Leaking roof inspection on busy roof prior to waterproofing. Image courtesy of FEW

SOLVING ROOF AND BALCONY LEAKS IS NOT JUST ABOUT WATERPROOFING

BY PAUL EVANS, MANAGING DIRECTOR OF FINDLAY & EVANS WATERPROOFING, PRESIDENT OF THE AUSTRALIAN INSTITUTE OF WATERPROOFING (AIW), AND REGISTERED BUILDING PRACTITIONER

Water leaks are always tough job for facilities manager. Getting to the root cause of water leaks and then finding a solution to the problem is no easy task.

A lack of understanding about the many and varied structural issues, as well as waterproofing technologies available, can lead to decisions that may not actually resolve those water leaks.

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In many instances, there may be a several possible remedial actions available and, of course, the cost component is significant consideration.

In my experience, however (having more than 42 years within the construction industry as both a Registered Building Practitioner and Certified Waterproofer), choosing the correct rectification method pays off in the end.

Being both a builder and a waterproofing specialist throws a different light on some of the complex water ingress problems that I have come across. I have witnessed the diagnosis of roof water leaks as a waterproofing membrane issue, when in fact, it turned out to be a plumbing problem or a structural design element.

Unfortunately, in these cases, the newly installed membrane didn't solve the water problem. So, we come to the big question: how do you decide on the correct method to resolve water leaks? First, there need to be what I call 'water forensics, assessment or investigation'.

I will use the common leaking roof water ingress does not always necessarily mean that you should install a new roof membrane – there are options. It comes to investigation.

Usually, when we are called in to rectify a leaking roof, we are dealing with older buildings with a membrane at the end,

Roof-invasive testing. Image courtesy of FEW

which is often well past the end of its life cycle. Often roof membranes have been patched up over many years to stem intermittent water leaks, although eventually it becomes unviable and unmanageable to keep spending money on fix ups.

Sometimes, it is practicable and possible to carry out temporary rectification work, and move the actual fix date to a later time due to lack of funding or weather preventing a desired outcome.

There comes a time, however, when money must be spent and spent well: rectification that meets performance and so on.

A frequently asked question in regards to rooftop waterproofing is: 'can the existing surface be re-coated, or does the damaged membrane need the costly and time-consuming option of total removal'? This is particularly relevant with 'busy' roofs, such as those with mechanical installations and rooftop plant deck equipment.

The answer can be variable and even hotly disputed within the waterproofing industry – which doesn't make decision-making any easier for facilities managers! Agendas may be in the background with respect to the waterproofing materials that have been nominated – and these may not be the best suited product to resolve the water problem.

This is where my so-called 'roof forensics and assessment' comes into play – knowing the root cause of water leaks goes a long way to helping establish a course of action.

Selecting the correct waterproofing materials is a tough decision, particularly as there are so many different types and a broad range of solutions to meet demands.

I would not be so bold as to suggest that there is any one product for roof restoration. In general, they are all reasonably good – otherwise, they wouldn't or shouldn't be in the market.

Leaking balconies are a completely different matter. We see many balconies leaking due to poor design, inferior construction methods, incorrect waterproof application and failed balcony finishes – which mostly involves tiles.

I would like to delve deeper into this last cause of balcony water leaks, as many as professionals are unaware of the relationship between balcony tiles and water leaks. If tiles are not installed correctly on a waterproof membrane, they will make a perfectly good membrane leak.

Tiles expand and contract due to the normal thermal cycle, and some quite extensively. They are bonded to the waterproof membrane, and this constant expansion and contraction plays havoc with the membrane.


Leaking balcony. Image courtesy of FEW

There are, however, structural methods to cope with this movement. Expansion joints, rather a lack of thereof, are probably the most common cause of a failed balcony – surprisingly, not the waterproof membrane itself. Or, if tile adhesive is too ridged or the membrane lacks flexibility, balcony cracking is inevitable – and with cracks, you get leaks.

Water stops – which are impervious angle installed on the balcony perimeter to prevent movement of water to an adjacent area or surface – are used in most Australian states, but not so much in Victoria.

In summary, if a new balcony waterproof membrane is installed and these tiling mistakes are continues, you will be looking at water leaks in the future all over again – and so, the cycle of a leaking balcony goes on.

Let's look at the modern balcony design and construct, which is often with minimal fall. In these situations, a waterproofing membrane is applied to the flat (level) concrete or timber-framed surface, and cement screed is applied to achieve falls for water to flow to drainage systems – we hope!

Water will flow through and under tile grout lines, and saturate the tile and membrane until it eventually evaporates. This is where it gets tricky – there are many membranes that are not designed to hold water. But isn't it that what a membrane is supposed to do? In my opinion, yes. There are, of course, many membranes that do the job – that is, withstand ponding water.

The aim of balcony rectification is not perpetuated. This is why it is important to explore structure and design when resolving water issues.

Investigation and assessment of the root cause of water leaks is critical – or else water ingress will not be solved and just pushed back to occur at a later stage, all over again.

Resolving water leaks requires gathering information about a broad range of building issues, with waterproofing being just one of them.

As always, I am available for discussion on this and other topics, as I have a passion for getting it right.