Duradek Application To Concrete

1. Deck condition: concrete slab must be dry, clean, smooth, structurally sound and free of foreign materials that might prevent adhesive bond as outlined in ASTM F710, “Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring”.
2. Concrete surface be free of all chemicals, including coatings, oil, grease, wax, curing, sealing, hardening, parting compounds or other foreign materials that might affect membrane adhesion and/or cause membrane discoloration. If contaminates cannot be removed refer to *TechTalk #161 - Duradek Application to Coated or Sealed Surfaces.*
3. The specific composition of the concrete should be in accordance with the guidelines and practices of the American Concrete Institute (ACI) standards.
4. Concrete to have a trowel finish or profiled to create a bondable surface. Duradek requires an ICRI CSP-2-3 concrete surface profile (CSP). Due to the varying porosity of steel troweled concrete (CSP -1 profile), a bond test should be performed to ensure adequate bond. If an adequate bond is not achieved, the concrete surface should be light shot blast to csp-2-3. Concrete surfaces with a CSP-4 profile or higher will provide a rougher surface that could affect adhesion & membrane installed appearance. When dry grinding or shot blasting use a vacuum attachment. Avoid any procedure that re-wets the concrete.
5. Slope: recommend 1/4” in 12” slope. 1/8” in 12” is minimum acceptable slope but any dished areas could pond water & “Ultra” 60 mil membrane field seams could also “dam” water. Running membrane in direction of slope will reduce possibility of water damming at seams.
6. Every effort must be made to eliminate ponded water (defined as water of any depth remaining 48 hours after precipitation). Ponding water may decrease membrane life and accelerate fading due to the amplification of ultra violet light. Areas of ponded water are excluded from Duradek’s Manufacturers Warranty.
7. Deck flatness: deck surface to be relatively flat and smooth. If a 10 foot straight edge is placed anywhere on deck surface there should be no “dished” low spots greater than 1/8” deep. Small imperfections such as concrete trowel marks, small protrusions, impressions or pits are to be repaired.
8. Repair voids and delaminated areas with acrylic modified cement.

CSP 2
(grinding)
RECOMMENDED

CSP 3
(light shot blast)
RECOMMENDED

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9. Expansion and control joints are designed to allow the concrete slab to move. Do not apply Duradek membrane directly over an expansion joint. For slabs on grade a detail similar to Duradek's standard detail NH-04 can be used. For expansion joints where any water intrusion is a concern use a raised curb detail incorporating a flexible waterproof cap flashing. Control joints (saw cuts) can be filled with acrylic modified cement. Even with the control joints filled, membrane blistering can still occur.

10. Concrete to be dry and fully cured. Allow 28 days minimum for curing unless expressly instructed in writing by the Project Structural Engineer.

11. Concrete Moisture Testing - Moisture testing is mandatory. The owner is to have a qualified, accredited independent agency conduct moisture tests on which the owner or his representative can accept or reject the concrete work. Two test methods are recommended:

    - A vapor emission (MVER) test based on ASTM F1869, acceptable results not to exceed 3 lb / 1,000 sq. ft. / 24 h (1.5 kg / 100 m2 / 24 h), or
    - A relative humidity test based on ASTM F2170, acceptable maximum relative humidity not to exceed 85%.

    For quality control checks during installation the contractor can conduct a mat and primer test. To prepared concrete, bond a 2 sq. ft. piece of Duradek Ultra membrane with Duradek D763-1 trowel grade water based adhesive, seal the edges to stop water ingression. After 72 hours conduct visual & physical tests. If the adhesive below the membrane is partially or completely dissolved, is still wet, or has little bond, there is too much moisture present to proceed with membrane installation. If the floor covering is firmly bonded & removal of the covering with a putty knife reveals good adhesion, the installation can proceed.

12. There are products available that propose to reduce MVER's in concrete. The manufacturer, supplier or specifier of the product is to verify the suitability of these products.

13. Membrane adhesives:
    - For virgin concrete: Use D-811 contact or D-763 water based adhesive. D763 Adhesive can only be used on virgin concrete with a placed CSP 2-3 profile.
    - For virgin or existing concrete were contaminates have been mechanically removed: Only use D-811 contact
    - For virgin or existing concrete were contaminates have not been removed or complete removal is questionable: Use D-811 contact, first seal concrete with Zinsser BIN shellac based primer sealer. This option offers a limited warranty – see *TechTalk #161 - Duradek Application to Coated or Sealed Surfaces.*

14. Do not apply Duradek to concrete decks which a) incorporate a membrane in or below slab, or b) have design features that can increase the risk of added hydrostatic pressure. Added moisture can cause membrane adhesion failure.

a) A membrane installed below or in-slab can impede the movement of moisture & vapor out of the slab. Vapor by its nature wants to move from positive to negative pressure - hot to cold conditions. If a Duradek membrane is adhered to the top wear surface, vapor can be trapped between the two waterproofing planes. When the deck surface is exposed to the radiant heat of the sun, the vapor pressure can increase to the point where it can weaken or be greater than the original bond strength of the adhesive. Have the prime consultant confirm or dispel these conditions exist. On restoration work, a core test may be required.

Examples of this type of assembly would include:

- Split slab construction where the first or base pour is the structural slab on which the waterproof

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membrane is applied. The second pour is the wear surface.

- Concrete slab formed on a steel deck or pan. The steel substrate will not allow water or vapor drainage downwards.
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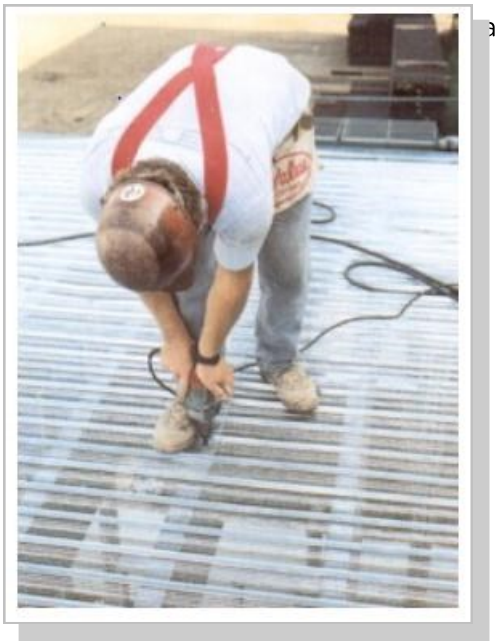
Note: Venting, composite or form decks have been used to allow for vapor transmission to the underside of the deck. The manufacturer, supplier or specifier of the product is to verify the suitability of the product.

- Concrete slab poured on a wood substrate. If this is an existing structure one would assume there would be an existing membrane protecting the wood structure

b) Examples of design features that can increase the risk of added hydrostatic pressure:

- Built – in planters or adjoining retaining walls
- Slabs below grade or located in low areas that can collect ground or rain water
- Water features
- Ramps or stairs built into grade

15. Concrete slab on grade to be placed on dry granular base material with vapor barrier/retarder below base material.
16. In conditions where the substrate is questionable or unacceptable for fully adhered application consider a vented raised wood deck assembly waterproofed with Duradek.



Note: *Duradek* is a supplier of waterproof deck membranes. The manufacturer, supplier or specifier of products (not supplied by Duradek) is responsible for assuring the compatibility and correctness for their use with *Duradek* PVC Membranes. *Duradek* does not assume responsibility for errors in design, engineering or dimensions.

In the event of adhesion failure, the responsibilities for warranties and/or performance guarantees rest with the manufacturer, supplier or specifier of products not supplied by Duradek.

If the conditions stated in this bulletin cannot be confirmed or met, do not proceed. Contact Duradek's Technical Department for consultation.