



TECHNICAL BULLETIN – TB162

LEVELLING CONCRETE POOL SURROUNDS FOR INSTALLATION OF SAFETY MATTING

24th January 2025

INTRODUCTION & SCOPE

Historically, swimming pool surrounds were typically bare concrete, but safety rubber or polyurethane matting is now the preferred surface for the surrounds of indoor and some external pools.

Compared with other resilient flooring, these coverings need a smooth surface, so the concrete normally requires patch repair and flood coat levelling. These surfaces typically also have to provide falls to allow drainage.

This technical bulletin describes several systems that allow the concrete to be waterproofed and levelled before the matting installation.

QUALIFICATIONS

The described systems are not intended for immersion and are, therefore, unsuitable for running down to the permanent water line or into the water itself. Where the floor covering is to be run to a gutter-type drain around the pool edge, correct detailing and waterproofing of the levelling compound and floor covering are required.

The concrete surround must be sound, and any signs of major concrete damage, concrete cancer or salt attack must be rectified before any levelling operations.

This procedure is not intended for application over pre-existing tile or fibreglass surfaces.

Expansion joints in the slab need to be maintained and suitably detailed through to the covering surface. Filling joints with a levelling compound can lead to cracking and show-through problems.

SURFACE PREPARATION

The concrete surfaces around pools commonly have a degree of salt or chloride contamination and would be classified as damp slabs. Therefore, the surface requires combined mechanical and a clean water wash before waterproofing.

FOR EXISTING POOLS

- 1) The concrete surface should be prepared mechanically using diamond grinding or shot-blasting methods. Suppose the surface has been salt-affected sufficiently that heavy-duty methods such as scabbling or scarifying are required to remove weak concrete. In that case, the concrete's integrity is questionable for applying levelling compounds. Where more severe methods are used, the resultant surface will likely require bulk filling before final levelling.
- 2) The surface is then vacuumed free of debris.
- 3) To remove salts and surface contaminants, the surface should be high-pressure water washed or high-pressure detergent washed using a nozzle pressure of not less than 7-10 MPa (1,000-1,500 psi). The surface is allowed to dry sufficiently so that no free water is present.



FOR NEW POOLS

These pools will not have contaminated concrete, so the surface only requires mechanical preparation and vacuuming.

PATCHING

Three options are recommended for areas with holes or other small areas in the concrete that require patching before the membrane is applied.

WATER RESISTANT MORTARS

- a) The concrete can be patched with ARDEX A46 repair mortar to a maximum depth of 30mm. Apply with a steel hand trowel working the mixed mortar well into the surface. If required, ARDEX A46 can also be used for final patching and modelling on the top of the smoothed surface.
- b) Where the depth exceeds 30mm, ARDEX A46 can be substituted by ARDEX BR345 utilizing an ARDEX WR Prime bonding bridge. This has a maximum thickness of 80mm

WATERPROOF MORTAR

A mix of epoxy-modified concrete can be used to fill holes. This mix is effectively waterproof and has a degree of salt resistance. By volume:

1 Part mixed ARDEX WPM300 Hydrepoxy

1 Part Portland cement

1-1.5 Parts washed dry sand ~0.3mm

1 Part washed dry aggregate 3-8mm

The curing time for this mix is approximately 24 hours.

WATERPROOFING

Applying a moisture barrier to the prepared concrete substrate achieves two things.

- a) Firstly, it can suppress rising salt and other contaminants deeper in the concrete than the surface preparation can reach, and
- b) It stops rising moisture since existing concrete surrounds would likely be classified as damp slabs due to splashing water. For new concrete, this method will eliminate issues with construction moisture and suppress moisture travelling into the concrete over time, rising to beneath the mat covering and producing problems

Two coats of ARDEX WPM300 provide the main moisture barrier. The second coat has a sand-blinded surface to bond with the smoothing cement.

- 1) ARDEX WPM300 is mixed as per the product data-sheet and applied at not more than 3m² per litre with a nap roller. The first coat is applied and allowed to cure for 2 hours.
- 2) A second coat is applied at 3m² per litre, and while the ARDEX WPM300 surface is still wet, sand is broadcast onto it at a rate of 700 gms/m². The required sand has a particle size of 0.3-0.5mm, is washed clean of organic material and clay, and is dry.
- 3) The sand-blinded ARDEX WPM300 is allowed to cure for 24 hours, and then any loose or excess sand is broomed and vacuumed off the surface.



LEVELLING COMPOUND FOR SURFACE

The surface requires levelling with a liquid-applied levelling compound, but where the concrete has insufficient fall, the levelling compounds have a limited capacity to create falls, and a bulk fill may be required. Several levelling compound options are provided.

PRECAUTIONS

* External and exposed smoothing operations are subject to weather incidents such as rain, strong wind and high temperatures.

- a) Where rain is expected, levelling compounds should not be applied since rain falling onto levelling compounds less than 12-18 hours old is likely to affect the material.
- b) High winds and raised temperatures can cause premature curing and water loss, resulting in polygonal surface cracking.

* Liquid levelling compounds will flow down slopes, and this needs to be considered.

* ARDEX internal and Ardurapid™ products should not be used in this application.

ARDEX K301

ARDEX K301 levelling compound is designed as an external wear surface and is fresh water and frost-resistant. The surface can be covered with matting (or left 'open', though close to the pool edge should be protected as pool water is chemically aggressive).

The minimum thickness of the application is 2mm, and the maximum is 20mm. The product has moderate falls/ramping capabilities and is better used as a levelling coating.

Open ARDEX K301 surfaces can be coated or have stencilled patterns applied. However, the surface itself is relatively smooth and difficult to broom finish, so slip resistance requirements need to be reviewed.

ARDEX A38

ARDEX A38 is an engineered screeding cement that can be used directly under floor coverings when the surface is correctly closed, provide a bulk-filled base for ARDEX K301 toppings, or be skim coated with ARDEX A46. This product can be used externally and in wet areas.

The minimum thickness applied to concrete with the bonding bridge is 15mm, and the maximum is unrestricted, but nominally, 50mm is recommended. If used unbonded, for example, when applied over waterproofing, the minimum thickness is 40mm.

Levelling compound surfaces are allowed to cure for 48 hours prior to the installation of the floor covering.

A high-build epoxy adhesive is recommended to bond the matting down. It should be water-resistant and suitable for this application.

WATERPROOFING THE SMOOTHING CEMENT SURFACE

This process will improve the moisture resistance of the system where the levelled surface goes down to a dish drain or edge gutter without a hob. As already noted, it is not recommended that the levelling compound be capable of exposure to fully immersed or constantly wet situations. There are two approaches to this problem.



The first involves leaving a small gap between the smoothed area and the gutter, or cutting a channel after the smoothing cement is applied. A generous coat of ARDEX WPM300 is coated onto and into this cut joint to provide a waterproof coating.

The section option involves creating a continuous finish into the gutter.

The levelling compound can be waterproofed with two coats of ARDEX WPM300 or ARDEX WPM002 back to a minimum of 300mm from the edge.

- 1) A bond breaker of neutral cure silicone should be applied along the edge between the gutter and the levelling compound and smeared for 10mm on either side of the joint.
- 2) The applied membrane needs to be turned into the gutter (the gutter material needs to be bond compatible), and the edge reinforced with ARDEX Deckweb embedded in the membrane.
- 3) The resilient covering adhesives applied must be compatible for direct application to the membrane. ARDEX WPM300 is a water-based polyamide cure epoxy, and ARDEX WPM002 is a cement-acrylic. Where a polyurethane mat adhesive is used, the recommended membrane is ARDEX WPM300.

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.

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