mechanically attaching the membrane on each side of the split.
- d. Remove or re-fasten all loose base flashing, counter-flashing and gravel-stops, as required by manufacturer's recommendations.
- e. Examine substrate thoroughly for moisture. Wet or moist substrate shall be cut out, deck properly cleaned, dried and primed prior to applying the foam roof system.
- f. Surface must be clean, sound, dry and free of any materials that would inhibit proper adhesion of the primer.
- g. Membranes must be primed with a primer suitable for use with the polyurethane foam.
- h. EPDM roofs require manufacturer input for proper surface preparation details.

4. Existing Ballasted or Mechanically Fastened Single Ply Roof

- a. Existing ballasted roofs must be removed or recovery board installed over the roof after the ballast has been removed. Recovery board must be installed according to manufacturer's recommendations for applicable wind uplift requirements.
- b. Mechanically fastened roofs must have additional fasteners with 4 to 6 inch plates and perimeter attachment as follows:
 - i) Remove 18 inches of membrane around the perimeter.
 - ii) Fasten the severed edge to the deck with fasteners every 6 inches. Alternatively fasten the edge to the deck with 6 inch wide 22 gage metal batons.

- iii) Prime exposed roof deck with a suitable primer.
- iv) Fasten the field of the roof surface with a minimum of 1 fastener every 18 inches.
- v) Clean fasteners and batons and prime with a metal primer.
- c. Blisters, buckles, ridges, punctures, wrinkles and fish-mouths shall be cut out and/or secured with fasteners and repaired in an industry acceptable manner.
- d. Repair membrane splits by cleaning an area 6 inches wide on both sides of the split and mechanically attaching the membrane on each side of the split.
- e. Remove or re-fasten all loose base flashing, counter-flashing and gravel-stops, as required by manufacturer's recommendations.
- f. Examine substrate thoroughly for moisture. Wet or moist substrate shall be cut out, deck properly cleaned, dried and primed prior to applying the foam roof system.
- g. Surface must be clean, sound, dry and free of any materials that would inhibit proper adhesion of the primer.
- h. Membranes must be primed with a primer suitable for use with the polyurethane foam.

PRIMER APPLICATION

- A. Application of primer shall be per manufacturer's recommendations and need not be applied on all substrates.
- B. All surfaces should be clean and free from moisture, oil, grease, loose particles, dust, debris and any other materials that prevent proper adhesion.
- C. Spray primer to decking at a rate of ½ gallon per 100 square feet.

POLYURETHANE FOAM APPLICATION

- A. Apply polyurethane foam in strict accordance with the manufacturer's specifications and application instructions.
- B. Foam shall be applied in minimum ½" thick passes and maximum 1½" thick passes to achieve the specified thickness, except where tapering is required to facilitate proper roof drainage.
- C. Apply the polyurethane foam to the full specified thickness in any area on the same day.
- D. Apply the foam to ensure proper roof drainage, resulting in no ponding water. Ponding water is defined as "the excessive accumulation of water at low-lying areas on a roof that remains after 48 hours after precipitation under conditions conducive to drying". Correct these areas during roof system installation by the sufficient thickness of foam to level these areas.
- E. Terminate polyurethane foam neatly a minimum of 4 inches above the finished roof surface at roof penetrations. Foamed-in-place cants shall be applied to allow a smooth transition from the horizontal to vertical surface and shall be applied prior to the application of additional foam lifts to achieve specified

thickness. Mask building surfaces to terminate the foam and coating in a neat, straight line.

- F. Finished polyurethane foam surface shall range from a smooth to heavy “orange peel” finish. Textures described as “popcorn” or “tree bark” surfaces, which exhibit crevices, voids and widespread defects, are not acceptable, and must be removed and reapplied prior to coating application.

ACRYLIC ROOF COATING APPLICATION

A. Preparation

1. Foam surface and adjacent surfaces to be coated shall be clean and completely free of degraded foam, grease, oil or other contaminants which would interfere with proper coating adhesion.
2. Surface shall be dry and frost-free before coating. Do not apply coating materials when surface temperature is less than 50 degrees F.
3. Any physical damage to the polyurethane foam shall be repaired before coating.
4. Operator should wear soft-soled shoes to avoid damaging the skin of the foam.
5. An additional application of base coat shall be applied where foam surface has been sanded, planed or trimmed and the skin removed prior to applying normal base coat to the entire area.
6. The polyurethane foam shall be inspected for suitability of base coat application, prior to application of the protective coating and be free of UV oxidation and contaminants.

B. Base Coat

1. Use a contrasting color from the top coat to insure adequate coverage.
2. Apply acrylic coating on the same day as the polyurethane foam application, and after the polyurethane foam has been allowed to cure for at least one hour. If the base coat is not applied within 24 hours of the foam, remove and repair all signs of oxidation, or other damages as required by manufacturer.
3. Allow each coat to cure a minimum of 12 hours before proceeding with successive coats. Second and successive coats should be applied within 48 hours to ensure good adhesion.
4. Spray-apply base coat over spray foam roofing at a rate of 1 to 2 gallons per 100 square feet in one application, depending on ambient conditions.
5. Edges of the roof shall be pre-coated in a picture frame fashion so as to have at least one additional coat on the edges relative to the field of the roof.

C. Top Coat

1. Coating shall be a contrasting color from the base coat to ensure adequate coverage.

2. Do not apply top coat until base coat has fully cured. If it has been more than 48 hours since base coat application, the base coated roof should be power washed and any surface imperfections fixed prior to application of the top coat.
3. Spray-apply elastomeric top coat over the base coat at the rate of 1-2 gallons per 100 square feet in one application, depending on ambient conditions.
4. All foam is to be coated. Coating shall extend up and over all polyurethane foam on vent pipes, parapets and other penetrations and shall terminate a minimum of 2 inches above the foam. All top coat termination points shall be straight-lined on walls, parapets, vent pipes and other penetrations.
5. Apply the topcoat at right angles to the preceding coat. Surface texture and conditions may require additional quantities of coating to ensure proper millage. In areas where the foam has been cut or channeled or where the perimeter edges have been ground, apply additional coating to assure the open cells in the foam have been completely sealed.

D. Granules

1. Granules, when specified, shall be broadcast into wet top coat while it is being applied at the minimum rate of 30 pounds per 100 square feet.
2. Shall consist of numbers 6, 9 or 11 limestone or ceramic coated granules.
3. Ceramic coated granules must be completely encapsulated or "locked in" by coating.

SILICONE ROOF COATING APPLICATION

A. Preparation

1. Foam surface and adjacent surfaces to be coated shall be clean and completely free of degraded foam, grease, oil or other contaminants which would interfere with proper coating adhesion.
2. Surface shall be dry and frost-free before coating. Do not apply coating materials when surface temperature is less than 50 degrees F.
3. Any physical damage to the polyurethane foam shall be repaired before coating.
4. Operator should wear soft-soled shoes to avoid damaging the skin of the foam.
5. An additional application of base coat shall be applied where foam surface has been sanded, planed or trimmed and the skin removed prior to applying normal base coat to the entire area.
6. The polyurethane foam shall be inspected for suitability of base coat application, prior to application of the protective coating and be free of UV oxidation and contaminants.

A. Base Coat

1. Apply coating in accordance with the manufacturer's application instructions and precautions listed in the product data sheet. Silicone coating may be applied via spray, roller or brush.
2. Apply silicone base coat on the same day as the polyurethane foam application, and after the polyurethane foam has been allowed to cure a minimum of one hour. If the basecoat is not applied within 24 hours of the foam application, remove and repair all signs of oxidation, UV degradation or other damages as required by manufacturer.
3. Patch holes less than 3 inches in diameter with silicone sealant. Holes larger than 3 inches require additional spray foam to match the adjacent surfaces prior to applying the silicone coating.
4. Apply the basecoat in a uniform application to achieve a finished dry film thickness of approximately 12-15 mils.
5. Basecoat shall not be subjected to foot traffic or otherwise disturbed until it is tack-free.
6. Coating shall not be applied to the exposed leading edge of the foam at unfinished areas. Sandwiching of coating between foam passes is not permitted.
7. After the basecoat has cured, inspect the coating for pinholes, cracks, thin areas or other deviations. All deviations observed shall be caulked with sealant and/or roller coated with additional basecoat prior to applying subsequent coats of silicone.
8. Basecoat must be cured, clean and free of all moisture prior to application of intermediate coat and topcoat. Basecoat and topcoat should be contrasting colors to ensure adequate thickness and coverage.
9. Apply the intermediate coat at right angles to the basecoat application.

B. Top Coat

1. Apply the topcoat at right angles to the preceding coat. Surface texture and conditions may require additional quantities of silicone to ensure proper millage. In areas where the foam has been cut or channeled or where the perimeter edges have been ground, apply additional coating to assure the open cells in the foam have been completely sealed. Silicone coating may be applied to the exterior of vent coverings. Vent coverings shall be properly prepared as with any other substrate as outlined in this guide specification.
2. Coating shall be applied a minimum of 2 inches beyond all the terminated edges of the polyurethane foam. Mask terminations to provide as straight edge and neat, finished appearance.
3. After curing, inspect the finished coating surface for pinholes, cracks, thin areas or other deviations. Repair any deviations with silicone sealant or additional silicone coating material.
4. Set the strainer dome in dabs of silicone sealant.

C. Granule Application

1. Apply roofing granules immediately (within 3 minutes) after application of the finish coat of silicone coating. Immediate application is important to obtain maximum wet-out and embedment.
2. Apply the roofing granules uniformly at a rate of approximately 40 lbs per 100 square feet of roof area.
3. Remove all loose granules using a soft-bristled broom after the coating has fully cured to prevent blocking gutters and clogging drains.
4. Bare spots in the granulated surface shall be filled in by applying additional coating and granules in these areas.

CEMENTITIOUS ROOF COATING APPLICATION

A. Preparation

1. Foam surface and adjacent surfaces to be coated shall be clean and completely free of degraded foam, grease, oil or other contaminants which would interfere with proper coating adhesion.
2. Surface shall be dry and frost-free before coating. Do not apply coating materials when surface temperature is less than 50 degrees F.
3. Any physical damage to the polyurethane foam shall be repaired before coating.
4. Operator should wear soft-soled shoes to avoid damaging the skin of the foam.
5. An additional application of base coat shall be applied where foam surface has been sanded, planed or trimmed and the skin removed prior to applying normal base coat to the entire area.
6. The polyurethane foam shall be inspected for suitability of base coat application, prior to application of the protective coating and be free of UV oxidation and contaminants.

B. Acrylic Base Coat

1. Use a contrasting color from the top coat to insure adequate coverage.
2. Apply acrylic coating on the same day as the polyurethane foam application, and after the polyurethane foam has been allowed to cure for at least one hour. If the base coat is not applied within 24 hours of the foam, remove and repair all signs of oxidation, or other damages as required by manufacturer.
3. Allow each coat to cure a minimum of 12 hours before proceeding with successive coats. Second and successive coats should be applied within 48 hours to ensure good adhesion. If more than 48 hours have passed since base coat application, the base coated roof should be power washed and any surface imperfections fixed prior to application of intermediate coats.

4. Apply additional coats at right angles to the preceding coat. Surface texture and conditions may require additional quantities of coating to ensure proper millage. In areas where the foam has been cut or channeled or where the perimeter edges have been ground, apply additional coating to assure the open cells in the foam have been completely sealed.
 5. Spray-apply base coat over insulation at a rate of 1 to 2 gallons per 100 square feet in one application, depending on ambient conditions.
 6. Edges of the roof shall be precoated in a picture frame fashion so as to have at least one additional coat on the edges relative to the field of the roof.
- C. Cementitious Top Coat
1. Spray-apply cementitious top coat over the acrylic coating at the rate of 1/8 inch to 1/4 inch per 100 square feet in one application, depending on ambient conditions.
 2. All foam is to be coated. Coating shall extend up and over all polyurethane foam on vent pipes, parapets and other penetrations and shall terminate a minimum of 2 inches above the foam. Vertical surfaces must be top coated with the acrylic coating to achieve the proper millage as the cementitious is an approved top coat for low slope roof portions only. All top coat termination points shall be straight-lined on walls, parapets, vent pipes and other penetrations.
- D. Granules
1. Granules, when specified, shall be broadcast into wet top coat while it is being applied at the minimum rate of 65 pounds per 100 square feet.
 2. Shall consist of number 6 limestone granules.

CLEANING

- A. Remove and dispose of excess materials, equipment and debris from premises during work and/or upon completion of work.
- B. Leave work in clean condition in accordance with general condition requirements.

FIELD QUALITY CONTROL

- A. Roof system manufacturer shall provide an independent inspection firm to perform periodic inspections of and on the roof as required by the warranty inspection program.
- B. Any areas that do not meet the minimum required standards for application as specified herein, or as the warranty terms require, shall be corrected by the applicator. Manufacturer's inspection or verification shall not constitute acceptance of responsibility for any improper application of material.

PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products.

END OF SECTION