



Liquid Roofing Products

Architectural Specification

SECTION 07.55.56
(Liquid Roof Membrane)

Acrylabs PR-40
25 Year Renewable Warranty System
Partially Reinforced Liquid Composite Membrane System for Metal Roofs

PART 1 – GENERAL

1.01 SUMMARY

- A. Summary Includes: This summary includes a liquid applied partially reinforced elastomeric composite membrane system. It is designed for weatherproofing and protection of existing metal roofs.
- B. Section Includes: Partially reinforced Elastomeric membrane system, complete with surface preparation with all flashing and other related work required to perform a complete installation of the Acrylabs system. This system will yield a min 40 mil membrane throughout the field of the roof, and a min. of 65 mil membrane at the reinforced areas.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM) 1998 Annual Book of ASTM Standards.
 - 1. Designation: D 6083-97a Standard Specification for Liquid Applied Acrylic Coating Used in Roofing.
 - 2. Volume 06.01 Paint- Tests for Chemical, Physical, and Optical Properties; Appearance.
- B. National Roofing Contractors Association (NRCA)
 - 1. Roofing and Waterproofing Manual (4th Edition)

- C. Factory Mutual Approval Standard 4470
 - 1. Standard for Class 1 Windstorm Pressure, Uplift, Hail Damage, Resistance to Foot Traffic, Susceptibility to Leakage.
 - 2. Standard for Class A Spread of Flame Fire.
- D. Sheet Metal and Air Conditioning National Contractors Association (SMACNA)
 - 1. Architectural Sheet Metal Manual 5th Edition 1993.
- E. Society for Protective Coatings (SSPC)
 - 1. Steel Structures Painting Manual, Volume 2, Systems and Specifications 1995.

1.03 SYSTEM DESCRIPTION

- A. Performance Requirements:
 - 1. Provide liquid applied partially reinforced elastomeric composite membrane system to maintain manufacturer performance criteria without defects, damage, failure, or infiltration of water.
 - 2. Coatings to be used in the membrane system shall meet or exceed all minimum testing requirements listed in ASTM D-6083 Standard Specification for Liquid Applied Acrylic Coatings Used in Roofing.

1.04 SUBMITTALS

- A. Product Data: Provide written technical information and installation instruction from Acrylabs which demonstrates materials to be installed comply with contract documents.
- B. Submit shop drawings indicating details showing treatment of transitions, edges, closures, penetrations, etc.
- C. Verify field measurements and submit materials list, including quantities, to be applied to achieve specified membrane thickness. Provide corrugation factor. Provide number and length of seams to be reinforced.
- D. Submit 7-year contractor warranty against leaks and/or defects in workmanship. Upon notification of any such defects, within the first 7 years, the contractor will make the necessary repairs. Warranty shall be signed by an authorized representative of the contractor.
- E. Submit written verification that the existing roof drain lines are reasonably free of obstruction prior to application of Acrylabs products.
- F. Submit Acrylabs' standard Material Safety Data Sheets (SDS) documents.

1.05 QUALITY ASSURANCE

- A. Applicator Qualifications: Applicator who has proven experience in the installation of work similar to that required for this project for a period of 3 years or more.
 - 1. Certificate: When requested, submit certificate indicating applicator qualifications.
 - 2. Completed project reference list: When requested, submit a list of three (3) projects of similar nature using products of the type specified herein. List shall include the following: Project name and location, size, cost, contact person and phone number.
- B. All details must be installed in conformance with the current Acrylabs specifications and details drawing. For conditions not addressed by Acrylabs the reference guide for application and detailing shall be:
 - 1. National Roof Contractors Association (NRCA) Manual, Third Edition.
 - 2. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) Architectural Sheet Metal Manual 5th Edition 1993.
- C. Final inspection by an authorized representative of Acrylabs is required for warranty. Final inspection shall not replace the normal responsibilities of the contracting parties. Request for final inspections, must be forwarded, along with a roof plan, to Acrylabs upon substantial completion of the project. Any deviations from Acrylabs specifications must be noted on the roof plan drawing.
- D. Provide all primers, base coats, fabric, and accessories as manufactured and/or approved in writing by Acrylabs

1.06 DELIVERY, STORAGE AND HANDLING

- A. Furnish Acrylabs coating system material and component accessories in manufacturer's original containers and/or wrapped bundles, clearly indicating the Acrylabs label and other identifying information.
- B. Store materials separated from the ground and in a dry location, protected until installation in accordance with Acrylabs instructions.
- C. Handle materials in accordance with Acrylabs recommendations.
- D. Protect materials against freezing. Store materials between 45°F and 95°F.

1.07 PROJECT CONDITIONS

- A. Acceptable Substrates: Acceptable substrates for the PR-40 System shall be one of the following: metal panel roofs, standing and soldered seam roofs and most single ply roof systems.

- B. Substrate: After the existing roof systems are cleaned and repaired, as required, but prior to starting new coating system installation work, complete all substrate corrective installation actions required. Substrate shall be smooth, dry, and free of debris.

1.08 ENVIRONMENTAL CONDITIONS

- A. It is the responsibility of the applicator to determine if present and forecast weather conditions are acceptable for application of Acrylabs coatings.
- B. Do not apply Acrylabs coatings when snow, rain, fog, or freezing temperatures are possible within 24 hours after application.
- C. Do not apply coatings when the temperature of surfaces to be coated and/or surrounding air temperatures are less than 40° F.
- D. Allow wet surfaces to dry thoroughly and to attain temperature and conditions specified before proceeding with or continuing coating operation.
- E. Wind conditions must be considered during application of products to avoid damage to adjacent surfaces or completed work. Provide for protection of other surfaces or do not spray apply coatings if overspray will be deposited on surfaces not intended to be coated.

1.09 SAFETY REQUIREMENTS

- A. Users should familiarize themselves with appropriate Safety Data Sheets (SDS). SDS must be available at all worksites where materials are being used.
- B. Materials shall be applied in accordance with all applicable local, state, and federal regulations.
- C. When applying reflective white coatings to a roof, sunglasses should be used to protect eyes from glare.
- D. Handle on pails should only be used to carry pail when on ground or roof and should not be used to hoist pail from ground to roof.
- E. Translucent light panels should be clearly marked and safely protected from foot traffic.
- F. All work shall be performed in conformance with the safety procedures outlined in the current FALL PROTECTION GUIDE as published by the Occupational Safety and Health Administration (OSHA).
- G. Care should be taken to avoid overhead powerlines and arcing potential.

1.10 WORK SEQUENCE

- A. Sequence of operations is at the Contractor's option providing it is arranged to maintain the building dry during the life of the Contract. Schedule and execute work to prevent leaking.
- B. The building shall be occupied. Do not disrupt activities in occupied spaces.

1.11 WARRANTY

- A. Furnish specified Acrylabs Warranty.
- B. All invoices must be paid in full and satisfied.
- C. Furnish contractor 7-year warranty. The conditions of the contractor warranty may vary; however, the occurrence of leaks caused by defects in workmanship will be remedied at no cost to the building owner according to provisions of the contractor warranty.

PART 2 – PRODUCTS

2.01 LIQUID APPLIED REINFORCED COMPOSITE MEMBRANE SYSTEM

- A. Manufacturer: Acrylabs
 - 1. Contact: 101 North Prospect Street
Reading, PA 19606
Phone: 866-273-1355
E-mail: customerservice@acrylabs.com
Website: acrylabs.com
- B. Substitutions: None

2.02 MATERIALS

- A. The Acrylabs PR-40 System shall include but not be limited to:
 - 1. Acrylabs Base Coat
 - 2. Acrylabs Finish Coat
 - 3. Fabric Reinforcement
 - 4. Brushable Sealant

NOTE: Acrylabs Base Coat and Finish Coat and Fabric Reinforcement are a Class 1 Roof Cover with a Class A Fire Rating under Factory Mutual Standard 4470.
- B. Acrylabs Minimum Material Properties
 - 1. Elastomeric Coatings – Elastomeric coatings shall be water-dispersed 100% acrylic elastomeric coatings designed for use in reinforced composite membrane systems. Materials shall meet the following minimum specifications:

Liquid Property Requirements Base Coat

| | <u>Minimum</u> | <u>ASTM</u> |
|-------------------|----------------|-------------|
| Weight Per Gallon | 12 lbs. | D-1475 |
| Solids by Weight | 67% | D-1644-A |
| Solids by Volume | 55% | D-2697 |
| Viscosity | 125 - 140 KU | D-562-A |

Liquid Property Requirements Finish Coat

| | <u>Minimum</u> | <u>ASTM</u> |
|-------------------|----------------|-------------|
| Weight Per Gallon | 12 lbs. | D1475 |
| Solids by Weight | 67% | D-1644-A |
| Solids by Volume | 55% | D-2697 |
| Viscosity | 125-140 KU | D-562-A |

Cured Film Physical Property Requirements Base Coat

| | <u>Minimum</u> | <u>ASTM Standard</u> |
|--|----------------------------------|----------------------|
| Low Temperature Flexibility @ -57°F | passes | D522-93A |
| Percent Elongation (break) @73.4°F | 196% | D-2370 |
| Tensile Strength (psi) @73.4°F | 236 psi | D-2370 |
| Permeability (20 mil film) @73.4°F | <21.9 perms | D-1653-B |
| Water Swelling @73.4°F | 9.2 | D-471 |
| Accelerated weathering Fungi Resistance | 2 years-no effect Zero rating | G-53 |

Cured Film Physical Property Requirements Finish Coat

| | <u>Minimum</u> | <u>ASTM Standard</u> |
|--|----------------------------------|----------------------|
| Low Temperature Flexibility @ -57°F | passes | D522-93A |
| Percent Elongation (break) @73.4°F | 196% | D-2370 |
| Tensile Strength (psi) @73.4°F | 236 psi | D-2370 |
| Permeability (20 mil film) @73.4°F | <21.9 perms | D-1653-B |
| Water Swelling @73.4°F | 9.2 | D-471 |
| Accelerated weathering Fungi Resistance | 2 years-no effect Zero rating | G-53 |

Cured Film shall also pass Rain Permeability testing according to ETP-1375, Mil-Std-810E, Method 506.3, Proc.III

2. Fabric Reinforcement – Stitch bonded polyester for use in cold liquid applied roof membranes that shall provide high strength and good elongation.

Fabric Reinforcement (Average typical properties)

| | <u>Results</u> | <u>ASTM Standard</u> |
|------------------|-----------------------|----------------------|
| Tensile strength | WARP=74lb / WEFT=45lb | D-5034 |
| Elongation | WARP=21lb / WEFT=51lb | D-5034 |
| Ball Burst | 111 lbs. | D-3787 |
| Mullen Burst | 176.8 lbs. | D-3786 |
| Tear Strength | WARP=14lb / WEFT=24lb | D-1117 |

2.03 APPLICATION EQUIPMENT

- A. Acrylabs coatings shall be applied by brush, roll, or spray. When applied by spray it is recommended that an airless spray rig with a minimum 3000PSI be used with tip sizes .021 through .041 orifice size. Application by roller or brush may require additional coats, but material requirements will remain the same. In all cases, the specified minimum membrane thickness must be achieved.

2.04 RELATED MATERIALS

- A. Metal Roof Panels
1. New metal roof panels shall be as per requirements of project.
- B. Metal Flashing
1. Gable end flashing, drip edge, gutters, counterflashings, copings, pipe collars, valleys, hip and ridge vents and caps as per requirements of project.
- C. Closures
1. Neoprene or other compressible filler shaped to fill voids.
- D. Translucent Light Panel
1. Fiberglass
 2. Wire Glass
 3. Resolite (TM)
- E. Mechanical Fasteners
1. Type as required by project.
- F. Sealant (***Silicone sealants unacceptable***)
1. Polyurethane
 2. Polysulfide
 3. Acrylic
- G. Polyurethane Foam
1. Expanding polyurethane foam of a type suitable for roofing applications.

PART 3 - EXECUTION

3.01 MANUFACTURERS INSTRUCTIONS

- A. Compliance: Comply with Acrylabs product data, recommendations, and installation instructions for substrate verification, preparation requirements, and installation.

3.02 EXAMINATION OF SURFACE

- A. Examine the substrates, flashing conditions, penetrations, equipment supports, curbs, adjoining construction, and the conditions under which the Work is to be installed. Do not proceed with the work until unsatisfactory conditions have been corrected.
- B. Applicator shall be responsible for providing a proper substrate to receive the Acrylabs roofing system membrane.
- C. Verify that substrate is dry and free of oil, grease, dust, rust, or another contaminant.
- D. Defects in substrate shall be noted and work shall not proceed until such defects have been corrected.

3.03 PREPARATION

- A. Substrate: Prior to starting new coating system installation work, complete all substrate corrective installation actions required. Substrate shall be smooth, dry, and free of debris.
- B. Excessive rust or loose coatings, if present, must be removed by the most appropriate method. Power washing or power wire brushing may be used.
 - 1. Surface preparation must conform to one or more of the following:
 - A. SSPC-SPC1 Solvent Cleaning
 - B. SSPC-SPC2 Hand Tool Cleaning
 - C. SSPC-SPC3 Power Tool Cleaning
 - D. SSPC-SP6/NACE3 Commercial Blast Cleaning
 - E. SSPC-SP7/NACE4 Brush Off Cleaning
 - F. SSPC-SP11 Power Tool Cleaning to Bare Metal
- C. Areas where rust is present must be primed with Acrylabs Rust Inhibitive Primer.
Acrylabs Rust Inhibitive Primer can be used to prime entire roof areas or used as a spot primer.

Consult Acrylabs for more information on treatment of rusted metal.

- D. The roof must be completely free of dust, dirt, oil, debris, or other contaminants before application of Acrylabs Coatings or Sealants. If any contaminants are found, they must be removed by appropriate means.
- E. Replace loose and corroded fasteners using appropriate fastener for the project.
- F. Apply Acrylabs Brushable Sealant at fastener heads. Small cracks, roof penetration transitions and other locations where high build material is required or desirable for a watertight seal should be addressed using Acrylabs Brushable Sealant or Acrylabs Fabric Reinforcement and Base Coat.
- G. Complete all work above roof as required by other trades.

3.04 INSTALLATION

- A. Following inspection and acceptance of substrate condition, install the Acrylabs PR-40 Roof Coating System using minimum coverages indicated in the manufacturer's guidelines. Adherence to guidelines will yield a minimum membrane thickness of 40 mils dry film thickness (dft.) on the field of roof and a minimum of 65 mils dft. on the reinforced areas.
- B. Apply flashings at roof penetrations and detail work:
 - 1. All flashings must be completed in accordance with published Acrylabs details before final application of Acrylabs Finish Coat.
 - 2. Apply a generous coat of Acrylabs Base Coat to the area to be flashed and embed Fabric Reinforcement into wet coating.
 - 3. Brush shall be used to ensure that Fabric Reinforcement is fully embedded.
 - 4. Apply additional coating to the top of fabric taking care to completely saturate fabric and provide a weatherproof seal.
- C. Seams: All horizontal seams shall be treated with Acrylabs Base Coat and Acrylabs Fabric Reinforcement of appropriate width to create a reinforced elastomeric membrane. All vertical seams shall be treated with Acrylabs Brushable Sealant. Subsequent topcoats will be applied to these treated areas to provide a minimum membrane thickness of 65 mils (dft).
 - 1. All seams to be reinforced must be completed in accordance with published Acrylabs details before final application of Acrylabs Finish Coatings.
 - 2. Apply generous coat of Acrylabs Base Coat to the area to be flashed and embed Fabric Reinforcement into wet coating.
 - 1. Brush shall be used to ensure that Fabric Reinforcement is fully embedded.
 - 2. Apply additional coating to the top of fabric taking care to completely saturate fabric and provide a weatherproof seal.

- D. Apply first intermediate coat of Acrylabs Finish Coat to entire prepared roof surface to produce a membrane of 10mils minimum dry film thickness on the field of the roof.
- E. Apply a second intermediate coat of Acrylabs Finish Coat to the entire prepared roof surface to produce a membrane of 10mils minimum dry film thickness on the field of the roof.
- F. Apply a third intermediate coat of Acrylabs Finish Coat to the entire prepared roof surface to produce a membrane of 10mils minimum dry film thickness on the field of the roof.
- G. Apply the final coat of Acrylabs Finish Coat to areas previously coated to produce a total minimum dry film thickness (including the previously applied Acrylabs Finish Coat) of 30 mils. Acrylabs Finish Coats are always applied in multiple coats to ensure minimum dry film thickness as well as proper coverage.

Note: When possible, each application of coatings should be applied at right angles to the previous coat in a crosshatch pattern. Applicator shall guarantee proper membrane thickness according to specification.

3.05 FIELD QUALITY REQUIREMENTS

- A. Verify final minimum film thickness as specified. If specified dry film thickness has not been achieved, application of additional coating will be required.
- B. Visually inspect critical areas of the roof including roof seams and penetrations and touch up with additional Acrylabs coatings to ensure complete coverage.

3.06 FINAL CLEANING

- A. Except as otherwise provided for, remove temporary protection devices and facilities which were installed during the course of the work.
- B. Clean job site, sweep paved areas, and rake clean other surfaces of roofing debris.
- C. Remove waste, surplus materials, and rubbish.
- D. All soiled surfaces shall be cleaned using approved materials and methods.

3.07 PROTECTION OF COMPLETED MEMBRANE

- A. Protect completed membrane from damage by work of other trades. Schedule sequence of work so that traffic over new membrane is minimized. Institute requires procedures for protection of completed membrane during installation of work from other trades throughout remainder of the construction period. Do not allow traffic of any type on unprotected membrane.

- B. At completion of construction activities of other trades, touch-up and restore damaged or defaced coated surfaces.

END OF SECTION