



TECHNICAL BULLETIN – TB110

APPLICATION OF ARDEX LEVELLING CEMENTS WITH TILING INSTALLATION

17th December 2024

INTRODUCTION & SCOPE

A fairly common situation arises where a subfloor is to be tiled, and it is either not flat or has hollows and dips in it that need to be flattened out.

ARDEX can supply complete systems for smoothing and tiling subfloors made of rigid concrete, flexible timber, or compressed fibre cement sheet (CFC).

This bulletin will discuss several typical installations and the products that can be used.

CONCRETE SUBFLOORS

DRY-INTERNAL

Where the subfloor is dry internal, the choice of levelling materials is broad. The primary under-tile levelling cement is ARDEX LQ92, and for bulk filling ARDEX K900BF. However, ARDEX K15, ARDEX K12, and ARDEX A45 can all be used in this application within their technical specifications.

WET-INTERNAL

For internal areas subject to water, the products to be used are ARDEX LQ92, ARDEX ARDITEX NA, and ARDEX K900BF for bulk filling. (External areas require the use of ARDEX K301).

PREPARATION

Concrete subfloors must be sound, with no structural cracks or other defects. **Levelling and tiling should not be done over structural or movement joints in the subfloor.**

Concrete floors should have all previous coatings removed. They should be clean and free of oil, grease, wax, latex compounds, curing compounds, efflorescence, laitance, dust, and all foreign matter, back to an open porous concrete matrix. Professional cleaning by mechanical means in line with sound building industry practices is advised, including shotblasting, scarifying, or diamond grinding to provide a surface profile between CSP3 and CSP7. Non-porous concrete surfaces, such as highly burnished or dense concrete 35MPa, must be roughened to provide an open porous matrix.

PRIMING & LEVELLING

The primer for normal porous concrete when using ARDEX LQ92 is ARDEX MULTIPRIME.

For the other ARDEX smoothing cement, the primer for porous concrete is ARDEX P51 primer diluted 1:2 by volume with water, applied in accordance with the product data sheet.

The ARDEX levelling cement is mixed and applied according to the product datasheets. After the appropriate drying periods, tiles can be applied.

TILING



Tiling is dependent on the amount of traffic, the degree of water exposure, the thermal movement expected, and, most importantly, the type of tile to be used. For more detailed information or special applications, contact ARDEX Technical Services.

A discussion of all the choices is outside the scope of this bulletin, and this list is not exhaustive, but ARDEX adhesives for typical domestic situations include concrete and screeds –

TILE TYPE	INTERNAL FLOOR – DRY	INTERNAL FLOOR – WET □ □
<i>Mid absorbant - >1,5% <6% water absorption</i>	ABAFLEX X7 X56 ISOFLEX 2 PART SUPER TILESET	ABAFLEX X7 X56 SUPER TILESET
<i>Vitrified/Glass Mosaics <1.5% water absorption</i>	MPP OPTIMA X7 + ARDION E90 ABAFLEX	MPP OPTIMA X7 + ARDION E90 ABAFLEX
<i>Marble & Granite (not moisture sensitive types*)</i>	ABAFLEX X7 / X77 X56 ISOFLEX 2 PART SUPER TILESET S28	ABAFLEX X7 / X77 X56 SUPER TILESET
<i>Translucent Marble (not moisture sensitive types*)</i>	MPP OPTIMA S16W	MPP OPTIMA
<i>Slates</i>	ABAFLEX X56 ISOFLEX 2 PART	ABAFLEX X56

*Refer to ARDEX Technical Services for recommendations concerning tiling with moisture sensitive natural stone.

□ □ Wet areas may require membranes so applicators should check local requirements.

Grouting can be done with the cement-based grouts ARDEX FG8 GROUT, ARDEX FSDD, or ARDEX WJ50.

TIMBER & CFC SUBFLOORS



Where a timber or Compressed Fibre-Cement subfloor requires levelling before tiling, the smoothing cements recommended are ARDEX ARDITEX NA and ARDEX K65.

ARDEX recommends installing smoothing cement over dry internal applications for timber. Wet internal applications require a membrane to protect timber subfloors, which is outside the scope of this bulletin.

PREPARATION

Note: Particleboard/plywood flooring may be coated with a resinous waterproof protective layer. This resin layer may act as a bond breaker to applied finishes and should be removed by sanding. Application over external timber subfloors is not recommended, and compressed fibre cement sheeting is required in this application.

Levelling and tiling shall not be done over structural or movement joints in the subfloor.

1. The subfloor should be solid and fixed to provide a rigid base with deflections less than 1/360th of the span distance of the floor joints (Refer to TB218 for more details). Any boards exhibiting movement should be re-nailed, and open joints should be filled with a suitable fast-setting mortar.

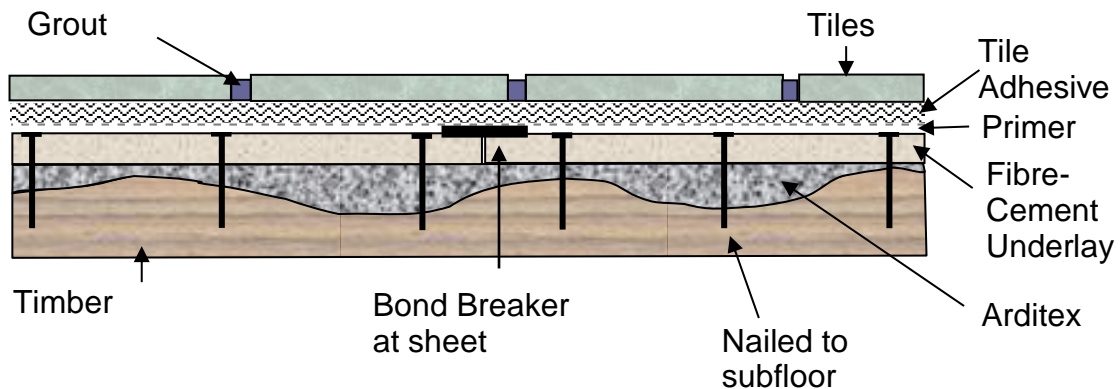
For internal floors using compressed fibre-cement, butt joints must be supported by a batten/joist, etc., and be firmly fixed in accordance with the manufacturer's installation recommendations to allow no movement. Sheets are to be adhered together with ARDEX RA88 Plus between panels.

Ensure adequate cross-flow ventilation and that the minimum height clearance between the earth and the timber flooring is maintained. Failure to have adequate ventilation can result in moisture build-up under the subfloor, which can cause excessive floor deformation, mould growth, or moisture permeation through the underlayment.

2. Subfloors must be clean and free of oil, grease, wax, old coatings, etc. Sand the wooden subfloor using a coarse abrasive to remove all foreign matter and provide a mechanical surface for the installation of either ARDEX Ardite NA or ARDEX K65.
3. Subfloor should be vacuumed to remove any dust or sanding debris.

PRIMING & LEVELLING

1. For dry applications, prime the timber or CFC with ARDEX P82 Ultraprime solvent-free primer in accordance with the product data sheet. (CFC can also be primed with ARDEX P51 Primer diluted 1:1 with water).
2. Install ARDEX Ardite NA or ARDEX K65 as per the printed technical data sheet, allowing it to dry completely prior to installing flooring. This is typically around 24 hours and can be extended at lower temperatures and high humidity. The recommended minimum thickness is 3mm. When installing over 8mm, the minimum recommended application temperature is 15-16 deg.C.
3. When installing ARDEX Ardite NA or ARDEX K65 and tiles over timber subfloors, it is recommended that the smoothing cement is used to flatten the surface and fill depressions. The levelling compound is then over-sheeted with fibre-cement tile underlay and the tiles adhered to this surface. These levelling compounds develop cracks along the timber sheet joints when directly adhered to the floor, and these could transfer through to the grout lines above. The fibre cement sheet with a bond breaker tape applied to the joints can overcome this problem. The schematic below shows this detail.



TILING

Tiling on these flexible subfloors requires specialized adhesives to accommodate movements. The following table provides ARDEX adhesives suitable for these applications. For timber floors, refer also to TB168 and TB218.

TILE TYPE	INTERNAL TIMBER FLOOR – DRY	INTERNAL CFC FLOOR - DRY
Highly absorbent - >1,5% <6% water absorption	X56 ISO FLEX 2 PART	ABAFLEX ISO FLEX 2P X56 X7 + ARDION E90
Vitrified/Glass Mosaics <1.5% water absorption	X56 ISO FLEX 2 PART	ABAFLEX ISO FLEX 2P X56 MPP X7 + ARDION E90
Marble & Granite (not Green Marble*)	X56 ISO FLEX 2 PART	ABAFLEX ISO FLEX 2P X56 MPP X7 + ARDION E90
Translucent Marble	NA	OPTIMA S28 + ARDEX E90
Slates	X56 ISO FLEX 2P	ABAFLEX ISO FLEX 2P X56 X7 + ARDION E90



The tile adhesives are applied in accordance with the relevant product datasheet.

GROUTING

Grouting between the tiles requires a flexible grout. ARDEX FG-8, ARDEX FS-DD, and ARDEX WJ-50 are suitable with ARDEX GROUT BOOSTER per the product datasheets.

REFERENCES

ARDEX has specific Technical Bulletins that can be used in conjunction with this bulletin.

TB015 describes procedures for levelling over timber subfloors.

TB029-TB195 discusses the application of leveling cement on heated subfloors prior to tiling.

TB030 concerns the application of FLC over Compressed Fibre Cement.

TB041 describes the requirements for surface preparation on different substrates.

TB050 talks about dealing with structural joints in subfloors.

TB168-TB218 covers methods for tiling on timber floors.

TB176 and 177 contain details on various tiling systems for heated subfloors.

Standard

AS3958.1 Ceramic tiles: Part 1: Guide to the installation of ceramic tiles.

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-ISSUER

Change of slogan and address

DOCUMENT REVIEW REQUIRED

36 months or whenever third-party suppliers change their recommendations.

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