

TECHNICAL BULLETIN

Wet-Area Screeds Under Sheet Vinyl

Engineered Screeds, Falls to Waste, and Why Sand-Cement Screeds Fail Under Resilient Flooring

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WHY WE ARE SENDING THIS

This is the third bulletin in our technical series. It covers the floor under sheet vinyl in bathrooms, ensuites, clinical areas, change rooms and commercial kitchens: the screed that creates the falls to the floor waste, and the system that sits on top of it.

It is an area we see done badly more often than almost any other part of a flooring package. On a recent school project, the wet-area screeds had been installed by others before we arrived. They sounded drummy, parts were crumbling, and the surface could not be skimmed smooth enough for vinyl. We removed them and reinstalled the screeds properly before any vinyl went down. That cost the project time and money that the right specification at tender would have avoided.

As with our other bulletins, I am writing this personally. The aim is simple: get the screed, the falls and the system right at tender, so nobody is pulling up floors mid-programme.

WHY WET AREAS UNDER VINYL ARE DIFFERENT

Under ceramic tiles, a screed is hidden by a thick, rigid finish. The tile bed bridges small hollows, minor unevenness and a weak surface. Sheet vinyl does none of that. It is typically around 2mm thick, so every ridge, hollow and trowel mark in the screed shows through, and the vinyl adhesive bonds only to the top few millimetres of the screed surface.

Wet areas add two more requirements. The floor must fall to the waste so water does not pond, and it must be waterproof. Under AS 3740, sheet vinyl is classed as **water resistant rather than waterproof**, because of its welded seams. In showers, and in rooms with a floor waste, a separate waterproofing membrane is required under the vinyl.

WHAT THE STANDARDS REQUIRE

- **AS 1884:2021** (resilient flooring installation): standard sand-cement screeds are not an acceptable substrate for resilient flooring. Only engineered screeds are acceptable, and their surface is smoothed before vinyl goes down. The substrate must meet the standard's flatness and smoothness tolerances and be free of cracks, dusting and hollow spots.
- **NCC 2022**: where a floor waste is installed, the floor must fall continuously to the waste at no less than 1:80 and no more than 1:50. This applies whether the waste is required or installed voluntarily.
- **AS 3740-2021**: the substrate the membrane is applied to must itself fall to the waste at a minimum of 1:100.
- **Food premises** (Food Standards Code 3.2.3 and AS 4674): commercial kitchen floors that are washed down must be graded to a floor waste with no hollows where water can sit, and coved at the floor-wall junction. Councils typically require a minimum 25mm coving radius.

WHY SCREEDS FAIL UNDER VINYL

Engineered screeds cost more than a traditional sand-cement screed, and that is usually where the trouble starts. To save money, the screed gets value-engineered: a pre-mixed product is supplied and pumped in,

then left for whoever is on site to place it. Often that is a tiling crew, because screeds have traditionally been their trade.

The product may be fine. The installation often is not. Nobody checks whether the installer knows how to place an engineered screed under vinyl, and the result is a screed that would probably perform under ceramic tiles but fails under sheet vinyl:

- **Not bonded:** placed without the right primer or bond coat, so it sounds drummy and lifts.
- **Not compacted:** the surface crumbles, and the vinyl adhesive pulls the top layer away.
- **Not smooth:** it cannot be skimmed to a finish fit for vinyl, so ridges and trowel marks show through the sheet.
- **Slow to dry:** a traditional sand-cement screed dries at roughly 1mm per day, so vinyl often cannot safely go down for 40 to 60 days.
- **Wrong falls:** ponding at the waste or back-falls at the doorway, found only once the floor is wet.

Strength and drying time are where engineered screeds earn their cost. Ardex reports typical sand-cement screeds at around 1 to 5 MPa. Its Australian data sheet puts ARDEX A38 at about 20 MPa after one day and 35 MPa at 28 days, ready for Ardex smoothing cements after 24 hours and normally ready for resilient flooring after about two days, once a surface moisture test confirms it. Thin vinyl transfers point loads from trolleys, wheelchairs and commode chairs straight onto the screed surface, which is why that strength matters.

THE UNCOMFORTABLE TRUTH ABOUT CHEAP WET-AREA SCREEDS

When we arrive on site and the screed is drummy, crumbly or rough, there are only two options:

- 1. Remove it and start again, which costs time, money and programme.*
- 2. Install vinyl over a substrate we know will fail, which we will not do.*

By that point, the cost of fixing it is far higher than the cost of specifying it properly at tender.

OUR SYSTEM, SLAB TO FINISHED FLOOR

We deliver wet-area floors as **one complete Ardex system**. Every layer comes from the same manufacturer and is designed to work with the layers above and below it, so compatibility is never split between suppliers:

- **Preparation:** the slab is mechanically prepared to a clean, open surface and moisture tested.
- **Under-membrane where needed:** on green slabs, or where the certifier or project documents call for it, two coats of ARDEX WPM 300 go onto the slab, with clean dry sand broadcast into the wet top coat so the screed has a mechanical key to bond to.
- **Engineered screed to falls:** ARDEX A38 or A48, bonded with a slurry bond coat and placed and compacted wet-on-wet while the slurry is still workable. The minimum bonded thickness is 15mm at the floor waste, building up from there to achieve the fall.
- **Detailing:** bond breakers at the floor-wall junction and movement joints, with reinforcing fabric over junctions, penetrations and around the waste flange.
- **Waterproofing membrane:** always applied over the screed and turned up the walls, within the same Ardex system.
- **Smoothing coat:** ARDEX Feather Finish over the membrane, at least 1.5mm on floors and 1mm on walls, so the surface is smooth enough for vinyl, porous enough for the adhesive, and the membrane is protected.
- **Sheet vinyl:** a water-resistant adhesive correctly tacked off so no moisture is trapped, contact adhesive into the waste turndown, then coved up the walls and heat-welded at every seam.

THE DETAILS THAT MAKE OR BREAK IT

Most wet-area failures come down to a handful of details that are invisible once the vinyl is down. These are the hold points in our ITP, checked and recorded before the next layer goes on:

- **Bond:** the screed is sounded for hollows before anything goes over it. A drummy screed is removed, not covered.
- **Falls:** checked to the waste before the membrane, with no ponding and no back-falls at the doorway. Older details often show 1:100, but NCC 2022 now requires 1:80 to 1:50 wherever there is a floor waste.
- **Dryness:** the screed and smoothing coat are confirmed dry before the next layer. Rushing a coat over a wet base is how adhesive and membrane failures start.
- **The waste:** the membrane is detailed into the waste flange and the vinyl is bonded into the waste turndown, because this is the point where water is concentrated.
- **Coving:** vinyl is turned up the walls on a coving former with the smoothing coat carried up behind it, so the junction can be cleaned and does not trap water.

SCREED THICKNESS IS SET BY THE FALLS

Screed thickness is not a number we pick. It is set by how far the screed has to run from the waste to the furthest point of the room, and the fall it has to achieve. We start at the minimum bonded thickness of 15mm at the waste and work back from there. As a guide:

- **1.5m from the waste at 1:80:** 15mm + 19mm = about 34mm at the furthest point.
- **2.5m from the waste at 1:80:** 15mm + 31mm = about 46mm.
- **2.5m from the waste at 1:60:** 15mm + 42mm = about 57mm.

This is why set-downs in the structural slab matter. If the slab is not set down far enough, the screed either cannot achieve the fall or creates a ramp at the doorway. Raise it at design stage, not when the screed crew arrives.

WHAT YOU CAN DO ABOUT IT

Like moisture, this just needs to be dealt with at the right stage of the project:

- **At design:** check the wet-area set-downs against the distance to each waste and the required fall.
- **At tender:** specify an engineered screed, not a standard sand-cement screed, under resilient flooring, and ask your flooring contractor to price the screed, membrane and vinyl as one system.
- **At programme:** engineered screeds can take vinyl much sooner. A sand-cement screed can hold a wet area up for weeks.
- **Before vinyl goes down:** if screeds have been installed by others, have them checked for bond, soundness, smoothness and falls before the membrane and vinyl.

OUR POSITION ON EVERY PROJECT

We will not install sheet vinyl over a wet-area screed that is drummy, crumbling, rough or out of fall. Where screeds have been installed by others, we check them before we start and tell the builder in writing if they are not suitable. Where we install the screed, we take responsibility for it from the slab to the finished floor.

We are available to attend design or pre-construction meetings to talk through set-downs, falls and the wet-area system on any project.

PLEASE NOTE: This bulletin is general guidance based on our site experience, the referenced Australian Standards and Ardex technical bulletins TB006, TB012D, TB075, TB159 and TB178 and Ardex product data sheets. Always follow the project specification and the manufacturer's current technical data. It is not engineering, certification or waterproofing design advice.

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