

Commonly occurring issues: water ingress on balconies

This document provides information on common issues that cause water ingress on balconies. Information contained in this document is sourced from VBA research insights, data from VBA inspections and other activities.

With innovative designs and the ability for builders to construct homes with elevated balconies to maximise views, waterproofed balconies are becoming the preferred option in the construction process. Often these waterproofed balconies are situated over habitable rooms or garages.

Over recent years, the VBA has seen an increase in issues reported during its Proactive inspections as well as complaints and disputes between owners and builders which involve failed waterproofed balconies resulting in major damage to homes throughout Victoria.

There are many reasons why waterproofed balconies may fail, and identifying the cause and rectifying the problems can be difficult and expensive. To assist building practitioners, the VBA has developed a list of important points to remember when designing, assessing, approving and building waterproofed balconies.

This document will be updated as more information becomes available through VBA's research findings and insights from its operational activities.

Cause of Water Ingress	Prevention activities
Design of the balcony	<p>Slope and Drainage:</p> <p>Is the balcony designed with a proper slope to direct water towards drainage points? Adequate and strategically placed drains should be incorporated to handle expected rainfall effectively.</p> <p>If the balcony consists of a suspended slab, has the design taken into account the long-term deflection and do the drainage points allow for this deflection?</p> <p>Do the endorsed plans contain a drainage design by a suitably qualified engineer?</p> <ul style="list-style-type: none"> • Ensure design specifications take local weather conditions (i.e., wind, rain, and sun exposure) into account.
	<p>Waterproofing Details:</p> <p>Integrate waterproofing measures into the design, including detailing around edges, joints, and penetrations. Design for proper integration with the building's overall waterproofing system.</p> <p>Do the building permit endorsed plans contain all the waterproofing details as required by AS 4654.2</p>

Cause of Water Ingress	Prevention activities
Design of the balcony	<p>Material Selection:</p> <p>Choose durable and water-resistant materials for both the structural and finishing components as well as local weather condition. Ensure materials are compatible with waterproofing systems and documented in design documents.</p> <p>Are the waterproofing materials nominated on the endorsed building permit drawings and have the materials been tested as required by AS 4654.1</p> <p>Other design considerations:</p> <p>Ensure the vertical upward termination heights of the membrane is not less than that specified in Table A1 of AS 4654.2.</p> <p>Location of balcony i.e., above habitable spaces are considered high risk.</p> <p>Complexity of design i.e., type of external wall floor junctions, type of balustrade and fixings to substrate.</p>
Insufficient Curing of Concrete	<p>Check curing records to confirm adherence to recommended curing times.</p> <p>Inspect concrete surfaces for proper curing and any signs of cracking.</p>
Inaccurate Leveling of Surfaces	<p>Use leveling tools to ensure surfaces have the correct slope/fall and are even.</p> <p>Check for proper alignment and leveling before final finishes are applied.</p>
Improper substrate preparation	<p>Ensure the substrate (base layer) is properly prepared before applying waterproofing systems. This includes cleaning, repairing any cracks, and ensuring a smooth surface.</p> <p>Consider the slope/fall required depending on the waterproofing system design.</p> <p>Ensure a clean surface for installation of waterproofing - dirt, oil, or other contaminants on the substrate can interfere with the bonding of waterproofing materials.</p>
Poorly Installed Waterproof Membranes/ systems	<p>Inspect the application of waterproof membranes for appropriate cover-age and overlaps. Membranes should be continuous and extend up walls and around penetrations.</p> <p>Ensure that the balcony's waterproofing system is properly integrated with the building envelope. This includes coordinating with waterproofing of adjacent walls, door/window thresholds and other interfaces.</p> <p>Ensure that membrane seams and edges are correctly sealed and ad-hered.</p> <p>Ensure sufficient sealing around any penetrations such as drainage pipes, railing posts, and utility connections.</p>
Incorrect products/ materials used	<p>Ensure all materials are compatible with waterproofing systems and as per the design documentation. Any deviation should be documented and signed off by the RBS.</p>
Improper Application of Sealants/flashings	<p>Inspect sealant/flashings application for uniform coverage and adherence to manufacturer guidelines including all joints, transitions and intersections as well as where the balcony meets the building facade, around railings, and other penetrations.</p> <p>Inspect flashings for proper installation and integration with the waterproof-ing system.</p> <p>Ensure that sealants are fully cured and free of gaps, cracks or inconsistencies.</p>

Cause of Water Ingress	Prevention activities
Poor Construction Joint Detailing	Inspect joints for proper sealant application and integration with surrounding materials.
	Verify that joint designs match the specified details in the construction
Inadequate Balcony Drainage	Verify proper slope/fall and drainage design using level tools. Are the waterproofing materials nominated on the endorsed building permit drawings and have the materials been tested as required by AS 4654.1
	Check for the installation of adequate drain outlets and their functionality to handle anticipated water volumes. Ensure they are positioned to collect and channel water effectively.
	Ensure provisions are made for adequate overflow measures with compliant discharge.
Construction Debris Blocking Drains	Conduct visual inspections to ensure drains are clear of debris.
	Use inspection cameras if necessary to check drain lines.
Lack of Quality Control Checks	Review inspection logs and quality control procedures for thoroughness.
	Conduct random checks to ensure compliance with quality standards.
Incomplete or Incorrectly Installed Balustrades	Verify proper installation and sealing of balustrades .
	Check for alignment with waterproofing systems and any potential gaps.
Not adhering to building codes/standards	Ensure all construction practices and materials comply with relevant building codes and industry standards for waterproofing and drainage.
Air-conditioning units not installed properly	Consider the process of installation of any air-conditioning units that may result in penetration of the waterproofing membrane.
	Ensure the condensate from the air-conditioning unit drainage is considered.