## C E M I N T E L



CONSTRUCTAFLOOR® EXTERIOR FLOORING External Flooring System

#### INTRODUCTION

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#### Introduction

Cemintel Constructafloor<sup>®</sup> Exterior flooring is an advanced, lightweight, fibre cement flooring sheet. Constructafloor Exterior flooring has a flat surface with a tongue and grooved joint to the two long edges of the sheet. These edges are coloured red for easy identification. Constructafloor Exterior flooring can be installed with power driven nails for ease of installation.

With mesh reinforcing to the underside of the sheet, Constructafloor Exterior Flooring is a strong and durable building product.

This Cemintel Constructafloor Exterior Flooring Design and Installation Guide recommends good building practice and has been prepared as a general guide of design considerations, system engineering information and installation procedures for common external applications. It assumes that the user has an intermediate knowledge level of building design and construction. In no way does it replace the services of the building professionals required to design projects, nor is it an exhaustive guide of all possible scenarios.

It is the responsibility of the architect, designer and various engineering parties to ensure that the details in this Design and Installation Guide are appropriate for the intended application.

Cemintel Constructafloor Exterior sheets can be installed externally as decking or as an interior floor substrate. This guide refers to external installations only as components differ depending on the installation.

Refer to the 'Cemintel Interior Flooring Design and Installation Guide' for instructions regarding internal applications.

## PRODUCT OVERVIEW

#### PRODUCT OVERVIEW

#### **Panel Information**

Constructafloor Exterior flooring is available in two thickness, 19mm and 22mm and the following sizes for exterior decking applications.

Order No	Product	Sheet Thickness
115659	Constructafloor Exterior 600x2700mm	19mm
115762	Constructafloor Exterior 600x1800mm	19mm
193407	Constructafloor Exterior 600x2400mm	22mm

#### **Product Specifications**

Constructafloor Exterior Flooring sheets conform to the requirements of AS/NZS 2908.2: Cellulose-cement products, Part 2 – Flat sheets for Type A Category 3.

Property	Tolerance						
Thickness (19mm & 22mm nominal)	-0.0mm / +0.3mm						
Mass (FMC 2200, FO% Humidity)	25.5kg/m <sup>2</sup> (19mm thick)						
Mass (EMC 23°C, 50% Humidity)	28.6kg/m <sup>2</sup> (22mm thick)						
Width	-3.0mm / +0.0mm						
Length	-3.0mm / +0.0mm						
Diagonal Difference (max.)	3.0mm						

#### **Fire Resistance**

In accordance with the NCC 2022 C2D10 (5)(d) [NCC 2019: C1.9 (e)(iv)], Cemintel Constructafloor Exterior sheets can be used wherever non-combustible material is required.



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#### SYSTEM OVERVIEW

#### **Applications**

Constructafloor Exterior Flooring provides a light weight but solid substrate for self contained dwellings. When combined with a suitable waterproofing system it can then be covered with your selection of tiles, decorative finishes, synthetic turf, outdoor carpets or suitable paint finishes. It is suited for a range of external decking applications, including:

- Upper and lower storey decks and balconies;
- Tiled verandahs;
- Trafficable roofs; and
- Swimming pool surrounds (non-saltwater).

Constructafloor Exterior Flooring may be installed to timber or steel floor joists at 600mm maximum spacings in accordance with the relevant Australian Standards.

#### **Advantages**

- Simple and quick to install using screw or gunnail fixings.
- Tough durable substrate for external areas.
- Lightweight and economical building material.
- Termite resistant.
- Manufactured from highly durable and robust fibre cement – panels will not rot, swell or warp when correctly installed and maintained.
- Fire fibre cement sheets can be used where non-combustible material is required under the NCC provisions.
- A suitable substrate for many forms of finishing.

#### System Selection

A number of systems are available for different applications, surface finishes and drainage conditions. Refer to Table 3.01 for details.

#### Waterproof Systems

Constructafloor Exterior flooring is a fibre cement product, and waterproofing systems 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 Exterior flooring has been provided by ARDEX, Bostik, Crommelin and Parchem. Please contact these manufacturers to confirm project suitability. Further information is available at cemintel.com.au.

#### Mortar Bed with Separating Layer

Constructafloor Exterior flooring is laid directly on joists and covered with a waterproof sheet membrane. A separating layer or slip-sheet then separates the membrane from the mortar bed to accommodate minor movement.

Drainage to the deck edge may be provided by fall in the sheets or in the mortar bed, or the mortar bed may drain to a sump. Control joints in tiling need not correspond with sheet joints.

#### **Tiles with Liquid Membrane**

This system has an applied waterproof membrane directly over the Constructafloor Exterior flooring. Tiles are fixed over the membrane, and drainage is provided by fall in the sheets. Control joints in tiling must correspond with sheet joints.

#### **Trafficable Membrane**

Membrane systems, laid directly over Constructafloor Exterior flooring, are available that are suitable for foot traffic.

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SYSTEM OVERVIEW

#### System Selection Table

TABLE 3.01 Cemintel Constructafloor Exterior Flooring **Flooring System** Description MORTAR BED WITH SEPARATING LAYER Suitable for Tile, Slate and all surface finishes Adhesive • Drain to edge of deck or sump. • Staggered or aligned sheet layout. • Screw or power nail and adhesive fix. o Mortar Bed • Control joints in sheets at maximum 4.5 x 12m centres. Control joints in mortar bed and tile layers at maximum Cemintel Constructafloor<sup>®</sup> Exterior Sheet 4.5 x 4.5m centres. • Tile/mortar bed control joints need not correspond with sheet joints. Slip Sheet -Waterproof Membrane Joist Construction adhesive TILES WITH LIQUID MEMBRANE SYSTEM Tiles or other surface finish Waterproof membrane • Drain to edge of deck. • Aligned sheet layout only. Cemintel Constructafloor® Exterior Sheet • Screw or power nail and adhesive fix. • Control joints in sheets at maximum 2.7 x 12m centres. • Control joints in tile layer at maximum 2.7 x 3.6m Adhesive centres. Joist Construction adhesive • Tile control joint must correspond with sheet joints TRAFFICABLE MEMBRANE SYSTEM Trafficable waterproof membrane • Drain to edge of deck. • Aligned sheet layout only. Cemintel Constructafloor® Exterior Sheet • Screw or power nail and adhesive fix. ſ • Control joints in sheets at maximum 2.7 x 12m centres. Construction Joist adhesive





#### DESIGN + AESTHETIC CONSIDERATIONS

This guide provides detailed installation information for flooring systems with Cemintel Constructafloor Exterior sheets in timber and steel construction. This section outlines some important areas for consideration in determining an appropriate design of the Cemintel Exterior Flooring Systems. The following points are not exhaustive. It is the responsibility of the architect / building designer to ensure the design conforms to NCC requirements and other relevant building standards that may exist for that location. It is recommended that the architect/building designer assigns the responsibility for the flooring design to the project engineer.

This installation guide should be read in conjunction with the NCC, and design information presented in the CSR Cemintel<sup>®</sup> Facades & Cladding – Design Guide and CSR Gyprock The Red Book publications.

#### Framing

Constructafloor Exterior flooring can be fixed to either timber or steel floor joists at maximum 450mm and 600mm spacings, and joists and trimmers must have a fixing face 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 standard:

- AS 1684 Residential Timber-Framed Construction.
- AS 1720.1 Timber Structures Design method.
- AS/NZS 4600 Cold-Formed Steel Structures.
- National Construction Code (NCC).

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. Fixing to timber floor joists can utilize brad nails fired from a suitable pneumatic or gas fired nail-gun.

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<sup>®</sup> for fixing information where steel BMT is greater than 2.0mm.

#### **Control Joints**

Control joints in sheets must be provided at appropriate locations as specified in each system installation details. Movement joints provided in framing should be aligned to joints in the sheets.

#### Sheet Layout

Constructafloor Exterior Flooring 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 centreline of joists, and may be staggered or aligned according to the system requirements. Sheet ends must be aligned at control joints. Sheets may be laid in either direction relative to the slope. All perimeters must be supported on framing.

Where sheets are cantilevered at the outer edge of a deck, sheet edges must not extend more than 50mm beyond the frame/support. Balustrades and other fittings must be connected to the structural framing.

#### Loads

Constructafloor Exterior flooring has been designed to satisfy the live loads associated with activities outlined in AS/NZS 1170.1:2002 Table 3.01 and appropriate load combinations in AS/NZS 1170.0:2002. Not suitable for vehicle wheel loads. The 'Specific Uses' presented in Table 4.01 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 4.01 presents the maximum allowable unfactored loads to satisfy a span/300 deflection limit under serviceability loading, appropriate load combinations in AS 1170.0:2002 and a superimposed dead load of 1.2kPa for floor coverings (i.e., tiles, grout screeds, mortar beds, underlay 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 waterproofing 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 Exterior flooring 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. 9

#### **DESIGN + AESTHETIC CONSIDERATIONS**

#### TABLE 4.01 Cemintel Constructafloor Exterior Flooring Systems (EMC) - 'Double Span' Sheet Installations

Cemintel Constructafi	oor	Specific Uses	Maximum Allowable Unfactored Floor Loadings									
Sheet Thickness	Max. Joist Spacing		Dead Load		Live Load							
(mm)	(mm)		SDL*	UDL	Concentrated F	oint Load (kN)						
			(kPa)	(kPa)	P <sub>350</sub>	P <sub>100</sub>						
19	450	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	1.2	4.0	1.8	2.0						
	400	All categories in buildings and structures with a concentrated live load action less than 4.5kN	1.2	7.5	1.8	4.5						
- 22 -	450	All categories in buildings and structures with a concentrated live load action less than 4.0kN	1.2	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	1.2	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 live load applied to a 350mm<sup>2</sup> bearing area. Refer to Note 1, AS/NZS 1170.1:2002 Table 3.1.

P100 concentrate point live load applied to a 100mm x 100mm bearing area (0.01m<sup>2</sup>). Refer AS/NZS 1170.1:2002 CI.3.2(b).

 $\Psi_{_{
m s}}$  =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.

#### Membranes

Waterproofing membranes should be installed in accordance with AS 4654.2 Waterproofing membrane systems for exterior use - Above ground level Part 2: Design and installation.

Membranes may be required to resist a range of conditions, including chemical attack, ultra-violet light, heat aging, and temperatures from –15°C to +85°C. Low temperatures can result in reduced flexibility, and high temperatures can result in softening of the membrane.

The standard has specific details for the termination of membranes at vertical upward and downward locations. For decks up to 4m from the ground in wind classifications N1 to N3 and C1, the vertical upward termination height is 100mm. The termination height increases for higher wind classifications and exposure conditions, and for greater deck heights. The details include methods of sealing, anchoring and protecting the membrane terminations.

#### Drainage

Regardless of whether the deck is to be waterproof, or not, decks must have a fall to facilitate drainage and prevent ponding. Decks must not be constructed level, and a fall of at least 1 in 100 is recommended. Where possible the fall should be provided in the framing, or as an alternative may be provided in a topping screed.

Whenever possible avoid draining into a sump as this can lead to water building up to a depth above flashings. If this is unavoidable, the mortar bed with separating layer system must be used. The use of a gutter at the edge of the deck can assist in the reduction of staining and prevent water tracking under the tiles and membrane.

The interior floor level at doors and other openings must be at a sufficient level above the finished deck surface to prevent water entering the building. The step should be at least 100mm, and equal to the membrane vertical upward termination height.

#### **Coastal Areas**

Constructafloor Exterior flooring is suitable for use in coastal areas – Corrosivity Category C3: Medium – defined as up to 1km from a surf beach, or more than 200m from the shore without breaking surf, i.e., sheltered bays. Consideration must also be given to local weather and topography features which can increase the distance that salt spray can travel, extending these nominal limits.

#### **DESIGN + AESTHETIC CONSIDERATIONS**



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While the Constructafloor sheets are not subject to corrosion, the sheets need to be waterproofed and the fixings and steel framing must have suitable corrosion resistance for the location. The designer can consider timber framing, steelwork with additional treatment and higher corrosion resistance fixings to achieve a suitable level of durability. The waterproofing membrane must be maintained in accordance with the manufacturer's recommendations and any damaged areas replaced immediately.

#### **Fixing Sheets**

Fixings should finish below the finished level of the Constructafloor Exterior Flooring and any indentation should be filled with joint sealant.

Refer to the following details for jointing and fixing information.



FIGURE 4.02 Constructafloor Fixing Detail -Nail Fixing



#### FIGURE 4.03 Constructafloor Fixing Detail -Screw



#### 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, refer to the 'Components + Accessories' section of this guide.





Note: Codes can change from time to time. Refer to the website for the current list of components prior to ordering.

#### Accessories

Note: In high corrosion zones, such as the coastal marine environment, stainless steel or Class 4 fasteners must be used.

Accessories	Description	Size / Colour	Quantity	Product Code								
CONSTRUCTAFI	OOR SHEET FIXINGS											
	<b>Nail for Timber Framing</b> – Used for direct fixing Constructafloor sheets to a mini Class 3 or Class 4 finish.	mum MGP10 timber fi	raming.									
$\square$	• 50mm machine driven D Head	2.87mmø x 50mm	Supplied	l by others								
	Screws for Steel Framing – Used for direct fixing Constructafloor sheets to steel framing. To suit a minimum 0.75mm BMT framing. Pre-drill Constructafloor sheets and countersink heads.											
	Drill point, CSK countersunk head, Class 3 or Class 4	10-16 x 30mm	Supplied	l by others								
	<b>Screw for Timber Framing</b> – Used for direct fixing Constructafloor sheets to a m Constructafloor sheets and countersink heads.	r framing. Pre	e-drill									
	• Type 17, CSK countersunk head, stainless steel or Class 3	10g x 50mm	Supplied	l by others								
	Screw for Drip Mould - Used for direct fixing drip mould to underside of Constru	ictafloor sheet.										
ę	Metal thread self-tapping, CSK countersunk head, galvanised	8g x 15mm	Supplied	l by others								
	Construction Adhesive - Used when nail fixing Constructafloor sheets to minimu	um MGP10 timber frar	ning.									
	Sikaflex II FC	310mL tube	1 each	39378								
ADHESIVE	Fuller Max Bond		Supplied	l by others								
	Fuller Max Bond Pro		Supplied	l by others								
FLASHINGS, SHEE	TS, MEMBRANES, REINFORCEMENT											
	Slip Sheet – Use for a bond breaker and slip layer between WPM and mortar.											
	0.2mm Polyethylene (Polythene) Sheet to AS 2870		Supplied	l by others								
	Membrane – Used for Water Proof Membrane (WPM) or as required by system, may incorporate joint reinforcing.											
	• A flexible sheet or liquid membrane to AS 4654.1		Supplied	l by others								
	Mortar Bed And Steel Reinforcement - Used to create profile of surface finish.											
	• As required for the system to AS 3958.1.		Supplied	l by others								
	Wall/Floor Joint Flashing											
	• PVC Angle Mould 4mm x 47mm x 47mm		Supplied	l by others								
	Edge Drip Mould – Used to prevent water tracking along underside of Construct	afloor sheet.										
	Aluminium or PVC Angle 12mm x 12mm		Supplied	l by others								
	Flashing - Used as a water barrier for the framing.											
	• Alcor™ or equivalent		Supplied	l by others								
	Paint Finishes – Anti-slip exterior paint suitable as a trafficable wearing surface f	or fibre cement subst	rates.									
	As required for the system		Supplie	d by others								
	<b>Moisture Barrier</b> – For use with the water resistant floor system. A liquid sealer to prior to the installation of the surface finish.	be applied to the Co	onstructafloo	r immediately								
	• Ardex WPM 300		Supplie	d by others								
	<b>Flexible Sealant</b> – Wet area sealant used for joints in tiles and other substrates, Constructafloor substrate and fastener heads. Prime surfaces as recommended	and other sealants fo by the manufacturer.	r joints in									
INT	Sikaflex Pro (Grey)	310mL tube	1 each	11378								
SEALM.	Sikaflex Pro (Black)	310mL tube	1 each	39488								

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#### **COMPONENTS + ACCESSORIES**

Note: Codes can change from time to time. Refer to the website for the current list of components prior to ordering.

Accessories	Description	Size / Colour	Quantity	Product Code
OTHER TOOLS				
	<b>Countersinking Tool</b> – A tungsten carbide tipped tool specifically designed for drilling and countersinking.		1 each	22116
	<b>Backing Rod</b> – Used to enable correct filling of joints with sealant. The diameter of backing rod must be appropriate for the width of the gap being filled.	10mm diameter x 50m roll	1 each	11177
CUTTING TOOLS	- *Cemintel recommends the cutting tools in the table below. Appropriate dust extr	action methods sho	uld also be u	sed.
Alter A	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
	<b>Makita 165mm Fibre Cement Saw Blade</b> – ideal for use with the Makita Plunge saw and other 165mm circular saws fitted with vacuum extraction systems.	165mmx20x4T	1	165486
-Mar	<b>FESTOOL DSC-AGP 125</b> – Diamond Blade Cutting and Grinding Tool. Used to provide neat and accurate bevelled edges.	125mm	1	107207
	FESTOOL TS 55 EBQ 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

# SYSTEM ENGINEERING, INSTALLATION + CONSTRUCTION DETAILS

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#### SYSTEM ENGINEERING, INSTALLATION + CONSTRUCTION DETAILS

#### **Design, Detailing and Performance Responsibilities**

Cemintel engages independent testing laboratories to test and report on the performance of a wall in accordance with the relevant Australian Standards. Consultants use these reports as the basis for opinions (estimates of laboratory performance) they issue for variations or different arrangements to the tested system. Using their experience, the consultant will make judgement about on-site installed performance of various walls.

#### **Project Consultants**

#### (Structural, Fire, Acoustic, Façade etc.)

These consultants are typically responsible for the following:

- Opinions on expected laboratory performance of wall configurations that vary from actual test configuration, such as substitution of products and components;
- Judgements about expected field performance using laboratory test reports and practical experience;
- Design, specification and certification of structural, fire, acoustic, durability, weather tightness and any other required performance criteria for individual projects.

The design and selection of building elements, such as wall and floors and their integration into the building considering the following:

- Interface of different building elements including the structure/ substrate;
- Wall and floor junctions;
- Penetrations;
- Flashing issues;
- Room / building geometry; and
- Acoustic and water penetration field-testing.

#### **Design Responsibility**

Cladding, air barrier, battens and top hats, and structural framing are required to resist wind and earthquake loads that are specific to the building and the site. Additional 'local pressure factors' can apply to cladding and the supporting battens and top hats in accordance with the Australian Standard AS 4055 - Wind loads for housing or AS/NZS 1170.2 - Wind actions. It is recommended that the Architect/Building Designer assigns the responsibility for the façade design to the Project Engineer. Once loads have been determined, the battens and top hat spans, fastener spacing, air barrier construction details, and cladding fixing details may be selected from the appropriate tables in this guide and in the 'Cemintel Facades & Cladding Designer to select the appropriate corrosivity category. Refer to appropriate details in this guide.

The performance levels of walls documented in this guide the 'Cemintel Facades & Cladding Design Guide' and CSR Gyprock<sup>®</sup> The Red Book<sup>™</sup> publications are either what is reported in a test or the documented opinion of consultants.

#### Performance in projects is typically the responsibility of:

Project Certifier and/or Builder These professionals are typically responsible for:

- Identifying the performance requirements for the project in accordance with the NCC and clearly communicating this to the relevant parties; and
- Applicability of any performance characteristics supplied by Cemintel including test and opinions for the project.

Cemintel does not provide consulting services. Cemintel provides technical information that has been prepared in consultation with third party subject expert consultants for the presentation of information presented in this guide. This guide may be subject to amendment or change as required or as deemed necessary. The most up to date version of this guide should be referred to and shall be available at the Cemintel website cemintel.com.au.

Any party using the information contained in this guide or supplied by Cemintel in the course of a project must satisfy themselves that it is true, current and appropriate for the application, consequently accepting responsibility for its use.

It is the responsibility of the building designer, architect, engineer and project consultants to ensure that the information and details in this guide and the performance of the Constructafloor Exterior flooring is suitable for the intended project application.

The recommendations in this guide are formulated along the lines of good building practice but are not intended to be an exhaustive statement of all relevant data.

Cemintel is not responsible for the performance of constructed walls, including field performance, and does not interpret or make judgements about performance requirements in the NCC.

**Note:** It is the responsibility of the Project Engineer/ Frame Designer to specify the connection of the structural noggings to the structural framing for any off-stud battens or top hats. It is also the responsibility of the project engineer to calculate the wind loads and earthquake loads for the cladding, air barrier and support framing of the façade on a project.

#### SYSTEM ENGINEERING, INSTALLATION + CONSTRUCTION DETAILS



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#### Mortar Bed with Separating Layer System

This system has Constructafloor Exterior flooring fixed directly to floor joists, with a flexible membrane installed on top to provide waterproofing.

The flexible membrane is covered with a separating or slip sheet, and a reinforced mortar bed is then laid to support the tiles or other finish.

Control joints in the mortar bed/tiles do not have to coincide with sheet joints. This allows uninterrupted tile surfaces of up to  $4.5m \times 4.5m$  between control joints to suit the tile module.

#### INSTALLATION

#### Sheet & Control Joint Layout

Constructafloor Exterior flooring 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 joists, and may be staggered or aligned. Sheet ends must be aligned at control joints. Sheets may be laid in either direction relative to the slope. Leave a 10mm gap at wall junctions.

Control joints in the sheets and mortar bed/finish layers do not have to coincide, and are to be provided at maximum centres as detailed in Figure 6.01.

#### **Fixing Constructafloor Sheet**

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 joint sealant. Remove the tongue and groove where necessary and provide blocking to support sheet edges and backing rod. This gap is important to accommodate movement of the building materials and structure.

Screw fix sheets at 450mm centres maximum along sheet edges and in the body of the sheet. Alternatively, where sheets are to be nail fixed, apply a continuous bead of construction adhesive below the sheet and power nail at 200mm centres maximum along sheet edges and in the body of the sheet.

Fixings must be kept a minimum of 50mm from corners. Refer to Figure 4.01, Figure 4.02 and Figure 4.03, and installation details. Fastener heads must be countersunk below sheet surface. Screw holes must be pre-drilled using a counter sinking tool. Screw holes must be cleaned and filled with joint sealant. Once fasteners are in place, cover heads and fill all indentations with joint sealant.

**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.

#### Jointing

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.

For control joints only, press foam backing rod into joint pressing down firmly against joist leaving approximately 6mm deep gap at top to suit sealant requirements.

Fill all joints with joint sealant, finishing level with the sheet surface. Joints must be smoothed within 10 minutes.

#### Membrane

A proprietary membrane system must be used and should be installed by a specialist waterproofing contractor, and a waterproof guarantee provided.

The following third party waterproofing manufacturers have tested waterproofing systems for use on top of Constructafloor Exterior flooring:

- ARDEX Australia Pty Ltd
- Bostik Australia Pty Ltd
- Crommelin Waterproofing & Sealing
- Parchem Construction Supplies Pty Ltd

Please contact these companies for further information.

#### Slip Sheet

To protect the membrane during tiling, and to separate the movement of the substructure and the tiled surface, a heavy duty plastic sheet must be installed over the membrane.

#### Mortar Bed

A mortar bed is laid over the slip sheet to provide a suitable surface for tiling.

Control joints must be installed at 4.5m maximum spacings in both directions.

The mortar bed must be 40mm minimum thickness and reinforced with galvanised steel or stainless steel mesh. The mortar bed should be allowed to cure for approximately 10 days before tiling commences.

#### Tiling

**Do not tile over control joints in the mortar bed.** When selecting tiles ensure they are suitable for external use. An appropriate adhesive recommended for external use must be used. In all cases, the tile and tile adhesive manufacturer's instructions should be followed.

For further advice, refer to Australian Standard AS 3958.1 'Guide to the installation of ceramic tiles'.

## SYSTEM ENGINEERING, INSTALLATION + CONSTRUCTION DETAILS





FIGURE 6.02 Constructafloor with Mortar Bed/Tiles and Slip Sheet



Framing 45mm min. face width or to joist manufacturer's

reauirements

#### SYSTEM ENGINEERING, INSTALLATION + CONSTRUCTION DETAILS















1<u>2mm</u> min.

12mm

min







### $\bigcirc \bigcirc \bigcirc$

## SYSTEM ENGINEERING, INSTALLATION + CONSTRUCTION DETAILS



FIGURE 6.11 Door Sill

FIGURE 6.09 Wall/Floor Junction Option 2



Waterstop angle externing to external contract of the state of the sta

#### SYSTEM ENGINEERING, INSTALLATION + CONSTRUCTION DETAILS



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#### Liquid Membrane & Trafficable Membrane Systems

These systems are treated together as they have similar sheet fixing and waterproofing details. With no mortar bed, these systems are of minimum thickness, which is an advantage where threshold step height is low, and are also light weight to reduce the load on floor joists.

#### INSTALLATION

#### Sheet & Control Joint Layout

Constructafloor Exterior flooring sheet are fixed directly to the floor joists. Sheets are laid with tongue and groove joints perpendicular to the joists with sheet ends aligned. Sheet ends must align with joists. Sheets may be laid in either direction relative to the slope. Leave a 10mm gap at wall junctions.

Control joints in tiles must be aligned with control joints in sheets, and are to be provided at maximum centres as detailed in Figure 6.12.

#### **Fixing Sheets**

Tongue and groove joints must be butted tightly together prior to fixing. Refer to detail.

Control Joints must be installed leaving a 5mm minimum gap between sheets to allow for the installation of backing rod and joint sealant. Remove the tongue and groove where necessary and provide blocking to support sheet edges and backing rod. This gap is important to accommodate movement of the building materials and structure.

Screw fix sheets at 450mm centres maximum along sheet edges and in the body of the sheet. Alternatively, where sheets are to be nail fixed, apply a continuous bead of construction adhesive below the sheet and power nail at 200mm centres maximum along sheet edges and in the body of the sheet.

Fixings must be kept a minimum of 50mm from corners. Refer to Figure 4.01, Figure 4.02 and Figure 4.03, and installation details. Fastener heads must be countersunk below sheet surface. Screw holes must be pre-drilled using a counter sinking tool. Screw holes must be cleaned and filled with joint sealant. Once fasteners are in place, cover heads and fill all indentations with joint sealant.

**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.

#### Jointing

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 only, press foam backing rod into joint pressing down firmly against joist leaving approximately 6mm deep gap at top to suit sealant requirements.

Fill all joints with joint sealant, finishing level with the sheet surface. Joints must be smoothed within 10 minutes. Remove masking tape and allow sealant to dry for approximately 24 hours.

#### Liquid or Traffic Membrane

A proprietary membrane system must be used. This should be installed by a specialist waterproofing contractor, and a waterproof guarantee provided.

The following third party waterproofing companies have tested waterproofing systems for use on Constructafloor:

- ARDEX Australia Pty Ltd
- Bostik Australia Pty Ltd
- Crommelin Waterproofing & Sealing
- Parchem Construction Supplies Pty Ltd

Please contact these companies for further information.

A bond breaker tape must be placed over the liquid membrane directly above all sheet control joints prior to tiling. Joint reinforcement should be used over joints with trafficable membrane systems as recommended by the membrane manufacturer.

#### Finishes

Do not tile over control joints.

When selecting tiles ensure they are suitable for external use and an appropriate adhesive is selected. In all cases the tile and tile adhesive manufacturer's instructions should be followed.

For further advice, refer to Australian Standard AS 3958.1 'Guide to the installation of ceramic tiles'.

## SYSTEM ENGINEERING, INSTALLATION + CONSTRUCTION DETAILS



FIGURE 6.12 Sheet & Control Joint Layout – Sheets Aligned (Control joint locations of the sheeting and tile covering align)

FIGURE 6.13 Construction of Liquid or Trafficable Membrane System



#### SYSTEM ENGINEERING, INSTALLATION + CONSTRUCTION DETAILS



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 FIGURE 6.15
 Tile Control Joint at T&G Joint with

 Membrane and Tiles



FIGURE 6.18 Typical T&G Joint with Trafficable Membrane



FIGURE 6.16 Sheet & Tile Control Joint at Butt Joint with Membrane and Tiles



FIGURE 6.19 Sheet Control Joint at Butt Joint with Trafficable Membrane



## SYSTEM ENGINEERING, INSTALLATION + CONSTRUCTION DETAILS



FIGURE 6.24 Metal Post Support



FIGURE 6.21 Edge Finishing Detail (Edge fall protection not shown)







FIGURE 6.26 Gutter Detail (Edge fall protection not shown)











## SAFETY, HANDLING, GENERAL CARE + WARRANTY



#### SAFETY, HANDLING, GENERAL CARE + WARRANTY



#### Health, Safety and Personal Protection Equipment (PPE)

Fibre Cement contain silicas that are harmful if inhaled. Protective clothing and breathing equipment should be worn when cutting products. When cutting, drilling or grinding fibre cement panels using power tools, always ensure the work area is properly ventilated.

#### Managing Respirable Crystalline Silica Dust

Crystalline Silica is everywhere. It is found naturally in stone, rocks, sand, gravel and clay. Sand is one of the raw materials in Fibre Cement. Respirable Crystalline Silica dust is the fine dust that's created when you use power tools to cut, drill, grind, chip or sand materials and products that contain crystalline An approved dust mask (AS/NZS 1715 and AS/NZS 1716) and safety glasses (AS/NZS 1337) must be worn. Cemintel recommends that hearing protection also be worn.

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

silica. This dust is of concern due to its size as it gets caught deep in your lungs and can cause long term damage.

IF YOU USE THE CORRECT SAFETY EQUIPMENT AND PPE, FIBRE CEMENT IS SAFE TO USE.

Cemintel Safet	y Requirements
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1 - Cut Outdoors*	The ventilation outdoors is greater than that indoors, and therefore should reduce exposure.
2 - Use On-Tool Dust Extraction	Use on-tool dust extraction when using power tools to drill and cut Fibre Cement, with a vacuum that contains a HEPA M Class filter.
3 - Correct Saw and Blade	Use a plunge saw with a specifically designed Fibre Cement blade.
4 - Don't Sweep, Vacuum instead	When completing your work vacuum with a HEPA M Class filter, rather than a broom as sweeping creates more dust.
5 - Use Correct Respirator	Use a half face P1 or P2 respirator. It is essential that the respirators are Fit Tested and workers are cleanly shaven to obtain a good seal.
* Even though not recommanded indee	r outting can be completed when using an onsite outting room with exhaust ventilation

<sup>t</sup> Even though not recommended, indoor cutting can be completed when using an onsite cutting room with exhaust ventilation and a M class filter at a minimum, on-tool dust extraction with a vacuum with a HEPA M Class filter, a Full Face P2 respirator and conducting local occupational and static air monitoring to validate effectiveness of control measures.

#### Safety & Handling

#### Storage

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

#### Handling

Prefinished products and must be treated with care during handling to avoid damage to edges, ends and prefinished surface. Panels should be carried horizontally on edge by at least two people.

Consideration should be given to planning the order of other trades that might stain or damage the panels.

Any splashings of mud, cement, mortar and the like should be removed immediately.

#### Cutting

Panels should be fully supported and cut from the back using a power saw. Cemintel recommends using the Makita Plunge Cut Saw with guide rail and appropriate blade, together with the appropriate dust extraction system. All exposed cut edges MUST BE SEALED WITH CEMINTEL EDGE SEALER TO PREVENT MOISTURE ABSORPTION.

#### Mitres

It is not recommended to mitre panel edges as this can cause delamination of the face.

#### Penetrations

Penetrations in panels may be cut or drilled prior to installation. Cut from the back or drill from the front. Mask, prime and fill gaps with sealant in accordance with recommended methods and products.

#### Warranty

Cemintel Constructafloor Exterior sheets have a product warranty of 10 years.

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



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Cemintel is a trading entity of CSR Building Products Limited (ACN 008 631 356).

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