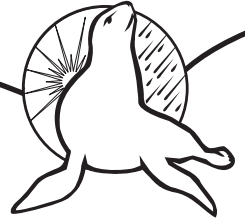


Energy Seal Coatings



WARRANTY SPECIFICATIONS FOR COATING **MODIFIED BITUMEN ROOFING**

1.0 SCOPE

The intention of this specification is to outline the procedures for the application of Energy Seal Coatings reflective roof coatings for the purpose of coating **MODIFIED BITUMEN** roof surfaces. These suggested specifications describe materials, methods and conditions necessary for the proper application of Energy Seal Coatings. Actual application requirements are the responsibility of the installer.

2.0 MATERIALS

All Materials used shall be manufactured by and or approved by Advanced Coating Systems, Inc. Please refer to our product data sheets for technical specifications:

2.1 Elastomeric Coating System

ACU-SHIELD	Acrylic, elastomeric roof coating.
ACU-CAULK:BG	Acrylic, elastomeric brush grade caulk.
ACU-CAULK:FG	Fibered, acrylic, reinforced, elastomeric flashing grade caulk.
ACU-PRIME ALL	Durable primer for non-metal or non-rusted metal surfaces.
ACU-GLOSS	Clear acrylic finish.
ACU-FABRIC	Spunbound polyester reinforcing scrim.

2.2 Delivery and storage:

2.3 Materials shall be delivered in their original, tightly sealed containers or unopened packages, all clearly labeled with the manufacturer's name, file number, and batch numbers.

2.4 Materials shall be stored out of the weather in their original tightly sealed containers or unopened containers as recommended by the manufacturer. Do not allow liquid coating to freeze.

3.0 SURFACE PREPARATION

3.1 Preparation shall include all requirements specified by Advanced Coating Systems, Inc., to ensure proper adhesion of the Energy Seal Coatings products to the existing substrate. **New MODIFIED BITUMEN roof surfaces shall be allowed to cure a minimum of 90 days prior to application.**

3.2 Preparation shall include but not limited to the following:

3.3 All unnecessary and non-functional equipment and debris shall be removed from the roof.

3.4 Substrate must be pressure-washed. A minimum working pressure of 3,000 psi shall be used to remove all dirt, dust, previous paints & coatings which are delaminating as well as waste products (oil, oil-based roof cements, solvents, grease, animal fats, etc). Use TSP (Tri Sodium Phosphate) or a similar cleaning solution. Thoroughly rinse roof surface to make sure there is no residue left from the cleaning agent.

3.5 HVAC condensate drains shall be permanently routed to roof drains or off roof so as to not adversely affect roof coating system

3.6 Determine moisture content of existing **MODIFIED BITUMEN** roof deck. A moisture content of 15% or greater indicates a potential problem. Work shall not proceed until the cause of high moisture content is verified and the condition is corrected.

- 3.7 Inspect the 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 properly reinforced and coated.
- 3.8 Ponding Water: Contractor shall mechanically eliminate all ponding water areas on the roof prior to application of roof coatings ("Ponding water" is defined as water which does not properly drain and remains for more than 48 hours).
- 3.9 Any unsound areas in the roof deck or insulation, including blisters, delimitation, deterioration, excessive moisture content, etc shall be repaired or replaced. All blisters, delimitations, wrinkles and loose areas shall either be cut away and removed, or cut open and mailed flat to the roof deck.
- 3.10 Reinforce all repaired areas by applying a heavy coat of ACU-TAC on an around the repair at a rate of 100 square feet per gallon. While the ACU-TAC is still wet apply an appropriate size piece of ACU-FABRIC on top of the repair area, allowing ACU-FABRIC to overlap onto sound roof surface; assure that there is a heavy coat of ACU-TAC under the overlap. Make sure there are no wrinkles, puckers or folds in the ACU-FABRIC. Apply a second coat of ACU-TAC on top of the ACU-FABRIC as a rate of 100 square feet per gallon using a 6" deck brush, making sure the ACU-FABRIC is completely saturated with no wrinkles or puckers. Allow 24 hours to dry before top coating with ACU-SHIELD.
- 3.11 All cracks, splits, voids or holes larger than 1/8" in width shall be filled and leveled with ACU-CAULK:FG.
- 3.12 Reinforce all seams, parapet terminations along with roof terminations and flashing's, around drains, scuppers and skylights, the base of all vents and around any other penetration with one of the following:
1. - Apply a heavy coat of ACU-CAULK:BG around the area to be detailed. Place a appropriate strip of ACU-FABRIC onto the wet ACU-CAULK:BG. Work ACU-FABRIC into ACU-CAULK:BG using a brush, roller, or soft bristle deck broom to eliminate air pockets, puckers, wrinkles, gaps or folds, applying ACU-CAULK:BG as necessary to fully encapsulate the ACU-FABRIC. Make sure to extend the ACU-CAULK:BG at least 4" past the ACU-FABRIC.
 2. - Apply a heavy coat of ACU-CAULK:FG to the perimeter of the penetration to a thickness of 40 - 60 mils. Feather out the edges at least 4" past the repaired area.
 3. - Applying a heavy coat of ACU-TAC on an around the repair at a rate of 2.5 gallons per 100 square feet. While the ACU-TAC is still wet apply an appropriate size piece of ACU-FABRIC on top of the repair area, allowing ACU-FABRIC to overlap onto sound roof surface; assure that there is a heavy coat of ACU-TAC under the overlap. Make sure there are no wrinkles, puckers or folds in the ACU-FABRIC. Apply a second coat of ACU-TAC on top of the ACU-FABRIC at a rate of 2.5 gallons per 100 square feet using a 6" deck brush, making sure the ACU-FABRIC is completely saturated with no wrinkles or puckers.

4.0 COATING APPLICATION

- 4.1 Examine substrate to receive roof coating. Do not proceed with installation of Energy Seal Coatings until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer.
- 4.2 Use a wet film gauge to determine coating thickness every 500 sq.ft. The wet film thickness should be at least twice as thick as the desired dry film thickness per coat. For instance, one coat of ACU-SHIELD is to be applied at a thickness of 10 DRY mils. The wet film thickness should be 20 mils.
- 4.3 Entire roof shall be primed with ACU-PRIME ALL at a rate of 200 square feet per gallon. ACU-PRIME ALL must be allowed to cure for 24 hours.
- 4.4 Apply ACU-SHIELD elastomeric coating by airless spray equipment, using a mulit-pass spray technique to ensure even application to the **MODIFIED BITUMEN**. Use a wet film gauge often to measure film thickness. Wet film thickness should be twice as thick as the desired dry film thickness.
- 4.5 Apply first coat of ACU-SHIELD: First coat shall be applied perpendicular to the seams of the **MODIFIED BITUMEN** roofing. Dry film thickness shall be approximately 10 mils. shall be approximately 10 mils.

- 4.6 Apply second coat of ACU-SHIELD: Second coat shall be applied parallel to the first coat. Dry film thickness shall be approximately 10 mils.
- 4.7 Apply third coat of ACU-SHIELD: Third coat shall be applied perpendicular to the second coat. Dry film thickness shall be approximately 10 mils.
- 4.8 Apply ACU-GLOSS clear acrylic coating is to be applied only after the ACU-SHIELD has thoroughly cured and dried for at least 24 hours.
- 4.9 Each coat must be allowed to cure for 24 - 48 hours depending on humidity and temperature. The roof is to be inspected for defects, flaws or holidays and repaired if necessary before a subsequent coat is applied.

5.0 APPLICATION RATES

- 5.1 **Standard** 10-year warranty: Detail as per 3.12. Apply ACU-PRIME ALL (see 4.3) Apply two coats of ACU-SHIELD (see 4.5 - 4.6) at a rate of 1.0 gal./100 sq.ft., per coat. Minimum dry film thickness 20 mils, excluding seam, flashing, joints and other detail areas.
- 5.2 **Extended** 12-year warranty: Detail as per 3.12. Apply ACU-PRIME ALL (see 4.3) Apply two coats of ACU-SHIELD (see 4.5 - 4.6) at a rate of 1.0 gal./100 sq.ft., per coat. Apply one coat of ACU-GLOSS on top of the ACU-SHIELD at a rate of 1.0 gal./ 200 sq.ft. (see 4.8). Minimum dry film thickness 20 - 23 mils, excluding seam, flashing, joints and other detail areas.
- 5.3 **Elite** 15-year warranty: Detail as per 3.12 Apply ACU-PRIME ALL (see 4.3) Apply three coats of ACU-SHIELD (see 4.5 - 4.7) at a rate of 1.0 gal./100 sq.ft., per coat. Apply one coat of ACU-GLOSS on top of the ACU-SHIELD at a rate of 1.0 gal./ 200 sq.ft. (see 4.8). Minimum dry film thickness 30 - 33 mils, excluding seam, flashing, joints and other detail areas.

6.0 RESTRICTIONS / LIMITATIONS

- 6.1 This system is to be used only in conjunction with commonly accepted roofing standards but not limited to the following:
- 6.2 No application of materials shall commence during inclement weather or when precipitation is imminent. **No thinning of materials is permitted.**
- 6.3 No materials are to be applied to wet, dirty, or frozen surfaces.
- 6.4 No materials are to be applied at temperatures below 40° F.
- 6.5 Do not apply when dew point is within 5°F of of the surface temperature or if freezing temperatures (32°F or lower) are forecasted for the following 24 hours after application of coating products.
- 6.6 No materials are to be applied at ambient air temperatures above 100° F.
- 6.7 No materials are to be applied at relative humidity levels above 88%.
- 6.8 Do not spray apply if the wind velocity exceeds 10 mph without taking precautions to eliminate over spray.
- 6.9 Take all necessary precautions to protect unrelated surfaces from coating over spray or spillage
- 6.10 In conjunction with the final inspection, all debris, containers, materials and equipment are to be properly removed from the job site. Grounds are to be cleaned undamaged and acceptable to the owner.
- 6.11 Reflectivity of coatings may be reduced if roof surface is not cleaned on a regularly scheduled basis.
- 6.12 Ponding water areas must be repaired prior to any coating application to allow water to drain off the roof.

CAUTION: Do not apply within two hours of sunset, rain, fog or freezing temperatures. Energy Seal Coatings must be completely dry before exposing to water or foot traffic. Keep Energy Seal Coatings containers covered when not in use. Dispose of all containers in accordance with state and local environmental regulations. Keep away from children. If ingested, DO NOT induce vomiting. Call Physician immediately.

Our suggested installation specifications are based on information from laboratory and field testing which we believe to be reliable and correct; however, accuracy and completeness of said tests are not guaranteed and not to be construed as a warranty, either expressed or implied. Since the use of the material is beyond manufacturer's control, buyer assumes all risk whatsoever as to their use or results obtained. We guarantee our products to conform to Advanced Coating Systems, Inc. quality control. Advanced Coating Systems, Inc. warrants only the standard quality of material. Manufacturer's sole responsibility shall be to replace that portion of the product of this manufacturer which proved to be defective.

Manufactured by Advanced Coating Systems, Inc.

www.energy-seal.com

Seal It. Conserve It. Protect It.

800-587-3758

BUILT-UP ROOF INSPECTION REPORT

Prepared for _____ Title _____ Date _____
 Company _____ Street Address _____
 City/State/Zip _____
 Phone _____
 Building/Roof Identification Name or No. _____
 Submitted by _____
 Size of roof area _____ (square feet) Age of roof _____ (years)

Type of BUR

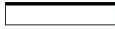



- Asphalt & Gravel
- Smooth Asphalt
- Tar & Gravel
- Mineral-Surfaced Rolled Roofing
- Other _____

Insulation

- Yes No

Comments: _____

Slope

-  Dead Level
-  Less than 1" Per Foot
-  1" to 2" Rise Per Foot
-  3" Rise Per Foot or more

Indicate Condition of Items Below:

Roof Drainage

No Action
 Action

Ponding Yes ____%. No (If yes, estimate % of roof area.)

Scuppers _____

Drains _____

Downspouts _____

Gutters _____

Other _____

Roof Surface

Blistering _____

Punctures _____

Splitting _____

Attachment to Substrate _____

Ridging, Wrinkling _____

Fasteners _____

Open Laps, Fishmouthing _____

Membrane Slippage _____

Excessive Traffic Wear _____

Bare Spots in Gravel, Coating _____

Alligatoring, Cracking _____

Gravel Ballast Displaced _____

Surface Coating Degradation _____

Other _____

Expansion Joint Covers

No Action
 Action

Open Joints _____

Rusting _____

Punctures, Splits _____

Fasteners _____

Securement _____

Other _____

Parapet Wall

Mortar Joints _____

Spalling _____

Movement Cracks _____

Other _____

Coping

Open Fractures _____

Fasteners _____

Attachment _____

Caulking _____

Rusting _____

Other _____

Roof Edging and Fascia

Splitting _____

Fasteners _____

Securement _____

Damaged _____

Rusting _____

Felt Deterioration _____

Other _____

Base Flashing

No Action
 Action

Punctures, Damage _____

Open Laps _____

Deterioration _____

Attachment _____

Splits, Cracks _____

Ridging or Wrinkling _____

Blistering _____

Termination Bars _____

Other _____

Roof Penetrations, Equipment Base, Housing

Deteriorated Curbing _____

Physical Damage _____

Open Laps _____

Caulking _____

Punctures _____

Counter Flashing _____

Open Seams _____

Other _____

Equipment Operation

Discharge of Contaminants _____

Vapor Condensate _____

Other _____

Pitch Pans

Fill Material Shrinkage _____

Attachment _____

Fill Crowned for Drainage _____

This inspection has been performed solely for the owner's benefit and indicates only that the described items have been visually inspected in order to determine, to the extent feasible, whether such details need attention in the inspector's opinion. Neither the performance of this inspection nor any information contained in this inspection report implies the acceptance of any particular roof design, installation procedure or roof component.