

CASE STUDY: LEAK INVESTIGATION ON A RESIDENTIAL APARTMENT COMPLEX - VICTORIA

AUSTRALIAN WATERPROOFING CONSULTANTS LEAD: Karl Wootton

Project Highlights

- Investigation of 2 separate apartment buildings which displayed water ingress in multiple locations
- A number of water ingress points identified which were recreated to pinpoint the exact point of entry and determine the correct long term remedial solution
- Outlined services to resolve the waterproofing issues uncovered

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Residential Apartment Complex - consists of two separate apartment buildings located on a single site. There is a large basement (parking and storage) which services both buildings with a common area green space, swimming pool and walkways separating the buildings. Both buildings are constructed predominantly with precast concrete, concrete block walls and lightweight claddings.

Australian Waterproofing Consultants conducted a two-day site investigation of several leak points and was advised of the active or historical status of each leak point. The leak points were inspected with the aid of thermal imaging, moisture meters and a visual inspection. Where practicable water testing was conducted to recreate and confirm some of the leak points.



Water damage to timber framing from water travelling across floor slab.



Blistering revealed on roof membrane.



Water being drawn to internal floor slab due to poor building practices.

Challenges

- A number of leaks and water ingress issues affect the building with the need to prioritise and determine which defects required urgent attention and which defects could be addressed in a future maintenance plan.
- A 2 day site investigation was undertaken across several areas of defect - The site inspection was required to be coordinated across a range of stakeholders with varying schedules.
- Water ingress defects were influenced by a range of factors including
 - Age of existing membranes
 - Roof flashings defective or poorly designed
 - Wall cladding defects
 - Missing or poorly installed sealant
 - Lack of maintenance over time
- Restricted access due to construction arrangement, such as decorative stone ballast and geotextile matt obscuring the roof membrane.

Findings

- Water ingress issues were identified throughout the building
- In all cases Australian Waterproofing Consultants were able to either confirm the water entry point (via thermal imaging, moisture meter testing and water testing) or identified multiple potential entry points which could be addressed.
- Some leaks were related to relatively simple maintenance items which could be undertaken as part of scheduled maintenance.
- In some areas poor design at some locations required a more thorough and invasive repair strategy to be considered.
- For areas with restricted access (such as the roof membrane) a plan was developed to conduct assessment during other remedial works.
- With multiple water entry points identified a range of remedial solutions needed to be considered in line with a strategy to prioritise the required works.

Results

- A remediation approach was outlined for each leak location, describing the type of works that would be required.
- Each of the outlined remediation techniques was designed to extend the life of the asset and likely reduce maintenance costs in the future.
- The type of works recommended included:
 - Repairing crumbling or failed masonry joints
 - Coating a single leaf masonry wall with a weatherproof coating in accordance with AS 4773.2:2015
 - Installing new and repairing existing flashings where defective
 - Inspecting and resealing all cladding, planter box walls, and concrete masonry wall junctions
 - Install linear drainage channel across an exposed door with new falls to comply with AS 4654.2:2012
 - Rectification works to provide a falls to correct water drainage flow to waste outlets
 - Staged replacement of the roof membranes over time as a scheduled maintenance plan to prioritise membranes that require immediate replacement and those that can be staged over time based on their current life cycle