INSTALLATION GUIDELINE

Type: RESIDENTIAL SWIMMING POOLS ONLY
Fibreglass Substrate, 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 RESINS & ETCHING CLEANING FLUID
TAL SF PRIMER
TAL PRIMER AGGREGATE (SQ2)
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.

TAL - a division of Norcros SA (Pty) Ltd | **Gauteng:** Porcelain Road, Olifantsfontein 1665, Private Bag X4 Olifantsfontein 1665, South Africa
Tel: +27 11 206 9700 | Fax: +27 11 316 2863 | **Technical Advice No: 0860 000 825 |** www.tal.co.za

Norcros SA (Pty) Ltd Reg. 1952/000012/07
Porcelain Road | Private Bag X4 Olifantsfontein 1665, South Africa | Tel: +27 11 206 9700 | Fax: +27 11 316 2863 | www.norcros.co.za
Norcros SA (Pty) Ltd Divisions: Johnson Tiles, TAL, Tile Africa & House of Plumbing

INSTALLATION GUIDELINE

Type: RESIDENTIAL SWIMMING POOLS ONLY
Fibreglass Substrate, Fixing Glazed Ceramic Floor Tiles or Porcelain Tiles

SPECIAL NOTE MUST BE TAKEN OF THE FOLLOWING:

Fibreglass:
It must be noted that past experience has shown that tiling onto fibreglass can be problematic as there may be variances in fibreglass, and there have also been instances where there have been traces of residual unreacted resin present and/or exposed glass fibres, which caused adhesion problems.
The surface of the fibreglass must be lightly abraded (roughed) prior to tiling. In instances where the fibreglass consists of a fairly thin lining, this may compromise the waterproofness of the fibreglass.
In instances where the fibreglass consists of a preformed shell, it is imperative that the entire shell is bonded to, and thoroughly supported by, the subsurface as excessive movement in the substrate could result in an installation failure.
It must be noted that, whilst we can guarantee the performance of our products, we cannot guarantee the integrity of the substrate to which they are applied. TAL cannot be held liable should the tile installation be compromised as a result of the fibreglass failing / debonding from the subsurface, excessive movement in the substrate, etc.
We strongly advise that a thorough evaluation of the soundness of the shell be carried out and a test panel be tiled first.

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.**
- **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 <u>minimum</u> 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.

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).

INSTALLATION GUIDELINE

Type: RESIDENTIAL SWIMMING POOLS ONLY
Fibreglass Substrate, Fixing Glazed Ceramic Floor Tiles or Porcelain Tiles

Epoxy-Resin Grout Installations:

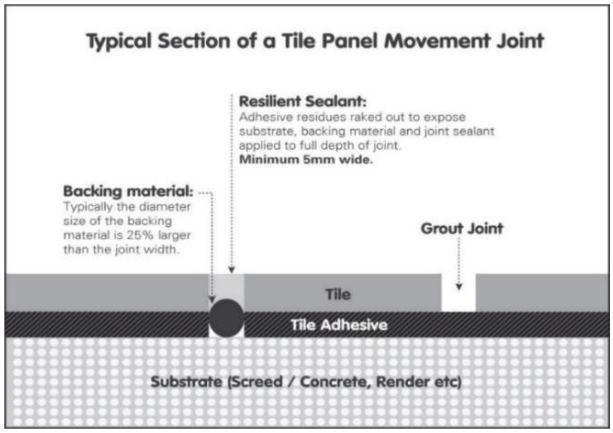
- **NB: The installation of resin compounds requires effective supervision and the employment of skilled operatives. Resin compounds should only be applied by experienced and competent personnel with the correct training. Application by unskilled labour is NOT recommended.**
- **The compound must be mixed and applied strictly in accordance with the instructions on the packaging and data sheet.**

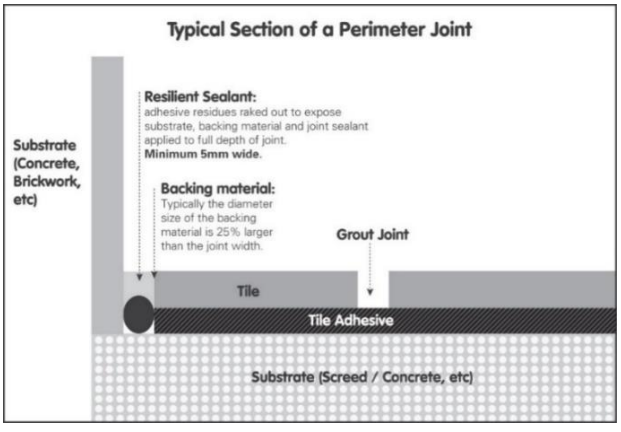
  NB: The addition of any other substances, including water, will compromise the integrity and performance of the product.
- **High ambient temperatures will considerably shorten the working time of the epoxy, and flash-setting may occur.**
- **Full cure and chemical resistance will be achieved after 7 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
Fibreglass Substrate, Fixing Glazed Ceramic Floor Tiles or Porcelain Tiles

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 & PRIMING

1.1 New Fibreglass

1.1.1 **The fibreglass must be installed strictly in accordance with the manufacturer's instructions and must be firmly bonded to, and supported by, the underlying substrate.**

1.1.2 **Immediately** after installing the final fibreglass coat, broadcast TAL PRIMER AGGREGATE SQ2 into the **WET** fibreglass resin at a rate of no less than **2.2 kg per m^2.** The surface must be blinded completely with Aggregate to rejection, ie full (100%) coverage of Aggregate over the fibreglass.

1.1.3 **Note : It is critical that the Aggregate particles do not become fully encapsulated by the fibreglass resin, as this will act as a 'bond breaker' and could prevent the tile adhesive from forming an adequate bond onto the substrate, resulting in delamination of the adhesive and tiles.**

1.1.4 The surface must be left to dry for **24 hours** before any excess or loose Aggregate is removed by initially sweeping with hard-bristle brooms, followed by vacuuming.

1.1.5 It is important to ensure the remaining Aggregate particles are well anchored into fibreglass resin and that the entire surface to receive the tile adhesive is 100% covered with Raw Exposed Aggregate.

1.2 Existing Fibreglass

1.2.1 **The fibreglass must be in good condition and must be firmly bonded to, and supported by, the underlying substrate. The surface must be clean and dry and free of all traces of algae, dirt and grime, salt deposits and build-ups, etc.**

1.2.2 **The surface must be suitably prepared by mechanical abrasion (eg diamond grinding), to remove at least 0.3 – 0.5mm of the top surface.**

1.2.3 **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 **The surface should be solvent-wiped after sanding, using TAL RESINS & ETCHING CLEANING FLUID.**

NB : It is imperative that suitable PPE be worn when working with solvents.

1.2.5 **TAL SF PRIMER MUST BE APPLIED AS SOON AS THE ETCHING SOLVENT HAS EVAPORATED (maximum 15 minutes).**

1.2.6 TAL SF PRIMER must be mixed as follows : Add the Hardener 'Part B' into the Base 'Part A' and mix using a slow speed drill (350 – 500rpm) with a suitable mixing paddle attachment. Mix for 5 minutes until well blended and the contents are uniform in colour and consistency. Be sure to rotate the mixer throughout the bucket. **Mix only complete full packs.** Use within the Pot Life (60 minutes at 20ºC).

1.2.7 Apply one coat of TAL SF PRIMER at a rate of circa **200 - 250 micron thickness (5 - 4m²/ℓ)** to the substrate by trowel; once applied scrub the product into the pores with a long handle bristle brush and then back roll using a short haired Mohair roller to achieve a uniform Wet Film Thickness across the surface.

1.2.8 **Ensure that no ponding of the primer occurs on horizontal surfaces and that it is not applied too thick.**

1.2.9 **Immediately** thereafter, whilst the epoxy coat is **still wet**, broadcast TAL PRIMER AGGREGATE SQ2 into the TAL SF PRIMER at a rate of no less than **2.4 kg per m².** The surface must be blinded completely with Aggregate to rejection, ie full (100%) coverage of Aggregate over the TAL SF PRIMER.

1.2.10 **Note : It is critical that the TAL SF PRIMER coat is not applied so thick that the Aggregate particles become fully encapsulated by the Resin, as this will act as a 'bond breaker' and prevent the tile adhesive from forming an adequate bond onto the substrate, resulting in delamination of the adhesive.**

1.2.11 The surface must be left to dry for **24 hours** before any excess or loose Aggregate is removed by initially sweeping with hard-bristle brooms, followed by vacuuming.

1.2.12 It is important to ensure the remaining Aggregate particles are well anchored into the TAL SF PRIMER and that the entire surface to receive the tile adhesive is 100% covered with Raw Exposed Aggregate.

1.3 The surface must be carefully inspected to ensure that the top surface of the Aggregate particles are not covered by resin. Any areas which are identified to have Aggregate which is saturated in Resin must receive a further coat of TAL SF PRIMER, applied at a rate of **5m²/ℓ (200 micron thickness).** The tile adhesive must be applied immediately thereafter, whilst the TAL SF PRIMER coat is **STILL WET**.

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.

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 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 20º 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.

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**.**

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.**

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.