

# TECHNICAL BULLETIN – TB129

## LAYING PORCELAIN TILES

Date: Friday, 9 September 2016

### INTRODUCTION & SCOPE

Correct installation of porcelain tiles requires a few specialised techniques to ensure that a good quality installation results and this bulletin gives some guidance to achieve this.

#### WHAT IS UNUSUAL ABOUT PORCELAIN TILES?

Porcelain tiles are manufactured basically from kaolin clay and feldspars that are fired in such a way to make the tiles highly vitrified and very non-porous. Vitrification results in a glassy state being created in the tile matrix. The adhesives therefore have to be able to bond to this surface which requires a high polymer, cement based type (see ARDEX Technical Paper TP009 for more details on the properties of porcelain stoneware tiles).

Polishing the porcelain tiles creates micro voids in the surface which allows the grout colour particles to lodge in the surface. Therefore when grouting tiles where there is a high colour contrast between the tile and grout, it is recommended that the surfaces be masked off to prevent contamination and cleaning difficulties.

Where the porcelain tiles have been rectified (mechanically cut or ground to a standardised size) the grout lines must be fully filled to protect the edge from spalling. Standard tile laying techniques for rectified tiles are similar although narrower grout lines are normally provided.

When the tiles are non-rectified the normal joint widths of 3-6mm should be used as recommended by the tile manufacturer.

Large format porcelain tiles, in common with other similar sized tiles can slump and tilt, so an adhesive with non-slump characteristics must be used such as ARDEX STS8W or X77 (see also TB001 Large Format Tiles).

#### RECOMMENDATIONS FOR ADHESIVES

The following adhesives are suitable for internal and external, commercial and domestic applications on suitably prepared masonry surfaces –

ARDEX ABAFLEX

ARDEX STS8W + ARDEX E90 (also flexible applications)

ARDEX OPTIMA

ARDEX S28N ± ARDEX E90 (internal dry)

ARDEX X18 + ARDEX E90 or ABALASTIC

ARDEX X77 ± ARDEX E90

ARDEX X78 ± ARDEX E90

For *domestic* applications where a flexible adhesive is required

ARDEX X56 (internal)

ARDEX ISOFLEX 2 part

ARDEX STS8W + ARDEX E90 (internal/external)



ARDEX X77 + ARDEX E90

ARDEX X78 + ARDEX E90

To minimise scratching of the polished surface, a fine sanded grout is required such as ARDEX FG8 GROUT with narrow joints, or better still ARDEX FSDD. Wider joints will require a sanded grout such as ARDEX WJ50, but care is needed with polished surfaces.

The normal installation practices relating to movement and expansion joints need to be detailed in these jobs as per the Australian Standard AS3958.

### APPLICATION

Normal application of the mixed adhesive is to spread the adhesive over the floor the floor substrate using the recommended 10x10x10mm (or larger) notched trowel. Back buttering is also recommended for tiles larger than 450mm square.

Spread the mixed adhesive into the floor substrate using the flat of the trowel and then use the notched edge to create the adhesive ribs. Ensure the ribs all run in the same direction, say from left to right and not fanned. Place the tile into the adhesive against the previously laid tile and slide back and forth across the direction of the adhesive ribs for 10 to 15mm while pressing firmly to collapse the adhesive ribs (this called the 'Tarver Method' and is also recommended in AS3958). Finish with the tile in its final position. This will ensure full adhesive contact with the back of the tile.

Voids under these tiles in external environments, act as water traps and can worsen potential efflorescence.

Occasionally lift the tiles to check the adhesive fully covers the back of the tile.

Masking involves the application of a water soluble material to the tile face which prevents the grout adhering to the surface, and when grouting is complete, this material washes off. Commonly this has a starch base, but can be soaps or detergents as well.

#### **IMPORTANT**

This Technical Bulletin provides guideline information only and is not intended to be interpreted as a general specification for the application/installation of the products described. Since each project potentially differs in exposure/condition specific recommendations may vary from the information contained herein. For recommendations for specific applications/installations contact your nearest ARDEX Australia Office.

#### **DISCLAIMER**

The information presented in this Technical Bulletin is to the best of our knowledge true and accurate. No warranty is implied or given as to its completeness or accuracy in describing the performance or suitability of a product for a particular application. Users are asked to check that the literature in their possession is the latest issue.

#### **REASON FOR REVISION**

24 month review. Tileset deleted, S28N added. Some minor text alterations.

#### **REVIEW REQUIRED**

24 months from issue

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