TECHNICAL BULLETIN – TB121

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

Date, Friday, 9 September 2016

INTRODUCTION & SCOPE

A practice that is used in tiling installations involves the use of neat ceramic tile adhesives to build up a deep bed suitable for falls, or simply filling up 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.

These practices are not sound for a number of reasons and we will look at suitable solutions.

WHY ARE THESE PRACTICES NOT RECOMMENDED?

There a number of 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 cure by water evaporation. Maximum thickness should not exceed around 3mm for applied bed.
- Tile adhesives are not normally shrinkage compensated and so overly thick beds can shrink during drying and crack.
- Flexible tile adhesives have lower shear strengths, and so beds laid in excess of the recommended thicknesses can lead to a weak bed and possible tile de-bonding.
- Tile adhesives are generally more expensive than rendering or filling and so the use of 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 prior to laying tiles, where a fall needs to 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 curing between applications.
- × Mixing tile adhesives with sand is hit and miss in terms of what adhesives will and won't be affected adversely. Always inquire with the technical department before doing this.

Using screeding or levelling 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 K005 for 5-120mm 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 including;
    - 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 up to 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.
    - ARDEX ARDITEX up to 10mm thick, or up to 30mm thick when mixed with an equal volume of 3-8mm aggregate. This can be tiled, but sheet joints must be carried through the ARDITEX and an exposed joint installed (See Technical Bulletin TB110).
- ✓ 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).

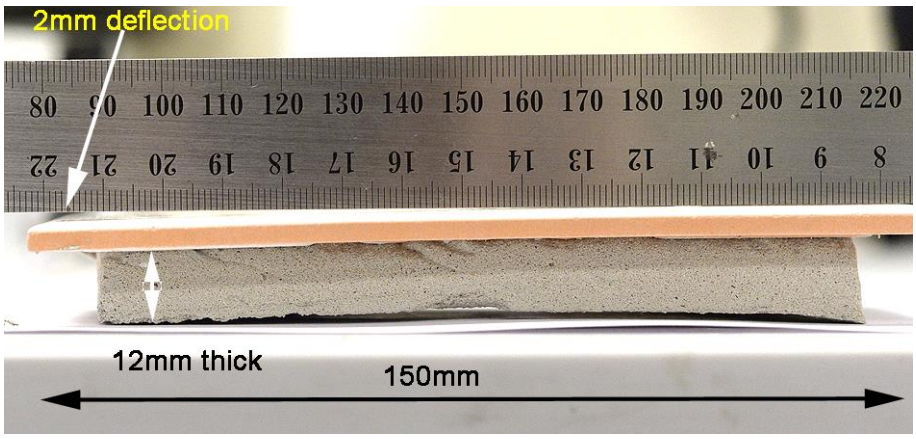
Rendering walls (Masonry)

- ✓ 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 WR60 (2-5mm) or ARDEX WR100 to a maximum of 10mm without filler.
    - ARDEX B34/B36 for patching and rendering walls from 2 to 100mm.
- ✓ Over suitable membranes (not including pools where special procedures apply)
    - 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.

Non-recommended applications

The following installation methods are not recommended -

- × Exceeding the general recommended maximum thicknesses for any of the C class adhesives (this usually is 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 tile has been warped by the adhesive shrinkage.

- × 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 to the notched adhesive bed is problematic due to delayed drying times.
- × Direct build up on timber floors in wet areas with Ardex levelling cements such as ARDEX K005 or ARDITEX.

CONCLUSIONS

The solutions suggested in this bulletin provide procedures for building up beds prior to 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
24 month review. Deletion of A300, addition of WPM405, A48, WR60 and WR100. Some minor text changes and additions

REVIEW REQUIRED
24 months from re-issue.

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