TECHNICAL BULLETIN – TB129

LAYING PORCELAIN TILES

JULY 2024

INTRODUCTION & SCOPE

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

WHAT IS UNUSUAL ABOUT PORCELAIN TILES?

Porcelain tiles are manufactured from kaolin clay and feldspars that are fired to make them highly vitrified and non-porous. Vitrification results in a glassy state in the tile matrix. Therefore, the adhesives must 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 porcelain tiles creates surface micro voids, allowing grout colour particles to lodge. Therefore, when grouting tiles with 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 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 the tile manufacturer recommends.

Like similar-sized tiles, large-format porcelain tiles can slump and tilt, so an adhesive with non-slump characteristics, such as ARDEX X77, must be used (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 OPTIMA
>
> ARDEX S28N +/- ARDEX E90 (internal dry)
>
> ARDEX X18 + ARDEX E90 or ABALASTIC
>
> ARDEX X77 +/- ARDEX E90

For domestic applications where a flexible adhesive is required

> ARDEX X56 (internal)
>
> ARDEX ISOFLEX 2 part
>
> ARDEX X77 + ARDEX E90

ARDEX Australia Pty Ltd - ABN 82 000 550 005
TB129.011– 23rd July 2024

ARDEX TECHNICAL SERVICES DEPARTMENT

SYSTEMARDEX
PREMIUM PERFORMANCE

Page **1** of 4

Finely sanded grout, such as ARDEX FG8 GROUT, is required with narrow joints or the non-sanded ARDEX FSDD to minimize scratching of the polished surface. Wider joints, such as ARDEX WJ50, will require sanded grout, but care is needed with polished surfaces.

The standard installation practices relating to movement and expansion joints must be detailed as per the Australian Standard AS3958.

APPLICATION

The mixed adhesive is normally applied by spreading it over 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 trowel and then use the notched edge to create the adhesive ribs. Ensure the ribs run in the same direction, from left to right, and are 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 is 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 applying a water-soluble material to the tile face that prevents the grout from adhering to the surface. When grouting is complete, this material washes off. This material typically has a starch base but can also be soaps or detergents.

ARDEX Australia Pty Ltd - ABN 82 000 550 005
TB129.011– 23rd July 2024

ARDEX TECHNICAL SERVICES DEPARTMENT

SYSTEM**ARDEX**
PREMIUM PERFORMANCE

Page **2** of **4**