

# INSTALLATION GUIDELINE

Type: **RESIDENTIAL SWIMMING POOLS ONLY**  
Fixing Glazed Ceramic Floor Tiles or Porcelain Tiles



Friday, 1 December 2023

## **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 GOLDSTAR 12

TAL BOND / TAL BOND POWDER

**Epoxy Grout Option:** TAL WATER-BASED EPOXY GROUT

**Cementitious Grout Option:** TAL HIGH TRAFFIC GROUT + TAL BOND

**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 extend through the adhesive and tile layers to the surface in the form of tile panel movement joints.**
- **It must be noted that the pH levels of the water in the swimming pool can affect cementitious grouts, ie if the water is too acidic it can cause the grout in the joints to erode over a period of time. Epoxy-resin compounds, which are impervious to dilute acid and alkali attack, are thus recommended for use in swimming pools, particularly if constant pH maintenance cannot be guaranteed.**

**If a cementitious grout system is to be used, it is 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 from between the joints due to poor maintenance.**

- **The tile installation must be allowed to cure for a minimum of 10 days after completion of 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.

### **Adhesive System:**

We have specified TAL GOLDSTAR 12 **quick-setting** high-strength adhesive, **mixed with TAL BOND as a total water replacement in the mix**, for this installation.

**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).**

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## Epoxy-Resin Grout Installations:

- **NB: The installation of resin compounds requires effective supervision and the employment of skilled operatives. Resin compounds should only be applied by experienced and competent personnel with the correct training. Application by unskilled labour is NOT recommended.**
- **The compound must be mixed and applied strictly in accordance with the instructions on the packaging and data sheet.**  
**NB: The addition of any other substances, including water, will compromise the integrity and performance of the product.**
- **High ambient temperatures will considerably shorten the working time of the epoxy, and flash-setting may occur.**
- **Full cure and chemical resistance will be achieved after 7 days. It is imperative that this installation is suitably protected from water, cleaning agents and service conditions until fully cured (minimum 7 days).**  
**Filling of the pool may only commence 10 days after completion of grouting.**
- **Under no circumstances whatsoever should any cleaning agents or compounds other than those recommended be used for cleaning.**

## External Installations:

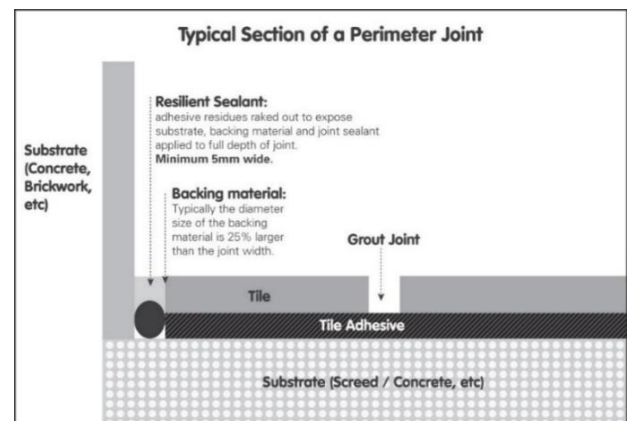
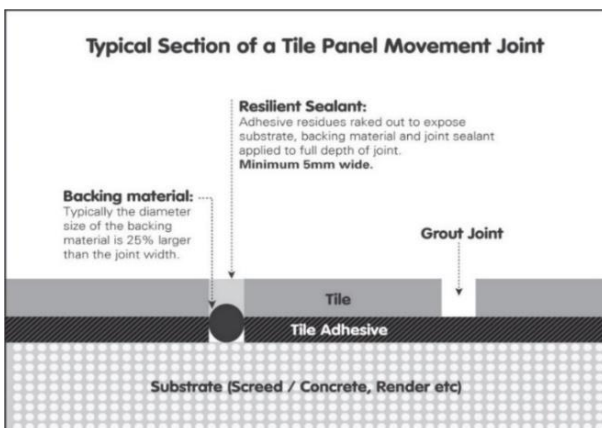
**External installations must be protected against inclement weather and too-rapid drying (direct sunlight, drying winds, etc) whilst the adhesive and grout sets.**

## 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.



# INSTALLATION GUIDELINE

**Type: RESIDENTIAL SWIMMING POOLS ONLY**  
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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 Render**

**1.1.1 Allow all new wall rendering to cure for at least 14 days.**

**1.1.2 The rendering 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.**

**1.1.3 The substrate must attain a moisture content of 5% or less before tiling can be commenced.**

**The substrate must be clean and dry and free of 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 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 Screed**

**1.2.1 Allow all new screeds to cure for at least 4 weeks before proceeding.**

**1.2.2 The 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.**

# INSTALLATION GUIDELINE

Type: **RESIDENTIAL SWIMMING POOLS ONLY**  
Fixing Glazed Ceramic Floor Tiles or Porcelain Tiles



1.2.3 **The substrate must attain a moisture content of 5% or less before tiling can be commenced.**

**The substrate must be clean and dry and free of 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 Concrete

1.3.1 **Allow all new concrete work to cure for at least 6 weeks before proceeding.**

**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.**

1.3.2 **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**

1.3.3 **The substrate must attain a moisture content of 5% or less before tiling can be commenced.**

**The substrate must be clean and dry and free of all traces of dust, loose particles and surface contaminants which could impair adhesion.**

1.3.4 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.

## 1.4 Gunite

1.4.1 **The Gunite 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.**

1.4.2 **The Gunite 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.**

1.4.3 **The substrate must attain a moisture content of 5% or less before tiling can be commenced.**

# INSTALLATION GUIDELINE

Type: **RESIDENTIAL SWIMMING POOLS ONLY**  
Fixing Glazed Ceramic Floor Tiles or Porcelain Tiles



**The substrate must be clean and dry and free from all traces of dust, loose particles and surface contaminants which could impair adhesion.**

- 1.4.4 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.

## 1.5 **Marbelite**

- 1.5.1 **The Marbelite must be in good condition and must be firmly bonded to the underlying concrete/brickwork. Where necessary, existing surfaces should be acid washed and neutralised in accordance with the manufacture's instruction to remove all traces of algae, dirt, grime, etc.**

- 1.5.2 **The Marbelite 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.**

- 1.5.3 **The substrate must attain a moisture content of 5% or less before tiling can be commenced.**

**The substrate must be clean and dry and free from all traces of dust, loose particles and surface contaminants which could impair adhesion.**

- 1.5.4 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.

## 2. **ADHESIVE SYSTEM**

- 2.1 Apply TAL GOLDSTAR 12 adhesive **mixed 20kg with 5 litres of TAL BOND (replacing the water in the mix)** to the background using a notched trowel.

**Alternatively**, TAL BOND POWDER may be added to the adhesive mixing water at a ratio of 1 x 1kg sachet per 20kg TAL GOLDSTAR 12, or TAL GOLDFLEX single-part flexible rapid-setting adhesive may be used. When using TAL GOLDFLEX no additives are required, simply mix with cool clean water, alleviating possible mixing and application errors on site.

- 2.2 **In this tiling situation it is imperative that there is a solid bed of adhesive at least 6mm thick behind/beneath each tile.** We would recommend the use of a notched FLOOR TROWEL or THICK-BED FLOOR TROWEL.

**NOTE: Back "buttering" with adhesive is also required when using large format tiles to ensure full contact and a solid bed of adhesive behind/beneath each tile.**

- 2.3 At no time spread more adhesive than can be tiled onto in 10 – 15 minutes. Depending on atmospheric conditions, this will normally be around 1 square metre. This prevents the adhesive from drying or "skinning" before the tiles are applied.

# INSTALLATION GUIDELINE

**Type: RESIDENTIAL SWIMMING POOLS ONLY**  
**Fixing Glazed Ceramic Floor Tiles or Porcelain Tiles**



- 2.4 Bed dry tiles (do not soak) firmly into the wet adhesive with a twisting action to ensure full contact between the background, tiles and adhesive. Tiles should be well tapped home with a rubber mallet or the wooden handle of a trowel. It is sound practice to remove the occasional tile to ensure that good contact has been achieved.
- 2.5 Clean off any surplus adhesive remaining on the face of tiles and between the joints with a damp sponge before the adhesive dries.
- 2.6 Never butt joint tiles. Joints are required to allow the individual tiles to move with respect to each other and thus avoid a compressive stress build-up. They are also required as vents for the tile adhesive to cure.

**The joints between Glazed Ceramic Floor Tiles must be a minimum of 5mm wide, and a minimum of 3mm wide between Porcelain Tiles.**

- 2.7 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.
- 2.8 Do not tile over structural, expansion or cold joints in the background. These joints must be extended through the various layers to the surface.
- 2.9 **NOTE: It is critical that the adhesive residues are removed from the grout joints to a minimum depth equal to the tile thickness, and the joints properly cleaned prior to the grout application (preferably before the adhesive dries). Failure to do so will result in a superficial grout layer which may not provide the required protection against the acids and chemicals in the pool water, which will compromise the integrity of this installation.**

**Movement and perimeter joints must be cleaned to the full depth of the joint, ie thickness of tile and adhesive layers.**

## 3. GROUTING

- 3.1 **Grouting must not be carried out until sufficient bond has developed between the bedding mix and the tiles to preclude disturbance of the tiles during the grouting operation. Allow a minimum of 6 – 8 HOURS before light foot trafficking or grouting.**

### 3.2 **Epoxy-Resin Grout Option - TAL WATER-BASED EPOXY GROUT:**

- 3.2.1 Grout with TAL WATER-BASED EPOXY GROUT, a high performance water-based and cleanable epoxy compound ideal for installations where total imperviousness, acid/chemical resistance or hygienic conditions are of importance.

### 3.2.2 **TAL WATER-BASED EPOXY GROUT must be mixed and applied strictly in accordance with the product instructions (refer to Packaging and Data Sheet). DO NOT OVERMIX, AS THIS WILL SHORTEN THE POT LIFE AND WORKING TIME.**

**A mix is useable for approximately 1 hour at 20° C, after which time any portion unused must be discarded. It is essential not to mix more grout kits than can be used within 1 hour. In hot conditions the pot life and working time will be shorter. The grout will take longer to cure at temperatures below 10°C.**



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- 3.2.3 **Working in temperatures between 10°C and 25°C and in small areas at a time, apply TAL WATER-BASED EPOXY GROUT with a squeegee or palette knife and rub the grout well into the joints, making sure the joints are properly filled and the grout is heavily compacted into the joints by means of a suitable pointing tool.**
- 3.2.4 **NOTE:**
- 3.2.4.1 The joints must be raked out and cleaned before grouting.
- 3.2.4.2 **Do not wet the joints before grouting. Care must be taken in the cleaning process to ensure grout is not removed from the joints.**
- 3.2.4.3 **It is essential that the installation is thoroughly inspected and all residues removed timeously, before the epoxy dries. CURED EPOXY RESIDUES ARE IMPOSSIBLE TO REMOVE.**
- NOTE: greater care may be required with some types of tiles, ie those with textured and/or unglazed surfaces.**
- 3.2.4.4 A sample of the tiles to be used should be tested beforehand to ensure that no grout is absorbed through the glaze, into the tile body, causing permanent staining of the tiles.
- 3.2.4.5 **Newly applied or cleaned installations must not be trafficked until the grout has set sufficiently to ensure that the grout is not dislodged or damaged. Dirt may become embedded in uncured epoxy.**
- 3.2.4.6 **The installation must be suitably protected for a minimum of 7 days after installation. The hardness of the grout should be checked after 3 days. Allow to cure for a minimum of 7 days before exposure to chemicals.**
- 3.3 **Cementitious Grout Option – TAL HIGH TRAFFIC GROUT + TAL BOND:**
- 3.3.1 Use TAL HIGH TRAFFIC GROUT, acid-resistant quick-setting durable grout, **mixed 20kg with 5 - 5.5 litres of TAL BOND (replacing the water in the mix)** for filling tile joints 3 - 12mm wide.
- 3.3.2 **WARNING:**
- 3.3.2.1 The joints must be raked out and cleaned before grouting.
- 3.3.2.2 Ensure that the joints are completely filled, and the grout is thoroughly compacted into the joints.
- 3.3.2.3 Particular care must be taken to clean the grout off the tile face before it hardens completely. This is especially important when a modified grout system has been used.
- 3.3.2.4 A sample of the tiles to be used should be tested beforehand to ensure that no grout is absorbed through the glaze, or into the tile body, causing permanent staining of the tiles.
- 3.3.2.5 It is important to use the stipulated amount of liquid in the TAL Grout mixture. When cleaning, a **damp**, not wet, sponge must be used. Over hydration (too much liquid) of the mix, or in cleaning, causes colour variations in the grout joints, and also affects the integrity of the grout, resulting in a friable product.



# INSTALLATION GUIDELINE

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Fixing Glazed Ceramic Floor Tiles or Porcelain Tiles



## 4. MOVEMENT JOINTS

- 4.1 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.
- 4.2 **Movement joints should be located in both directions at maximum 3 metre centres for this application.**
- 4.3 **Movement joints should also be located around the perimeter of the floor, 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 tiles and coping tiles.**
- 4.4 **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.
- 4.5 Where practical, the bulk of the depth of the movement joint can be filled with an inexpensive, compressible material such as polyethylene foam strips.
- 4.6 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).
- 4.7 For the key requirements common to all tiling situations please refer to SANS 10107, Code of Practice for the Design and Installation of Ceramic Tiling.

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