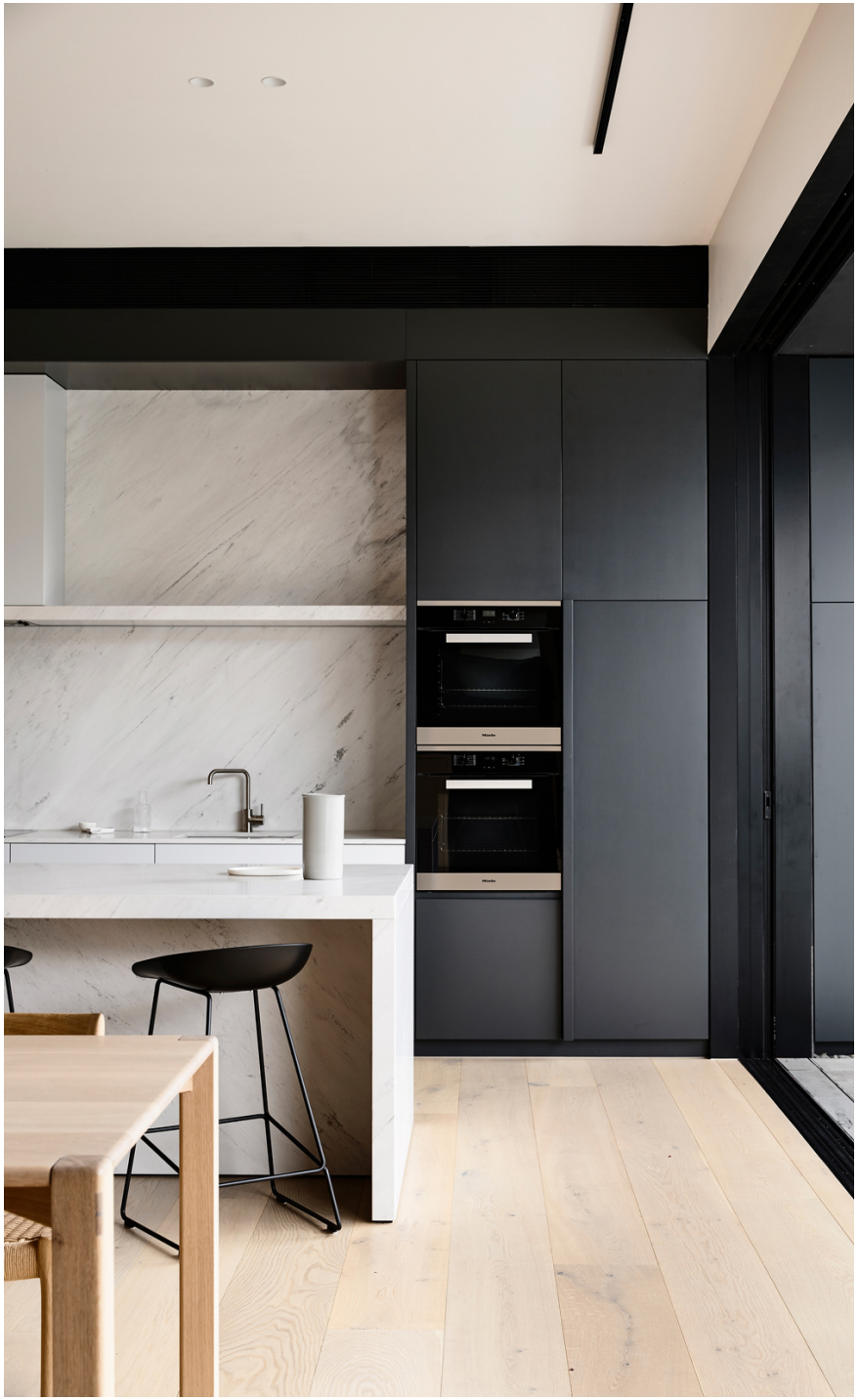


ROYAL OAK FLOORS
by Harper & Sandilands

INSTALLATION SPECIFICATIONS

Pre-Installation Considerations

Wastage allowances:
We recommend a minimum wastage factor of 10% and up to 15% for darker floors or even up to 20% for herringbone pattern.

Moisture & environment:
We suggest installers refer to the AFTA (Australian Timber Flooring Association) Engineered Flooring industry standards technical publication, for moisture content & humidity guidelines prior to installing the timber floors. It is important the flooring installer checks the climatic conditions they are installing in as well as the moisture content of the floorboards and the slab.

Prefinished boards:
Our boards require no additional finishing treatment after installation, however care must be taken to remove glue residue during installation. Protection of the floor from damage is also important from other trades and traffic (refer to post installation considerations on page 3.) Do not apply sticky tape directly to the finished surface of the boards.

Adhesive
We recommend the use of the CFS Rapid-Stick Timber Flooring Adhesive for all installation methods.

Removal of glue residue:
It is vital that all glue residues are removed immediately after laying each prefinished board. Always test solvents first on an off-cut to establish that the solvent does not affect the colour or finish. Use a damp cloth to wipe away any solvent residue. Especially important on dark colours.

Staircases:
Prior to installation of the floor we recommend to lay out all stair nosings. Match nosing's to boards as you are opening packs to lay the floor. Select the closest tone possible to avoid an unacceptable contrast on a completed stair tread and riser. Not every nosing will match every tread and riser but early selection of nosings to match boards will minimise the variation.

Using a block to install:
Care must be taken fitting boards together to avoid bruising the leading edges causing splintering. Do not hit the edges of boards with a rubber mallet, instead use a wooden or nylon block to knock boards together by hitting the board against the tongue side not the groove. Bruised edges can be hard to spot on completion of the job but once a bruise has been washed a few times the timber can swell and mops can lift the splinter up and personal injury to bare feet can occur. If you have created a bruise, carefully cut it out with a knife then sand it smooth. All engineered boards can bruise the thinner the board the easier it is to bruise.

Installation Methods

CONCRETE SUBSTRATE

Preparation of the concrete slab:

The concrete must be structurally sound, dry (no more than 5.5% moisture content), level and cleaned of waxes, adhesives dust etc. Slabs must be level with no more than a 3mm deviation over a 3-metre radius. If deviations are greater than 3mm, use a self-levelling compound (e.g Ardit) or grind the slab to level the surface within the above tolerance.
It is important to consider the possible risk of sub slab water ingress from surrounding areas. A relative humidity and moisture content reading is required prior to installation; please document readings for your records. If moisture content is more than 5.5%, please contact us for further advice.

Direct sticking to the concrete slab:

Over a prepared slab (see above re: slab preparation). Glue the boards with CFS Rapid-Stick Timber Flooring Adhesive to the slab using a 6mm notched trowel. Spot weight across the floor and weight any hollow or drummy areas to ensure floorboard and subfloor contact.
Please read Underfloor Heating Options below if this option has been selected.

Onto ply over concrete slab:

The minimum thickness of ply which can be used over a slab in order to secret nail is 9mm. Over a levelled slab, lay thick polythene sheet as a moisture barrier. Overlap each sheet by 150mm and attach the overlaps using a 50mm wide double-sided tape. Lay the ply over the polythene sheet in the opposite direction (cross laminate) to the intended direction of the floor, for example, place the long length of the ply perpendicular to the direction of the boards.

Attach the sheets to the slab using pre-drill sleeve pins, at a rate of 28 pins per 2400mm x 1200mm sheet. Level ply as necessary by plane. Rough sand ply and glue using CFS Rapid-Stick Timber Flooring Adhesive applied in either a snake pattern individually to the back of the board or applied by 3-6mm notched trowel to the ply. Secret nail every 100-200mm.

Direct sticking to the concrete slab with acoustic matting:

The matting system is a requirement in multiresidential developments to reduce noise transfer.
We suggest the use of Vibramat, ImpactaMat or Regupol which are all available in various thicknesses. Over a prepared slab (see above re: slab preparation) The matting will need to be applied to the slab with CFS Rapid-Stick Timber Flooring Adhesive using a 3mm notched trowel and allowed to dry to the manufacturer's specifications. Glue the boards directly to the matting with CFS Rapid-Stick using a 6mm notched trowel. Spot weight across the floor and weight any hollow or drummy areas to ensure floorboard and subfloor contact.

Underfloor heating options:

In-slab and above-floor heating systems can be used under all our flooring products. In-slab heating uses either electric or hydronic heating elements which are embedded in the slab. If using in-slab heating, we recommend our direct stick to slab method (above). **It is vital any underfloor heating system be fitted with a cut-off thermostat set no higher than 26°C when measured under the timber flooring.** Irreparable damage to timber floors occurs if it is subjected to temperatures above 26°C.

It is important the total timber thickness is no greater than 20mm otherwise the insulating properties of the timber reduce the effectiveness of the heating system. Any air gaps between the boards and the heating system should be avoided, hence why spot weighting across the floor is very important. Even heat distribution is important as hot spots can cause greater board movement (shrinkage or cupping) in some areas of the floor compared to others. Likewise, seasonal operation of the system can cause some gapping or board shape changes.

It is best to run the heating system prior to install for around 2 weeks to ensure slab dryness. Subfloor temperature should be checked prior to install and should not exceed 26°C. Relative humidity should be in the range of 45% to 60% at a room temperature of 20°C. Then turn off the heating for at least two days where you can then install the flooring as per above. Once completed, gradually turn the heating up in stages over a period of 10 days in increments of say 2°C per day then maintain at desired level for 2 weeks ensuring it does not go over 26°C. Gradually increasing and decreasing the temperature for operational use will help the timber to acclimatise and minimise disturbance to the floorboards.

Temperature and relative humidity are the two key factors that influence the internal climate or environment within a dwelling. An increase in the temperature inside the dwelling will cause a lowering of the relative humidity and with this the drying capacity of the air increases. Low relative humidity will result in timber and similar flooring releasing some of its moisture to the air, and thereby reduce in moisture content and shrink. As such the moisture content of a floor is affected by changes in the heated environment.

Flooring needs to be able to cope with very dry conditions during the heating period over winter and moderate rises in moisture content over summer. While this can be catered for, there is an obvious concern if the underfloor heating system was not in operation for a significant period over winter as this could create expansion greater than would occur over the summer months. It is vital the system, or the proposed system is considered compatible with the floor by the heating system manufacturer.

TIMBER SUBSTRATE

Over structural timber flooring (eg. Chipboard or Yellow Tongue):

Rough sand the timber substrate then glue boards using CFS Rapid-Stick Timber Flooring Adhesive applied in either a snake pattern individually to the back of the board or applied by 3-6mm notched trowel to the ply. Secret nail every 100-200mm.

Over existing timber strip flooring:

It is important to ensure the existing floors are sound and free of rot etc prior to installation of new timber over top. If running the boards in the opposite direction to the existing timber floors, the boards can be glued and secret nailed directly to the substrate. If installing in the same direction as existing flooring, a 4mm ply must be pinned down over the existing floor to create cross lamination. This minimises movement between the existing timber floor and new timber floor. Rough sand ply and glue using CFS Rapid-Stick Timber Flooring Adhesive applied in either a snake pattern individually to the back of the board or applied by 3-6mm notched trowel to the ply. Secret nail every 100-200mm.

- **We do not suggest the installation of our boards directly over battens, bearers & joists, or as a floating floor. Please call us to discuss further if you have any questions.**

Installation Methods

INSTALLLATION FOR WALL OR CEILING APPLICATIONS

Important considerations for wall & ceiling applications:

Our boards can be used in wall or ceiling applications. We have solid oak mouldings available for all our Architect Collection colours for use in conjunction with our boards. 20x20x1900mm Corner Moulds are available to suit the 20mm boards and 40mm x 6mm x 1950mm cover strips are available for use on shelving, furniture, and cabinetry or for finishing exposed edges.

Installation of boards on to walls & ceilings:

It is important the area be sheeted out with a minimum 9mm ply for the boards to be glued and secret nailed. Rough sand ply and glue using CFS Rapid-Stick Timber Flooring Adhesive applied in either a snake pattern individually to the back of the board or applied by 3-6mm notched trowel to the ply. Secret nail every 100-200mm. Gluing and secret nailing onto ply ensures that boards are firmly fixed and will not be subject to 'sagging' where the cut end joins are, especially on ceilings.

Post-Installation Considerations

Caulking:

As the boards are engineered, the need for expansion allowances is minimalized. We suggest a 3mm gap be left between boards & skirting. Caulk the gap with silicone in a colour to match the floor or skirting.

Stairs:

Some of our finishes will not meet the required slip rating for use on stairs, in this instance a LOBA 2K Duo Anti Slip can be applied to meet the required rating. Please contact us for further information.

Transitions:

In most cases a 3mm aluminium flat bar is used as a transition between timber and other floor finishes.

After installation / Builders Clean:

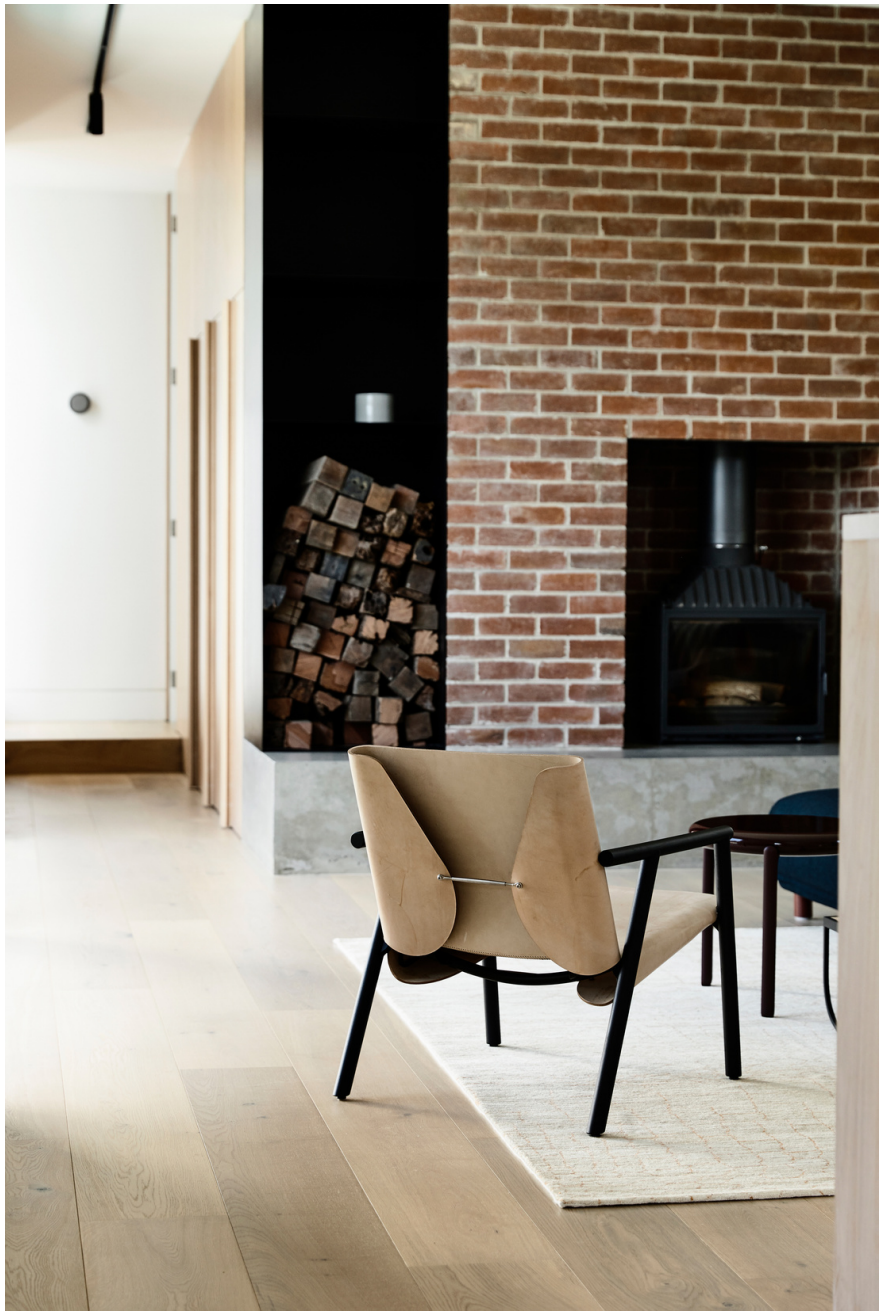
If dust is present, vacuum immediately, do not mop. Moisture can set plaster dust into the low grain of the timber making it very difficult to remove if not impossible. After all dust has been removed, if required a WOCA Wood Cleaner is available to purchase.

Floor protection during construction:

It is preferred the boards are laid as late as possible in the project to prevent the boards from being damaged by other trades as they are prefinished. Should further work need to be done on the project after installation has been completed it is essential that the floor be protected using a 2mm foam underlay and a 3mm or 4mm MDF sheeting over top that is securely taped together (do not apply tape to the finished floor) or other protection method.

Regular cleaning and maintenance:

We recommend WOCA cleaning products for all our flooring products. WOCA is available from our online shop or direct from our showroom. Postage is available Australia wide. For further information please refer to the care instructions on our website.



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