

HD-215 SYSTEM

FLUID APPLIED WATERPROOFING SYSTEM

215 Mil HYBRID WATERPROOFING FOR CONCRETE SUBSTRATES

MATERIALS

1. PD Vapor Prime
2. GU80-1 Custom Top Coat
3. GU80-1 Liquid Admixture
4. ¾ oz. Fiberglass Chopped Strand Mat
5. Fluid Applied Waterproofing Membrane (PMA, HR, or CR)
6. PMA-UV
7. PD-2014 Reemay Fabric
8. PolyScrim
9. Protection Course
10. PD Drain Board

TOOLS

1. Variable Speed Drill (capable of producing 1000 RPM's)
2. Wind-lock B-M1 mixing blade or equivalent
3. Extension Cord
4. Clean 5 Gallon Plastic Containers
5. Measuring Bucket (1 gal, 2 gal, etc.)
6. Hand Grinding Stone
7. Level
8. Pencil
9. Utility Knife
10. Scissors
11. Masking Tape
12. 4" x 22" Pool Trowel
13. Stainless Steel Trowel
14. Margin Trowel
15. Extension Handle
16. Compressor (1-1/2 horsepower, electric or better)
17. Air Hose
18. Semi-stiff Broom
19. Dust Mask
20. Goggles
21. Rubber or Cloth Gloves
22. Metal Spiked Golf Shoes
23. Hudson or Chapin Sprayer

I. Substrate Inspection/ Preparation

A. GENERAL

1. This document is to establish uniform procedures for installing Pli-Dek Fluid Applied Waterproofing Membrane – HD-215.
2. Consult with Pli-Dek Systems, Inc. if modifications to this Application Instruction are required to adjust to job-site conditions.
3. All inspections, as required by local building authorities, shall be the responsibility of the contractor, owner, and/or their agent.
4. Pli-Dek materials must be applied over sound dry substrates.

B. TRADITIONAL CONCRETE SUBSTRATES

1. Concrete surfaces to receive waterproofing membrane are required to be a minimum of 2500 psl.
2. The concrete surface must be cured for 28 days and dry to receive the Pli-Dek Waterproofing System.
 - a) A mat test may be performed to insure the moisture content of the concrete surface.
 - b) Steel pan decks will require additional cure time and mat testing to verify the moisture content of the concrete surface.
3. The concrete surface requires a proper profile to receive the waterproofing membrane. A steel trowel followed by a Light Broom or equivalent finish is recommended. Surfaces which are steel troweled require scarification or bead blasting to provide the proper profile.
4. Concrete surfaces shall be free of voids, exposed aggregate, honey combs, holidays, ridges or depressions, and projections which preclude a smooth sloped surface.
5. All reinforcement including cut-off rebar shall be covered with a minimum of ¼" (20mm) of epoxy or approved repair mortar.
6. Concrete to receive waterproofing shall be water cured and free of curing compound contaminates. No silicone curing compounds may be used.
7. All penetrations shall be solidly grouted or epoxied in place to prevent movement in the penetration. No flexible or corrugated pipe shall be used for through slab penetration. All copper piping shall be sleeved through the concrete penetration. Penetrations require a minimum of 1½" of spacing between multiple penetrations.
8. Any variation from the specifications mentioned in this section, requires written approval and system recommendations from Pli-Dek Systems, Inc.
9. Expansion Joint installation; contact Pli-Dek Systems, Inc.

C. CONCRETE MASONRY UNITS (CMU)

1. All CMU (Concrete Block) work requiring waterproofing requires a cementitious coating approved by Pli-Dek Systems, Inc. Contact Pli-Dek for additional information.

D. RETROFIT. TEAR-OFF APPLICATION

1. Asphalt, coal tar pitch or other existing membrane shall be removed. CONTACT Pli-Dek Systems, Inc. to review existing conditions for site specific requirements.

E. PREPARATION

1. Prepare surface by grinding, or shot blasting. If grease or significant contaminants are present, contact Pli-Dek for additional instructions.
2. Ensure preparation procedures comply with local government regulations.

3. The concrete shall be porous, and have a minimum CSP-2 Rating, suitable to receive the coating.
4. Moisture & Vapor Transmission Testing refer to Technical Bulletin TB-111.
5. Apply a primer coat of one of the following (contact Pli-Dek for specific primer requirements based on job site conditions):
 - a) GU80 Primer that consists of 4 parts water and 1 part GU80-1 Liquid Admix at a rate of approximately 1250 square feet per gallon.
6. Apply 1 coat of PD Vapor Prime at a rate of approximately 100-200 square feet per gallon. Immediately after applying the PD Vapor Prime, broadcast 16 grit silica sand onto the wet PD Vapor Prime until refusal.

F. CRACK TREATMENT

1. Rout-out cracks with a crack chaser that is normally mounted on a small hand-held grinder. It may be necessary to open crack further with a dry-cut diamond blade mounted on a grinder, or a skill saw.
2. Additional control joints should be cut where necessary as recommended by structural engineer. Cutting additional expansion joints to help control concrete movement shall be determined by others. Future cracking due to the lack of expansion joints shall be the responsibility of others.
3. Fill cracks with the manufacturer recommended urethane caulking, filling to the surface of the concrete. The cracks should be v-grinded out prior to the urethane caulking application. Allow 4 - 6 hours for curing time. The urethane must be fully cured before applying the subsequent coating. Apply 6" strips of Fiberglass and PD Resin over the cured urethane.

The Pli-Dek installer and/or Pli-Dek Systems, Inc. will not be responsible for structural movement that may result in new cracks, and/or recurring of existing cracks in substrate. Consequently, no warranty on cracking (expressed or implied) can be provided.

G. FLASHING

The following items that involve flashing must be completed or adhered to:

1. Fascia metal is required except in those cases where an open ended structural slab makes up the outer edge.
2. Posts or any other object that shall protrude through the deck substrate shall be installed and flashed before HD-215 System applications.
3. Any scuppers or overflows must be installed before flashing.
4. All flashing is to be installed according to HD Specifications (HD-112).
5. If metal flashing is to be installed by others, the sole responsibility of the flashing installation and proper caulking shall be of the Owner, or

General Contractor.

6. Flashing shall be minimum 26 gauge, galvanized, bonderized sheet metal. For Inclement Weather areas, bonderized flashing is not recommended (refer to Technical Bulletin TB-110 Inclement Weather). Insure ALL metal flashing is wiped clean with a solvent to insure oils are completely removed from the Surface. Dissimilar metals; such as Copper and galvanized, should NEVER come in direct contact with each other.
7. Proper flashing must be installed at all doors, walls, posts, penetrations, columns, etc. Flashing details will vary from job to job depending on framing and exterior wall systems. Please contact Pli-Dek Systems, Inc. for the appropriate flashing details. Pli-Dek provided architectural details are to be used as a guide.
8. 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 50mm (2").
9. All flashing splices must be overlapped a minimum of 100mm (4") and caulked between any two pieces of flashing with an MP-1 or Sika Urethane sealant or equivalent. All flashing overlaps shall be installed as to not "buck" water.
10. See HD-215 Details for further written instructions. Contact Pli-Dek Systems, Inc for written approval on flashing details that vary or are not included in Detail.

II. Mixing Instructions

A. GU80-1 CUSTOM TOP COAT

1. Pour 4.75L (1.5 gallons) of GU80-1 Liquid Admixture into a clean 19L (5 gallon) plastic container.
2. Add one 21kg (46lbs.) bag of GU80-1 Top Coat powder. Mix thoroughly for 3 to 4 minutes, with a Wind-lock B-M1 mixing blade, or equivalent, powered by a 13mm (1/2") variable speed drill, capable of producing 1000 RPMs. TIP: In areas subject to extremely dry, and/or hot climates, it may be necessary to add water (up to .47L [1 pint] per mix. In order to avoid flash drying it may be necessary to chill the GU80-1 Liquid Admixture, before mixing. Proper ventilation masks should be worn at all time when working with all Pli-Dek Products. Pli-Dek products must be stored in the shade to prevent overheating and reduction of pot life.

III. Application

A. GU80-1 CUSTOM TOP COAT

1. **After mixing the GU80-1 Custom Top Coat as described in Section II, trowel a screed coat of GU80-1 Custom Top Coat at a rate of 175 square feet per batch mix and lay out the .75 oz. fiberglass mat over the GU80-1 Custom Top Coat. Screed Coat shall be allowed to cure in accordance with manufacturer's instructions. For control joints or cracks, refer**

to the manufacturer's instructions, allow to cure for a minimum of 6 hours.

2. Trowel a second coat of GU80-1 Custom Top Coat mix over the .75oz fiberglass at a rate of 175 square feet per batch mix. Allow to properly cure for 4 to 6 hours before proceeding.

B. POLYMER MODIFIED ASPHALT (PMA) MEMBRANE APPLICATION

1. PD 2014 Reemay Fabric – shall be installed at all turn ups, penetrations and drains unless otherwise specified by Pli-Dek, Inc. Apply 30 mils WFT of PMA to areas which PD 2014 Reemay Fabric will be applied. Embed PD 2014 Reemay Fabric Install the specified system on top of the horizontal leg of the PD 2014 Reemay Fabric. Any areas that will be exposed to the elements are to be covered with 30 mils WFT of PMA-UV.
2. All pre-treat coats must cure a minimum of 12 hours prior to the application of the membrane.
3. All surfaces of pre-treat or sealant preparations shall be wiped clean with Xylene prior to the application of the field membrane.

C. COLD RUBBER HIGH BUILD (CR) MEMBRANE APPLICATION

1. Sloping of the structural deck surface at 1/8" per foot, or per local Building Code requirements.
2. Shrinkage cracks shall be treated with a pre-treat coat of Pli-Dek Waterproofing Membrane – Cold Rubber High Build (60 mil).
3. Moving construction or structural cracks greater than 1/16" (1.5 mm) shall be routed out and sealant (polyurethane/ASTM C 920) installed prior to the installation of the Pli-Dek Waterproofing Membrane.
4. At all horizontal / vertical junctures and projections a sealant fillet (cant) of 3/4 "X 3/4" (polyurethane/ASTM C 920) shall be installed.
5. Caulking must cure a minimum of 12 hours prior to the application of the membrane.
6. Pli-Dek Waterproofing Membrane – Cold Rubber High Build shall be installed by roller, trowel, or smooth squeegee application at a rate of 60 to 120 mils (25 square foot per gallon) wet film thickness (WFT). Allow membrane to cure a minimum of 2-4 hours before proceeding to subsequent coats. Cure time will vary depending on temperature and humidity.
7. If more than 48 hours pass between coats, the surface **must be** primed with the Pli-Dek Cold Rubber Primer.
8. Contact Pli-Dek for additional information when installing at a thickness above 90 mils in a single pass.

D. HOT RUBBERIZED ASPHALT (HR) MEMBRANE APPLICATION

1. Sloping of the structural deck surface at 1/4" per foot (6.4mm/.3m) or per local Building

Code requirements.

2. All surfaces to receive HR require primer to insure adhesion to the substrate. Asphalt Primer shall be installed at a rate of 200 square feet per gallon by roller or sprayer.
3. Shrinkage cracks shall be treated with a pre-treat coat of Pli-Dek Waterproofing Membrane – HR (60 mil). Moving construction or structural cracks greater than 1/8" (1.5mm) shall be routed out and sealant (polyurethane/ASTM C 920) installed prior to installing a pre-treat coat of Pli-Dek Waterproofing Membrane.
4. At all horizontal / vertical junctures and projections a (cant) of 3"x 3" with HR at a rate of 90 mil and PD- 2014 Reemay Fabric or PD Neoprene Flashing embedded into the HR.
5. At expansion joints, contact Pli-Dek Systems, Inc. for specific job-site condition recommendations.
6. All metal surfaces of pre-treat or sealant preparations shall be wiped clean with Xylene prior to the application of the field membrane.
7. The membrane shall be heated in double jacketed, oil bath or air jacketed melter with mechanical agitation, specifically designed for the preparation of a rubberized asphalt membrane.
8. Heat membrane until membrane can be drawn-free flowing at a temperature range between 350°F (176°C) and 400°F (204°C).
9. After applying Primer application of the first coat of Pli-Dek Waterproofing Membrane – HR shall be installed by squeegee application at a rate of 60 mils wet film thickness (WFT).
10. Lay PD-2014 Reemay Fabric into the HR, it shall have overlaps of 2" minimum and end laps of 4". Stagger all end overlaps. Immediately install the second coat of HR over the PD-2014 Reemay fabric at a rate of 60 mils wet film thickness (WFT).
11. Contact Pli-Dek for additional information with regards to the use of a Separation Sheet.

E. PROTECTION COURSE

1. Specified protection course is placed over properly cured Pli-Dek Fluid Applied Waterproofing Membrane (as specified).
 - a. Layout specified protection course over the cured Pli-Dek Fluid Applied Waterproofing Membrane with a minimum of 1 1/2" side overlaps and 3" end laps.
 - b. Cut and fit the specified protection course around penetrations with a maximum of 1" variance from the penetration

F. DRAIN BOARD

1. PD Drain Board as specified may be placed over the specified protection board and/or properly cured Pli-Dek Fluid Applied Waterproofing Membrane.
 - a. Roll the specified PD Drain Board over the protection board (if specified) or over

- the cured Fluid Applied Waterproofing Membrane.
- b. Butt the side and roll ends together and overlap the filter fabric on to the adjacent roll to provide a continuous mat for separation of soils or overburden.
 - c. Cut and fit the PD Drain Board around penetrations with a maximum of 1" variance from the penetration.
2. On horizontal application, it is recommended tape is applied to seams to prevent debris from getting into the drainage system.

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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.

G. CLEAN UP

1. Uncured material can be removed with a solvent. Cured material can only be removed mechanically; care must be taken.

H. FLOOD TESTING

1. The Pli-Dek Fluid Applied Waterproofing Membrane shall be properly cured prior to water testing.
2. Flood Testing is recommended per ASTM D 5957 with 2" of water for a minimum of 24 hours.
3. As an alternative, Electronic Field Vector Mapping may be used.

I. LIMITATIONS

1. Application Temperatures: 40°F (4°C).
2. Cure times are dependent on environmental conditions, substrate temperature, air temperature, humidity, wind speed, etc. Care must be taken to ensure that the product is applied in a uniform fashion; the products should not be allowed to puddle.

IV. Slip and Fall Precautions

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 user's 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 ensure that you are using the latest, most complete information, contact Pli-Dek Systems, Inc., at: