INSTALLATION GUIDELINE

Type: Waterproofing & Tiling a Residential Balcony (TAL SUPERFLEX I Membrane-Reinforced Acrylic Waterproofing Compound)

1 December 2024

IMPORTANT:

- **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:

Waterproofing Installation
TAL FLOOR PRIMER – Priming System for Woodfloated (Porous) Substrates
TAL SUPERFLEX I
TAL WATERPROOFING MEMBRANE (TAL SUPERFLEX MEMBRANE)

Tiling
TAL GOLDSTAR 12
TAL BOND / TAL BOND POWDER
TAL WALL & FLOOR GROUT
TAL SEALMASTER CORD
TAL GOLDSTAR SEALMASTER 1000

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:

Waterproofing System:

TAL SUPERFLEX I is a ready to use acrylic based liquid waterproofing system which may be applied by brush or paint roller. When reinforced with TAL WATERPROOFING MEMBRANE, it cures to provide a flexible, waterproof membrane capable of accommodating normal structural movement in the background. (**NB:** TAL WATERPROOFING MEMBRANE is required as reinforcing throughout the TAL SUPERFLEX I application.)

The substrate must attain a moisture content of **3% or less** before the TAL SUPERFLEX I application may be commenced.

TAL SUPERFLEX I must be used as supplied, do not dilute or adulterate. Still well before use to ensure uniform dispersion of product.

The waterproofing application must not be commenced if rain appears imminent – rain will dilute uncured TAL SUPERFLEX I and cause run-off. The waterproofing installation must also be suitably protected from rain or water immersion for at least 3 days after application.

The TAL SUPERFLEX I installation must be allowed to dry completely (72 hours, depending on ambient and site conditions) before being subjected to *light* foot traffic or application of tiles.

On completion of the installation, the waterproofing system should be flood-tested and proved watertight. This to be signed off by the waterproofing contractor/main contractor/client, and copy to be submitted to TAL for record keeping. TAL will not be liable for any damages to the Product by following trades, abusive trafficking, etc.

External Applications:

All external installations will be exposed to building movement, thermal expansion and contraction, as well as inclement weather conditions (rain, dew, frost, etc).

It is therefore essential that suitably modified adhesive and grout systems be used when tiling externally to cater for these conditions.

TAL BOND or TAL BOND POWDER must be incorporated in the adhesive and grout mixes, with a solid bed of adhesive behind/beneath each tile, and tile panel movement joints should be located at closer centres.

Note: Significant thermal movements and heat retention should be anticipated and catered for when installing Dark Coloured tiles externally. Please contact TAL for more information if a Dark-Coloured tile is to be used.

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

Adhesive System:

We have specified TAL GOLDSTAR 12 quick-setting high-strength adhesive (+ TAL BOND / TAL BOND POWDER) for this installation.

Alternatively, TAL GOLDSTAR XL **modified** quick-setting high-strength (C2TES1) adhesive can be considered. When using TAL GOLDSTAR XL additives are not typically required, only mix with cool clean water. This not only minimises the risk of mixing and application errors on site, but also reduces delivery costs and storage requirements for bulky additive containers.

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.

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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).

Note: TAL GOLDSTAR 6 (+ TAL BOND / TAL BOND POWDER) or TAL GOLDFLEX **rapid-setting adhesive systems** should be considered if quicker access is required to newly tiled floors (grout after 4 hours, trafficable after 6 hours).

Floor Levels:

The following is an excerpt from **SANS 10107**, Code of Practice for the Design & Installation of Ceramic Tiling:

> "*Where the tiling is bedded in an adhesive, the tolerance for the base should conform to that required for the finished floor.*"

Should large variations in the floor levels be noted, it is recommended that floor level surveys be conducted on the floor surface and all variations in the floor levels be rectified prior to the tile installation. (The QS or Main Contractor should advise on the required degree of accuracy of the floor, ie Class 1, 2 or 3.)

It is very labour intensive to achieve true levels when working with thicker beds of wet adhesive, and the higher adhesive consumption will have a cost implication on the installation. Exceeding the recommended maximum application thickness of a tile adhesive may also result in an installation failure.

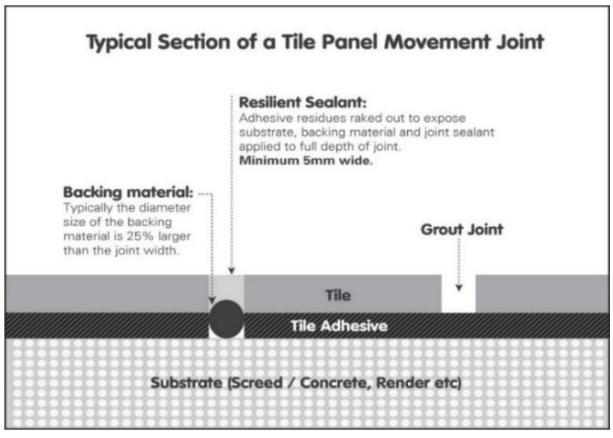
Tile Panel Movement Joints & Perimeter Joints:

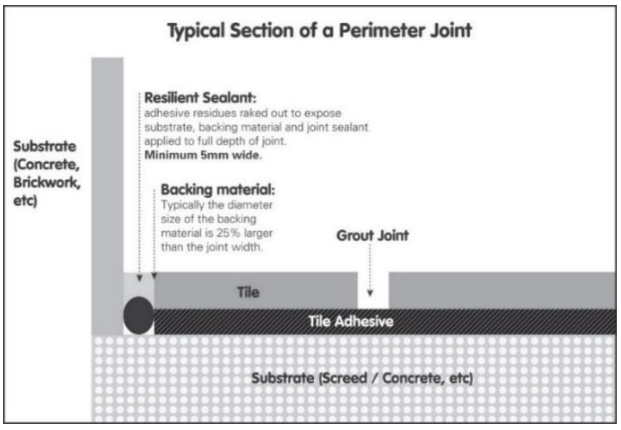
It should be noted that the lack of, ***or poorly constructed***, intermediate tile panel movement joints and perimeter joints in a tile installation is a major cause of tile failure.

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 with and sealed with a suitable backing cord/tape and resilient joint sealant material in accordance with the manufacturer's instructions.

Alternatively, suitable Prefabricated Movement Joint Strips can be installed during the tiling operation, strictly in accordance with the manufacturer's instructions





Application Conditions:

<u>Cold Ambient Conditions</u>

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.

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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 & WATERPROOFING

NB: External Floors should be to the required falls, with adequate provisions for drainage to ensure run-off of rainwater.

1.1 **Background Preparation:**

1.1.1 New Concrete Work or Screed

1.1.1.1 All new concrete work and screeds should be allowed to cure for a minimum of 6 weeks and 4 weeks respectively before proceeding.

1.1.2 Existing, Previously Tiled, Concrete or Screed

1.1.2.1 The existing tile and adhesive layers, as well as waterproofing compounds and priming agents if applicable, must be completely removed to expose the underlying substrate.

1.1.3 General - New & Existing Floors

1.1.3.1 **The substrates must be carefully inspected, and any residual tile adhesive, waterproofing compounds or priming agents, curing agents and laitance, coatings, contamination from other trades and other general contaminates detected must be removed by suitable means. This may entail sweeping with a hard-bristle broom, wire-brushing, or even diamond grinding, depending on the severity of the contamination.**

1.1.3.2 Any screeding must be firmly bonded to the underlying concrete, and 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 waterproofing and tiling. All damaged, defective, deteriorated or hollow sounding areas must be removed and the floor made good before proceeding.

1.2 **Waterproofing:**

NB: The substrate must attain a moisture content of 3% or less before the TAL SUPERFLEX I application may be commenced.

1.2.1 **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.**

1.2.2 **Priming of the substrate may be required, as follows:**

- Woodfloated (rough, porous) Surfaces:

  Prime with a coat of neat TAL FLOOR PRIMER**,** applied using an appropriate medium-pile roller and ensuring complete coverage of the substrate. **NB:** Highly porous substrates may require more applications of TAL FLOOR PRIMER, and each coat should be applied in a ***cross-direction to the previous application*** once the previous coat is touch dry.

  Ensure that no ponding of the primer occurs. Allow the priming coat to dry for 2 – 3 hours before applying the waterproofing system.

- Powerfloated/Steelfloated (smooth, dense) Surfaces:

  Wipe the surface with a lightly dampened cloth to remove dust and surface contaminants, rinsing the cloth frequently in a bucket of clean water. Thereafter priming of Powerfloated/Steefloated surfaces is not required

1.2.3 Apply TAL SUPERFLEX I to the clean, primed substrate using a suitable paint brush, paint roller, etc.

1.2.4 **Coving Areas and Internal Corners**

1.2.4.1 To allow for movement, apply a 10mm bead of flexible silicone sealant into the interfaces between the walls and floors and between internal vertical corners/interfaces prior to the TAL SUPERFLEX I application.

Due care must be taken to ensure that the silicone bead is not flattened out - ie the silicone must be allowed to cure for approximately 12 – 24 hours.

1.2.4.2 Apply the first coat of TAL SUPERFLEX I by paint roller or block brush to these interfaces. **Immediately** roll out the TAL WATERPROOFING MEMBRANE (200mm wide) into the **wet** TAL SUPERFLEX I with the membrane extending 100mm equally on either side of the interface, ensuring that there are no wrinkles/creases in the membrane or air bubbles trapped below. The membrane must be pushed into the corners, ensuring that the entire interface is covered with TAL WATERPROOFING MEMBRANE.

1.2.4.3 Apply the second coat of TAL SUPERFLEX I ***to completely saturate the membrane, before the first coat dries***.

1.2.5 **Floor Wastes / Drains**

1.2.5.1 To allow for movement, apply a 10mm bead of flexible silicone sealant into the interface around Wastes/Drains prior to the TAL SUPERFLEX I application.

Due care must be taken to ensure the silicone bead is not flattened out, ie allow 12 – 24 hours curing time before proceeding.

1.2.5.2 Apply the first coat of TAL SUPERFLEX I up the pipes and immediately position the strip of TAL WATERPROOFING MEMBRANE into the **wet** TAL SUPERFLEX I. Apply the second coat of TAL SUPERFLEX I ***to completely saturate the membrane, before the first coat dries***.

For wastes that are flush with the floor, take the application down into and around the waste.

1.2.6 **Main Area Application**

1.2.6.1 For the larger areas apply the first coat of TAL SUPERFLEX I over the suitably prepared surface. **Immediately** roll out the TAL WATERPROOFING MEMBRANE into the **wet** TAL SUPERFLEX I. Ensure that there are no wrinkles/creases in the membrane or air bubbles trapped below and that the membrane is adhered to the substrate by pressing the membrane with the roller in 2 different directions.

1.2.6.2 Cover only sufficient area at a time that would allow impregnation of the membrane ***before the first coat dries*****.**

NB: The membrane should have a minimum overlap of 50mm.

1.2.6.3 Apply the second coat of TAL SUPERFLEX I ***to completely saturate the membrane, before the first coat dries*****.** A coverage rate of 2 litres / m² of TAL SUPERFLEX I for both coats should provide complete saturation.

1.2.6.4 It is essential to ensure that the main TAL SUPERFLEX I application overlaps the corner joints, ie the interface application must be completely covered by the main area application.

1.2.7 Allow the waterproofing installation to dry completely (minimum 72 HOURS, depending on site and ambient conditions) before being subjected to ***light foot*** traffic or applying the tiles.

NB: Due care must be taken to ensure that the TAL SUPERFLEX I installation is not damaged by following trades.

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 GOLDSTAR XL **modified** quick-setting adhesive may be used. When using TAL GOLDSTAR XL no additives are required, simply mix with 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 beneath each tile.** We would recommend the use of a notched FLOOR TROWEL or THICK-BED FLOOR TROWEL.

NOTE: Back "buttering" (trowelling) with adhesive is also required when using large format tiles to ensure full contact and a solid bed of adhesive behind 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.

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 Use grey or coloured TAL WALL & FLOOR GROUT **mixed 20kg with 6 litres of TAL BOND (replacing the water in the mix)** for filling tile joints up to 8mm wide.

Alternatively, TAL BOND POWDER may be added to the grout mixing water at a ratio of 1 x 1kg sachet per 20kg TAL WALL & FLOOR GROUT, ***strictly in accordance with the product instructions***.

3.3 **WARNING:**

3.1.1 The joints must be raked out and cleaned before grouting.

3.1.2 Ensure that the joints are completely filled, and the grout is thoroughly compacted into the joints.

3.4.1 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.

3.4.2 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.

3.4.3 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 placing them in heavy traffic areas and spoiling the visual effect of the tiles.

4.2 **Movement joints should be located in both directions at maximum 3 metre centres for Exterior applications.**

4.3 **Movement joints should also be located around the perimeter of all floors, including interfaces between floor tiling and aluminium shopfronts / sliding door tracks, in all vertical corners, against obstructions fixed to the structural background and over all discontinuities in building materials, e.g. at interfaces of concrete and brickwork. In addition, movement joints should be located around any fixtures protruding through the tiled surface such as columns or stairs.**

4.4 **The joints should be at least 5mm wide and extend through the adhesive and tile layers.**

NB: Special care must be taken to ensure that the waterproofing installation is not damaged during cleaning out of the tile panel movement joints and perimeter joints. Failure to do so will result in an impaired waterproofing installation. Ideally the adhesive should be carefully removed from the joints whilst still wet; dried adhesive is significantly more difficult to remove.

4.5 Where practical, the bulk of the depth of the movement joint can be filled with TAL SEALMASTER CORD.

4.6 Seal the joint using TAL GOLDSTAR SEALMASTER 1000 polyurethane joint 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**.**