

TECHNICAL BULLETIN – TB216

RISING DAMP OR CONSTRUCTION MOISTURE SUPPRESSION SYSTEM USING ARDEX WPM300 AND WPM368

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INTRODUCTION & SCOPE

In situations where a new concrete slab or screed has been laid, the residual water in the concrete, called 'construction moisture' can create problems for subsequent floor covering systems. Older slabs, screeds and masonry walls can be subject to rising damp or migrating water and display all manner of moisture related damage.

Problems that can occur include efflorescence, tile and grout marking, tile deformation, mould growth or issues with the adhesives themselves in some cases.

In some circumstances an epoxy primer is required for the substrate rather than the normal primers. Typically these would be surfaces such as rigid polyester resin shower bases where the epoxy both protects the resin from the cement based adhesive, but also keys more effectively to the surface.

LIMITATIONS

This system is only applicable to concrete and cementitious screeds for *Ceramic Tiling* and that:

- ① Are hard prior to the installation of WPM300 or WPM368. Where applied on concrete as a moisture suppressant, the *recommended minimum* wait time when used prior to tiling is 7 days to allow for possible initial shrinkage and cracking. It also should be noted that certain tile adhesives require 28 days minimum cure of concrete.
- ① Sand cement screeds only need to be surface hard; typically this is within 24 hours.
- ① Epoxy priming with WPM300 does not work applied directly over metal surfaces, bituminous membranes, polyurethanes, polyolefins and is not usually recommended over ceramic tiles.
- ① Where the moisture content exceeds 5% or the relative humidity exceeds 85% (*when measured as per AS1884-2012 – ASTM F2170*) these barriers display slower drying and curing. Standing water prevents drying of WPM368 and markedly affects curing of WPM300.
- ① The coatings must be fully applied to screeded surfaces with care taken to prevent the development of pinholes. Sand-cement screeds have rough and irregular surfaces which require the barrier paste to be fully worked into the surface. *Multiple coats may be required.*

SYSTEMS

Concrete floors must be mechanically prepared to remove any laitance, curing compounds or other residues left over from the concrete pour. The concrete surface must be porous and not steel trowel or burnished finish.

Sand-cement screeds need to be firm with no loose sand or dusty material.

There are three methods for this installation:

Method 1 Green slab moisture stop or as an epoxy primer

- 1) A coat of WPM300 is applied to the concrete at a rate of 2.0m²-2.5m²/litre and whilst the WPM300 is still wet, clean dry sand (~0.3-0.5mm) is spread over the surface. The coverage rate is around 700gms/m² and 90% coverage (uniformly distributed) must be achieved. ARDEX Primer sand is recommended for this application.
- 2) The sand blinded and coated surface is allowed to dry & cure for a minimum of 12-16 hours and the excess sand is broomed and vacuumed off the surface.
- 3) The approved ARDEX tile adhesive is then applied to the rough sand blinded surface.

Method 2 Damp Slab Suppression

The process for a two coat WPM300 system is basically the same except the coverage is a minimum of 3m²/litre per coat and the sand is broadcast over the second coat. Depending on the ambient temperature, it is important *that a minimum of three hours has elapsed between coats.*

Method 3 Damp Slab Suppression

A coat of WPM368 is applied to the concrete at a rate of 3.0m²/litre. A second coat can be applied at the same coverage rate after the first coat has dried. This material can have the tile adhesive applied directly over the surface.

Important Detailing Considerations when used as a moisture suppression system

- a) The moisture barrier is to be continued up all concrete, rendered and other vertical surfaces to a distance of 150mm above the floor height. (Moisture can move sideways from other areas as well as vertically from the subfloor).
- b) **Note: All wall-to-wall, wall-floor, Gatic waste junctions, penetrations and all other mobile joints shall be reinforced with the 190mm wide Deckweb polyester bandage/tape.**
- c) A bond-breaker is to be used where hydrostatic pressure *is not an issue* at these mobile joints. This comprises a bead of neutral cure silicone sealant or polyurethane sealant applied in the corner. Ensure the sealant is fully cured before moisture barrier application.
- d) Where hydrostatic pressure is present, a fillet cove using ARDEX BR340/BR345 or ARDEX A46 will provide a smooth transition and eliminate sharp corners at walls.
- e) In the case of non-active cracks, these should be "V" gouged out to allow for sufficient filling of the crack. Prime with mixed ARDEX WPM300 and then fill with a WPM300 slurry made with either 25% by volume Portland cement, ARDEX A46 patch mortar, or ARDEX BR340/345 repair mortars. Keep the repair medium down approximately 2mm below grade and allow curing for twenty-four hours prior to further work.

Smaller hairline cracks can be treated by the application of the moisture barrier with a brush to a width of 100mm either side of the crack, and then whilst still liquid, ARDEX Deckweb tape is worked into the moisture barrier with a metal ribbed roller. A second coat of the moisture barrier is then applied with a brush over the embedded tape.

Cracks can also be injected with ARDEX RA54 *polyurea*, RA56 *polyurethane*, or RA88, RA142, RA144 or RA146 *epoxy crack filling materials*. In the case of RA54 and it is recommended that a bond breaker system be used over it (Deckweb with the barrier system) because the subsequently applied materials do not adhere well to their cured surface. The other products RA56, RA88, RA142, RA144 or RA146 shall be sand blinded before tiling.

It should be noted however, that these cracks are a structural defect and they may eventually mirror through to the subsequent floor coverings. ARDEX suggests all cracks to be noted on a floor plan for reference purposes. All cracks should be referred to a suitably qualified Structural Engineer for assessment, as active cracks will re-open or close, and produce show through, result in moisture problems or even damage the floor covering.

- f) In some cases where walls have been taken out and then the floor areas has been concrete filled, these may have to be scabbled out to a depth of 50mm or more and back filled with a special concrete that contains ARDEX WPM300 mixed into the concrete slurry. The mix design for the water resistant concrete is:

1 Part (by volume) mixed ARDEX WPM300 epoxy

1 Part Portland cement

1-1.5 Parts washed dry sand ~0.3mm

1 Part washed dry aggregate 3-8mm

Alternatively the water resistant ARDEX B34+B36 repair mortar system can be used up to 100mm thick.

IMPORTANT

This Technical Bulletin provides guideline information only and is not intended to be interpreted as a general specification for the application/installation of the products described. Since each project potentially differs in exposure/condition specific recommendations may vary from the information contained herein. For recommendations for specific applications/installations contact your nearest ARDEX Australia Office.

DISCLAIMER

The information presented in this Technical Bulletin is to the best of our knowledge true and accurate. No warranty is implied or given as to its completeness or accuracy in describing the performance or suitability of a product for a particular application. Users are asked to check that the literature in their possession is the latest issue.

REASON FOR REVISION

Addition of ARDEX RA142, RA144 and RA146 with some modifications to the text. Removal of B34/B36 and replacement with BR340/BR345.

REVIEW TIME

24 months from issue.

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