



LET'S TALK ABOUT

WATERPROOFING

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PRESIDENT'S ADDRESS



As the 2019 year is coming to an end, I wanted to say a few words to all the AIW Members.

Vice President, Mal Ferraro and I were discussing “waterproofing awareness” the other week and we both agree that finally there is a big shift in the way waterproofing is regarded in Australia.

We are seeing evidence of change (at last) in the way the industry “thinks” about waterproofing, with both contractors and suppliers taking responsibility for systems they are selling/applying.

Of special note, are the practitioners and professionals within the construction industry who have a responsibility to ensure construction is made watertight.

Industry professionals such as Builders, Designers, Architects, Engineers, Surveyors, etc are checking with the AIW and consulting specialist waterproofing contractors on issues such as design, planning and assistance with respect to type of waterproofing system and method

that could or should be nominated in projects before construction. Lack of planning and/or design has been a big part of the problem when it comes to waterproofing failures.

The old school practices of “throw down a membrane and hope it works” is fast fading into the distance. Thank Goodness!

Applicators, who are at the busy end of the process, are questioning products they are being asked to install and the methodology involved for installation.

Let's face it, the reality of waterproofing failure is often pointed at applicators first and then works its way up the chain until it sticks (the blame, not the membrane 😊).

However unfortunately in some cases the applicator who may not care about the product or correct system - with an attitude of this is the boss's/client's problem not mine!

Applicators thinking like this are misguided to say the very least as the implications of failed waterproofing

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are costly rectifications and reputations become damaged within the industry.

Governments, both at State and Federal levels, are starting to realize the “head in the sand” method does not work, this is evident by the AIW experiencing a marked increase in consultation and approaches for information and advice on waterproofing.

In 2020 we hope to have an “AIW Below Ground Waterproofing Guide” based on the British Standard, this guide is currently in the process of documentation (more on this elsewhere in this newsletter).

The Co-Founded MBAV & AIW “Waterproof Training for the Construction Industry” course is very successful, with healthy attendances by various personnel within the construction industry.

The continuing success of this training indicates at long last the construction industry is looking at waterproof design, planning and compliance and the contribution of waterproofing as a vital component in the build.

The AIW is endeavouring to engage with Insurance Companies to provide information and knowledge, as Australia has a high percentage of insurance claims due to damage caused by waterproofing failure.

Water damage insurance claims often involve substantial payouts due to costly and extensive rectification works.

The AIW would like to work with the insurance industry to formulate an insurance scheme for individual waterproofing projects (over a certain \$ limit).

P.S. If anyone reading this newsletter has some inroads to the Insurance Companies please let us know.

The AIW Secretary, David Hepworth, is taking an unprecedented amount of calls and emails from our members and also the general public.

Although this is difficult to keep up with (HUGE shout out for David), this also shows that PUBLIC AWARENESS is increasing and questions with respect to waterproofing being asked.

Unfortunately, just about everyone knows someone within their family, work or circle of friends/ acquaintances with a disaster “water” problem in a building.

There is great news with the AIW Membership numbers steadily increasing and our members becoming engaged with the AIW.

However, I would always welcome more general input from our broad collection of AIW members.

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I have said before and I will keep saying it - please, shoot me an email or call me directly (Mob: 0418 312 646) if you have ideas or constructive criticism - the AIW cannot grow or become better at what we do if we do not hear from our members.

The committee members are a dedicated group who volunteer their own valuable time to support the AIW - and are the very lifeblood of the AIW and without their hard work and dedication the AIW would be nothing.

In saying this I would like to take this opportunity to say a really big Thank You to everyone who has put in.

Your collective knowledge and experience are such a valuable resource and is making our industry a better place - something that we are, and should be proud of, to be a member.

Looking forward to the New Year and whatever challenges lie ahead, and the AIW is committed to continue to make improvements within the waterproofing industry in 2020.

Wishing everyone a Very Merry Xmas and a Prosperous New Year - Stay Safe over the break.

Paul Evans

AIW PRESIDENT

Floor Waste Requirements for Bathrooms in Australia

Scope

To clarify recent amendments to the Australian Standard AS3740 and the National Construction Code (NCC), waterproofing in wet areas within residential buildings, in relation to:

Floor waste requirements

Fall requirements in bathrooms

Legislation

All states including, but not limited to New South Wales, Queensland and Western Australia, building and plumbing legislation adopts the National Construction Code (NCC) as the minimum necessary standards of relevant safety, health, sustainability and amenity.

The NCC is a performance requirement and comprises of Vol. 1 and 2 being the Building Code of Australia (BCA) and Volume 3 being the Plumbing Code of Australia (PCA).

The NCC is a performance-based code which gives the option to follow Deemed-to-Satisfy Provisions or develop performance (alternative) solutions for compliance with the Performance Requirements.

BCA Volume 1

F1.7 Waterproofing of wet areas in buildings F1.11 As cited in the national BCA provisions for waterproofing of wet areas “In a Class 2 or 3 building or Class 4 part of a building, a bathroom or laundry located at any level above a sole occupancy unit or public space must be graded”

BCA Volume 2

3.8.1.0 - 3.8.1.1.2 Performance Requirement P2.4.1 is satisfied for wet areas in Class 1 and 10 buildings (waterproofing of wet areas in residential buildings).

The NCC Volume 1 and 2 including the Australian Standard, together, gives us the performance requirements for building elements in the wet area that must be waterproofed.



The BCA Volume 2 is silent on the need to provide floor waste in a Class 1 building such as a single dwelling house except for rooms containing wall hung urinals in which a floor waste gully is mandatory to achieve the performance requirements of the PCA.

Conclusion: Floor wastes not required by the NCC

As cited in the Article Falls to a Floor Waste from the Queensland Government “Floor wastes are not required to be installed in Class 1 and 10 buildings.

Floor wastes are only required in Class 2 or 3 buildings or Class 4 parts, where the floor of a bathroom or laundry is located at any level above another sole-occupancy unit or public space.”

The only exception is for rooms containing wall hung urinals in which a floor waste gully is mandatory to achieve the performance requirements of the PCA.

The floor does not need to be graded in a Class 1 and 10 Building, even if a floor waste gully is already present.

As cited in the Article from the Queensland Government “Where a number of fixtures (e.g. bath, basin, shower) discharge to a floor waste gully, the floor waste acts as a fixture trap and provides a water seal between the fixtures and the sanitary plumbing.

The floor waste gully is therefore not intended to drain the floor surface and does not meet the definition of a “floor waste” in clause 1.5.8 of AS 3740.

This means that a bathroom or laundry floor with a floor waste gully in a Class 1 or 10 building is not required to be graded to fall to the floor waste gully.

If a floor in a bathroom or laundry in a Class 2, 3 or 4 building is above another sole occupancy unit or public space, the BCA requires a floor waste to be installed to prevent spilled water entering the space below which is under separate ownership.

In this case, the floor must be graded to the required floor waste.

Peter Beckmann

wedi Australia and New Zealand

To learn about Class 1 Buildings visit: <https://bit.ly/2KNpcZL>

Statements made in this article are the technical opinion and interpretation of wedi of certain provisions and sections extracted from the sources cited below. wedi's opinion represent no statements of fact and imply no special or general warranties.

Waterproofing Price Pressure A Race to the Bottom Line

A potentially advantageous proposal put to Waterstop Solutions recently highlights a major failing in the construction industry, where waterproofing work is severely undervalued, often with costly ramifications for all stakeholders.

Recently, a large national insurance builder, currently performing works for major publicly listed insurers and utility companies, approached Waterstop Solutions to perform their remedial insurance works.

At face value, this opportunity seemed like a coup for the company and Waterstop Director, Chris Anderson, welcomed further talks.

However, upon learning the details of the proposition, Chris was quick to shut down any likelihood of Waterstop entering into business with this insurance builder.

Put simply, the numbers didn't add up.

While the opportunity promised to save costs invested in inspections and quoting, and to provide a steady stream of work – allowing us to hire more people – irretrievable problems lay with two of its provisos: that only licenced waterproofing technicians (a 3-year trade qualification) be permitted to work; and the hourly rate to be paid.

This insurance builder offered a rate of \$52.50/hour - to include all materials.

Let's calculate the costs starting from the \$22.95-an-hour base rate in the federal government's award, rather than the higher union-specified EBA rate. That figure soon goes over \$25, as it rises for certain tasks and conditions, such as working in confined spaces and sewers.

It goes right up to low-mid \$30s an hour. Then on top of that, you need to pay for super, sick leave and annual leave. By normal calculations, you time that by 1.3 for other provisions. **This brings us close to \$40.**

Now here is the real crunch time. Even if we talk low-end fiddly tasks, which may not use much materials (like whole big wet areas do), you're at \$100 in a day.

That's the absolute bottom end of the scale. That is \$12.50 an hour (which can easily be doubled or trebled on many jobs). **So far, we are up to a minimum of \$52.50 an hour in cost.**

This is without allowing other consumables and bits of things like masking tape, brushes and rollers and no provision for the odd power tool that breaks down.

Moreover, we allow one hour's travel time at the company's expense to allow technicians to get to and from a job site. That is not included and it is on company time too.

Adding \$5 an hour for the cost of fuel and include the cost of road tolls and the technician's car allowance. **Now we are up to \$57.50 – possibly closer to \$60 an hour in cost.**

This before including overheads such as administrative support, risk, travel, consumables, risk and compulsory insurances (WorkCover and Public Liability) and discretionary insurances.

How cost-cutting makes buildings fail. There is a strong link between waterproofing price pressure and building defects.

Unfortunately, it would seem the value of professional waterproofing is often undersold in the construction industry today, giving rise to some compelling statistics.

The Australian Institute of Waterproofing reports that waterproofing represents less than 1% of overall construction costs, but waterproofing defects account for 80% of post-construction issues.

It is deeply concerning that defective waterproofing is the cause of major problems for construction companies and developers – especially homeowners and property investors who suspect nothing at the time of purchase.

As a remedial waterproofing company, specialising in leak sealing and the repair of building defects in concrete structures, Waterstop Solutions attends many sites showing evidence of:

- no waterproofing ever being installed;
- poorly installed waterproofing;
- the use of incorrect or low-quality products;
- after-trades damage to waterproofing.

It's clear that water penetration issues in buildings is a significant problem. As Deakin University's Dr Nicole Johnston, Senior Lecturer (Property and Real Estate) and Director of Industry Engagement (Dept. of Finance), states: "The issue is very widespread."

[Link to article in the Australian Financial Review](#)

The market price of waterproofing has in effect decreased over time.

Rather than looking at one trade issue in isolation, there is a need to redirect the spotlight to the root cause of building defects.

To begin with, property developers can place building designers under great pressure to reduce costs. When a builder takes over the responsibility of the design, the pressure of further cost-reduction from developers is passed on to the builder.

This pressure is passed down from the builder to other trades to manage further cost-saving design alterations.

As a result, the potential for long-term problems that result from inferior builds are ignored in favour of short-term financial gain.

An example of the real price of cost-cutting that occurs:

The cost to waterproof a standard bathroom in a new-build – performed by untrained workers using basic materials – typically ranges from around \$400 – \$600.

Whereas, a ballpark figure for a professional waterproofing installation in a same-sized bathroom, carried out by a licenced waterproofing technician using high-quality products, is around \$700+.

The cost of remediation to the same bathroom post-construction can range from \$10,000 – \$15,000. And who is to pay it? Is it the builder; the insurance company or the property owner?

Lowest price can sometimes equate to poor performance - false economy at whose expense?

The average wage in the last 20 years has almost doubled in Australia. Material prices have also increased and standards have since come into place for common waterproofing applications, as have safety requirements.

Conversely, the price expectation by large companies has not reflected these changes, as only marginal price increases for waterproofing installation has been seen in the market over the last 20 years.

The Waterproofing industry has, for a long time, experienced huge price pressure from the new-build market.

In the pursuit of winning a tender or contract, the quality bar has been pushed low, meaning that poor quality, low-cost products are being used which may not have been designed for, or are not compatible with, the intended installation purpose.

Furthermore, to cut labour costs to a minimum, contractors are recruiting unskilled labour to carry out projects – sometimes without a licenced waterproofer present to oversee the works from start to completion.

A waterproofing company is only required to employ one (1) licenced waterproofer in Queensland and that person may not even be someone who oversees the work being carried out.

Oftentimes tradesmen such as tilers and builders perform their own waterproofing in lieu of a licenced waterproofing technician.

Commonly, the consequence of operating in this way is poor-quality workmanship. The risk of faults in membrane application, such as correct thickness and detailing, as well as non-adherence to specifications and standards, are high.

In addition, this mode of business operation is rarely economically sustainable. Do not expect the “best-price” waterproofing companies to still exist when you need to claim on their warranty.

Some have operated as “Phoenix” companies, where an insolvent business has been purchased out of administration, often by the existing directors, to resurface again as a new operation with a different company name.

In short, you get what you pay for. What really worries us here at Waterstop Solutions is the price point demanded by this major national company who approached us, to remedy already failed waterproofing for big name insurance companies.

Of what quality do you think this work will be? Do you think any corners will be cut?

The solution to reduced waterproofing-related building defects is getting it right in the first place. This can be achieved by:

- allowing more budget for waterproofing to ensure quality products and quality workmanship.
- pushing for quality improvement in installation and products. Best price may equal poor performance.
- providing for effective inter-trade communication, to ensure that after-trades do not damage the waterproofing.
- using licenced waterproofing technicians for advice, to execute or oversee the works carried out, as is required for other trades such as plumbers and electricians.

Chris Anderson

Waterstop Solutions

Below Ground Waterproofing in the UK - Wet Ducks Can't Run!

The Australian Institute of Waterproofing (AIW) recently sent a contingent of their National Technical Committee to the UK to undertake training and assessment in Below Ground Waterproofing Design and Survey.

The committee members were Kieran Biber (Qld), Frank Moebus (Qld), Karl Wooton (VIC), and myself, Andrew Golle' from Tassie.

We were accompanied by Steve Smith, an AIW member and waterproofing contractor with 46 years at the coal face of waterproofing systems application and innovation from Sydney, and Jamie Stone, a remedial waterproofer and approved applicator of Internal Cavity Drainage Systems from the Gold Coast.

This all took place at the end of August/ beginning of September, just prior to the other Steve Smith clocking up a double century against our hosts during the ashes tests.

(Whoops, that just slipped out) The qualification is a Level 3 Certified Surveyor of Structural Waterproofing (Cert SSWL318).

The qualification is ratified by the Awarding Body for the Built Environment (ABBE), a subsidiary of the Birmingham City University.

The training and assessment are delivered by the Property Care Association of the UK (PCA). Training was hosted at Newton Waterproofing UK at Tonbridge, Kent.

Our hosts at Newton Waterproofing were warm and welcoming, and more than happy to impart their specific knowledge in Structural Waterproofing to our Aussie contingent.

Stuart Tansey, Newton's Technical and Training Manager guided our journey through the chasms of basement waterproofing, with the assistance of Rebecca Woodley.

Stuart's practical knowledge of the design and application of cavity drainage systems was impressive, by any standards. This gave us the confidence to accept new ideas and techniques as strangers on foreign soil and out of our comfort zone.

The training delivered by the PCA was methodical and precise. External PCA assessors undertook our written assessments in line with strict examination conditions, in the form of two written tests and an oral examination.

Our primary trainer, Michael Earle, delivered the technical content with easy to follow anecdotal examples and analogies that will stay with me for a very long time.

Did you know that hydrostatic pressure can be likened to water molecules (marbles) sitting one on top of another?

Excellent stuff! His training strategies and delivery manner has made me take a good look at my own training strategies, and hopefully help me to improve on my delivery skills, now that I have sat on the other side of the table.

Hence: the following acronym to address below ground waterproofing design considerations: **Wet Ducks Can't Run**. More on that later.

British Standard BS 8102-2009

The CSSW training follows the design considerations prescribed by British Standard BS-8102 – 2009 Code of Practice for Protection of Below Ground Structures against Water from the Ground.

This Standard applies a methodical approach to Below Ground Waterproofing Systems through the assessment of site conditions as primary considerations. Soils are classified through site investigations as either cohesive or cohesionless.

This provides guidance to site drainage through surface drains, but more critically the importance of soil permeability and sub-surface drainage.

Cohesive soils and seepage lines through the soil strata may result in Perched Water Tables, holding water against the structure for varied periods.

Water tables are investigated and classified as either Low – permanently below the level of the structure; High – permanently at a level affecting the structure; or Varied – intermittently at a level affecting the structure, such as a Perched Water Table.

We in Australia need to take note of this approach, not only in waterproofing design, but in general site assessment for drainage and affects of water tables on our buildings generally.

The basement space is graded as wet, damp or dry and classified according to the intended use. This helps to identify the appropriate waterproofing system.

A Grade 1 space is classified as a Wet Space, where some seepage and damp areas are tolerable, such as a basement car park.

Grade 2 is a Damp Space, where no water penetration is acceptable, but some damp areas are tolerable, such as a plant room or work shop.

A Grade 3 area is a Dry Space, where no water penetration is acceptable and ambient conditions may require the use of ventilation, de-humidifying or heating appropriate for the intended use, such as a restaurant, gymnasium or habitable living area.

A gymnasium is a good example, as a ventilation system will be required to deal with the water vapour produced by perspiration, respiration and spa & sauna-peration.

Note: British Standards are not recognised by the National Construction Code (NCC) and should only be used as a guide. NCC Performance Provisions take precedence in the hierarchy of controls.

Wet Ducks Can't Run!

Once the site conditions and use of the basement are identified, then the waterproofing system selection criteria are assessed against a set of Principle Considerations.

The acronym: Wet Ducks Can't Run is an easy way to remember and assess these considerations. (Thanks Michael)

WET – It is accepted that **WATER** pressure will bear at some stage to the height of the structure. This may be through poor soil drainage, a perched water table, or burst water pipes.

DUCKS – It is accepted that **DEFECTS** will be present in the waterproofing system through installation faults or through the inherent properties of the membrane system.

CAN'T – What are the **CONSEQUENCES** of water entering the space. Is it acceptable to have water entering a Grade 3 archive storage room or a restaurant dining room?

RUN – Can the membrane be feasibly **REPAIRED** where defects occur if the consequences of the leakage are unacceptable.

The waterproofing system is then selected upon passing the above desk top evaluation. The Standard prescribes three systems of waterproofing barriers:

Type A – A membrane barrier installed to the external face of walls AND under slab; an internal negative pressure membrane installed to the walls AND full floor; a sandwich membrane, retained by an internal load coat to the walls and ballast slab to the floor.

Type B – Structural components as barriers, in the form of solid PVC waterstops which are cast in between slab joints; hydrophilic waterstops which swell when in contact with water; or additives in the re-enforced concrete acting as a water-resistant barrier.

Type C – An internal cavity drainage system where studded wall and floor sheet membranes are installed to the internal wall and floor faces, draining to a channel established around the floor, which is discharged into a sump with double pump system that is alarmed, and possibly with a battery back-up system.

Selection of one of these systems is applied to the **WET DUCKS CAN'T RUN** test and altered if it does not pass. A combination of systems may be employed in high risk situations.

For example: A 'Type A' external sheet membrane may not be appropriate to a structure with a perched water table, cohesive soil and a Grade 3 habitable room. Water will sit against the membrane for extended periods, due to the variable water table and non-permeable soil.

This cannot be mitigated with a land drain, as the water table is higher than the slab/wall joint. The inherent properties of the membrane do not resist negative pressure when breached, as it is accepted that defects will occur.

The feasibility to repair the membrane is low, as the site is backfilled, and the membrane is not accessible. In this case, a Type C internal cavity drain system may be appropriate, even in combination with Type B structural water stops and additives in the concrete.

Wet Ducks in Australia

Can we adopt these principles in Australia? The first step is to approach waterproofing design with some serious consideration.

It is just not good enough to accept design notes that say 'waterproofing to basement wall is to be to manufacturer's specifications.

This level of guidance is insufficient where we adopt the practice of picking up a bucket of 'black jack' and off we go.

No site condition assessment; No water table management plan; No consideration of the used basement space; and No actual waterproofing system to suite these conditions.

The WET DUCKS principles are not overkill where the cost of rectification can be crippling, if rectification is possible at all.



Simpleseal Preformed Silicone Bandage

The structure will have water pressure bearing on it at some stage, and DEFECTS ARE PRESENT.

Australia is in need of specialist waterproofing design and survey consultants who can provide designers with a waterproofing system to suite the site conditions and use, Waterproofing surveyors are needed to assess systems and inspect their application, providing specialist support to certifiers.

Finally, we need a Below Ground Waterproofing Australian Standard, referenced by the NCC and following WET DUCKS principles but adopted to Australian conditions and following NCC performance provisions.

We at the Australian Institute of Waterproofing are working on an industry guide and encourage your input. So, pick up a pen or Ipad thingy and give the AIW your thoughts. We need WET DUCKS.

Many thanks again to the PCA and Newton Waterproofing UK for your shared knowledge and hospitality.

Andrew Golle

Armont Rectification Builders



Leaking skylights have long since been a source of angst for asset owners. It seems, at some stage in the life cycle of a skylight, it will eventually leak.

The potential damage to property and more importantly, the risk of injury, due to slip and fall scenario's, have cost industry millions.

The repair of these skylights has been problematic and financially prohibitive, where in some cases a complete replacement has been necessary.

Waterproofing contractors are regularly asked to fix skylights, which generally means a short-term solution, throwing good money after bad. They are then tied into finding a solution as they repeatedly return to site to sort the issues out.

The simplicity in using Simpleseal, means problems can be resolved quickly and cost effectively with minimal impact on the operational activities of the building. After cleaning the substrates with IPA cleaner, the Simpleseal bandage is adhered using Spectrum 1, silicone sealant.

Similarly, Simpleseal can be used over the top of existing failed expansion joints on curtain walling. Using Simple seal negates the need to remove the old sealant. Simpleseal offers a 10-year warranty, with an expected service life well beyond that.

The product comes in four colour options, that are UV stable to ensure the aesthetic appeal of the building is maintained.

Philip Truebody

Tremco



Published Articles by Paul Evans - Remedial Waterproofing Consultant

Finding and Fixing What Lies Beneath in Waterproofing

February 29th, 2024

Drenched to the Core: Major Waterproofing Problems Plaguing Residential Homes

October 12th, 2023

(Sponsored Content) Raising Standards and Awareness in Waterproofing

February 9th, 2023

Multi-Storey Basements Must be Kept Dry

May 26th, 2022

Why Tiling and Waterproofing are Intrinsically Linked

January 17th, 2022

Waterproofing Design In Construction

July 30th, 2021

Leaking Concrete Rooftops – Why Waterproofing Should Not Be Ignored or Delayed

April 28th, 2021

Solving Water Leaks Is Not Always About Waterproofing

February 4th, 2021

Australia's Awareness of Waterproofing is Growing

May 21st, 2020

Why Balconies Leak

February 24th, 2020

Associations

Australian Institute of Waterproofing (AIW)

Australian Society of Building Consultants (ASBC)

Building Dispute Practitioner Society (BDPS)

Concrete Institute of Australia (CIA)

Australian Concrete Repair & Remedial Building Association (ACRA)

Master Builders Association Victoria-Specialist Contractor (MBAV)

Owners Corporation Network of Australia Ltd (OCN)

VBA Registered Building Practitioner - Domestic Builder Unlimited DB-U 7983

VBA Registered Building Practitioner - Commercial Builder Unlimited CB-U 4077

BuildIT – Featured Article 2019

“Committed to Raising Waterproofing Standards and Training Across Australia”

Paul Evans, President of Australian Institute of Waterproofing

<https://buildit.partica.online/buildit/buildit-2018/flipbook/66/>

Sourceable – Construction

Interviewed by Andrew Heaton on October 5th, 2017

<https://sourceable.net/australia-must-improve-waterproofing-standards-practices/>

Waterproofing President to Speak at International Conference

Australian Institute of Waterproofing (AIW) News - October 2017

Solving Roof & Balcony Leaks

Facility Perspectives - The Leading Resource for Facility Management in Australasia. VOL 11 NO 1. March-May 2017

Notes from a Balcony Inspection

Australian Institute of Waterproofing (AIW) News - November 2016

Australian Institute of Waterproofing – Online News

Notes from a Balcony Inspection – Nov 2016

<https://www.waterproof.org.au/notes-from-a-balcony-inspection/>

Getting It Right in the First Place – October 2016

<https://www.waterproof.org.au/getting-right-first-place/>

Waterproofing - Getting it Right the First Time

Australian Institute of Waterproofing (AIW) News - October 2016

Waterproofing - Common Failures

LinkedIn Article - Feb 2015