

TECHNICAL BULLETIN

Moisture in Concrete Substrates

Risk Assessment, Testing and Mitigation — What Head Contractors and Developers Need to Know

Document

BFTB-001

Version

1.1

Issued

October 2026

WHY WE ARE SENDING THIS

My name is Brendon Krytenberg. I am the Managing Director of Briz Floors, a qualified Flooring Technician with a Certificate III in Flooring Technology, and the QBCC Nominee Supervisor for Briz Floors Pty Ltd. I have been in this industry for over 20 years — I have laid floors, not just managed people who do. That background matters for what I am about to say.

Briz Floors holds a QBCC licence under Medium Rise Category 2. For clarity, the \$12,000,000 cap is not a per-project limit — it represents the total annual turnover of applicable building works across the licensee's operations. We do not hide behind a licence number with no disclosed category. We do not self-certify. And we do not bid on projects that are clearly outside our licence class. That is the standard we hold ourselves to — and it is the standard we believe every contractor in this industry should be held to.

Moisture in concrete slabs has become one of the most frequently disputed issues in commercial and multi-residential flooring delivery across Queensland. We are seeing it more often, and based on the conversations we are having with head contractors and developers, the issue is consistently not understood — or not disclosed — at the tender and planning stage. That is where it needs to be addressed.

I am sending this communication personally because I believe it is the right thing to do — not to protect Briz Floors commercially, but to protect every party in the project from a problem that is entirely manageable when it is planned for and completely disruptive when it is not.

Please don't shoot the messenger. We didn't supply or pour your concrete. But we are the trade contractor who has to install flooring over it — and we are the ones who will be standing in front of you when it fails if this is not addressed before works commence. I would rather have this conversation now than that one later.

WHAT IS MOISTURE IN CONCRETE SLABS?

New concrete naturally contains residual construction moisture. As a slab cures, that moisture migrates upward and evaporates through the surface. The rate at which it does so depends on the concrete mix, pour thickness, ambient conditions, curing methods, and the degree of ventilation on site.

Flooring systems — including vinyl, LVT, hybrid plank, engineered timber, Marmoleum and carpet tile adhesives — have maximum moisture thresholds above which installation will result in adhesive failure, bubbling, lifting, delamination, or mould growth under the finished floor.

The relevant Australian Standard is AS 1884:2021 (Floor Coverings — Resilient Sheet and Tile — Installation Practices), which specifies a maximum relative humidity (RH) threshold for installation of resilient flooring systems. For most products, the threshold is 80% RH. Above that threshold, a moisture mitigation system must be applied before any flooring is installed.

THE PROBLEM — AND WHY IT KEEPS HAPPENING

The issue arises consistently at the same point in a project: a flooring contractor is mobilised, concrete has been poured, programme is tight, and the slab has not had adequate time to dry. By the time flooring installation is scheduled, the concrete is still above threshold.

At that point, there are only three options — none of them ideal mid-programme:

- Delay installation until the slab dries naturally — this affects programme and every downstream trade.

- Apply a moisture mitigation system as a variation — this costs money that was not in the budget, and creates a dispute about who pays for it.
- Install anyway and hope for the best — this is not an option. If it fails, the cost of removal, remediation and reinstallation is exponentially greater than the cost of treating the slab correctly in the first place.

The root cause in almost every case is that moisture mitigation was not discussed at tender, not included in the project budget, and not planned for in the programme. When it surfaces mid-project, everyone is surprised — and the question of who pays becomes the focus of the conversation rather than solving the problem.

WHAT THE STANDARD ACTUALLY REQUIRES

AS 1884:2021 (Floor Coverings — Resilient Sheet and Tile — Installation Practices) is the current Australian Standard governing the installation of resilient flooring systems on concrete substrates. It specifies a maximum relative humidity (RH) threshold of 80% for most resilient flooring products. Above this threshold, installation must not proceed without an approved moisture mitigation system in place.

The standard prescribes in-situ probe testing as the method for assessing substrate moisture. This involves drilling into the concrete slab to a depth of 40% of the slab thickness, inserting a calibrated sleeve, sealing the hole, and allowing a minimum equilibration period — typically 72 hours — before taking a reading. This equilibration time is critical. A reading taken too early will understate the true moisture condition of the slab, which is why quick surface readings and early probe readings should be treated as indicative only and not as a definitive compliance assessment.

Concrete slabs retain construction moisture for significantly longer than most project programmes allow. As a general guide, AS 1884:2021 references approximately one month of drying time per 25mm of slab thickness under ideal conditions — adequate ventilation, controlled temperature, no coverings. On a real construction site, those conditions rarely exist. Enclosed floors, waterproofing membranes below the slab, limited ventilation, and back-to-back pours all extend drying time significantly. On a 200mm suspended slab under typical site conditions, residual construction moisture can persist for six months or more. This is not a defect in the concrete — it is a predictable outcome of the construction sequence that can and should be planned for at tender stage.

Elevated readings can also result from sources beyond residual construction moisture. Ground moisture migrating through podium and ground floor slabs, water ingress from adjacent works, and moisture trapped beneath waterproofing membranes or screed layers can all contribute to elevated readings at any point in the programme — including floors that read compliant at an earlier stage. This is why a single benchmark reading on a lower floor cannot be relied upon as a blanket compliance assessment for all floors above.

Understanding these factors is not specialist knowledge — it is basic substrate literacy that every trade contractor working on concrete should have. The problem is that this information is rarely discussed at tender stage, which is where the decisions that drive cost and programme are actually made.

WHAT HAPPENS WHEN IT GOES WRONG

Installing resilient flooring over a non-compliant substrate does not always fail immediately — which is part of what makes moisture the most dangerous substrate problem in flooring. The failure often presents weeks or months after installation, well after the trade contractor has left site and the defects liability period has begun.

Common failure modes include:

- Adhesive failure — moisture vapour transmission breaks down the adhesive bond, causing tiles, planks or sheet vinyl to lift, curl or detach from the substrate.
- Bubbling and blistering — moisture trapped beneath the flooring system causes the product to blister, particularly visible in sheet vinyl and LVT.
- Delamination — in multi-layer flooring systems including engineered timber and hybrid plank, moisture causes the layers to separate, resulting in surface distortion and product failure that cannot be remedied without full removal.

- Mould and odour — moisture trapped beneath carpet, timber or vinyl in warm conditions creates the conditions for mould growth, which presents health risks and typically requires complete removal and substrate remediation before reinstatement.
- Subfloor and adhesive contamination — remediation of a moisture-related flooring failure rarely involves just replacing the product. The subfloor preparation, any smoothing compound, and the adhesive system often need to be stripped back and reapplied before new product can be installed.
- Floor levelling and preparation bond failure — this is one of the most frequently misdiagnosed failure modes in commercial flooring, and it deserves specific attention. Before most resilient flooring products can be installed, the concrete substrate requires preparation: grinding to remove surface contaminants and laitance, and application of a cementitious smoothing or levelling compound to achieve the flatness tolerances required by the flooring manufacturer. These compounds — products such as Ardex K15, Ardex Feather Finish, or equivalent — are engineered to bond tenaciously to a prepared concrete substrate. Under normal conditions they do. Under elevated moisture conditions, they do not.

When a smoothing compound is applied over a concrete substrate that exceeds the manufacturer's moisture tolerance, one of two failure mechanisms occurs. In the first, the compound absorbs moisture migrating upward through the slab during the curing process, which disrupts the hydration chemistry and results in a weak, friable layer that lacks the compressive strength required to support the flooring system above it. In the second, the compound cures correctly but is subsequently undermined by ongoing moisture vapour transmission from below, which breaks down the bond at the concrete interface and causes the compound — and everything installed on top of it — to debond and lift as a single layer.

The consequence is a complete system failure: flooring product, adhesive, and smoothing compound all come off together. In a commercial project, this can involve hundreds or thousands of square metres of finished floor. The rectification sequence is grinding back to bare concrete, re-testing moisture, applying a moisture mitigation system, re-applying smoothing compound, allowing cure time, and reinstalling the flooring — a process that takes weeks, not days, and occurs on a floor that is typically already occupied or being handed over.

The compound failure is frequently attributed to product defect or installer error before moisture is investigated. In our experience, where a smoothing compound has failed across a broad area rather than at isolated point loads, moisture is the cause in the overwhelming majority of cases. A manufacturer's technical representative will confirm the same.

The cost of rectification — product removal, substrate remediation, new materials, reinstallation, and associated programme disruption — routinely exceeds the cost of the original moisture mitigation system by a factor of five to ten. This is not a theoretical risk. It is a documented outcome on projects across Queensland where moisture was not addressed before installation commenced.

WHAT BRIZ FLOORS DOES

I personally oversee the technical standards at Briz Floors, supported by a team of qualified estimators, project managers and a contracts administrator who bring the same level of accountability to every project we deliver.

Pre-installation moisture monitoring is a non-negotiable part of our installation process. Our approach is risk-based and escalating — initial monitoring informs whether in-situ relative humidity probe testing is required. Where readings indicate a concern, we escalate to in-situ probe testing in accordance with AS 1884:2021 before proceeding. Results are documented and shared with the builder before any flooring is installed.

We want to be transparent about something the industry rarely discusses openly: conducting full in-situ probe testing on every floor of every project has a real cost. If that cost is not allowed for at tender, it either gets absorbed by the subcontractor or it creates a dispute mid-programme. The honest conversation — which we are committed to having at tender stage — is about agreeing the testing approach, who bears the cost, and what the process is if readings come back elevated.

That conversation is free. The dispute it prevents is not.

We also want to be clear about the role of our internal testing results. As the contractor performing the works, our readings cannot be considered a formal independent assessment — we have a commercial interest in the outcome. Our internal monitoring is best used as an early warning indicator to flag concerns and prompt action. Where a formal independent report is required to satisfy the standard or support a

variation claim, that report should come from a third party with no interest in the result. That is the cleanest position for all parties and it is what we recommend.

Where readings exceed 80% RH on any tested area, we will notify the builder in writing and request a written direction before proceeding. We will not install flooring over a non-compliant substrate without written instruction from the builder — either to proceed with moisture mitigation as a variation, or to proceed without treatment with the builder accepting the substrate risk and any resulting warranty limitation.

This position is not new. What is new is that I am putting it in writing, distributing it proactively, and raising it at tender rather than waiting until we are on site and the programme is at risk.

PLEASE NOTE: Briz Floors is in the process of revamping how moisture is addressed in our quotations. Going forward, our commercial position — including E/O mitigation rates, additional testing attendance rates, and the written direction process — will be set out clearly at the front of every relevant quote, not buried in a one-line exclusion at the bottom. This industry communication reflects our risk-based technical approach only and does not represent those commercial terms.

If you are reviewing a Briz Floors quotation that does not yet include this clause — we apologise. We are making a conscious effort to ensure it is in every relevant quote going forward, and to discuss it openly and transparently at tender rather than leaving it as a short exclusion that slips through unnoticed.

We also acknowledge that the construction industry has a history of wrapping issues like this in fine print to manage cost risk onto subcontractors. We are asking builders and developers to take a different approach — set a high standard, deliver compliant work, and have the conversation early. We didn't supply or pour your concrete, and we are not asking you to absorb unreasonable cost. We are asking you to plan for a known risk so that no one is surprised mid-programme.

As a business owner, my biggest concern is being the contractor who is open and transparent about this issue while others are not — and losing work because of it. That is a real commercial risk for us. But we have made the decision that doing the right thing by our clients and the industry is more important than the short-term comfort of staying quiet. We believe the builders and developers who value that approach are the ones worth working with.

THE UNCOMFORTABLE TRUTH ABOUT OTHER FLOORING CONTRACTORS

If a flooring subcontractor has tendered your project and has not raised moisture mitigation as a consideration, one of three things is true:

- 1. They have excluded it in their quotation and are waiting until you go to contract to deal with it — at which point it becomes a variation dispute.*
- 2. They intend to install over a non-compliant substrate and say nothing — and you will find out when the floor fails.*
- 3. They do not know what they are doing.*
- 4. They are operating outside their QBCC licence class — self-certifying or bidding on projects clearly beyond their licensed category, with no disclosed accountability to the head contractor or developer who awarded them the work.*

None of these outcomes serve the head contractor or developer. The cost of a flooring failure — removal, substrate remediation, replacement materials, programme disruption, and potential consequential damage claims — vastly exceeds the cost of a moisture mitigation system applied before installation.

Briz Floors raises this issue at every relevant tender because we believe that is what a professional, competent flooring contractor should do. We would rather lose a job to a cheaper price than win it and be standing in a defects dispute 12 months later.

WHAT YOU CAN DO ABOUT IT

The solution is straightforward — it just needs to happen at the right stage of the project:

- At tender — ask your flooring subcontractors to include a moisture mitigation E/O rate and trigger condition in their quotation. If they cannot or will not, ask why.
- At programme planning — allow for slab drying time before flooring installation. AS 1884:2021 recommends a minimum of 28 days per 25mm of slab thickness under ideal conditions. Real site conditions are rarely ideal.
- At pre-construction — have the moisture mitigation discussion with your flooring contractor before you are on site, not after. A budget allowance and a clear process costs nothing to establish.
- If readings are elevated — get a written direction process in place before works commence so that when moisture is flagged, the response is a managed process rather than a dispute.

OUR POSITION ON EVERY PROJECT

From April 2026, every Briz Floors quotation to a concrete slab project includes a standing moisture mitigation clause that sets out our risk-based testing approach, the trigger threshold, the E/O rate if mitigation is required, and the written direction process. This is not new commercially — moisture mitigation has always been excluded from our base contract sum. What is new is that we are making the conversation explicit, transparent, and easy to plan for at tender stage rather than leaving it to surface mid-programme.

We acknowledge that full in-situ probe testing on every floor of every project carries a cost that needs to be agreed upfront. Our commitment is to have that conversation honestly at tender — not to bury it in a one-line exclusion, and not to let it become a surprise variation when the programme is already under pressure.

We are available to attend pre-tender or pre-construction meetings to discuss slab condition, programme sequencing, and moisture mitigation planning on any project where this is a concern. We would rather spend an hour at the start of a project than a week in dispute at the end of it.

CONTACT

Brendon Krytenberg

Managing Director
Cert III Flooring Technology
QBCC Nominee Supervisor
Licence MR Cat 2 — up to \$12M
brendon@brizfloors.com.au

Estimating

Tenders and quotations
brizfloors.com.au/tender
estimating@brizfloors.com.au

Office

2934 Logan Rd, Underwood QLD
4119
P: (07) 3462 2715
brizfloors.com.au

brizfloors.com.au | QBCC Licence #1304150 | ABN 33 164 717 917