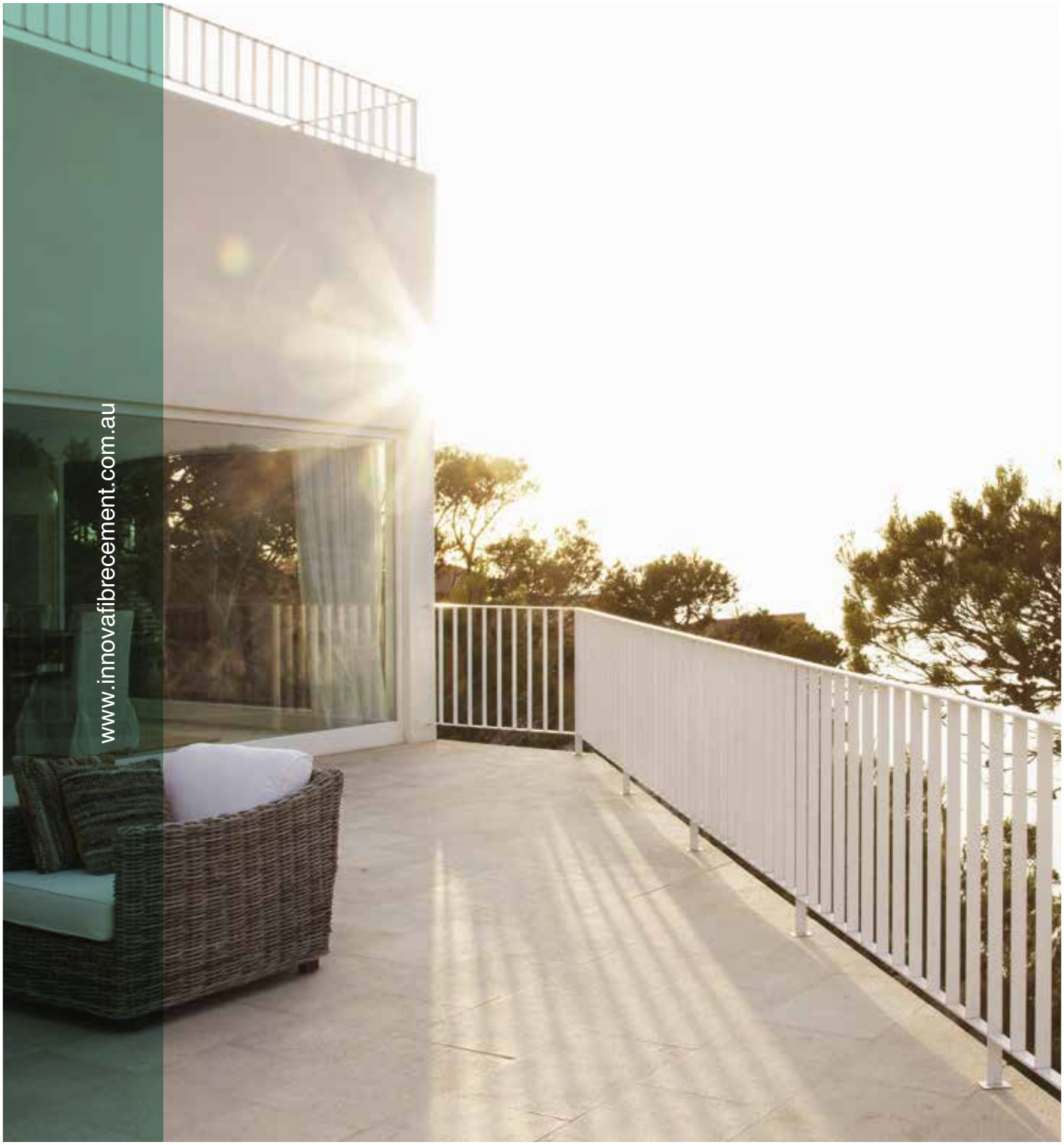
Technical brochure
August 2024

innova™

DURAFLOOR™
FLOORING SYSTEM



innova™
INNOVATIVE BUILDING SYSTEMS

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Innova™'s stunning range of facade, lining and flooring products, we will move you to reassess your concept of excellence in facades and flooring systems. Durable and dynamic, fresh and contemporary, Innova™ is already turning industry heads. Now let the Innova™ range of cladding and flooring products breathe new life into your creativity and project specification.

Contents

DURAFLOOR™
FLOORING SYSTEM

Durafloor™ is the ultimate flooring product that can be used in both interior and exterior applications. Durafloor™ is ideally suited to interior dry and wet areas as well as exterior projects.

- Easily installed using traditional gun nailing methods or screw fixing.
- Reduces installation costs compared to standard compressed sheet.
- Uses same tongue and groove technology as traditional sheet flooring such as Structaflor®.
- Has greater impact resistance and feels more solid than timber based sheet flooring products.

- Can be used in Interior dry and wet areas.
- Bathrooms
- Laundries

- Can be used in Exterior applications
- Balconies
- Verandahs
- Sundecks
- Or as a total floor solution where a premium product is required.

Case Study 01.

Project Name: **Terraces on Central** Location: **Labrador, QLD**
Builder: **SPS Building Contractors**

Applications

Durafloor™ is the perfect product to use for interior dry and wet area projects such as bathrooms and laundries but is also ideal for use as the substrate for a variety of exterior applications such as above-ground pool surrounds, verandahs and balconies.

Advantages

/ A single product for interior and exterior projects
/ Tongue and groove system that fits well with particleboard flooring products
/ Easily installed using traditional gun nailing methods reducing installation costs
/ Has greater impact resistance and feels more solid underfoot than timber-based sheet flooring products

Product Information

Durafloor™ is manufactured from cement, finely ground silica, cellulose fibres and water. After forming it is then cured in a high-pressure steam autoclave to create a durable, dimensionally stable product.

Durafloor™ is immune to permanent damage from water. It is impact resistant, immune to termite attack, non-combustible and easy to work.

Durafloor™ is manufactured to conform to the requirements of AS2908 Cellulose Cement Products, and is classified as Type A Category 3 for external use.

Fire Resistance

Innova Fibre Cement products have been tested in accordance with Australian Standard AS1530.3.

These tests deemed the following Early Fire Hazard Indices:

/ Ignition Index 0
/ Spread of Flame Index 0
/ Heat Evolved Index 0
/ Smoke Developed Index 0-1

Durafloor™ is deemed to be non-combustible in accordance with NCC section C1.12.

Energy Efficiency Considerations

Durafloor™ has a low R value and architects may need to insulate the walls and include thermal breaks to meet NCC requirements. The amount of insulation will be dictated by the climate zone and design of the building. Our EPDM foam gasket meets the NCC requirement of not less than RO.2 for thermal breaks in all situations.

Quality Systems

Durafloor™ is manufactured under the rigorous Quality Management System of the International Standard ISO 9001.

Sheet Sizes and Weight

NOMINAL THICKNESS mm	WEIGHT kg/m^2	WIDTH mm	LENGTH mm		
			2250	2400	2700
19	26.2	600	✓		✓
22	31.5	600		✓	

Weight is based on Equilibrium Moisture Content.

Sheet Properties

DENSITY	1300kg/m^3
FREEZE-THAW TEST	Passed
WARM WATER TEST	Passed
SOAK AND DRY TEST	Passed
WATER PERMEABILITY	Passed
BENDING STRENGTH	Greater than 7MPa at Saturated condition

Sheet Tolerances

Durafloor™ complies with the requirments of AS2908.2.

Durability

The physical properties of Durafloor™ make it a very durable product.

/ Durafloor™ panels will not rot or burn and are unaffected by termites, air, steam, salt and sunlight
/ Durafloor™ panels are not adversely affected over a temperature range of 0°C to 95°C

Handling and Storage

Durafloor™ must be stacked flat, up off the ground and supported on equally spaced level bearers at 450mm centres.

Durafloor™ must be kept dry, preferably by being stored inside a building. When stored outdoors it must be protected from the weather.

Care should be taken to avoid damage to the ends, edges and surfaces.

Durafloor™ must be dry prior to fixing, jointing or finishing.

Cutting and Drilling

Durafloor™ can be cut to size on site. Either Tungsten Carbide or Diamond tipped tools are generally required.

For straight cuts Innova recommends the use of a Durablade fitted to a 185mm circular saw, with a full dust extraction system.

Health and Safety

Durafloor™ sheeting is manufactured from cellulose fibre, finely ground sand, cement and additives. As manufactured the product will not release airborne dust, but during drilling, cutting and sanding operations cellulose fibres, silica and calcium silicate dust may be released.

Breathing in fine silica dust is hazardous and prolonged exposure (usually over several years) may cause bronchitis, silicosis or cancer.

Avoid Inhaling Dust

When cutting sheets, work in a well-ventilated area and use the methods recommended in this literature to minimise dust generation.

If using power tools for cutting, drilling or sanding they must be fitted with appropriate dust collection devices or alternatively use an approved (P1 or P2) dust mask and wear safety glasses.

These precautions are not necessary when stacking, unloading or handling fibre cement products.

For further information or a Material Safety Data Sheet contact the nearest Innova Sales Office.

Holes

For small holes a well-sharpened Tungsten Carbide masonry drill is recommended. Use a slow drill speed.

Do not use the drills hammer function.

For larger circular holes such as waste holes a Tungsten Carbide or diamond tipped hole saw is recommended.

Alternatively, drill a series of small holes around the perimeter of the cut-out, and then gently tap out the waste piece while supporting the underside of the opening to avoid damage. Clean up any rough edges with a rasp.

Fasteners

Durafloor™ to Timber Frame

Powers Muro M1063 - 10g x 50

Paslode Deckfast Galvanised Screw 2.8 x 50mm

All fasteners to be corrosion resistant-Class 3 minimum.

Fasteners

Durafloor™ to Steel Frame

Buildex Wingtek Screw 10g x 16 x 40

Powers Muro M1024 CSK Screw - 8g x 42

Or similar

Wet Area Tiled Floors

Durafloor™ is ideally suited as a substrate for ceramic tiled floors in the wet areas such as bathrooms and laundries.

General

All waterproofing of internal wet areas must be carried out strictly in accordance with Australian Standards AS 3740-2010.

This manual does not contain all information relevant for waterproofing and is to be used as a guide only. It is the responsibility of the specifier to carry out all the necessary design and detailing to ensure the waterproofing and finish satisfy all relevant codes, regulations and system waterproofing manufacturer recommendations.

Framing

Durafloor™ can be fixed to either timber or lightweight steel framing.

Timber framing must comply with AS 1684 “Residential Timber Frame Construction”. Unseasoned timber must not be used.

Metal framing must comply with AS3623 “Domestic Metal Framing”.

Innova recommends sheets to be laid with the long edge across the joists (Figure 2).

Joist spacing must not exceed 450mm maximum centres for 19mm Durafloor™ or 600mm for 22mm Durafloor™.

In all cases a floor joist must support the sheet end.

For all applications the joist face width must be no less than 45mm min.

DURAFLOOR™ NOMINAL THICKNESS mm	MAXIMUM JOIST CENTRES mm
19	450
22	600

Loading

Durafloor™ satisfies the loading requirements of AS/NZS1170.1 Table 3.1 Category A Domestic and Residential Activities Concentrated Loads 1.8kn @ UDL of 4KPA.

For higher load applications, Compressed Flooring is recommended. Please contact your local Innova Fibre Cement office for further details, or refer to the Compressed Flooring brochure.

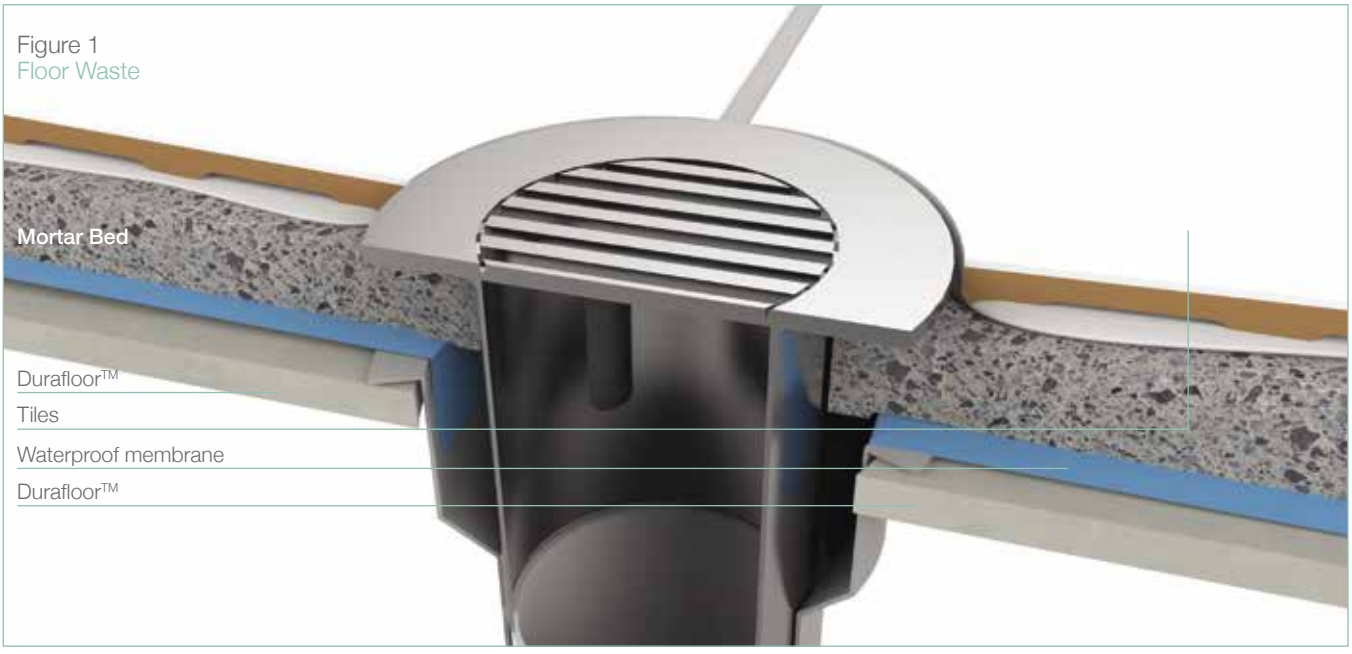
Floor Drainage

In wet areas lay mortar bed (screed) at a minimum depth of 25mm over the Durafloor™ to produce a minimum 1:60 fall to the waste drain.

Figure 1 depicts a typical floor waste installation showing the waterproof membrane carried down into the fitting. The inner pipe is slotted to allow drainage of the mortar bed (screed).

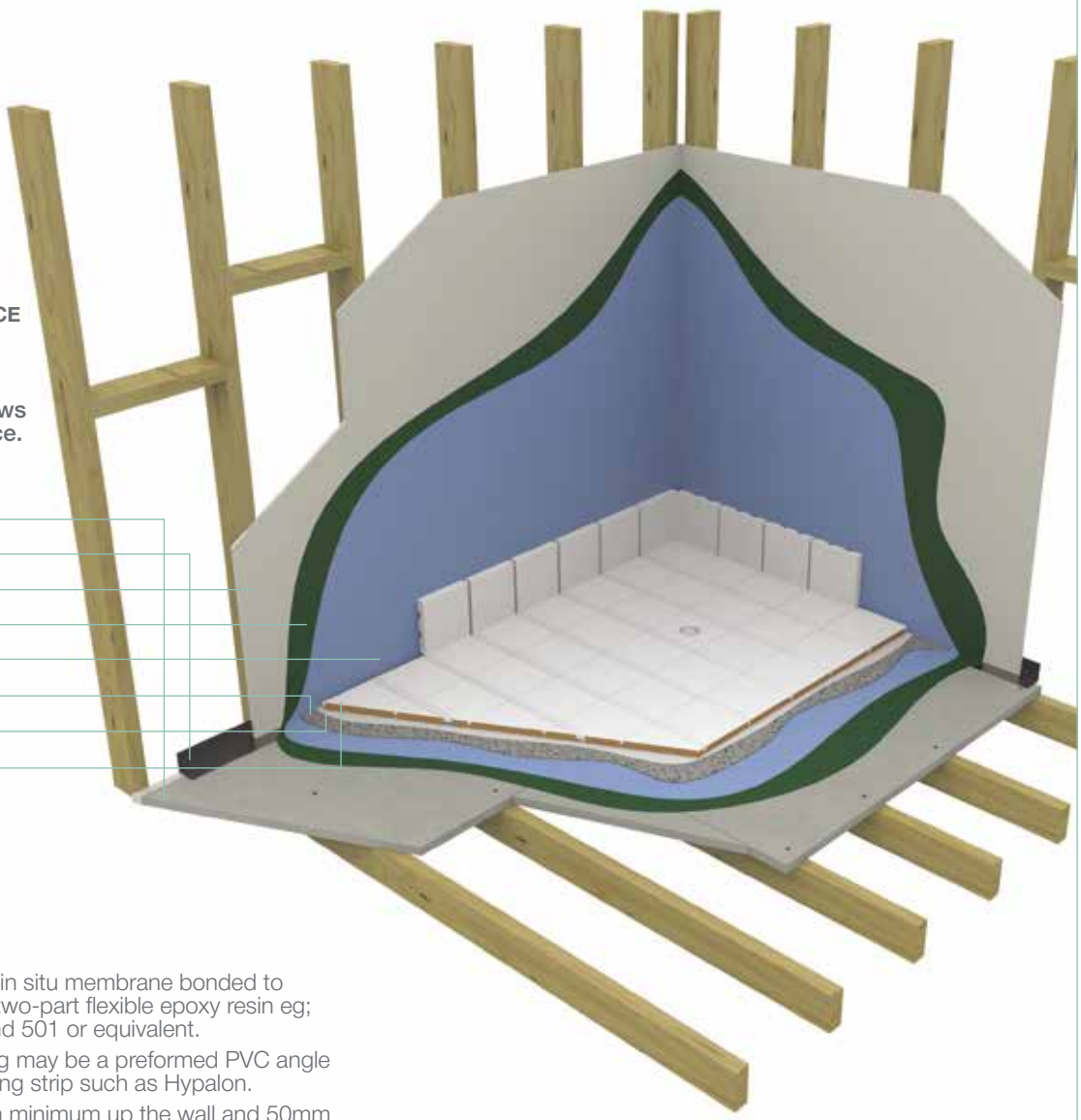
Floor Waste Sketch

Figure 1
Floor Waste



Tiled Shower Base Recess

Figure 2
Wet Area



ENSURE COMPLIANCE WITH THE NCC AND AS3740-2010

Notation order follows installation sequence.

NOTE 2.1
Perimeter flashing or in situ membrane bonded to Durafloor™, using a two-part flexible epoxy resin eg; Megapoxy, Hydraband 501 or equivalent.

The perimeter flashing may be a preformed PVC angle or a waterproof flashing strip such as Hypalon.

It must extend 80mm minimum up the wall and 50mm across the floor. The corner detail must be waterproof.

The flashing or membrane must not be bonded to the wall studs.

NOTE 2.2
An additional wall nogging must be installed so that the bottom of the Duraliner™ Plus is fastened above the perimeter flashing.

NOTE 2.3
Durafloor™ must be laid across the floor joists as shown.

NOTE 2.4
Lay primer and then lay waterproof membrane over Durafloor™ at a minimum of 150mm upstand of the perimeter flashing.

The membrane must be dressed into the floor waste. (See figure 1).

NOTE 2.5
Lay a mortar bed (screed) over the Durafloor™ to produce a 1:60 fall to the waste drain. See Figure 1.

Ensure all flashings and waterproofing comply with the NCC and AS3740-2010.

Optional regulation - Refer to local Building Authority.

Shower walls are to be water resistant to 1800mm from finished floor level.

Preformed Shower Base Recess

Particular attention is required to the sealing of shower alcoves or recesses.

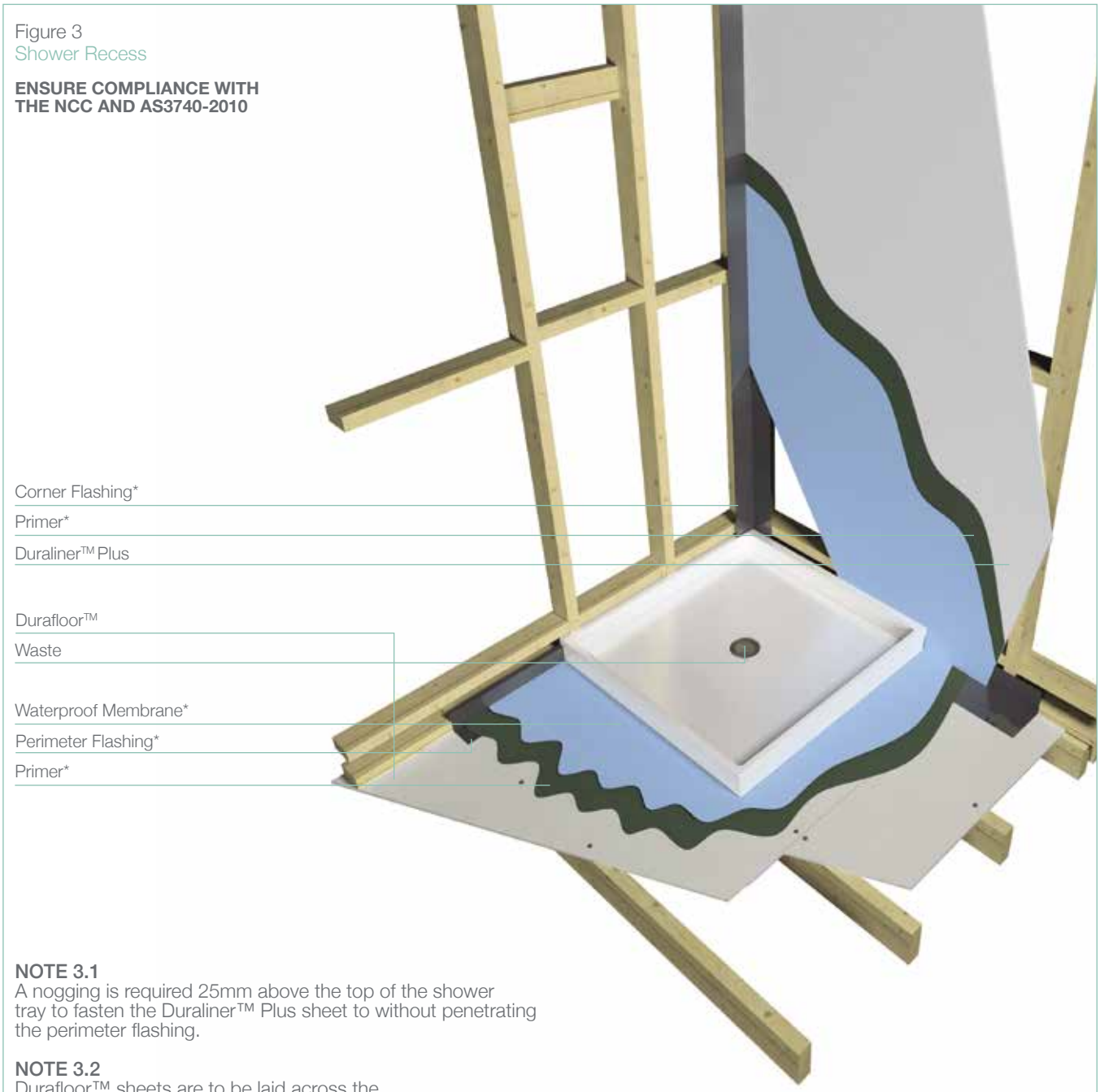
As with all wet area applications strict adherence to the National Construction Code, AS 3740-2010 and local building regulations is essential.

Figures 3 & 4 depict a preformed shower base.

Figure 5 depicts a waterproof membrane, which may be either preformed or in situ.

Figure 3
Shower Recess

ENSURE COMPLIANCE WITH THE NCC AND AS3740-2010



NOTE 3.1
A nogging is required 25mm above the top of the shower tray to fasten the Duraliner™ Plus sheet to without penetrating the perimeter flashing.

NOTE 3.2
Durafloor™ sheets are to be laid across the floor joists as shown.

Ensure all flashings and waterproofings comply with the NCC, AS3740 and local building authority.

Shower walls are to be waterproof to 1800mm from finished floor level.

Shower Recesses

Figure 4
Preformed Shower Base Detail

ENSURE COMPLIANCE WITH THE NCC AND AS3740-2010

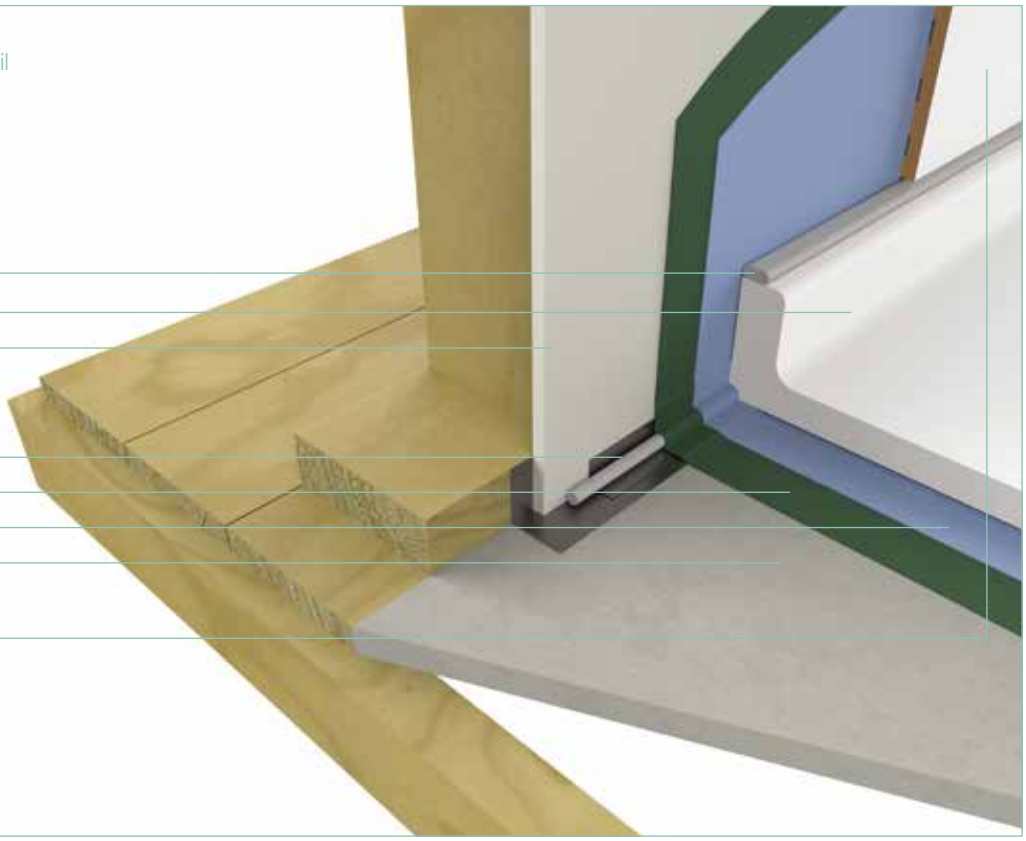
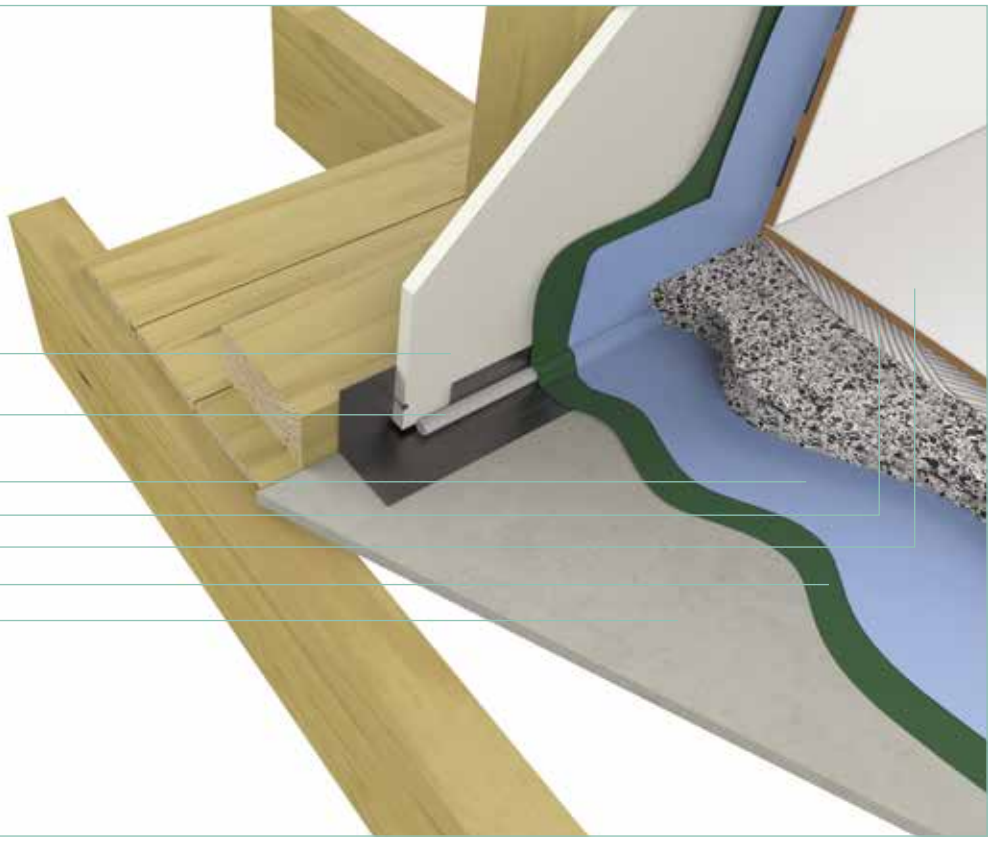


Figure 5
Using Waterproof Membrane

ENSURE COMPLIANCE WITH THE NCC AND AS3740-2010



Interior Tiled Floors

In areas where floor waste drains are not required, for example kitchens, ceramic floor tiles may be fixed directly to the Durafloor™ using a proprietary tile adhesive conforming to the Australia Standards AS2358 – Adhesives – for fixing ceramic tiles and AS3958.1 – ceramic tiles – Part 1 – Guide to the installation of ceramic tiles.

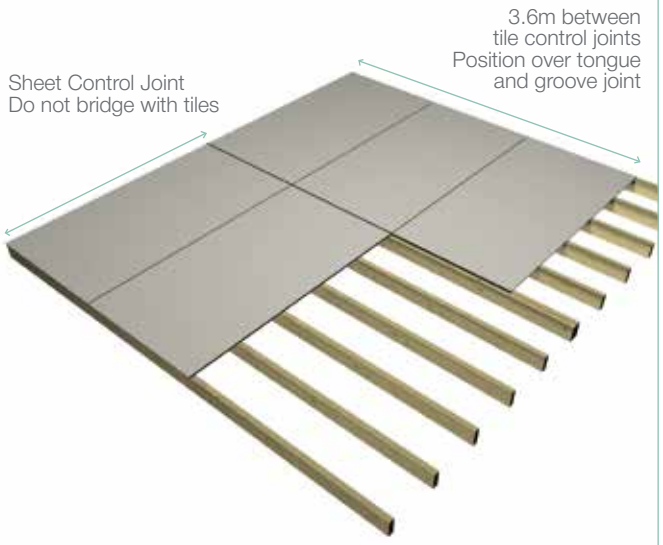
Sheet Layout

Suitable for wet areas with waterproof membrane fitted and tiled, and non-wet areas fitted with vinyl or carpet.

FIGURE 6
STAGGERED SHEET LAYOUT

Suitable for non-wet areas tiled.

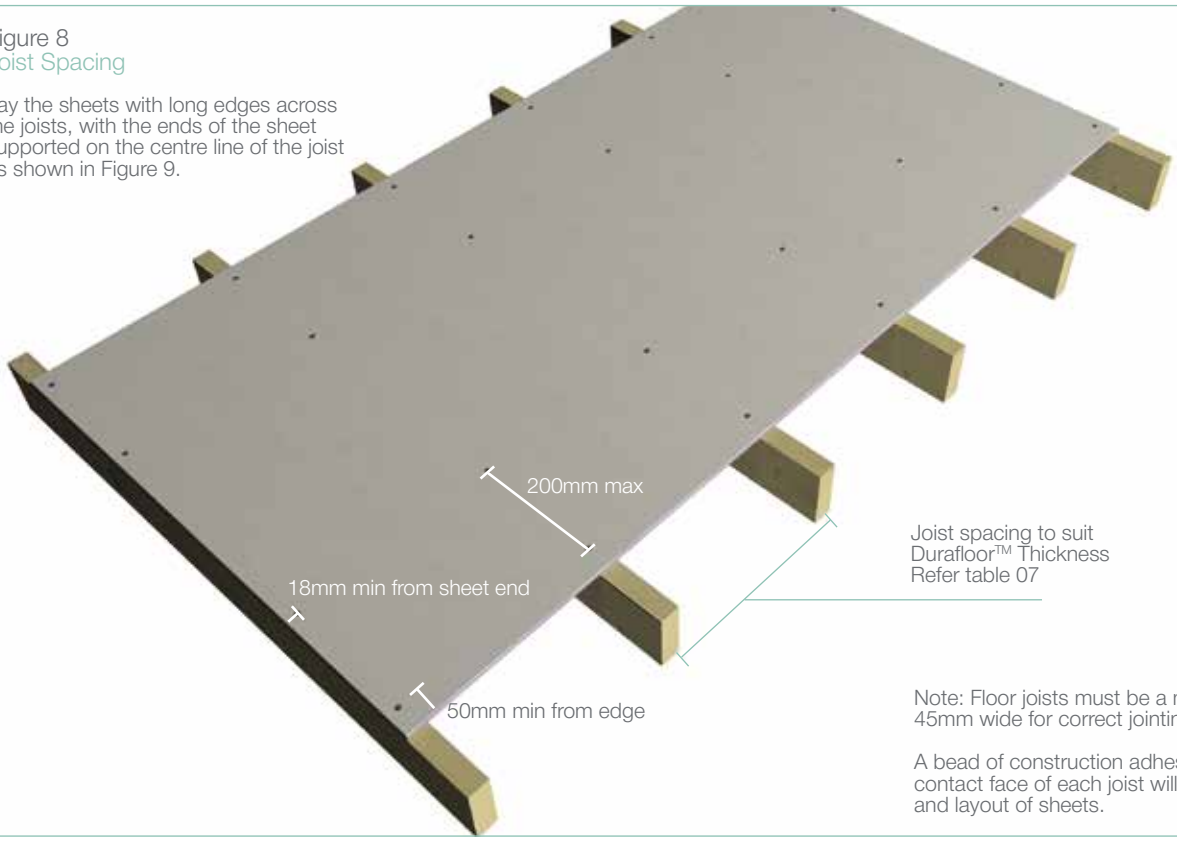
FIGURE 7
SQUARED SHEET LAYOUT



Installation Details - Interior Tiled Floors

Figure 8
Joist Spacing

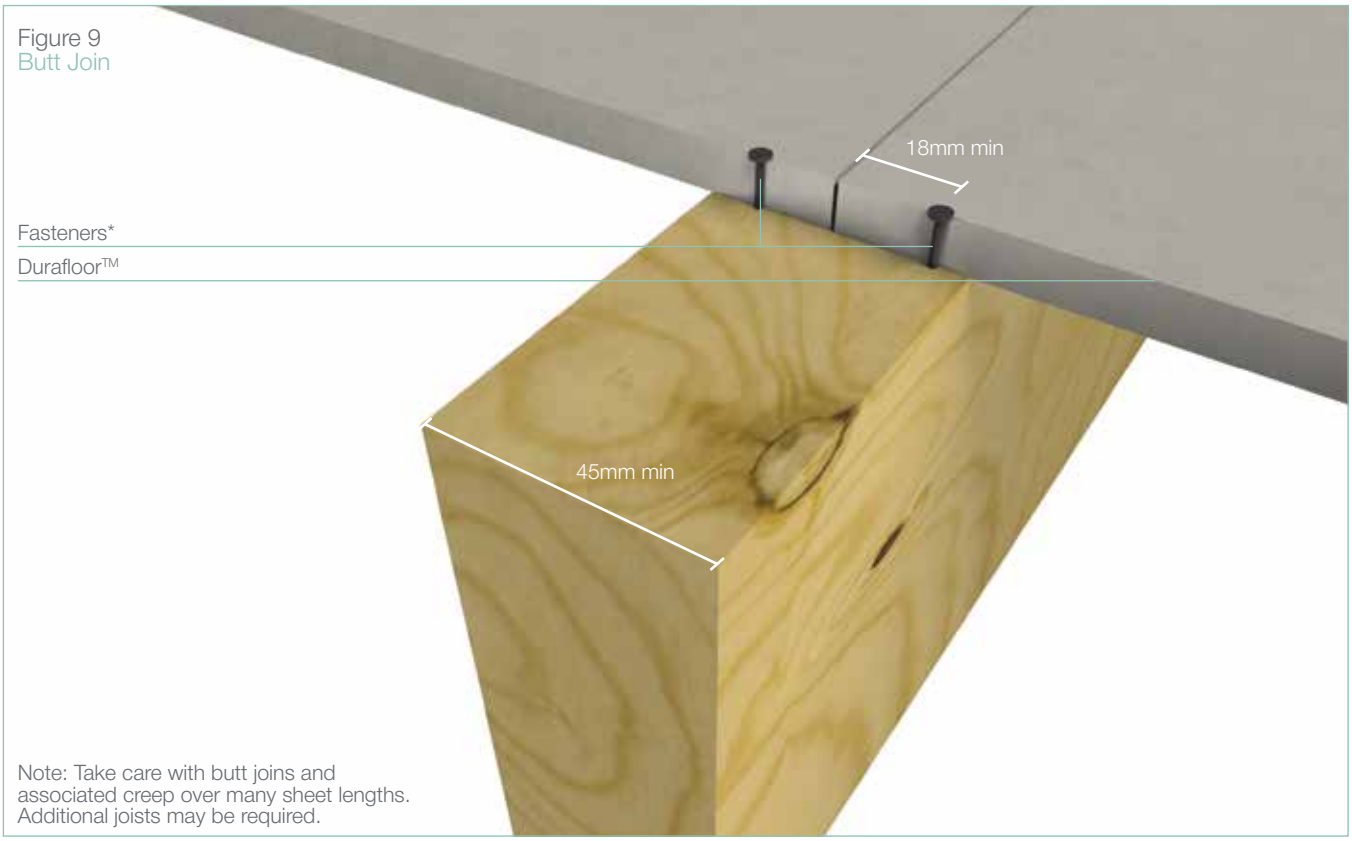
Lay the sheets with long edges across the joists, with the ends of the sheet supported on the centre line of the joist as shown in Figure 9.



Note: Floor joists must be a minimum of 45mm wide for correct jointing.

A bead of construction adhesive on the contact face of each joist will assist fixing and layout of sheets.

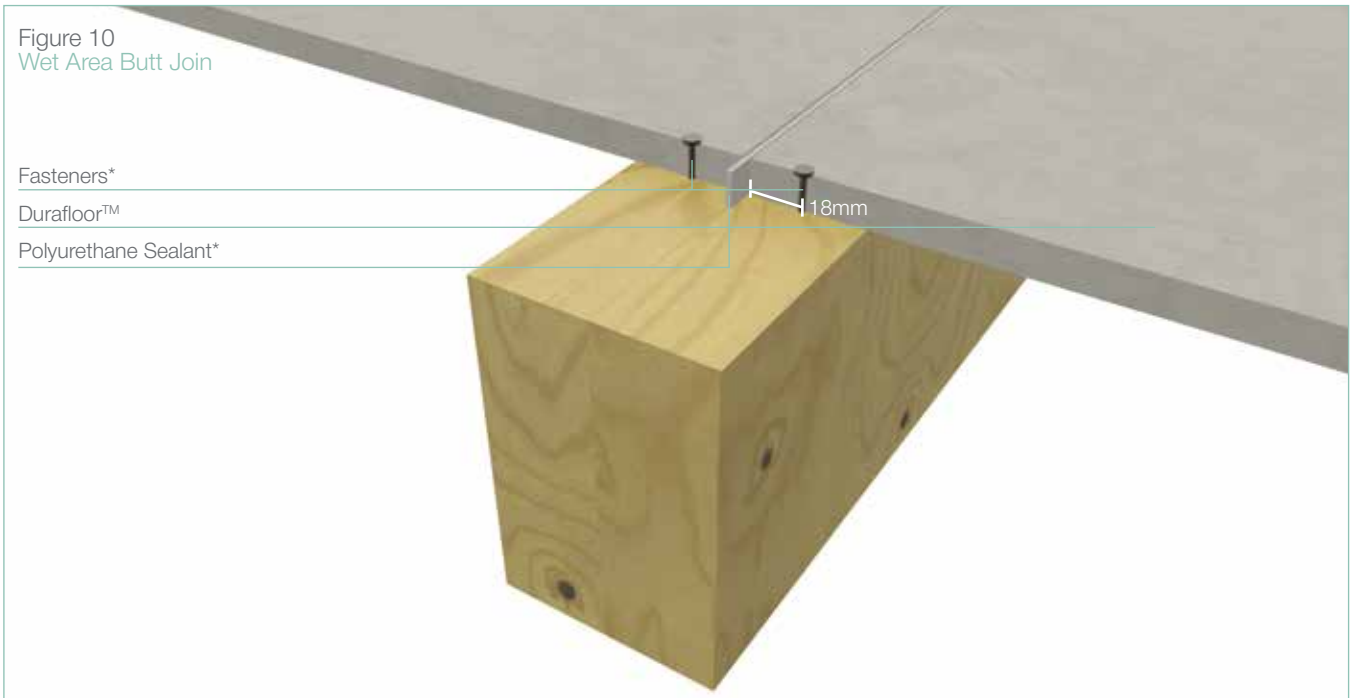
Figure 9
Butt Join



Note: Take care with butt joins and associated creep over many sheet lengths. Additional joists may be required.

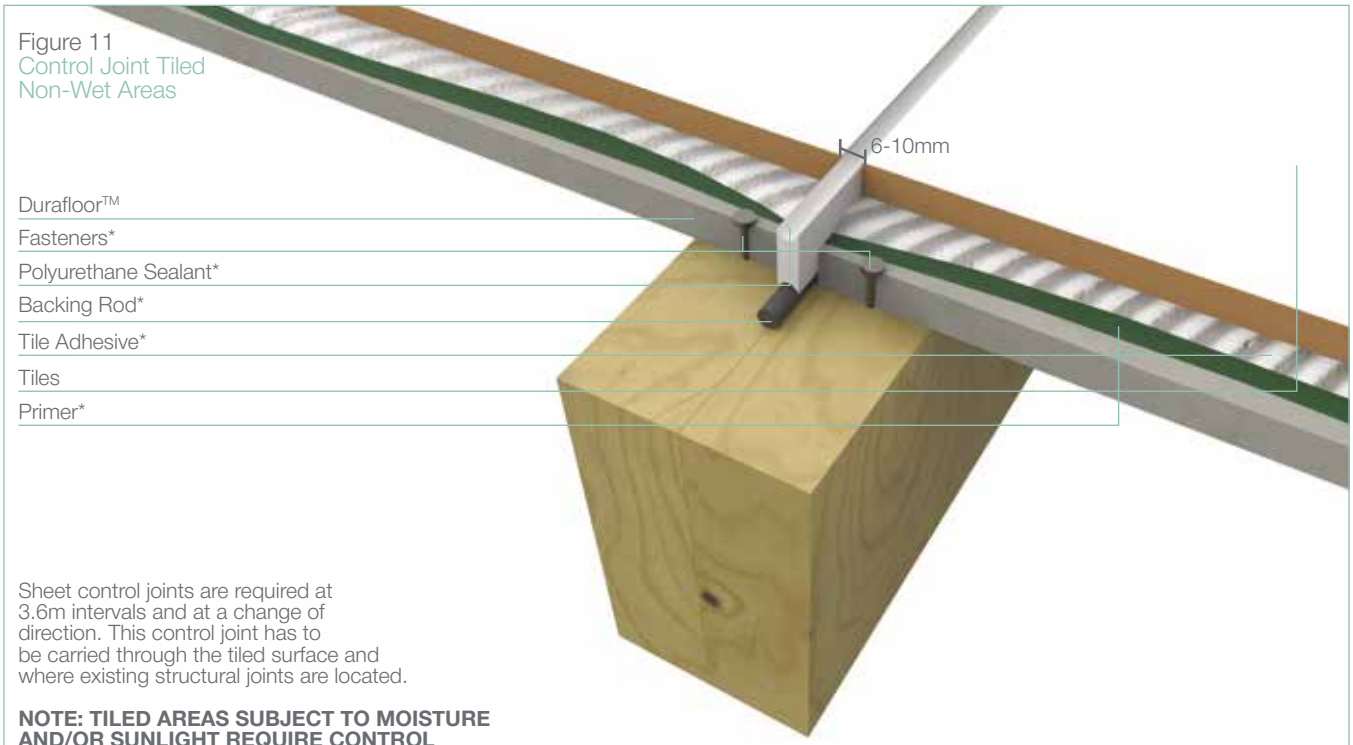
Installation Details - Interior Tiled Floors

Figure 10
Wet Area Butt Join



Control Joint

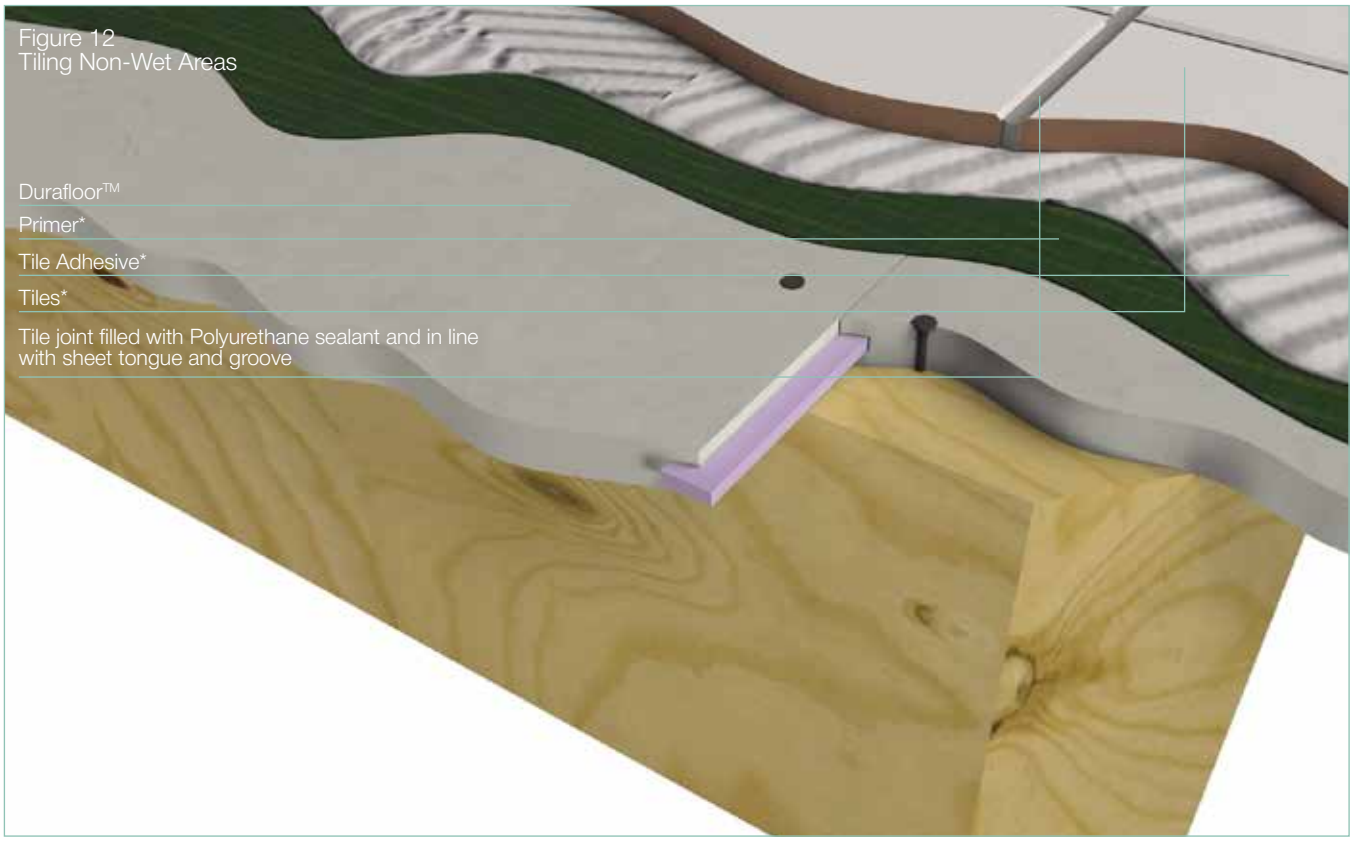
Figure 11
Control Joint Tiled
Non-Wet Areas



Sheet control joints are required at 3.6m intervals and at a change of direction. This control joint has to be carried through the tiled surface and where existing structural joints are located.

NOTE: TILED AREAS SUBJECT TO MOISTURE AND/OR SUNLIGHT REQUIRE CONTROL JOINTS AT 2.4M TO 3.6M IN EACH DIRECTION.

Installation Details - Interior Tiled Floors



Direct Stick Tiles to Durafloor™

Tiles may be adhered directly to Durafloor™ up to maximum run of 3.6m.

Tiling to be installed in accordance with AS3958.1-2007.

Exterior Decking

Durafloor™ can be used as the substrate for a variety of exterior applications such as above-ground pool surrounds, verandahs and sundecks.

The basic requirements of two systems are covered in this brochure.

Water Resistant without mortar bed
/ Square sheet layout – refer Fig 14 (max deck width 3600mm)
/ Suitable for tiling (control joints required 2400 – 3600mm in either direction)
/ Applied liquid membrane

Waterproof with mortar bed
/ Staggered sheet layout – refer Fig 13
/ Suitable for large decks
/ Suitable for tiling
/ Minimum requirement over a habitable room or living space
/ Achieved via sheet and/or applied membranes plus slip sheet and floating reinforced mortar bed

General Requirements

All decks shall have a fall minimum 1:100 to an outside edge. The 1:100 fall must be achieved in the framing structure. The use of sumps in decking is not recommended.

A step-down of at least 50mm from finished floor height should be provided at any doorway onto the deck.

If a reinforced mortar bed is to be used a minimum depth of 50mm is required as per AS4654.

Sheets are laid with the long edges across the joists. Max joist spacing 450mm centres for 19mm and 600mm centres for 22mm. In all cases a floor joist must support the sheet ends. The exception being the outer edge of decks where a drip angle is installed.

The gap required for control joints needs to be taken into account when setting out the framing.

Ensure compliance with NCC and all relevant standards.

Loading

Durafloor™ satisfies the loading requirements of AS/NZS1170.1 Table 3.1 Category A Domestic and Residential Activities Concentrated Loads 1.8kn @ UDL of 4KPA.

For higher load applications, Compressed Flooring is recommended. Please contact your local Innova Fibre Cement office for further details.

Framing

Timber or hot dipped galvanised steel joists are suitable framing members for Durafloor™.

For all applications the joist face width must be no less than 45mm min.

Control joints will require a double joist to facilitate joint width.

It is STRONGLY recommended that joist creep control joint position and double joist positions be considered with sheet layout when setting out.

Timber framing must comply to AS1684 of the NCC and the frame maker's recommendations. All timber must be seasoned and stable. **UNSEASONED OR WET TIMBER MUST NOT BE USED.**

Steel joists must comply with AS3623.

Both steel and timber joists must be suitable for the application and exceed the minimum durability and corrosion requirements.

Responsibility rests with the specifier and controlling party of the project. Suitability of structure and all associated details (as recommended here) for the project are controlled by them. Details contained within this document do not cover all possibilities. It is up to the specifier to develop additional details as required.

Waterproofing

Waterproofing a deck is dependant on the membrane and application of that membrane.

Ensure an approved membrane is applied by an approved applicator able to warrant and guarantee the membrane and its application.

Manufacturers like RLA Polymers Pty Ltd or Ardex Australia are established manufacturers of these systems.

Ensure compliance with AS/NZ 4654.2-2012.

Sheet Layout - Exterior Decking

TYPE	SHEET LAYOUT	MEMBRANE
Non-Waterproof	Squared	Required when a tile finish is used AS/NZ 4654.2 2012
Water Resistant	Squared	Applied liquid membrane to AS/NZ Standard 4654.2 2012
Waterproof	Staggered	Sheet Membrane or Applied Membrane to AS/NZ 4654.2 2012 Slip Sheet floating mortar bed to AS/NZ 4654.2 2012

Figure 13
Staggered Sheet Layout

Do not directly stick tiles to this layout
To be used with floating mortar bed only

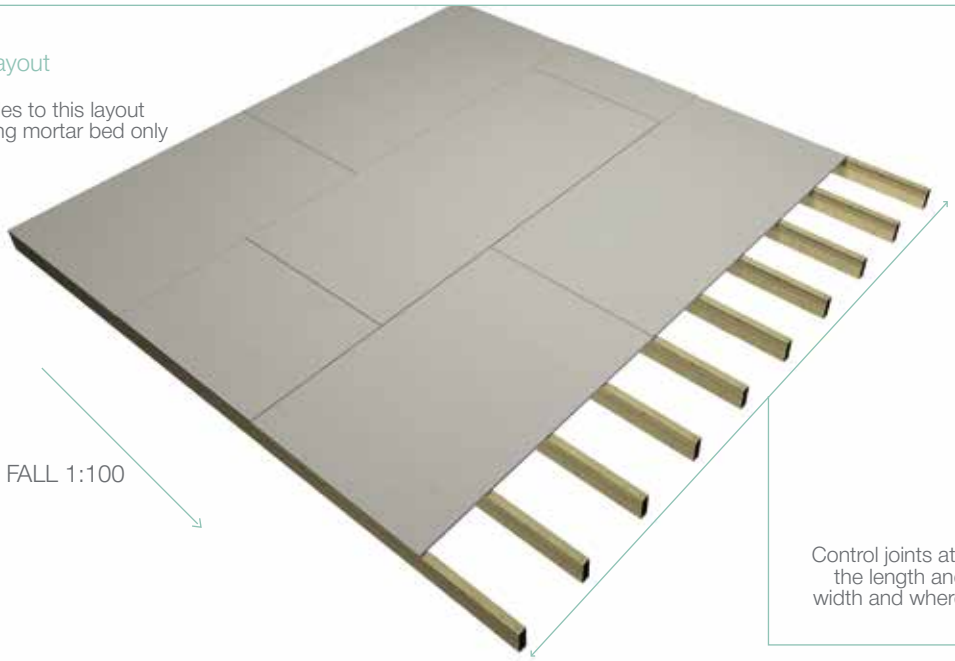
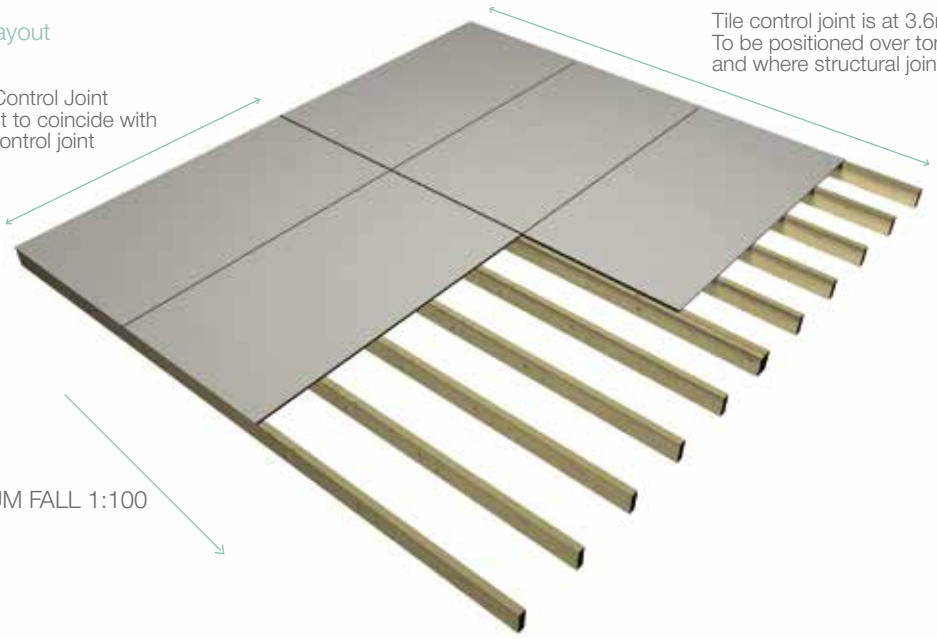


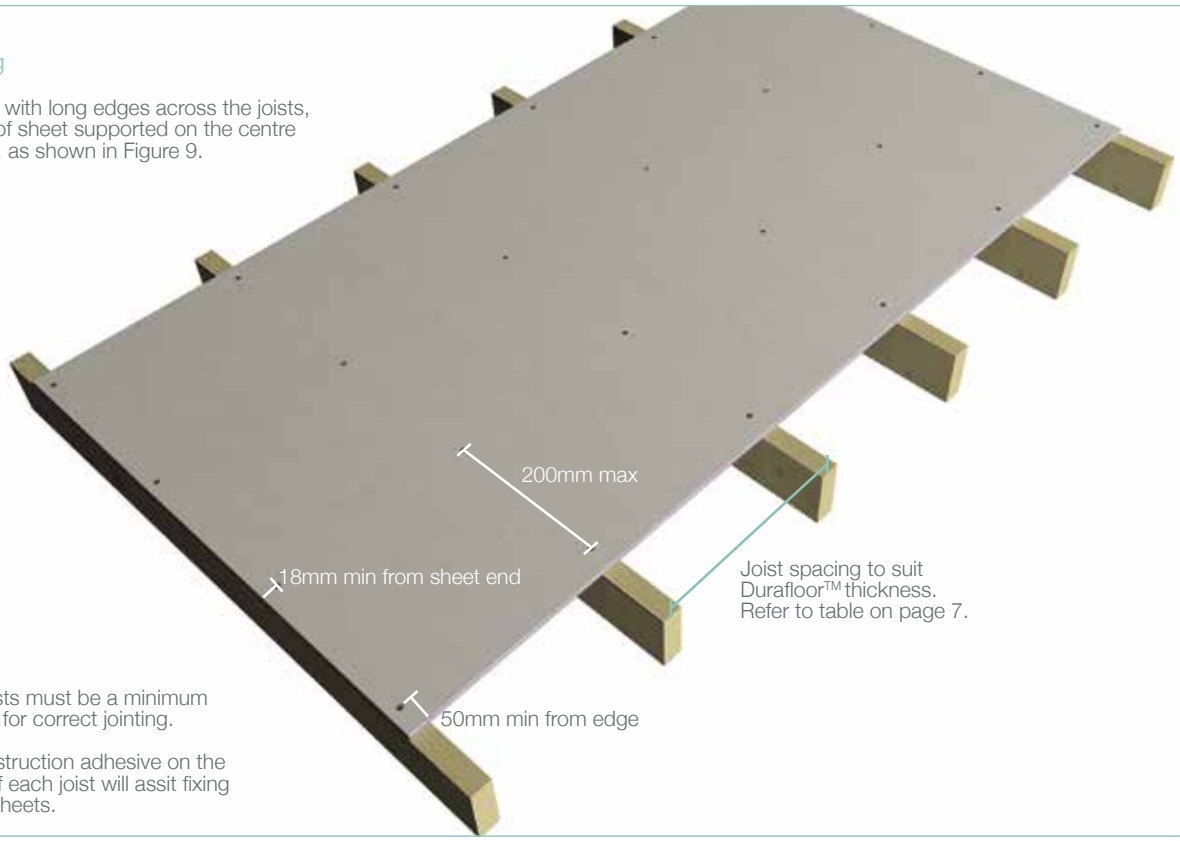
Figure 14
Squared Sheet Layout



Fixing - Exterior Decking

Figure 15
Joist Spacing

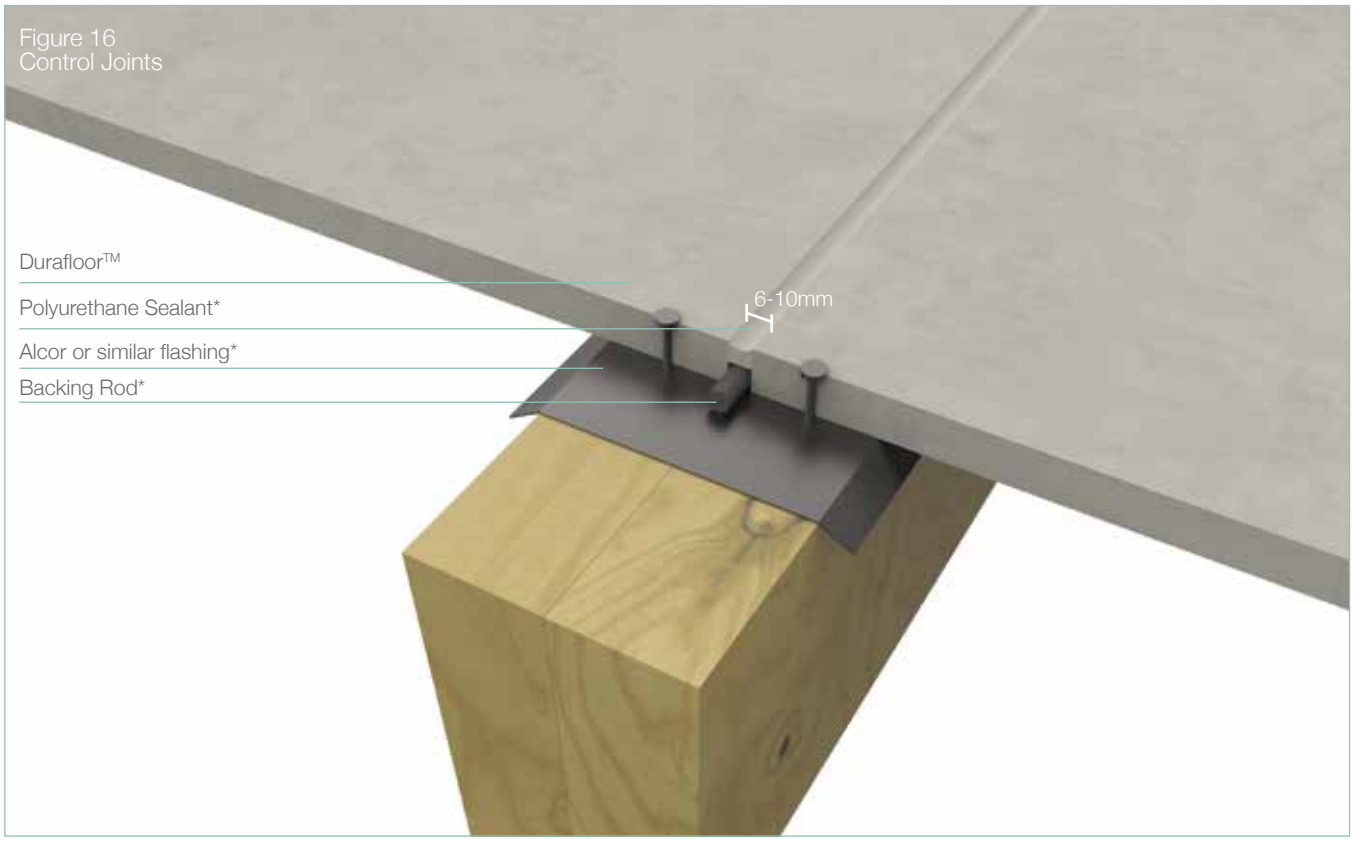
Lay the sheets with long edges across the joists, with the ends of sheet supported on the centre line of the joist, as shown in Figure 9.



Note: Floor joists must be a minimum of 45mm wide for correct jointing.

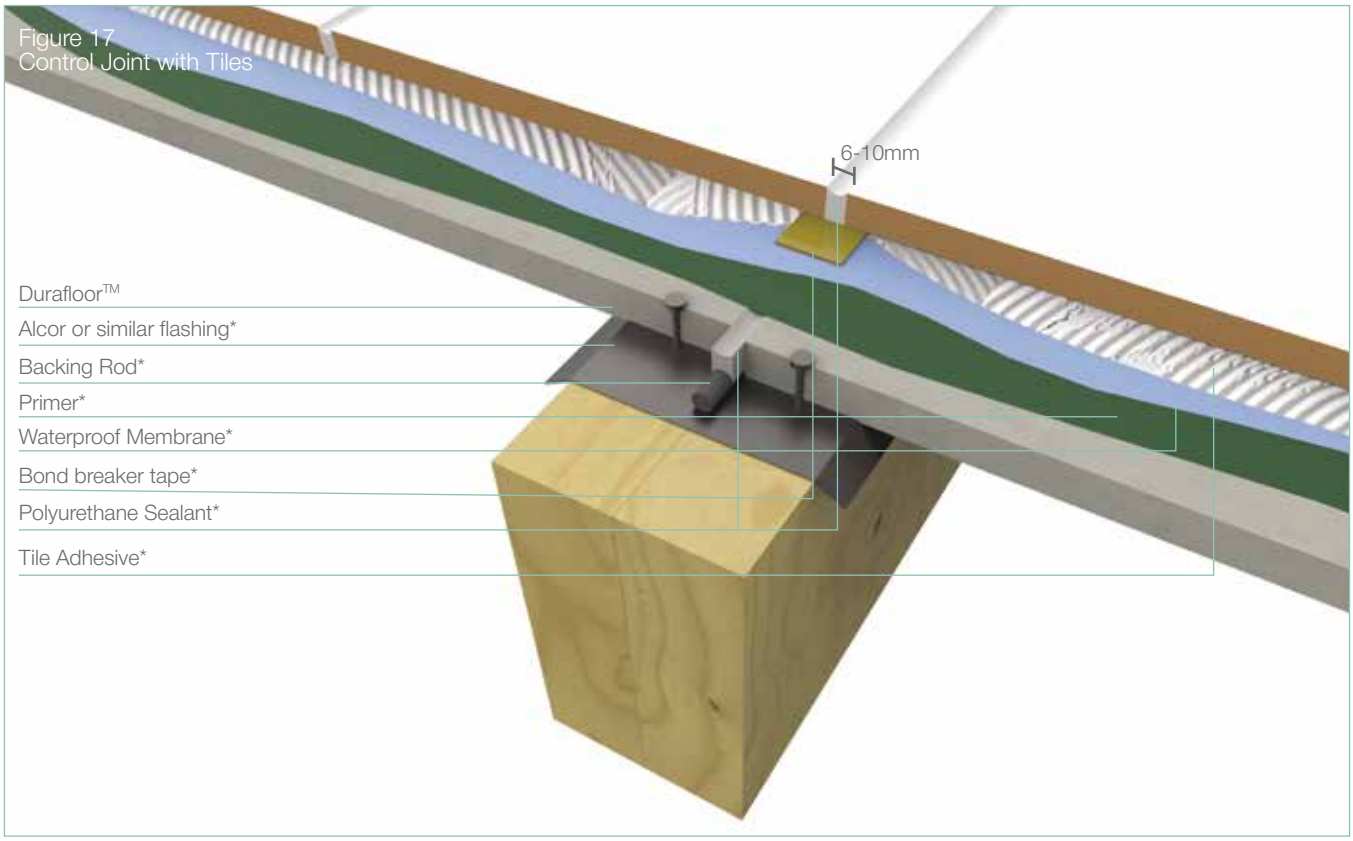
A bead of construction adhesive on the contact face of each joist will assit fixing and layout of sheets.

Figure 16
Control Joints



Fixing - Exterior Decking

Figure 17
Control Joint with Tiles



Sealing

After fixing, the screw holes should be sealed using a polyurethane sealant to prevent ingress of water into the framing.

Deck Finishing Details

Figure 18
Deck Finishing with Tile Face

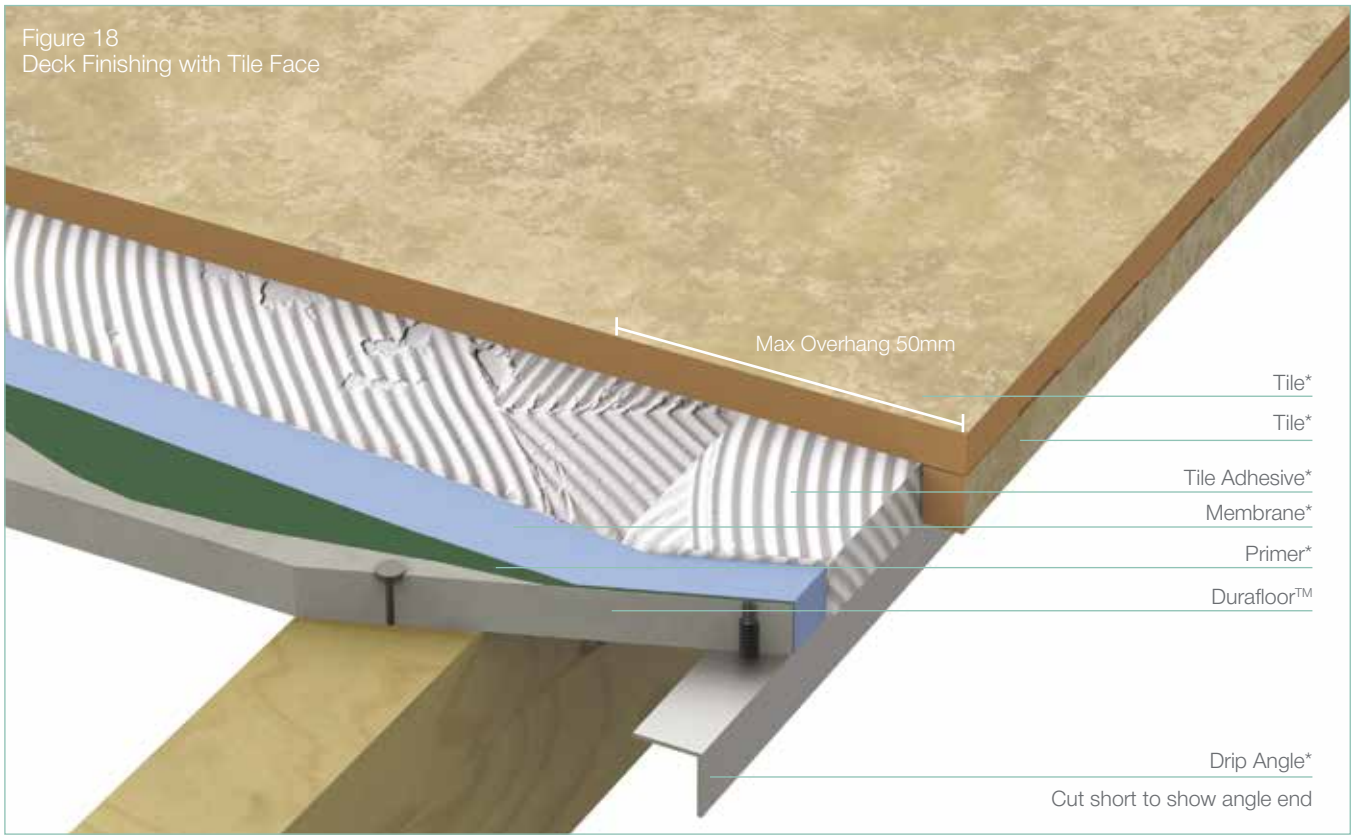
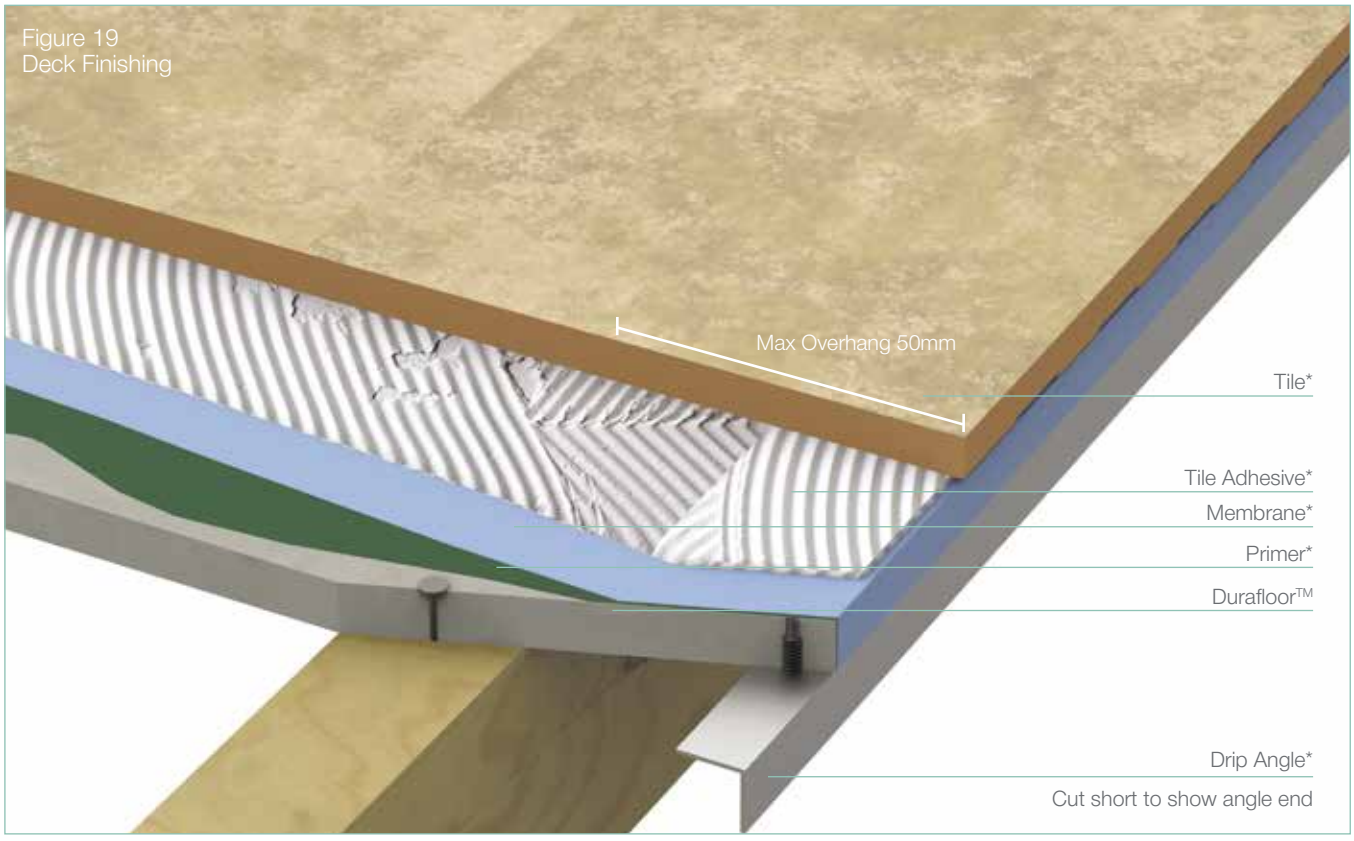
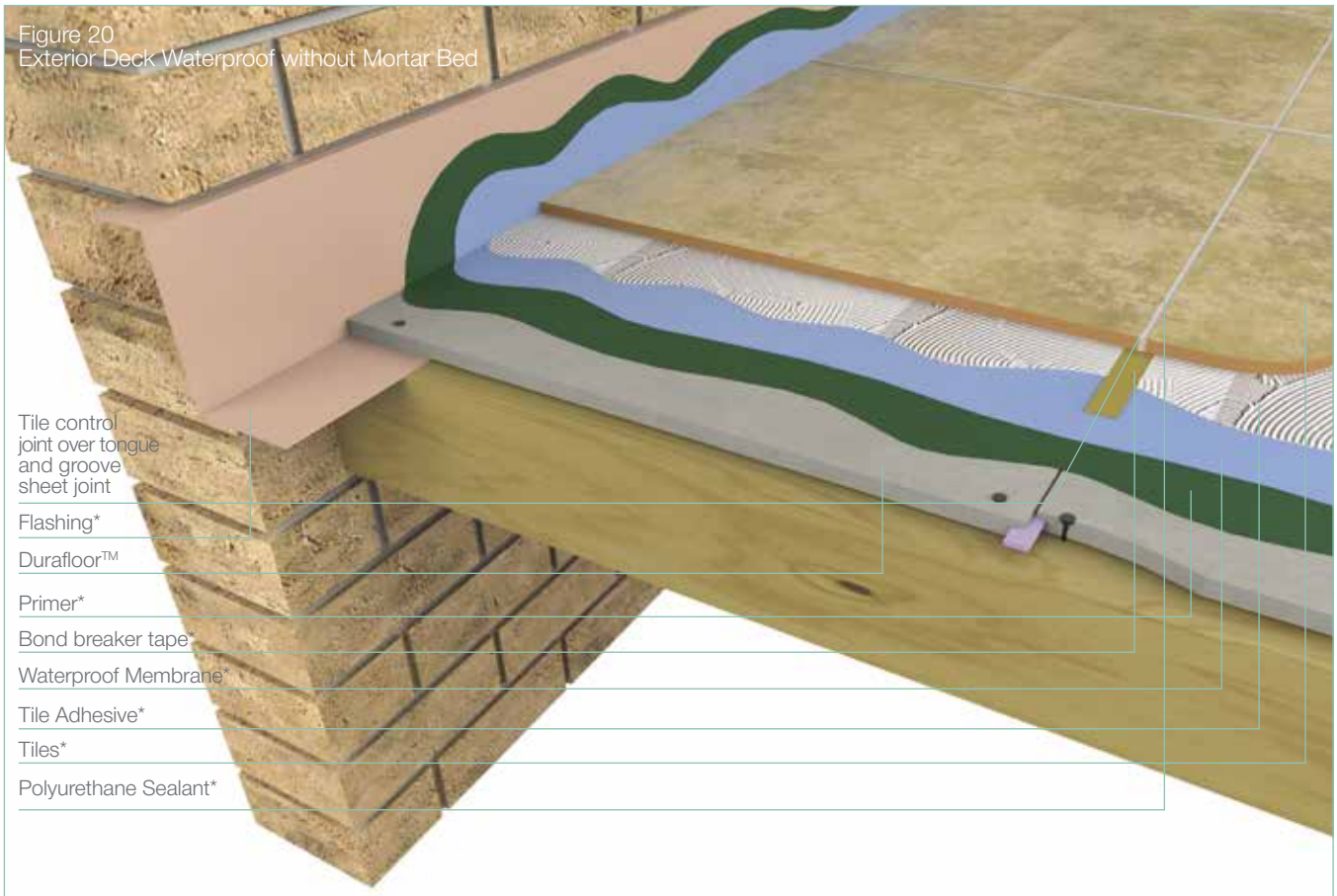


Figure 19
Deck Finishing



Exterior Deck – Water Resistant without Mortar Bed

Figure 20
Exterior Deck Waterproof without Mortar Bed



Minimum fall of 1:100 is required

Sheet Preparation Waterproofing

Waterproofing a deck is dependant on the membrane and application of that membrane.

Ensure an approved membrane is applied by an approved applicator able to warrant and guarantee the membrane and its application.

Manufacturers like RLA Polymers Pty Ltd or Ardex Australia are established manufacturers of these systems.

Ensure compliance with AS/NZ 4654.2.

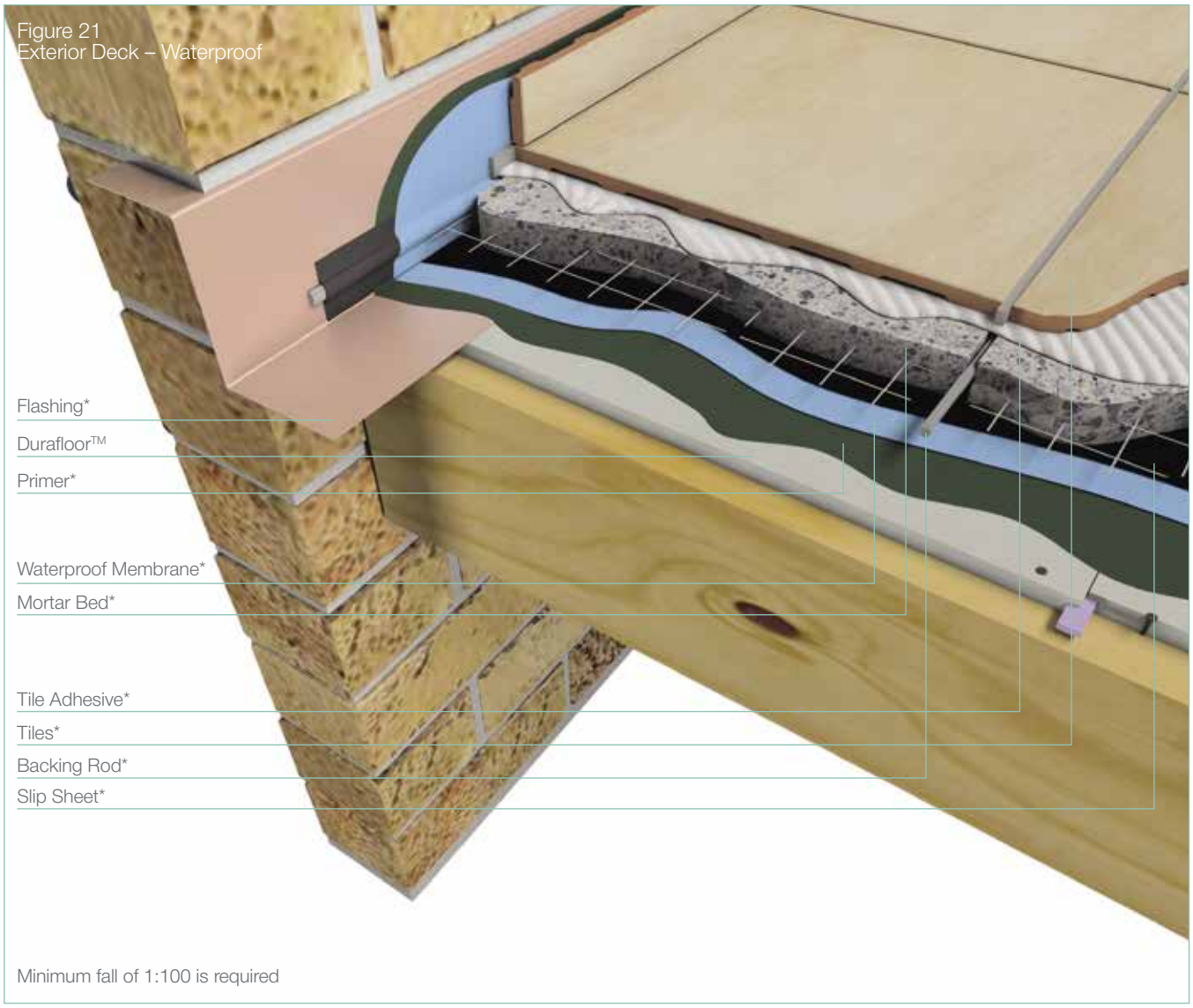
Typical examples are:

/ Primer – RLA Polymers – Uniflex Additive (Typical) or Ardex P9
/ Membrane – RLA Polymers Dryflex Pump (Typical)
Ardex WPM 001/002/Aquablok SBR / Aquablok 2-part
/ Tile Adhesive – RLA Polymers Flexi Part or Ardex x77
/ Tiles – As per manufacturer's recommendations.

*Components not supplied by Innova

Exterior Deck – Waterproof with Mortar Bed

Figure 21
Exterior Deck – Waterproof



Minimum fall of 1:100 is required

Sheet Preparation – For Tiling Waterproofing

Waterproofing a deck is dependant on the membrane and application of that membrane.

Ensure an approved membrane is applied by an approved applicator able to warrant and guarantee the membrane and its application.

Manufacturers like RLA Polymers Pty Ltd or Ardex Australia are established manufacturers of these systems.

Ensure compliance with AS/NZ 4654.2.

- 1 layer of slip sheet i.e. 200 micron plastic builders sheet
- Reinforced mortar bed minimum 40mm thick as per Australian Standard AS4654.2 (2009). Sand cement screed with Ardex Abacrete (or similar) reinforced with 75 x 75 2.5mm galvanised weld mesh or equivalent

Control joints at 4.5m centres in mortar bed.

Express control joints through tiles.

Sheet control joints at 4.5m max. intervals in a staggered pattern

*Components not supplied by Innova

Sheet Preparation

Tiles – Consult
/ AS3958.1 Part 2 – Guide to Installation of Ceramic Tiles
/ AS2358 – Adhesives for Fixing Ceramic Tiles

Other Finishes – Consult manufacturer for their recommendation and ensure installation complies with the recommendation provided.

Membranes

Applied Membranes (Exterior Decks) - Refer AS4654
In all instances consult with manufacturer for exact method and specification.

Sheet Membranes
In all instances consult with manufacturer for exact method and specification.

Maintenance

Maintain the finished surface, keeping the surface clean and free of build up or residue.

Repair and maintain joints, junctions, tiles and grout that are damaged or deteriorated.

Ensure membranes are not prejudiced in any way as damage to these may result in diminished performance and leakage.

Warranty

We warrant that our products are free from defects caused by faulty manufacture or materials for the following period from the date of purchase:

- 25 years for the Nuline™ Plus, Stratum™ and Duraplank™ ranges
- 10 years for the Montage™ range and
- 15 years for all other Innova™ Fibre Cement ranges

If you acquire any defective products, we will repair or replace them, supply equivalent replacement products or refund the purchase price within 30 days of receiving a valid claim, subject to product inspection and confirmation of the existence of a defect by Innova. We will bear the cost of any such repair, replacement or refund.

This warranty is given by:

Etex Australia Pty Ltd

31 Military Road, Matraville NSW 2036

Phone 02 9311 6908

To claim under this warranty, you must provide proof of purchase as a consumer and make a written claim (including any costs of claiming) to us at the address specified above within 30 days after the defect was reasonably apparent, or if the defect was reasonably apparent prior to installation, the claim must be made prior to installation. You may not claim under this warranty for loss or damage caused by:

- faulty or incorrect installation by non-Innova installers (Innova's installation procedures are at www.innovafibrecement.com.au);
- failure to comply with the Building Code of Australia or any applicable legislation, regulations approvals and standards;
- products not made or supplied by Innova;
- abnormal use of the product; or
- normal wear and tear.

The benefits available under this warranty are in addition to other rights and remedies of the consumer under the law. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage.

You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Terms and Conditions

Innova Fibre Cement's Terms and Conditions of Sale ("Agreement"), as in place and published at the date of this brochure, which are available upon request or on our website at www.innovafibrecement.com.au. The purchaser's terms and conditions, howsoever provided, do not form part of the Agreement.

Notes

Contact

Adelaide
Telephone
08 8480 1700

Brisbane
Telephone
07 3548 8400

Melbourne
Telephone
03 9492 1700

Perth
Telephone
08 9311 5500

Sydney
Telephone
02 8107 9500

New Zealand
Telephone
0011 64 9273 1457

Technical Helpline
1300 652 242

Socials

/InnovaBuildingSystems
@innovabuildingsystems
/Innova Building Systems

innovafibrecement.com.au

www.innovafibrecement.com.au

Exterior products and applications
INNOVA™ RANGE OF PRODUCTS

DURACOM™ / A compressed fibre cement facade system.
DURAFLOOR™ / The ultimate flooring product that can be used in both interior and exterior applications.
DURAGRID™ RESIDENTIAL & DURAGRID™ LIGHT COMMERCIAL / A lightweight facade giving a modern and durable finish.
DURAGROOVE™ / A vertically grooved exterior facade panel.
DURASCAPE™ / A lightweight exterior facade base sheet with a subtle vertical shadow line.
DURACOM GREYSTONE™ / A pre-finished facade system.
MONTAGE™ / A pre-finished versatile facade system that can be used internally and externally.
NULINE™ PLUS / A weatherboard style cladding system.
STONESHEET™ / Purpose designed substrate for stone tile facade.
STRATUM™ / A range of plank products, each of which can be used as stand-alone products or used together to create a striking exterior cladding solution.
DURASHEET™ / Ideal for the cladding of gables and lining of eaves. Can also be used on commercial soffits and cladding on non-impact areas.
DURAPLANK™ / Available in Smooth, Woodgrain and Rusticated finishes, Duraplank™ is ideal for exterior cladding of upper storey conversions or ground level extensions.
DURATEX™ / A base sheet used for textured coatings on exterior wall applications.
DURALINER™ PLUS / An exterior lining board that is the perfect substrate for tiles and is ideal for wet areas.
COMPRESSED / Used as a domestic, commercial sheet for wet areas, flooring, partitions, exterior decking, fascia and facade cladding.
DURALUX™ PLUS / Suitable for exterior applications where it will be sheltered from direct weather.

Interior products and applications
INNOVA **FIBRE CEMENT RANGE OF PRODUCTS**

INTERGROOVETM / Internal grooved wall lining.

DURALUX™ PLUS / An interior lining board suitable for ceilings and soffits.
DURALINER™ PLUS / An interior lining board, this is the perfect substrate for tiles and is ideal for wet areas.

SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name:	Innova Fibre Cement Sheets
Other Names:	Duraliner Plus / Durasheet / Duratex / Duralattice / Duralux Plus / Duraplank / Ultraform / Compressed / Ceramic & Tile Underlay / Vinyl and Cork Underlay / Nuline Plus / Duracom / Duragrid / Durascape / Duragroove / Stonesheet / Stratum / Stratum Duo / Stratum Trio / Stratum Contour / Durafloor / Durabarrier / InterGroove / Duracom Greystone Charcoal/ Duracom Greystone Natural/ Duracom Greystone Basalt/ Durascape Greystone / Durapanel / Duracom Earthstone Quartzite / Duracom Earthstone Anthracite / Duracom Earthstone Ochre / Innova Effects
UN Number:	None allocated
Dangerous Goods Class & Subsidiary Risk:	None allocated
Hazchem Code:	None allocated
Poisons Schedule Number:	Not applicable
Uses:	Fibre cement sheets for use on internal / external wall linings and soffits and internal/external flooring. Refer to product manual for installation.
Company:	**Etex (Australia) Pty Ltd**
Address:	**Innova Fibre Cement** **38-40 Magnet Road** **Canning Vale WA 6155 Australia**
Website:	www.innovafibrecement.com.au ; www.innovafibrecement.co.nz
Telephone:	AU: +61 7 3717 4260 NZ: +64 9 273 1457
Emergency Phone Number:	000 Fire Brigade and Police (available in Australia only)
Poison Information Centre:	13 11 26 (available in Australia only)

SECTION 2: HAZARD IDENTIFICATION

The potential health hazards are related to dust generated from these materials during cutting, sanding, and the use of power tools. The intact Innova Fibre cement products do not give off dust or fume during installation or when installed. However, cutting, breaking, drilling, sanding, rebating or sawing the boards may generate dust. Inhaling dust liberated from Innova Fibre cement may aggravate pre-existing respiratory conditions and may cause cancer

Smoking and inhalation of airborne particulates from other sources may increase the risk of lung disease

Work areas and storage areas should be deemed smoke-free zones

GHS CATEGORY	PICTOGRAM CODE	SIGNAL WORD	HAZARD CODE	HAZARD STATEMENTS
Carcinogenicity, Cat 1A		Danger	H350	May cause cancer through inhalation of dust
Specific target organ toxicity (repeated exposure), Cat 1			H372	Causes damage to respiratory system through prolonged or repeated exposure

Other Classifications
Contact with dust and fibres from this product may cause skin and eye irritation due to physical reaction (e.g. rubbing or scratching)

Precautionary Statements
Observe the following precautionary measures when handling, installing or processing the product.

Prevention Precautionary Statement Codes

CODE	PRECAUTIONARY STATEMENT
P201	Obtain special instruction before use
P202	Do not handle until all safety precautions have been read and understood
P260	Do not breathe in dust
P264	Wash hands and face thoroughly after handling
P270	Do not eat, drink or smoke when using this product
P281	Use personal protective equipment as required

Response

P308+P313	If exposed or concerned: get medical advice
P314	Get medical advise if you feel unwell

Disposal

P501	Dispose products in accordance with local/regional/national/international regulations

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	CAS Number:	Proportion:
Calcium silicate hydrate	66997-15-1	20%-60%
Crystalline Silica (Quartz)	14808-60-7	20%-60%
Paper pulp (Cellulose)	9004-34-6	< 10%
Water		< 15%
Other non-hazardous ingredients (Pigments, sealers, coatings)		<5%

SECTION 4: FIRST AID MEASURES

Swallowed: Give copious amounts of water to drink to dilute stomach contents. Wash mouth and lips with water. Do not induce vomiting. If symptoms persist, seek medical attention.

Eye: Remove contact lens or eyeglasses. Flush thoroughly with flowing water for at least ten minutes. If redness persists or visual changes occur, seek medical attention.

Skin: Wash thoroughly with soap and water. Contact physician if irritation persists or later develops.

Inhaled: Remove to fresh air. If shortness of breath or wheezing develops, seek medical attention.

Advice to Doctor: Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Fire and explosion hazards: Innova Fibre Cement products are non-flammable and non- combustible

Suitable extinguishing substances: Not applicable

Unsuitable extinguishing substances: Not applicable

Product of Combustion: Innova Fibre Cement products are non-combustible and non-flammable

Spill and disposal:

Use wet sweeping and/or vacuuming to clean up dust and waste. Dry sweeping should not be attempted.
Vacuuming with an M or H class industrial vacuum is recommended.
Do not wash material down storm water drains.
Bagged waste should be placed in containers and disposed of with other construction waste in accordance with local authority guidelines.

SECTION 7: STORAGE AND HANDLING

Storage:

Fibre cement sheets should be stored flat and level in a covered dry area.
Avoid contact with strong acids and strong oxidizing agents.

Handling:

Crystalline silica dust may be generated during processing and handling. Use appropriate personal protective equipment to reduce exposure to respirable silica dust.
Keep dust generation to a minimum using proper tools.
Wear protective equipment to prevent skin and eye contamination.
Manual handling should be in accordance with Manual Handling Regulations and Codes.
Maintain the work area clean by using wet sweeping or vacuuming with an M or H class filter.
Keep fibre cement from incompatible materials.
Read and understand all safety precautions before handling fibre cement.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Standards:

Innova Fibre Cement has adopted the following maximum exposure limits, corresponding to the limits set out by the CoA, NOHSC; Exposure Standards for Atmospheric Contaminants in the Occupational Environment:-
Calcium silicate : 10 mg/m^3 time-weighted average (TWA) as inspirable dust
Cellulose: 10 mg/ m^3 TWA as respirable dust
Crystalline silica (quartz): 0.05 mg/ m^3 TWA as respirable dust

Innova Fibre Cement recommends keeping exposures to dust as low as practicable and work in a well-ventilated space.

Engineering Controls:

Keep exposures to dust as low as practicable. Refer to the exposure standards above for maximum limits.
Cutting, sanding, rebating, drilling, grinding and other machining activities will generate dust. Power tools should be fitted with a local dust extraction device with a HEPA M or H class filter.
Hand tools (unpowered) generate less dust when cutting or sanding. If generated dust cannot be avoided, follow recommendations for protective equipment.
Work in the open air or near external openings in the building, for adequate ventilation. Where dust is generated, in confined spaces, local mechanical ventilation should be used, to direct the dust away from the work areas.
Personal protective equipment should be used in confined spaces and where dust levels exceed the maximum levels.
Use safe work practices to minimize dust release and exposure.
Clean work areas regularly by wet sweeping or vacuuming with a HEPA class M or H filtered vacuum. Never attempt dry sweeping as it excites silica dust into the workers' breathing zone.

Ventilation:

Where safe work practices, adequate engineering and material handling controls are in place, ventilation is not normally required.
Use local mechanical ventilation and or dust extraction in confined areas and where dust could escape into the working environment.

Tools and Equipment-
Repair and Maintenance

Vacuum and or wipe down all tools and equipment prior to maintenance and repair work. Avoid compressed air cleaning where possible, follow recommended exposure controls and protective equipment as listed below.

Skin Protection:	Avoid direct skin contact with fibre cement products. Wear loose appropriate clothing, such as long sleeved shirts and long trousers, head protection and standard duty leather or equivalent gloves, which comply with Australian Standard AS 2161: Industrial Safety Gloves and Mittens. Wash work clothes regularly and do not shake out dust.
Eye Protection:	Wear dust resistant non-fogging safety goggles or glasses, which comply with Australian and New Zealand Standard AS/NZS 1336: Recommended Practices for Eye Protection.
Respiratory Protection:	Innova Fibre Cement recommends particulate respirator , which comply with Australian and New Zealand Standard AS/NZS 1715: Selection, Use and Maintenance of Respiratory Protective Devices, and Australian and New Zealand Standard AS/NZS 1716: Respiratory Protective Devices when Exposed to Dust), be used at all times. The type of respirator to be used will depend on the level of exposure determined through sampling. If in doubt about the exposure level, use a respirator that offers the highest protection from respirable silica.
Personal Hygiene:	Do not eat, drink, or smoke whilst handling and working with fibre cement. Wash dust from skin with mild soap and water after working with fibre cement.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Factory applied blue tint on face of the Duratex, and a white tint to the face of 4.5, 6.0, 9.0 and 12mm Compressed while all other products are cement grey finish.
Boiling Point: (^{O}C)	Not applicable
Vapour Pressure:	Not applicable
Specific Gravity (H_2 O = 1)	Not relevant
Flashpoint:	Not applicable
Flammability Limits:	Not flammable
Solubility in water:	Not relevant
Reactivity (e.g. with air or water):	Not reactive
Auto-ignition Temperature (^{O}C):	-
Odour Threshold:	Slight cement odour
Lower Explosion Limit:	**-**
Upper Explosion Limit:	**-**
Self accelerating Decomposition:	**-**

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable and non-reactive
Hazardous Reactions:	None
Conditions to avoid:	Dust generation during handling, processing and inhalation.
Incompatible Materials:	Strong acids and strong oxidizing agents
Hazardous Decomposition Products:	None

SECTION 11: TOXICOLOGICAL INFORMATION

HEALTH EFFECTS: ACUTE (SHORT TERM)

Swallowed:	Unlikely to occur, however may result in symptoms of acute indigestion.
Eyes:	Excessive dust may cause eye irritation.
Skin:	The dust, particularly in association with heat and sweat, can cause irritation, but it is not absorbed through skin.
Inhaled:	Inhaled dust may cause nasal, throat and lung irritation, symptomatic through excess mucus and coughing.

HEALTH EFFECTS: CHRONIC (LONG TERM)

Inhaled:	If respirable crystalline silica levels are not controlled, repeated exposure to excessive dusts of fibre cement products could result in chronic lung disease silicosis. However, if the practices noted in this SDS are followed during cutting and sanding, exposure to airborne dusts should be within recommended occupational exposure standards and no long-term effects are expected.

SECTION 12: ECOLOGICAL INFORMATION

Eco-toxicity:	Innova Fibre Cement products are not toxic to aquatic and terrestrial organisms.
Persistence and Degradability:	No data
Bioaccumulative potential:	No data
Mobility in soil:	A low mobility would be expected in a landfill situation.

SECTION 13: DISPOSAL CONSIDERATION

Disposal:	Innova Fibre Cement products must be disposed into a landfill site in accordance with local authority guidelines. Measures should be taken to prevent dust generation during disposal, and exposure and personal precautions should be observed (*see relevant sections above*).

SECTION 14: TRANSPORT INFORMATION

Transport:	No special transport requirements are necessary.

SECTION 15: REGULATORY INFORMATION

Not scheduled

SECTION 16: OTHER INFORMATION

For further information on this product, please contact:

Etex (Australia) Pty Ltd (ABN 1003621010/003) Innova Fibre Cement 38-40 Magnet Road, Canning Vale WA 6155

Phone: +61 7 3717 4260

ADDITIONAL INFORMATION
AUSTRALIAN STANDARDS REFERENCES

AS/NZ 1336	Recommend Practices for Occupational Eye Protection
AS/NZ 1715	Selection, Use and Maintenance of Respiratory Protective Devices
AS/NZ 1716	Respiratory Protection Devices
AS 2161	Industrial Safety Gloves and Mittens (excluding electrical and medical gloves)

OTHER REFERENCES

NOHSC:1008 (2004)	Approved Criteria for Classifying Hazardous Substances
Model Code of Practice	Preparation of Safety

AUTHORISATION

Reason for issue:	Update SDS
Date of Issue	20 September 2024

SAFETY DATA SHEET

STRUCTAflor H2 Particleboard Flooring

Termite Treated

Australian PANELS

www.australianpanels.com.au

1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name Australian Panels Pty Ltd

Address 2 Wella Way, Somersby, NSW, Australia, 2250

Telephone 1300 300 547 / 02 4340 9800

Facsimile 1300 320 547 / 02 4340 5841

Emergency 1300 300 547

Synonyms STRUCTAflor®, STRUCTAflor® H2, TERMIflor®, STRUCTAflor® H2 YELLOWtongue®, STRUCTAflor® H2 REDtongue®, STRUCTAflor® H2 BLUEtongue®, STRUCTAflor® H2 Square Edge, YELLOWtongue®, REDtongue®, BLUEtongue®

Use Flooring

2 HAZARD IDENTIFICATION

Not classified as hazardous according to Safe Work Australia Criteria.

Dust from the product is hazardous according to the criteria of Safe Work Australia.

UN Number None Allocated

Hazchem Code None Allocated

Packing Group None Allocated

Emergency Response Guide No. None Allocated

Transport Hazard Class None Allocated

Signal Word WARNING

3 COMPOSITION/INFORMATION OF INGREDIENTS

Ingredient	EC	CAS No.	Content
Softwood(s)	N Av	N Av	>80%
Melamine/Urea/ Formaldehyde Resin	607-497-9	25036-13-9	<20%
Polymeric Diphenylmethane Diisocyanate	926-920-0	9016-87-9	<2%
Paraffin Wax	232-315-6	8002-74-2	<2%
Polypropylene	618-352-4	9003-07-0	<0.4%
Permethrin	258-067-9	52645-53-1	<0.05%

Notes: The above ingredients are bound together under heat and pressure. The process cures the resin, but a small amount of formaldehyde from the resin may be released from the finished product. Formaldehyde content in the finished product complies with the Australian Standard (AS/NZS 1860.1) E1 requirement when tested to AS/NZS 4266.1-17 (Desiccator test). Permethrin is included only in the STRUCTAflor® H2, panels and contains a concentration of less than 0.05%. As such, it does not affect the health and safety hazard associated with the manufacturing and handling of this product.

4 FIRST AID MEASURES

Ingestion Due to product form and application, ingestion is considered unlikely. Give water to drink. If abdominal discomfort occurs seek medical attention. For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once).

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Advice to Doctor Treat symptomatically.

5 FIRE FIGHTING MEASURES

Flammability Combustible. May evolve toxic gases (carbon/nitrogen oxides, ammonia, formaldehyde, hydrocarbons) when heated to decomposition. May evolve hydrogen cyanide gas when heated to decomposition.

Fire and Explosion Dry wood dust in high concentrations-in-air and at the elevated temperatures > 200 °C (>40g of dust per m^3 of air) may spontaneously explode. Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard.

Extinguishing Dry chemical powder, carbon dioxide, foam, or water fog.

Advice for Firefighters Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when

combating fire. Water spray may be used to cool down heat-exposed containers. Fight fire from a safe location. This product should be prevented from entering drains and watercourses.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions Wear personal protective equipment (PPE) as detailed in Section 8.

Spills and Disposal Waste material should be placed in containers and disposed of at approved landfill sites, or burnt in an approved furnace or incinerator, in accordance with disposal authority guidelines. DO NOT BURN in barbeques, combustion stoves or any open fires in home as hazardous and irritating gases are emitted. Dust from machining the product should be cleaned up by vacuuming or wet sweeping.

Environmental Precautions Prevent product from entering drains and waterways.

Methods of Cleaning Up If spilt, collect and reuse where possible.

References See Sections 8 and 13 for exposure controls and disposal.

7 STORAGE AND HANDLING

Storage These products should be stored inside in well-ventilated areas away from sources of heat, flame, or sparks. No special transport requirements are considered necessary.

Handling Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking, and smoking in contaminated area.

8 EXPOSURE CONTROLS / PERSONAL PROTECTIONS

Exposure Standards

Ingredient	TWA		STEL		Notices
	ppm	mg/m3	ppm	mg/m3	
Formaldehyde	1.0	1.2	2	2.5	-
Paraffin Wax	N Av	2	N Av	N Av	-
Polymeric Diphenylmethane di-isocyanate	N Av	0.02	N Av	0.07	-
Wood dust (softwoods)	N Av	5	N Av	10	-

As published by Safe Work Australia.

TWA The time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life.

STEL (Short Term Exposure Limit) The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

These Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept too as low a level as is workable. These Exposure Standards should not be used as a fine dividing line between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

If the directions for use on the product label are followed, exposure of individuals using the product should not exceed the above standards. The standard was created for workers who are routinely, potentially exposed during product manufacture.

Biological Limit Values As per the "National Model Regulations for the Control of Workplace Hazardous Substances (Safe Work Australia)" the ingredients in this material do not have a Biological Limit Allocated.

Engineering Measures Ensure ventilation is adequate to maintain air concentrations below Exposure Standards. Use only in well ventilated areas. Use with local exhaust ventilation or while wearing appropriate respirator.

Personal Protection Equipment SAFETY SHOES, OVERALLS, GLOVES, SAFETY GLASSES.

Personal protective equipment (PPE) must be suitable for the nature of the work and any hazard associated with the work as identified by the risk assessment conducted. Wear overalls, gloves, safety glasses. Always wash hands before smoking, eating, drinking, or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

Hygiene Measures Keep away from food, drink, and animal feeding stuffs. When using do not eat, drink, or smoke. Wash hands prior to eating, drinking, or smoking. Avoid contact with clothing.

Avoid eye contact and skin contact. Avoid inhalation of vapours, mist, or aerosols. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory Protection A class P1 or P2 replaceable filter or disposable half face-piece particulates respirator should be worn when machining. Respirators should comply with AS/NZS 1716 and be selected, used, and maintained in accordance with AS/NZS 1715.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance Manufactured pressed board ranging in thickness. They are made from plantation wood fibres or flakes, which are bonded together with resin (glue) under heat and pressure. Long edges are grooved with a coloured plastic tongue, Yellow, Red & Blue, inserted in one groove. STRUCTAflor® H2 boards contain a termiticide additives.

Colour Various as manufactured for identification of grades.

Odour Newly manufactured and freshly cut surfaces may have a paint pine and resin odour.

Solubility Negligible

Specific Gravity (20ºC) 0.65-0.85

Relative Vapour Density (air=1) >1

Vapour Pressure (20ºC) N App

Flash Point (ºC) N App

Flammability Limits (%) N App

Autoignition Temperature (ºC) Does not ignite in its intact state

Melting Point/Range (ºC) N App

Boiling Point/Range (ºC) N App

pH N App

Viscosity N App

Fire Properties of Fire Rating Classified as Group 3 as per section 9(n) of AS 5637 in accordance with specification C1.10 section 4 of BCA.

N Av = Not Available, **N App** = Not Applicable

10 STABILITY AND REACTIVITY

Chemical Stability This material is thermally stable when stored and used as directed.

Conditions to Avoid Elevated temperatures and sources of ignition.

Incompatible Materials Oxidising agents.

Hazardous Decomposition Products Oxides of carbon and nitrogen, smoke, and other toxic fumes.

Hazardous Reactions No known hazardous reactions.

11 TOXICOLOGICAL INFORMATION

HEALTH HAZARD INFORMATION

Formaldehyde gas may be released under some conditions. However, in well-ventilated storage areas and workplaces, the concentration of formaldehyde is unlikely to exceed the World Health Organisation Standard of 0.1 ppm for the general environment and it will be well below the Work safe Australia Occupational Exposure Standard of 1.0 ppm.

Wood dust will be given off from machining the product, and gas and vapour may be produced from heat processing.

The known health effects from wood dust and formaldehyde are as follows:

Wood Dust Dust and splinters may cause irritation of the nose and throat, eyes, and skin. Some woods may also be sensitisers, and some people may develop allergic dermatitis or asthma. Inhalation of wood dust may increase the risk of nasal and paranasal sinus cancer.

Wood dust has been evaluated by the International Agency for Research on Cancer (IARC) as group 1, carcinogenic to humans.

Formaldehyde Formaldehyde gas and dilute solution of formaldehyde in water are irritating to the nose and throat, eyes, and skin. The solutions are also sensitisers and contact dermatitis has been reported.

Formaldehyde has been evaluated by the International Agency for Research on Cancer (IARC) as group 2A, probably carcinogenic to humans. The IARC again evaluated formaldehyde in June 2004 and concluded that:" There are adequate data available from humans for an increased risk of nasopharyngeal cancer" and that formaldehyde should now be classified as Group 1, carcinogenic to humans.

Safe Work Australia has listed Formaldehyde as Sensitiser and Category 2 carcinogen (probable human carcinogen) as "those substances for which there is sufficient evidence to provide a strong presumption that human exposure may result in the development of cancer. This evidence is generally based on appropriate long-term animal studies, limited epidemiological evidence or other relevant information".

Exposures to wood dust produced from machining the products, and gas and vapour from heat processing with inadequate ventilation may result in the following health effects:

ACUTE EFFECTS

Inhalation Material is an irritant to mucous membranes and respiratory tract. Inhalation of vapours can result in headaches, dizziness, and possible nausea. Inhalation of high concentrations can produce central nervous system depression, which can lead to loss of co-ordination, impaired judgement and if exposure is prolonged, unconsciousness.

Skin Contact Dust, gas, and vapour may irritate the skin, resulting in itching and occasionally a red rash.

Ingestion Unlikely to occur, but can result in nausea, vomiting and irritation of the gastrointestinal tract. May cause lung damage if swallowed. Small amounts of liquid aspirated into the respiratory system during ingestion or vomiting may cause bronchopneumonia or pulmonary oedema.

Eye Contact Dust, gas and vapour may be irritating to the eyes casing discomfort and redness.

Chronic Repeated exposure over many years to uncontrolled wood dust may increases the risk of nasal cavity cancer. Inhalation of wood dust may also increase the risk of lung fibrosis (scarring). There are also increased risks of respiratory and skin sensitisation from wood dust and formaldehyde resulting in asthma and dermatitis respectively. But if the work practices noted in this SDS are followed and exposure to airborne dust are kept to a minimum, no chronic health effects are anticipated.

12 ECOLOGICAL INFORMATION

Avoid contaminating waterways.

Acute Aquatic Hazard This material has been classified as non-hazardous. Acute toxicity estimate (based on ingredients): >100mg/L.

Long-term Aquatic Hazard This material has been classified as non-hazardous. Non-rapidly or rapidly degradable substance for which there are adequate chronic toxicity data available. OR in the absence of chronic toxicity data, acute toxicity estimate (based on ingredients): >100mg/L, where the substance is not rapidly degradable and/or BCF <500 and/or log Kow<4.

Ecotoxicity Limited ecotoxicity data was available for this product at the time this report was prepared. Ensure appropriate measures are taken to prevent this product entering the environment.

13 DISPOSAL CONSIDERATIONS

Persons conducting disposal, recycling or reclamation activities should ensure that appropriate personal protection equipment is used, see “Section 8. Exposure Controls and Personal Protection” of this SDS.

If possible, material and its container should be recycled. If material or container cannot be recycled, dispose in accordance with local, regional, national, and international regulations.

14 TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE.

No special transport requirements are considered necessary.

UN No. None Allocated

DG Class None Allocated

Packing Group None Allocated

EPG No. None Allocated

UN Proper Shipping Name None Allocated

Subsidiary Risk(s) No. None Allocated

Hazchem Code None Allocated

15 REGULATORY INFORMATION

According to the criteria of the National Occupational Health and Safety Commission: NOHSC:1008 (1999) and NOHSC:10005(1999) and the assessment is that occupational exposure to dust, smoke of fume from this product is hazardous.

This product is not listed in the Standard for the Uniform Scheduling of Drug and Poisons. No special State or Commonwealth regulations apply.

All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

16 OTHER INFORMATION

Additional Information The dust generated from this product is hazardous according to the criteria of ASCC (formerly NOHSC).

Combustible - Explosive Carbonaceous Dust Carbonaceous/ organic dusts have the potential, with dispersion, to present an explosion hazard if an ignition source exists. All equipment used to handle, transfer, or store this product MUST BE cleaned thoroughly prior to cutting, welding, drilling or exposure to any other form of heat or ignition sources. If bulk stored, containers should be ventilated

on a routine basis to avoid vapours accumulation (where applicable, e.g., for flocculants).

Health Effects from Exposure It should be noted that the effects from exposure to this product would depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that, it is impractical to prepare a Chem Alert report, which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Personal Protective Equipment Guidelines The recommendation for protective equipment contained within this Chem Alert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

ABBREVIATIONS

BCA Building Code of Australia

CAS # Chemical Abstract Service number - used to uniquely identify chemical compounds

EC No. European Community Number

GHS Globally Harmonized System

IARC International Agency for Research on Cancer

mg/m^3 Milligrams per Cubic Meter

OEL Occupational Exposure Limit

PEL Permissible Exposure Limit

pH Relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline)

ppm Parts Per Million

REACH Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals

STEL Short-Term Exposure Limit

CONTACT

For further information on this product, contact:

Australian Panels Pty Ltd (ABN 31 003 246 357)

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STRUCTAflor

Structural Flooring

Australian PANELS

2 Wella Way Somersby NSW 2250 AUSTRALIA

1300 500 250

www.australianpanels.com.au

AUSTRALIAN MADE AND OWNED

PEFC PEFC/21-31-145

Responsible Wood

INSTALLATION & DESIGN MANUAL

R-flor YELLOWtongue

Fixing pattern

STRUCTAflor H2 BLUEtongue & GP YELLOWtongue

STRUCTAflor GP YELLOWtongue

10/2021

Leading Brands

STRUCTAflor General Purpose (GP) YELLOWtongue is still by far the number one product in its class, YELLOWtongue's proven reliability and durability makes it the clear choice in flooring for more builders.

STRUCTAflor GP, STRUCTAflor H2 and R-flor are available in a range of products and easily recognised by their well known YELLOWtongue, REDtongue and BLUEtongue particleboard flooring tongue joining strips.

YELLOWtongue

REDtongue

BLUEtongue

In the building business, your reputation's only as good as the materials you use. That's why when it comes to structural particleboard flooring, you need a product you can trust and a partner you can rely on to keep pace with ever-changing lifestyle and construction requirements.

Our Leading Brands

STRUCTAflor General Purpose, STRUCTAflor H2 Termite Protected and R-flor Radiant Barrier Flooring offer a practical, flexible and cost effective choice when building your new home or extension. With an extensive range of options, they are ideal for: sub-floors, suspended floors in multi-storey construction, additions and extensions and commercial flooring; as well as a host of building applications.

With over 40 years of reliable performance, STRUCTAflor is still the leading product in its class. The proven performance of STRUCTAflor GP, STRUCTAflor H2 and R-flor makes them the clear choice in flooring for builders. And just as they were the first product of their kind on the market, they continue to lead the way in innovation and development of flooring solutions.

40 Years of Trust

After 40 years of dedicated production and innovation, STRUCTAflor GP and STRUCTAflor H2 remain the number one choice for the majority of Australian builders.

The following information provides a guide to the applications, properties and features of the full product range. It also details the appropriate installation systems for STRUCTAflor GP and STRUCTAflor H2.

Note:
Particleboard flooring is not to be used in weather exposed end applications or with under-carpet heating.

Key Points

Storage

STRUCTAflor is designed to withstand full weather exposure for up to five months. Because of this there is a tendency to leave packs unprotected on site before installation. Packs of STRUCTAflor must be protected from the weather until it is installed as moisture penetration of the product before installation may lead to gaps occurring at the flooring joints when the product dries out.

When storing outside, ensure packs are kept clear off the ground. Cover with waterproof sheeting laid on timber battens so that air circulates freely between the waterproof cover and the product.

Exposure

The product may be exposed to the weather for up to five months. However, it is always advisable to enclose the building as soon as possible after laying the floor. During the exposure, prevailing weather conditions can influence the surface condition of the board and may cause minor swelling following the enclosure of the building, this can be removed by sanding. The depth of material removed shall not exceed the following:

- 1mm – Over the general panel area
- 2mm – Within 50mm of any supported edge

Remove any water that ponds on the platform by sweeping or by drilling holes (no larger than 8mm in diameter and no closer than 1 meter apart).

Installation

Adhesives

The Australian Standard allows for either flexible or rigid construction adhesive to be used.

Fasteners

Screw fixing is the preferred method, however the Australian Standard allows for either screw or nail fixing into timber joists.

PRODUCT DESCRIPTION

Designed to provide a total flooring concept, STRUCTAflor GP, STRUCTAflor H2 and R-flor are particularly suited to platform construction where the floor is laid prior to the erection of walls. They are made from precision milled wood flakes and bonded with moisture resistant synthetic resin. For additional protection during construction and exposure to weather, the upper surface is resin enriched and all edges of the tongue and grooved sheets are coated.

Factory grooved long edges are fitted one side with a distinctive, colour-coded rigid Polypropylene (PP) tongue to ensure a neat, tight fit for adjoining panels.

STRUCTAflor GP, STRUCTAflor H2 and R-flor are available in YELLOWtongue, REDtongue and BLUEtongue tongue colours. The tongue and grooved sheets are supplied in easy-to-handle 600mm or 800mm widths. This comprehensive product range allows the selection of flooring to meet specific needs. The products provide total compatibility and cover large areas fast.

YELLOWtongue – 19mm

An interior all-purpose flooring for use primarily in residential buildings and designed for both platform and fitted flooring construction methods. YELLOWtongue will support imposed loads for general areas in houses as required by AS/NZS 1170.1-2002. Permanent, imposed and other actions. At 19mm thick, the maximum joist centres for YELLOWtongue STRUCTAflor GP, STRUCTAflor H2, and R-flor is 450mm for general residential applications.

REDtongue – 22mm

REDtongue is a thicker all-purpose flooring for larger joist spacings or higher load capacity. At 22mm thick the maximum joist centres for REDtongue STRUCTAflor GP, STRUCTAflor H2, and R-flor is 600mm for general residential applications.

BLUEtongue – 25mm Heavy Duty

A 25mm thick particleboard flooring specifically for residential, commercial, industrial and institutional buildings. Subject to span and deflection limits, STRUCTAflor GP may be used over various floor joist spacings to support a wide range of concentrated and uniformly distributed loads.

Floor loads will depend on the nature of occupancy and floor use. Refer AS/NZS 1170.1. When used over floor joists at 450mm maximum centres, 25mm thick BLUEtongue will support live loads in excess of 10kPa uniformly distributed and 4.0kN concentrated.

YELLOWtongue	19mm
REDtongue	22mm
BLUEtongue	25mm

STRUCTAflor GP
General Purpose Structural Flooring

STRUCTAflor General Purpose

General Purpose particleboard sheet flooring, manufactured in Australia to comply with the requirements for Particleboard Flooring, Class 1, in AS/NZS 1860.1, Particleboard flooring.

With its unique hard-wearing resin enriched surface, yellow edge coating on the PP tongued variants – it is the quality flooring for every Australian Home.

STRUCTAflor GP is available in YELLOWtongue, REDtongue, BLUEtongue and Square Edge variants.

STRUCTAflor H2
H2 Treated Structural Flooring

STRUCTAflor H2 Treated

A termite protected sheet flooring that provides added protection against termite attack. It should be used in conjunction with the normal precautions against termite attack which include adequate sub-floor ventilation and the provision of physical or chemical barriers to AS 3660.1 Termite Management – New Building Work.

STRUCTAflor GP, STRUCTAflor H2 is also safe to use and environmentally friendly and is easily identified by its blue edge colour.

R-flor
Radiant Barrier Structural Flooring

R-flor Radiant Barrier Flooring

R-flor radiant barrier flooring is a particleboard flooring with a foil laminated on the underside of the flooring board. It has a low emittance (high reflectance) metallised foil surface which significantly reduces the radiative heat transfer across a suspended timber floor. The subfloor air space delivers an improvement in the "Total R-Value" of the flooring system.

R-flor incorporates a termicide for added protection against termites and is easily identified by its blue edge coat.

Thickness	Joist Spacing (max)		STRUCTAflor GP		STRUCTAflor H2		R-flor
			3600 x 800mm	3600 x 600mm	3600 x 800mm	3600 x 600mm	3600 x 800mm
19mm	450mm	**YELLOW**tongue	✓	✓	✓	na	✓
22mm	600mm	**RED**tongue	✓	✓	✓	na	✓
25mm	600mm	**BLUE**tongue	na	✓	na	✓	✓

Product Details

Thickness: 19mm, 22mm and 25mm nominal.

Surface Qualities: Upper surface is unsanded to retain a resin film, retard moisture and provide a working surface during installation.

Edge Coating: Factory applied to all edges of tongue and grooved sheets to reduce moisture ingress.

- Yellow coating for STRUCTAflor GP YELLOWtongue, REDtongue and BLUEtongue Heavy Duty
- Light blue coating for STRUCTAflor H2 YELLOWtongue, REDtongue and BLUEtongue Heavy Duty
- Blue coating for R-flor YELLOWtongue, REDtongue and BLUEtongue Heavy Duty

Edge Profiles: Tongue and grooved long edges with square cut ends.

Tongue System: Factory fitted, rigid PP tongues ensure a tight fit and precise alignment of unsupported edges.

Resin: Synthetic resins for high moisture resistance.

Identification: Stamps on the underside of boards indicate required joist spacings.

NOTE:
AS 1860.2 Particleboard Flooring – Installation recommends that panels be factory sealed against water penetration. Where panels are not factory sealed, and where panels are cut to size on site, the edges should be sealed with adhesive used to bond the panels to the joists.

The Facts That Matter

- **Resin Enriched Surface**
  - Added weather protection during construction for up to 5 months
  - Hardwearing working surface during installation
- **Edge Coat**
  - Minimises moisture ingress
  - Easy product identification:
    - Yellow – STRUCTAflor GP
    - Light blue – STRUCTAflor H2
    - Blue – R-flor
- **Wax Impregnated throughout**
  - In-built moisture protection for cut sheets
- **Synthetic Resin System**
- **Meets or Exceeds AS/NZS 1860.1**
- **STRUCTAflor GP & STRUCTAflor H2 range:**
  - YELLOWtongue – 19mm Domestic Flooring – 450mm joist spacing
  - REDtongue – 22mm Domestic Flooring – 600mm joist spacing
  - BLUEtongue – 25mm Heavy Duty Commercial Flooring
- **800mm wide sheet**
  - 2.88m^2 coverage (per sheet)
- **600mm wide sheet**
  - YELLOWtongue sheet weighs < 30kg (approx)
- **Australian Plantation Pine**
  - Grown from managed and renewable
- **Built on 40 years of trust**

PRODUCT CERTIFIED MEDIUM DENSITY FIBREBOARD paa ENGINEERED WOOD JAS-ANZ

Termite Hazard Map

Figure 7. AS 1860.2 Sanding Provision

STRUCTAflor H2 is resistant to termites both north and south of the Tropic of Capricorn.

Dotted line represents the Tropic of Capricorn.

Resistance to Termites

Termites (also known as white ants), feed on any cellulose based material, such as timber. In areas defined as termite-prone (check with your local authority), physical barriers such as ant caps or chemical treatments need to be applied in accordance with AS 3660.1.

STRUCTAflor H2 and R-flor are resistant to both the subterranean termite (including Mastotermes darwiniensis) and the timber beetle.

STRUCTAflor H2 and R-flor termite resistant particleboard flooring conforms to H2 level treatment requirements as defined in AS 1604.2. Timber and wood based products treated to H2 level or higher are deemed to be termite resistant building materials under the Building Code of Australia and AS 3660.1.

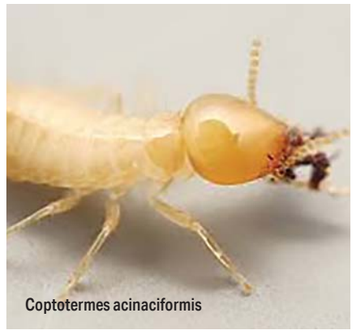
Depending on individual state or local legislation, termite resistant structural timber and wood building components may be used in full or part to satisfy the Building Code requirements for protection of building against termites. However the householder is recommended to have this building regularly inspected for termite activity in accordance with AS 3660.2 by a qualified pest controller or building inspector.

STRUCTAflor H2 and R-flor flooring are protected, by a synthetic pyrethroid insecticide from the most common species of subterranean termites in Australia including Coptotermes spp, Schedorhinotermes, Nasutitermes and Mastotermes darwiniensis and hence is suitable for use both south and north of the Tropic of Capricorn.

STRUCTAflor H2 and R-flor termite resistant particleboard flooring are protected from termite attack by incorporation of an Australian Pesticides and Veterinary Medicines Authority approved wood preservative in accordance with AS 1604.2 (and also approved by Forest NSW and the Queensland Department of Primary Industries), the Timber Marketing Act (NSW) 1977 (if applicable), the Timber Utilisation and Marketing Act (Qld) 1987 (if applicable) and is compliant with AS 3660.1.

STRUCTAflor H2 and R-flor particleboard flooring are regularly tested by an independent, accredited third party laboratory.

Two destructive termite species found in Australia



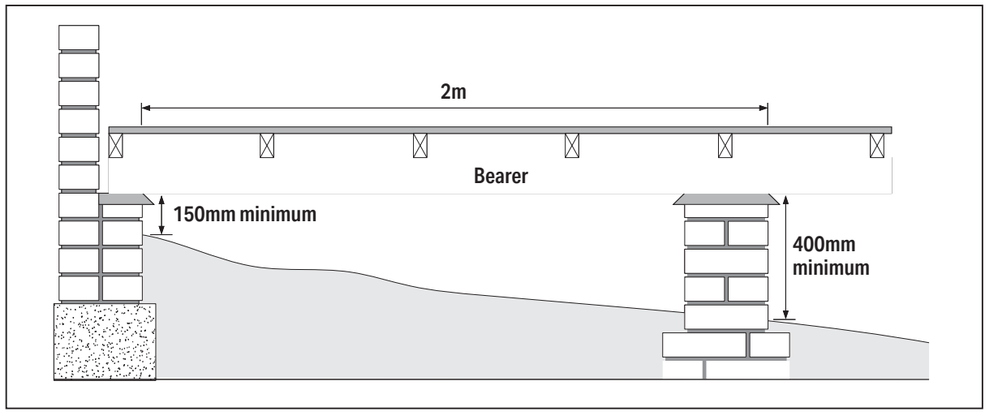
Coptotermes acinaciformis

Mastotermes darwiniensis

Ground Clearance

The BCA (and AS 3660.1: Termite Management) requires a minimum ground clearance of 150mm to underside of bearer where termite inspection is not required. Where termite inspection is required, 400mm minimum height from ground surface is required. On sloping sites, 400mm clearance may be reduced to 150mm within 2m of external walls.

Where termite barriers are not installed or don't require inspection, a minimum 400mm ground clearance is advised as good practice.



Construction Requirements

General

Particleboard flooring should be installed in accordance with government building regulations and AS 1860.2.

It may be used over conventional joists in single storey or two storey construction in accordance with AS 1684 Residential Timber Framed Construction. In commercial or domestic applications involving increased floor loadings, reference should be made to AS 1170 Structural design actions. The supporting frame should comply with the requirements of the Building Code of Australia and/or be certified by a professional engineer, as may be required by the building authority.

Wet Area Rooms

Particleboard flooring is accepted by building authorities for use beneath impervious floor surfacings in wet area rooms such as bathrooms, laundries and toilets. The waterproofing of the floor surface should comply with AS 3740, Waterproofing of Wet Areas in Residential Buildings.

We recommend that wet rooms (bathrooms, laundries and toilets flooring) be entirely waterproofed.

Ventilation/Vapour Barriers

Ventilators to external and internal subfloor walls should satisfy the requirements of the Building Code of Australia, be evenly spaced and allow a clear cross-flow of air beneath the floor. Particular attention should be given to the ventilation of corners.

Increased levels of ventilation are advised for subfloor spaces which are subjected to occasional dampness.

The particle flooring subfloor members should not be subjected to prolonged dampness. The moisture content of particleboard flooring should be maintained below 13% moisture content.

To assist drainage and ventilation, the ground should be graded to fall and weep holes provided in the external walls. In some circumstances 0.2mm (minimum) plastic sheet ground covers may be used to retard the rise of moisture vapour.

The underside of STRUCTAflor facing the ground must not be coated with sealant.

Framing

Particleboard flooring may be used over timber or metal floor joist systems. For best results with timber frames, deep floor joists (150mm or more) such as those used in upper story construction, should be seasoned and gauged.

Securely fix floor joists to bearers. The top surface of joists must be level to allow the flooring sheets to lie flat and level. Kiln dried or stabilised timbers are recommended for use. Green (unseasoned) timber (joists and bearers) may shrink unevenly as they dry which may lead to distortion of the particleboard flooring sheets as well as causing protrusion of nail heads after joists and bearers have stabilised in moisture.

Floor joist spacings must not exceed the span capacity of the particular particleboard flooring product. Refer to "Applications" or "Product Details".

Installation Methods

These instructions are taken from AS 1860.2 – Particleboard Flooring Installation, Engineered Wood Products Association of Australasia (EWPAA) Particleboard Structural Flooring Design Manual, Building Code of Australia (BCA) and relevant timber framing and building standards.

Bushfire Areas

The method of determining the Bushfire Attack Level (BAL) for a site has been revised and now comprises six categories, namely BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ. These categories are based on heat flux exposure thresholds.

The methods for determining the Bushfire Attack Level now include both a step-by step procedure, including tables that list climate, slope of ground and vegetation variations in States and Territories and a detailed calculated procedure.

Please refer to AS 3959 "Construction of Building in Bushfire-Prone areas" and "Guide to building in bushfire affected areas".

Particleboard flooring will expand and contract as sheets respond to changes in atmospheric moisture. Allowance for this movement must be made throughout the floor area by providing gaps and special joints as appropriate to accommodate sheet expansion.

Expansion Joints

For small areas, the gaps left between panels when laid by hand should accommodate normal hygroscopic movement. For large floor areas the hygroscopic movement of the particleboard flooring should be taken into account in the design. Refer to AS 1684.

The Building code of Australia references AS 1684 standard as the Acceptable Construction Manual for timber framed construction. AS 1684 stipulates the following provisions for expansion joints for all flooring material to be:

"For continuous floor widths over 6m, measured at right angles to flooring, intermediate expansion joints shall be provided in addition to the perimeter gaps. This joint shall be either a single 10mm wide gap (under a wall or across a hallway), or smaller gaps with closer spacing to give an equivalent space"

Installation Details

Particleboard flooring sheets are laid with their long side across floor joists and ends butted over a joist. Sheet end joints should be staggered (as illustrated in Figure 2) because any slight rounding of sheet corners may present a hole in the floor if four corners come together.

Select a starting point for laying and set a string line to ensure the first sheet is square with the joists. Position the first sheet with its tongued edge to the string line and note the printed information on the sheets regarding top surface.

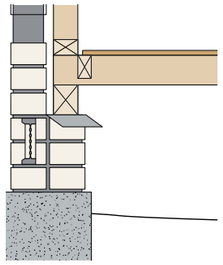
Each sheet must be supported by at least three joists. If this is not possible (cutting in around the room perimeter) then nogging should be fixed under the edges of these smaller pieces.

Arrange sheets as in "Platform Installation"e.g.: T&G edges at right angles to floor joists.

Ensure floor joists and trimmers are installed at the room perimeter to support sheet edges and ends. Provide 10mm clearance between edges and wall frames. Cover with skirting fixed through wall linings to the wall frame.

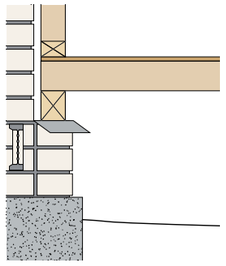
Stagger end joins (stretcher bond pattern) and locate centrally over joists).

Fitted Construction



This applies to STRUCTAflor GP and STRUCTAflor H2 installation after the walls have been erected. Floor joists and trimmers must be installed so that all sheet edges at the room perimeter are supported.

Platform Construction



The product is particularly suited to platform construction. The method provides a working platform for wall and roof frame erection and contributes to time and cost savings.

In platform construction, sheet edges at the building perimeter are aligned with the outside edges of external wall frames. Wall plates are laid over product and fixed through the sheets to the joists.

Installation methods depend on the edge profile and the construction method – either "fitted" or "platform".

Standard Fixing – for Tongue & Groove Panels

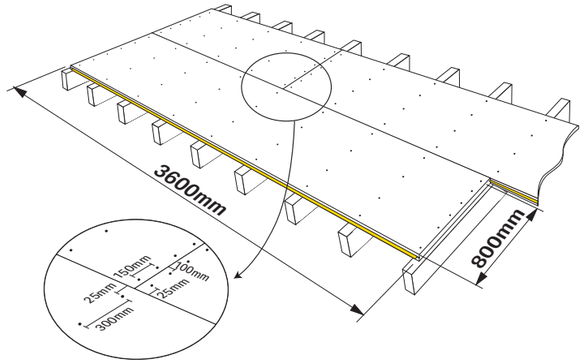


Figure 1. Fastener Spacing - 3600x800 sheets
250mm maximum centres – body of sheet
150mm maximum centres – sheet edges
25mm from T&G edges
10mm (minimum) from square edges (butt joint)

Platform Exposure

The product may be exposed to the weather for up to five months. However, it is always advisable to enclose the building as soon as possible after laying the floor. During exposure, prevailing weather conditions can influence the surface condition of the board and may cause minor swelling. Following the enclosure of the building, this can be removed by sanding – see Figure 2.

Remove any water that ponds on the platform by sweeping or by drilling holes (no larger than 8mm in diameter and no closer than 1 metre apart) in positions which will eventually be covered by wall plates, cupboards or skirting.

Excessive and differential drying of particleboard flooring sheets after it has been wet may result in cupping and shrinkage of the product which could, in extreme circumstances, cause pull-out or pull-through of nail heads. If this occurs, screwing the flooring sheet to the joists will be required to prevent the floor from movement and possible squeaking. In severe cases, shading may be required, or alternatively, light wetting of the flooring surface may be required to recondition sheets back to uniform moisture contents.

Do not apply plastic sheeting or surface sealants over the exposed platform as they will trap moisture and retard drying out. Furthermore, this can result in dimensional change.

The hygroscopic movement of the particleboard flooring (or any flooring) should be taken into account in the design.

General damage to the flooring surface can occur through various means. Avoid the build up of plaster, concrete, paint etc. on the floor and do not use the floor:

- For stacking heavy materials like bricks, tiles, sand, cement or
- As a mixing table for the mixing of cement, mortar, etc.

Minor swelling that may result due to prolonged exposure to weathering (resulting from the hygro-expansivity of particleboard) can be removed by sanding following the enclosure of the building. The depth of material removed shall not exceed the following:

- 1mm – Over the general panel area
- 2mm – Within 50mm of any supported edge

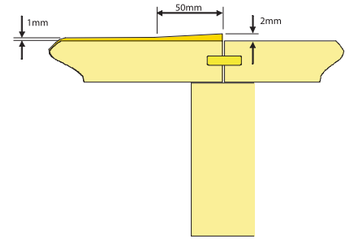


Figure 2. AS 1860.2 Sanding Provision

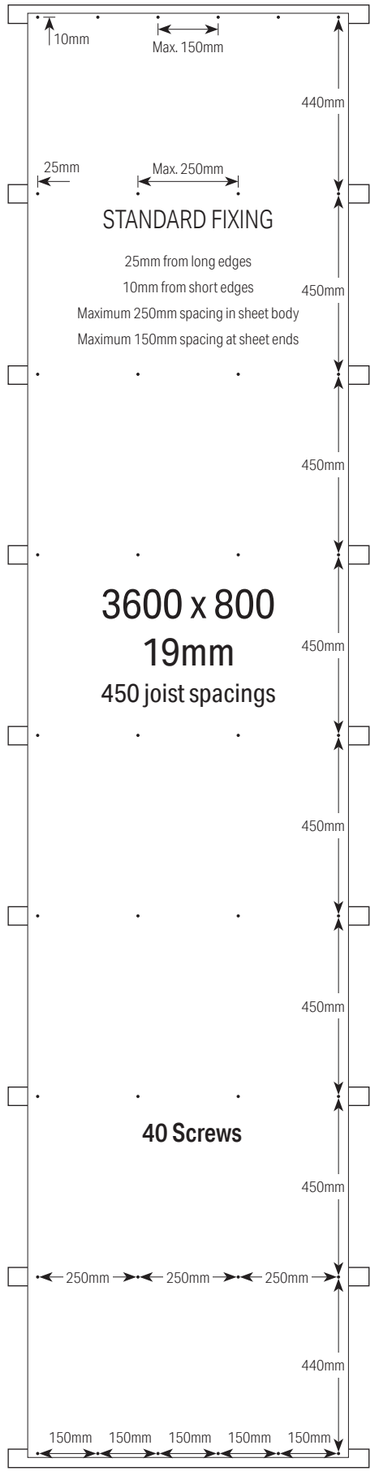


Figure 3. Fixing plan

Double Layers

The additional fixing and support details are required for Concentrated Loads higher than 6kN or Uniformly Distributed Loads higher than 20kPa – refer to section on Load tables. In this case the bottom sheet only requires screw fixing and full support on all edges.

When installing double layers, install the first layer as per the installation requirements on page 11. The second layer is to be laid so that the long joins are staggered between the two layers and the end joins meet on a different floor joist. A bead of adhesive is to be applied on the first layer at the joist position and fasten through both layers into floor joists.

Fastener length for the second layer should provide at least 30mm penetration into joists.

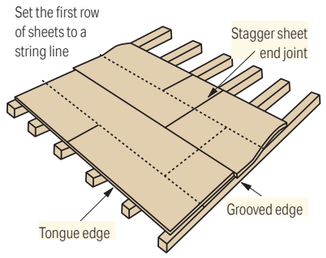
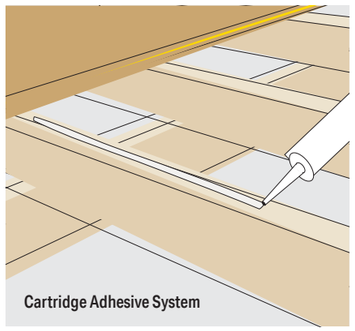


Figure 3. Double Layer Layout



Note:

AS 1860.2 Particleboard Flooring – Installation

1. Advises that adhesive applied along the tongue helps to keep tongues tight in their grooves and minimises squeaking in installed floors.
2. Recommends that panels be factory sealed against water penetration. Where panels are not factory sealed, and where panels are cut to size on site, the edges should be sealed with adhesive used to bond the panels to the joists.
3. The installation of draped Foil type Insulation that provide a disconnect between the joists and flooring is not recommended as it may impede the proper gluing of the flooring to the joists as set out in AS 1860.2 – seek advice and assurance from insulation supplier prior to installation of sub-floor insulation products as to their suitability.

Adhesives

Requirement & Application

Adhesive fixing provides a rigid floor. The use of construction adhesive in conjunction with nails or screws is mandatory.

For cartridge system, cut nozzle to allow a 5mm bead diameter and for foam system regulate flow to achieve the required adhesive bead diameter.

Clean any dirt, grease or water from surfaces to be bonded.

Exude a continuous, 5mm diameter bead of adhesive to each joist to be covered by flooring. Apply two beads to joists where sheets butt together.

An extra bead applied along the tongue before sheets are pressed together will help to achieve a squeak free floor system. Any excess glue squeezed out should be cleaned off.

Position sheets within approximately ten minutes of applying the adhesive. Do not allow the adhesive to skin over before applying sheets.

Nail or screw flooring sheets within 15 minutes of positioning sheet.

Remove excess adhesive from sheet surface before it dries. Use a scraper and rag dampened with mineral turps (or appropriate solvent).

To seal cut edges of the sheets, apply a bead of adhesive to the edge. Butt the edge firmly up to the adjoining sheet and remove excess adhesive. Alternatively, the adhesive may be spread over the cut edge with a spatula.

Table 1. Sheet Quantity Estimator*

How many sheets do you need?									
Width	Thickness x Length	Area	Size of Floor m^2						
			10	25	50	75	100	150	200	250
800mm	19mm x 3600mm	2.88m^2	4	9	18	27	35	53	70	87
600mm	19mm x 3600mm	2.16m^2	5	12	24	35	47	70	93	116

Table 2. Fastener Quantities per Sheet – Standard Fixing

Sheet Size (mm)	Edge Profile	No of Fasteners per sheet	
		Joists at 450mm centres	Joists at 600mm centres
3600 x 600	Tongue and Groove	31	25
3600 x 800	Tongue and Groove	40	32

Table 3. Fasteners

Fastening method	Joist material	Fastener type	Flooring	Minimum fastener
Screw Fixing Preferred Method	All timbers	Type 17 countersunk, self-drilling wood screws	19mm, 22mm	10g x 50mm
Screw Fixing Preferred Method	All timbers	Type 17 countersunk, self-drilling wood screws	25mm	14g x 65mm
Screw Fixing	Steel	Countersunk self-embedding head, self-drilling screws, preferably with self breaking cutter nibs	19mm, 22mm, 25mm	9g x 45mm or 10g x 45mm
Manual Nailing	Hardwood or Cypress Pine	Bullet head or flathead nails	19mm, 22mm	50mm x 2.8mm
Manual Nailing	Hardwood or Cypress Pine	Bullet head or flathead nails	25mm	65mm x 3.75mm
Manual Nailing	Softwood	Bullet head or flathead nails	19mm, 22mm	65mm x 2.8mm
Manual Nailing	Softwood	Bullet head or flathead nails	25mm	75mm x 3.75mm
Machine Driven Nailing	Hardwood or Cypress Pine	D head, round head or finished head	19mm, 22mm	50mm x 2.5mm
Machine Driven Nailing	Hardwood or Cypress Pine	D head, round head or finished head	25mm	65mm x 2.5m*
Machine Driven Nailing	Softwood	D head, round head or finished head	19mm, 22mm	65mm x 2.5m*
Machine Driven Nailing	Softwood	D head, round head or finished head	25mm	75mm x 2.5mm*
Pneumatic Nailing	All timbers	Tee or finishing head nails	19mm, 22mm	50mm x 2.5mm
Pneumatic Nailing	All timbers	Tee or finishing head nails	25mm	75mm x 3.15mm

* Available in D head or round head only.

Note:

1. Use galvanised nails designated for wet areas.
2. Skew bullet or jolt head nails for improved holding.
3. Steel screws should be suitably coated to resist corrosion. To determine if there are alternative methods please contact your Sales Manager.

Fasteners

Select an appropriate fastener from Table 2. The fastener type, length and gauge is based on the particleboard thickness, joist material and available fastening equipment.

Fastener Spacing

For all flooring system's sheet edges, space fasteners at 150mm centres. Keep fasteners at least 10mm from square edges and 25mm from tongue and grooved edges.

In the body of the sheets, space fasteners at 250mm centres for 800mm wide flooring and 300mm centres for 600mm wide flooring. Drive fasteners flush with the STRUCTAflor GP and STRUCTAflor H2 surface. Immediately prior to sanding, punch fasteners 2mm below the surface.

Fixing to Timber I-beam joists

AS1860.2 states that when particleboard flooring is fixed to I-beam joists, screws (not nails) should be used. I-beam flanges may only be 35mm thick and nails will penetrate through and may not have sufficient holding strength.

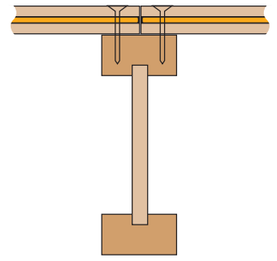


Figure 4. Fixing to EWP I-Beam

R-Values
Downwards or Upwards?

Heat always travels from warmer to cooler areas. Insulation works by reducing the amount of heat escaping from your home when it's cold outside and entering your home when it's hot outside. In winter it is usually colder underneath the floor so insulation is needed to stop heat escaping downwards into the subfloor. At hot times of the year, insulation may be needed to stop heat travelling upwards through the floor.

The direction in which insulation needs to inhibit this heat transfer, depends upon if the climate zone your home. R-values can be measured depending on the direction of heat flow (upward or downward) that one wants to reduce. In cooler climates higher down R-values and lower up R-values are appropriate. In hot, humid climates where houses are naturally ventilated, lower down R-values and higher up R-values are appropriate for floors"Guide to building in bushfire affected areas".

Energy Efficiency

Homes with suspended particleboard floors can be designed to meet home energy efficiency and thermal comfort regulations across Australia.

Energy Efficiency Regulations Overview

Across Australia, energy efficiency regulations vary between the different states and territories. Generally speaking there are two ways to meet the regulations, either with an elemental approach or with a modelling approach.

Note that in both approaches the floors on mezzanine, first and higher floors do not have any energy efficiency requirements to meet.

Elemental Approach

The elemental approach sets out, among other things, specific minimum insulation levels for the various elements of a house – walls, ceilings and so on and includes minimum requirements for the ground floor. This approach is called acceptable construction in the Volume 2 of the Building Code of Australia (BCA), deemed-to-satisfy in Volume 1 of the BCA, and Rapid or DIY method under the NSW BASIX system.

For most states and territories all the energy efficiency requirements for the ground floor element are in the latest edition of the BCA. However some states may have exemptions from or additional requirements to the BCA. Some states may also have requirements which refer to previous editions of the BCA.

Modelling Approach

The modelling approach requires a home to meet minimum energy efficiency levels for the energy needed to heat and cool the whole house. These minimum levels are set by the state and territory governments and are minimum 5 star, 6 star rating and so on or, in the NSW BASIX system, minimum heating and cooling loads which vary depending on the homes location. The minimum energy efficiency of the whole house as designed is required to be modelled using computer software such as FirstRate, AccuRate or BERS Professional by a trained energy assessor. This modelling approach allows considerable flexibility in how a home achieves the minimum energy efficiency rating. It may mean, for example, that no additional insulation is required on the ground floor because of increased wall and ceiling insulation (it is also usually easier and cheaper to install more insulation in these areas) or changes to glazing type, coverage or frames.

An average home using STRUCTAflor GP, STRUCTAflor H2 or R-flor particleboard flooring on the ground floor can generally achieve the required energy efficiency star ratings (or equivalent) for the building fabric by one or more of the following:

- Increasing insulation in the wall, ceiling or internal walls
- Correct building orientation to take advantage of sunlight, shade or breezes
- Providing summer shading and ventilation
- Providing outdoor living areas in warm climates
- Correct glazing sizing, location frame type In cooler or temperate climate zones additional measures may be needed such as:
  - Draught proofing
  - Enclosing the subfloor perimeter with a wall
  - Blocking the wall cavity if building a block or brick veneer home
  - Installing additional insulation under the floor

For both approaches the insulation properties of the particleboard flooring or the insulation properties of particleboard flooring when used as part of a particular floor system will need to be known. Guidance of both is provided below.

Particleboard Flooring R-Values

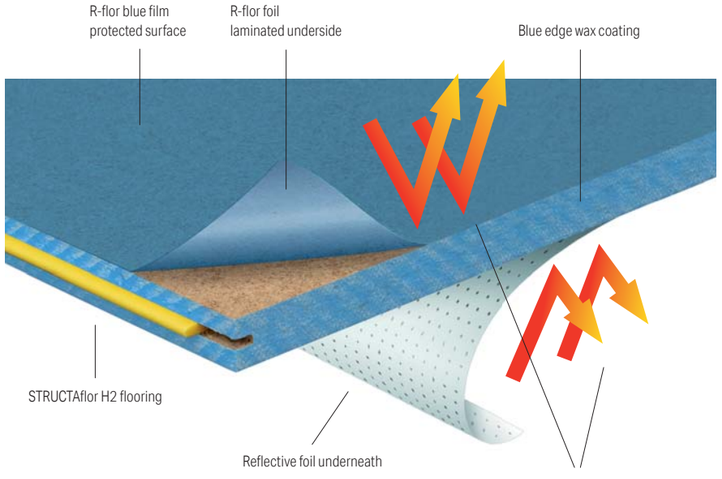
Insulation value is commonly called an "R-value" and is a measure of thermal transmittance. There are two ways in which R-values are listed:

- Product or material R-value is the R-value of the product or material on its own.
- System R-value includes the combined insulation value of flooring material, air spaces, any additional insulation and other variables working in conjunction.

STRUCTAflor GP, STRUCTAflor H2 and R-flor all have a material R-value. The R-values for suspended particleboard ground flooring vary and R-values for a common selection of systems are included in Table 5.

Specific floor system R-values can vary depending on:

- Sub-floor perimeter enclosure – if the area under the ground floor (the subfloor) is enclosed the air movement is greatly reduced, substantially increasing the R-value of the floor system.



R-flor Radiant Barrier Structural Flooring

Note that minimum sub-floor ventilation rates, which vary depending on the building location and its humidity zone, must be adhered to.

- Building location and sub-floor ventilation – a building located in a lower relative humidity zone requires less subfloor ventilation if the sub-floor perimeter is enclosed. Less ventilation (and air flow) increases the R-value of the floor system.
- Building exposure – a floor system of a building in a suburban area will have a higher R-value than a floor system installed in an exposed rural or seaside location.
- Sub-floor perimeter material – if a subfloor is enclosed with materials with a higher material R-value then the ground floor system will have a higher R-value.
- Height above ground level – floor systems close to the ground have a greater thermal connection with the earth so will have a higher R-value than one that is further off the ground.
- Wall cavity barrier – if where a sub-floor perimeter is enclosed and brick or block veneer is the method of construction, installing a barrier below floor level to prevent convection between the airspace under the floor and any wall cavities will substantially increase the R-value of a floor system. Note that in warm, humid climates a wall cavity barrier will reduce the ability of the home to cool off so in some climate zones this is not an elemental requirement.
- Floor joist depth – a floor joist of greater depth will slightly increase the R-value of a ground floor system as more insulating air is trapped underneath.
- Soil type – clay soils are less thermally conductive than sandy soils so a suspended ground floor built over clay soil will have a higher R-value.
- Flooring material – a flooring material which conducts less heat (such as particleboard or carpet) will increase the R-value of a floor system.

Additional Insulation

If additional insulation is required for the ground floor it may be added on top of or underneath the floor or even on the inside of the sub-floor perimeter walls. The following options are available:

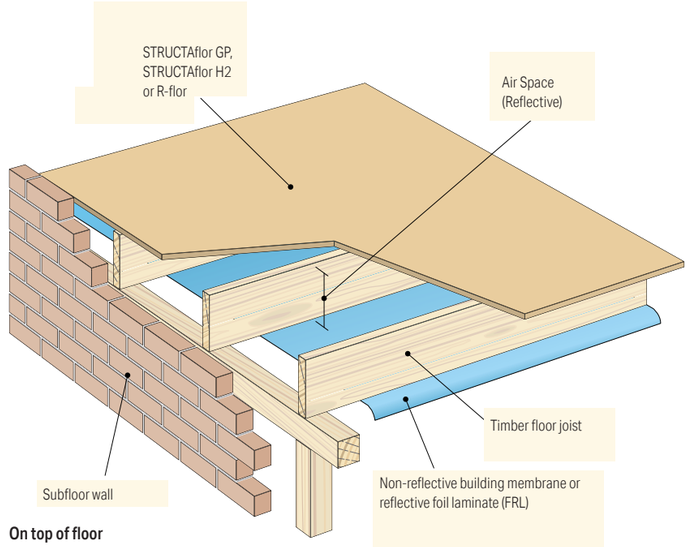
On Top of the Floor

Carpet and underlay laid on top of the particleboard flooring can add a significant insulation effect. An increase in R-value of approximately R0.5 (downwards and upwards) can be expected.

Carpet and underlay can increase R-value (down and up) by R0.5.

Laying tiles directly onto particleboard flooring will result in only a slight increase in system R-value. The effect on R-values of timber finishes such as floating timber floors or tongue and groove timber varies depending on the type of wood and the substrate materials. Consult with the manufacturer of these products on their specific material R-values.

Be aware that the insulation on top of a floor may not be recognised by some building authorities or energy rating software as additional insulation. Check with your local building authority or energy rating professional about the acceptability of this in your area.



On top of floor

Fixing to Timber & Steel Joists

Adhesive & Fixing Requirements

Good quality flexible adhesive MUST be used.

The correct amount of anti rust screws MUST be used (40);

- **Screws required**
  - **19mm**
    450mm joist spacings - 40 screws
  - **22mm / 25mm**
    600 joist spacings - 32 screws
- **Fixing onto timber joists**
  - **19mm / 22mm**
    10g x 50mm type 17 countersunk, self drilling wood screws.
  - **25mm**
    14g x 65mm type 17 countersunk, self drilling wood screws.
- **Fixing onto steel joists**
  - **19mm**
    9g x 45mm countersunk self embedding head, self drilling screws.
  - **22mm / 25mm**
    10g x 45mm countersunk self embedding head, self drilling screws.

Additional Installation Requirements

Weather proof tape MUST be used over the joins as well as over fixings that have penetrated the plastic cover.

Any damage to the plastic cover MUST be repaired straight away using weatherproof tape.

Flexible adhesive MUST be placed on the joist as well as in the groove that the plastic tongue goes into.

Expansion joints

- 10mm around outside perimeter,
- Tongue and groove side of the board (long join) can be butted hard together,
- On the end of each sheet as it sits on the joist (short end) leave a 2-3mm gap, this gap can be filled also using the same flexible adhesive you used on the joists,
- Any cut edges or service penetrations should have adhesive applied to them to provide a seal.

Under the Floor

The addition of insulation under the floor can result in either small or large increases in R-value to a ground floor system.

Installing R-flor significantly reduces the radiative heat transfer from the warm living space through the floor into the cool subfloor space to deliver an improvement in the R-value (downwards) of the flooring system. R-flor can add up to R0.6 downwards insulation value to a ground floor system.

STRUCTAflor GP, STRUCTAflor H2 and R-flor can be used in conjunction with other insulation products below the floor.

It is important that the R-flor reflective coating requires an air gap underneath to work effectively. Bulk insulation pressed up against the coating, will negate R-flors additional insulation value.

R-flor has a high reflectance metallised foil coating underneath which significantly reduces radiative heat transfer between the living space and the sub-floor area, substantially increasing R-value (down) of a ground floor system.

Fixing a non-reflective building membrane between or under floor joist is considered to add an R-value of 0.2 (downwards and upwards) in the BCA. Fixing reflective foil laminates (RFLs) between or under floor joists will achieve a higher R-value however, the specific R-value needs to be determines for each product and the airspace above the RFL. Typically a double-sided RFL attached beneath the floor joists with 90mm airspace can add an R-value of at least 1.97 downwards and 0.55 upwards.

Fixing reflective foil laminate (RFL) underneath floor joists where the sub-floor perimeter is enclosed substantially increasing R-value (down) of a ground floor system.

Placing bulk insulation such as expanded polystyrene or fibre batts will add significant R-value when installed under a floor system. Bulk insulation is available from anywhere between R1.5 to R3 and is usually installed between the floor joists. Depending on the available access bulk insulation can either be placed between the floor joists and held there by friction or placed on top of wire or netting or on stirrups placed over the floor joists.

Use of expanded polystyrene between floor joists can add significant downward R-value to a suspended particleboard floor. Friction fitting or laying on top of floor bearer may be possible with some systems.

When using bulk insulation and recalculating total floor system R-value care must be taken as it is not a straight forward matter of adding the material R-value. The bulk insulation displaces air which itself has some insulation effect.

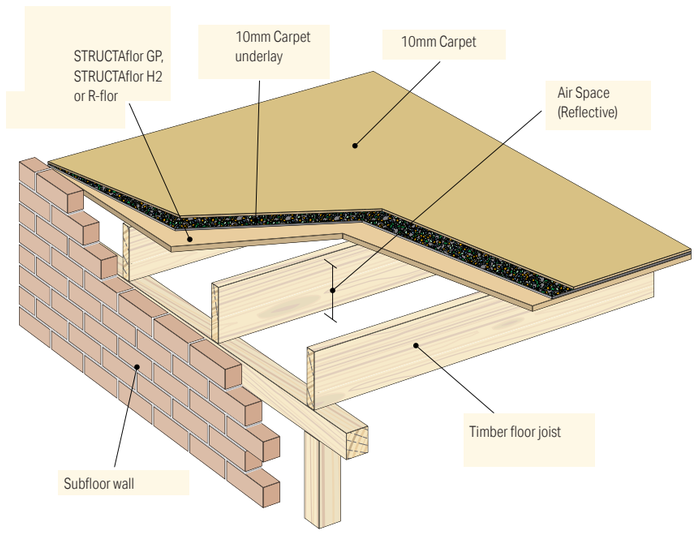
For example installing fibre batts with an R-value of 1.5 between the floor joists will increase the R-value by R0.74 (upwards) and R1.21 (downwards) not R1.5.

Bulk fibre insulation installed on top of wire netting between floor joists adds significant downwards R-value. Note the airspace above the insulation which is needed to maximise benefit of reflective foil coating under R-flor.

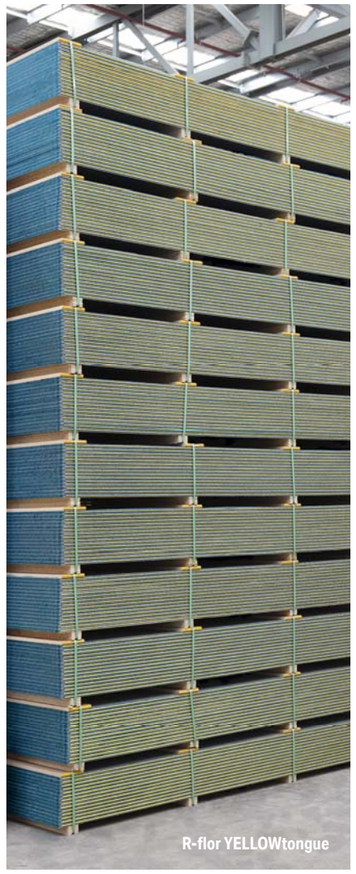
Inside the Sub-floor Perimeter Wall

In cold climates installing additional insulation inside the sub-floor wall enclosing the perimeter will improve the insulation performance of the floor system. Again, take care that the minimum sub-floor ventilation requirements for the buildings humidity zone are adhered to ensure adequate air movement under the floor.

The installation of a membrane or RFL draped over the floor joists is not recommended as it may impede the proper gluing of the flooring to the floor joists as set out in Australian Standard AS1860.2. This Standard states that the use of construction grade adhesive in conjunction with nails or screws is mandatory. The installation of a draped membrane or RFL may interfere with the function of the adhesive between the flooring and floor joist.



Under the floor



Further Information

Research funded by the Forest Wood Products Australia (FWPA) has identified a number of options for insulating under floors in the report "Insulation Solutions to Enhance the Thermal Resistance of Suspended Timber Floor Systems in Australia". This report can be found at www.timber.org.au in the Design and Construction section under Thermal Performance.

Due to the magnitude of solutions and products available only a few systems are noted above. Advice on the most suitable product for your climate and conditions including information on correct installation of additional insulation under the floor is to be sought from the insulation supplier/manufacturer.

Hints

Apply a quality duct tape to joins as soon as practical after installation.

- During platform exposure apply appropriate drainage to facilitate evacuation of moisture.
- Do not drill drainage holes in the particleboard flooring in areas that drain into insulation underneath the floor.
- Ensure that the floor and sub-floor space is kept as dry as possible to prevent mould and fungal growth.
- If using draped RFL over the floor joists (not recommended) ensure that the RFL is perforated where the trough is formed with a minimum 6mm diameter holes at spacings of 300mm to allow water to pass through.
- Precautions need to be taken so the insulation does not get wet during construction which may cause mould or fungal growth to develop under the flooring.
- If underfloor insulation does get wet, ensure adequate sub-floor air ventilation and circulation is present to dry it out.
- Care must also be taken not to over insulate the floor. In hot climates or in other climates at warmer times of the year too much under floor insulation may prevent the building cooling off, resulting in increased use of air-conditioning to ventilate or cool the inside of the home.
- Placing additional insulation underneath floors where the sub-floor perimeter is not enclosed may require additional support to keep insulation in place. Lining underneath the floor joists with particleboard or plywood may be needed to deliver additional R-value required and secure the insulation.

For additional information on R-Values for R-flor REDtongue and R-flor BLUEtongue, kindly visit our website:

www.australianpanelproducts.com.au

Flooring Product Details		STRUCTAflor GP and STRUCTAflor H2 YELLOWtongue (19mm)		R-flor YELLOWtongue (19mm)	
Height of floor above the ground (metres)		0.6	1.2	0.6	1.2
Additional Insulation Type	Direction of Heat Flow	R-Value			
No additional insulation	Downwards	1.06	0.91	1.67	1.52
	Upwards	0.93	0.79	1.06	0.91
With carpet and underlay	Downwards	1.54	1.39	2.15	1.99
	Upwards	1.42	1.27	1.54	1.39
No carpet and nonreflective membrane between or under joists	Downwards	1.26	1.11	1.87	1.72
	Upwards	1.13	0.99	1.26	1.11
No carpet and RFL under joists	Downwards	2.95	2.80	3.42	3.27
	Upwards	1.52	1.38	1.61	1.46
No carpet & R1.5 bulk insulation between joists*	Downwards	2.54	2.39	2.94	2.81
	Upwards	2.40	2.25	2.79	2.65

Table 1. R-values for selected suspended ground floor systems using STRUCTAflor GP, STRUCTAflor H2 and R-flor YELLOWtongue – enclosed perimeters

Note:

1. R-values for typical suburban location in humidity zone 3, standard brick veneer with a wall cavity barrier, sub-floor enclosed with single skin masonry (110mm), floor joist depth 90mm over a clay soil.
2. Bulk insulation is assumed to sit flush with the bottom of the floor joist, leaving an airgap between the top of the bulk insulation and the bottom of the particleboard flooring.
3. R-values calculated in accordance with the relevant provisions of Australian Standard AS/NZ4859.1 – Materials for the thermal insulation of buildings. General criteria and technical provisions and the International Standards Organisation standard ISO13370 – Thermal performance of buildings – Heat transfer via the ground – Calculation methods is used as the methodology for determining the R-value of suspended timber floors.
4. Assumption of carpet: 10mm carpet, 10mm underlay both with conductivity of 0.05 W/m^{2}K.
5. Additional R-value for adding a non-reflective membrane between or under joists is considered to add an R-value of 0.2 to the total R-value of the base floor construction as advised in BCA 2010 Volume Two.

* 90mm joists, fibreglass insulation

WET AREA INSTALLATION

Australian Panels recommend the use of a Fibre Cement Underlay in all ceramic tile applications.

Particleboard flooring provides an economical flooring option for the application of impervious waterproofing systems in wet areas such as bathrooms, laundries and toilets. The waterproofing of floors and floor/wall joints in these areas is essential to prevent water damage to the substructure and adjoining rooms or spaces.

Waterproofing systems for wet area floors must comply with regulatory requirements. Systems which comply with AS 3740, have a State or National Certificate of Accreditation are generally suitable for use over particleboard flooring.

Australian Standard AS 3740, defines "waterproof" and "water resistant" and specifies which treatment is required for wall and floor areas in bathrooms, toilets and laundries under various arrangements. When treated in accordance with AS 3740, with sealants and membranes meeting AS 4858, particleboard flooring Wet Area Membranes are suitable for use in all wet areas.

Before installing waterproofing systems or shower bases/trays, seal all cut edges of the product, including holes for service pipes, with epoxy resin. Construction grade adhesive may also be used.

Note:
Movement of the subfloor members due to shrinkage, attention to fixing detail or from subsequent floor loads can be detrimental to the performance of floor surfacings, e.g.: waterproofing systems and ceramic tiles. Close attention should be given to the fixing detail in the design and construction of the floor.

Wet Area Surfacings

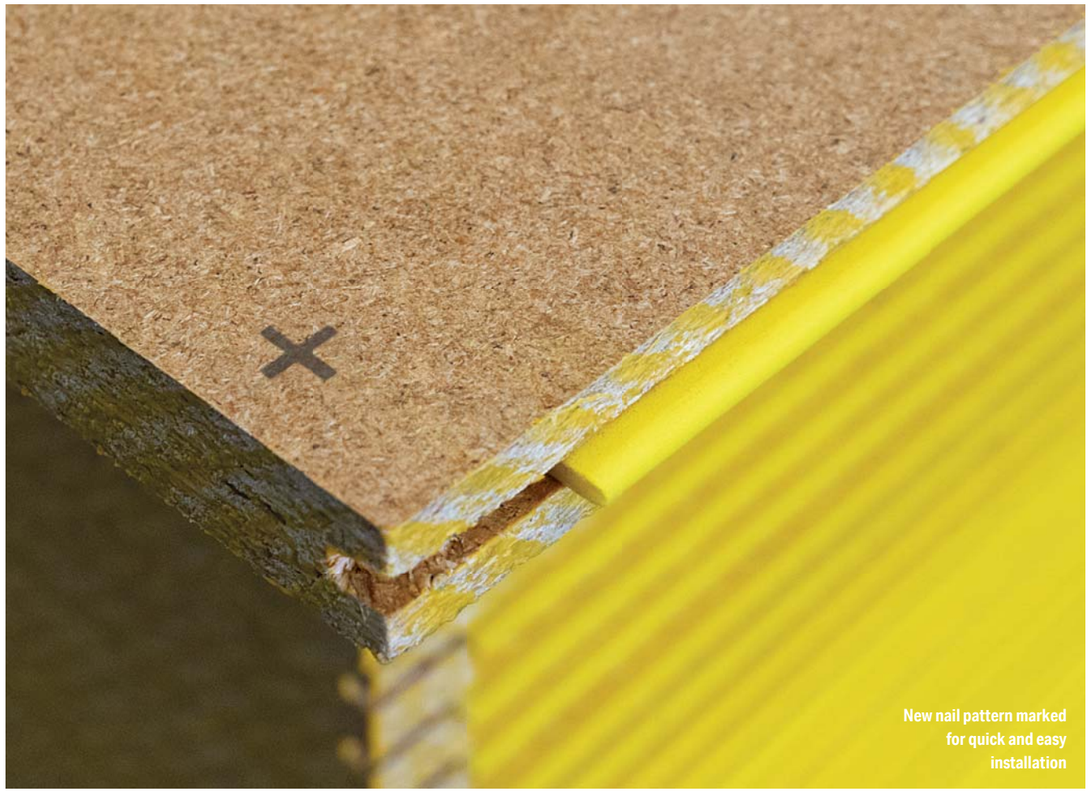
In shower areas, ceramic tiles are usually laid in a mortar bed applied over the shower tray. Where the ceramic tile application extends over the wet area room, the product should be waterproofed with an insitu sheet membrane or proprietary liquid membrane as in the shower area.

Alternatively, the floor surface outside the shower area should be sealed with an epoxy sealer. Apply a second coat of sealer and place the mortar, usually 3 parts sand to 1 part cement, while the epoxy sealer remains tacky.

In accordance with Australian Standard AS 3958.1, Guide to the Installation of Ceramic Tiles, mortar beds should be reinforced with galvanised 50mm x 50mm welded wire mesh, 2.5mm diameter. A minimum mortar bed thickness of 40mm is recommended.

Some floor surfaces which are outside the shower area may not be required to slope to a floor waste outlet. Please check with your local building authority.

Where 6mm fibre cement is applied over the product as a base for ceramic tiles or resilient sheet or tile floor coverings, fix sheet strictly in accordance with the manufacturer's instructions.



New nail pattern marked for quick and easy installation

DECORATIVE & SURFACE FINISHING

Particleboard flooring is an ideal base for underlayments, floor coverings and finishes. Surface treatments include carpet, vinyl sheet or tile, cork, linoleum, quarry or ceramic tile and clear or tinted paint coatings.

Concrete Surfacing

Concrete floors in domestic, commercial and industrial buildings can be upgraded with particleboard flooring to change the surface characteristics and adapt the floor for special purposes, e.g.: work areas, goods storage, display, sport or recreation, children's play areas, etc. or as a base for decorative timber flooring. Particleboard flooring provides a uniform, comfortable "walk on" surface and the feeling of warmth associated with wood.

STRUCTAflor provides the ideal base surface for base under decorative timber flooring or over a concrete slab.

Concrete Surfaces

The concrete should be dry, reasonably flat and clean of dirt, oil, grease or fatty substances. A moisture impervious membrane should be located beneath slabs on the ground.

Prior to installation it is necessary to ensure that the concrete is sufficiently level to accept the system. Where the slab is greater than 3mm out of level over any 1500mm length, a concrete topping (leveling compound), grinding or packing should be used. Slabs on ground should be constructed with a continuous under slab vapour barrier (e.g.: 0.2mm thick polyethylene). Timber floors should not be installed until the concrete slab has a moisture content less than 5% (generally achieved after slabs have cured for approximately 4-6 months). In old slabs, moisture contents should be below this level and if not, care should be exercised.

Various methods are available to test the moisture content of concrete, including resistance metres, capacitance metres and hygrometres.

Surface Finishing

Apply the covering or finish in accordance with the manufacturer's instructions The installation should also meet the requirements of the relevant Australian Standards:

AS/NZS 2455.1, Textile Floor Coverings – Installation practice general.

AS/NZS 2311, Guide to The Painting of Buildings.

AS 3958.1, Ceramic Tiles – Guide to the Installation of Ceramic Tiles.

AS 3958.2, Ceramic Tiles – Guide to the Selection of a Ceramic Tiling System.

Preparation

Preparation of particleboard flooring to receive floor surfacings will depend on the type of covering or finish and the effect of weather exposure on the floor.

Preparatory work should be undertaken only when the building is closed and weather tight. STRUCTAflor which has been wetted must be allowed to dry to a moisture content below 10%.

Check that the STRUCTAflor is fixed tightly to joists, as per "Installation Details" page 7.

Drive fasteners below the floor surface to facilitate sanding and minimise "nail popping" in the event of substructure shrinkage.

Sanding

Sand the surface of the product to level sheet joins and fixing points, even out irregularities and remove any loose weathered particles. For general purpose sanding use 40-60 grit closed coat paper. Refer to sanding provisions detailed under Platform Exposure above.

Heavier sanding, with maximum 40 grit paper, may be required on floors which have been exposed to severe wetting. Avoid excessive sanding and limit to a 1mm maximum cut over general floor areas, 2mm maximum cut over supported sheet joins, in accordance with AS 1860.2.

For clear and tinted paint finishing, the product should be fine sanded with 100 grit closed coat paper.

After sanding, remove all dust, preferably by vacuum cleaning. The prepared surface should be dry, clean and free of any surface contamination, e.g.: paint, oil, etc.

Quarry & Ceramic Tiles

Australian Panels recommend the use of a fibre cement underlay in all ceramic tile applications.

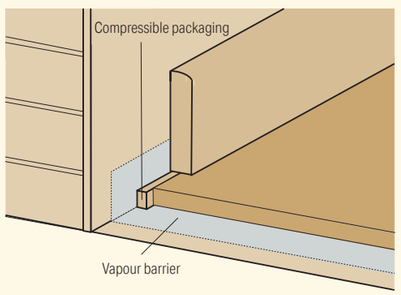
Resilient Sheet & Tile

Resilient sheet and tile floor coverings, including flexible and semi-rigid PVC, cork, rubber, linoleum and cushioned vinyl require a hard underlay, e.g.: Hardboard Underlay, to meet Australian Standard and floor covering manufacturer's installation requirements.

Note:
STRUCTAflor sheets may vary in colour and appearance. The variation will show through clear and tinted finishes.

Vapour Barriers

An impervious moisture barrier, e.g.: 0.2mm polyethylene, should be laid over any concrete surfaces subject to dampness. Lap and tape all joins and fold the barrier up walls. Loose lay the STRUCTAflor as outlined under "Fixing".



Alternative Applications

Particleboard flooring is suitable for alternative flooring applications to restore old floors, upgrade concrete floors, reduce sound transmission or accommodate subfloor services for computers, telephones, plumbing, etc.

Raft & Floating Floors

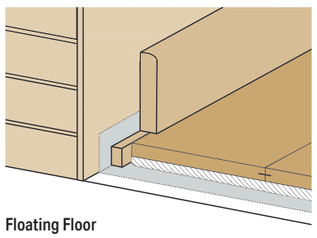
To reduce sound transmission through existing floors, particleboard flooring may be used as a raft or floating floor over a layer of resilient material, e.g.: Caneite insulating board, expanded polystyrene, resin bonded fibreglass, etc. The purpose of the assembly is to isolate the existing floor and walls from surface vibrations associated with airborne sound and impact e.g.: footsteps.

Raft or floating floors are not fixed to the subfloor. They are held in position by their own weight and by skirting fixed to perimeter walls.

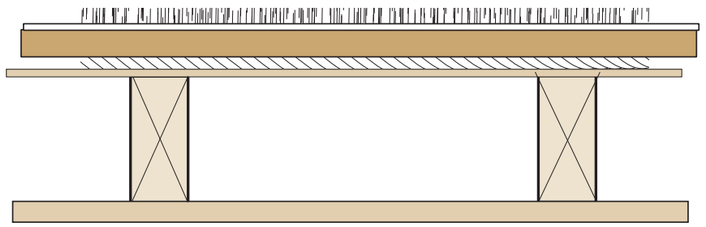
Best results are obtained where the floor systems are applied over concrete to reduce impact noise transmission to the room below. Another recognised control against impact noise is to cushion the impact with a soft floor surfacing e.g.: carpet over felt or other resilient underlay.

Raft or floating floors may also be applied over existing timber floors.

The effectiveness of raft and floating floor systems is limited by their retention of resilience under load. Also by the extent to which pipes, services, etc. form bridges to conduct vibrations between the floor and the structure.



Floating Floor



Floating Floor (over timber)

STRUCTAflor installation using screw fixing method

Health & Safety

The normal health and safety precautions should be taken when working with wood panel products. Machine tools should be fitted with dust extractors and work areas kept clean. If dust levels exceed Worksafe Australia standards the wearing of a dust mask (AS/NZS 1715 and AS/NZS 171) and safety glasses (AS/NZS 1337)
is recommended.

Storage and work areas should be adequately ventilated.

Product Material and Properties

Table 1 describes typical dimensions and package size available in the STRUCTAflor range.

Table 1. Dimensions and Packaging

Thickness	Edge Type	Length + /- 2mm	Width + /- 2mm	Sheets per pack	Contents (m^2)	Approx Mass per pack (kg)
19mm	YELLOWtongue	3600	800	30	97.2	1116
		3600	600	30	64.8	837
22mm	REDtongue	3600	800	30	97.2	1292
		3600	600	30	64.8	969
25mm	BLUEtongue	3600	600	25	54.0	918

Particleboard Flooring Properties

Table 8 contains typical properties for Australian produced particleboard flooring in internal application where they are not subject to prolong wetting or high level of relative humidity. The equilibrium moisture content of the board should be maintained below 13%.

Table 2. Typical Property Values for Class 1 Particleboard Flooring
Source: Facts About Particleboard and MDF EWPAA 2010 – www.ewp.asn.au

Property	Units	Thickness		
		YELLOWtongue 19mm	REDtongue 22mm	BLUEtongue 25mm
Density	kg/m^3	680	680	680
Blending Strength (MOR)	MPa	24	21	24
Bending Stiffness (MOE)	MPa	3500	3250	3750
Internal Bond Strength	MPa	0.70	0.75	0.80
Surface Water Absorption	g/m^2	50	50	50
Thickness Swell (24 hr)	%	3	3	2
Glue Bond Durability	MPa	5.5	5.5	6
Glue Bond Quality	MPa	12	12	12
Thickness Stability	%	11	11	11
Formaldehyde Potential (Desiccator Method)	mg/L	1.3	1.3	1.3

New fixing pattern marked for quick and easy installation


STRUCTAflor H2 REDtongue


STRUCTAflor GP YELLOWtongue

Fire Hazard Properties

For certain building types and locations within the building, the Building Code of Australia stipulates minimum fire properties of materials used in construction. These fire hazard properties are generally used for commercial buildings and are not required for single family houses (Class 1).

Commercial Building

Particleboard used as a flooring substrate – BCA Specification C1.10 – Early Fire Hazard Properties (AS/NZS 1530.3-1999).

This fire hazard property is used where particleboard is not the final floor covering such as under a carpet or tiled floor. In this case the Early Fire Hazard properties are required for most single family homes.

Table 3. Properties of typical particleboard flooring
Source: AWTA (May 2019) test reports 19-002324/5/6

	YELLOWtongue 19mm		REDtongue 22mm		BLUEtongue 25mm	
	Index	Range	Index	Range	Index	Range
Ignitability	13	0-20	13	0-20	13	0.-20
Spread of flame	4	0-10	4	0-10	4	0-10
Heat Involved	4	0-10	4	0-10	4	0-10
Smoke Developed	3	0-10	2	0-10	4	0-10

Particleboard used as a Floor Covering – BCA Specification C1.10a (AS/ISO 9239.1-2003)

Where particleboard is used as the actual floor covering (exposed) in commercial buildings, Specification C1.10a of the BCA fire hazard properties places limits on the floor covering performance in various locations within a building or whether sprinklers are used.

Table 4. Test results for typical STRUCTAflor
Source: AWTA (June 2019) test reports 19-001482/5/6

	YELLOWtongue 19mm	REDtongue 22mm	BLUEtongue 25mm
Average Critical Radiant Flux	6.0kW/m2	4.7kW/m2	5.9kW/m2
Average Smoke Obscuration (Smoke Development Rate)	17% min	19% min	28% min

Thermal Insulation

The thermal conductivity of STRUCTAflor GP and STRUCTAflor H2 is 0.12 W/mK. Thermal resistance (R-values) calculated in accordance with the relevant provisions of Australian Standard AS/NZ4859.1 for the nominated thicknesses are:

Table 5.

Product	R-value (Thermal resistance m^2 K/W)		
	YELLOWtongue 19mm	REDtongue 22mm	BLUEtongue 25mm
Flooring	R0.16	R0.18	R0.21

Fixing

Can nails be used to fix to steel joists?
No, this is not recommended and is not allowed for in the Australian Standards.

Can nails be used for fixing to I joists?
The Australian Standard recommends screw fixing to I joists. Typically, the I joist flange is 35mm thick, which will result in the nail penetrating through the flange and reducing the holding capacity of the nail.

How do you minimize the risk of a squeaky floor?
For best results it is recommended to use screws and adhesive to fix your floor.

Do I need to use adhesive to fix STRUCTAflor along with screws/nails?
Yes, as per the Australian Standard, the use of adhesive is mandatory when fixing particleboard flooring.

If it is going to rain during installation, should I cover STRUCTAflor with plastic or similar?
No, covering the surface during installation will trap the moisture, this can then lead to mold and other moisture related issues.

After Fixing

Why has my STRUCTAflor swelled at the edges?
This swelling can happen when exposed to weather during construction, as Structaflor is made from natural materials this moisture can result in minor swelling, generally at the edges. This can be corrected by sanding and can be done within the specified tolerance once the floor has dried. The floor will remain fit for its intended purpose with no long term performance issues.

Why have gaps have appeared between sheets?
Generally caused by sheets being wet prior to installation or extreme drying post installation, this generally won't result in a structural issue. The gaps can be filled with an elastomeric filler; however you should wait until the roof is on or the floor is protected from the weather.

Can STRUCTAflor expand and contract with changes to moisture conditions?
Yes, like all timber products, STRUCTAflor can expand or contract as the moisture content of the panel changes. The normal moisture content of STRUCTAflor should be between 8 – 14%. Shrinkage can cause gaps between sheets, this can be mimimised by ensuring STRUCTAflor is stored under cover and kept dry prior to installing. Expansion can be an issue on large floors that are exposed to heavy or continuous wetting. Drilling holes up to 8mm in diameter will minimize pooling on the surface of the floor. The Australian Standard also states that for large continuous flooring widths expansion gaps of 10mm should be positioned every 6m; either a single 10mm gap under a wall or smaller gaps where sheets join adding to 10mm.

Areas of Use

Can I fix ceramic tiles directly to STRUCTAflor?
No, Australian Panels recommends the use of fibre cement underlay between tiles and the STRUCTAflor.

Can STRUCTAflor be used on covered balconies?
No, the structural integrity of the product could be compromised by regular wetting over the extended life of the balcony.

Can STRUCTAflor be used in wet areas ie. bathrooms, laundries and toilets?
Yes, provided the floors and wall to floor joints are fully sealed with a waterproof membrane.


STRUCTAflor GP and STRUCTAflor H2