



**ICC-ES ESR-2097 SYSTEM
MANUFACTURER'S SPECIFICATIONS**

PART I. GENERAL

1.01 Scope

- A. Provide all labor, materials and equipment necessary to apply the Pli-Dek waterproof system over horizontal plywood decks, walkways, and stairs.

1.02 Related Sections

- A. Sealants: Vulkem 931 caulking or equivalent.

1.03 References

- A. ASTM C 297: Test Method for Bond Strength of Flat Sandwich Constructions in a Flat Wise Plane
- B. ASTM D570: Test Method for Water Absorption of Plastics
- C. ASTM D1242: Test Method for Resistance of Plastic Materials to Abrasion
- D. ASTM E 96: Tests Method for Water Vapor Transmission of Materials
- E. ASTM E 108: Method for Fire Tests of Roof Coverings
- F. ASTM G 23: Test Method for Weatherability
- G. ASTM D2707L: Test Method for Tensile Strength – Longitude
- H. ASTM D270T: Test Method for Tensile Strength – Transverse
- I. ASTM A756: Test Method for Freeze-Thaw Cycle for deleterious effects
- J. ASTM C67: Test Method for Freeze-Thaw Cycle for weight loss
- K. ASTM C150-72: Test Method for Compressive Strength
- L. ASTM D2299: Test Method for Chemical Resistance
- M. ASTM C1028-96: Test Method for Static Coefficient of Friction
- N. ASTM E108: Test Method for Spread of Flame
- O. ASTM E108: Test Method for Intermittent Flame
- P. ASTM E119: Test Method for One-Hour System
- Q. ASTM Pending: Test Method for Impact
- R. ASTM Pending: Test Method for Concentrated Load
- S. ASTM Pending: Test Method for Percolation

1.04 Description

- A. Pli-Dek is a proprietary blend of high performance acrylic formulations. Pli-Dek is a waterproofing system providing a durable walking surface in a variety of textures, finishes, and colors.

1.05 Submittals

- A. Samples:
 - 1. The Pli-Dek Applicator shall make and submit samples of the proposed finish to the architect and/or owner for approval.
- B. Manufacturer's Information:
 - 1. Submit manufacturer's product information and specifications.

1.06 Quality Assurance

- A. Qualification:
 - 1. Manufacturer shall be Pli-Dek Systems, Inc.
 - 2. The applicator shall be listed with Pli-Dek Systems, Inc. as a trained* installer.
- B. Substrates:
 - 1. The Pli-Dek system installs over a minimum 16 mm, 5/8" (3/4" recommended) sound and dry, exterior grade sheeting; installed in accordance with this specification and Pli-Dek Application Instructions, PD165.
 - 2. The applicator/contractor shall verify that the proposed substrate is acceptable prior to application of the Pli-Dek System. Contact Pli-Dek Systems, Inc. for applications over Oriented Strand Board (OSB).
- C. Certifications:
 - 1. The Pli-Dek System is recognized by the following Model Building Code organizations:
 - A. ICC-ES
 - B. The City of Los Angeles
- D. Performance Requirements:
 - 1. Water Vapor Transmission (ASTM E 96)
 - 2. Bond Strength (ASTM C 297)
 - 3. Abrasion Test (ASTM D 968)
 - 4. Weatherability Test (ASTM G 23)
 - 5. Class A Burn Tests (ASTM E 108)
 - 6. Freeze-Thaw Cycling (ASTM A75)
 - 7. Compressive Strength (ASTM C150-72)
 - 8. Water Absorption (ASTM D570)
 - 9. Chemical Resistance (ASTM D2299)
 - 10. Static Coefficient of Friction (ASTM C 1028-96)
 - 11. One-Hour System (ASTM E119)
 - 12. Wind-Up Lift (Factory Mutual 1.52)

1.07 Delivery, Storage and Handling

- A. All materials shall be delivered to the job site in the original, unopened packages with labels intact. Upon arrival, materials shall be inspected for physical damage or freezing. Questionable materials shall not be used.
- B. Minimum storage temperature shall be 4°C (40°F). Maximum storage temperature shall be 43°C (110°F). All materials shall be stored in a dry location, out of direct sunlight and protected from weather and other damage.

1.08 Job Conditions

- A. On-Site Conditions:
 - 1. The applicator shall have access to electrical power, clean potable water, and clean work area at the location where the Pli-Dek materials are to be applied.
 - 2. Other conflicting trades need to be made aware to keep off areas being covered by Pli-Dek materials during the application and curing process.
 - 3. All required framing and sheeting inspections must be made prior to the installations of the Pli-Dek materials.
- B. Environmental Conditions:
 - 1. The ambient air and surface temperature must be a minimum of 10°C (50°F) and a maximum of 43°C (110°F) and shall remain so for at least 24 hours.

C. Protection:

1. Adjacent areas and materials shall be protected from damage, drops and spills.
2. The Pli-Dek material is must be protected by permanent or temporary means from weather and other damage, before, during, and immediately after application. Care must be taken to prevent condensation and/or heat build up when using a tarp or plastic as protection.
3. The materials shall be protected from weather and other trades which may damage the integrity of the product.

D. Sequencing and Scheduling:

1. Application shall be coordinated with other construction trades.
2. Sufficient labor and equipment shall be employed to ensure a continuous operation.

1.09 Warranty

- A. Contact Pli-Dek Systems, Inc. for complete details.

1.10 Design Responsibility

- A. The designer selected by the purchaser shall be responsible for all decisions pertaining to design, detail structural capability, attachment details, shop drawings, placement/detailing of expansion joints, etc. Pli-Dek Systems, Inc. has prepared guidelines in the form of specifications, details, application instructions, and product sheets to facilitate the design process only. Pli-Dek Systems, Inc. is not liable for any errors or omissions in design or for any changes, which purchasers, specifiers, designers, or their appointed representatives may make to Pli-Dek's published comments.

1.11 Maintenance

- A. Sealants and flashing should be inspected on a regular basis and repairs made as necessary.
- B. Contact Pli-Dek Systems, Inc. for maintenance and warranty requirements.

PART II. PRODUCTS

2.01 General

- A. All products shall be supplied by Pli-Dek Systems, Inc. and/or its authorized distributors. Substitutions or additions of other materials will void the warranty.

2.02 Components

- A. GU80-1 Base Coat (gray): A Portland cement and silicon dioxide composition that is to be mixed with GU80-1 Liquid Admixture.
- B. GU80-1 Liquid Admixture: An acrylic polymer emulsion.
- C. Fiberglass Mat: Chopped strand $\frac{3}{4}$ oz. woven mat (Not always required)
- D. PD Resin Base Coat: A high build elastomeric acrylic resin. (Not always required)
- E. GU80-1 Top Coat/Custom Top Coat (white): A Portland cement and silicon dioxide composition to be mixed with GU80-1 Liquid Admixture.
- F. GS88-1 Sealer: Pigmented water-based coating.
- G. GS99-1 Sealer: Water-based, clear sealer (optional).

2.03 Materials

- A. Water: Shall be clean and potable.
- B. Galvanized Metal Lath weighing 1.4 kg/m² (2.5lb. /yd.²): An expanded metal lath. The lath must be dipped not electro-galvanized.
- C. Caulking: Urethane based. Contact Pli-Dek Systems, Inc. for recommendations.
- D. Flashing: 26 gauge Bonderized, Galvanized Sheet Metal.

2.04 Equipment

- A. Mixing shall be done with a clean Wind-lock B-M1 mixing blade or equivalent powered by a 13-mm (1/2") variable speed drill capable of producing 1000 RPM.
- B. Tools
 - 1. Refer to the Pli-Dek Application Instructions, PD-165, for a complete list of recommended tools.

PART III. EXECUTION

3.01 Inspection

- A. Examination of Substrate:
 - 1. Ensure that the substrate is of sound exterior grade exposure 1 sheeting.
 - 2. Refer to ICC-ES Legacy Report for framing requirements.
 - 3. All surfaces shall be sloped for positive drainage. A slope of 6.4 mm/.3m (1/4" per linear foot) is required.
 - 4. All plywood seams shall be staggered and a 3.2 mm (1/8") space between all sheets shall exist.
 - 5. Framing or blocking must support all plywood edges, except as per APA guidelines, blocking is not required when tongue and groove plywood is used. Joists to be spaced 16" on center. For alternate assemblies contact Pli-Dek Systems, Inc. for written approval.
 - 6. Maximum deflection of the deck shall not exceed L/360th of the span.
 - 7. Minimum thickness of plywood shall be 16 mm (5/8"). 3/4" thick exposure 1 sheeting recommended.
 - 8. All adjacent edges of the plywood sheets shall not be more than 0.78 mm (1/32") out of plane (i.e.: above or below each other).
- B. Flashing:
 - 1. Flashing shall be minimum 26 gauge galvanized, bonderized sheet metal.
 - 2. When copper flashing/drains are used, ensure that all galvanized metal; such as, nails, staples, lath, drains, etc. does not come into contact with copper (do not allow any dissimilar metals to come in contact with each other). The contact of the two dissimilar metals cause will create rust and corrosion (electrolysis). **Contact Pli-Dek Systems, Inc. for additional details and written recommendations.
 - 3. Proper flashing must be installed at all doors, walls, fascia edges, posts, penetrations, columns, etc. See Pli-Dek Details for further instructions (PD-150 Architectural Details). Contact Pli-Dek for written approval on flashing details that vary or are not included in PD-150 Architectural Details.
 - 4. Flashing must be installed to accommodate all exterior wall coating applications from coming in contact with the deck surface. Exterior siding, stucco, etc. must be held off the deck a minimum of 50 mm (2").

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5. All flashing splices must be overlapped a minimum of 100 mm (4") and caulked between any two pieces of flashing with a Vulkem 931 Urethane sealant or equivalent. All flashing overlaps shall be installed as to not "buck" water.
 6. Flashing at walls must be installed behind the building paper (or equivalent) on all areas that intersect the deck surface.

3.02 Substrate Preparation

- A. Plywood Deck:
 1. All seams in plywood shall be gapped 3.2 mm (1/8"), and covered with a maximum of 50 mm (2") wide Pli-Dek approved flashing paper and tacked in place.
 2. Plywood shall be free of dust, moisture, and/or other debris or residue that would affect adhesion.
 3. Delaminated plywood shall be replaced with sound plywood.
 4. Fascia boards shall be installed to be level with the plywood substrate.
 5. Perimeter walls should be framed so to be consistent with interior floor boundaries.

3.03 Application

- A. General:
 1. Refer to the Pli-Dek Application Instructions, PD-165, for complete information.
- B. Base Coat:
 1. Mix the GU80-1 Liquid Admixture with GU80-1 Base Coat. Refer to Pli-Dek Application Instructions, PD-165 for complete instructions.
 2. Trowel Base Coat emulsion into the galvanized expanded metal lath completely covering the metal lath. Allow it to dry completely, for approximately 2 (two) to 6 (six) hours, depending on weather conditions.
- C. Screed Coat:
 1. Mix the GU80-1 Liquid Admixture with GU80-1 Top Coat until a uniform consistency is achieved. Refer to Pli-Dek Application Instructions, PD-165 for complete instructions.
 2. Apply a Screed coat over the previously applied GU80-1 Base Coat. Allow it to dry completely, for approximately 2 (two) to 6 (six) hours, depending on weather conditions.
- D. Pli-Dek "F" System (Fiberglass and Resin Coat):
 1. **This application becomes required when job conditions may experience excessive movement. Example: cantilevered decks, large spanning decks, etc. Contact Pli-Dek Systems, Inc. for written recommendations. Some geographic locations may require the Fiberglass and Resin Coating in ALL applications. Contact Pli-Dek for written verification.
 2. Lay out the .75 oz fiberglass mat over entire deck and apply the PD Resin Base Coat.
- E. Pli-Dek Finish Options / Specification Reference: (See Pli-Dek Application Instructions, PD165)
 1. Pli-Dek "K" System – Knockdown Texture Finish
 2. Pli-Dek "B" System – Elastomeric Sand Finish
 3. Pli-Dek "C" System – Polyacrylic Sand Finish
 4. Pli-Dek "S" System – Polyacrylic Smooth Finish
 5. Pli-Dek "T" System – Epoxy Stone Finish
 6. Pli-Dek "Custom Finish" – Simulated Finish
 7. Pli-Dek "U" System – Underlayment for Tile or Concrete
 8. Pli-Dek "F" System – Fiberglass & Resin Reinforcement

3.04 Field Quality Control

- A. The applicator shall be responsible for the proper application of the Pli-Dek materials.
- B. Pli-Dek Systems, Inc. assumes no responsibility for on-site inspections, application or workmanship.

3.05 Clean-Up

- A. All excess Pli-Dek materials shall be removed from the job site by the contractor in accordance with contract provisions.
- B. All surrounding areas, where the Pli-Dek materials have been applied, shall be left free of debris and foreign substances resulting from the contractor's work.

3.06 Slip and Fall Precaution

- A. OSHA, American Disabilities Act (ADA), and The Federal Housing Act (FHA) have now set enforceable standards for slip-resistance on pedestrian surfaces. Pli-Dek Systems, Inc. recommends the use of angular slip-resistant aggregate in all coatings or flooring systems that may be exposed to wet, oily/greasy, or otherwise potentially slippery conditions. It is the end users responsibility to provide a flooring system that meets current safety standards. Pli-Dek Systems, Inc or its sales agents will not be responsible for injury incurred in a slip and fall accident. Please consult local building codes for the current coefficient of friction requirement.

Disclaimer

Information contained in this specification conforms to standard detail and product recommendations for the installation of the Pli-Dek products as of the date of publication of this document and is presented in good faith. Pli-Dek Systems, Inc. assumes no liability, expressed or implied, as to the architecture, engineering, or workmanship of any project. To insure that you are using the latest, most complete information, contact Pli-Dek Systems, Inc. at:

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* The Trained Applicator indicates certain employees of the company have been instructed in the proper application of Pli-Dek products and have received copies of the Pli-Dek Application Instructions and Specifications. The Trained Contractor Program is not an apprenticeship. Each trained contractor is an independent company and bears responsibility for its own workmanship. Pli-Dek Systems Inc. assumes no liability for the workmanship of a trained contractor.