INSTALLATION GUIDELINE

Type: RESIDENTIAL SWIMMING POOLS ONLY
Fixing Ceramic Mosaics or Porcelain Mosaics

1 December 2024

IMPORTANT:

- **NB: TILING OF SWIMMING POOLS IS A SKILLED OPERATION, AND SHOULD ONLY BE UNDERTAKEN BY COMPETENT AND EXPERIENCED ARTISANS WITH THE CORRECT TRAINING. APPLICATION BY UNSKILLED LABOUR IS NOT RECOMMENDED.**
- **This Installation Guideline is issued for information purposes only, and should not be used as a project specification.**

  Please contact the TAL Technical Advice Centre to ensure you have the latest version of this Installation Guideline, as products and application procedures can change.
- **As each and every project needs to be assessed individually on its own merits and characteristics, please contact the TAL Technical Advice Centre for a project-specific detailed materials and methods specification for specific projects.**
- **It is important that the tile selected is suitable for the application, preferably against a written Supplier's specification. Factors such as water absorption, irreversible moisture expansion, MOR and PEI ratings, chemical resistance and overall stability of the product need to meet the requirements of the service conditions.**

  NB: The backs of all tiles must be clean and free from all traces of dust and contaminants which could impair adhesion.

THE TAL PRODUCTS REQUIRED FOR THIS INSTALLATION ARE AS FOLLOWS:

TAL KEYCOAT + TAL KEYMIX
TAL MOSAICFIX
TAL SCREEDBINDER

NB: Prior to commencing the installation, please refer to the instructions on the packaging and product data sheets for more detailed information pertaining to substrate preparation, product mixing and application, curing times, etc. The products must be applied following a good standard of workmanship.

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SPECIAL NOTE MUST BE TAKEN OF THE FOLLOWING:

Swimming Pools:

- **NB: The shell of the pool must be tested and proved watertight before tiling is commenced. Tiles and mosaics are installed as an aesthetic finish only.**
- **All construction / cold joints and structural joints in the background as well as discontinuities in building materials (eg interfaces between concrete and brickwork) must be identified and clearly demarcated, and must extended through the adhesive and tile layers to the surface in the form of tile panel movement joints.**
- **The tile installation must be allowed to cure for a minimum of 10 days after completion of tiling/grouting before being filled with water.**
  - The pool must be filled slowly to allow gradual exposure of the installation (pool structure and tiles) to water pressure, thermal and moisture differentials. Too-rapid filling of the pool could result in an installation failure (tiles cracking, etc).
  - The pool should not be filled if there is a possibility of large thermal changes (ie in winter, very cold water into an outdoor pool which has been exposed to direct sunlight for an extended period).
  - Emptying of the pool must also be undertaken gradually.

Concrete / Off-Shutter Concrete Substrates:

Concrete substrates may have the residues of shutter release agents remaining in the surface in addition to curing agents, laitance and/or efflorescence deposits that will impair the ability of the tile adhesive from forming an adequate bond onto these substrates, which may result in an installation failure.
Surface preparation such as grinding, abrasive blasting or high-pressure water hosing may be required to achieve an open-pored textured substrate suitable for tiling.

Mosaics:

To facilitate ease of handling, mosaics are assembled as sheets, the individual tessera being glued either face-down onto paper or plastic (paper-faced mosaics), or bed side down onto a synthetic mesh backing, fabric, or onto small tabs. Paper-faced mosaics are preferable since they allow full contact to be achieved with the adhesive bedding.
When sheets are assembled by means of a backing mesh, the mesh should be made of water-resistant synthetic fabric such as nylon, and not from cotton or paper.
In the case of a mosaic that has been assembled with a fabric backing or tabs, the following is critical for a successful installation:

- The fabric or tabs and the bonding adhesive should not occupy more than 25% of the areas of each tesserae; the critical factor is the contact of the adhesive with the backs of the tesserae.
- The fabric or tabs and the bonding adhesive should be water resistant, should not weaken when exposed to moisture, and should be compatible with the adhesive bed.
- The backs of the sheets must be clean and dry, and not contaminated with dust or powder.

Furthermore:

- **The installation of mosaics requires a clean, sound, flat and level substrate. Variations in levels in the substrate must be rectified prior to the mosaic installation.**
- **The installation of mosaics requires effective supervision and the employment of skilled operatives. Good adhesive mixing and application procedures, as well as consistent and accurate installation techniques are essential.**
- The mosaics should be FIRMLY bedded into the adhesive to ensure good contact between the adhesive and tile.

- All mosaics should be inspected, and loose or damaged tesserae removed and replaced before installation.

Please refer to the manufacturer's instructions regarding cleaning and maintenance of these mosaics after installation.

Adhesive & Grout Systems for Mosaics in Swimming Pools:

We have specified TAL MOSAICFIX **quick-setting** high-strength adhesive, **mixed with TAL SCREEDBINDER as a total water replacement in the mix**, for this installation.

This high-strength modified latex additive will encapsulate the adhesive particles and offer a higher degree of imperviousness and resistance than traditional latex additives (such as TAL BOND).

It must however be noted that the pH levels of the water in the swimming pool can affect cementitious compounds, ie if the water is too acidic it can cause the 'grout' in the joints to erode over a period of time.

It is thus imperative that constant pH maintenance is enforced for this installation. Acids and chemicals should also be diluted in water before being introduced into the pool. TAL will not be liable for erosion of grout (adhesive) from between the joints due to poor maintenance.

If constant pH cannot be maintained, and provided that the joints between the mosaics are a <u>minimum of 3mm wide</u>, grouting the joints as a second operation using TAL WATER-BASED EPOXY GROUT, may be considered.

This will however be a very intricate and labour intensive process.

Surplus adhesive must be carefully removed from the joints to a depth equivalent to the thickness of the mosaic tesserae, before the adhesive dries/hardens completely. Dry adhesive is significantly more difficult to remove.

NB: For the tile panel movement joints and perimeter joints it is essential that the adhesive is completely removed, down to the substrate.

Due care must be taken to ensure the mosaic installation is not damaged or disturbed during cleaning out of the joints.

It is important that newly installed tiles are protected from traffic (other trades, etc) while the adhesive sets. This is especially important in fast-track installations.

Too early trafficking of newly installed tiles before the adhesive has set sufficiently may result in an impaired bond (hollow-sounding and/or loose tiles).

External Installations:

External installations must be protected against inclement weather and too-rapid drying (direct sunlight, drying winds, etc) whilst the adhesive and grout sets.

Tile Panel Movement Joints & Perimeter Joints:

It should be noted that the lack of, ***or poorly constructed***, intermediate tile panel movement joints in a tile panel is a major cause of tile failure.

Joints must be created at the required spacing and must be well raked out to remove all traces of adhesive residues, debris, contamination, etc, ie the joint must extend through the tile and tile adhesive layers down to the substrate.

These joints must be filled and sealed with a suitable backing cord/tape and **chemical and acid resistant** resilient joint sealant material in accordance with the manufacturer's instructions.

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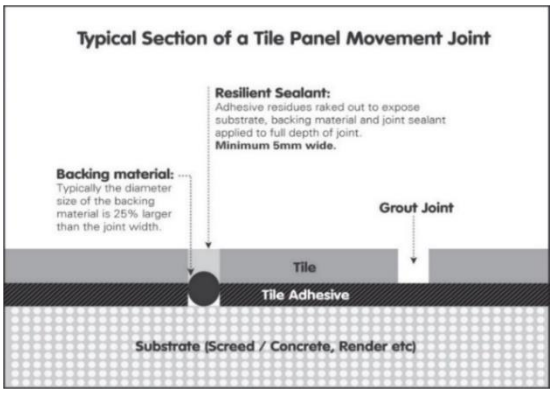

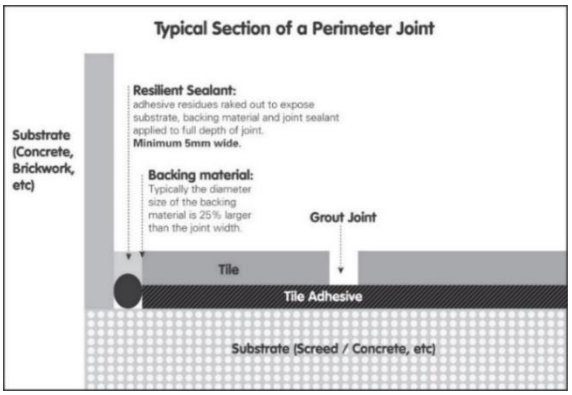

Application Conditions:

Cold Ambient Conditions

Cold ambient conditions will not only impact on the temperatures of the adhesive, grout and mixing liquid (water or additive used in the adhesive and grout mix), but also the temperature of the substrate and tiles.

NB: Longer setting and curing times should thus be anticipated and catered for during extreme cold conditions.

High Ambient Conditions

As indicated on the product data sheets, warm weather conditions (generally, temperatures above 30°C) may shorten the working time of the mixture, and may even result in flash-setting of rapid- or quick-setting adhesives.

High ambient conditions will also impact on the temperatures of the adhesive and grout, mixing liquid (water or additive used in the adhesive and grout mix), substrate (concrete or screed), and tiles.

It is thus important when elevated ambient conditions are encountered that the materials (adhesives, liquids, tiles, etc) are stored in interior, cool conditions prior to use to reduce the risk of too-rapid setting.

NB: Never add more liquid to a mix which has been left standing for too long, as this will compromise the integrity of the product.

1. BACKGROUND PREPARATION

1.1 Concrete

1.1.1 **Allow all new concrete work to cure for at least 6 weeks before proceeding. The substrate should attain a moisture content of 5% or less before tiling is commenced.**

When tiling directly onto concrete, ensure that the surfaces are clean and free of all traces of shutter release and curing agents, laitance and any other surface contaminants, preferably by diamond grinding or high-pressure hosing, etc.

1.1.2 **The substrate must be of sufficient strength, must be integrally sound (no crumbling, cracking, etc) and must be of a quality and consistency suitable for tiling. All damaged, defective, deteriorated or hollow sounding areas must be removed and made good before proceeding.**

1.1.3 **NB: Any contamination from other trades and general surface contaminates must be identified and removed. The substrate must be clean and dry and free from all traces of dust, loose particles and surface contaminants which could impair adhesion.**

1.1.4 If the surface has been woodfloated it is possible to commence tiling. However, if the surface is off-shutter or has been steelfloated it will be necessary to first key the surface with a slurry consisting of 1 part TAL KEYCOAT to 2 parts TAL KEYMIX powder ***or*** 2 parts TAL GOLDSTAR 12 powder (by volume), applied using an appropriate builder's block brush and ensuring complete coverage of the substrate. Allow this slurry coat to dry for 4 – 6 hours before applying the adhesive.

1.2 **Render & Screed**

1.2.1 **Allow all new wall rendering and screeds to cure for at least 2 weeks and 4 weeks respectively before proceeding. The substrate should attain a moisture content of 5% or less before tiling is commenced.**

1.2.2 **The rendering and screeding must be firmly bonded to the underlying substrate, must be of sufficient strength, must be integrally sound (no crumbling, cracking, etc) and must be of a quality and consistency suitable for tiling. All damaged, defective, deteriorated or hollow sounding areas must be removed and made good before proceeding.**

1.2.3 **NB: Any contamination from other trades and general surface contaminates must be identified and removed. The substrate must be clean and dry and free from all traces of dust, loose particles and surface contaminants which could impair adhesion.**

1.2.4 If the surface has been woodfloated it is possible to commence tiling. However, if the surface has been steelfloated it will be necessary to first key the surface with a slurry consisting of 1 part TAL KEYCOAT to 2 parts TAL KEYMIX powder ***or*** 2 parts TAL GOLDSTAR 12 powder (by volume), applied using an appropriate builder's block brush and ensuring complete coverage of the substrate. Allow this slurry coat to dry for 4 – 6 hours before applying the adhesive.

1.3 **Gunite & Marbelite**

1.3.1 **The Gunite and Marbelite must be in good condition and must be firmly bonded to the concrete subsurface. Underlying concrete/brickwork. Where necessary, existing surfaces should be acid washed and neutralised in accordance with the manufacturer's instructions to remove all traces of algae, dirt, grime, etc.**

1.3.2 **The Gunite and Marbelie substrate must be of sufficient strength, must be integrally sound (no crumbling, cracking, etc) and must be of a quality and consistency suitable for tiling. Any damaged, defective, deteriorated or hollow sounding areas must be removed and made good before proceeding.**

1.3.3 **The substrate should attain a moisture content of 5% or less before tiling is commenced.**

1.3.4 **NB: Any contamination from other trades and general surface contaminates must be identified and removed. The substrate must be clean and dry and free from all traces of dust, loose particles and surface contaminants which could impair adhesion.**

1.3.5 Key the surface with a slurry consisting of 1 part TAL KEYCOAT to 2 parts TAL KEYMIX powder ***or*** 2 parts TAL GOLDSTAR 12 power (by volume), applied using an appropriate builder's block brush and ensuring complete coverage of the substrate. Allow this slurry coat to dry for 4 – 6 hours before applying the adhesive.

2. ADHESIVE SYSTEM

2.1 Add 20kg TAL MOSAICFIX adhesive to **6 – 6.5 litres of TAL SCREEDBINDER (replacing the water in the mix)** and mix to a smooth, creamy consistency.

2.2 **Paper-Covered Mosaics**

2.2.1 The adhesive is applied to the surface in a solid bed of 4 – 6mm. (The adhesive can be applied using a NOTCHED FLOOR TROWEL, and the adhesive then smoothed with the straight edge of the trowel to flatten the ridges.)

2.2.2 The mosaics are pre-grouted by working adhesive into the joints between the mosaics from the back.

2.2.3 Immediately, **FIRMLY** bed the mosaics into the adhesive on the background. A wooden beating block or rubber grouting float can be used to create a flat surface.

2.2.4 Allow the adhesive to dry sufficiently, and then **gently** remove the paper covering on the mosaics with a dampened sponge. **Excessive water must be avoided as this may compromise the integrity of the adhesive.** If necessary, fill any voids or depressions with the adhesive mixture.

2.3 **Mesh-Backed Mosaics**

2.3.1 The adhesive is applied to the surface in a solid bed of 4 – 6mm. (The adhesive can be applied using a NOTCHED FLOOR TROWEL, and the adhesive then smoothed with the straight edge of the trowel to flatten the ridges.)

2.3.2 Immediately, **FIRMLY** bed the mosaics into the adhesive, ensuring that the adhesive penetrates (oozes) through the mesh-backing into the joints between the tesserae. A wooden beating block or rubber grouting float can be used to create a flat surface.

2.3.3 Allow the adhesive to set for approximately 20 minutes to ensure that the mosaic sheets are not disturbed. Thereafter, fill the joints with the same adhesive. In this instance a 'wet to wet' bond between the bedding and grouting is preferred.

2.3.4 For areas larger than 1m², it may be necessary to mix fresh adhesive for filling the joints to ensure that the adhesive is still workable and of a consistency suitable for filling the joints.

2.4 **General**

2.4.1 At no time spread more adhesive than can be tiled onto in 10 – 15 minutes. This prevents the adhesive from drying or "skinning" before the tiles are applied.

2.4.2 Pot life of the adhesive will vary with climatic conditions. Under no circumstances should adhesive which has been left standing for too long be reconstituted by adding more liquid.

2.4.3 Leave a 'grout joint' between the mosaic sheets, the same width as the joints between the mosaics on the sheets.

2.4.4 Do not tile over structural, expansion or cold joints in the background. These joints must be extended through the various layers to the surface.

2.4.5 **Gently clean any excess adhesive off the face of the mosaics immediately – do not allow the adhesive to dry on the face of the tiles.**

NB: Special care must be taken not to dislodge or remove the grout from the joints, or to get water into ungrouted joints.

3. MOVEMENT JOINTS

3.1 It should be noted that the lack of movement joints in a tile panel is a major cause of tile failure. They should be specified at the design stage to avoid spoiling the visual effect of the tiles.

3.2 **Tiling to Pool Floor & Walls**

3.2.1 **Movement joints should be located in both directions at maximum 3 metre centres for this application, as well as around the perimeter of the floor.**

3.3 **Tiling to Scumline Area Only**

3.3.1 **Movement joints should be located at maximum 3 metre intervals along the length of this installation.**

Note: When tiling to the Scumline area only, the base of the mosaic installation should ideally be protected against the ingress of water behind the tiles at this interface by suitable means, such as applying a wide bead of a suitably chemical and acid resistant joint sealant material over the adhesive "joint" between the mosaics and substrate.

3.4 **General – All Installation Areas**

3.4.1 **Movement joints should also be located in all vertical and internal corners/interfaces, against obstructions fixed to the structural background and over all discontinuities in building materials. In addition, movement joints should be located around any fixtures protruding through the tiled surface, such as outlets and fittings, etc.**

Movement joints must also be created between the pool mosaics and coping tiles.

3.4.2 **The joints should be at least 5mm wide and extend through the adhesive and tile layers. All construction / cold joints and structural joints in the background must be extended through the adhesive and tile layers to the surface in the form of tile panel movement joints. With regards to structural joints, the full width of the structural joints must be respected and extended through the adhesive and tile layers to the surface.**

3.4.3 Where practical, the bulk of the depth of the movement joint can be filled with an inexpensive, compressible material such as polyethylene foam strips.

3.4.4 Seal the joint using a suitable **chemical and acid resistant** resilient sealant in accordance with the manufacturer's instructions. It is important that the joint sealant bonds only to the sides of the movement joint (edges of tiles).