



**Ardex Technical Note 4.1:**

## Specifying Tiling for Swimming Pools – Swimming Pool Construction & Waterproofing

Swimming pools must be designed and constructed to meet the water-tightness criteria in accordance with British Standard 8007:1987, which states “that during the 7 day test period the total permissible drop in water level after allowing for evaporation should not exceed 1/500th of the average water depth of the full tank, 10mm or another specified amount such as the SPATA Standard of 12mm”. Note that ceramic tiling is in addition to rather than a part of the tanking system.

### Pool Construction

There are a number of different methods of pool construction which will achieve the watertightness criteria.

#### Common Pool Construction Methods & Guidelines

- Reinforced concrete blocks or reinforced patent blockwork (NB Rendering becomes part of the watertight construction as stated in BS 8007:1987)
- Spray applied concrete – e.g. Guniting or Shotcrete
- Site cast reinforced concrete should be installed in accordance with BS 8007
- Cavity wall construction containing reinforced concrete
- Structural movement joints should be avoided in the pool shell.
- Some concrete swimming pools, such as those with moveable floors, may be so accurately constructed that they may be tiled directly to without the need for a screed or render. Such concrete shells require high levels of accuracy in the construction and critical surface preparation for tiling.
- However, it is more common to specify a screed or render due to the degree of accuracy, tolerances and preparation work required for direct fixing.

### Pool Surround Construction

Guidance on pool surround construction can be found in BS8007.

The pool surround should be laid to falls; in the case of a deck level pool towards the deck level channel and freeboard pools away from the pool into drainage channels around the perimeter of the pool surround. These falls should be between 1:35 and 1:60 dependent on the width of the surround and the type of tiles to be used.

The structural concrete should be set to falls and not the screed.

If there are rooms adjacent to the pool surround, which are located below the pool surround level, there is a likelihood that water may migrate into these lower areas. In these cases tanking is required between the pool surround slab, the tiling, and any perimeter walls in order to avoid this occurring.





## Background Preparation

It's also important to understand the backgrounds for tiles to bond to and how they will affect your specification choice of adhesive.

Always specify that backgrounds are:

- Free from debris
- Clean
- Sound
- Level
- Dry
- Appropriate for the given conditions
- Dimensionally stable - This is important as expansion and shrinkage can be caused by the effects of changes in moisture content. For example, avoid wood based materials, such as sheets and boards that expand or contract with changes in atmospheric humidity as explained in BS5385.
- Dimensional stability is also important when considering movement under loads - A lack of rigidity of the supporting background will incur unacceptable deflections under loads and impacts. Ceramic tiling is a basically rigid finish and therefore requires rigid support.

And when specifying onto boards and membranes always refer to the manufacturer's instructions.

## Concrete Shells - Curing & Drying Times

The need for adequate curing and drying times before tiling is essential. BS 5385 Part 4 provides guidance on this.

For Concrete - allow at least 6 weeks drying time under good conditions. Mass concrete structures e.g. swimming pool tanks may take longer to dry. In Northern Europe the statutory drying time is 6 months.

## Renders and Screeds - Curing & Drying Times

As with concrete shells, the need for adequate curing and drying times for renders and screeds before tiling is essential and BS 5385 Part 4 can provide guidance on this also.

- *Portland Cement and Sand Screeds*  
After 7 days curing allow at least 3 weeks drying time under good site conditions (20°C and 65% relative humidity) before fixing ceramic tiles or natural stones.
- *Cement and Sand renders* – for swimming pools allow 2 weeks drying.

- *ARDEX Rapid Drying and Hardening Systems*

**ARDEX AM 100** Rapid Hardening One Coat Tiling Render is used as a wall render prior to tiling. ARDEX AM 100 can be applied from 2-20mm thick, and tiling can commence after just 2 hours at 20°C.

**ARDEX S 21** Rapid Hardening Flooring Tile Bedding Mortar can be applied neat to the floor at up to 10mm. Tiling can commence after 3 hours at 20°C.

**ARDEX S 21** Rapid Hardening Flooring Tile Bedding Mortar, filled with screeding sand, can be applied to the floor to produce 10-30mm base. Tiling can commence after 3 hours at 20°C.

**ARDEX A 38** Rapid Hardening and Drying Cement for Floor Screeds can make up a concrete base for a 15-50mm bonded screed. Tiling can commence after 3 hours at 20°C.

**Note** - If the background is new and still shrinking then a rapid hardening render will be of no benefit. In some cases a rapid hardening and rapid drying render can be installed on proprietary mesh reinforcement systems over new backgrounds so that the tiles can be installed 24 hours later. This procedure allows the background to continue to dry and shrink without affecting the applied materials.

## Surface Regularity

Check for surface regularity as specified in BS5385.

## Smoothing Compounds

Any holes can be filled with ARDEX Rapid Repair Mortar.

As a flat base is needed for tiling on to, smoothing compounds are an ideal and cost effective way to achieve this. Some adhesives may be used for pre-smoothing, although this is convenient, it may not be the most cost effective method.

Commonly there are two types of smoothing compounds – 2 part latex or powder/water based. ARDEX Technical Services are able to provide detailed guidance. Many ARDEX compounds can be pumped at a rate of 3-400m<sup>2</sup> per hour - ideal for large projects.

## Waterproofing

A waterproofing system needs to be applied in order to protect the walls and floors and prevent any water leakage. A waterproof coating system such as ARDEX S 7 can be applied to ensure the swimming pool is water tight and free from leaks.

Apply to walls and floors prior to tiling. Ensure appropriate joint tapes are used.