EnduraFloor
by Laminex®

Particleboard Flooring

Installation Guide

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Australian
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(click on the section to navigate)

Version 002
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Section 1: Introduction

1.1 Purpose of this manual

This guide has been created to provide clear instructions required to successfully install EnduraFloor by Laminex®. Adherence to the techniques and guidelines presented in this guide will ensure the installed floor is compliant with the conditions in the product warranty.

Throughout this guide the Ⓦ symbol will appear against any specific instructions that are linked to compliance with the EnduraFloor by Laminex warranty.

This guide has been developed to allow specifiers and installers who work with EnduraFloor by Laminex to achieve performance standards for both domestic and commercial applications. It is important to note that the techniques and guidelines presented in this guide are those recommended for use with EnduraFloor by Laminex.

Any variation from these guidelines may create unexpected performance problems and may void the limited warranty.

While every precaution has been taken in the preparation of this document, Laminex assumes no responsibility for errors or omissions, or for damages resulting from the use of information contained in this document. In no event will Laminex be liable for any loss of profit or any other loss or damage caused or alleged to have been caused directly or indirectly as a result of any person relying upon any information contained in this document.

Content in this guide is subject to change at any time without notice. Refer to the Laminex website for the latest revision of this document.

Panels should be installed with consideration to the Australian Construction Code – Building Code of Australia, Volume 1 and 2, and the relevant Australian Standards.

Section 2: General Information

2.1 Site Safety

Safety training, product knowledge and product use, are the responsibility of the fabrication facility and its employees.

Equipment selection, use and maintenance, are the responsibility of the fabrication facility and its employees.

Maintaining a clean and adequately ventilated workplace, are the responsibility of the fabrication facility and its employees.

Ensure packs are strapped when lifting to the floor joist frame.

2.1.1 Safety data sheet

Refer to laminex.com.au for the latest version of the Safety Data Sheet (SDS) for this product.

2.1.2 Personal protective equipment

Always wear appropriate PPE when handling or cutting this product. Wear gloves, safety footwear and suitable workwear apparel (no loose clothing or jewellery).

Always use safety glasses or approved eye protection and/or face shield when cutting, drilling, and sanding or when working in close proximity to the floor.

Occupational exposure to any type of dust is known to be hazardous to human health. Care must be taken to avoid the inhalation of dust. Follow good hygiene and workplace practices. Dust can be vacuumed or swept to avoid accumulation. Dusk masks must be worn in accordance with your State's WorkSafe (or equivalent) guidelines.

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2.1.3 Tools and Equipment

Use and maintain all tools and equipment in accordance with manufacturer's instructions.

Keep all equipment safety guards and dust collection devices in place.

When working with tools, equipment, and consumables, always follow appropriate work safe procedures as well as any safety precautions provided by the manufacturer.

2.2 Handling:

It's important to handle the panels with care during lifting. Whenever possible, carry full panels vertically to minimise flexing or the risk of breakage. Refer to the table in section 2.4 for size and weight.

2.3 Transportation and movement

It is important to take precautions when transporting EnduraFloor by Laminex. Ensure product surfaces and edges are protected when transporting, storing, fabricating, and installing panels.

All straps and restraint devices must remain grit and burr free and suitably tensioned to prevent movement of the product during transport. Covered loads are recommended to prevent damage during transport to the site.

- Ⓦ During transportation, use flat, stable supports of at least the same dimensions as the material.
- Ⓦ Claims for damage or surface abrasion due to unsuitable transport methods will not be recognised.

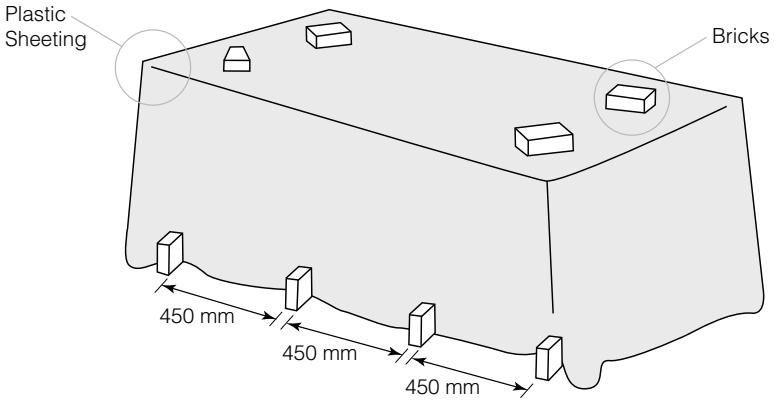
2.4 Storage

Ⓦ Particleboard must be stored for at least one week (where possible longer) prior to installation to allow the boards to adjust to site conditions.

Ⓦ Packs must be stored flat and protected from weather and other sources of moisture.

Place the pack on timber bearers or slats spaced approximately 450 mm apart and cover them with waterproof material such as plastic sheeting. The required site storage setup is shown below.

	Kg /m²	3600 x 600 (kg)	3600 x 800 (kg)	3600 x 900 (kg)	3600 x 1200 (kg)
19mm	13		37	42	56
22mm	15		43	48	65
25mm	17	38			40.17



Ⓦ Boards must not be stored near oxidising agents such as nitrates, oxidising acids, chlorine bleaches, pool chlorine, etc. Ignition may result.

Ⓦ Do not stack different-sized packs on top of each other.

2.5 Conditioning

Pre-conditioning of EnduraFloor by Laminex is required to achieve equilibrium moisture content (EMC) before fixing, to reduce the likelihood of bowing or shrinkage after installation. Therefore, EnduraFloor by Laminex must be stored for a minimum period of 7days at the same environmental conditions as the subsequent place of use.

Failure to condition material may result in product expansion and contraction in response to environmental conditions, particularly with changes in temperature and humidity. This may result in, but is not limited to, bowing or warping of panels, joint failure or build-up of internal stresses that release in the form of cracks.

EnduraFloor by Laminex must be installed in locations where environmental conditions can be controlled and maintained in a manner that avoids large fluctuations in temperature and humidity.

Ⓦ Failure to adhere to conditioning guidelines will void your warranty.

Ⓦ Failure to maintain and control the temperature and humidity of installation environments will void your warranty.

2.6 Quality control

2.6.1 Inspection

ALL panels must be visually inspected prior to the commencement of **ANY** cutting or installation.

Before commencing any cutting or installation, the following must be checked:

- Correct items (thickness, size etc)
- Inspect for defects, such as: substantial chips, evidence of transport damage, general quality of the edge.

If products are believed to be defective, record all order details and contact your Laminex representative as soon as possible.

Once cut or installed, no claims for visual defects will be recognised.

2.6.2 Technical data

Refer to laminex.com.au for the latest version of the Technical Data Sheet (TDS) for this product.

Section 3: Applications

EnduraFloor by Laminex is suitable for domestic and commercial interior applications
Ⓦ provided it is installed according to the requirements specified in this guide and in AS 1684.2:2021—Residential timber-framed construction—Non-cyclonic areas.

AS 1860.2:2006—Particleboard flooring Part 2: Installation

Ⓦ AS 1884:2021—Floor coverings—Resilient sheet and tiles—Installation practice and,

AS 3740:2021—Waterproofing of domestic wet areas

Do not use EnduraFloor by Laminex for exterior applications.

Ⓦ Do not use standard EnduraFloor by Laminex in areas with termite risk. You must use termite-treated boards.

Identification of the EnduraFloor by Laminex.

Ⓦ For installation face direction, please read details located on the face of the particleboard flooring (this side up or this side down). Required to take photos in order to claim the flooring.

See Laminex Document Library (www.laminex.com.au/for-your-home/document-library).

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Section 4: Tools, equipment and consumables

4.1 Tools and Equipment

This is not an exhaustive list, but it is recommended that the following be checked and available:

- circular saw
- glue gun
- hammer
- nail gun
- stand up power screwdriver or equivalents
- rubber mallet
- measuring tape
- string lines
- pencil
- square
- moisture meter

4.2 Consumables

4.2.1 Adhesives

Use construction grade adhesive specifically formulated for particleboard flooring.

Before laying EnduraFloor by Laminex, flooring adhesive must be applied to floor joists. The approximate amount of flooring adhesive required per pack of EnduraFloor by Laminex flooring is listed below.

	Flooring adhesive required per pack of flooring
Green tongue (19 mm to span 450 mm floor joists) (35 boards per pack)	25 × 300 ml cartridge
Beige tongue (22 mm to span 600 mm floor joists) (25 boards per pack)	20 × 300 ml cartridge

AS 1860.2 Particleboard Flooring – Installation recommendations

The Australian Standard AS1860.2 suggests applying adhesive along the tongue to ensure a snug fit in the grooves, which helps reduce squeaking in the installed floors.

Recommends factory-sealing panels to prevent water penetration. If panels are not factory-sealed or are cut to size on-site, the edges must be sealed with the adhesive used for bonding the panels to the joists.

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4.2.2 Fasteners

Once EnduraFloor by Laminex has been laid onto floor joists it must be fastened using nails or screws. The fasteners used for each joist type are listed in the table below.

If the flooring will be exposed to the weather during construction, all nails must be galvanised, and screws must be cadmium- or zinc-electroplated and finished with yellow irridescent chromate conversion coating Type C in accordance with AS 1789-2003 (R2017) Electroplated coating.

- Nails must be driven flush initially and not purched below the surface until immediately prior to sanding.
- Nailing machines must be adjusted so that the heads of the nails penetrate the surface by not more than 1mm. The use of a flush drive attachement, a chisel drive nail machine or similar is required.

Fastener Type

Joist Type	Fastener Size (mm)	Fastening Method
Hardwood or Cypress pine	50 mm × 2.80 mm nail	Hand hammer
Softwood	55 mm × 3.15 mm nail	
All timber	55 mm × 2.5 mm tee-head or finished head nails	Nail gun
Timber composite	No. 10 × 50 mm, Type 17 countersunk head, self-drilling screws	Screwdriver or stand-up auto-feed screwdriver
Steel	No.10 × 45 mm countersunk self-embedding wing tip screws	Screwdriver or stand-up auto-feed screwdriver
I-Beams AS1860.2 states if particleboard	I-Beam flanges may only be 35mm thick and nials will penetrate through and may not have sufficient holding strength.	Flooring is fixed to I-Beam joists, screws (not nails) should be used.

Screw manufacturing clause

Proprietary screws with self-breaking cutter nibs, to provide clearance in timber that is fixed to metal, are available and are preferred for particleboard flooring (see AS 3566.1 and AS 3566.2). Further advice should be obtained from the screw manufacturer.

Section 5: Site requirements

Before installing EnduraFloor by Laminex, you need to ensure the site complies with the following requirements.

5.1 Timber framing requirements

Timber framing standards specify the requirements that must be met by residential timber structures in Australia. Consult the following standards for more information:

- AS 1684.2:2021—Residential timber-framed construction—non-cyclonic areas (Standards Australia, 2021)
- AS 1684.3:2010—Residential timber-framed construction—Cyclonic areas (Standards Australia, 2021)
- AS 1684.4:2010—Residential timber-framed construction—Simplified—Non-Cyclonic (Standards Australia, 2010c).

5.2 Subfloor requirements

Sufficient subfloor ventilation and clearance must be provided to prevent distortion, decay, and excessive movement of the floor and supporting frame.

For information about subfloor requirements, consult the following sections of AS 1860.2 (Standards Australia, 2006):

- Section 5, Subfloor ventilation
- Appendix B Installation guidelines
- Appendix C Recommendations for subfloor ventilation.

5.3 Floor construction requirements

EnduraFloor by Laminex can be used to construct platform floors (where boards are laid over the entire joist area) or fitted floors (where boards are fitted around walls).

5.4 Termite protection requirements

Termite treated MR EnduraFloor by Laminex must be used in regions with termite risk.

Ground clearance requirements must also be followed according to the requirements of The BCA and AS 3660.1: Termite Management.

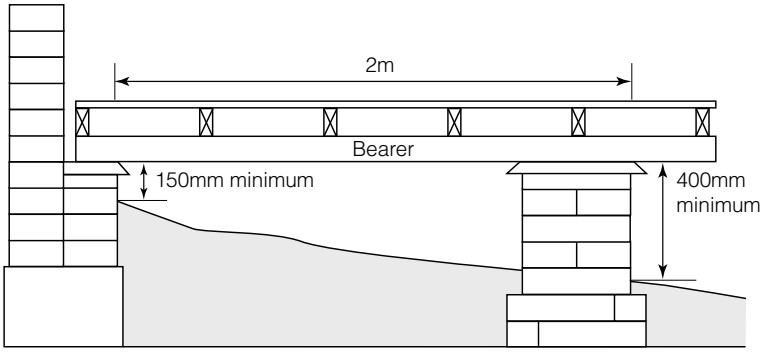

Figure 5.4.1: Minimum ground clearance requirements

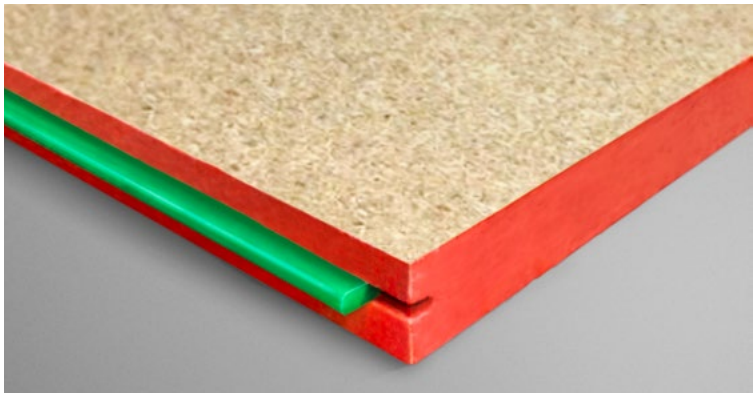

Figure 5.4.2: Termite treated Particleboard Flooring with red wax for identification.

The relevant section of this standard AS 3660.1.2014 3.2 (c) (ii):

EnduraFloor by Laminex H2 Particleboard Flooring is treated with Permethrin, a preservative treatment that protects against termite damage in accordance with AS/NZS 1604.2:2021.

Preservative-treated timbers in accordance with AS (AS/NZS) 1604 (series) and specified for the appropriate hazard level in accordance with Appendix D.

NOTE: Where preservative-treated timbers are cut, notched, or planed, the affected surface must be treated with a suitable remedial preservative.

Additionally, buildings must comply with the requirements specified in section 6 Subterranean Termites of AS 1860.2-2006 Particleboard flooring - Installation.

Section 6: Installation

6.1 Inspecting particleboard

- Particleboard must be inspected to ensure it is suitable for installation.
- Check each board to ensure they have not been damaged.
- Check whether the particleboard is termite treated, if necessary for the project.
- Ensure the correct thickness boards for the joist spacing on site.

6.2 Onsite storage:

EnduraFloor by Laminex must be stored for at least one week (where possible longer) prior to installation to allow the boards to adjust to site conditions. Packs must be stored flat and protected from weather and other sources of moisture. Place them on timber bearers or slats spaced approximately 450 mm apart and cover them with waterproof material such as plastic sheeting.

EnduraFloor by Laminex is capable of withstanding general weathering for up to 5 months from delivery to site. Less exposure, however, is recommended. EnduraFloor by Laminex will expand and contract as sheets respond to changes in atmospheric moisture. Excessive moisture including pooling on the surface where wall plates are fitted, soaking rains where the surface is not maintained by sweeping of excess water or pilot holes (as per the AS1860.2-2006) is not considered within general weathering. Allowance for the movement must be made throughout the floor area by providing gaps and special joints as appropriate to accommodate sheet expansion.

6.3 Expansion gaps

An expansion joint is a 20mm gap in flooring sheets located above a wide (50mm minimum) or double joist. Leave a 1–2 mm expansion gap per metre of room dimension (minimum 10mm) around the perimeter, usually covered by skirting. For floor areas over 6 metres wide, provide an expansion joint on a double joist and additional intermediate expansion joints within the platform (Extra joist area is necessary so that sheet ends can be properly fixed while still allowing the 20mm gap).

The joint may be covered by a metal or plastic moulding, screwed into the joist, or partitioning may be located over the joint. Spacing of expansion joints should be between 10 and 20m with the final decision depending upon the assessment of whether:

- the floor is elevated or on ground level
- the area is air conditioned
- it is a tropical region (coastal area, north of 27th parallel)
- what moisture variations are likely in the flooring

6.4 Installing particleboard floors

Ⓦ Flooring must be installed as per Australian Standard 1860 “Installation of Particleboard Flooring”

Particleboard flooring sheets must be installed with their long sides across the floor joists and butt the ends over a joist. Stagger the end joints (as shown in Figure 6.4.1) to prevent gaps caused by the slight rounding of sheet corners when four corners meet.

String Lines should be used to ensure the first run of flooring is straight as all other boards will follow.

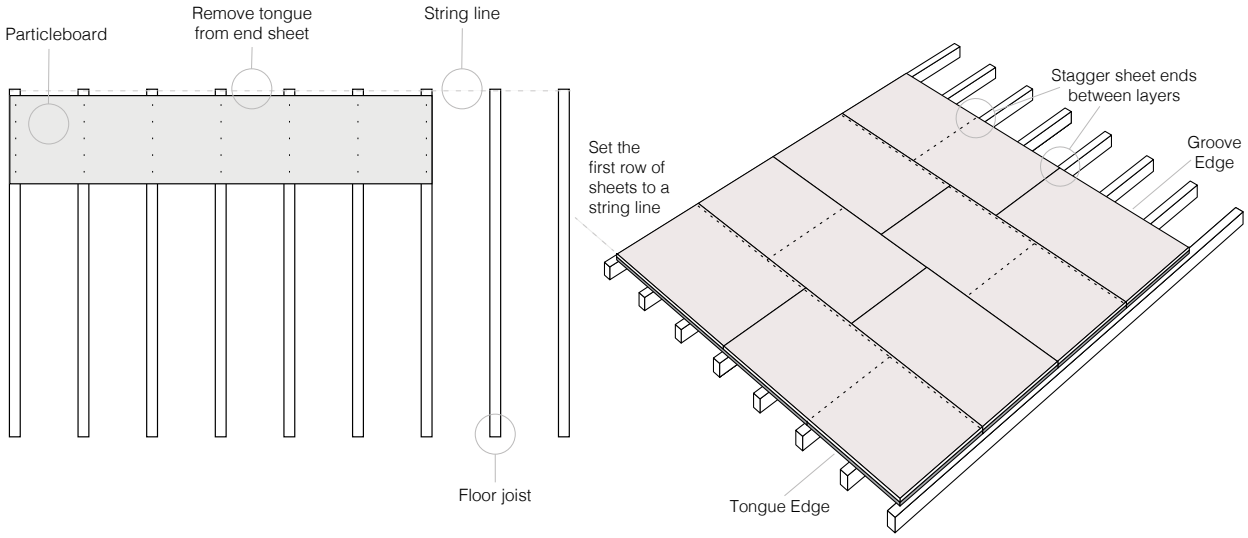

Figure 6.4.1: Position of the string line and first board perpendicular to the floor joists.

For Fitted Floors

Ensure there is a continuous clear 10mm expansion gap between the wall and floor. The tongue can be removed to ensure the expansion gap is clear.

For Platform Floors:

Place a string line perpendicular to the joists, ensuring the cavity gap is maintained un-hindered, allowing also for floor expansion.

Remove the tongue from the first run of boards to be installed against the wall or platform edge. This enables a block and hammer or floor leaver to be used to position the board once adhesive is in place, on the groove side of the board.

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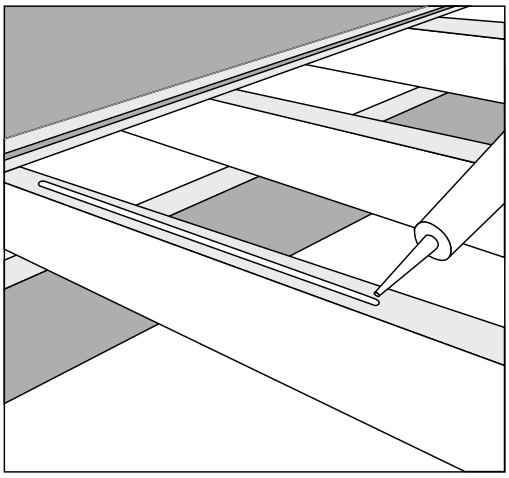
Adhesive fixing



Adhesive fixing ensures a rigid floor, and using construction adhesive with nails or screws is mandatory. For cartridge systems, cut the nozzle to a 5mm bead diameter; for foam systems, regulate the flow to achieve the same. Clean surfaces of dirt, grease, or water before bonding.

Apply a continuous 5mm bead of adhesive to each joist covered by flooring, with two beads where sheets butt together. Adding an extra bead along the tongue before pressing sheets together helps achieve a squeak-free floor. Clean off any excess glue.

Place the board so that the tongue edge is facing the stringline. The side edge is 10 mm from a perimeter and supported by at least 12 mm of floor joist, at the wall edge.

To seal cut edges, apply a bead of adhesive to the edge, butt it firmly against the adjoining sheet, and remove excess adhesive. Alternatively, spread the adhesive over the cut edge with a spatula.

Screw/Nail fixing:

Floor joist spacing of 450mm or 600mm centre to centre and the 3600mm full sheet size ensures the flooring will always sit centrally on the last joist, with correctly spaced floor.

Using an appropriate fastener (refer to section 4.2.2 for more details) fix the board to the supporting joists and trimmers at:

- Not greater than 300 mm centres for fasteners in the middle of the board.
- Not greater than 150 mm centres for fasteners at the ends of the board.

Fasteners (nails or screws) must be no closer than 10 mm to the end of the board. string lines can be employed to ensure accuracy of fastener placement into the joists.

Nails must be skew driven for strength.

Do not punch hammer-driven fasteners beneath the surface until immediately prior to sanding, once the structure is weather tight.

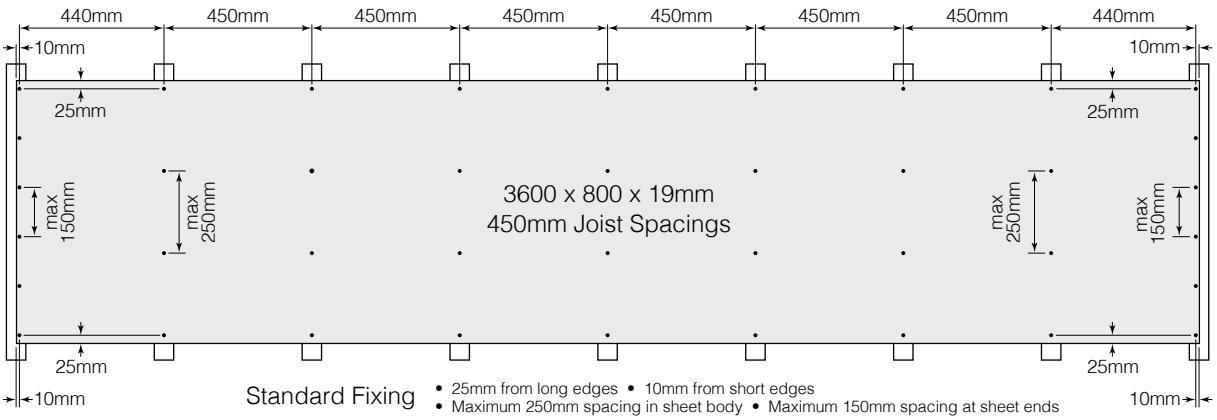


Figure 6.4.2: Fastener locations

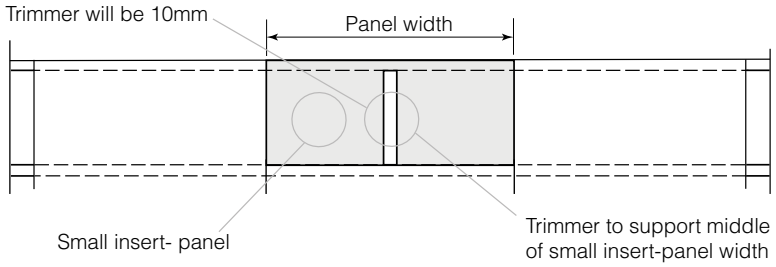
Process continues:

Once the first board is positioned accurately on the joist with adhesive in place and fastened to prevent movement, the next board should be placed into position, glued, and fastened as before.

Continue this process until the row is completed. Ensure the expansion gap is maintained at all edges.

If the final board in the row leaves only a span between two joists, then the second last board must be shortened by one span to ensure that all boards are supported by at least three floor joists.

Alternatively, boards that can only be supported by two floor joists must be additionally supported by trimmers measuring no less than 70 mm (W) × 35 mm (H) fixed between the floor joists, supporting the middle of the panel to prevent bowing.



If you need to cut the board, mark the cut using a pencil and square, ensuring that the ends of the board can be supported by at least 12 mm of floor joist. Square cuts are essential.

The second row should commence with a cut panel to achieve a staggered join pattern as below.

Again, the first board must span at least two spans. The off cut from the first row can be used if the minimum size requirement is achieved.

Place the board on the joists with the tongued edge facing the groove of the board in the previous row. Align with the left edge of the first board of the previous row. The adhesive must be applied to the joist and if required into the groove of the previous row.

Insert the board with the tongue into the previous row. Using a piece of timber along the length of the grooved edge of the board, hammer the piece of timber using a rubber mallet or use a floor lever to drive the boards together.

Ⓦ Do not the hit tounge or groove side directly with the mallot or hammmer. This will damage the tongue and groove system.

Claim arising with the damage of tongue and groove system is not covered in warranty.

Staggered board joints are required to reduce the impact of board expansion and should resemble an interlocked brick pattern

Repeat this process to complete the floor installation.

Where platform floor requires a 20mm expansion gap over a double joist, the laying pattern should stop and re start at this point. Refer to section 6.6 Platform Floors for more information.

Maximum raft size

For continuous floor widths over 6m, measured at right angles to flooring edges, intermediate expansion joints must be provided in addition to the perimeter gaps.

CAUTION: **DO NOT** underestimate the requirement to adhere to these requirements as the flooring is capable of moving walls if insufficient control joins are employed.

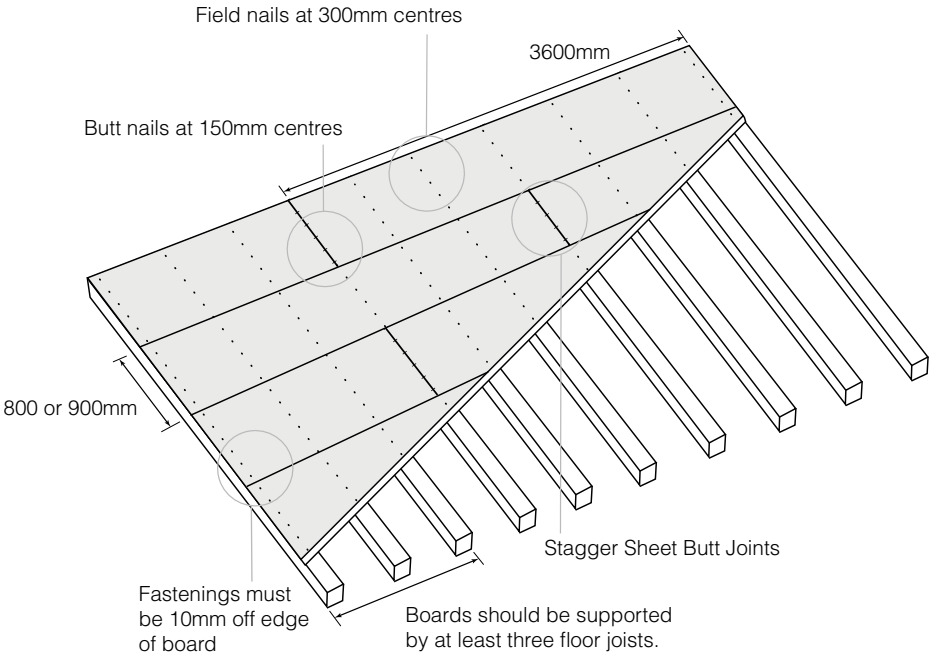


Figure 6.4.3: Fastener locations and staggered sheet example

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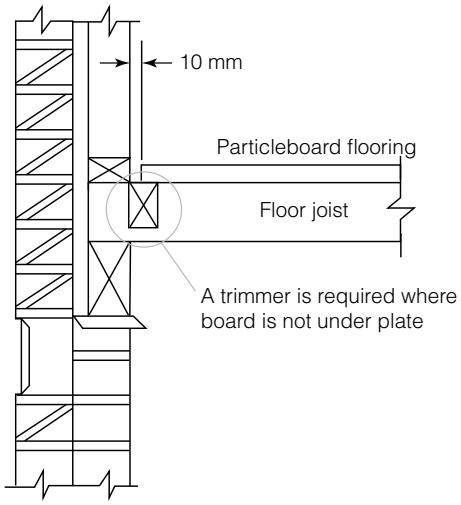
6.5 Fitted floor Construction

Fitted floor installation involves laying flooring over floor joists so that it fits around the shape of installed internal walls. This type of floor is usually installed after the walls and roof have been completed.

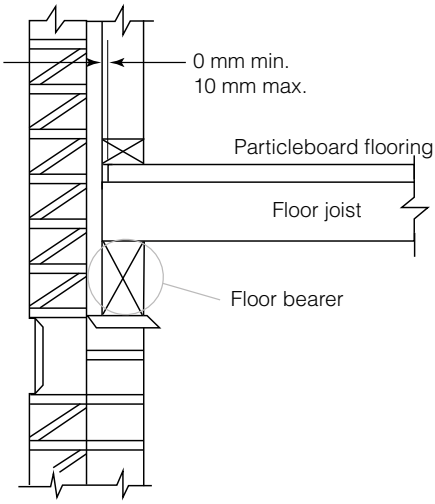
Fitted Floor



6.6 Platform floor Construction

In platform construction, align the sheet edges at the building perimeter with the external wall frames' outside edges. Lay wall plates over the product and secure them through the sheets to the joists. Install flooring on the floor joists across the entire floor area before erecting the wall and roof framing.

Platform Floor



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6.7 Installing Double Layered floors

Inspect the site conditions to ensure that the first layer is sound, dry and level.

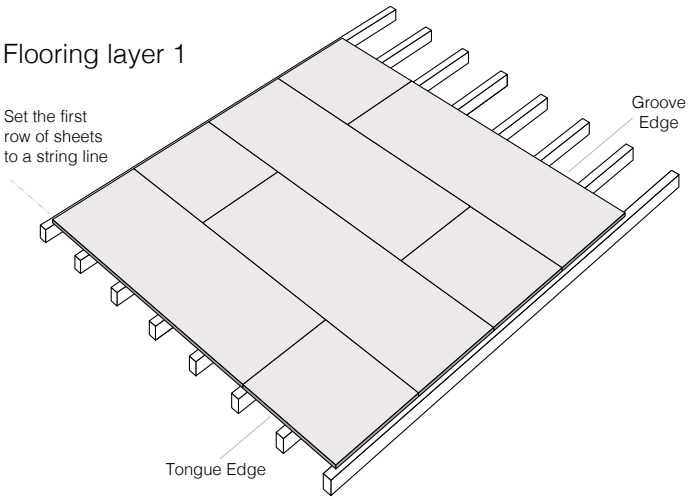
Independent engineering required to ensure the load bearing is meeting the site requirements.

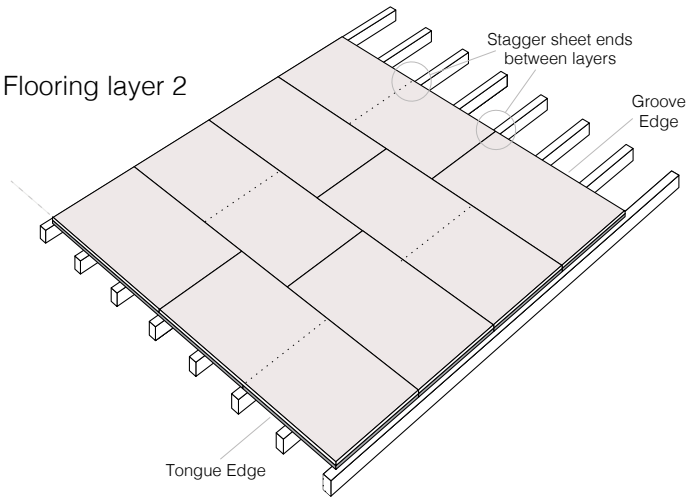
When installing the second layer, the first sheet is usually cut in half lengthwise, so that the joins are completely overlapped.

The end joins also must be separated in the same manner, so overlaps are achieved in both directions, using a different joist for the end fixing position.

The sheets must be screw fixed where the joists are located, the screw fixing should be long enough to penetrate the joists by approximately 30mm.

Adhesive should also be applied at joist spacing, and on the tongues to reduce floor noise.





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Section 7: Protecting installed particleboard

EnduraFloor by Laminex must be protected from weather as soon as possible after delivery to site. As advised by Australian Standard 1860.2, the maximum period of exposure to the elements of the floor should be no longer than 5 months from delivery to site.

Ideally, this protection is provided by the roof and external wall cladding. Where this is not possible or additional work is required, the following requirements must be met:

- Pooled water on the floor surface must be removed as soon as practicable
  - It can be swept from the surface periodically
  - 3mm diameter holes can be drilled where water accumulates, not closer that 1m apart
  - Ensure the hole is free draining, avoiding the joists
- The general effects of weathering on the wood fibre and resin system will be evident but not damaging to the structural integrity of the floor. Exposure to excessive moisture, including extreme or ongoing wet weather periods, pooled water left on the surface of the boards, or failure to protect packs of particleboard flooring prior to installation are not considered 'weathering'. These conditions may impact the surface condition and the performance of the product. It is possible that extremely hot sunny conditions may rapidly dry the moisture profile of the board causing cupping to the panels. This may result in fixings pulling through the board surface or lifting nails out of the joists
- If the board shows signs of cupping in very hot conditions or has been soaked by rain, then exposed to hot dry conditions you must take steps to maintain a more even moisture gradient by:
  - shading the exposed floor to reduce the heat impact of the sun or,
  - wetting the surface of the boards to slow the drying process.
- If the surface of the flooring is to be used as a decorative surface, then exposure to weather should be avoided.

Ⓦ Contact Laminex if the particleboard has been exposed to weather for more than three months. Boards should perform satisfactorily provided expansion gaps and expansion joints have been included in the installation.

Do not exceed the maximum 5 months exposure time from delivery to site.

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Mould Growth

Wood fibre used in the manufacture of particleboard will not support mould growth when dry. Mould grown on floor panel prior to the building being waterproofed will not damage the integrity of the boards, however, must be cleaned off prior to the building being completed.

Mould will only grow on the surface of timber where the moisture content is approximately 26% above and remains damp for a prolonged period. Dry surface will not continue to support mould growth.

Precautions

The key to managing mould growth is to remove water from the area. Protecting timber products from prolonged un-drained water and achieving a weather tight structure are important.

It is the responsibility of the builder to achieve a weather tight structure to protect the building fabric within a 3-month period as advised in AS 1830.1.

Section 8: Finishing

8.1 General surface finishing

Ⓦ EnduraFloor by Laminex must be dry before installing additional floor coverings, with moisture content between 10% and 14%. Boards protected from wet conditions during installation should meet this range.

Drying particleboard flooring

Use a moisture meter to check that moisture levels are between 10 and 14%.

A minimum of three tests must be performed for the first 100 m^2 followed by at least one test for each additional 100 m^2.

If the moisture content is not between 10 and 14%, protect the boards and leave the floor to dry until the moisture content is within this range.

Do not dry boards by force (e.g., using fans or gas burning space heaters). This can cause cupping. Boards should be protected from the weather and allowed to dry.

If moisture is dried out rapidly from the floorboard surface, the moisture gradient through the board can be affected and can cause it to cup. This may be the case if the floor is exposed to very hot sun after the board has been soaked by rain. If this is the case, then steps should be taken to maintain approximately uniform moisture content through the particleboard thickness:

- this can be done by shading the floor to slow drying
- re-wetting the board periodically to prevent the surface from shrinking

If during the drying process, gaps appear, then these gaps can be filled with a flexible sealant once the finishing process has been completed, not before.

Mould & Mildew

Mould growth is only supported on timber structures when the fibre is generally above 26% moisture content.

The growth feeds on available sugars but does not affect the structure of the timber itself. Once installed, dry mould growth will cease. Residual spores can be treated although growth should only re-occur if moisture levels were to increase.

The presence of mould does not mean the floor is damaged. Once the building is closed to the weather, the EnduraFloor by Laminex will dry, and growth will cease as the organism will not be able to survive. Spores can be chemically treated however growth is not possible when the floor is returned to a dry stable environment.

8.2 Levelling particleboard

Ensure EnduraFloor by Laminex has no cracks, dusting, rain damage, efflorescence, or blistering before installing additional floor coverings.

Place a 150 mm straightedge on a section of the installed boards.

Check that the surface below the straightedge is no more than 0.5 mm below the bottom of the straightedge at any point.

If minor changes in the surface level are observed, sand the boards level. Do not remove more than:

- 2 mm within 50 mm of any supported edge
- 1 mm over the remaining board area

8.3 Replacing particleboard

Ⓦ EnduraFloor by Laminex must not have cracks (small or large), dusting, rain damage, efflorescence or blistering before the installation of additional floor coverings.

If flooring has been damaged during construction and requires replacement, a section of flooring can be cut out and replaced. It is important that the replaced section and the remaining section of flooring span at least 3 joists.

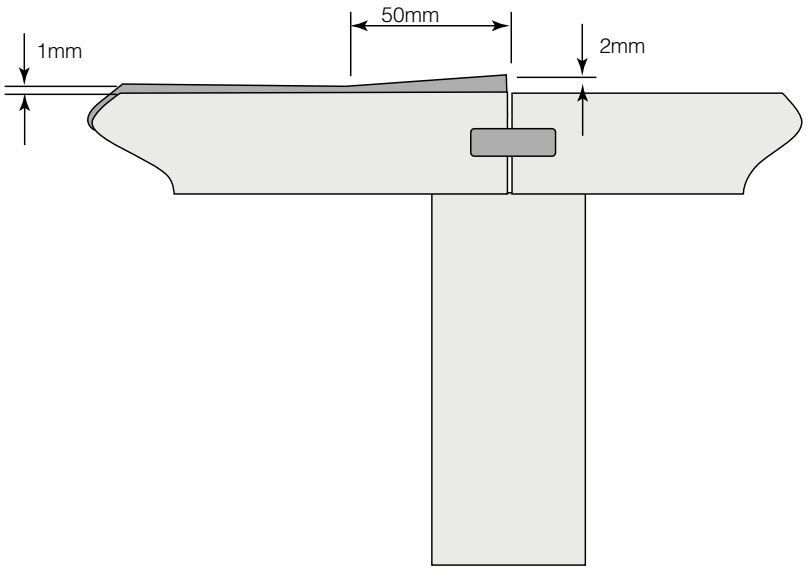
Ensure the joists are not cut into when removing the flooring.

As the tongue will no longer be in use, the unsupported edges of the flooring must be supported by cleats affixed to the underside of the floor.

Additional trimmers can be added between joists for support, if 3 joists are not covered.

Flooring adhesive should also be used to reduce the possibility of floor squeak.

8.4 Sanding particleboard



For Carpet Installation:

Punch any exposed nails flush or below the surface.

Countersink any exposed screws flush or below the surface.

Fill any holes with putty that allows for some movement when set.

Spot sand any rough or uneven areas using 40–60 grit closed coat sandpaper. Do not remove more than 2 mm within 50 mm of any supported edge or 1 mm over the remaining board area. Only use 40–60 grit closed coat sandpaper. Rough or uneven areas are usually caused by weather exposure. Full floor sanding may be necessary if the particleboard has been exposed to prolonged rain.

Complete the particleboard surface finishing procedures by cleaning the particleboard.

For Floor Coverings Other Than Carpet:

Punch any exposed nails flush or below the surface.

Countersink any exposed screws flush or below the surface.

Fill any holes with putty that allows for some movement when set.

Choose the appropriate sanding method:

- for particleboard exposed to weather, sand the entire surface using 60–80 grit closed coat sandpaper, then again using 100 grit closed coat sandpaper
- for particleboard not exposed to weather, sand the joints using 80–100 grit closed coat sandpaper

Complete the particleboard surface finishing procedures by cleaning the particleboard.

8.5 Surface finishing for wet areas

Please note: Waterproofing standards have changed. Particleboard flooring is no longer permitted for use as part of a waterproof system per NCC 2022 Vol 2 on it's own, and must be used in combination with a CFC sheeting.

Users must satisfy themselves with the relevant Australian Standards and NCC before employing particleboard flooring in wet areas.

EnduraFloor by Laminex floors installed in wet areas must be finished by:

- completing the particleboard surface finishing procedures
- sealing board joints

Waterproofing is not covered by the EnduraFloor by Laminex warranty. Laminex bears no legal responsibility for damage caused by incorrectly installed wet areas.

- For information about waterproofing wet areas see:
  - AS 1860.2-2006 Particleboard flooring – Installation
  - AS 3740:2021 – Waterproofing

8.6 Finishing for resilient sheet and tile flooring

EnduraFloor by Laminex floors installed in areas where resilient sheet and tile flooring will be laid must be finished by:

- filling all joints with a rubber filler
- completing the surface finishing procedures
- installing an underlay

Once these steps have been completed, you can install resilient sheet and tile flooring.

Installation of resilient sheet and tile flooring is not covered by the EnduraFloor by Laminex® warranty. Laminex bears no legal responsibility for incorrectly installed resilient sheet and tile flooring.

For information about resilient sheet and tile installation requirements, see AS 1884 AS 1884-2021: Floor coverings.

For tiled floors we recommend the use of Fire Cement sheeting. This is particularly important in wet areas where the natural movement of the wood fibres can lead to cracking of grouting and the moisture membrane.

Before you begin

The following equipment is required:

- rubber filler
- underlay
- 150 mm straightedge

To finish particleboard flooring for a resilient sheet and tile flooring installation:

1. Complete the particleboard surface finishing procedures.
2. Fill all board joints and all screw and nail holes with rubber filler.
3. Install the underlay. You can install:
   - hardboard
   - high-performance medium-density fibreboard
   - plywood
   - fibre-cement board
   - other underlay that is specifically designed for timber composite flooring

   Do not install resilient sheet and tile flooring directly onto particleboard. Particleboard flooring requires an underlay.

   Follow the manufacturer's instructions and particleboard underlay requirements as per AS 1884-2021: Floor coverings.
4. Check that joints are flush with the floor surface using a 150 mm straightedge. Underlay joints that are not smooth may show through resilient sheet coverings.
5. Sand any raised joints until they are flush with the underlay surface. Once these steps have been completed you can install resilient sheet and tile flooring.

Section 9: Safe Load Tables

9.1 Concentrated Load (kN)

$k_1 = 1.65$, $j_2 = 1$

Particleboard thickness mm	Span						
	300	350	400	450	500	600	700
19	3.3	2.7	2.6	2.5	2.1	1.4	1.1
22	4.8	4.1	3.5	3.3	3.2	2.1	1.8
25	6.7	5.7	5.0	4.3	4.2	3.1	2.6

Table 1: Allowable concentrated live loads (kN), with the maximum permissable deflection Span / 200 or 3mm (whichever is greater).

Particleboard thickness mm	Span						
	300	350	400	450	500	600	700
19	3.3	2.7	2.6	2.1	1.5	0.9	0.8
22	4.8	4.1	3.5	3.2	2.6	1.5	1.2
25	6.7	5.7	5.0	4.4	4.0	2.4	1.8

Table 2: Allowable concentrated live loads (kN), with the maximum permissable deflection Span / 300 or 2mm (whichever is greater).

9.2 Uniform distributed Load (kPa)

$k_1 = 1$, $j_2 = 2$

Particleboard thickness mm	Span						
	300	350	400	450	500	600	700
19	18.2	13.4	10.2	8.1	6.5	4.5	3.1
22	24.4	17.9	13.7	10.8	8.8	6.1	4.5
25	31.5	23.1	17.7	14.0	11.3	7.9	5.8

Table 3: Allowable UDL (kPa), with the maximum permissable deflection Span / 200 or 3mm (whichever is greater).

Particleboard thickness mm	Span						
	300	350	400	450	500	600	700
19	18.2	13.4	10.2	8.1	6.5	3.5	2.0
22	24.4	17.9	13.7	10.8	8.8	5.5	3.2
25	31.5	23.1	17.7	14.0	11.3	7.9	4.6

Table 4: Allowable UDL (kPa), with the maximum permissable deflection Span / 300 or 2mm (whichever is greater).

Note:

1. Linear interpolation is permitted.
2. Design data given in the Tables relates to performance under static bending. Experience shows that the dynamic effects of walking are satisfactory for 19mm particleboard over joists at 450mm spacing and 22mm flooring on 600mm joist spacing. Caution should be exercised in selecting spans above 600mm because of lack of knowledge about dynamic response.
3. Safe Loads in the Tables apply to Particleboard Flooring below 13 % moisture content. Moisture content would be expected to exceed 13 % if the floor is subjected to climate conditions in excess of 85% relative humidity for long periods of time.

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4. The above requirement (3) precludes the use of particleboard flooring in commercial applications where it will be exposed to the weather. The building must be enclosed before fixing particleboard flooring.
5. If concentrated loads act on areas less than 100x100mm (say 25x25mm) then allowable loads will be 10% to 20% lower, based on bending calculations. However punching shear considerations may require larger bearing areas.
6. Please refer to the EWPAA Particleboard Structural Flooring Design Manual for additional information.

Additional Requirements

The following additional requirements should be noted:

For concentrated loads higher than 3.0 kN or Uniformly Distributed Loads higher than 7 KPa, Close Fixing should be used; And

All sheet edges must be supported by joists or nogging.

In Addition if Concentrated Loads are higher than 3.5 kN, fixing shall be by screws (plus adhesive) only.

When all edges must be supported it may be more economical to use the larger square edge sheets (3600 x 1800mm) than the usual T & G sheets.

Punching Shear

If concentrated loads act on a small bearing area, there may be a risk of punching the load point through the particleboard sheet. This is termed Punching Shear.

Below table gives Safe Concentrated Loads assuming maximum spans for each board thickness. Support dimension is diameter for circular supports or the side for square supports.

If design involves small support sizes and loads higher than those given in table below, pads should be placed under the load point. A guide to pad size required can be obtained from table below.

Support Size (mm)	Board Thickness (mm)		
	19	22	25
25 x 25	2.5	2.8	3.0
50 x 50	3.2	3.8	4.0
100 x100	5.5	7.5	8.0

Table 5: Safe Concentrated Loads for punching shear maximum load kN.

Double Layers

Allowable Loads for double layers can be obtained by adding together the Allowable Loads for each individual layer from Tables 1-4 as appropriate. This is a conservative approach, but installation procedures to achieve composite action from the two layers are complex and difficult to verify and long term behaviour too is uncertain.

The additional fixing and support details of the Additional Requirements Section are required at Concentrated Loads higher than 6 kN or Uniformly Distributed Loads higher than 20 kPa. In this case the bottom sheet only requires screw fixing and full support on all edges.