



ALPHA FLOOR®

THE SOLID CONCRETE FLOOR PANEL

2026

XCEM PTY LIMITED
xcem.com.au

ALPHA FLOOR®

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ALPHA FLOOR® is the only cost effective, solid concrete floor system available in the Australian Construction Industry.

- Solid Concrete Panel
- Highest Performing Acoustic Product Available to Minimise Sound Transfer between levels
- Significant improvement to NatHERS/BASIX Star Rating of Home
- Lower Cost than Fibre Cement Flooring
- Strong, Durable, Impact & Abrasion Resistant
- No need to protect from Water, Rain or Traffic
- Highly suitable for Flood Prone areas
- Real Solid Concrete Feel & Sound
- Non-Combustible
- Compliant with all 6 Bush Fire Attack (BAL) Levels
- Australian Made & Owned
- ISO 9001 Accredited



TESTIMONIALS



ALPHAFLOOR is a fantastic product and one that really aligns with our brand of building a quality home with innovative products. We would recommend this product to anyone wanting a solid concrete feel with the added benefit of boosting the BASIX star rating at the same time.

FOWLER HOMES

Christian Romano, Estimating and Procurement Manager & Steve Licastro, Construction Manager



I am absolutely blown away by how this floor feels, it is rock solid! The floor feels every bit as good as a suspended slab on a double brick home. This product has far exceeded my expectations. I am converted.

ANDREW STRACHAN

Construction Manager



We found XCEM ALPHAFLOOR online and were absolutely blown away at this product at first glance. Once we saw the product in person it was a no brainer to utilise this on our high end projects. Very happy with the product, the team at XCEM were great all the way through the journey. Already using this product on another job and looking forward to many more. ALPHAFLOOR is leagues above AAC or yellow tongue flooring!

PIROSSI DEVELOPMENTS

Alex Ilic, Director



I recently had the XCEM ALPHAFLOOR system installed in my latest project, and I couldn't be more impressed. The lightweight, dense concrete panels provide the feel of a real concrete slab while significantly reducing sound transfer from upstairs. The difference in noise levels is remarkable! I can confidently say I will never use another floor system for timber frame construction again.

SYDNEY CONSTRUCTION GROUP

Andrew W



The team at XCEM really have come up with a great product and project delivery service, which will be a real difference maker in the residential construction market for years to come! I look forward to working with them and the latest innovations they come up with in future, in order to integrate those into many more Wincrest builds for years to come.

WINCREST GROUP

Lance Paneras, General Manager

SEE ALPHAFLOOR IN ACTION

Real builds and client interviews at
xcem.com.au

BENEFITS OF ALPHAFLOOR®

For the first time ever, Homeowners can now have a solid concrete floor at an affordable price point.

01

High-Performance Concrete at the Right Price

ALPHAFLOOR® is solid, high-strength concrete, yet is incredibly affordable.

The ONLY cost effective concrete-slab substitute

02

Solid Concrete Floor Feel & Sound

ALPHAFLOOR® feels and sounds like a concrete slab. The highest acoustic performing floor system available.

Outperforms a 150mm concrete slab

03

Fast

A typical floor is installed in approximately one day, and being concrete it easily accommodates carpet, tiles, hybrid and hardwood flooring.

One day. Any finish.

04

Durability Provides Peace of Mind

ALPHAFLOOR® can be left exposed to the elements indefinitely. It does not need to be kept dry or waterproofed within a set time period, and moisture will not cause it to lift. Cut edges do not require coating or sealing as is typically required for substitute FC & AAC products.

05

Significant improvement to NatHERS/BASIX Star Rating

There are cost savings available when substituting ALPHAFLOOR® for particle board on the first floor, driven by the high thermal mass of the product and the 7 star NatHERS/BASIX requirements.

06

Crystalline Silica Free

ALPHAFLOOR® contains NO crystalline silica, eliminating risk of development of silicosis through inhalation of dust.

07

Australian Made & Owned

ALPHAFLOOR® is 100% Australian Made & Owned, manufactured at XCEM's state-of-the-art facility in the Southern Highlands of New South Wales.

SOLID CONCRETE. PRECISION GROUND. AUSTRALIAN MADE.

ENGINEERED AND BUILT IN THE SOUTHERN HIGHLANDS, NSW

ALPHAFLOOR is an Australian invention. Ten years of development and more than \$9 million invested in plant and equipment have rebuilt our production line end to end: a re-engineered forming process, a new curing regime, and a new precision grinding line, the only one of its kind in Australia.

Every panel is ground flat before dispatch, with thickness variation consistently under 1.5mm, panel to panel. Our tightest tolerance ever.

While others import commodity board, XCEM manufactures a solid concrete panel in the Southern Highlands, NSW. Australian made, Australian owned, and engineered for Australian homes.

\$9M+

INVESTED IN AUSTRALIAN PLANT

10 YRS

OF PRODUCT DEVELOPMENT

<1.5MM

THICKNESS VARIATION, PANEL TO
PANEL

Anyone can mill a lightweight board flat. Grinding solid concrete flat is the hard part. We built the line that does it.

THE QUIETEST FLOOR SYSTEM

ALPHAFLOOR® has been thoroughly tested and proven to be Australia's highest acoustic performing floor system. Performing even higher than a 150mm suspended concrete slab. The table below presents a comparison of the common floor systems.

Floor System	Airborne Sound Transmission (Rw + Ctr) Higher = Better	Airborne Sound Transmission (DnTw + Ctr) Higher = Better	Impact Insulation (LnTw) Lower = Better
19mm Particleboard	~40 dB	~35 dB	~85 dB
75mm AAC	48 dB	43 dB	70 dB
100mm Concrete Slab	50 dB	45 dB	73 dB
150mm Concrete Slab	52 dB	47 dB	63 dB
35mm ALPHAFLOOR®	60 dB	55 dB	54 dB
<i>NCC Requirement for Class 2 & 3</i>	<i>≥ 50 dB</i>	<i>≥ 45 dB</i>	<i>≤ 62 dB</i>

FLOOR SYSTEM DESCRIPTIONS & NOTES

- 19mm Particleboard: Timber flooring + 19mm Particleboard floor system + R1.5 Glasswool Insulation + 10mm Plasterboard Ceiling (Direct Fixed)
- 75mm AAC: Timber flooring + Battens + PVC + 75mm AAC + Furring Channel with resilient mounts + R2 Acoustic insulation + 13mm plasterboard ceiling fixed to furring channel.
- 100mm Concrete Slab: Timber flooring + 100mm Concrete Slab + 10mm Suspended Plasterboard Ceiling
- 150mm Concrete Slab: Timber flooring + 150mm Concrete Slab + 10mm Suspended Plasterboard Ceiling
- 35mm ALPHAFLOOR®: Timber flooring + 35mm ALPHAFLOOR® System + R4 Standard Thermal Insulation + 10mm Plasterboard Ceiling (Direct Fixed)
- Lab Results (Rw+Ctr/Lnw) were assumed to have a ~5 dB difference than infield results (DnTw/LnTw) as per NCC
- R4 Insulation utilised in the ALPHAFLOOR® test was standard thermal insulation, which does not perform as well as acoustic insulation does. If this test had utilised R2 acoustic insulation it is expected that the Rw + Ctr for the floor system would have been marginally higher (~2 dB)

TYPICAL UPGRADE COSTS – PROJECT HOME BUILDERS

When upgrading from standard 19mm particleboard flooring to a suspended concrete slab on the first floor, homeowners can expect to pay approximately \$250,000 dollars more! This is to cover the cost increase of the slab, beams, and structural walls required to carry the slab. By comparison homeowners will only pay approximately \$15,000 extra to upgrade to the solid concrete ALPHAFLOOR system!

The great news for homeowners is that not only is this a saving of ~\$235k compared to a suspended concrete slab, but also that ALPHAFLOOR actually has significantly higher acoustic performance than a suspended concrete slab! Providing 8dB higher performance for Airborne Noise and 9dB higher performance for impact insulation.

The other important factor which homeowners need to be aware of is project timeline implications. Upgrading to a suspended concrete slab will add ~ 4 weeks to the construction timeline. Compare this to ALPHAFLOOR which only adds ~ 4 hours compared to 19mm particleboard construction.

	ALPHAFLOOR® Solid Concrete Floor System	Suspended Concrete Slab	Particleboard Floor System
Typical Cost Increase	\$15k, includes material, installation, and any changes to joist layout	\$250k, includes cost for reinforced beams and load bearing walls	-
Structural Upgrades	No	Yes	-
Project Time Line Increase Compared to Particle Board Floor System	4 Hours	4 Weeks	-
Airborne Sound Transmission	Rw + Ctr 60	Rw + Ctr 52	Rw + Ctr 40
Impact Insulation	LnTw 54	LnTw 63	LnTw 85

FLOOR SYSTEM COMPARISON

Presented below is a comparison of 35mm ALPHAFLOOR® with 75mm AAC Panels, FC Sheets & Particle Board.

	35mm ALPHAFLOOR®	75mm AAC Panel	19/22mm FC Sheet	19/22mm Particle Board
Material	Solid Concrete Panel	Autoclaved Aerated Concrete	Fibre Cement	Particle Board
Thickness	35mm	75mm	19/22mm	19/22mm
Compressive Strength	25 MPa	3 MPa	N/A	N/A
Contains Crystalline Silica (Severe Health Hazard)	No	Yes	Yes	No
Durability – AS/NZS 4456.10	Yes	No	No	No
Requires Protection from Water	No	Yes	Yes	Yes
Sound Insulation Floor System (DnTw + Ctr)	55	43	NA	~32
High Water Absorption (Porosity)	No	Yes	No	Yes
Risk of Corrosion	No	Yes	No	No
Low Maintenance	Yes	No	No	No
Non-Combustible	Yes	Yes	No	No

TECHNICAL SPECIFICATIONS

ALPHAFLOOR® is a solid precast concrete panel made using XCEM® concrete technology. It presents a hard, smooth surface. The table below contains the material properties of ALPHAFLOOR®. Testing was carried out by a laboratory accredited by NATA for Technical Competence (Accreditation No. 1393, Site No. 1386). The determination of characteristic strength and connection capacity values has been carried out in accordance with AS/NZS1170.0 Appendix B.

Product	Panel Width	Available Lengths (mm)	# Panels per Pack
35mm ALPHAFLOOR®	570mm	2700mm	14

Design Density: 40.79 kg/m² Transport & Construction Density: 52 kg/m²

XCEM ALPHAFLOOR is a precast concrete panel. Tolerances on the manufactured product are:

- Panel short edges +- 4mm tolerance
- Panel long edges +- 4mm
- Panel thickness: precision ground, variation consistently under 1.5mm panel to panel

LOAD CAPACITY OF ALPHAFLOOR®

Application	Permanent Actions Included in Application (35mm)	Distributed Imposed Action Q	Concentrated Imposed Action Q _c (area distributed over)	Maximum Joist Spacing for AlphaFloor®
Residential Activities - General Areas	G _{sw} = 0.40 kPa G _f = 0.25 kPa G _s = 0.50 kPa	1.5 kPa	1.8 kN (350 mm ²)	600 mm
Residential Activities - Tiled Wet Areas	G _{sw} = 0.40 kPa G _f = 0.50 kPa G _s = 0.50 kPa	1.5 kPa	1.8 kN (350 mm ²)	500 mm
Residential Activities - Balconies and Verandahs	G _{sw} = 0.40 kPa G _f = 1.00 kPa G _s = 0.50 kPa	2.0 kPa	1.8 kN (350 mm ²)	450 mm
Light Commercial Activities	G _{sw} = 0.40 kPa G _f = 1.00 kPa G _s = 0.50 kPa	3.0 kPa	2.7 kN (0.01 m ²)	450 mm

- G_{sw} = permanent action due to self weight of ALPHAFLOOR - 0.40 kPa 35mm
- G_f = permanent action of applied floor coverings
- G_s = permanent action allowance for superimposed loading of permanent fixtures
- Applicable factored load case for strength: 1.2G + 1.5Q

MODELLING ALPHAFLOOR FOR NATHERS

ALPHAFLOOR has been approved by NatHERS and added into the NatHERS Material library. It is listed under the new material "Fibre reinforced concrete (Thermal conductivity = 0.28 W/mK, Heat Capacity 1.172 J/gK) option for ALPHAFLOOR".

Incorporation of ALPHAFLOOR generally adds 0.2 – 0.5 star rating compared to traditional flooring due to its significant thermal mass contribution (depending on orientation, climate zone etc.).

Below is how ALPHAFLOOR is modelled in the various software providers:

- BERS Pro: 35mm XCEM ALPHAFLOOR is available as a standard floor assembly option "35mm fibre reinforced concrete floor".
- Hero: 35mm XCEM ALPHAFLOOR is available as a standard floor assembly option "35mm ALPHAFLOOR".
- FirstRate 5: NatHERS have advised that when using FR5 35mm ALPHAFLOOR to be modelled as 42mm Fibre Cement (Not Compressed Fibre Cement). First Rate 5 have advised that they will look to add ALPHAFLOOR in the next minor update, at which point the users will need to select "35mm Fibre Reinforced Concrete" as opposed to 42mm of FC.

TWO RECENT CASE STUDIES

In both homes, ALPHAFLOOR's thermal mass allowed the glazing specification to be downgraded while still achieving 7 stars.

CASE STUDY 1 – HOME IN SUTHERLAND

PARTICLEBOARD

With particleboard to first floor, 7 stars required: R4.5 to external walls (R2.5 batts + R2.0 foam boards); R6.5 to ceiling; R6.0 to framed floor; Double glazed low-e windows; R2.0 to internal unconditioned walls; 1 x 1400mm ceiling fan to bedroom 1; 1 x 1400mm ceiling fan to bedroom 2; 1 x 2400mm ceiling fan to kitchen/living.

35MM ALPHAFLOOR

With 35mm ALPHAFLOOR to first floor, 7 stars required: R4.5 to external walls (R2.5 batts + R2.0 foam boards); R6.5 to ceiling; R6.0 to framed floor; Double glazed low-e sliding door; Single glazed low-e to other windows; R2.0 to internal unconditioned walls; 1 x 1400mm ceiling fan to bedroom 1; 1 x 2400mm ceiling fan to kitchen/living.

THE WIN: Only the sliding door needed double glazing. All other windows dropped to single glazed low-e, and one ceiling fan was removed.

CASE STUDY 2 – NEW HOME IN WEST PENNANT HILLS

PARTICLEBOARD

With particleboard to first floor, 7 stars required: Ceiling insulation to R6.0 (Excl. Garage); External wall insulation to R2.5 (Excl. Garage); R2.5 insulation throughout the internal walls; 1 x 1200mm ceiling fans to Kitchen/Living/Dining; 1200mm ceiling fans to all Bedrooms, Rumpus, Media; Double glazed low-e to all windows and sliding doors; R4.0 Insulation throughout the suspended floor.

35MM ALPHAFLOOR

With 35mm ALPHAFLOOR to first floor, 7 stars required: Ceiling insulation to R6.0 (Excl. Garage); External wall insulation to R2.5 (Excl. Garage); R2.0 insulation throughout the internal walls; 1 x 1200mm ceiling fans to Kitchen/Living/Dining; 1200mm ceiling fans to all Bedrooms, Rumpus, Media; Single Glazing Low-e Clear to all windows and sliding doors; R4.0 Insulation throughout the suspended floor.

THE WIN: Every window and sliding door dropped from double glazed to single glazed low-e, and internal wall insulation reduced from R2.5 to R2.0.

BASIC CONSTRUCTION DETAILS

FIGURE 1: ALPHAFLOOR CONFIGURATION

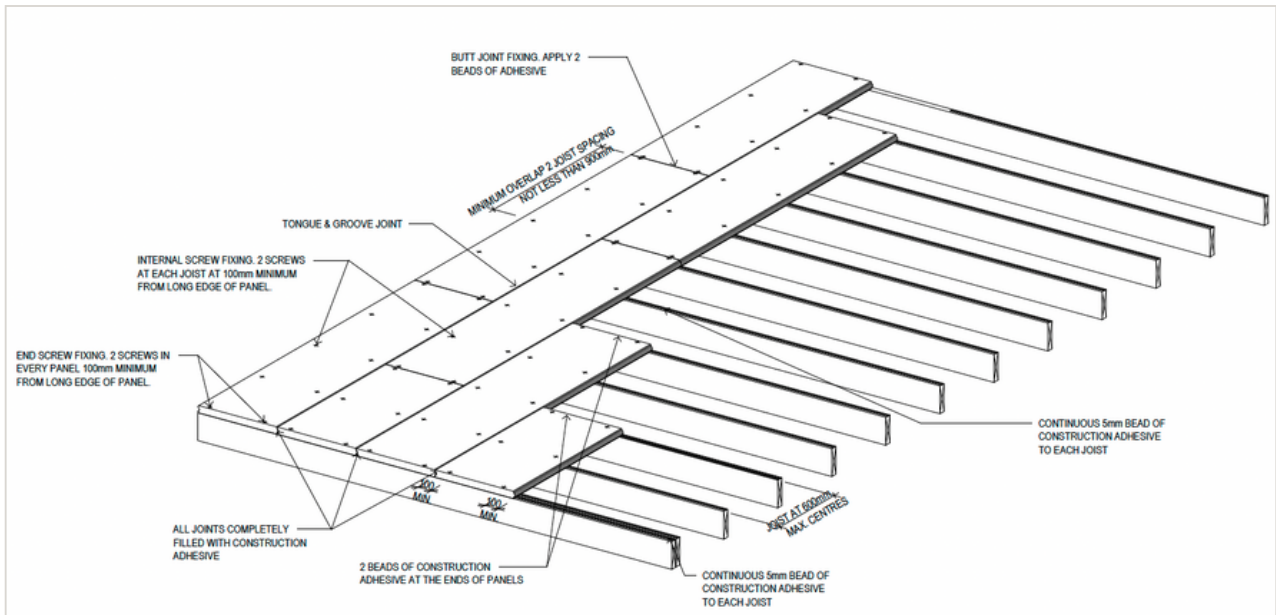
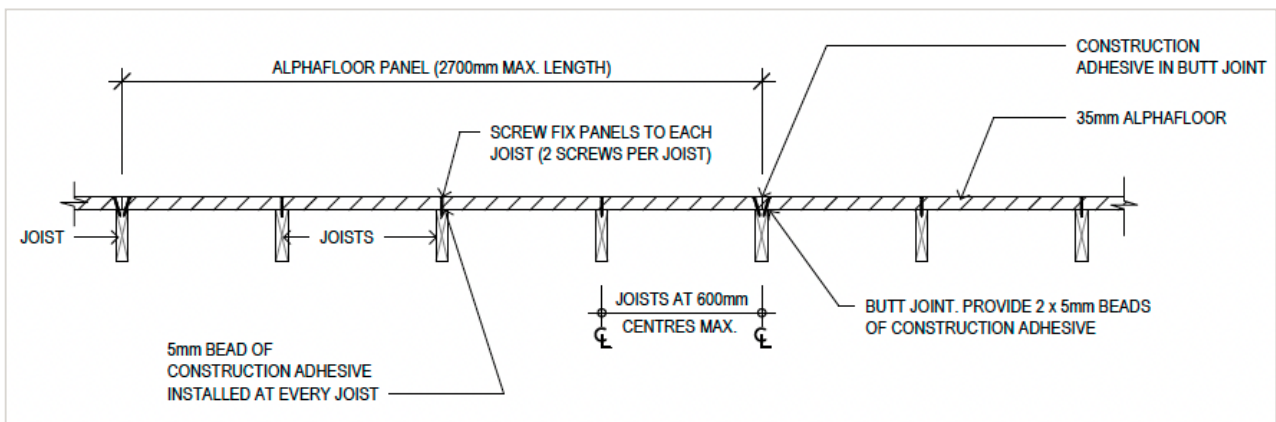


FIGURE 3: FLOOR SECTION - PERPENDICULAR TO JOISTS



Please refer to the ALPHAFLOOR TECHNICAL & INSTALLATION MANUAL for complete construction and installation details.



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ALPHA[®]FLOOR