

INSTALLATION GUIDELINE

Type: Fixing Glazed Ceramic Floor Tiles or Porcelain Tiles onto an Interior Suspended Timber Floor



Friday, 1 December 2023

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:

TAL KEYCOAT + TAL KEYMIX
TAL GOLDSTAR 12
TAL WALL & FLOOR GROUT
TAL BOND / TAL BOND POWDER
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:

Suspended Timber Floors:

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

"An important consideration with this type of background is that the sheets or boards shall be adequately braced to provide a rigid surface, free from any springiness and surface undulations. They shall also not undergo any distortion during and after completion of the tiling."

- Wood exhibits various types of movement, making it one of the most difficult substrates on which to tile.
- The timber used must be suitable for the application, must be thoroughly braced (using suitable anchoring) to provide a firm and dimensionally stable surface suitable for tiling.
- A detailed assessment of the potential loading, including tiled floor covering, that will be imposed on the floor must be made to ensure that it is suitable for the service conditions.
- We have specified a flexible adhesive system for this installation, with tile panel movement joints located at closer centres, to allow for the anticipated movement. It must however be noted that, whilst latex modified adhesives will allow for some movement in the substrate, the tile itself remains a rigid material. Excessive deflection or vibration movement in the background could result in an installation failure, ie cracking or delamination of tiles, cracking or popping of grout, etc.
- Only exterior grade board should be used externally or in 'wet' applications.
- Wooden Panels must be dry before tiling is commenced.
- The corners and edges of the wooden panels must align in plane, without any lippage.
- Ideally, all joints between the wooden panels must be respected and maintained in the tile installation in the form of tile panel movement joints.
- To avoid movement and warping due to the ingress of moisture, the backs and edges (sides) of wooden sheets or boards must be sealed.

NB : The front face of *highly porous/absorbent* timber panels must be sealed with a *non-oil-based sealant* (TAL SF PRIMER), to prevent moisture ingress during or after tiling. Please contact TAL for a revised specification for the application of TAL SF PRIMER if required for this site.

NB:

- The use of smaller format tiles rather than large format tiles is advocated as, with a smaller number of joints between large format tiles compared with the same area of normal format tiling, less stress (movement) can be accommodated at tile joints.

The grout joints between the tiles may be treated as tile panel movement joints, or 'soft' joints, to allow for more movement in the tile installation. In this instance ensure that all joints are carefully raked out and all adhesive residues completely removed. This should preferably be done before the adhesive dries, as cured/dry adhesive is more difficult to remove.

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Adhesive System:

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

Alternatively, TAL GOLDSTAR XL **modified** quick-setting high strength adhesive may be used. When using TAL GOLDSTAR XL no additives are required, simply 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. TAL GOLDSTAR XL is formulated with an extended open time, making it ideal for use with large format tiles.

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).

NB: Rapid-setting adhesive systems, such as TAL GOLDSTAR 6 (mixed with TAL BOND as a total water replacement in the mix) or TAL GOLDFLEX should be considered if quicker access is required to newly tiled floors.

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.

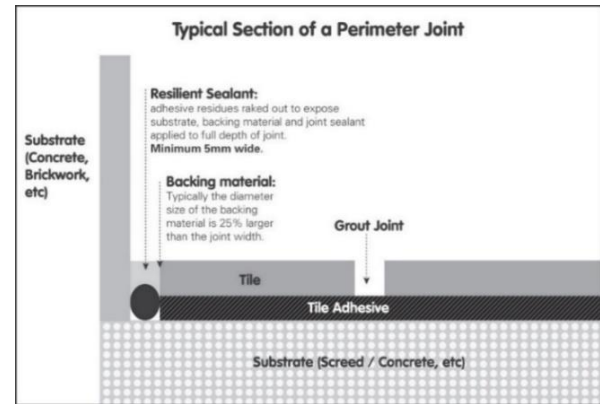
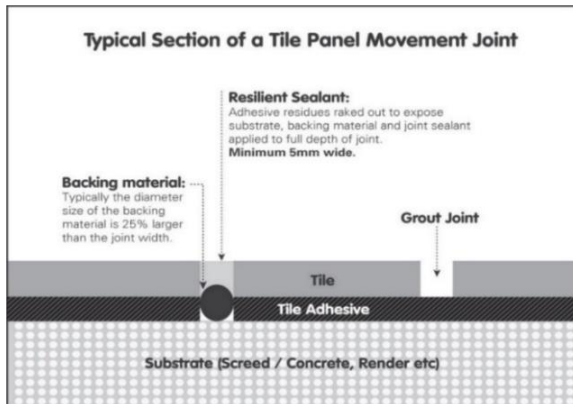
Joints must be created at the required spacing and must be well raked out to remove all traces of adhesive residues, debris, contamination, etc, ie the joint must extend through the tile and tile adhesive layers down to the substrate.

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

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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 **The wooden panels must be in good condition and must be thoroughly braced at maximum 300mm centres in both directions (*screwed, not nailed*) to present a firm and dimensionally stable substrate.**
- 1.2 **The surface must be lightly sanded to remove all traces of existing coatings, sealants and other surface contaminants.**
- 1.3 New installations should be left for at least 24 hours to reach ambient temperatures before tiling to minimize the risk of warping.
- 1.4 **The surface must be clean, dry, firm and sound and free of all traces of dust, loose particles and surface contaminants which could impair adhesion.**

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- 1.5 Key the surface with a slurry consisting of 1 part TAL KEYCOAT to 2 parts **TAL KEYMIX** powder (by volume), applied using an appropriate builder's block brush or soft-bristle broom and ensuring complete coverage of the timber substrate.

Allow this slurry coat to dry for 4 – 6 hours and ensure it is well-bonded to the substrate 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 GOLDSTAR XL **modified** adhesive may be used.

- 2.2 **In this tiling situation it is essential that there is good adhesive coverage and contact between the adhesive and tiles.** 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 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.

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, as follows:

TAL GOLDSTAR 12 - Allow a minimum of 6–8 HOURS before light foot trafficking or grouting.

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TAL GOLDSTAR XL - Allow a minimum of 8-10 HOURS before light foot trafficking or grouting.

- 3.2 Use 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.
- 3.3 **WARNING:**
 - 3.3.1 The joints must be raked out and cleaned before grouting.
 - 3.3.2 Ensure that the joints are completely filled, and the grout is thoroughly compacted into the joints.
 - 3.3.3 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.
 - 3.3.4 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.
 - 3.3.5 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 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 this application.**
- 4.3 **Movement joints should also be located around the perimeter of all floors, in all vertical corners, against obstructions fixed to the structural background and over all discontinuities in building materials, e.g. at interfaces of suspended wooden floors and concrete/brickwork, etc.** 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.**
- 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 Practise for the Design and Installation of Ceramic Tiling.

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