



TECHNICAL BULLETIN – TB178 INSTALLATION OF SHEET VINYL INTO HEALTH CARE FACILITIES

22 September 2025

INTRODUCTION & SCOPE

All trip hazards encountered when entering wet areas and showers must be eliminated by applying levelling compounds or ramping and repair mortars.

Standard sand-cement screeds require a minimum thickness of 15-25mm and are generally not smooth enough or sufficiently strong enough to fix resilient flooring.

ARDEX levelling compounds are typically installed at thicknesses ranging from a feather edge to 20-30mm. They dry rapidly and provide a high-strength substrate, which allows sheet vinyl flooring to be fixed typically within 16-18 hours.

The turnaround time factor is often critical, and systems are available with various cure times to suit project needs. For the fast-track systems, resilient flooring can be laid as early as 1 - 1½ hours over **ARDEX A45** or **ARDEX K55** or from 16-24 hours for **ARDEX K15** and **ARDEX K12**.

This Bulletin covers methods for installing a complete system, including levelling, creating 'falls' to waste outlets, and installing waterproofing membranes.

CREATING FALLS TO WASTE

ARDEX has a range of products that allow the installation of rapid hardening, rapid drying cement compounds, and screeds for falls to floor wastes. These products can be used from a featheredge to 20mm for levelling compounds, and 3-90 mm for bulk fills and engineered screeds. This ensures the minimum required thickness is achieved to create falls for a typical 900 x 900mm shower floor area.

Areas adjacent to the shower can also be ramped to create falls to waste. The ramping requirements in these areas tend to be more modest than in showers. Ramping with the same cement-based products can easily remove trip hazards in dry areas. This allows easy and safe passage by users of the healthcare facilities.

Falls to floor waste (shower areas) in new constructions must be created during construction. Roughly created falls can be quickly, easily, and cost-effectively smoothed before the installation of sheet vinyl flooring.

WATERPROOFING MEMBRANES

The waterproofing standard AS3740 describes sheet vinyl flooring as water-resistant rather than waterproof. This is because of the joining process of the sheets with welded joints. The difference between the two is defined in the standard as:

Waterproof – The property of a material that does not allow moisture to penetrate through it.

Water resistant – The property of a system or material that **restricts** moisture movement and will not degrade under moisture conditions.



This distinction is significant in the standard's General Requirements, where shower areas (enclosed and unenclosed) and bathrooms and laundries with floor wastes require the floor to be waterproof rather than water resistant.

This means that while normal vinyl flooring is water resistant, it is not waterproof, so a separate membrane system is required. It should be noted that some flooring suppliers have nominally waterproof sheet flooring systems.

SURFACE PREPARATION

1. Concrete floors must be structurally sound with all previous coatings removed. The substrate must be clean, free of all contaminants, and cleaned or ground back to an open porous concrete matrix. Professional cleaning by mechanical means in line with sound building industry practices is advised. Suggested processes include diamond grinding, scarifying, or shot blasting (if large areas) to provide a surface profile between CSP3 and CSP7. Refer to Technical Bulletin TB041 for more details.
2. Vacuum the surface to thoroughly remove all dust, dirt, and debris caused by the surface preparation.

Note: Standard sand-cement screeds are considered inappropriate substrates for vinyl flooring as per AS1884 - 2021. The reasons are slow drying, difficulty in obtaining a smooth surface, and, unless carefully mixed and compacted, screeds have poor strength. This can cause indentation problems in the longer term, leading to subsequent problems with the floor. If a screed is required, **ARDEX A38** and **ARDEX A48** are considered acceptable for use under vinyl. They are rapid-cure, high-strength engineered screeds. The surface texture of these screeds can be smoothed with **ARDEX** levelling compounds or **ARDEX FEATHER FINISH** before the installation of vinyl.

For more details, refer to **ARDEX** Technical Bulletin TB159 and AS1884 - 2021.

PRIMING BEFORE APPLICATION OF LEVELLING COMPOUNDS

1. The primer for use on standard absorbent concrete is **ARDEX P51**.
2. **ARDEX P51** Primer should be diluted (**1:2 with water**) before application. It is applied evenly with a soft push-broom. Do not leave any bare spots and remove all puddles and excess primer. Allow to dry to a clear, thin film (min., 3 hours, Max., 24 hours). The levelling compound should not be applied over the primed concrete until the primer is dry.

Note: Alternate primers for the levelling compounds include **ARDEX P9**, **ARDEX WPM300** with broadcast sand.

ARDEX P9 is applied by roller onto clean surfaces. It can be used on mechanically prepared concrete with less porosity than required for **ARDEX P51**.

ARDEX WPM300 is used as part of the moisture barrier system as described in Technical Bulletins TB006.

SYSTEMS TO CREATE BASE AND FALLS TO WASTE

The following systems are suitable for creating falls and smoothing surfaces before installing a waterproofing membrane.

The Ultra-rapid and Rapid cure systems are intended for 'fast track' installation - note that these systems require protection (waterproofing).



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When **ARDEX** levelling compounds have been bulk filled with aggregate, a final coat of (un-bulked) levelling compound should be applied to remove the rough and lumpy surface of the 'bulk' primary layer. The cured base coat is primed with **ARDEX P51** primer (diluted 1:2 with water). This is allowed to dry for approximately 3 hours. The final smoothing application is then applied in the following manner:

- 1) Pins in the concrete (adjusted by a string line) may be necessary to act as a guide when installing floor-leveling cement. Applying levelling compounds with slightly reduced amounts of water (or water + **ARDEX E25**) can allow the product to be used as a screed.
- 2) An alternative method is to place a circle of foam tape approximately 300-400mm from the floor waste and then apply the bulk fill from the wall to the outer edge of the foam tape. When the bulk fill is cured, the tape is removed, and the final section from the hardened edge to the waste is installed with the levelling compound or patch mortar (without aggregate).

Table 1) Ultra-rapid Cure Systems

Product	ARDEX E25	Thickness	Cure times	Advantages	Limitations
System 1.1 ARDEX K55	Nil	a) 1mm - any thickness neat b) Thickness 10mm to any thickness with 1:1 volume of 2 – 5mm aggregate	60-90 minutes	Very fast cure allows rapid turn-around time High strength	Very high flow without aggregate restricts ability to create falls
System 1.2 ARDEX A45	Gauge solution is 1 volume of E25 to 2.5 volumes of water. 1 volume of gauge solution to 3 volumes of A45 powder	a) 2 - 30mm neat b) Thickness 5mm to 30mm with (1:3 Sand/A45) by volume with 0.3-0.5mm sand OR 1 volume A45: 2 volume 2-5mm aggregate c) Thickness 30-50 mm with 1:1 volume 10mm aggregate.	90 minutes	Very fast cure allows rapid turn-around time High strength Good formability	When bulk filled is stiff to mix. Mixing large volumes creates a short working time

Table 2) Rapid cure systems

	ARDEX E25	Thickness	Cure times	Advantages	Limitations
System 2.1 ARDEX K15	1.6 litres of E25 to 4 litres of water per 20kg bag	a) Any thickness neat b) Any thickness >10 mm with equal volume of aggregate (2-5mm)	16-18 hours	Fast cure allows rapid turn-around times. No thickness restrictions	High flow without aggregate restricts ability to create falls



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				High compressive strength	
System 2.2 ARDEX K12	1 litre of E25 to 4.5 litres of water per 20kg bag	a) Up to 35 mm neat b) Any thickness >10 mm with equal volume of aggregate (2-5mm)	16-18 hours	Fast cure allows rapid turn-around times. High compressive strength	High flow without aggregate restricts ability to create falls.
System 2.3* ARDEX A38 or ARDEX A48	No additive required	a) As bonded screeds 15-70mm and unbonded 40-70mm (can be several layers to 120mm)	16-18 hours	Fast cure allows rapid turn-around times. High compressive strength Economical in depth	Screed rather than smoothing cement. Requires compaction

Table 3) Moderate cure time systems

Product	ARDEX E25	Thickness	Cure times	Advantages	Limitations
System 3.1 ARDEX K900 BF	N/A	a) Thickness from 3-90 mm when applied neat	48 hours	Cure much faster than screeds High thickness possible Reduced costs Good bulk fill base for other topcoats	Slower cure dependent on thickness Does not feather out
System 3.2 ARDEX K60 (ARDITEX-NA)	Not required	a) Thickness 0-12 mm neat. b) For thickness 12-30mm add an equal volume of aggregate 2-5mm ARDITEX NA is suitable for ramping in the one operation without filler.	24 hours	Flexible so good for CFC floors Easier to form without aggregate	Softer than other smoothing cements Maximum recommended thickness 30mm when bulked out
System 3.3*	NA	2-30mm	24 hours	Good formability	Maximum recommended thickness 30mm



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ARDEX A46				Water resistant – External product	
System 3.4* ARDEX K301	NA	a) Thickness 2-20mm neat b) For thickness 10-30mm it is recommended to add an equal volume of aggregate 2-5mm	48-72 hours	Water resistant- External product Hard surface	Maximum thickness 20mm Rough surface texture

*These base systems are not moisture sensitive

PLACEMENT WITH FALLS TO FLOOR WASTE

The bulk-filled levelling compounds can be screeded or trowelled to the required fall or gradient (between 1 in 60 and 1 in 100), with an approximate minimum thickness of typically 10mm.

When using un-bulked **ARDEX A45** and **ARDEX A46** trowelable mortars, falls can be formed easily with a hand trowel. Traditional methods can be used to apply **ARDEX A38 / ARDEX A48**.

When using the un-bulked levelling compounds **ARDEX K12**, **ARDEX K60 (ARDITEX NA)**, or **ARDEX K301**, the amount of fall that can be created is restricted by the maximum build height that can be achieved.

Allow the mortar to harden to “FINGER TIGHT,” then shape the mortar to the required fall to provide a flat finish by shaving or grinding the surface with a trowel blade or similar tool.

WATERPROOF PROTECTION COATING FOR LEVELLING COMPOUND

Application of **ARDEX** waterproofing membranes in showers must be as per the requirements of the current version of AS3740 and the NZ Membrane Assn code of practice for internal wet areas. At the time of writing, this is as min:

- up wall of the shower to a height of 1.8 meters, where required
 - up wall surfaces for a minimum height of 150mm.
 - above the bath level for 150mm.
 - for floors of un-enclosed showers out to a minimum distance of 1500mm from the shower head.
 - for floors with wastes, over the whole floor.
1. **ARDEX WPM002** should be the recommended membrane for heavy-duty applications and where more chemically aggressive vinyl adhesives are used.
 2. Allow the levelling compound or repair mortar to harden and dry (see recommended cure times in tables) before applying the waterproofing membrane.

The surface should be primed with **ARDEX P9** (preferred primers for **ARDEX WPM002**, but other suitable options include **ARDEX P51** (diluted to 1:2 with water), **ARDEX WPM300**, or **ARDEX MULTIPRIME**.

3. Prime metal penetrations with a suitable metal primer and prime PVC penetrations with **ARDEX WPM299**.



4. A bead of elastomeric sealant (e.g., **ARDEX ST** neutral cure silicone) or bond-breaking tape is applied as a bond breaker to the following areas:
 - Floor/wall junction
 - Expansion joints and within shower trays
 - Joins in flooring and other places where movement is expected
5. The fabric embedded in the waterproofing membrane over all joints, penetrations and around the perimeter of the leak control flange is **ARDEX Deck Web** (190mm wide). Note: It is also acceptable to detail these areas with **ARDEX STB Tape**
6. The waterproof membrane must be installed per the Product Technical Data Sheet.
7. After the second coat allow the **ARDEX WPM002** to cure for at least 4 hours at 23°C/50% RH before the installation of **ARDEX FEATHER FINISH, ARDEX MRF** or **ARDEX FINE FINISH**.
8. When the vinyl is turned up the walls, details such as coves are required. The smoothing coat must be continued up the height of the membrane and then be overlapped onto the wall construction to produce a smooth transition.

ARDEX cannot offer guarantees for installations over non-**ARDEX** membranes unless tested by **ARDEX** for compatibility.

FINISHING COAT FOR DIRECT FIXING OF VINYL

The surface of the cured waterproofing membrane must be smoothed with either **ARDEX FEATHER FINISH, ARDEX MRF** or **ARDEX FINE FINISH**.

The purpose of the smoothing coat is to:

- improve performance of tack-off type water-based adhesives.
 - provide some protection for the membrane surface.
 - hide the rough texture of the membrane to prevent show through.
1. **ARDEX FEATHER FINISH, ARDEX MRF** or **ARDEX FINE FINISH** are mixed according to the product datasheets.
 2. Apply **ARDEX FEATHER FINISH, ARDEX MRF** or **ARDEX FINE FINISH** using a 1.6 to 2.4mm notched trowel. The surface is then smoothed using a flat trowel to provide a flat/smooth porous surface. This can be in a single coat, but applying a second coat after the first has dried is more effective.

The required minimum thickness for floors is 1.5mm

The recommended minimum thickness for walls is 1.0mm

3. The fairing coat can cover the membrane's edge and provide a wedge-shaped transition on the walls where the vinyl is turned up.
4. Allow the smoothing coat to dry thoroughly before installing resilient vinyl sheeting (minimum 3 -6 hours at 23° C).

FINISHING COAT FOR DIRECT FIXING OF VINYL – ARDEX K60 (ARDITEX NA)

In some situations, a thicker build is required, and, in this case, **ARDEX ARDITEX NA** can be installed over the membrane. **ARDEX K60 (ARDITEX NA)** is also more resistant to hydrocarbon solvents than a thinner layer of **ARDEX FEATHER FINISH, ARDEX MRF** or **ARDEX FINE FINISH** providing extra protection where contact solvent adhesives are in use.



1. The levelling compound used is **ARDEX K60 (ARDITEX NA)**.
2. Install **ARDEX ARDITEX NA** at a minimum thickness of 3mm to the dry waterproof membrane and allow it to dry thoroughly (minimum 24 hours) before installing vinyl finishes.

Note that **ARDEX K60 (ARDITEX NA)** cannot be used up walls; in this case, a coat of **ARDEX FEATHER FINISH, ARDEX MRF** or **ARDEX FINE FINISH** is required to smooth the wall areas.

FLOORING ADHESIVES

Resilient flooring can be installed using a suitable ARDEX product. Products such as **ARDEX AF145** and **ARDEX AF180** are suitable. The choice of product, however, must comply with the resilient flooring manufacturer's recommendations for appropriate product types.

A two-part epoxy adhesive is the most moisture-resistant option. However, these adhesives tend to have poor initial grab, which can lead to problems with some types of floor waste.

Water-based acrylic adhesives are subject to moisture damage when the vinyl joints leak and require correct tack-off time.

Solvent-based contact adhesives provide fast grabs but can be long-term moisture-sensitive. The type of solvent may affect the membrane and may not be recommended by floor covering manufacturers.

Adhesive systems for the vinyl installation would include:

1. Bonding the vinyl to the floor and walls with either **ARDEX AF 180 MS (floor only)** or **ARDEX AF 145** fast grab adhesive. Both can be applied with a 1.6mm notch trowel, making sure the product has correctly tacked off before laying the vinyl. This will prevent moisture from being trapped under the vinyl.

Bonding of the vinyl flooring into the plastic floor waste turndown and the area within ~100mm can be achieved using **ARDEX CA750** contact adhesive.

2. The contact adhesive must tack off correctly before the covering is placed. Use **ARDEX P9** primer first on the floor waste.
3. Where mouldings and fittings are to be bonded to the walls (typically where the vinyl finishes on the turn-up) or the corner covings, **ARDEX CA750** can be used, again allowing the correct tack-off time.
4. Mouldings or skirting trim can also be bonded with **ARDEX CA 20P** silane adhesive and sealant. The adhesive can be activated faster by misting with water before placing the piece to be bonded. This adhesive is not designed as fast grab, and heavier items may require support.

NOTES

DAMP SLABS

Where the concrete subfloor's moisture content exceeds the requirements of AS1884, the floor should be treated with **ARDEX WPM300** as per ARDEX Technical Bulletins TB006.

TIMBER FLOORS

These systems are not considered suitable for use over timber-based floors. If resilient flooring is to be applied over a timber floor, there must be an 'underlayment' between the timber substrate and the vinyl. The underlayment can be:

- Hardboard Underlay
- CFC Vinyl Underlay



- Masonite
- Cementitious underlay such as **ARDEX ARDITEX NA**

SAND-CEMENT SCREEDS

According to the latest version of the Resilient Flooring Standard (AS1884 – 2021), only 'engineered' screeds are acceptable. The surface of these screeds is generally not smooth enough for vinyl installation, so a topping coat of a levelling compound is often recommended

REFERENCES

AS3740-2021 Waterproofing of wet areas within residential buildings.

AS/NZS4858-2004 Wet area membranes

AS1884-2021 Floor coverings—Resilient sheet and tiles—Installation practices.

NZS/AS1884-2021 Floor coverings—Resilient sheet and tiles—Installation practices.

ARDEX Technical Bulletin TB012D; Systems for Preparation of Walls & Floors in Wet Areas of Health Care Facilities to Receive Sheet Vinyl Coverings, ARDEX FLC and Membranes.

GLOSSARY

AS3958.1-2023 Ceramic tiles - Part 1: Guide to installing ceramic tiles.

Bond breaker – A system that prevents the membrane from bonding to the substrate, bedding, or lining.

Bulk-filled—A liquid or paste smoothing cement that has had aggregate or coarse sand added to it to add bulk and alter the handling properties (usually to reduce flow).

Feather edge: where the smoothing cement is wedged, it is a fine and thin transition, typically 1mm or less in thickness.

Finger tight – The mortar is firm to touch and does not easily deform or slump but is still soft enough to work and shape with a trowel or a dampened trowel.

Granolithic topping – A type of "sand"-cement screed where the sand is actually a mixture of sand (0.05-2mm size) and fine gravel between 2-5mm normally, which is mixed with cement and laid in the same sort of way as a normal sand-cement screed. The range of particle sizes makes these screeds stronger than the typical fine sand only screeds.

Leveller— also called smoothing cement, levelling compound, topping or the standard term underlayment. These are typically poured liquids but can also be mortar pastes.

AS3740- 2010 Waterproofing of Domestic Wet Areas

Mechanical method-As defined in AS1884-2012 is,

"1.3.15 Mechanical means

'Mechanical means' is the process of surface preparation performed by application of applied physical forces to the substrate surfaces to remove contamination. For the purposes of installations on concrete this refers to the use of diamond grinders, scarifiers and captive shot blasters. For smaller areas this can include chippers and nail gun type scabblers. When installations are to be performed on timber floors, 'mechanical means' refers to floor sanders. Regardless of the means used the final process in a mechanical preparation is vacuum cleaning."

Resilient flooring – Sheet and tile coverings in all forms which includes flexible PVC, semi-rigid PVC, linoleum, and rubber.

Moisture Barrier - This term refers to a waterproofing membrane which is used to prevent rising moisture from the substrate. It can be either liquid water or water vapour. These can fall under **Waterproof membrane** – The term membrane is the general covering name for all sorts of waterproofing, but in this case is taken to mean flexible membranes compliant with AS4858 and designed to stop water from above the flooring penetrating.

Wet areas – An area within a building supplied with water from a water supply system, which includes bathrooms, showers, laundries, and sanitary compartments and excludes kitchens, bar areas, kitchenettes or domestic food and beverage preparation areas. (From AS3740-2010/12).



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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 product for NZ

DOCUMENT REVIEW REQUIRED

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

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