

CEMINTEL[®]

DESIGN AND INSTALLATION GUIDE



CONSTRUCTAFLOOR[™] INTERIOR FLOORING
Interior Flooring System



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DESCRIPTION

Cemintel Constructafloor® Interior flooring is an advanced, lightweight, fibre cement flooring sheet. It has a flat surface with a tongue and grooved joint to the two long edges of the sheet. Constructafloor Interior flooring can be installed with a pneumatic nail gun for ease of installation.

The joint between sheets is filled with flexible sealant to provide a flat surface suitable to accept a wide range of surface toppings.

Constructafloor Interior flooring conforms to the requirements of AS/NZS 2908.2 Cellulose – cement products, Part 2: Flat sheets for Type B Category 2.

APPLICATIONS

Constructafloor Interior flooring is a high strength, durable building product that is impervious to water with a suitable waterproof membrane system. It can be fixed directly to structural framing to form the interior substrate for both wet area and non-wet area applications.

When combined with a suitable waterproofing system, Constructafloor Interior flooring offers a BCA compliant waterproof solution to wet areas which may be covered with your selection of tiles or decorative finishes in a range of floor applications including:

- Bathrooms
- Ensuites
- Laundries

In non-wet areas applications, Constructafloor Interior flooring may be finished with carpet, direct fixed tiles or vinyl sheet in areas that are not required to be waterproof.

Constructafloor Interior flooring offers proven, reliable and cost effective solutions to all internal residential wet areas and other tiled areas.

ADVANTAGES

- Simple and quick to install using screw or gun-nail fixings
- Tough durable substrate for wet areas
- Suitable for all tiled floor areas
- Lightweight and economical building material
- Immune to permanent water damage
- Will not rot, warp or burn
- Immune to termite attack
- Ideal for upper storey construction
- Available in a range of sheet sizes to reduce waste

COMPONENTS

CEMINTEL CONSTRUCTAFLOOR INTERIOR FLOORING

Constructafloor Interior flooring is available in two thickness, 19mm and 22mm and in the following sizes for interior applications.

Order N°	Product	Sheet Thickness
115657	Constructafloor Interior 600 x 2700mm	19mm
115658	Constructafloor Interior 900 x 1800mm	19mm
193406	Constructafloor Interior 600 x 2400mm	22mm

Property	Value
Thickness (19mm & 22mm nominal)	-0/+0.3 mm
Mass (nominal)	25.5 kg/m ² (19mm thick) 28.6 kg/m ² (22mm thick)
Sheet Width	-3 /+0 mm
Sheet Length	-3/+0 mm
Diagonal Difference (max.)	3 mm

COUNTERSINKING TOOL

A tungsten carbide tipped tool specifically designed for drilling and countersinking.

Order N°	Description
22116	Countersinking Tool



BACKING ROD

Polyethylene Foam Bead used to enable correct filling of joints with sealant.

Order N°	Description
11177	ø10mm x 50m roll



FLEXIBLE SEALANT

• Gyprock™ Wet Area Acrylic Sealant:

For joints in tiles and other substrates. Paintable.

• SikaflexPro™: For joints in Constructafloor substrate and fastener heads.

Order N°	Product
10902	Gyprock™ Wet Area Acrylic Sealant – 450g tube
11378	Sikaflex Pro 310ml tube – Grey
39488	Sikaflex Pro 310ml tube – Black



Prime surfaces as recommended by the manufacturer.

CONSTRUCTION ADHESIVE

To be used on all framing where Constructafloor sheets are nail fixed.

Order N°	Product
39378	Sikaflex® II FC, 310ml tube
Supplied by others	Fuller Max Bond™
Supplied by others	Fuller Max Bond Pro™



PERIMETER FLASHING

- PVC angle 75 x 50mm. For use at wall/floor junction.



Order N°	Length
11206	3000mm

NOTE: The following system components are not supplied by CSR.

FASTENERS

NOTE: In high corrosion zones, such as the coastal marine environment, Class 4 fasteners must be used.

• Nails for fixing Constructafloor Sheets:

Power driven nails, 50mm D head, Class 3 or 4 finish.

• Screws for fixing Constructafloor Sheets:

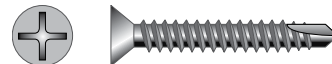
For timber framing:

Countersunk head wood screws 10G x 50mm hot dip galvanised steel (class 3) or stainless steel. Pre-drill and countersink heads.



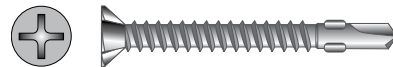
For steel framing

Metal Teks, 10G x 16TPI x 30mm class 3 or 4, countersunk head screws. Pre-drill and countersink heads.



OR

Wing tip screws, 10G x 40mm Class 3, self-embedding head. For framing with minimum BMT 0.75mm.



MORTAR BED

- Mortar bed in accordance with AS 3958.1 to be compatible with the membrane. Refer to separate data sheets of insitu membrane manufacturer's for recommendations.

INSITU MEMBRANE/INTERNAL TRAY

- A proprietary impervious barrier assessed and classified in accordance with AS/NZS 4858. Refer to separate data sheets from Ardex and Bostik for recommendations. Other suitable products are available from Davco, Crommelin and Parchem.

VINYL ADHESIVE

- Use products that are compatible with fibre cement substrates, such as Holdfast 1906, Dunlop Vinyl Adhesive and Polymer Engineering Vinyl Adhesive.

TILE ADHESIVE

- Refer to separate data sheets from Ardex and Bostik for recommendations. Other suitable products are available from Dunlop, Parchem and Davco.

ADHESIVE FULAPRENE 303

- For fixing PVC angle to slab, timber or fibre cement flooring.

DESIGN CONSIDERATIONS

This guide refers to good practice, though it is not intended as an exhaustive statement of all relevant information. It remains the responsibility of the building designer to verify that Constructafloor Interior flooring is suitable for the particular requirements of any given project.

The systems outlined in this manual are based on Australian Standard AS3740: Waterproofing of wet areas within residential buildings.

This Australian Standard details the design, materials, and installation requirements for wet areas within residential buildings. A wet area is defined by the standard as an area within a building supplied with water from a water supply system, including bathrooms, showers, laundries and toilets, but excluding kitchens, bars and similar. Elements within wet areas may have requirements to be water resistant or waterproof, as set out in the Building Code of Australia.

Waterproof areas are floors within and near showers, and at junctions between floors and walls in showers and bathrooms. A waterproof membrane must be applied in these areas.

WATERPROOF SYSTEM COMPONENTS

Constructafloor Interior flooring is a fibre cement product and waterproofing and lining components should be chosen that are recommended by their manufacturer for fibre cement substrates. Components including sealers, membranes, mortars, adhesives and finishes should be considered for their compatibility with each other, as well as with the substrate, and their performance as a complete system.

Waterproofing systems information for use with Constructafloor™ has been provided by Ardex, Bostik, Crommelin and Parchem. Please contact these companies to confirm project suitability. Further information is available at cemintel.com.au.

FRAMING

Constructafloor Interior flooring can be fixed to timber or steel floor joists at a maximum off:

- 450mm centres for 19mm Constructafloor
- 600mm centres for 22mm Constructafloor

Joists and trimmers must have a minimum face fixing width of 45mm or to floor joist manufacturer's requirements. All perimeters must be supported on framing.

As a minimum requirement, framing shall be in accordance with the following standards:

- AS1684 – Residential timber-framed construction.
- AS1720.1-2010 -Timber Structures - Design method.
- AS/NZS4600 – Cold-formed steel structures.
- AS3623 – Domestic metal framing.

Timber shall be seasoned or have reached an equilibrium moisture content of 16% or less at the time of framing. Unseasoned timber is not recommended.

The design and construction of the steel frames should be considered in conjunction with the advice from the manufacturer. In highly corrosive environments, appropriate measures should be taken to protect the frame from corrosion. Fixings to steel joists are suitable up to a 2.0mm base metal thickness (BMT), contact CSR Cemintel™ for fixing information where steel BMT is greater than 2.0mm.

LOADS

Constructafloor Interior flooring has been designed to satisfy the live loads associated with internal domestic and residential activities outlined in AS/NZS 1170.1:2002 Table 3.1 and appropriate load combinations in AS/NZS 1170.0:2002. Not suitable for vehicle wheel loads. The 'Specific Uses' presented in Table 1 reflect the minimum imposed live load actions listed in Table 3.1 of AS/NZS 1170.1. Contact DesignLINK for further information on higher live load requirements.

Table 1 presents the maximum allowable unfactored loads to satisfy a span/300 deflection limit under serviceability loading, appropriate load combinations in AS1170.0:2002 and a superimposed dead load of 0.6kPa for floor coverings (i.e., tiles, grout screeds, etc.). The unfactored loads have been based on the Constructafloor sheeting having an Equilibrium Moisture Content (EMC) condition. It is the responsibility of the designer to specify the water proof membranes or sealants to prevent moisture ingress into the Constructafloor sheets to maintain the EMC condition. Contact DesignLINK for information on Constructafloor sheets at a saturated condition.

Constructafloor Interior sheets must be installed over a minimum of 3 supporting joists. For single span sheeting, provide blocking and/or trimmers to ALL the edges of the sheeting.

TILING

When selecting tiles ensure they are fit for purpose and an appropriate adhesive compatible with a fibre cement substrate is selected. In all cases the tile and tile adhesive manufacturer's instructions should be followed.

For further advice, refer to Australian Standard AS3958.1 'Guide to the installation of ceramic tiles'.

Tile adhesive must conform to Australian Standard AS2358 'Adhesives - for fixing ceramic tiles'. In all cases the tile and tile adhesive manufacturers' instructions should be followed.

Table 1: Cemintel Constructafloor® Interior Flooring – ‘Double Span’ Sheet Installation, SDL = 0.6kPa

Cemintel Constructafloor®		Specific Uses	Maximum Allowable Unfactored Floor Loadings			
Sheet Thickness (mm)	Max. Joist Spacing (mm)		Dead Load	Live Load		
			SDL (kPa)	UDL (kPa)	Concentrated Point Load (kN)	
					P ₃₅₀	P ₁₀₀
19	450	Category A1 & A2 Domestic and residential activities – general areas, private kitchens, laundries, bedrooms, hospital wards, hotel rooms, toilet areas	0.6	3.0	1.8	2.2
22	400	All categories in buildings and structures with a concentrated live load action less than 4.5kN	0.6	7.5	1.8	4.5
	450	All categories in buildings and structures with a concentrated live load action less than 4.0kN	0.6	7.5	1.8	4.0
	600	Category A1 & A2 Domestic and residential activities – general areas, private kitchens, laundries, bedrooms, hospital wards, hotel rooms, toilet areas, balconies, roofs used for roof type activities	0.6	5.0	1.8	2.0

Notes:

SDL superimposed dead load, i.e., weight of the floor coverings, such as, carpet, underlay, grout, mortar bed and tiles.

UDL uniformly distributed live load, AS/NZS 1170.1:2002 Table 3.1.

P350 concentrated point live load applied to a 350mm² bearing area. Refer to Note 1, AS/NZS 1170.1:2002 Table 3.1.

P100 concentrated point live load applied to a 100mm x 100mm bearing area (0.01m²). Refer AS/NZS 1170.1:2002 Cl.3.2(b).

$\Psi_s = 0.7$, for uniformly distributed loading. AS/NZS 1170.0:2002 Table 4.1.

$\Psi_s = 1.0$, for concentrated point loading. AS/NZS 1170.0:2002 Table 4.1.

Span/300 deflection limit under serviceability loading.

SHEET INSTALLATION

SHEET LAYOUT

Constructafloor Interior sheets are fixed directly to the floor joists. Sheets are laid with tongue and groove joints perpendicular to the joists. Sheet ends must align with the centre of joists, and may be staggered or aligned. Sheet ends must be aligned at control joints.

All perimeters must be supported on framing. Leave a 10mm gap at wall junctions.

Sheets must be fully supported wherever a tongue or groove profile has been removed or where the profiles do not engage fully.

CONTROL JOINTS

Control joints between Constructafloor Interior sheets must be provided at 9m centres maximum at tongue and groove edges to allow for differential movement in both the materials and the structure. Where the floor is exposed to direct sunlight, control joints are to be spaced at 6m centres maximum. Refer to FIG 1, 2 and 3.

Control joints between sheets must be provided at butt joints in accordance with FIG 1, 2 or 3. Sheet ends must be aligned at control joints.

Control joints in sheets must also be provided at changes in direction of sheets and structural framing, at doorways and at any control joints in the structural framing.

Control joints in the finish layer must be aligned with control joints in the sheets. Refer to installation details.

FIG 1: Typical Sheet & Control Joint Layout – Sheets Staggered & Mortar Bed System shown

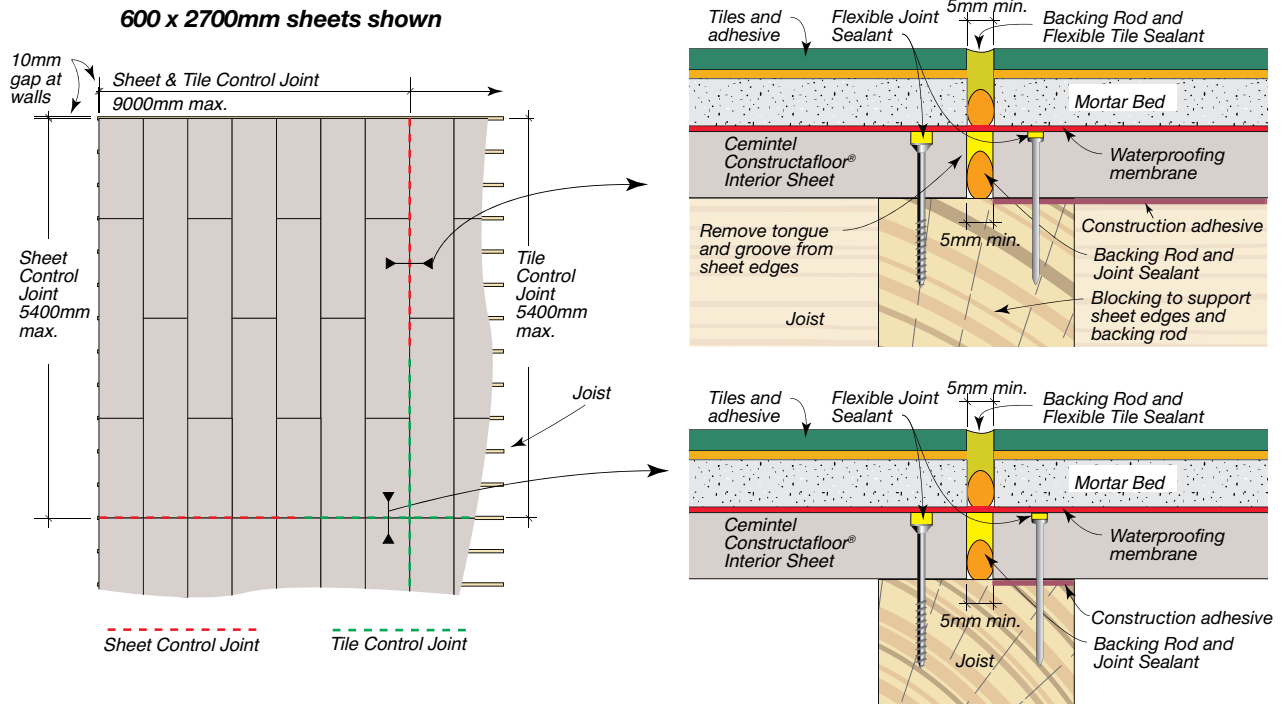


FIG 2: Typical Sheet & Control Joint Layout – Sheets Aligned & Mortar Bed System shown

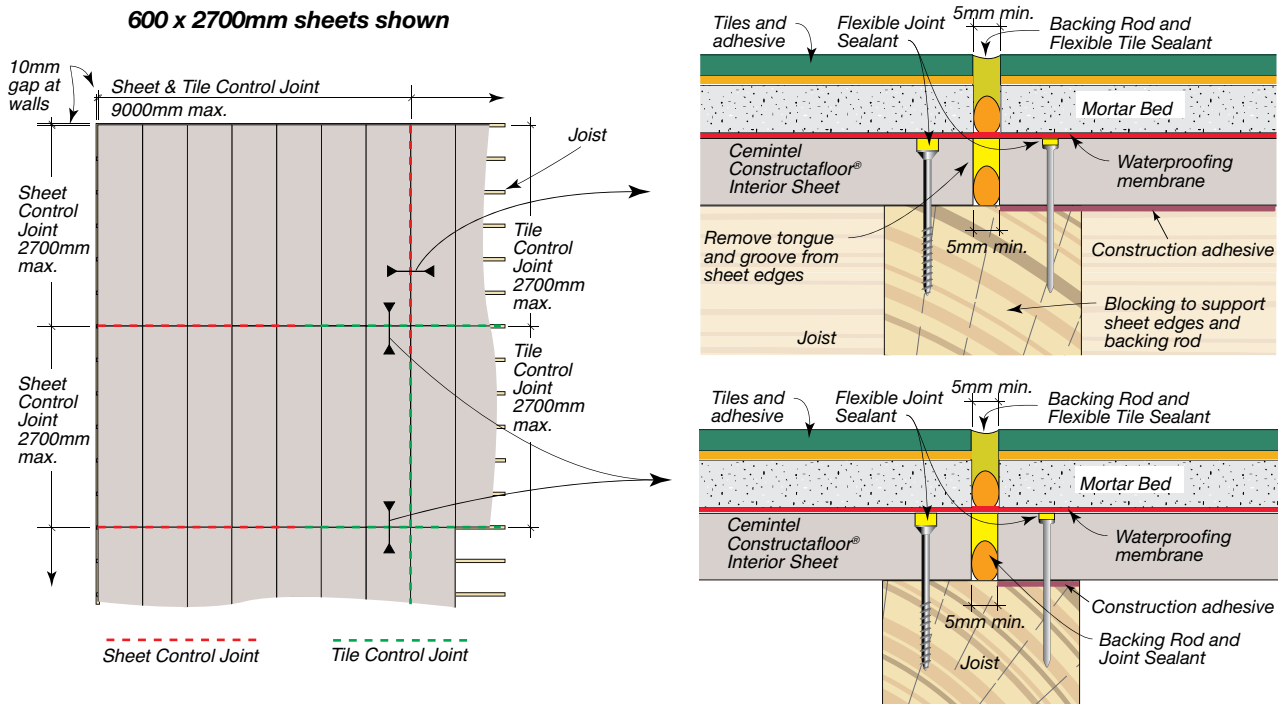
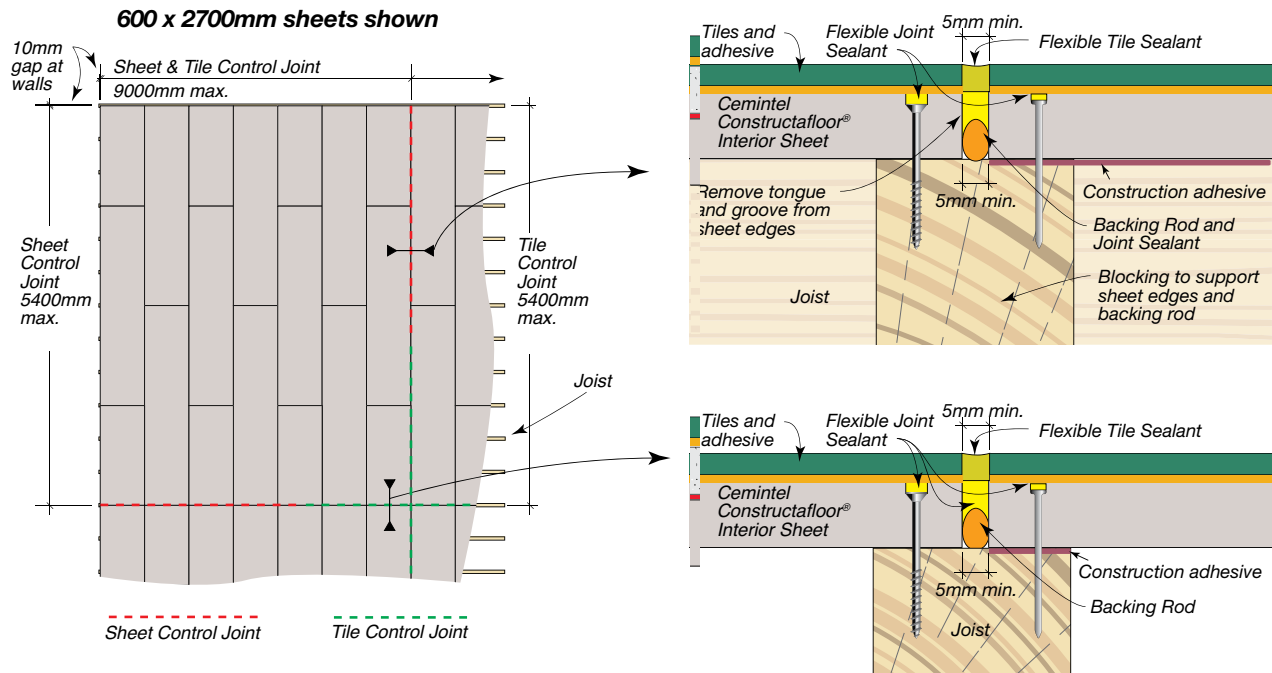


FIG 3: Typical Sheet & Control Joint Layout – Staggered & Direct Fix Tile System shown

FIXING SHEETS

Tiled Areas

Sheets are installed with the side printed 'This side down for tiling' facing down. A chamfer at each tongue and groove edge allows for waterproofing sealant.

Tongue and groove joints must be butted tightly together prior to fixing. Refer to detail. Butt joints must be fixed to the frame leaving a 2mm minimum gap between each flooring sheet to allow for joint sealant.

Control Joints must be installed leaving a 5mm minimum gap between sheets to allow for the installation of backing rod and sealant. This gap is important to accommodate movement of the building materials and structure.

Fix sheets with screws at 450mm centres maximum along framing. Alternatively, where sheets are to be nail fixed, apply a continuous bead of construction adhesive to sheet framing and power nail at 200mm centres maximum. Fixings must be kept a minimum of 50mm from corners. Refer to installation details and 'Sheet Jointing' section for edge distance requirements.

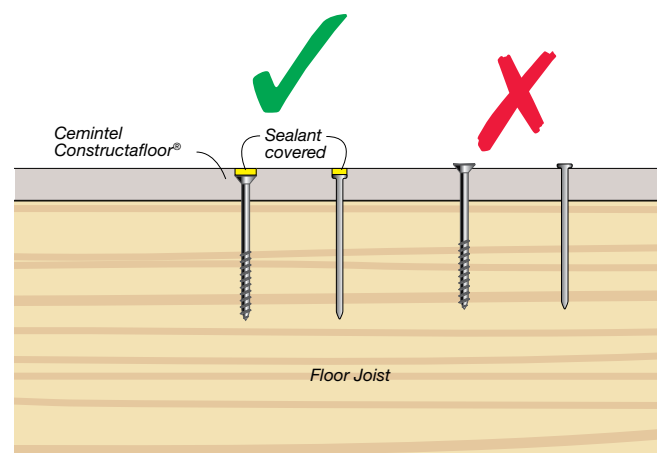
Fixings should finish below the finished level of the Constructafloor sheet and any indentation should be filled with flexible sealant.

Vinyl Finish

Sheets are installed with the side printed 'This side down for tiling' facing up. There is no chamfer at tongue and groove edges.

All panel joints are to be butted tightly together prior to fixing. Install control joints as for tiled areas.

Screw or nail fix sheets as for tiled areas. Fixings should finish below the finished level of the Constructafloor sheet and any indentation should be filled with epoxy or polyester filler.

FIG 4: Fastener Countersinking Detail

Handy Hint: To prevent sealant spillage, place a strip of adhesive tape over the screw hole prior to drilling, then remove once screw is in place and covered with sealant.

SHEET JOINTING

Tiled Areas

Sheets must be fixed in position ready for joints to be completed. Ensure joints are clean and clear of any dust that may prevent sealant adhering.

Place a strip of masking tape along both sides of the joint to ensure a neat finish is achieved. For Control Joints, press foam backing rod into joint pressing down firmly against joist leaving approximately 6mm depth gap at top to suit sealant requirements.

Fill tongue and groove, butt and control joints with flexible sealant, finishing flush with the sheet surface. Joints must be smoothed within 10 minutes. Remove masking tape and allow sealant to dry for approximately 24 hours.

Vinyl Finish

Sealant is not required at tongue and groove or butt joints. Treat control joints as for tiled areas.

Refer to the following details for jointing and fixing information.

FIG 5: Constructafloor Fixing Detail – Nail Fixing

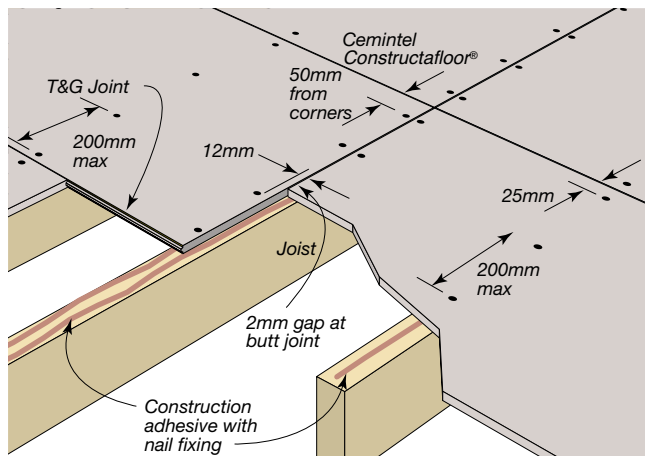
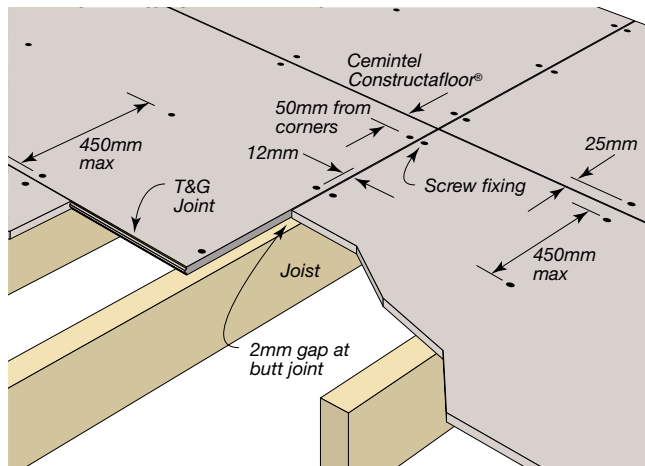


FIG 6: Constructafloor Fixing Detail – Screw Fixing



FLOOR FINISHES

MORTAR BED & TILE

If a fall to waste is required, tiles must be laid on a mortar bed.

Form control joints in the mortar bed/tile layers to correspond with the control joints in sheets.

The mortar bed should be allowed to cure for approximately 10 days before tiling commences. Refer to membrane manufacturer's instructions.

Note: Do not tile over control joints in the mortar bed.

FIG 7: Typical Joint T&G with Mortar Bed & Tiles

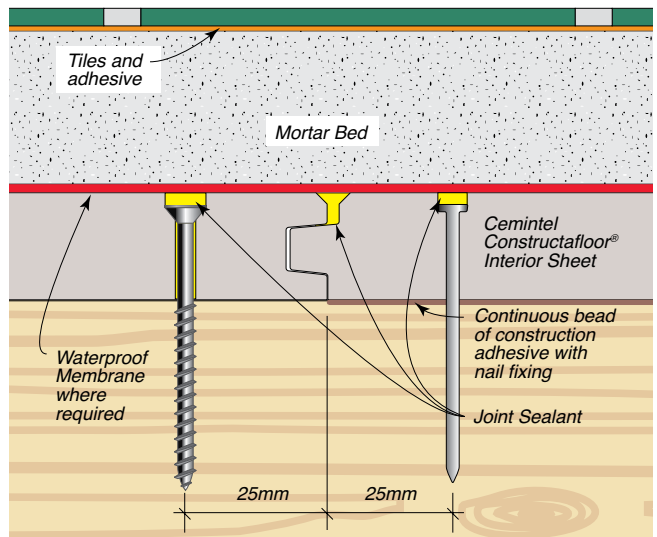


FIG 8: Typical Butt Joint with Mortar Bed & Tiles

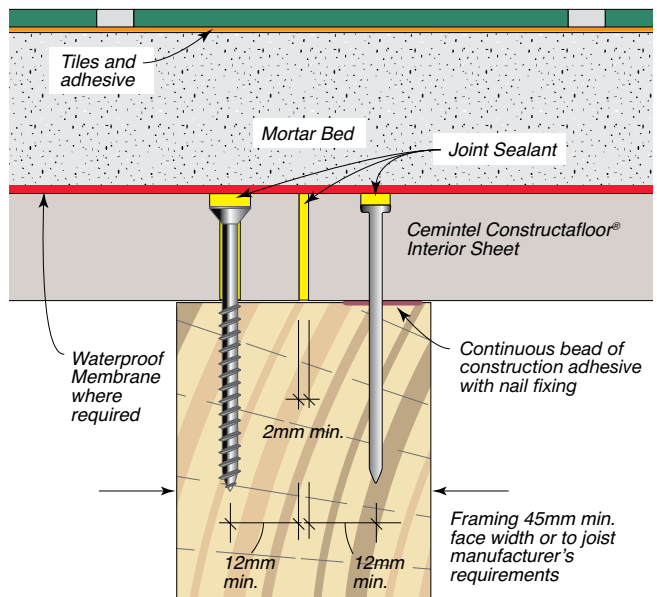
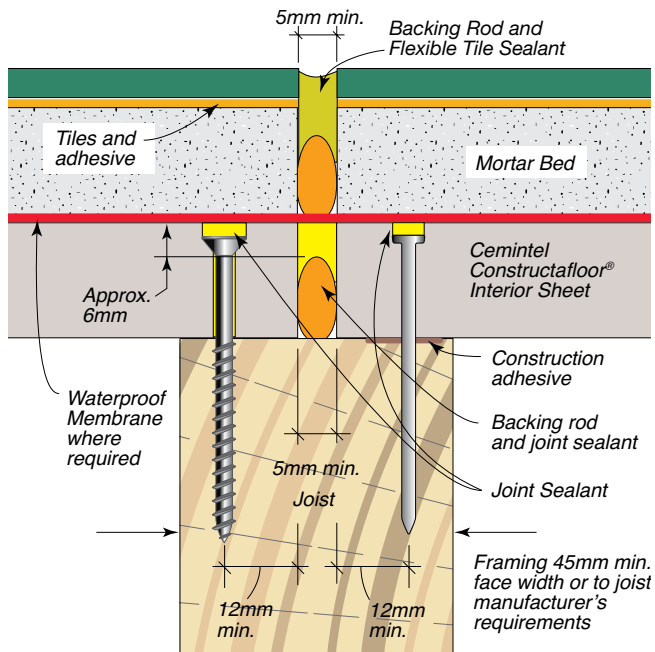
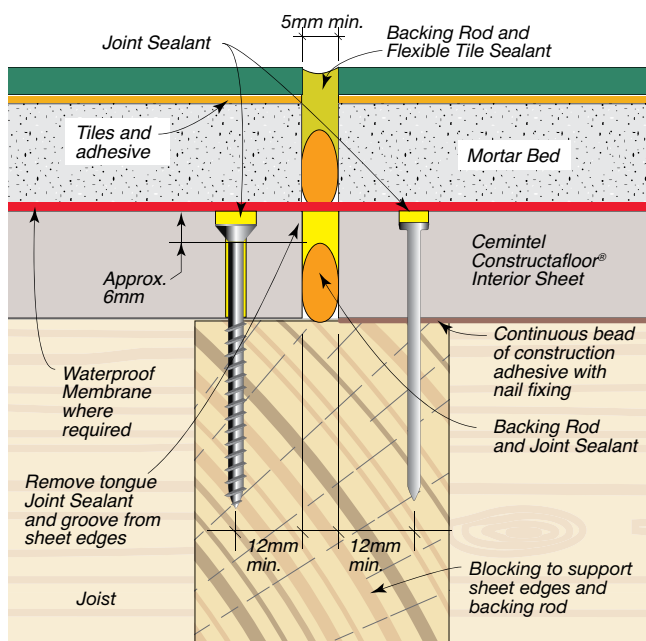


FIG 9: Control Joint at Butt Joint with Mortar Bed & Tiles**FIG 10: Control Joint at T&G Joint with Mortar Bed & Tiles****DIRECT FIX TILES**

If a fall to waste is not required, in a non-wet area the tiles may be fixed directly to Constructafloor Interior flooring (or over a waterproof membrane).

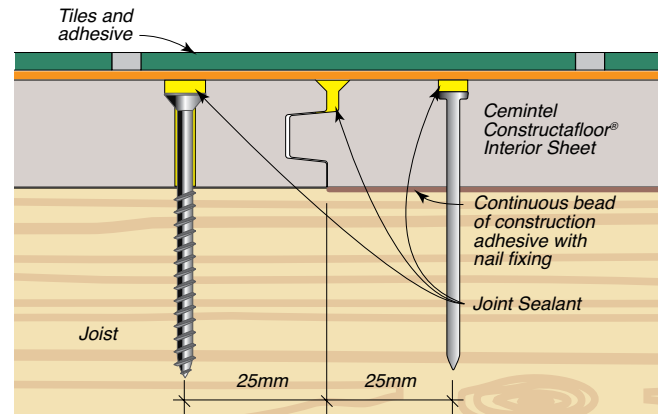
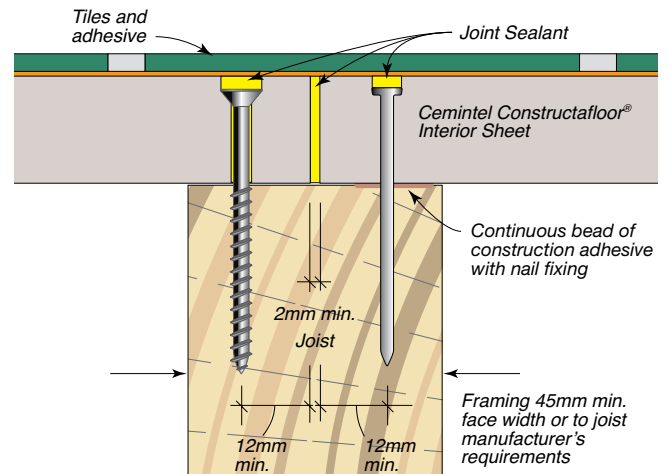
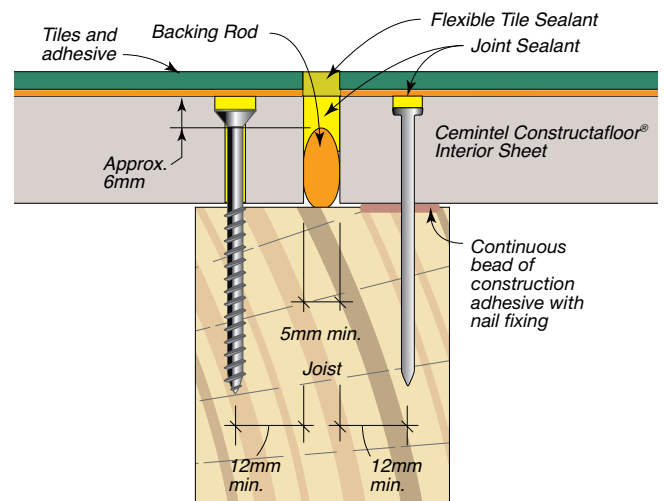
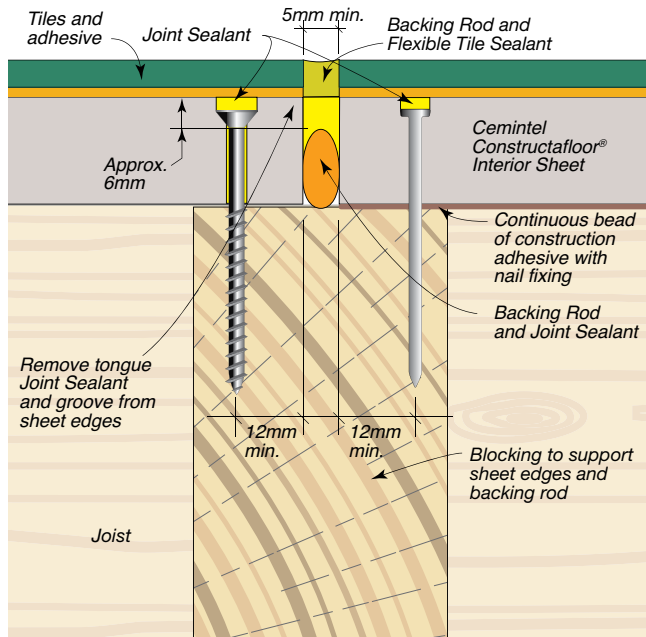
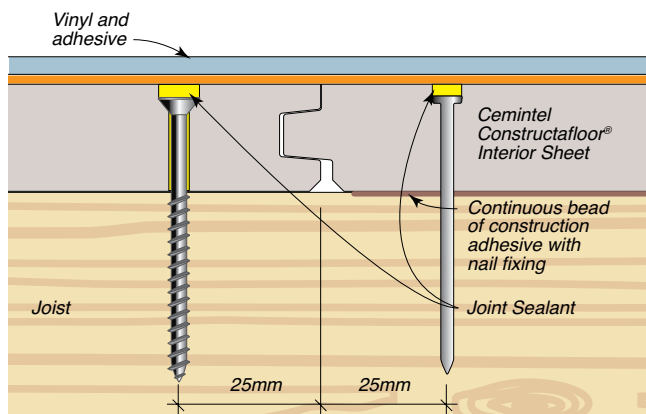
FIG 11: Typical T&G Joint with Direct Fixed Tiles**FIG 12: Typical Butt Joint with Direct Fixed Tiles****FIG 13: Control Joint at Butt Joint with Direct Fixed Tiles**

FIG 14: Control Joint at T&G Joint with Direct Fixed Tiles

VINYL

A flush surface is required to avoid blemishes in the finish. Fill minor imperfections and cover fastener heads with epoxy or polyester based builder's filler. Any joint misalignments must be filled or sanded smooth. Alternatively, a floor leveller such as Ardite NA may be used over larger areas.

Ensure all sheets are clean, dry and free from dust. Follow adhesive manufacturer's recommendations for installing the vinyl sheeting. It is recommended that a primer be used for polymer type adhesives.

FIG 15: Typical T&G Joint with Vinyl Finish

GENERAL AREA WATERPROOFING

PERIMETER FLASHING

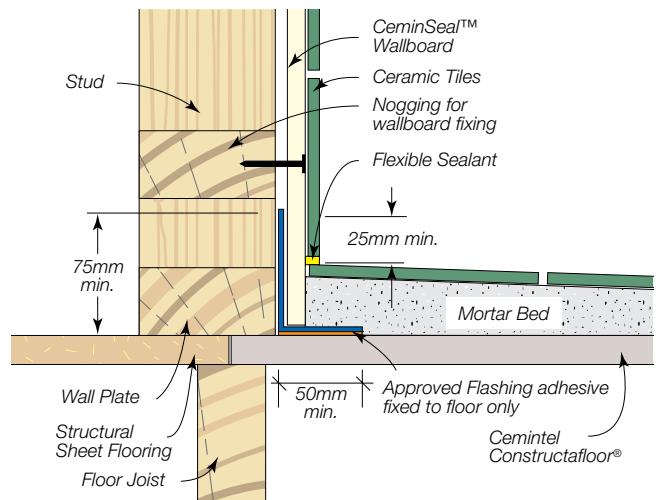
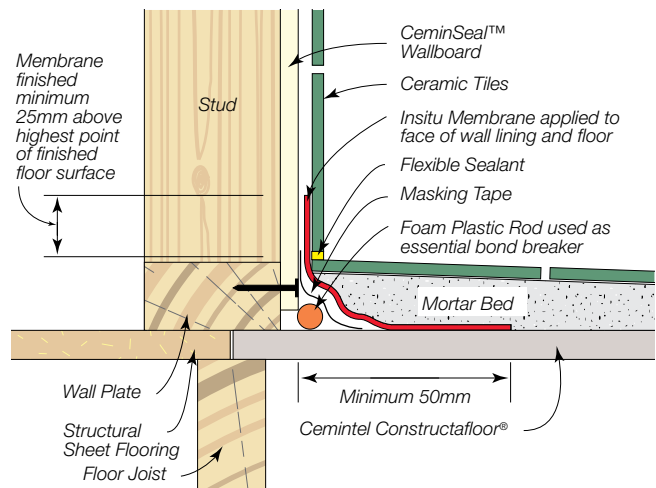
Perimeter flashing must be used at the floor/wall junctions in all general wet areas, and must extend a minimum of 25mm above finished floor level.

Note, general wet areas are not subjected to water, like a shower area. For general wet areas on the upper level of two storey construction, it is recommended that a continuous insitu membrane be applied. Refer to 'Shower Recess Waterproofing' section.

Two recommended methods are:

PVC Flashing Angle, 75 x 50mm adhesive fixed to floor only using Fulaprene™ 303 Adhesive.

Insitu membrane, 50mm wide to floor and up wall to 25mm minimum above highest point of finished floor level.

FIG 16: Perimeter Flashing with PVC Angle**FIG 17: Perimeter Flashing with Flashing Strip**

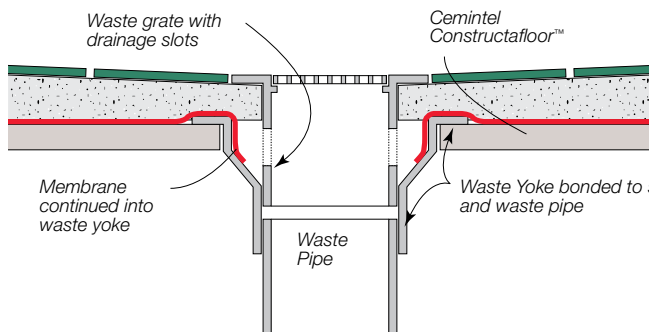
SHOWER RECESS WATERPROOFING

PLUMBING WASTES

It is important that all plumbing wastes are sealed, particularly in a shower recess. A PVC waste yoke must be bonded to the flooring and the waste pipe before fitting grates and other fixtures.

A waste fitting incorporating a 'leak control system' is recommended to enable any moisture to drain from beneath the floor tiles.

FIG 18: Typical Waste Detail



INSITU APPLIED MEMBRANE

A continuous insitu membrane must be applied to shower recess areas as shown in FIG 18, 19 and 20. Membranes must comply with AS/NZS 4858 and be recommended for use with a fibre cement substrate. Installation is to be in accordance with the manufacturer's recommendations.

For second storey installations, it is recommended that a continuous insitu membrane be applied to the entire interior floor and up the walls to a minimum 150mm above the floor sheet level and/or to a minimum 50mm above any shower hob.

NOTE: For further details on waterproofing refer to Australian Standard AS3740.

FIG 19: Typical Shower Recess with Hob

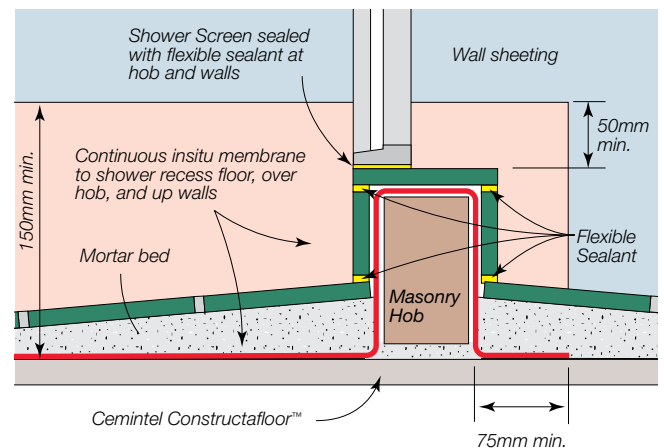
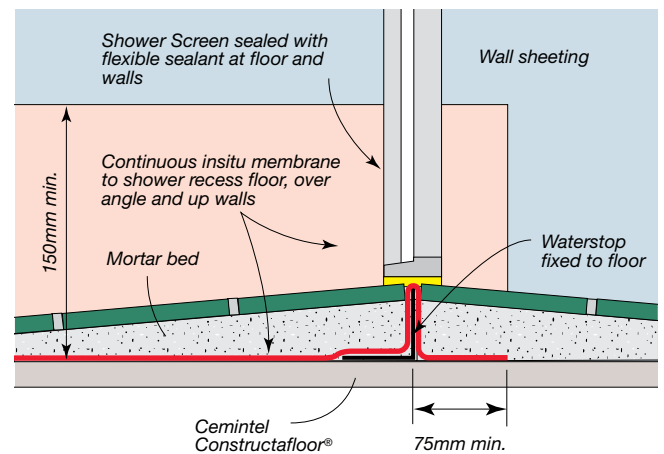


FIG 20: Typical Hobless Shower Recess







MAINTENANCE

The durability of the system can be maintained by periodic inspection, including examination of the surface finishes, flashings, penetrations and membranes. Any cracked or damaged flashings or seals that would allow water ingress must be repaired immediately.

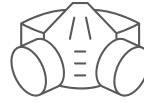
SHEET PREPARATION

Cement based levelling products may be used. Sheets should not be sanded. Sheets should be cut from the back using a power saw. See table below.

Tools

Product	Description	Size	Quantity	Product Code
	Makita Plunge Saw Kit (1300W) includes 1400mm guide rail and bonus 165mm fibre cement saw blade – excellent for cutting cement based sheets	165mm	1	165485
	Makita 165mm Fibre Cement Saw Blade – ideal for use with the Makita Plunge saw and other 165mm circular saws fitted with vacuum extraction systems	165mmx20x4T	1	165486
	FESTOOL DSC-AGP 125 – Diamond Blade Cutting and Grinding Tool. Used to provide neat and accurate bevelled edges	125mm	1	107207
	FESTOOL TS 55 EBG Plunge Cut Saw – with 1400mm Guide Rail. Precise plunge cuts in materials up to 55mm thick.	160mm	1	121400
	FESTOOL Diamond Tipped Blade for TS 55 – for cutting all fibre cement sheet products	160mm	1	112647

SAFETY, HANDLING & GENERAL CARE



HEALTH, SAFETY AND PERSONAL PROTECTION EQUIPMENT (PPE)

Sheets contain silicas that are harmful if inhaled. Protective clothing and breathing equipment should be worn when cutting products.

When cutting, drilling or grinding Cemintel Constructafloor sheets using power tools, always ensure the work area is properly ventilated.

An approved dust mask (AS1715 and AS1716) and safety glass (AS1337) must be worn. Cemintel recommends that hearing protection also be worn.

Safety Data Sheet information is available at cemintel.com.au

Recommended Safe Working Practices

Cutting Outdoors	<ol style="list-style-type: none"> 1. Position cutting station so wind will blow dust away from the user or others in the working area. 2. Use a dust reducing plunge saw equipped with a dust extraction system.
Sanding/Drilling/Other Machining	When sanding, drilling or machining, you should always wear a P1 or P2 dust mask and warn others in the immediate area.
Important Reminders	<ol style="list-style-type: none"> 1. NEVER use a power saw indoors. 2. NEVER use a saw blade that is not purpose-made for cutting fibre cement products. 3. NEVER dry sweep. 4. ALWAYS follow tool manufacturers' safety recommendations. 5. ALWAYS maintain tools in a clean condition.

Handling & General Care

Storage

All Constructafloor sheets must be stacked flat, clear of the ground and supported at 300mm maximum centres on a level platform. Sheets must be kept dry, preferably stored inside the building. Sheets must be dry prior to fixing, hence if it is necessary to store outside, the product must be protected from the weather.

Handling

Constructafloor sheets must be treated with care during handling so as to avoid damage to edges. Sheets should be carried horizontally on edge by two people.

Cutting

Sheets should be cut using a power saw. Cemintel recommends using the Makita Plunge Cut Saw and FESTO TS 55 EBQ Plunge Cut Saw with guide rail and appropriate blade, together with the appropriate dust extraction system.

Penetrations

Penetrations in sheets may be cut or drilled prior to installation. Cut from the back or drill from the front. Cut penetrations oversize by 8-10mm all around. Mask, prime and fill gaps with sealant in accordance with recommended methods and products.

WARRANTY

The Constructafloor sheets have a product warranty of 10 years.

The full Cemintel product warranty is available for download at cemintel.com.au



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