TECHNICAL BULLETIN – TB147

THE INSTALLATION OF ARDEX DS40 SOUND REDUCTION MATTING IN INTERNAL APPLICATIONS

AUGUST 2024

INTRODUCTION & SCOPE

There is a statutory (NCC Construction Code of Australia) requirement for installing soundproofing in domestic residences' upper floors in both new builds and restoration construction. The ARDEX DS40 mat system allows the economic, rapid installation of a proven sound reduction de-coupling system in both wet and dry areas within the residence.

This bulletin provides a step-by-step installation process for the two principal areas within a domestic residence. The two areas common to all domestic residences are:

1. *Internal Dry Areas* such as lounge, dining, bedrooms, etc.

2. *Internal Wet Areas* include shower recesses, bathrooms, laundries, kitchens, etc.

The surface preparation processes and requirements are the same for all types of installation.

RECOMMENDED SUBSTRATES FOR ARDEX DS40 APPLICATION

The following bases are considered acceptable for the installation of the DS40 system.

1. Concrete, Sand, and Cement.
2. Heated Screeds.
3. Wooden Floors and Wooden Particleboards.
4. Smoothing Cement.

SURFACE PREPARATION

1) All uncoated surfaces to which the matting system is to be applied must be cleaned free from grease, oil, dirt, dust, curing membranes, bond release agents, and all other surface contaminants. All surfaces must be open-pored either by preparation using mechanical surface methods such as mowing for concrete and sanding for fibre cement or thoroughly vacuumed to remove all residual dust.

2) All substrate surfaces must be dry and concrete, or screeds must be allowed to cure for 28 days or 7 days, respectively.

3) If surfaces cannot be left to dry or cure for the required period because of the construction schedule, they should be primed as described below, using ARDEX WPM300, and allowed to cure for 24 to 48 hours before proceeding.

INTERNAL DRY AREAS

1) All surfaces to be treated must be smoothed uniformly to the plane using ARDEX A45, ARDEX A46, or one of the BR range: BR340, BR345, or BR460 to fill any surface imperfections, cracks, and/or deformations or ARDEX K005 bulk filling (final surface smoothing can be done with ARDEX LQ92, ARDEX K120/K220, ARDEX K12N, ARDEX K301, or ABA Levelfast. Allow to cure for 48 hours before proceeding.

2) All surfaces must be cleaned free from all surface contaminants and dust immediately before proceeding with any installation. Wet surfaces (e.g., concrete or render) that have not reached their specified cure period shall be primed with ARDEX WPM300 at a coverage rate of 3 square metres per litre and allowed to cure to a scratch-hard stage (normally 16-48 hours, depending on temperatures).

3) Dry surfaces not primed with Ardex WPM300 shall be primed by applying one coat of ARDEX Multiprime using a sponge, brush, or roller over all porous surfaces to be sealed. Ensure that contents are shaken before use. A second coat may be required for very porous surfaces such as Hebel. The ARDEX Multiprime must be spread to avoid ponding or surface pooling of the primer and allowed to dry before applying subsequent coatings.

4) Expansion joints should be telegraphed through all layers to the tiled surface.

5) Install a 10 x 5mm foam perimeter strip around all perimeter walls and surface protrusions.

6) Bond ARDEX DS40 matting to the substrate using one of the adhesives outlined in the table below. Install the ARDEX DS40 with the fleece side down in a tight brick pattern and

7) Roll into the adhesive using a fluted roller. Fill all gaps between the sheets using a neutral cure silicone sealant.

8) When installing the tiles, ensure a minimum 6mm gap exists along all perimeter walls and protrusions to allow total isolation of the tiles from the adjacent building structure.

9) Direct bond the tiles using one of the following tile adhesives: ARDEX X56*, ARDEX X77, ARDEX X18, ARDEX X52, or ARDEX S28N+E90 (for moisture-sensitive tiles). Spread the adhesive using a 10-12 mm or greater notched trowel to achieve full undertile coverage at a bed thickness (after tile installation) of at least 3 mm. Only apply the adhesive to a small area at a time to allow the tiles to be placed and positioned before the adhesive forms a surface skin.

10) Fill the gap between the tiles, perimeter walls, and protrusions using ARDEX SE silicone. Fill the perimeter gaps and gaps between the tiles and surface protrusions using ARDEX SE Silicone. (Note: Use Ardex ST silicone with natural stone tiles)

11) Grout the tile finish after the adhesive has dried for at least 24 hours using the ARDEX FG8, ARDEX FSDD, or ARDEX WJ50 mixed with an equal blend of ARDEX Grout Booster and water. Allow the grout to cure and dry for 24 hours before subjecting the area to normal loads.

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Table 1

ARDEX Adhesive	Trowel Type	Water bag	Additive
ARDEX AF171 (preferred Option)	3.2mm V3	-	-
ARDEX X56 Tile Adhesive	3-4mm notch	6.75 L	
ARDEX X77 + E90 **Tile Adhesive**	4mm notch	5.5 L	2.5 L

*Note: Where the subfloor under the DS40 is sheet timber (ply or particleboard) or fibre-cement underlay sheet placed over timber (any type), the only recommended adhesive is ARDEX X56. Moisture-sensitive tiles are problematic because S28N+E90 may not be flexible enough for the combined movements in the floor and the matting.
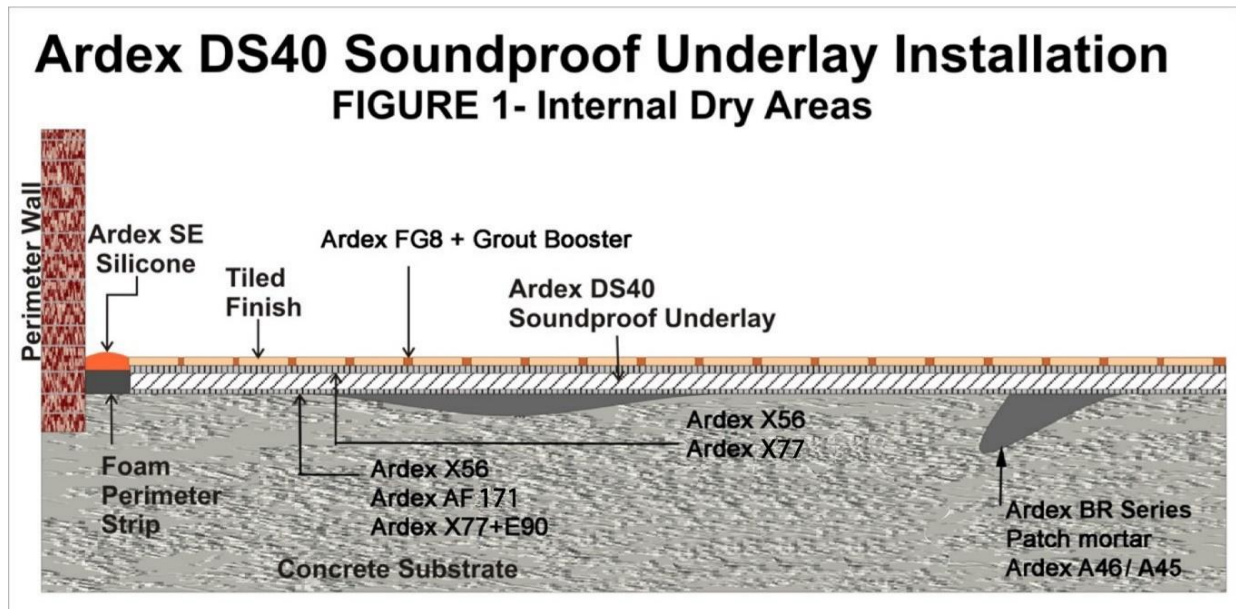
INTERNAL WET AREAS

Option 1

1) Expansion joints should be telegraphed through all layers to the tiled surface.

2) Install screeds to falls by applying a polymer-modified slurry coat and screeding to falls as detailed in the ARDEX Abacrete Product Data Sheet. Ensure the screed is applied while the slurry coat remains wet.

3) Allow the screed to dry for 7 days before proceeding or apply a coat of ARDEX WPM300 at a coverage rate of 3 square metres per litre as soon as the screed is hard enough to accept the coating without drag-up and allow it to cure a scratch-resistant stage before proceeding (normally 16-48 hours, depending on temperature). Full coverage must be achieved without pinholes.
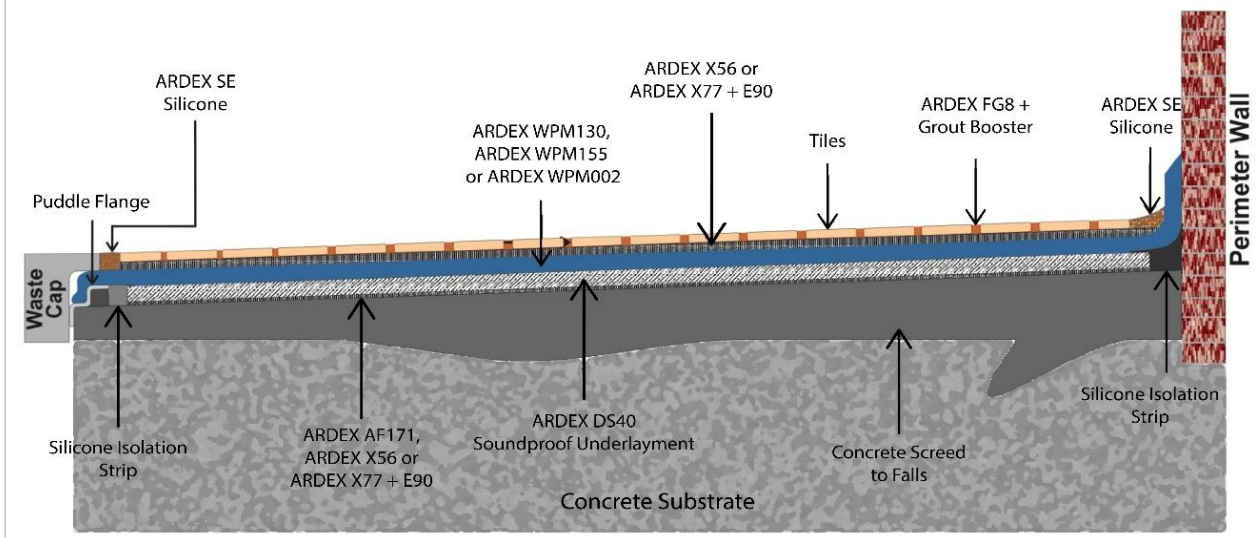
4) If ARDEX WPM300 has not been applied to the screed and it is dry and has been allowed to cure for 7 days, apply ARDEX Multiprime using a sponge, brush, or roller over all porous surfaces to be sealed. Ensure that the contents are shaken before use. A second coat may be required for very porous surfaces such as Hebel. The Ardex Multiprime must be spread to avoid ponding or surface pooling of the primer and allowed to dry before applying subsequent coatings.

5) Bond ARDEX DS40 matting using any Ardex adhesives outlined in Table 1. Install the ARDEX DS40 with the fleece side down in a butt-jointed brick pattern and roll it into the adhesive using a fluted roller. Fill any gaps between the sheets using ARDEX ST neutral cure silicone sealant. Leave a 6-10mm gap between all perimeter walls and surface protrusions to allow sealant installation to isolate the mat from the building structure.

6) Fill the gaps between the mat, walls, and protrusions using ARDEX ST neutral cure silicone, forming a bond breaker by spreading it across the floor and walls or protrusions to extend 5mm beyond the joint in both directions. Apply a liberal stripe coat of ARDEX WPM002 (2 Part) Membrane or ARDEX WPM130 (PU Acrylic Membrane) along all joints and corners extending not less than 120 mm on either side of the joint or corner and, while the coating remains wet and fluid, lay ARDEX Deckweb equidistantly across the corner or joint. Knead the ARDEX Deckweb into the underlying layer, ensuring there are no creases, folds, or air pockets, to wet out the ARDEX Deckweb thoroughly. Only apply in short lengths at a time to ensure the ARDEX Deckweb is embedded before the membrane skins.

7) As soon as all corners and joints have been reinforced, a full coat of the selected membrane shall be applied to all surfaces and upturns to be treated by brush or roller application techniques to achieve a wet film thickness of not less than 1.0 mm.

8) Allow the preceding coat to cure hard (normally at least 4 hours and longer over impermeable surfaces) and apply two full coats of the selected membrane to all surfaces to be treated, using brush or roller application techniques, to achieve a wet film thickness of not less than 1.0 mm per coat. Allow each coat to dry thoroughly before proceeding with the next coat.

9) When installing the tiles, ensure a minimum 6mm gap exists along all perimeter walls and protrusions to allow total isolation of the tiles from the adjacent building structure.

10) Allow the membrane to dry thoroughly and direct bond the tiles using polymer-modified tile adhesives such as ARDEX X56, X77, Abaflex, or Optima by spreading the adhesive using a 10-12 mm or greater notched trowel to achieve full undertile coverage at a bed thickness (after tile installation) of at least 3 mm. Only apply the adhesive to a small area at a time to allow the tiles to be placed and positioned before the adhesive forms a surface skin.

11) Fill the gap between the tiles, perimeter walls, and protrusions using ARDEX SE silicone.

12) Grout the tile finish after the adhesive has dried for 24 hours using the ARDEX FG8

13) ARDEX FSDD or ARDEX WJ50 mixed with an equal blend of ARDEX Grout Booster and water. Allow the grout to cure and dry for 24 hours before subjecting the area to normal loads.

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Ardex DS40 Soundproof Underlay Installation
FIGURE 2- Internal Wet Areas - Option 1

Option 2

1) All surfaces to be treated must be smoothed uniformly to the plane using ARDEX B340, BR345, BR460, or ARDEX A46 to fill any surface imperfections, cracks, and/or deformations. Bulk filling can be done with ARDEX K900BF, and then full surface smoothing can be completed with ARDEX LQ92, ARDEX K301, or ABA Levelfast. Allow to cure for 48 hours before proceeding.

2) All surfaces must be cleaned free from all surface contaminants and dust immediately before proceeding with any installation. Wet surfaces shall be primed with ARDEX WPM300 HydrEpoxy, at a coverage rate of 3 square metres per litre, and allowed to cure to a scratch-resistant stage (normally 16-48 hours, depending on temperatures).

3) Dry surfaces not primed with ARDEX WPM300 HydrEpoxy shall be primed by applying one coat of ARDEX Multiprime using a sponge, brush, or roller over all porous surfaces to be sealed. Ensure that contents are shaken before use. In the case of very porous surfaces such as Hebel, a second coat may be required. The ARDEX Multiprime must be spread to avoid ponding or surface pooling of the primer and allowed to dry before applying subsequent coatings.

4) Expansion joints should be telegraphed through all layers to the tiled surface.

5) Bond the ARDEX DS40 Sound Reduction Underlay using any one of the Ardex adhesives outlined in Table 1. Install the ARDEX DS40 with the fleece side down in a butt-jointed brick pattern and roll it into the adhesive using a fluted roller. Fill any gaps between the sheets using a neutral-cure silicone sealant.

6) Install a 10 mm wide perimeter joint of foam immediately adjacent to all perimeter walls and all protrusions to isolate the subsequent layers from the building structure. The perimeter joint shall extend to at least the height of the finished screed as applied in the next section.
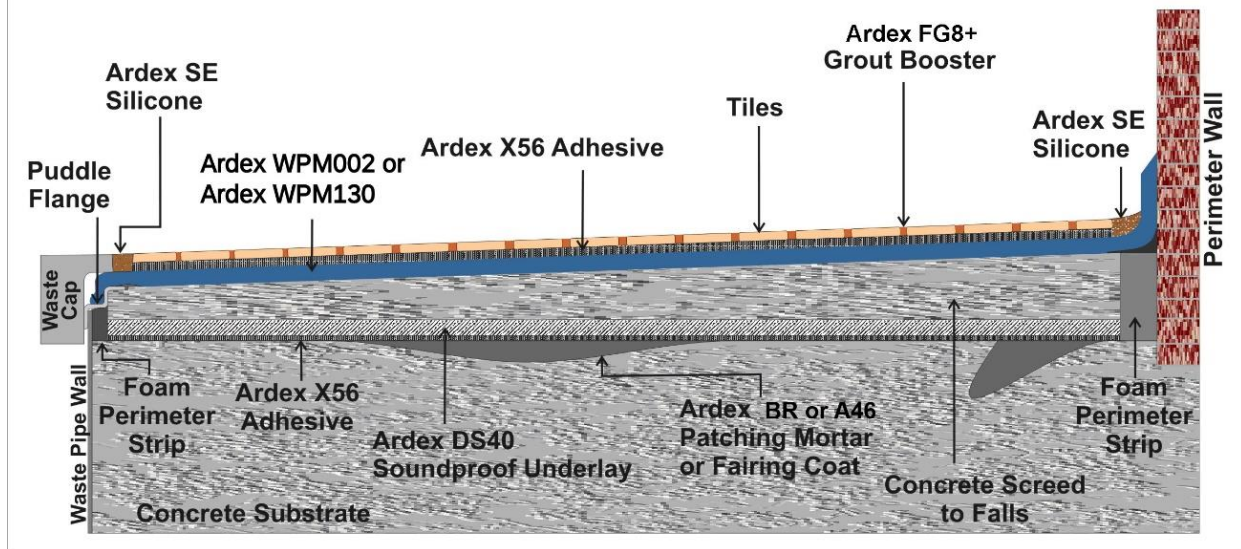
7) Install screeds to falls by applying a polymer-modified slurry coat and screeding to falls as detailed in the Ardex Abacrete product data Sheet. Ensure the screed is applied while the slurry coat remains wet.

8) Allow the screed to dry for 7 days before proceeding or apply a coat of ARDEX WPM300 as soon as the screed is hard enough to accept the coating without drag-up and allow overnight drying before proceeding.

9) If ARDEX WPM 300 has not been applied to the screed, apply ARDEX Multiprime using a sponge, brush, or roller over all porous surfaces to be sealed. Ensure that contents are shaken before use. In the case of very porous surfaces such as Hebel, a second coat may be required. The ARDEX Multiprime must be spread to avoid any ponding or surface pooling of the primer and allowed to dry before applying subsequent coatings.

10) Expansion joints should be bridged using ARDEX Construction Detail Bandage bonded to the substrate surface using the fleece on either side of the central strip following ARDEX Technical Bulletin TB226. The fleece is bonded with a sand-blind epoxy resin such as ARDEX EG15 or EG800F.

11) Install a neutral cure silicone bead bond breaker across all joints and spread to extend 5 mm on either side of the joint. Apply a liberal stripe coat ARDEX WPM002 (2 part) or ARDEX WPM130 (PU Acrylic Membrane) along all joints and corners extending not less than 120 mm on either side of the joint or corner and, while the coating remains wet and fluid, lay ARDEX Deckweb equidistantly across the corner or joint. Knead the ARDEX Deckweb into the underlying layer, ensuring no creases, folds, or air pockets, to wet out the ARDEX Deckweb thoroughly. Only apply in short lengths to ensure the ARDEX Deckweb is fully embedded before the membrane skins.

12) As soon as all corners and joints have been reinforced, a full coat of ARDEX WPM002 (2 Part) Membrane or ARDEX WPM130 (PU Acrylic Membrane shall be applied to all surfaces to be treated, by brush or roller application techniques, to achieve a wet film thickness of not less than 1.0 mm.

13) Allow the preceding coat to cure hard (normally at least 4 hours and longer over impermeable surfaces), and apply a further coat(s) of the selected membrane to all surfaces to be treated, by brush or roller application techniques, to achieve a wet film thickness of not less than 1.0 mm per coat to achieve a total dry film thickness of not less than 2mm. (Note that to achieve 2mm, dry film thickness will normally require 3- 4 coats).

14) When installing the tiles, ensure a minimum 6mm gap exists along all perimeter walls and protrusions to allow total isolation of the tiles from the adjacent building structure.

15) Allow the membrane to dry thoroughly and directly bond the tiles using ARDEX X56, X77, Abaflex, or Optima tile adhesive by spreading the adhesive using a 10-12 mm or greater notched trowel to achieve full undertile coverage at a bed thickness (after tile installation) of at least 3 mm. Only apply the adhesive to a small area to allow the tiles to be placed and positioned before the adhesive forms a surface skin.

16) Use ARDEX SE or ST silicone to fill the gap between the tiles and the perimeter walls or protrusions.

17) Grout the tile finish after the adhesive has dried for 24 hours using the ARDEX FG 8 grout mixed with an equal blend of Ardex Grout Booster and water where the joints between tiles are up to 5mm wide. Allow the grout to cure and dry for 24 hours before subjecting the area to normal loads.

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Ardex DS40 Soundproof Underlay Installation
FIGURE 3- Internal Wet Areas - Option 2

Ardex FG8+ Grout Booster

Ardex SE Silicone

Tiles

Ardex X56 Adhesive

Ardex WPM002 or Ardex WPM130

Ardex SE Silicone

Puddle Flange

Perimeter Wall

Waste Cap

Foam Perimeter Strip

Ardex X56 Adhesive

Ardex DS40 Soundproof Underlay

Ardex BR or A46 Patching Mortar or Fairing Coat

Foam Perimeter Strip

Concrete Screed to Falls

Waste Pipe Wall

Concrete Substrate

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.

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DOCUMENT REVIEW REQUIRED

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

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