Australian Institute of Waterproofing

Issue 13
May 2020

PRESIDENT'S ADDRESS

Hello to all AIW Members.

In these uncertain times it is difficult to know what the future will hold, but if we keep our spirts up and work as hard as possible, we will come through this.

The economic uncertainty should have all members looking at the way they trade and not being left out in the cold for payments. The reason I write this is, businesses are struggling for cash flow, some are folding and taking contractor with them. I urge all to not let the usual terms and conditions that everyone takes for granted and swallows be the norm while things are not normal. Perhaps take a look at the way you trade, like not being paid for what you have done for 30 or 60 days in most cases and 90 or much more in others. Solid contracts and deposits are a must and stay on the progressive payments, so you at least get paid for as much as possible, as close to the time you invoice as possible.

On other matters, the AIW is seeing a massive ground swell in awareness in waterproofing. It would seem that every seminar/ conference/ industry talks, etc (pre-covid) were all including waterproofing as a main topic. The "Cladding Crisis" has sadly been a catalyst for recognition of defects in general and waterproofing is up there with this. Something we should not be proud of as these failures are a massive cost to the industry and general public. We must get better at what we do – day to day. We have to improve our standards and be more firm when pushed into doing a job or selling materials just for the sake of profit and not looking at what we should be doing to get the job right, for the long term.

The "profile" of waterproofing is being lifted after many years of hard work with lobbing government and associations to get them aware of what we do. We may even find waterproofing being called up on specifications! Or a little more than "waterproofing to manufactures standards" on drawings.

Over the last year or so, waterproofing awareness has become a hot topic within Australia. The focus on waterproofing practices within the Australian construction industry has intensified due the unfortunate cladding crisis, which in turn uncovered serious waterproofing defects. Alongside, or because of, these recent developments the Australian Institute of Waterproofing (A.I.W) has gained momentum by being part of meaningful discussions with the Master Builders Association (MBA), Housing Industry Association (HIA), Victorian Building Authority (VBA), and Standards Australia.
It is unfortunate that it had to be due to significant failures that led to these collaborations, however at long last the A.I.W has gained access to industry stakeholders. Even though it has been an exceptionally long road to creating awareness about waterproofing in construction, I cannot be more pleased with the direction of these discussions.

Unfortunately, and it was not that long-ago waterproofing was completely overlooked during the critical stage of design and specification, mostly noted on drawings simply as: "waterproofing as required" or similar. Consequently, onsite construction personnel gave little respect to waterproofing, often leading to the failures we witness all too often today.

ONSITE PRACTICES WOULD TYPICALLY INVOLVE THE BUILDER WITH A LAST-MINUTE CONVERSATION ALONG THE LINES OF:

Builder: *Mate can you swing by and do some waterproofing on my job.*
Contractor: *Ok how much area, when and what do you want?*
Builder: *Drawings and specification indicate, "waterproofing as required", so provide whatever is quickest and cheapest and as waterproofing not in the schedule, no time or costings have been allowed. And whatever you use, I need a warranty and waterproofing certificate, or my Building Surveyor won't pass my job.*

THE ABOVE SCENARIO REFLECTS THE WORSE CASES OF WATERPROOFING IN AUSTRALIAN CONSTRUCTION:

A. *Waterproofing given little consideration in design, specification, or onsite.*
B. *Waterproofing often failed to be costed within the build or if so, maybe a random stab in the dark figure. Lack of planning means cost cutting on product/s, application, and installation is imperative.*
C. *Substrate preparation for waterproofing is time consuming but is a vital stage to achieve membrane longevity. Time constraints rarely takes this into consideration.*
D. *Little appreciation of how weather affects external waterproofing – it must be done now. Surface temperature and moisture content at time of application affects all waterproofing membranes. The optimum substrate being clean, dry, and neither too hot nor too humid.*
E. *"Respect" of newly installed waterproofing membranes on construction sites is dismal: frequent damage from careless work practices due to ladders and tools of trade etc. Trades coming in and working over a newly installed membrane have scant regard. Many membrane failures and water leaks can be attributed to onsite trades.*

The A.I.W continues to educate, share knowledge, and gain better work practices for waterproofing. An important focus for the A.I.W is waterproofing for basements,

foundations and below grade tanking. Currently there is no Australian Standard for Below Ground Waterproofing. The National Construction Code (NCC or ABC) has no reference for "Below Ground Waterproofing" and thus no set compliance solution or Australian Standard.

With the growing trend of residential and commercial buildings utilising below ground space for parking and designs with "habitable rooms" in basements, these builds rely on compliance requirements that demand only a "Deemed-To-Satisfy" standard. Consequently, the Australian Institute of Waterproofing is working hard to create an "Australian Guide to Below Ground Waterproofing". The A.I.W is referencing the British Standard – BS 8102:2009, as this is considered by experts in the waterproofing industry as being the most transferrable to create Australia standards. Several A.I.W Committee members travelled to the UK last year to attend training and certification in the British Below Ground Stand BS8102.

The Australian Below Ground Standard would require either a dry basement which involves sealing the entire under floor slab and walls (usually behind shotcrete or masonry walls) where the wall and underfloor waterproofing membranes tie together to form a water tight envelope; or a controlled water runoff system which allows water to flow behind the walls of the habitable room into a sump pit and then pumped out, thus keeping the habitable area dry. In certain circumstances a combination of the above waterproofing practices maybe applicable.

The A.I.W Technical Team (please note the AIW committee members are all volunteers) is working hard to adapt the British Standard – BS 8102:2009 into an "Australian Guide to Below Ground Waterproofing". The aim is a practical reference for everyday use. The "Guide" to be in plain language and workable for all construction professionals: those at the design and specification stage, the builder taking responsibility to construct watertight areas and for the waterproofing contractor at the point of membrane installation.

The AIW Committee members are also on the current Standards Revision Group for the AS 3740 (above ground) Domestic Wet Area Standard, recommending amendments and clarifications. The Australian Tiling Standards Committee for BD-044 which focuses on the fixing of tile and stone etc is being Chaired by one of our AIW Committee Members.

Prior to Covid-19 restrictions, the A.I.W were active participators at seminars and conferences across Australia highlighting the critical importance of waterproofing in construction. Having face-to-face meetings provided the AIW with immediate feedback and overwhelming many stakeholders within the construction industry are as concerned as we are about waterproofing defects, standards, and training.

In Australia we have reached across the country in most states presenting to construction professionals on standards, design, correct methodology and share unfortunate water disaster cases (of which there is plenty) to grab attention. At the start of 2020, I attended the Safe Buildings and Defects Management Summit in Brisbane and opened a "lively" discussion on cladding and waterproofing defects. And then in Melbourne the A.I.W was well represented at the "Building Defects Crisis - Not Just a Sydney problem" involving construction lawyers, façade engineers and Membrane Industry Representatives.

Other AIW members are active in running webinars on various problematic topic such as correct installation of membranes, water stops in domestic bathrooms and wet areas. Waterproofing awareness in Australia is now higher than ever.

I consider the A.I.W have played a large part in gaining this recognition and am immensely proud of the dedication, expertise, and knowledge by our committee and members. Collectively our aim is to provide safe, secure, and watertight buildings in Australia.

Let us continue and build even further awareness of waterproofing in construction.

I wish you all well and will see you on the other side of this pandemic.

Cheers,
Paul Evans
AIW PRESIDENT

COVID19 has presented unique challenges for construction companies both big and small, in providing safe and healthy workplace environments. Employees worried about finances, loved one's health and well-being, isolation, job security and relationships under stress, can mean noticeable differences in workers' mental health and wellbeing and anxiety across the community.

The Blueprint for Better Mental Health in the Building & Construction Industry provides a five-pillared approach to workplace mental health. When it comes to facilitating early intervention and treatment, some of these activities actioned by companies can make a real difference.

To download a fact sheet on the Blueprint: https://mates.org.au/mates-qld-nt

For more information on registering for the Blueprint: https://mates.org.au/blueprint

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A CONSULTANT'S VIEW

Waterproofing Membranes on Balconies with Lightweight Claddings

My job is to assist clients with waterproofing issues arising from leaks to their homes, apartments or places of business.

I am not going to dissect all of the challenges we face as an industry, but I will discuss in this issue one of the most common faults I see on an almost a daily basis, for which you as the waterproofing applicator are constantly blamed.

Balconies present a large part of the work I conduct when water ingress to the internal space of a property is to be investigated. These balconies are often built over living spaces. In this scenario the balcony is constructed of light weight materials, timber frame and fiber cement sheet. The walls encompassing the balcony are also of light weight construction consisting of a lightweight material such as a timber frame with fiber cement, polystyrene or timber weatherboards.

The waterproofing applicator has been contracted to install the waterproofing membrane to the balcony in preparation for installing tiles. Once on site the waterproofing applicator notes that the lightweight cladding has been installed (hard onto the balcony surface), the balcony flooring substrate is installed and ready for application of their preferred waterproofing system.

The waterproofing applicator prepares the substrate and starts applying his waterproofing membrane to the balcony substrate. He duly applies a primer to the balcony substrate and associated upstands, downturns and other details. Next, the internal corners are readied with a sealant fillet to the required dimensions and prepares to apply membrane as per the manufacturer's instructions to all upstands, downturns and other details.

Great, so far everything is going well...but wait, those upstands around the balcony perimeter...The membrane has been applied to the cladding upstand, check, and the tiler will then apply a soldier tile around the outer perimeter, check.

WHAT IS WRONG WITH THIS SCENARIO?

The lightweight cladding has been installed and is placed onto the surface of the balcony. The waterproofing applicator has applied his membrane upstand to the outside of the lightweight cladding. Application of a waterproofing membrane to the outside of lightweight cladding is a very poor practice and should never be carried out in this manner. Lightweight claddings are designed to drain/ vent water or moisture to the outside of the building envelope if a joint fails or window flashings fail over time.

Lightweight cladding designs require the waterproofing membranes to be applied to the balcony wall frame as an upstand typically of 150 mm before the cladding is installed. The external building wrap must then be installed with an overlap to the balcony waterproofing membrane upstand. Only then should the lightweight cladding be installed. The cladding is to be installed so that it is at least 20 – 30 mm above the finished floor level (i.e top of the tiles) once the balcony is complete.

This detail allows any water that is able to penetrate the lightweight cladding to be shed to the external side of the construction.

Why is this the problem for the waterproofing applicator you ask. Because, inevitably it is the waterproofing applicator who is blamed. If it leaks it must be a waterproofing fault.

Strictly speaking this is a fault more likely attributable to the builder as the main contractor because it is the builder (or their sub-contractor) who determines the location of the cladding and fixes the cladding in place.

However, as a responsible waterproofing applicator you must also protect your business and reputation. The detail above is how your waterproofing should typically be integrated with the balcony and cladding junctions in this scenario. As the owner of a business you have a duty of care to your business to assess your risks with every project you undertake. I would encourage all waterproofing contractors to take this detail on board. I realise that this detail is largely out of your control, however, it is one of the most misunderstood details in waterproofing in my view and causes very expensive litigation and repairs to be undertaken needlessly.

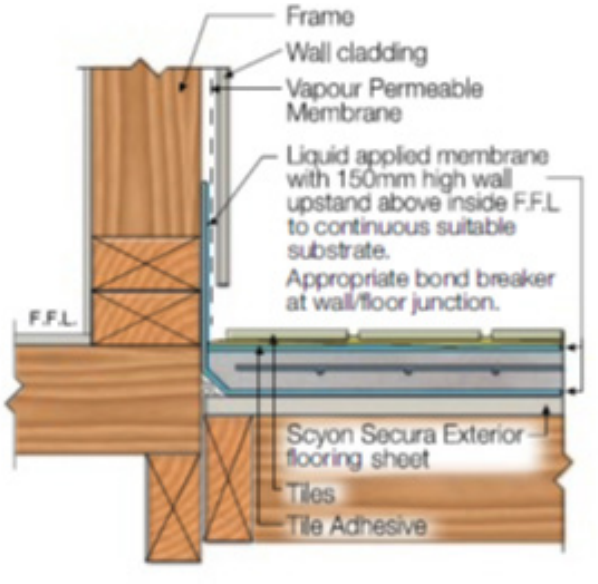

Figure copied from James Hardie Scyon Secura installation guide 2015

Karl Wootton,
AUSTRALIAN WATERPROOFING CONSULTANTS

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Issue 13
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Leaking Basement - Waterproofing Repairs & Rectification

CASE STUDY - Combining waterproofing and structural repairs.

The owner of this new home had a swimming pool under his house in the basement, which contributed to the unfortunate problem of mold and stench coming from the foundations. The builder did the waterproofing himself – using plastic and product bought from a local hardware! It was a very tight situation; but our Team were fantastic with this job. The foundation was excavated and cleaned right down to the footings and then waterproofing application installed.

Custom made plumbing system was installed. We had our plumber fabricate special 100 mill sewer pipe into stormwater pipe cutting slots into it so it would not crush under the self-weight which normal 90 mill pipe often does.

Arma-Blue Protection Sheet was then used to protect the basement waterproofing from being damaged by backfill.

As there was lot of Excavation works, concreters were required followed by our

Team completing the front courtyard, entire rear yard, colour matched everything, and then reinstated.

Our client reported that after huge rains we had in Melbourne - basement was bone dry.

Paul Evans
President – Australian Institute of Waterproofing (AIW)
Managing/Director - Findlay & Evans Waterproofing

Telephone: (03) 8812 2918
Website: www.waterproofingfew.com.au
Email: info@waterproofingfew.com.au

Registered Victorian Building Practitioner (RBP) – Building Practitioners Board License DB-U 7983
Master Builders Association Victoria (MBAV) Specialist Contractor – License 09450

Master Builders Queensland have teamed up with MATES in Construction for their Business Endurance Series 'Self Endurance'. Mates in Construction have provided the information you need to keep yourself well during these times with strategies and practical help for yourself, colleagues, employees, family and friends.

SELF CARE

If you are feeling low, here are some good strategies in four key areas you can try:

- **Physical** - play sport, sleep, walk, eat well
- **Emotional** - talk to friends, spend time with loved ones
- **Mental** - Read, relax and do puzzles
- **Spiritual** - meditate, go fishing listen to music

COPING WITH COVID-19

- CONNECTION

Social distancing doesn't mean social isolation. Try contacting people in whatever way is appropriate (online, over the phone, even over the fence!).

- WHAT'S NORMAL

It's normal to have a range of emotions - sad, angry, confused, scared.

- SELF-ISOLATED AT HOME

If you must stay home - eat well, sleep, keep up some exercise, keep your social contacts, do some gardening or yard work, read, create something new.

- FACT OR FICTION

Get the facts. Stay up-to-date from trusted sources like health.gov.au

FOR ADVICE OR HELP

Call Mates in Construction's 24/7 helpline on 1300 642 111

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DOOR THRESHOLDS!!!

A very common fault we see in buildings are the door thresholds being too low or non-existent (flush).

This door frame was sitting down on the tiled surface and water had been ingressing in for a very long-time causing destruction of structural timbers below and adjacent to the door frame.

In this case the screed, which was necessary to create the falls, but lifted the threshold point to zero. Bad planning right for the day it was built.

I presume the height of threshold was "seen" by Building Surveyor before screeds were installed. Otherwise they would not (should not) have passed an inspection.

The outcome here was to remove the door frames (three in this job) – install a bottom plate and cement sheet upstand and detail that before the membrane was applied. This is the only way of ensuring a watertight upturn below the door sill. Admittedly, being builders as well as waterproofers this task was more straightforward.
Yes, it more costly and sometimes a pain to

do and the client has found more money to carry out the rectifications – but it has to be done.
Another building design fault (which the

builder carried out !!) is the cladding the door frame reveals was a very poor detail as there no ventilation gap behind cladding and no room to insert cement sheet upturn, so other door upstands were created by using zincalume flashing embedded into fresh membrane to prevent the flashing rusting out in the future and then detailed on the front side.

Now awaiting new (shorter) door frames to be installed (no extra head height to lift existing door frames) The message here is don't waterproof a job with low thresholds, you are just asking for a call back.

YOU TOUCH IT – YOU OWN IT!!!

Paul Evans
FINDLAY EVANS WATERPROOFING

WorkSafe VICTORIA

ABSOLUTE SHOCKER

If a window of opportunity appears, don't take chances with your life. Always speak up about unsafe practices.

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REMEDIAL WATERPROOFING THINK FIRST!

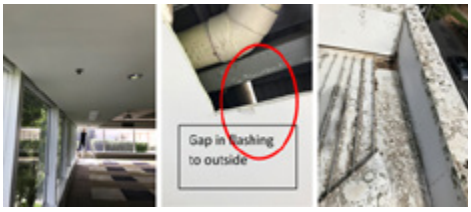
Remedial works present all sorts of challenges, such as:

- Structural failures
- Condition of the building
- Poor workmanship of previous works
- Situation requires a permanent solution or to manage the problem
- Multiple product application options

Quite often the best tool we have in regard to remedial works is - 'between the ears. Once the cause of the problem is identified, solutions present themselves.

A COUPLE OF EXAMPLES:

PROBLEM: CEILING DRIPPING IN THE CORNER OF THE ROOM
Investigation found the building movement had dropped ceiling corner housing the drainage pipes from guttering resulting in a negative fall. The flashing in the roof box guttering had less than 70mm upturn with large gaps from overflashing. With heavy rains water overflowed upturn saturating the ceiling, further compounded by water having trouble getting away due to poor box guttering overflows.



PROBLEM: BALCONY LEAKING INSIDE RESIDENTIAL UNIT
Bedroom door leading to the external balcony was leaking, resulting in a saturated carpet with mould growth. Living room double doors and windows also leading to external balcony had water penetration, which had resulted in swollen skirting boards. The external balcony tiles match the level of the internal flooring. Initial assumption that the balcony and internal slab were one pour, which proved to be incorrect. Deeper investigation internally started with the bedroom door. After we removed the skirting, we discovered the wooden base plate was completely rotted and water was penetrating via the door sub-sill. It turned out the metal door system was installed the wrong way around, directing water captured in the frames internally. This problem extended to all the window and door systems. On the external balcony, we removed tiles, excavating screed 90mm to the slab. Thus the balcony slab was constructed correctly, but tiler chose to raise the level of tiles to match internal space (without sufficient falls to drains).

There are some fantastic products on the market to help us with remedial works, sometimes it pays to investigate a little deeper before 'throwing product' at the problem.

David Hepworth
DESIGN AND REPAIR CONSULTANT,
PRODUCT SPECIFICATION AND SUPPLY

PROFESSIONAL PROFILE

The AIW welcomes, Solonge (Shell) Brave as their Executive Assistant. Shell comes to us with ten years' experience working for industry associations including the Concrete Institute of Australia (CIA), the Australasian Corrosion Association (ACA), the Australian Hotels Association (AHA) and the Oral History Association of Victoria (OHV). Shell specialises in event management for the hospitality industry and industry associations but also works privately as an oral historian, short biography writer and editor. She has a talent for relationship building, a passion for old fashioned customer service and a drive for just getting things done. In her spare time, she enjoys the outdoors, true stories, music festivals and practicing one of her three banjos. She has joined us on a part-time basis and will be the 'go-to' person for the Institute.