Marley Eco-Tuff Building Plank

Installation Guide for Light-Frame Construction

DIY and Professional Installation Guide

Document Version: 1.0
Product: Marley Eco-Tuff Building Plank
Prepared by: Marley Roofing South Africa





Welcome!

The Marley Eco-Tuff Building Plank is a durable composite building plank manufactured from recycled plastic and wood fibre. It has been specifically developed for use as an external wall cladding system, decking and other non-structural applications when installed onto suitably designed light-frame structures.

This installation guide provides general guidance on the planning, calculation and installation of Marley Eco-Tuff Building Planks. It is intended for homeowners, DIY builders, contractors and installers who are familiar with basic construction practices.

This guide should be read in conjunction with the relevant South African National Standards (SANS), the National Building Regulations, and the Marley Eco-Tuff Agrément South Africa Certificate.

Important: This guide provides general installation guidance only. It does not replace the services of a competent designer, architect, structural engineer or local authority where professional design or statutory approval is required.

Before beginning your project, ensure that you have:

- Read this installation guide in full.
- Familiarised yourself with the relevant South African National Standards.
- Confirmed whether municipal approval is required.
- Checked that your supporting timber or light steel frame has been correctly designed.
- Verified that the framing is square, plumb and level before installation.
- Ensured that all required materials, fasteners and tools are available before work begins.

Installing cladding onto an incorrectly constructed frame may result in poor alignment, excessive movement, water ingress or premature product failure.

Applicable Standards

If you are unfamiliar with light-frame construction, Marley Roofing strongly recommends obtaining and studying the applicable South African National Standards – available for purchase from the SABS - before commencing any building project.

Depending on the type of framing system being used, the following standards may apply:

- SANS 10082 – Timber Frame Buildings
- SANS 517 – Light Steel Frame Building Systems
- SANS 10400 – National Building Regulations
- SANS 10400-XA – Energy Usage in Buildings
- SANS 10160 – Basis of Structural Design and Loading

These standards contain important information relating to structural design, framing requirements, loading, durability, weatherproofing and legal compliance.

Please note that additional standards may apply depending on the nature and location of the project.

For those new to timber-frame construction, introductory training courses are available through recognised industry training providers such as The WoodApp, which offers practical online courses covering the basic principles of timber-frame construction.

Municipal Approval and Building Plans

Before commencing construction, determine whether your proposed structure requires municipal approval.

The National Building Regulations and Building Standards Act (Act 103 of 1977) allows a Building Control Officer to exempt certain **minor building work** from the requirement to submit formal building plans or to approve such work using simplified procedures.

However, this exemption is **not automatic** and is granted solely at the discretion of the relevant municipality.

As a general guide:

A small garden shed or storage structure (approximately 8–10 m²) may qualify as minor building work, depending on the municipality and the Building Control Officer's assessment.

Structures intended for:

- human occupation,
- sleeping,
- working,
- operating a business,
- accommodation,
- or any other regular occupancy,

will generally require full municipal approval and professionally prepared building plans.

Where required, plans should be prepared by a suitably qualified:

- Architectural Technologist
- Draughtsperson
- Architect

Depending on the complexity of the structure, the services of a Structural Engineer may also be required.

Always consult your local municipality before commencing construction.

Understanding Light-Frame Construction

Light-frame construction is a building method that uses either timber or light-gauge steel framing as the primary structural system. Marley Eco-Tuff Building Planks are designed to be fixed to these framing systems as an external cladding material and do not form part of the primary load-bearing structure.

The structural frame must be designed and constructed in accordance with the applicable SANS standards before installation of the cladding begins.

The Eco-Tuff Building Plank should never be relied upon to carry structural loads.

Health and Safety

Always follow safe working practices during installation.

When cutting, drilling or sanding Marley Eco-Tuff Building Planks:

- Wear approved safety glasses.
- Wear hearing protection when operating power tools.
- Wear a suitable dust mask when cutting or sanding.
- Use appropriate gloves when handling materials.
- Ensure adequate ventilation when working indoors.
- Follow the safety instructions supplied by the manufacturer of all power tools.

Only use power tools that are in good working condition.

Storage and Handling

To maintain product quality before installation:

- Store planks on a flat, level surface.
- Keep materials off the ground.
- Protect the product from excessive dirt and standing water.
- Avoid prolonged exposure to direct sunlight before installation.
- Do not stack materials in a manner that could cause permanent bending or distortion.
- Handle planks carefully to prevent damage to the tongue-and-groove profile.

Inspect each plank before installation. Do not install damaged or defective material.

2. BASIC GUIDELINE - FRAMING REQUIREMENTS

Marley Eco-Tuff Building Planks are designed to be installed onto correctly constructed timber or light steel framing systems.

The framing provides the structural support for the building, while the Eco-Tuff Building Planks function as an external cladding, flooring or decking system. The planks are **not structural members** and must never be used to support building loads.

All framing should be designed and constructed in accordance with the applicable South African National Standards before installation of the Eco-Tuff Building Planks begins.

Framing Alignment

Before installing the first plank, ensure that the supporting frame is:

- Square
- Plumb
- Level
- Properly braced
- Securely fixed

Any inaccuracies in the frame will become more noticeable as the installation progresses and may affect the appearance and performance of the finished installation.

Stud and Joist Spacing

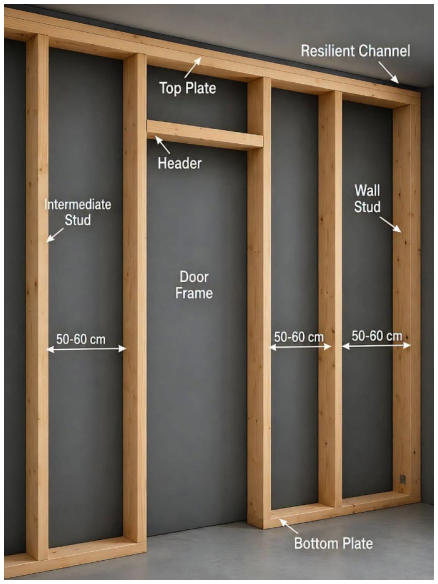
The performance of the Eco-Tuff Building Plank system depends on adequate support from the framing structure.

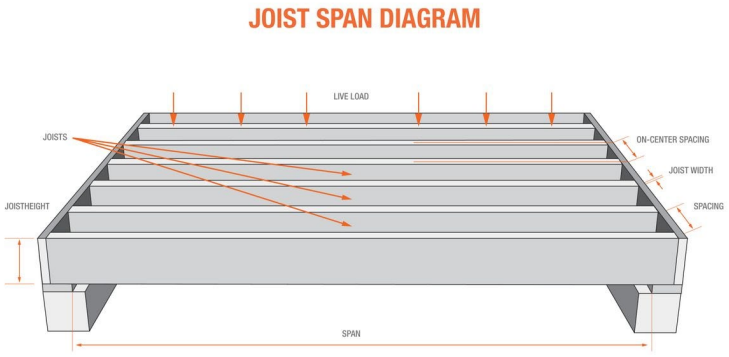
The following framing centres are recommended:

Application	Maximum Centre-to-Centre Spacing
Wall Studs	600 mm
Floor Joists	400 mm
Deck Joists	400 mm

Important: These values are intended as general guidance only. Structural framing must always comply with the applicable SANS standards and be suitable for the intended building application.

Important: Excessive spacing between framing members may result in excessive deflection of the Eco-Tuff Building Planks.





3. MATERIAL SPECIFICATIONS AND ESTIMATING

Eco-Tuff Building Plank Specifications

Before ordering materials, it is important to calculate the quantity of building planks, fixing clips and corner sections required for your project.

Although Marley Roofing can provide an initial material estimate based on the overall dimensions of your project, a detailed cutting list should be prepared before installation begins to minimise waste.

Where only preliminary dimensions are available, an initial estimate can be supplied, with the cutting list finalised at a later stage.

Standard Product Dimensions

Product	Dimensions	Weight	Unit
Marley Eco-Tuff Building Plank	150 mm (W) × 25 mm (T) × 1–6 m (L)	3.5 kg	Per Linear Metre
Marley Eco-Tuff Fixing Clip	35 mm (L) × 20 mm (W) × 10.5 mm (D)	5 g	Per Clip
Marley Eco-Tuff External Corner	70 mm × 70 mm × 2.7 m	1 kg	Per Length

Note: Marley Eco-Tuff Building Planks are manufactured in lengths from **1 metre up to a maximum of 6 metres**.

Estimating Material Requirements

The quantity of Eco-Tuff Building Planks required is calculated using the total surface area to be cladded.

Because the planks are installed horizontally, the wall height determines the number of plank rows required, while the wall length determines the length of each plank.

The number of fixing clips required depends on the spacing of the supporting wall studs or floor joists.

For accurate material ordering, Marley Roofing recommends providing:

- Overall building dimensions
- Wall heights
- Window and door opening sizes

- Roof configuration
- A cutting list (where available)

Providing this information will allow Marley Roofing to prepare a more accurate material estimate.

Example 1 – Single Wall Calculation

The following example demonstrates how to calculate the quantity of Eco-Tuff Building Planks and fixing clips required for a single wall.

Example Wall

- Wall height: 2.7 m
- Wall length: 5 m
- Plank width: 150 mm (0.150 m)

Step 1 – Determine the Number of Plank Rows

Number of plank rows = Wall Height ÷ Plank Width

2.7 ÷ 0.150 = 18 plank rows

Therefore,18 planks measuring 5 metres each are required.

Step 2 – Calculate Total Linear Metres

18 × 5 = 90 linear metres

Total Eco-Tuff Building Plank required = 90 linear metres

Step 3 – Calculate the Number of Fixing Clips

Assuming: Stud spacing = 400 mm (0.4 m)

90 ÷ 0.4 = 225 fixing clips

Total fixing clips required = 225

Note: The above calculation is based on a continuous wall without deductions for windows, doors or other openings.

Example 2 – External Wall Cladding Calculation

The following example demonstrates a basic material estimate for a simple square building measuring **5 m × 5 m**, with an external wall height of **2.7 m**.

Because two of the walls overlap the adjacent walls at the corners, their length must be increased by the thickness of the Eco-Tuff Building Plank.

In this example:

- Two walls = **5.025 m**
- Two walls = **5.000 m**

Walls Requiring Additional Length

18 × 5.025 = 90.45 linear metres

90.45 × 2 = 180.9 linear metres

Remaining Two Walls

18 × 5 = 90 linear metres

90 × 2 = 180 linear metres

Total Building Plank Required

180.9 + 180 = 360.9 linear metres

Round up: **361 linear metres**

Calculate Fixing Clips

Assuming **400 mm stud spacing**

361 ÷ 0.4 = 902.5 clips

Round up:

903 fixing clips

Important

The above calculation does **not** include:

- Window openings
- Door openings
- Gable walls
- Internal partition walls

- Waste allowance
- Future repairs or spare material

Marley Roofing recommends ordering an additional **5–10% material** to allow for cutting waste and unforeseen site conditions.

External Corners

Each external wall corner should be finished using Marley Eco-Tuff External Corner sections.

Corner sections are supplied in standard lengths of **2.7 metres**.

Calculate the required quantity by counting the number of external corners and multiplying by the wall height.

Example:

Number of Corners	Wall Height	Corner Length Required
4	2.7 m	4 × 2.7 m Corner Sections

Calculating Flooring and Decking

The same calculation method used for wall cladding can also be applied to flooring and decking installations.

When calculating decking materials:

- Determine the direction in which the planks will be installed.
- The plank length becomes the deck length.
- The plank width (150 mm) determines the number of rows required.
- Joists must run **perpendicular** to the decking planks.
- The maximum manufactured plank length is **6 metres**.

Where the deck exceeds 6 metres in length, butt joints will be required.

All butt joints must be fully supported over structural framing.

Diagonal, herringbone or other angled laying patterns are **not recommended**, as the Eco-Tuff fixing clip system has been designed for installation perpendicular to the supporting joists.

4. INSTALLATION

Before starting with installation, please take note of the following important factors!

Expansion and Movement

Like most composite building materials, Eco-Tuff Building Planks will expand and contract in response to changes in temperature.

The installation system has been designed to accommodate this natural movement.

To allow the planks to move freely:

- Pre-drill all face-fixed holes slightly larger than the screw shank.
- Do not over-tighten screws.
- Ensure the fixing clips are correctly installed.
- Do not restrict movement by forcing planks into position.

Failure to accommodate thermal movement may result in:

- Bowing
- Buckling
- Distortion
- Joint opening
- Increased stresses within the fixing system

Cutting Eco-Tuff Building Planks

Eco-Tuff Building Planks may be cut using conventional woodworking equipment fitted with suitable blades.

For the cleanest finish, Marley Roofing recommends

Preferred Equipment

✓ Sliding compound mitre saw

or

✓ Circular saw fitted with a guide rail

Recommended Blade

- Carbide-tipped blade
- Minimum **60 teeth**
- Fine cross-cut blade
- Triple Chip Grind (TCG) blade where available

Fasteners

Only corrosion-resistant screws suitable for exterior applications should be used. We recommend **10 x 45mm S/D WAFER SQ CLASS3 screws to fix the Eco-tuff Clips to timber framing.**

Where Eco-Tuff Building Planks are face-fixed:

- Pre-drill every fixing hole.
- Drill holes 2mm larger than the screw shank.
- Do not over-tighten screws.
- Ensure the screw head seats neatly against the plank without restricting movement.

Using incorrect fasteners or over-tightening screws may reduce the performance of the installation.

Common Installation Mistakes

The following installation errors should be avoided:

✗ Installing planks upside down.

✗ Installing planks inside-out.

✗ Over-tightening fixing screws.

✗ Failing to pre-drill face-fixed holes.

✗ Installing butt joints between joists.

✗ Exceeding recommended stud or joist spacing.

✗ Installing onto framing that is not square or level.

✗ Using damaged planks.

✗ Failing to fully engage the tongue-and-groove joint before fixing the next row.

Correct installation will improve both the appearance and long-term performance of the Eco-Tuff Building Plank system.

Therefore, check that:

✓ The frame has been completed.

✓ The frame is square, level and plumb.

✓ Stud or joist spacing complies with the design.

✓ All framing members are securely fixed.

✓ The first plank has been inspected for damage.

✓ All fixing clips, screws and tools are available.

Taking a few minutes to complete these checks will help ensure a successful installation.

Very Important! Ensure correct Plank Orientation

Eco-Tuff Building Planks are installed **horizontally**.

The tongue-and-groove profile allows each successive plank to interlock with the previous plank, forming a neat and secure installation.

Because of this interlocking system, installation must always begin at the **bottom of the wall** and progress upwards.

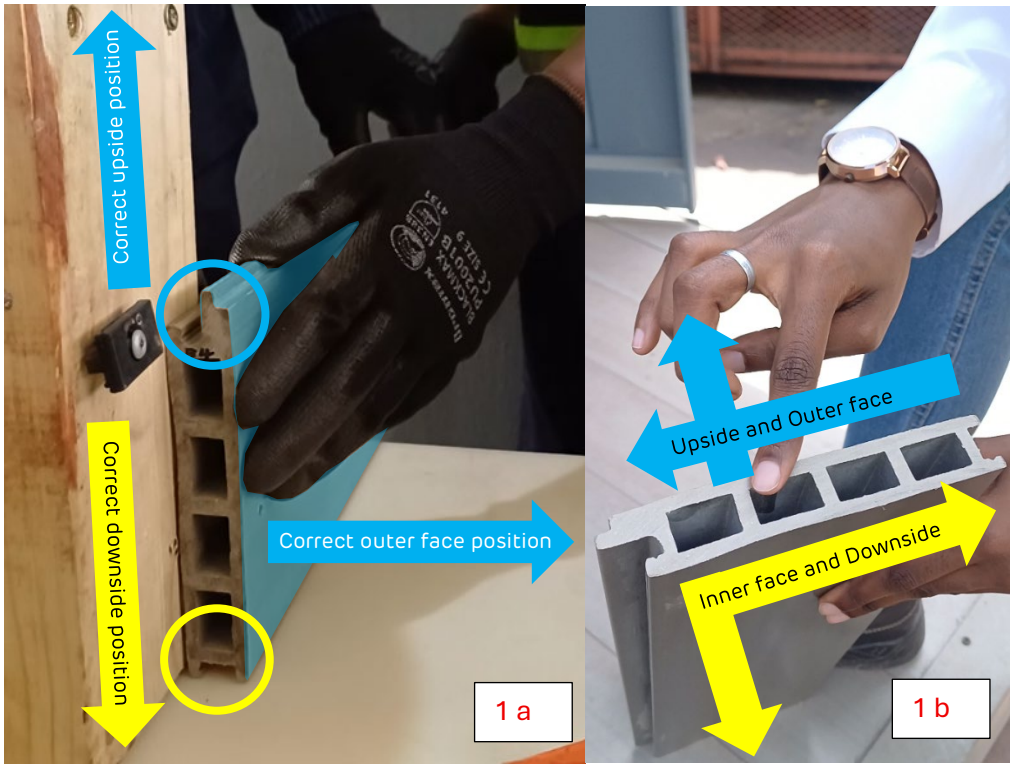
Plank Direction

Before fixing the first row of planks, ensure that it is facing the correct direction.

The upper tongue of the plank must always face:

- Upwards, and
- Towards the outside face of the building.

Installing the planks upside down or in the incorrect orientation will prevent proper engagement of the tongue-and-groove profile and may allow water to penetrate behind the cladding. Refer to **Images 1a and 1b.** below



Installing the First Row

The first row is the most important row in the installation.

If it is not perfectly straight and level, every subsequent row will follow the same error.

4.1 Ensuring the upper tongue of the plank faces upwards, and towards the outside face of the building, refer to images 1a and 1b - position and align the first rows' plank/s along the bottom of the wall using a spirit level or laser level. As no fixing clips will be installed at the bottom of the first rows planks, it is necessary to secure the bottom flange of the planks to each wall stud by screwing it into place.

4.2 Therefore, once the plank/s have been correctly aligned, mark out fixing holes at the bottom of the lower flange of the first row's planks where it crosses each wall stud or joist. Whilst in this position also strike a chalk line above the plank to provide a continuous reference for the first row's fixing clips.

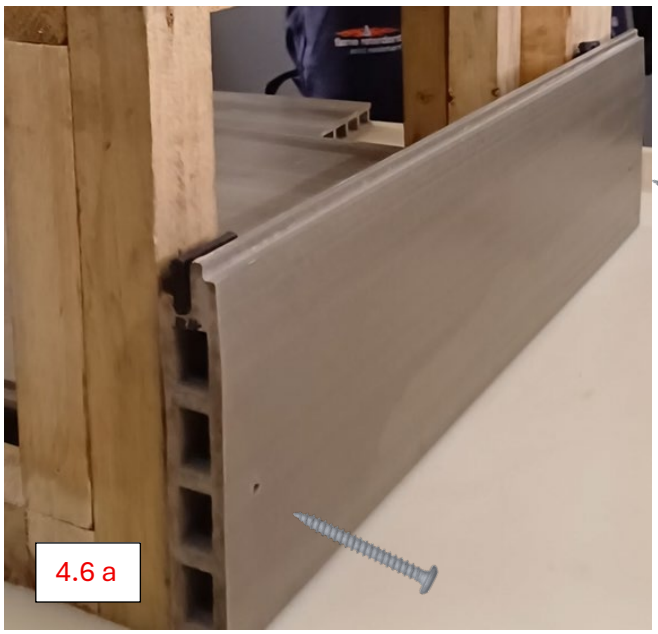
4.3 Once the fixing holes have been correctly marked out and the chalk line have been struck, remove the plank/s and pre-drill fixing holes through the markings. Note the drilled holes should be 2mm larger than the screw shank to allow for normal thermal movement of the plank.

4.4 In accordance with the chalk line, position and fix into place a Marley Eco-Tuff Fixing Clip over each wall stud by securing it with a 10 x 45mm S/D WAFER SQ CLASS3 screw. Important: Do not over-tighten the fixing screw. The clip should securely retain the plank while still allowing for the normal expansion and contraction of the Eco-Tuff Building Plank.

4.5 Slide the pre-drilled planks back into position, making sure it is fully seated into the bottom slot of the fixing clips.

4.6 Secure the bottom flange of the planks by screwing the 10 x 45mm S/D WAFER SQ CLASS3 screws through the predrilled holes where it crosses each wall stud or joist.

Important: Over-tightening screws may restrict the natural movement of the plank and could result in bowing or distortion over time.



Installing the Remaining Planks

Because the fixing clips cannot be accessed once they are covered by the building planks, each clip must be installed **sequentially** as the plank progresses across the wall. This means that each clip is fixed to the stud (2.1a) immediately before the plank is pushed (2.1b) through it.

4.7 Begin by feeding the plank through the first fixing clip and sliding it past the first wall stud until it reaches the second stud.

4.8 Stop and mark the position where the next fixing clip will be installed over the second stud.

4.9 Pull the plank back just far enough to expose the stud, allowing the fixing clip (4.9) to be secured in place.

4.10 Once the clip has been fixed, slide the plank forward (4.10) through the newly installed clip until it reaches the next stud.

4.11 Repeat this process at each stud until the entire row has been installed.

4.12 Use the same method above for all sequential rows, ensuring that each plank is fully engaged and correctly aligned before continuing with the next row.

NB! Minor alignment errors become more difficult to correct as the installation progresses, therefore ensure to check the alignment of the installation at regular intervals using a spirit level and apply adjustments where necessary before proceeding with the next row.

Continue until the wall has been fully cladded.

Installing the Final Row

Depending on the wall height, the final plank may require cutting to fit beneath the roof structure or ceiling line.

Where the plank has been cut, the tongue-and-groove fixing system can no longer be used to retain the upper edge.

In this situation:

4.13 Pre-drill fixing holes at each stud location.

4.14 Drill the holes 2mm larger than the screw shank to allow for thermal movement.

4.15 Secure the plank (4.15) using the 10 x 45mm S/D WAFER SQ CLASS3 screws

4.16 Do not over-tighten the screws.

Installing External Corners

Once the wall cladding has been completed, install the Marley Eco-Tuff External Corner sections.

4.17 Position the corner neatly over the adjoining wall planks.

4.18 Pre-drill each fixing hole 2mm larger than the screw shank before securing the corner using the **10 x 45mm S/D WAFER SQ CLASS3 screws**. Do not over-tighten the screws.

4.19 Continue until all external corners have been completed.


(4.18)

Painting (Optional)

Marley Eco-Tuff Building Planks may be left unpainted.

Over time, natural weathering will cause the surface colour to fade evenly to a light grey appearance.

5 *Exposed and faded Eco-tuff Plank*

Where a coloured finish is preferred, the planks may be coated with Marley M22 Ultimo Multi-Surface Paint.

Before painting with Marley M22 Multi-surface Paint:

4.20 Lightly sand the surface to create a suitable key for adhesion.

4.21 Remove all dust and debris.

4.22 Ensure the surface is clean and dry.

4.23 Apply two coats of Marley M22 Ultimo Multi-Surface Paint in accordance with the manufacturer's instructions.

A separate primer is **not required with Marley M22 Ultimo, due to the products' excellent adhesion properties, but sanding is essential to create a gripping key.**

Recommendation: Marley Roofing does **not** recommend painting Eco-Tuff Building Planks when they are used for decking applications, as pedestrian traffic may accelerate coating wear.

5. SPECIAL INSTALLATION REQUIREMENTS

Butt Joints

Where the length of the wall or deck exceeds the maximum available plank length of **6 metres**, two planks will need to be joined using a butt joint.

A butt joint occurs where two plank ends meet.

To maintain the structural performance of the installation, **every butt joint must be fully supported by the underlying framing.**

The Marley Eco-Tuff Fixing Clip has been designed to align and secure the planks during installation. It **must not** be relied upon to transfer structural loads across a butt joint.

5.1 Cutting Butt Joints

To achieve a tight, professional joint:

- All butt joints should be cut square (**90° ± 0.5°**).
- Fully support the plank while cutting.
- Allow the saw blade to reach full speed before commencing the cut.
- Support both sides of the cut to minimise chipping.
- Remove any burrs before installation.

A properly cut butt joint will ensure full end bearing and minimise visible gaps between adjoining planks.

5.2 Supporting Butt Joints

A galvanised steel backing plate can be installed behind each butt joint to maintain alignment. However, the backing plate should not be relied upon as the main support. Therefore, every butt joint must be positioned directly over structural framing.

Suitable support methods include:

- Double joists
- Double studs
- Wide joists
- Engineered joint support brackets approved by Marley Roofing

Each plank end must have a **minimum end bearing of 45 mm** on the supporting framing member.

Important: Never position a butt joint between two framing members where the plank ends are unsupported.

Why Proper Support Is Important!

If a butt joint is not adequately supported, the plank ends may flex independently under load.

This may result in:

- Excessive movement when walked on
- Cracking at the plank ends
- Premature failure of the fixing clips
- Increased movement at the joint
- Water penetration through the joint
- Reduced service life of the installation

Correctly supporting every butt joint ensures that pedestrian loads are transferred directly into the structural frame rather than through the connector clip.

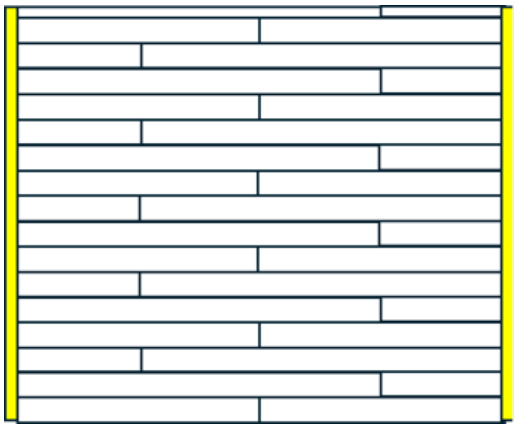
5.3 Staggering Butt Joints

Where multiple plank lengths are required, butt joints should be staggered wherever practical.

Avoid aligning multiple butt joints on the same framing member.

A staggered joint pattern distributes loads more evenly, improves the appearance of the installation and reduces the concentration of movement within a single area.

Refer to **Figure 5.3**



6. Decking Installations

The Eco-Tuff Building Plank may also be used for flooring and decking applications when installed onto suitably designed framing.

When constructing a deck:

- Joists must run **perpendicular** to the decking planks.
- Maximum joist spacing should not exceed **400 mm centres**, unless otherwise specified by the structural designer.
- Butt joints must always be supported over structural framing.
- The decking surface should be constructed to allow adequate drainage.
- The finished deck should incorporate a slight fall to prevent standing water.

Diagonal or herringbone laying patterns are **not recommended**, as they are incompatible with the Eco-Tuff tongue-and-groove fixing system.

6. PRODUCT WARRANTY, MAINTENANCE & REGULAR INSPECTION

Marley Eco-Tuff Building Planks are backed by the **Marley Eco-Tuff Building Plank Limited Product Warranty**, which sets out the warranty period (15 – years), coverage, limitations, exclusions and claims procedure.

The warranty is intended to provide assurance against manufacturing defects in materials and workmanship, provided that the product has been correctly stored, installed, maintained and used in accordance with the latest Marley Eco-Tuff Building Plank Installation Guide and all applicable building regulations.

The Limited Product Warranty should be read together with this Installation Guide before commencing installation.

For complete warranty terms, including warranty conditions, exclusions, maintenance requirements and the warranty claims procedure, refer to the separate **Marley Eco-Tuff Building Plank Limited Product Warranty** document.

Failure to comply with the installation procedures and recommendations contained within this Installation Guide may invalidate the Product Warranty.

6.1 Warranty Registration

Marley Roofing recommends that every Eco-Tuff Building Plank installation be registered using the **Warranty Registration Form** included with the Limited Product Warranty documentation.

Registering your installation provides Marley Roofing with an accurate record of your project and may assist in the efficient processing of future warranty enquiries or claims.

When registering your installation, retain copies of the following documentation:

- Proof of purchase.
- Installer details.
- Installation photographs.
- Product information.
- Completed Warranty Registration Form.
- Annual Maintenance and Inspection Log.

These documents should be retained by the property owner for the duration of the warranty period.

6.2 Maintenance and Inspection

Although Marley Eco-Tuff Building Planks require minimal routine maintenance, periodic inspections are recommended to maximise the long-term performance and appearance of the installation.

Marley Roofing recommends that the installation be inspected at least once every twelve (12) months and following any significant weather event.

Routine inspections should include checking:

- the condition of the planks;
- fixing clips and exposed fasteners;
- supported butt joints;
- evidence of structural movement;
- surface cleanliness and drainage;
- painted finishes (where applicable).

The installation should be cleaned periodically using clean water and a mild detergent. Harsh chemicals, abrasive cleaners and high-pressure cleaning methods that may damage the Product should be avoided.

A detailed **Annual Maintenance and Inspection Log** is included within the Marley Eco-Tuff Building Plank Limited Product Warranty documentation. Property owners are encouraged to complete this record annually and retain it together with their proof of purchase and warranty documentation.

Maintaining accurate inspection records may assist Marley Roofing in assessing future warranty claims.

Important Notice

This Installation Guide forms an integral part of the Marley Eco-Tuff Building Plank Limited Product Warranty.

The property owner, installer and contractor are responsible for ensuring that the latest editions of both the **Installation Guide** and the **Limited Product Warranty** are used during design, installation and maintenance of the Product.

The latest versions of these documents are available from Marley Roofing or may be downloaded from www.marleyroofing.co.za.

7. DISCLAIMER

This installation manual provides general guidance for the installation of Marley Eco-Tuff Building Planks.

It does not replace the requirements of:

- The National Building Regulations
- Applicable South African National Standards
- Approved engineering design
- Municipal approval requirements

Marley Roofing reserves the right to amend product specifications and installation recommendations without prior notice as product development continues.

Where uncertainty exists regarding any aspect of design or installation, consult Marley Roofing or an appropriately qualified building professional before proceeding.

Important Note: Technology may change with time, necessitating changes to this Installation Guide.

It is the responsibility of the user to ensure that the latest Technical Datasheets and Installation Guides are being used for reference. Marley Roofing Technical Data Sheets are available on our website www.marleyroofing.co.za or please contact us at 010 600 0284.

Email info@marley.co.za

Marley SA (Pty) Ltd trading as Marley Roofing, is a member of the Ubora Group, the industrial division of Kutana Group of Companies.

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