Architect: Trias Studio
Builder: GTS Constructions
Photography: Benjamin Hoskin

RADIAL INSTALLATION GUIDE
BOARD AND BATTEN

MARCH 2024

radial timber
USING WOOD WISELY

CONTENTS

Please make sure that the information in this installation guide is current by checking with Radial Timber or referring to our website **www.radialtimbers.com.au**

1.0 INTRODUCTION

Beachouse Constructions

Radial Timber Board & Batten is a rough sawn cladding option which is a unique alternative to traditional horizontal or manufactured sheet cladding systems. These are produced by cutting fresh logs into unseasoned (green) wedges and then sawn to produce a series of 25mm nominally bevelled edge cladding boards of varying widths.

Radial Board and Batten cladding is sawn from selected naturally durable regrowth or plantation grown Australian hardwoods all of which have a Class 1 or 2 durability rating, which meets the required durability standard for external apllications. We generally stock a select few hardwood timber species with a BAL rating of BAL 29 which is in the highest rating for natural hardwood timber and is recommended for use in high rated bushfire prone areas.

The Board & Batten must be orientated vertically where an alternating base board is overlapped by another cap board to produce a continuous vertical cladding system similar to a traditional paling fence. The Board and Batten cladding is supplied unseasoned, cut fresh from logs with relatively high moisture content. All unseasoned timber shrinks to some extent as it dries, therefore it's extremely important that the fixing/spacing recommendations are strictly followed.

1.1 SUSTAINABILITY

1.2 WHERE DOES OUR TIMBER COME FROM?

Radial Timber is committed to the sustainable management of our timber resources. All Radial timber products are curently supplied through sustainable regrowth or plantation timber partners, unless specified otherwise.

Our vision is to become totally self sufficient by managing our own saw log plantations of durable hardwood in Gippsland. In 2004 we put in place a plan to establish at least 2000 hectares of native hardwood plantations, since then we have been planting and managing these plantations every year. We also acknowledge that we must work together with industries and government bodies to carefully manage our native regrowth timber resources to ensure a sustainable future for all. We truly believe you can love both timber and trees, if we work together to do so sustainably.

1.3 RADIAL SAWING METHOD

Radial Sawing was specifically designed to maximise the recovery of sawn timber from smaller logs. As such, Radial Sawing has a range of both environmental and technical benefits. Where conventional sawing methods require large diameter logs Radial Sawing technology helps make native hardwood plantations logs more viable by maximising the yield of high value timber products from much smaller logs.

Radial sawing works by quarter sawing a log into wedges (like a pizza) from these wedges the log is then back sawn into varying sizes of bevelled edge boards. These bevelled edged, rough sawn boards can be used unseasoned (green) for products such as Board & Batten or Screening. Alternatively the boards can be racked out for air drying, to then be kiln dried and moulded into high quality profiles such as Shiplap Cladding or Decking.

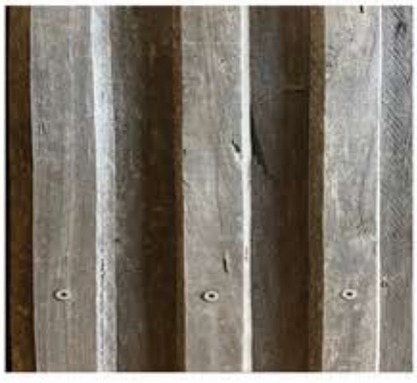
Other Radial Timber enviromental endevours include our new Bioenergy and LVL peeling plant both due to be commisioned in 2024/25.

Smith Architects
LAK Constructions

1.1 METAL STAINING

It is very important to note Board and Batten cladding is milled unseasoned and rough sawn. During this milling process the boards often pick up iron staining. Iron stain, is an unsightly blue, black or grey discolouration and can occur on nearly all woods especially unseasoned timber. The discolouration is caused by a chemical reaction between tannins in the wood and iron in steel products. This often occurs after rain or dew, when water enables the tannins and iron to meet and react. These stains are generally picked up via the chains the timber runs along at the mill. All Board and Batten timber will come with staining from the milling process and there are a few options to consider to achieve your desired look.

Example of metal staining to expect



Left to weather naturally (faded)

Radial Rustic Grey finish applied

The majority of this staining will fade during natural weathering and can be left as is, or it can be cleaned off by washing/spraying with a 5% solution of oxalic acid. This will revert the timber back to its original clear timber appearance. This cleaining step should be undertaken before an protective coating such as an oil is applied over the top. (Radial Timber can supply oxalic acid). Another option is to apply a darker oil/stain or finish to conceal the metal staining.

Architect:Molecule Studio
Builder: Provan Built
Photography: Derek Swalwell

2.0 PRE-PLANNING

2.1 PROPER STORAGE OF TIMBER ON SITE ON A CONSTRUCTION SITE

Timber should be stored up off the ground on bearers and preferably under cover or protected with an additional heavy-duty tarp to prevent rain and sun damage.
When the Board and Batten cladding is delivered it will be wrapped in plastic, this is not a waterproof barrier and care must be taken to ensure boards don't get wet as this can cause issues with movement of timber and water staining. Being unseasoned, the timber boards should be installed as soon as possible to minimise shrinkage and movement .

2.2 TIMING OF INSTALLATION

As these boards are unseasoned its important to avoid installation on inclement days of weather and protect both the timber and cavities from water exposure at all times, this will ensure the preformance and longevity of the cladding. Installation on extreme weather days may increase the risk of boards cupping or distorting due to rapid moisture loss. It is advisable to have boards pre oiled before installation to regulate the moisture and help the boards acclimatise.

All unseasoned timber shrinks to some extent as it dries, resulting in a direct loss in volume therefore it's extremely important that the fixing and spacing/overlap recommendations are strictly followed.

3.0 PROFILES

Architect: Gregory Burgess,Gesley Abhas , Realmstudios
Construction: Devco Constructions

3.1 BOARD AND BATTEN PROFILES

Typical Board and Batten layout (faces showing)

Stud wall/Frame side

Standard Board and Batten sizes
75x25mm BE (Nominal)

100x25mm BE (Nominal)

125x25mm BE (Nominal)

150x25mm BE (Nominal)

Alternative Board and Batten sizes
(Subject to availability / Larger screws required)
50x23mm (BE Nominal)

55x35mm BE (Nominal)

75x50mm BE (Nominal)

100x50mm BE (Nominal)

Board & Batten cladding is supplied as a series of unseasoned (green) rough sawn 25mm nominally thick profiles. The boards are generally supplied in five standard widths which are 50mm, 75mm, 100mm, 125mm or 150mm.

Board & Batten cladding is available in random lengths (1.0-6.0m) that is cut fresh to order at our saw mill generally requiring a 4-6 week lead time. All Board and Batten options should be calculated and ordered by m2 making sure a reasonable amount of waste has been factored in which is recommended between 10-15%.

Fixings
Base (bottom) boards should be screwed with min 5.5mm x 50mm stainless steel screws.
Cap (top) boards must be screwed with 12-14g x 80-85mm stainless/gal bugle batten screws.

TIP-The advantage of considering the same width Board and Batten such as the 100/100 option is the longer random lengths can be saved up for the top cap board and any of the medium and shorter lengths can be used as the base board where the joins are less visable.

4.0 INSTALLATION

4.1 SARKING

Good quality vapour permeable fabric wall wraps or sarking are additional layers of protection that shield the timber frame from water-related weather damage such as condensation, mould or rot. It also allows moisture to escape from the inside of the structure. Selecting the right wall wrap is an important decision.

4.2 LAYOUT

Board and Batten Cladding must be installed vertically.
It is recommended that boards are fixed to 70x35 treated pine battens (or similar) at spacings of MAX 450mm centres. These subsrate battens should not be fixed directly to the moisture vapour barrier clad wall studs and instead it is advised to use a spacer/packer behind the batten as this will enhance the thermal performance and assist in dissipating any moisture between the segments by providing some minor unrestricted airflow.


Construction: Mosswood Homes

4.3 FIXING

The information provided outlines the recommendations for fixing and spacing boards for Board & Batten installation. These points will highlight the importance of maintaining appropriate spacing and overlap to accommodate natural shrinkage and to ensure that your cladding is installed correctly, providing a long lasting, attractive finish for your project:

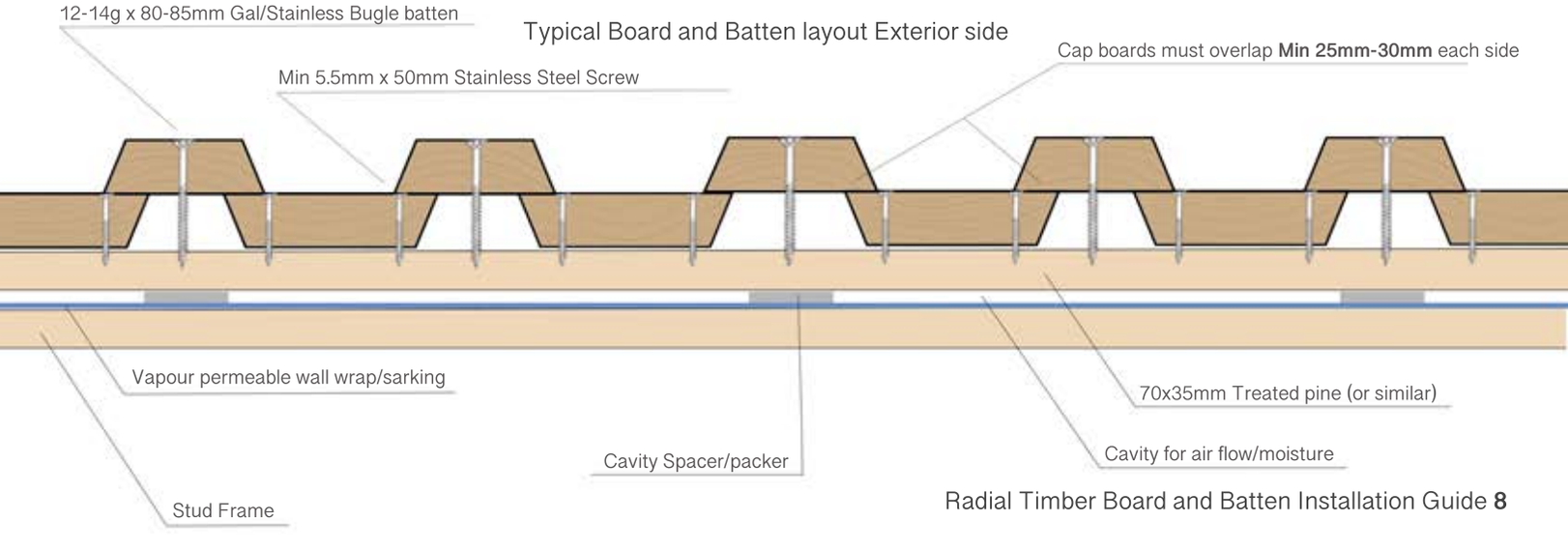
· **Shrinkage:** Unseasoned 'green' timber shrinks as it dries, resulting in a loss in volume. Therefore, it is important that the overlap recommendations are strictly followed and timber is installed as soon as possible.

· **Base (Bottom) boards:** Screwed wide face out with a minimum 5.5 x 50mm stainless/galvanised screw.
Care should be taken when fixing close to the ends. These can be driven in on an angle to ensure the cap board covers the screw heads if desired.

· **Cap (Top) boards:** Fixed narrow face out. Up to 100mm wide, predrill through the middle of the board and fix with a single 12-14 gauge x 80-85mm stainless steel/galvanised screw. If the cap board is over 100mm wide, two bugle screws of the same size should be used through the face.

· **Cap board screws:** It is important that the cap board screws do not penetrate through the base board. This allows the boards to move and shrink freely.

· **Gap and overlap:** The guidelines stress the importance of ensuring proper gaps and overlap of the boards. The wider board is usually on the base with wide face out. Ensure the gaps are set so that the cap board with narrow face out, will cover the edge of each base board by **no less than 25-30mm on each side** to allow for natural shrinkage of the green timber which can be as much as 10-12%.



4.4 WEATHERPROOFING AND FLASHING

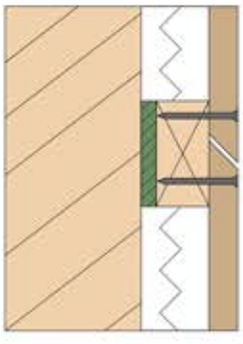
Boards exposed to the sun and rain (north-northwest elevation) will shrink more than semi protected boards. Recommended overlaps are critical on these exposed elevations as is eliminating any butt joins and where possible provide some weather protection with eaves, veranda, or similar. Do not allow rain or water to get behind boards during installation and days of extreme heat due to rapid moisture loss.

Wall cavities should be protected at all times. It's important that all flashing around windows or other openings is adequately installed to allow for proper drainage away from the timber.

The bottom end of boards should not come into ground contact and left with at least a 100-150mm gap. This will provide both a ventilation entry for the cavity and avoid boards decaying and staining from ground moisture.

It is advised the bottom of the boards be undercut at an angle to form a drip edge and a suitable angled flashing or vented cavity closer is installed.

4.5 JOINS



A recommended end to end vertical joint or connection to make is a mitred cut which should then be fixed over a batten. A commercial flexible construction adhesive such as (SikaBond) can be applied to facilitate a good tight seal and any excess glue squeezed out should be allowed to dry before peeling off so as to avoid smudging into wood grains.

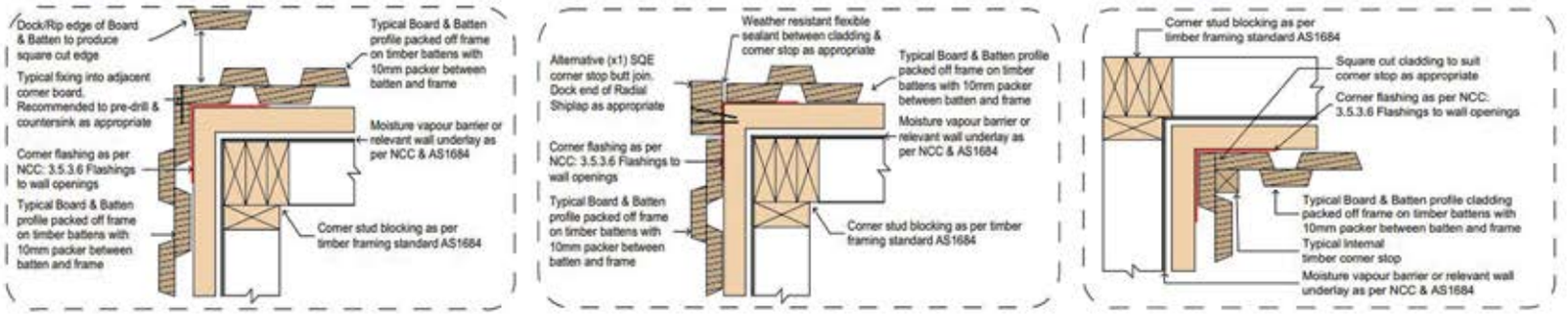
Board and batten lengths generally average approx 4.0m so joins should be avoided where possible.

4.6 CORNER DETAILS

There are a number of ways to finish off internal and external corners. You may rip boards to butt into each other, use timber stops or a suitable Y flashing or trim for a nice clean finish. Some important factors are to ensure no moisture can get in the joins, use a suitable flexible sealant and flashing behind the boards.

For more information visit our website construction drawings.

Typical external/internal corner details



5.0 FINISHING & COATING

5.1 TIMBER OILING AND STAINING

When selecting external finishes for cladding, decking or vertical screening, it's important to strike a balance between aesthetics and durability. Hardwood timbers are best provided with some weather protection while acclimatising to local conditions and to repel and control moisture. This will minimise splitting, cracking and checking that naturally occurs in timber.

There are a variety of timber treatments, stains and coatings available and these should usually be applied on all sides of the board prior to fixing into position especially in the case of interlocking or overlapping boards such as shiplap.

Radial Timber recommends the application of a high quality oil or water based penetrating sealer which is equipped to handle the Australian elements and movement of timber caused by moisture variations. We don't recommend a film coating as this will generally not breathe adequately and be susceptible to peeling down the track.

Some points to consider:

·Care must be taken to well coat any end grain to minimise water absorption or loss.
·Narrower boards reduce the amount of stress placed on the coating system.
·Coatings on timber exposed to the north and west will deteriorate more rapidly than on south facing surfaces or in shaded areas.
·Darker stains may cause more movement due to heat.
·Timber must be sufficiently dry when coated so avoid periods of inclement weather.
·Timber partially sheltered by overhanging eaves will weather at a different rate to more exposed timber.

Radial Timber can offer a cost-effective in-house pigmented oil, clear sealer or other coloured options prior to despatch.

Architect: Trias Studio
Photo: Ben Hosking
Finish: Radial Timber Sealer

Construction: Tha Constructions
Finish: Rustic Weathered Finish

Construction: Beach House Construction
Finish: Aussie clear light

6.0 TIMBER CARE & ADVICE

6.1 MAINTENANCE OF FINISHES

The long-term performance of a timber finish is dependent on regular and effective maintenance. The frequency of maintenance will depend on the type of finish and the degree of exposure to the weather. Recoating and any further preparations should be carried out in accordance with the coating manufacturer's specifications.

6.2 SEASONING AND WEATHERING

Some minor surface checking may occur when the timber is exposed to the weather but these non-structural cracks are typical in most Australian hardwoods (NOTE: unprotected west facing walls may be subject to extreme temperature changes and therefore, timber is more likely to check or move). On these walls it's best to try and avoid any joins on the random length boards or consider another product

All exposed, externally fixed cladding will tend to fade to a silver-grey colour if left uncoated. The degree of greying will vary depending on the amount of exposure to sun, wind and rain.

6.3 TANNIN LEACHING FROM TIMBER

It is normal for hardwoods to leach red/brown tannins during heavy rain periods. Tannins tend to be less prominent in lighter species but it is advisable to cover or protect walls and paving until all tannins have fully leached (can vary depending on rainfall but will generally continue for up to 6 months). If tannin staining occurs on other surfaces it can generally be cleaned back with a diluted bleach/water mix or mild oxalic acid wash.

6.4 IRON STAINING AND CLEANING

As Board and Batten cladding is cut unseasoned and rough sawn the boards often pick up iron staining in the milling process. Iron stain, is an unsightly blue, black or grey discolouration and can occur on nearly all woods especially unseasoned timber. The discolouration is caused by a chemical reaction between tannins in the wood and iron in steel products. This often occurs after rain or dew, when water enables the tannins and iron to meet and react. Its very important that no metal work happens near timber as the filings will also cause contamination.

The majority of this staining will fade over time or it can be cleaned off by washing/spraying with a 5% solution of oxalic acid. This will revert the timber back to its original clear timber appearance, we also recommend this process to clean back the rough sawn timber before an oil is applied. (Radial Timber can supply oxalic acid).

7.0 ADDITIONAL INFORMATION

7.1 ADDITIONAL INFORMATION

Additional information such as specs, blogs , videos and full construction drawings can be found on our website at **www.radialtimbers.com.au**

You can also call the office on (03) **9768 2100** or email **sales@radialtimbers.com.au** anytime to discuss any installation queries.

Architect: BKK Architects
Construction: Overend Constructions