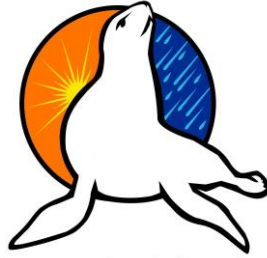


SECTION 07560  
Fluid Applied Roofing



Energy Seal Coatings

Acu-Flex:100 {silicone}

# METAL

## Roof Coating System

### MASTER APPLICATION SPECIFICATION

*This MASTER APPLICATION-SPEC is a brief outline for Energy Seal Coatings application specifications for the above-described product and is intended for use as a submittal with any bid package by one of ENERGY SEAL COATINGS' Certified Applicators. ENERGY SEAL COATINGS Representative and the Certified Applicator must comply with the "Application" section of all Technical Data Bulletins prior to design or bid. The "Product" and "Safety" sections located on the Technical Data Sheet and MSDS contain information pertaining to the proper usage of products as well as applicable safety precautions. These sections must be thoroughly reviewed prior to the installation of this roofing system.*

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**PART I - GENERAL**

**1.01 SCOPE OF WORK**

- A. Furnish all labor, materials, tools, and equipment necessary for the installation of Energy Seal Coatings® including accessory items subject to the general provisions of the contract.

**1.02 RELATED SECTIONS**

- A. See: Warranty Request Form, Warranty Example, Technical Data Sheets, & MSDS

**1.03 DESCRIPTION OF WORK**

- A. Entire roof system to be restored.
- B. Gutters to be rust-proofed and/or waterproofed (optional).
- C. Mechanical equipment, vents, and ductwork to be rust-proofed and/or waterproofed (optional).
- D. Skylights may be sealed and/or waterproofed (optional).
- E. Adjoining walls and copings to be waterproofed (optional).

**1.04 QUALITY ASSURANCE**

- A. ENERGY SEAL COATINGS Ten (10) Year Warranty covering material shall be issued within thirty (30) days of final payment.
- B. This roofing system must be installed by an Authorized Roofing Applicator in compliance with written Application Specifications as approved by ENERGY SEAL COATINGS Technical Services. There must be no deviations without the PRIOR WRITTEN APPROVAL of ENERGY SEAL COATINGS Technical Services. Upon completion of the installation, an inspection will be conducted by an ENERGY SEAL COATINGS Representative to ascertain that the roofing system has been installed according to ENERGY SEAL COATINGS published Master Application Specifications and details applicable at the time of bid.
- C. Provide written proof of required licenses, insurance and permits prior to job start-up.
- D. Provide copy of Approved ENERGY SEAL COATINGS Warranty Request Form Application, submitted by the Contractor.

**1.05 SUBMITTALS**

- A. Samples (optional): Provide two (2) 1"x 2" (2.5cm x 5.0cm) samples of the system to be installed.
- B. Installation Procedures: Submit additional and specific procedures unique to the project by addendum.
- C. Product Data: Submit all product data with physical properties, requirements for preparation, limitations, and application rates.

**1.06 DELIVERY AND STORAGE**

- A. Deliver coating materials and accessories in manufacturer's original protective containers with labels intact and legible. Comply with manufacturer's published instructions for storage and handling.
- B. Store materials in dry protected areas and on clean raised platforms with securely anchored weather protective covering.
- C. Store flammable products away from spark or open flame.

- D. Store coating materials at a minimum of 50°F (10°C) prior to use or as otherwise recommended by the manufacturer. Protect materials from freezing. Protect materials from prolonged exposure to temperatures exceeding 105°F (40.6°C).
- E. Contaminated and Damaged Materials: Remove damaged or contaminated materials from site and dispose of in accordance with local, State and Federal regulations.

**1.07 SITE CONDITIONS**

- A. EXAMINATION OF EXISTING CONDITIONS: Contractor shall examine substrate for conditions that might detrimentally affect the application of Energy Seal Coatings® and shall report all unsatisfactory conditions to ENERGY SEAL COATINGS and will not proceed until these conditions have been corrected.
- B. ALL WARRANTIES REQUIRE AN INFRARED SCAN AND THE REPLACEMENT OF ALL WET ROOFING MATERIALS, PRIOR TO SYSTEM APPLICATION.
- C. Commencing work implies acceptance of existing condition, by contractor, as satisfactory to the outcome of this work.
- D. Air intake vents, blowers, air conditioning units and evaporative coolers shall be disconnected or otherwise modified to prevent fumes from entering the building or from contaminating the roof surface with condensate water or exhaust gases.

**1.08 ENVIRONMENTAL REQUIREMENTS**

- A. Proceed with coating work only when weather conditions comply with ENERGY SEAL COATINGS recommendations and other current published data and MSDS information. Do not exceed temperature limitations recommended by ENERGY SEAL COATINGS.
- B. Owner may occupy the premises during the entire period of the roof retrofit. Cooperate with Owner's Representative during application operations to minimize conflict, and to facilitate continued use of the facility.
- C. Coordinate scheduling with the Owner to relocate or protect vehicles, building occupants and building contents from damage during application operations.

**PART 2 - PRODUCTS**

**2.01 COATING SYSTEM COMPONENTS**

- A. Approved Manufacturer
  - 1. Energy Seal Coatings® by ENERGY SEAL COATINGS
  - 2. Approved Equal
  - 3. See Product Data Sheet for specific details.
- B. Silicone: (Acu-Flex:100™)
  - 1. Acu-Flex:100™ is a single component, moisture cure, high solids silicone roof coating.

PHYSICAL PROPERTY	TYPICAL VALUE
Tensile Strength	432 psi min.
Elongation	216%
Viscosity	8,000 – 14,000 cps
Solar Reflectance	0.87
Thermal Emittance	0.89

SRI (solar reflective index)	110
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**2.02 ACCESSORY MATERIALS AVAILABLE**

- A. **Acu-Wash™:**  
A pre-treatment water-soluble detergent surfactant recommended for cleaning surfaces which are to be coated with Energy Seal Coatings® products.
- B. **Acu-Metal Prime™:**  
A water-based, self-cross-linking durable acrylic primer for metal surfaces.
- C. **Acu-Fabric™:**  
A stitch-bonded polyester fabric that comes in varying widths used in conjunction with Acu-Flex:100™ to create a fully adhered fabric reinforced waterproof system for seams, flashing and penetrations.

**PART 3 - EXECUTION**

**3.01 PREPARATION FOR COATING**

- A. Adhesion test:
  - 1. **Prior to commencing this specification, an ADHESION TEST PATCH must be applied and evaluated after the roof has been thoroughly cleaned.**
- B. Metal Panels:
  - 1. Replace deteriorated or structurally unsound metal roof panels.
  - 2. **Excessive amounts of cold applied materials shall be removed.**
- C. Cleaning:
  - 1. Apply Acu-Wash™ using a hand-pump, compression type sprayer, or pressure washing equipment at the rate of 500 sq.ft. (46m<sup>2</sup>) per gallon (3.7 liter).
  - 2. When using a hand-pump sprayer, adjust nozzle to achieve a uniform spray pattern with a 3 to 4-foot (91cm – 122 cm) arc.
  - 3. When using pressure washing equipment, use injector hose with a 40° fan angle tip. Care should be taken to prevent the Cap Sheet from being damaged during cleaning.
  - 4. Use concentrated chlorine solution to treat areas of mildew, fungus, or algae.
  - 5. After procedures “1 through 4” above, care should be taken to thoroughly rinse the area with clean water and to flush all residue from the roof surface. Allow the roof to dry completely before proceeding with priming or coating.
  - 6. Loose coating, paint, rust, and scale shall be removed using a wire brush and scraper, or water blasting. Remove loose rust by: water blasting at min 2,400 psi; wire brushing; power or hand sanding.
  - 7. New galvanized panels weathered less than six (6) months shall be cleaned with 5% hydrochloric or phosphoric acid wash to remove contamination.
  - 8. After procedures above, care should be taken to rinse thoroughly with clean water and flush all residues from roof surface. Allow roof to dry completely before proceeding with priming or

- coating.
- D. Small holes:  
Are to be repaired using Acu-Flex:100™, Acu-Fabric™, Acu-Flex:100™ in a three-course application.
- E. Crickets:  
Install new flashing and “crickets” where required. Ponding up slope of penetrations is not acceptable. Use acceptable trade practices to assure flashing and “crickets” do not hold water.
- F. Prime:
  - 1. Prime all metal surfaces to receive the Energy Seal Coating System with Acu-Metal Prime™:

Light rust	200 – 300 sq.ft. per gallon 18.6 – 27.9m <sup>2</sup> per 3.7 liters
Heavy rust	100 – 200 sq.ft. per gallon 9.29 – 18.6m <sup>2</sup> per 3.7 liters

- G. Horizontal Laps:
  - 1. Apply foot pressure to under lapping panel next to joints. If joint opens more than 1/16” (1.5mm), add fasteners to tighten the lap seam.

**Horizontal Lap Seam:**

  - a) Apply Acu-Flex:100™ to horizontal lap area, imbed Acu-Fabric™ into wet base coat and apply another coat of Acu-Flex:100™ completely covering the fabric and out onto the metal panel.
- H. Vertical Seams:
  - 1. If vertical seams are open more than 1/16” (1.5mm), add fasteners to tighten the opening.

**Vertical Seam Option:**

  - a) Apply Acu-Flex:100™ to horizontal lap area, imbed Acu-Fabric™ into wet base coat and apply another coat of Acu-Flex:100™ completely covering the fabric and out onto the metal panel.
- I. Fasteners:
  - 1. Replace stripped or loose fasteners with oversized fasteners. Add additional fasteners to tighten loose panels or restore original design specifications.
  - 2. Encapsulate fasteners with Apply Acu-Flex:100™ and smooth to level on to roof deck.
- J. Gutters:
  - 1. Loose coating, paint, rust, and scale shall be removed using wire brush and scraper, or water blasting. Remove loose rust by water-blasting at min 2,400 psi; wire brushing; power or hand sanding.
  - 2. Prime gutter with Acu-Metal Prime™, at a rate of 150 sq.ft. (13.9m<sup>2</sup>) per gallon (3.75liter). Make sure the Acu-Metal Prime™ is completely dry before proceeding to the next step.
  - 3. Coat gutter with 1 coat of Acu-Flex:100™ at a rate of 1½ gallon/ 100 sq.ft. (5.6liter/ 9.29m<sup>2</sup>).
- K. Flashing:
  - 1. Weathered but solid flashings, protrusions, machine legs, signposts, guide wire straps, inside and outside corners, and all termination points, may be flashed Acu-Flex:100™ to the area, imbed Acu-Fabric™ into wet base coat and apply another coat of Acu-Flex:100™ completely covering the fabric.

**Allow primer and all repairs to dry thoroughly before proceeding with the application of Acu-Flex:100.**

### 3.02 COATING SYSTEM

#### A. General:

1. Do not apply coating when moisture is present on the substrate (or under substrate) or if rain is expected before coating properly cures.
2. Wind barriers shall be used if wind conditions could affect the quality of the material being applied.
3. Acu-Flex:100™ must cover all intended surfaces completely. An extra pass of Acu-Flex:100™ may be required at all edges, penetrations, and vertical surfaces such as parapet walls.
4. Primer and repairs shall be allowed to cure before proceeding with subsequent applications.
5. All coating and primers shall be coated within recommended time period. If application is delayed beyond that time, consult ENERGY SEAL COATINGS for primer recommendations.
6. No traffic shall be permitted on the coated roof surface for a minimum of 3 days. Damage to the surface by other trades shall not be the responsibility of the roofing contractor. The total dry mil thickness shall meet the minimums required by ENERGY SEAL COATINGS.

#### B. Manual Application of Acu-Flex:100™ based on warranty requirements:

1. Ten (10) year warranty: Apply Acu-Flex:100™ at a rate of 1.5 gallons (5.68 liters) per 100 square feet (9.29 m<sup>2</sup>) in a narrow pass for approximately 10 feet (3m) long and spread approximately 10 feet (3m) wide using a 3/4" (19mm) nap 18" (45cm) roller. Minimum film thickness is to be no less than 24 wet mils or 22 dry mils.
2. Fifteen (15) year warranty: Apply Acu-Flex:100™ at a rate of 2 gallons (7.57 liters) per 100 square feet (9.29 m<sup>2</sup>) in a narrow pass for approximately 10 feet (3m) long and spread approximately 10 feet (3m) wide using a 3/4" (19mm) nap 18" (45cm) roller. Minimum film thickness is to be no less than 32 wet mils or 30 dry mils.
3. Twenty (20) year warranty: Apply Acu-Flex:100™ at a rate of 2.5 gallons (9.46 liters) per 100 square feet (9.29 m<sup>2</sup>) in a narrow pass for approximately 10 feet (3m) long and spread approximately 10 feet (3m) wide using a 3/4" (19mm) nap 18" (45cm) roller. Minimum film thickness is to be no less than 40 wet mils or 37 dry mils.

Application rates must be checked periodically to assure proper coating thickness. This shall be done using a wet film gauge, checking film thickness every 500 sq.ft. (46m<sup>2</sup>) during application.

#### C. Spray Application of Acu-Flex:100™ based on warranty requirements:

1. Ten (10) year warranty: Spray Acu-Flex:100™ at a rate of 1.5 gallons (5.68 liters) per 100 square feet (9.29 m<sup>2</sup>). Minimum film thickness is to be no less than 24 wet mils or 22 dry mils.
2. Fifteen (15) year warranty: Spray Acu-Flex:100™ at

a rate of 2 gallons (7.75 liters) per 100 square feet (9.29 m<sup>2</sup>). Minimum film thickness is to be no less than 32 wet mils or 30 dry mils.

3. Twenty (20) year warranty: Spray Acu-Flex:100™ at a rate of 2.5 gallons (9.46 liters) per 100 square feet (9.29 m<sup>2</sup>). Minimum film thickness is to be no less than 40 wet mils or 37 dry mils.
4. Each pass shall overlap the previous pass by one-half of the spray fan, to insure complete coverage.
5. Pay special attention to overspray, which can texture or discolor adjoining finished sections or surfaces not intended to receive coating.

Application rates must be checked periodically to assure proper coating thickness. This shall be done using a wet film gauge, checking film thickness every 500 sq.ft. (46m<sup>2</sup>) during application.

Contractor should estimate coating requirements based on actual experience and they need to figure losses due to applicator proficiency, surface texture, wind, waste, and other factors. Additional material over and above the original estimate may be required.

**NOTE: The recommended gallons for minimum mil thickness are a guideline and should be verified by the contractor to ensure that the minimum mil thickness is applied to the roof surface.**

### 3.03 PONDING WATER

1. As defined by the National Roofing Contractors Association (NRCA), ponding water is water "that remains on a roof surface longer than 48 hours after the termination of the most recent rain event."
2. Ponding water on a roof could indicate early roof failure. Every effort must be made to eliminate roof ponds using drains, scuppers, or some other mechanical means.

### 3.04 INSTALLATION OF WALKWAYS

- A. In high-traffic areas and around mechanical equipment, walkways should be installed to protect the coating system from damage or apply an additional layer of the Acu-Flex:100™ at a rate of 1.5 gallons/100 sq.ft. (5.6 liter/ 9.29 m<sup>2</sup>). Broadcast 3M Granules or approved aggregate into the wet coating, to establish a trafficable surface.

### 3.05 FIELD QUALITY CONTROL

- A. Contractor is to maintain Job Progress Report / Daily Log of work completed as required to assure installation is in accordance with manufacturer requirements. Log is to include progress photos.
- B. Contractor is to provide on-the-job inspections, technical assistance, and material application guidance as it may be necessary to complete the Energy Seal Coatings® System application in accordance with ENERGY SEAL COATINGS warranty requirements.

### 3.06. JOB COMPLETION

- A. Inspect completed roofing system and correct all defects to meet the specification and/or warranty requirements.
  1. Transparent or Thin Areas: If areas appear to be

- undercoated, recoating may be needed to ensure final thickness to meet the ENERGY SEAL COATINGS specifications.
2. **Delamination:** Verify that all coated areas appear to be fully adhered to the substrate. A visual inspection looking for typical signs of poor adhesion such as flaking, blistering, peeling, etc. should be made. Re-priming and recoating will be required if such areas are apparent.
  3. **Pin Holing:** Certain job or site conditions may result in pin holing or out gassing during curing of the coating. Again, a visual inspection looking for typical signs of out gassing such as excessive pockmarks, pinholes, etc. should be done. Recoating will be required if such areas are apparent.
  4. **Blisters:** Blisters represent a localized loss of adhesion and the lifting of roof coating film from the underlying surface. The most common cause is water or moisture vapor migrating through from below or above the roof surface. Surface blisters in coating can sometimes be caused by the actual moisture in the liquid coating at the time of application. Blisters can form when the coating dries so rapidly some of the water cannot evaporate completely before the coating surface cures. Blisters can also form from moisture trapped in the substrate. Blisters must be removed using a shop knife, repaired with Acu-Flex:100™.
  5. **Texture Finish:** Heavy patterns, blistering, "skinning", "mud cracking", etc. may appear in the final finish. These may be indicators that too thick a coat or a build-up has occurred or other application problems. Check with ENERGY SEAL COATINGS for remedial advice.
6. **HVAC Equipment:** HVAC equipment must be properly plumbed to eliminate condensation runoff onto the roof.
- B. Clean up all debris, excess materials, and equipment and remove from site.
  - C. Restrict construction traffic and equipment movement on the completed roofing system to only essential personnel. Provide appropriate protection against traffic and construction activities on completed roofs. Damage to the roof by other trades shall not be the responsibility of the ENERGY SEAL COATINGS Coating Applicator.

#### **End of Section**

**CAUTION:** Do not apply within two hours of sunset, rain, fog or if surface temperatures are below 50°F or above 140°F (10°C-60°C). 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, see product MSDS for more information.

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