→ INSTALLATION GUIDE

Limestone Flooring

Aussietecture LIFESTYLE

ABOUT THIS GUIDE

This guide is intended as general guidance only. Before commencing work, confirm the current Australian Standards and any applicable requirements for trade practices.

The information has been prepared in good faith and must be considered alongside the specific conditions of each site. It is not a substitute for advice from qualified contractors or consultants, nor does it replace the relevant product technical data sheet or the manufacturer's prescribed installation method.

Aussietecture reserves the right to amend, remove or update information in this guide without prior notice.

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PRODUCT CONSIDERATIONS

Limestone is a predominantly calcite-based sedimentary natural stone formed over geological time. Subtle differences in tone, texture and shade are an inherent part of the material, and some variation between production batches is to be expected.

Allow for normal manufacturing tolerances in thickness and dimensions. Product samples represent an indication of the overall appearance rather than an exact match to every supplied piece. Inspect the entire delivery before commencing and distribute pieces from different crates throughout the installation for a balanced finish.

Small surface marks and edge chips may occur in natural stone and do not necessarily indicate a structural fault. Tumbled and antique-edge finishes are intentionally irregular, including softened or chipped corners. Set aside pieces with less suitable edges for cutting where possible.

Contact Aussietecture before installation if the quantity of damaged pieces or degree of variation appears excessive. Laying the product is considered acceptance of the material.

Include an appropriate allowance for cuts and wastage when ordering. Limestone may remain visibly damp for several days following installation, depending on its density and weather conditions. Allow the stone to dry fully before judging its final colour and appearance.

PRODUCT DESIGN & LAYOUT

Confirm the specified laying pattern, orientation and joint arrangement before starting work. Follow the approved design to achieve the intended visual result. Contact Aussietecture if clarification of the product format or pattern is needed.

STORAGE

Until required, keep stone dry and protected from rain, direct sun and other weather exposure. Store in a single layer on a stable, level surface wherever practical.

SUBSTRATES & FOUNDATIONS

A sound, correctly designed base is fundamental to long-term performance. A suitably qualified structural engineer should assess soil conditions, expected traffic loading, site levels and drainage. The source guide provides the following indicative minimum reinforced concrete slab thicknesses for 25 MPa concrete:

- Pedestrian use only: 75mm minimum.
- Vehicle traffic below 3 tonnes gross mass: 100mm minimum.

Reinforcement grade and design will depend on the application. Allow the substrate to dry for the period required under the relevant provisions of AS 3958. Before fixing, ensure it is structurally suitable, stable and free of dust, grease, oil, dirt, curing compounds, release agents and other bond-inhibiting materials.

CONTROL & MOVEMENT JOINTS

Allow for thermal and structural movement in the base, adhesive and stone. Movement joints must remain functional and free of hardened adhesive or mortar. If a joint requires clearing, take particular care not to damage any waterproofing below.

Carry all substrate control and movement joints through the limestone finish as flexible joints. Where a paver or tile crosses a substrate joint, cut the finish directly above the joint and provide the appropriate flexible detail. Design and install joints in accordance with AS 3958 and project requirements.

DRAINAGE

Adequate falls and drainage reduce the likelihood of saturated subgrades, deterioration of bedding layers and efflorescence. Provide compliant surface falls towards suitable outlets in accordance with applicable Australian Standards and the project drainage design.

SCREED & BONDING SLURRY

If a screed bed is specified, first allow the concrete to cure for the period required by the relevant manufacturer. Use an approved cementitious bonding slurry between the screed and concrete base. Confirm screed composition, preparation and installation with the current technical data and relevant Australian Standards.

WATERPROOFING MEMBRANE

Where waterproofing is required, use a compliant under-tile membrane system. Depending on the selected system, the membrane may be installed on the concrete substrate or on the screed. Follow the waterproofing manufacturer's instructions for preparation, application and curing.

Aussietecture recommends considering Ardex or Mapei waterproofing systems. Confirm the system is suitable for the substrate, stone and installation conditions, and follow the manufacturer's instructions.

Ardex: www.ardexaustralia.com
Mapei: www.mapei.com

PRE-SEALING & PRE-GROUT SEALING

Pre-sealing or sealing before grouting may be beneficial for some limestone finishes and exposure conditions. Select a product that is compatible with the limestone, adhesive and grout. Observe the manufacturer's instructions and drying times.

Aussietecture recommends Aqua Mix natural stone sealing products.

Aqua Mix: www.aquamix.com.au

WEATHER CONDITIONS

Plan installation around suitable site conditions. Temperatures below approximately 10°C or above 30°C may affect adhesion, while rain and excessive moisture may reduce adhesive and grout performance. These temperatures are indicative only: follow the actual installation product's technical data sheet.

CUTTING

Cut limestone using a high-quality stone-specific blade suitable for the cutting equipment. A bench saw is preferable where practical.

Silica Safety: Stone, mortar, sand and concrete may contain crystalline silica. Cutting, grinding, drilling and other processing can release respirable silica dust associated with serious illness, including silicosis. Apply appropriate dust suppression and extraction controls, PPE and workplace safety procedures. Consult Safe Work Australia: safeworkaustralia.gov.au.

ADHESIVE SELECTION & MIXING

Adhesive selection depends on the stone format, application, substrate, sealing system and site exposure. The installer must select a suitable product and follow its current instructions.

Aussietecture recommends Ardex and Mapei Adhesive Systems for limestone flooring.

Adex: www,ardexaustralia.com
Mapei: www.mapei.com

Two-part adhesive or adhesive with additive
Measure additive, water (if required) and powder in the proportions specified by the manufacturer. Add powder gradually to the liquid component and mix at low speed to a consistent, creamy texture. Only adjust consistency where the manufacturer permits it and in response to the stone format and installation conditions.

Fixing limestone pavers and tiles
- Clean the substrate and limestone backs thoroughly, removing dust, oils and other contaminants
- Confirm that the concrete, screed or waterproofing layer receiving the adhesive has completed its specified curing period
- Work adhesive into the substrate with a 10-12 mm notched trowel and back-butter the full underside of each piece
- Bed the stone firmly into fresh adhesive to achieve full contact; adjust its position carefully using a rubber mallet if necessary
- Lay in manageable areas, observing the adhesive's working and open times
- Use a spirit level to check alignment and the required surface falls
- Periodically lift a piece to verify adequate coverage and the absence of voids. Do not spot-fix
- Use suitable spacers or wedges to maintain consistent joint widths
- Remove excess adhesive from the stone face and joints before it hardens

Remove spacers or wedges after the adhesive has set sufficiently but before full cure, as appropriate for the system.

GROUTING

Grout mixed with water

Pour the specified quantity of clean, cool water into a clean mixing vessel. Introduce the grout powder slowly while mixing at low speed until the colour and consistency are uniform. Leave for 3-5 minutes and remix, subject to the grout manufacturer's instructions.

Grout with additive

Where a two-part grout is specified, measure the additive and any water required by the manufacturer, then blend thoroughly. Add grout powder gradually and mix at low speed until smooth and consistent in colour. Allow to stand for 3-5 minutes before remixing, unless the product instructions state otherwise.

Grouting procedure

- Ensure joints are clean and free of loose material
- Lightly dampen the stone using a sponge, without leaving standing water on the surface or in the joints
- Pack grout into joints with a rubber float, ensuring there are no gaps or voids
- Draw the float diagonally across the surface to remove excess grout
- Allow grout to begin firming; the source guide suggests approximately 10-15 minutes depending on conditions, but follow the selected product's cleaning window
- Prepare two buckets: one to wash grout residue from the sponge and one for clean rinsing water
- Use a well-wrung sponge to wipe diagonally across the joints, one pass per sponge face, then rinse and repeat in adjacent areas
- Keep cleaning water fresh and avoid oversaturating the installation
- Remove remaining grout film before the maximum cleaning time specified by the manufacturer

Aussietecture recommends Ardex and Mapei grout systems. Select a grout suitable for the specific limestone and joint dimensions.

Adex: www,ardexaustralia.com
Mapei: www.mapei.com

POOL COPINGS

The following points address limestone coping installations to fibreglass and concrete pool shells. The profile and fixing method must be assessed for the shell type and anticipated movement.

Coping profile selection

The source guide advises against laminated epoxy rebated copings on fibreglass pools because of the fabrication method and movement of the shell. It identifies single-piece rebated coping profiles of 30 mm thickness or more as suitable for that application. For concrete pool shells, the source indicates that all listed coping profiles, including rebated profiles, may be used subject to the relevant product specifications. These recommendations require project-specific verification.

Bond beam preparation

Fibreglass shells: abrade the top surface using suitable wet-and-dry abrasive paper to key the finish, then remove all dust and residue before applying the specified sealant. The source identifies Ardex CA20P or an equivalent product.

Concrete shells: a screed may be necessary to level the bond beam. Where screeding is undertaken, allow both concrete and screed to cure as specified before fixing copings.

Movement joints and underside sealing

The source guide specifies movement joints of at least 3mm at intervals no greater than 2.4 linear metres, at every internal and external corner, and along the full rear perimeter of the coping. It also specifies a minimum 3mm flexible joint between the inner underside of the coping and the internal pool finish. Fill this joint with a suitable sealant to help prevent pool water travelling underneath the coping. Joint locations and dimensions must be verified for the project.

Fibreglass pool shell – fixing method

- Key a cement-based modified adhesive classified C2 TE S2 into the horizontal concrete bond beam or screed using a 10-12 mm notched trowel
- Back-butter the coping area supported by the concrete surround. Fix the section above the fibreglass beam with an appropriate sealant, such as the source-specified Ardex CA20P or equivalent. Do not spot-fix
- For single-piece rebated copings, bond the rear of the face edge to the fibreglass shell with a suitable sealant. Do not spot-fix
- Press the coping firmly into the fresh adhesive and position carefully, using a rubber mallet if required
- Work in small sections within the adhesive's specified open time
- Maintain straight, level alignment with a slight drainage fall away from the pool
- Lift pieces periodically to confirm full support and no voids. Do not spot-fix
- Maintain uniform joints with suitable spacers or wedges
- Clean adhesive from the stone and joints before it sets
- Complete grouting in accordance with the grouting section of this guide

Concrete pool shell – fixing method

- Key a C2 TE S2 cement-based modified adhesive into the substrate using a 10–12 mm notched trowel, and back-butter the entire underside of the coping
- Press the stone firmly into fresh adhesive and adjust into position with a rubber mallet as needed
- Where rebated coping is used, fix the back of its face edge to the shell with a suitable sealant such as the source-specified Ardex CA20P or equivalent. Do not spot-fix
- Proceed in manageable sections, observing adhesive open time
- Set copings straight and true with a slight fall away from the pool
- Check adhesive coverage regularly by lifting pieces. Avoid voids and spot fixing
- Use spacers or wedges for consistent joint spacing
- Remove adhesive residue from stone and joints before it hardens
- Grout using the procedure set out in this guide

The source guide instructs removal of coping spacers or wedges once the grout has set but before it has fully cured. Confirm timing against the selected installation system.

Rebated coping used as step treads

For rebated limestone coping used on steps, the source directs installers to use the concrete-pool-shell fixing procedure above, subject to suitability for the specific step construction.

FINAL CLEANING

Undertake final cleaning after all grout and silicone joints have fully cured. Protect adjoining finishes such as fencing, metal trims, framing and other materials that may be affected by cleaning products.

- Remove loose debris and dirt from the limestone
- Apply a cleaner specifically approved for the stone and installation materials, following the manufacturer's instructions
- Agitate gently with a suitable scrubbing brush and leave for the prescribed dwell time
- Remove the cleaning solution and rinse as directed

The appropriate cleaning product depends on the limestone finish and type of residue. Never apply an acidic cleaner without specialist confirmation of suitability: acid may etch limestone and damage grout, sealers or other installation materials.

Aussietecture recommends Aqua Mix for cleaning solutions.

Aqua Mix: www.aquamix.com.au

POST-INSTALLATION SEALING

Sealing after installation is recommended to help protect the natural stone and preserve its appearance. Choose a sealer appropriate to the limestone, finish and exposure, and follow the manufacturer's application and curing directions.

MAINTENANCE

Maintenance needs vary according to the stone, finish, location, exposure and level of use. Depending on these factors, ongoing care may involve regular cleaning, periodic resealing, or both. Use cleaning and sealing products specifically suited to the installed stone and follow their directions.

Contact Aussietecture to discuss a maintenance approach suited to the selected product and installation environment.

Important: This guide provides general installation guidance only and is not a substitute for project-specific design, professional advice, applicable Australian Standards or the current technical data sheets for the products used. The installer is responsible for confirming suitability of the substrate, materials, methods and site conditions before commencing work.

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