TECHNICAL BULLETIN – TB121

BUILDING UP LEVELS, CREATING FALLS OR SMOOTHING SURFACES PRIOR TO TILING

JULY 2024

INTRODUCTION & SCOPE

A practice used in tiling installations involves using neat ceramic tile adhesives to build up a deep bed suitable for falls or simply filling gaps or irregularities in walls or floors. A similar situation involves the erroneous belief that the tile adhesive is suitable for building up or filling cement joints in brick or block work.

For several reasons, these practices are not sound, and we will look at suitable solutions.

WHY ARE THESE PRACTICES NOT RECOMMENDED?

There are several reasons why these practices are not recommended and can lead to later problems, including -

- Laying thick beds of mastic or premixed adhesives will lead to drying problems, as these materials are cured by water evaporation. The maximum thickness of the applied bed should not exceed around 3mm.
- Tile adhesives are not normally shrinkage compensated, so overly thick beds can shrink and crack during drying.
- Flexible tile adhesives have lower shear strengths, so beds laid more than the recommended thicknesses can weaken the bed and possibly cause tile de-bonding.
- Tile adhesives are generally more expensive than rendering or filling, so using these materials may not be cost-effective.

WHAT CAN BE DONE TO BUILD UP LEVELS OR FLATTEN SURFACES BEFORE TILING

The following are recommended practices before laying tiles where a fall must be created in a floor area, or a level or flatness problem in a wall or floor requires correction.

Using a Ceramic tile adhesive (Masonry only)

- ✗ On concrete floors with a small area to be tiled, ARDEX ABAFLEX can be built up to a maximum bed thickness of 10mm per layer. The greatest build-up can be 20mm, comprising two layers of 10mm with 24 hours of curing between applications.
- ✗ Mixing tile adhesives with sand is hit-and-miss regarding what adhesives will and won't be affected adversely. Always inquire with the technical department before doing this.

Using screeding or leveling materials

Rigid floors

- ✓ On concrete floors in wet, dry, or external areas:
    - Bonded sand/cement (3:1 S: C) screed mixed with ARDEX ABACRETE or ARDEX WPM405 in the gauge water.
    - A bulk filling product such as ARDEX K900BF for 3-90mm thickness.
    - ARDEX LQ92 up to 10mm thick, or ARDEX LQ92 mixed with an equal volume of 3-5mm aggregate to 25mm or approximately half a volume of 0.3-0.5mm clean, dry sand (~6kg per 20kg LQ92) for falls or ramps.
    - ARDEX A48 or ARDEX A38 screed up to 80mm thick.
    - ARDEX A46 up to 20mm thick.
- ✓ On concrete floors in dry internal areas only, the same solutions as for the wet areas but also include:
    - ARDEX A45 REPAIR MORTAR
    - ARDEX self-smoothing cements such as K12N or K15M can be used.

Flexible floors

- ✓ On flexible timber substrates such as timber or Compressed Fibre-Cement Sheet for dry internal applications:
    - Un-bonded mesh reinforced self-supporting sand/cement (3:1 S: C) screed (~40mm thick) mixed with ARDEX ABACRETE or ARDEX WPM405 in the gauge water on a plastic sheet.
    - Unbonded self-supporting ARDEX A38 or ARDEX A48 screed (≥40-45mm thick) on a plastic sheet.
    - ARDEX ARDITEX NA up to 10mm thick or 30mm thick when mixed with an equal volume of 3-8mm aggregate. This can be tiled (bond breakers over sheet joints on ARDITEX surface) or over-sheeted for a flat surface.
- ✓ On flexible external Compressed Fibre-Cement Decks (under membranes):
    - Unbonded mesh reinforced self-supporting sand/cement (3:1 S: C) screed (~40mm thick) mixed with ARDEX ABACRETE or ARDEX WPM405 in the gauge water on a plastic sheet.
    - Unbonded self-supporting ARDEX A38 or ARDEX A48 screed (≥40-45mm thick) on a plastic sheet.

- ✓ On timber substrates in waterproofed wet internal application (under membranes)
    - Unbonded mesh reinforced self-supporting sand/cement (3:1 S: C) screed (~40mm thick) mixed with ARDEX ABACRETE or ARDEX WPM405 in the gauge water on a plastic sheet.
    - Unbonded self-supporting ARDEX A38 or ARDEX A48 screed (≥40-45mm thick) on a plastic sheet.
- ✓ Above membranes (for example, membranes not suitable for tiling)
    - Unbonded self-supporting sand/cement (3:1 S:C) screed mixed with ARDEX ABACRETE or ARDEX WPM405 in the gauge water.
    - Unbonded self-supporting ARDEX A38 or ARDEX A48 screed (≥40-45mm thick).

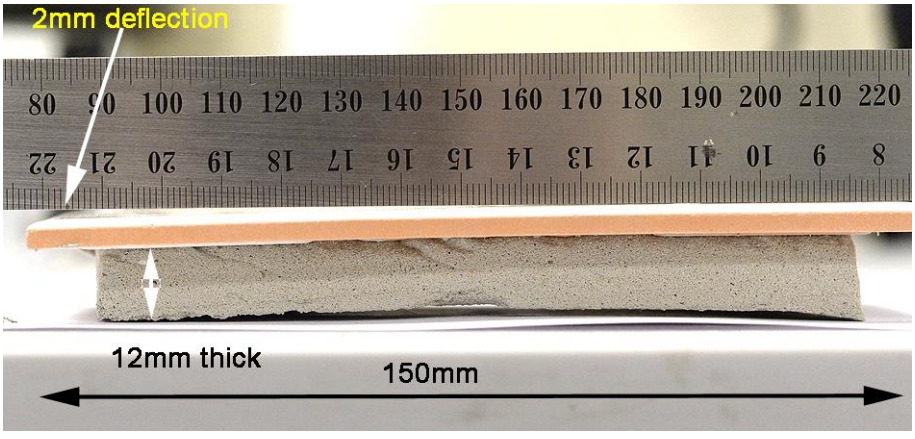
Rendering walls (Masonry)

- ✓ On brick, block work, or irregular masonry walls
    - Cement slurry coat mixed with ARDEX ABACRETE or ARDEX WPM405 in gauge water, followed by sand/cement render mixed with ARDEX ABACRETE or ARDEX WPM405 in gauge water.
    - Render with ARDEX WR80FR or ARDEX WR100 to a maximum of 10mm without filler.

Non-recommended applications

The following installation methods are not recommended -

- × Exceeding the generally recommended maximum thicknesses for any C-class adhesives (usually 6mm but can go up to 10mm).



This picture shows what can happen when excessive tile adhesive thickness is used to build up a bed to allow for poor wall flatness. The adhesive shrinkage has warped the tile.

- Rendering or screeding over waterproofing membrane.
- Application of renders on flexible walls such as fibre-cement sheets, plasterboard, or timber.
- Direct application of screeds/adhesives/smoothing materials onto external timber decks.
- Building up adhesive beds with thicknesses above 3-3.5mm using ARDEX X56, ARDEX 51, or ARDEX 52.
- Using the mastics ARDEX D1, ARDEX D2, or ARDEX D5 to build up a bed separate from the notched adhesive bed is problematic due to delayed drying times.
- Direct build-up on timber floors in wet areas with Ardex leveling cement, such as ARDEX K900BF or ARDITEX.

The solutions suggested in this bulletin provide procedures for building up beds before tiling. The specific instructions can be found on the relevant product datasheets or in Technical Bulletins, which can be obtained from Ardex Technical Services upon request.

REASON FOR REVISION-ISSUER
Content review, change of company slogan and address

DOCUMENT REVIEW REQUIRED
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