



1st June 2017

Atlantis West

Variable Balcony Tile Scopes

The following lists the likely balcony repair scopes that may be required when addressing balcony deck conditions at Atlantis West

From inspection of the failed tile deck to lot 180, it was apparent that there has been no under-tile membrane applied to the balcony decks before being tiled at construction.

Application of an under-tile membrane is not a requirement under the building code where a balcony deck is located over another balcony rather than an enclosed living space.

However, over time the grout joints become porous or erode, which will allow water penetration of the underlying concrete balcony slab. This water carries dissolved salt from the buildings surface which accumulates in times of drier weather. These chloride ions (dissolved salts) will enter the concrete balcony slab and accelerate corrosion of the encased steel reinforced skeleton of the building, accelerating the likelihood of concrete spalling to the hob face and soffit of the balcony below.

This is the most common contributor to the development of concrete spalling in multi-rise properties along the South-East Queensland coast.

Full Retiling

Tiling over existing tiles is a common practice, but is not a recommended scope under the Building Code of Australia. Before re-tiling, existing tiles should be stripped back to the bare substrate and the substrate suitably prepared for re-tiling.

Hence the following work scope does not allow for the re-tiling of balcony decks over existing tiles whether sound or not.

Scope 1

- Tiled decks should be fully stripped back to bare concrete removing all traces of cement bedding or tile adhesive.
- The concrete surface should be ground with a cup grinder to ensure it is smooth and sound and ready for retiling
- Once stripped and ground, the concrete balcony slab should be checked for cracks in the slab and appropriately remediated. Any cracks in the concrete slab should be inspected and chased out by grinding the length of the crack and to a depth of no less than 12mm.
- Once the crack has been ground out, this should then be filled with a suitable epoxy ceramic filler such as Ardex R88 or TAMREZ Gel 310 to be smoothed flush once filled.
- Once this has been undertaken, the balcony deck should be primed using a hydrostatic primer such as Ardex Hydrepoxy 300 or TAMSEAL 300 WB prior to the application of a suitable liquid under-tile membrane, such as Ardex Membrane 155 or TAMWAM Waterproofing Membrane.



- Only once the membrane has been applied, may the tiler proceed with bedding if required, in order to establish sufficient fall to the points of drainage.
- Where bedding is required, the contractor shall then apply a second application of hydrostatic primer and membrane before the tiles can be installed. This second application prevents rising efflorescence from the cementitious tile bed below.
- Tiles may then be installed and grouted to finish, using a suitable polymer modified tile adhesive and grout.
- Tiles should be installed with a 5mm gap to the perimeter of the tiled deck, where tile edges butt up to the concrete vertical balcony walls and hob face.
- Once tiling is complete and the tiled deck is suitably grouted, the contractor shall then fill the tile perimeter with a liberal bead of silicon modified polyurethane adhesive sealant, such as Soudal Multibond MS35 or Tamseal JS5, to avoid peaking and popping of the tiles through expansion.
- This should be covered off to a suitable 10-15mm cove, ensuring a sound seal to the tile and the vertical hob face.

Contrary to the above recommendation, the body corporate have requested that we provide an intermediate intervention that the body corporate may employ to prevent water ingress of established balcony decks without retiling.

Hence, we provide the following recommendations that will serve as an interim measure, to assist prevent water ingress in the short to medium term.

Scope 2 Balcony decks with no cracked, peaked or drummy tiles but with grout erosion and mastic failure only.

- Grout joints to be raked out in areas of voids or breaks in the grout and to be spot grouted to ensure the continuity of the grout is unbroken and free of voids.
- Mastic joints are to be fully stripped and then cleaned out with a wire brush to ensure that the exposed cavity is clean of dirt, grime mould and or other contaminants before the joint can be resealed. (It should be noted that most decks do not have mastic joints to the perimeter and are alternatively hard grouted)
- Where the exposed joint exceeds 6mm in width the contractor will require the installation of a 6mm closed cell backing rod to accommodate the void before resealing.
- Once the joint is clean and backing rod is installed if required, the contractor is to then reseat the mastic joint to the perimeter of the balcony deck using a silicone modified polyurethane sealant such as Soudal MS35 or Tamseal JS5 ensuring to create a minimum 10-15mm cove.
- Expansion joints that may be present through the centre of the deck should also be fully stripped and replaced with Soudal MS35 or Tamseal JS5 also.
- Only once the above work scopes are complete may the contractor then apply (2) two flood coats, of a high-grade silicon based sealant (Cementaid Driwall P6) to the grout joints and the tiled surface. This silicon based sealer will deeply penetrate the grout and porous tiled surfaces causing the growth of



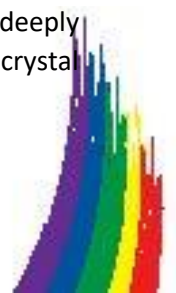
crystal filler in the pores of the substrate which in turn prevents water transmission through the substrate.

- Once sealed with (2) two full flood coats of Cementaid Driwall P6, the contractor shall wipe any residual sealant residue off the tiled surface using xylene and a clean non coloured cloth.

Scope 3

Balcony decks where isolated tiles are cracked, peaked or popped

- If tiles are peaked and or popped then the tiler will need to identify the next sound tile and using a grinder carefully cut out via the grout joints the failed tiles.
- Where tiles are removed the tile bedding should be checked for its integrity before proceeding. It is likely the bedding may be compromised from continuous wetting. If the bedding is compromised this may be a wider spread problem across the deck and full tile stripping may be inevitable.
- Where tiles are removed the bedding should be waterproofed with a suitable under tile membrane before reapplication of the removed tiles.
- The tiler once having replaced peaked or popped tiles should then identify a suitable grout joint adjacent to the failure, to grind out and remove grout and refill with a suitable silicon modified mastic to provide a future expansion joint to prevent the tile failure reoccurring.
- If the tiles are cracked and the crack in the tiles is linear and less than 2mm in width then the tile can be filled with a suitable high viscosity epoxy filler to prevent water ingress through the crack. Most of these fillers are clear and whilst won't improve the aesthetics of the crack, will assist in preventing water ingress.
- Once the above remediation is undertaken, the work listed under Scope 2 above must be undertaken.
- Grout joints to be raked out in areas of voids or breaks in the grout and to be spot grouted to ensure the continuity of the grout is unbroken and free of voids.
- Mastic joints are to be fully stripped and then cleaned out with a wire brush to ensure that the exposed cavity is clean of dirt, grime mould and or other contaminants before the joint can be resealed.
- Where the exposed joint exceeds 6mm in width the contractor will require the installation of a 6mm closed cell backing rod to accommodate the void before resealing.
- Once the joint is clean and backing rod is installed if required, the contractor is to then reseal the mastic joint to the perimeter of the balcony deck using a silicone modified polyurethane sealant such as Soudal MS35 or Tamseal JS% ensuring to create a minimum 10-15mm cove.
- Expansion joints that may be present through the centre of the deck should also be fully stripped and replaced with Soudal MS35 or Tamseal JS5.
- Only once the above work scopes are complete may the contractor then apply two flood coats of a high-grade silicon based sealant (Cementaid Driwall P6) to the grout joints and the tiled surface. This silicon based sealer will deeply penetrate the grout and porous tiled surfaces causing the growth of crystal



filler in the pores of the substrate which in turn prevents water transmission through the substrate.

- Once sealed with two full flood coats of Cementaid Driwall P6, the contractor shall wipe any residual sealant residue off the tiled surface using xylene and a clean non-coloured cloth.

It is imperative that the owner/ body corporate engage suitably qualified professional commercial tilers.

Similarly the choice of quality of products employed is critical to the longevity of the works undertaken.

Integrity Project Management product recommendations are as follows;

Under Tile Hydrostatic Primers

Ardex Hydrepoxy WPM 300

Normet Tamseal 300WB

Under Tile Membrane

Ardex 155 Membrane Rapid

Normet TAMWAM Membrane

Silicon Waterproofing Sealant

Cementaid Driwall P6

Normet Tamseal 1

Silicon Modified Mastic Sealant for Joints

Soudal MS35 Silicone Modified Polyurethane Sealant

Tamseal JS5

Should you require anything further please do not hesitate to contact Integrity Project Management on 0422 002179

Regards



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