

## TECHNICAL BULLETIN – TB112

### PEBBLECRETE AND MARBLESHEEN

Date: Thursday April 2<sup>nd</sup> 2020

#### INTRODUCTION & SCOPE

A common question ARDEX Technical Services receives concerns the application of levelling compounds, waterproofing membranes and ceramic tile adhesives over 'Pebblecrete' and also the faux marble finish render that is used in swimming pools.

In this bulletin we shall briefly discuss the surface preparation required and why it isn't acceptable to apply materials over these finishes.

#### WHAT IS PEBBLECRETE?

During the 1970s and 1980s 'Pebblecrete' was introduced as a decorative rendering medium, or wear surface used on verandahs, decks, pool surrounds, driveways and often on tilt panel slabs and cement façade features. The basis of 'Pebblecrete' is a decorative aggregate, either natural pebbles or a manufactured equivalent and a binder. The binders can be either a Portland cement based material or a resin rich epoxy. Commonly the finished surface is coated with a clear and glossy polyurethane or acrylic sealant.

'Pebblecrete' should not be confused with concrete displaying exposed aggregate (sometimes polished) which is not an applied finish, but a treatment method of an existing concrete substrate.

#### PEBBLECRETE AS A SUBSTRATE

Adhering levelling compounds, tile adhesives or membranes to a surface requires that surface to be stable, well bonded and usually porous. Older 'Pebblecrete' surfaces can be poorly bonded which means that the surface can lift and break away, taking the overlying surface with it. Levelling compounds can develop a degree of tension during curing and tile systems tend to move with changes in temperature and wetness. These stresses can also affect the bond of 'Pebblecrete' to the substrate.

There can also be issues with adhesion to 'Pebblecrete' with regards to the binder, sealers and nature of the aggregate. Sealers can act as release agents which can lead to the applied material de-bonding. Resin rich epoxies can be difficult to bond to due to the surface properties and chemical inertness. Weathering can also lead to chalkiness in the epoxy which provides a weak layer. Highly polished and smooth river aggregates provide a non-porous surface which is not ideal for bonding to.



An example of a pool shell where tiles were applied over 'Pebblecrete' with generally poor adhesion of the tile adhesive.

## WHAT IS FAUX MARBLE

A moderately common approach to finishing the shell of concrete pools in the last 50 years has been the placement of a decorative render which is made from white cement and ground up marble or light coloured limestone. The mixture gives the appearance of the pool being lined with white stone, resembling a monolithic marble clad surface. One of the common names is 'Marblesheen', but also 'Marblelite', and there are also some other more modern tradenames in the industry.

## FAUX MARBLE AS A SUBSTRATE

The properties of this type of render are problematic where the material has aged and become porous and brittle which can occur in 10 years, though some pools last 30 years or more. Another feature of the render is the high cement content can make it prone to shrinkage and developing cracking and de-bonding.

As a substrate for tiling, the surface can end up being too weak even after surface preparation to 'open the matrix' or it can crumble and break up after being tiled. The shrinkage properties of a newly applied finish make it unsuitable for use with waterproofing membranes or barrier coats placed under the new render. The finish develops cracks or shears the membrane surface.

## RECOMMENDED SURFACE PREPARATION

ARDEX recommends the best way of dealing with 'Pebblecrete' surfaces prior to the application of levelling cements, ceramic tile adhesives and membranes is to **remove the material** from the surface via mechanical methods.

The marblesheen render is **also removed completely** by mechanical preparation prior to any attempts at re-waterproofing and/or tiling the pool. However, caution is required because pools rendered before 1990 can contain asbestos as part of the matrix (fibres help reinforcement) and hence removal requires careful evaluation of the pool, its age, and local regulations pertaining to handling asbestos containing materials (for example the QLD Govt., gives this advice; <http://www.deir.qld.gov.au/asbestos/know-where/marblesheen-pool-coatings-containing-asbestos.htm>).

Mechanical methods includes diamond grinding scabbling, scarifying, shot or grit blasting back to open porous concrete. The reason for this approach is that it removes any uncertainty as to the type or stability of the 'Pebblecrete' and marble render, and eliminates adhesive bond/compatibility issues.

## PEBBLECRETE AND MARBLESHEEN OVER ARDEX MEMBRANES

ARDEX does not recommend the application of "Pebblecrete" or Marblesheen over any of our membranes. There are a number of reasons for this, but the most critical one is potential for shrinkage of the "Pebblecrete" or 'Marblesheen' on the surface of the membrane.

Waterproof membranes (Class II and III especially) are flexible and not intended to resist the shrinkage stress that an applied layer of "Pebblecrete" or Marblesheen would exert. ARDEX has seen a number of failures over the years that relate to this particular problem, typically with the applied finish lifting the membrane off the shell, or developing cracking..

In conclusion, ARDEX does not recommend the application of "Pebblecrete" or Marblesheen over ARDEX WPM002 which is used in pools, or any other membranes we manufacture (such as WPM001, WPM155R or WPM750-1000) which may be used in adjacent areas.

**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 or Ardex New Zealand 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 – ISSUER**

CHANGE OF TITLE AND ADDITION OF “PEBBLECRETE AND MARBLESHEEN OVER ARDEX MEMBRANES” SECTION

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