

Wednesday, 12 December 2018

**GENERAL SPECIFICATION FOR WATERPROOFING AND FIXING GLAZED CERAMIC OR PORCELAIN TILES ONTO RENDERED WALLS AND GLAZED CERAMIC OR PORCELAIN MOSAICS ONTO THE SCREEDED FLOOR IN A SHOWER**

Please note that 'general' specifications are issued for information purposes, and should not be used as project specifications.

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.

**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 / TAL FLOORKEY

TAL SUPERFLEX

TAL SUPERFLEX MEMBRANE

**Tile Installation**

TAL GOLDSTAR 6 – Ceramic and Porcelain Tiles / Mosaics – grey finish

TAL MARBLEFIX – Mosaics – off-white finish

TAL BOND / TAL BOND POWDER

TAL WALL & FLOOR GROUT

NOTCHED FLOOR TROWEL

SPACERS

**Special note must be taken of the following :**

**Adhesive System :**

We have specified TAL GOLDSTAR 6 **rapid-setting** high-strength adhesive for these installation areas.

However, if timing on this project allows for a **quick-setting** adhesive option, then TAL GOLDSTAR 12 can be considered.

The advantages of using TAL GOLDSTAR 12 are as follows :

- TAL GOLDSTAR 12 has a longer pot life (pot life of 4 hours, grout after 6 – 8 hours, and traffic after 12 hours)
- TAL GOLDSTAR 12 is more cost effective than TAL GOLDSTAR 6

**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.**

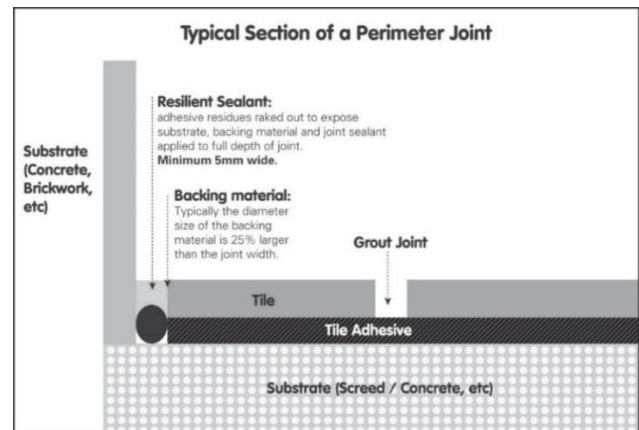
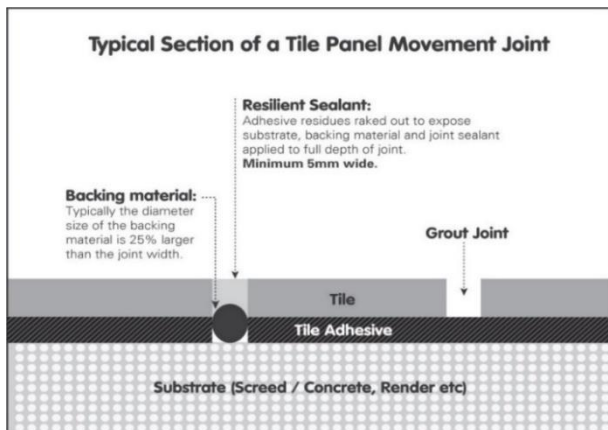
**Too early trafficking of newly installed tiles before the adhesive has set sufficiently may result in an impaired bond (hollow-sounding and/or loose tiles).**

**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.

These joints must be filled with TAL SEALMASTER CORD and TAL GOLDSTAR SEALMASTER 1000 Polyurethane Joint Sealant in accordance with the manufacturer’s instructions.



**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 tessera; the critical factor is the contact of the adhesive with the backs of the tessera, and
- 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 tessera removed and replaced before installation.**

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

## **1 BACKGROUND PREPARATION**

### **1.1 Walls - Render**

- 1.1.1 The rendering and screeding must be firmly attached to the substrate (concrete/brickwork), 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 made good before proceeding. Renders should be left with a woodfloat finish and should not be skimcoated with gypsum plaster.

### **1.2 Floors – Screed**

- 1.2.1 **Allow all new screeds to cure for at least 4 weeks rbefore proceeding.** All new concrete work and screeds must attain a moisture content of 5% or less before tiling can be commenced.
- 1.2.2 The screeding must be firmly bonded to the underlying concrete, must be of significant 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.

### **1.3 General – Walls & Floors**

- 1.3.1 The substrate must be firm and sound, and of a quality and consistency suitable for waterproofing and tiling.

## **2 WATERPROOFING**

- 2.1 **The surface must be clean and dry and free from all traces of dust, loose particles and surface contaminants which could impair adhesion.**
- 2.2 **The substrate must attain a moisture content of 3% or less before the TAL SUPERFLEX I waterproofing installation may be commenced**
- 2.3 All substrates must be primed prior to the TAL SUPERFLEX I application, as follows :
- 2.3.1 **Dry-Wall Partitioning :** Prime the surface with two coats of TAL FLOOR PRIMER. Allow the first coat to dry before applying the second coat in a cross direction to the first coat.

- 2.3.2 **Screed** : Woodfloated surfaces must be primed with a coat of neat TAL FLOOR PRIMER, and steelfloated surfaces must be primed with a slurry consisting of 1 part TAL FLOORKEY mixed with 2 parts TAL RAPIDFIX powder **or** 2 parts TAL KEYMIX powder (by volume), which is applied by block brush.
- 2.3.3 Allow the priming coat to dry for 2 – 3 hours before applying the TAL SUPERFLEX I.
- 2.4 **Coving Areas, Internal Corners, Tap & Rose Plumbing**
- 2.4.1 To allow for movement, apply a 10mm bead of flexible silicone sealant into the interface between the wall and floor, between internal vertical corners and around tap and rose plumbing fittings 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.**
- 2.4.2 Apply a coat of TAL SUPERFLEX I by paint roller or block brush to these interfaces. Immediately roll out the TAL SUPERFLEX 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 or air bubbles trapped beneath the membrane. The membrane must be pushed into the corners, ensuring that the entire interface is covered with TAL SUPERFLEX MEMBRANE. Apply a heavy topcoat of TAL SUPERFLEX I to completely saturate the membrane before the first coat of TAL SUPERFLEX I dries.
- 2.5 **Floor Wastes / Full Bore Drains**
- 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.**
- 2.5.2 Apply a coat of TAL SUPERFLEX I up the pipes and immediately position the strip of TAL SUPERFLEX MEMBRANE into the wet TAL SUPERFLEX I. Apply a second coat of TAL SUPERFLEX I to completely saturate the membrane. For wastes that are flush with the floor, take the application down into and around the waste.
- 2.6 **Shower Walls & Floors**
- 2.6.1 For the larger areas apply a coat of TAL SUPERFLEX I over the primed surface. Immediately roll out the TAL SUPERFLEX MEMBRANE into the wet TAL SUPERFLEX I. Ensure that there are no wrinkles or air bubbles trapped beneath the membrane and that the membrane is adhered to the substrate by pressing the membrane with the roller in 2 different directions.
- 2.6.2 Cover only sufficient area at a time that would allow impregnation of the membrane before the first coat of TAL SUPERFLEX I dries. **The membrane should have a minimum overlap of 50mm.**
- 2.6.3 Apply a heavy topcoat of TAL SUPERFLEX I to completely saturate the membrane. A coverage rate of 2 litres / m<sup>2</sup> of TAL SUPERFLEX I for both coats should provide complete saturation. 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.
- 2.6.4 Shower walls must be waterproofed up to full shower rose height.
- 2.7 **The TAL SUPERFLEX I installation must be allowed to cure for a minimum of 3 days before tiling is commenced..**

(For more detailed information, please contact TAL for a Technical Data Sheet on the product.)

## 2. **ADHESIVE SYSTEM**

### 2.1 **Porcelain Tiles or Ceramic Tiles**

2.1.1 Apply TAL GOLDSTAR 6 rapid-setting 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 6, or TAL GOLDFLEX single-part flexible rapid-setting adhesive may be used. When using TAL GOLDFLEX no additives are required, simply mix with clean water, alleviating possible mixing errors on site.

2.1.2 **In this tiling situation it is imperative that there is a solid bed of adhesive at least 5mm thick beneath each tile.** We would recommend the use of a notched FLOOR TROWEL or THICK-BED FLOOR TROWEL.

**NOTE :** Back buttering with a thin coat of adhesive may also be required when using large format tiles to ensure full contact and a solid bed of adhesive behind each tile.

2.1.3 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.

2.1.4 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.

2.1.5 Clean off any surplus adhesive remaining on the face of tiles and between the joints with a damp sponge before the adhesive dries.

2.1.6 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 porcelain tiles must be a minimum of 3mm wide.

2.1.7 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.

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

2.1.9 **NOTE :** Ensure that heavy and/or large format wall tiles are well supported by means of a batten or some type of mechanical device until such time that the adhesive has set sufficiently. In this situation it will be 6 hours.

### 2.2 **Porcelain or Ceramic Mosaics**

2.2.1 Add 20kg TAL MOSAICFIX quick-setting adhesive to 6 litres of TAL BOND **(replacing the water in the mix)** and mix to a smooth, creamy consistency.

**Alternatively**, TAL BOND POWDER may be added to the adhesive mixing water at a ratio of 1 x 1kg sachet per 20kg TAL MOSAICFIX.

#### 2.2.2 **Paper-Covered Mosaics**

2.2.2.1 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.)

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

2.2.2.2 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.

2.2.2.3 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.

### 2.2.3 **Mesh-Backed Mosaics**

2.2.3.1 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.)

2.2.3.2 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.

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

2.2.3.4 For areas larger than 1m<sup>2</sup>, 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.

### 2.2.4 **General**

2.2.4.1 **Gently** clean any excess adhesive off the face of the mosaics before it hardens.

2.2.4.2 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.

2.2.4.3 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.

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

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

2.2.4.6 A sample of the tiles to be used should be tested beforehand to ensure that no grout is absorbed into the tile body, causing permanent staining of the tiles.

## 3. **GROUTING – Ceramic Tiles or Porcelain Tiles**

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 4 hours before grouting.

3.2 Use White or coloured TAL WALL & FLOOR GROUT mixed 20kg with 6 litres of TAL BOND (**replacing the water in the mix**) for filling wall 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.

### 3.3 **WARNING :**

- 3.3.1 Particular care must be taken to clean the grout off the tile face before it hardens completely. This is especially important when an additive such as TAL BOND or TAL BOND POWDER has been used.
- 3.3.2 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.
- 3.3.3 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 around the perimeter of the shower floors, in all vertical and internal corners / interfaces, and at maximum 3 metre centres for large areas.**
- 4.3 Movement joints should also be located 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.
- 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.  
**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 an inexpensive, compressible material such as polyethylene foam strips.
- 4.6 Seal the joint using a suitable resilient sealant in accordance with the manufacturer's instructions. It is important that the joint sealant bond only to the sides of the movement joint.
- 4.7 For the key requirements common to all tiling situations please refer to SANS 10107-2011, Code of Practice for the Design and Installation of Ceramic Tiling.

**Note : This installation must be allowed to set sufficiently (minimum 3 days) before being subjected to service conditions.**

Should you require any further assistance or have any queries regarding the above, please do not hesitate to contact us. Assuring you of our best attention at all times.

Yours sincerely

**SHARON MARGON**  
**TECHNICAL ADVICE SUPERVISOR**

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