

Insulation



AIR-CELL[®] Permifloor[®]

Vapour Permeable Underfloor Insulation



- 3x faster to install* than foil-faced polystyrene panels
- Helps achieve the home energy efficiency provisions
- 2-in-1 insulation and moisture management solution
- Fibre-free, non-allergenic, non-irritant
- Strong, tough, durable
- Rodent and insect resistant
- Flammability Index ≤ 5
- Compliant with AS/NZS 4859.1:2018
- CodeMark-certified for NCC compliance
- Made in Australia

* Fast and Furious Installation Challenge – see page 7



Residential Suspended Framed Floors

Kingspan AIR-CELL Permifloor®

Typical Design Details

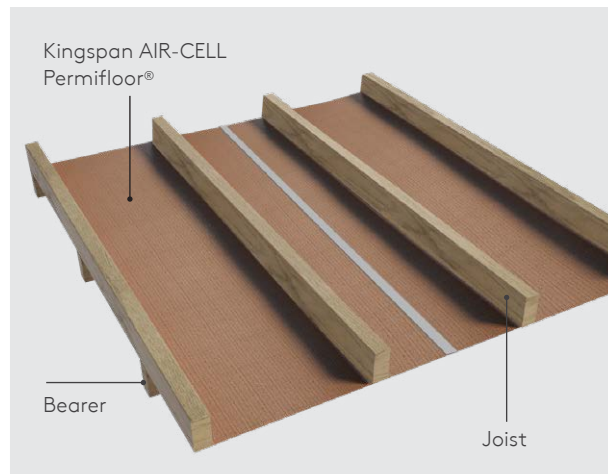


Figure 1. Kingspan AIR-CELL Permifloor® installed over bearers.

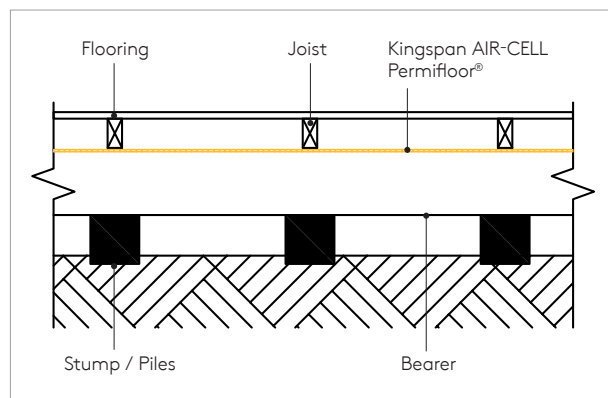


Figure 2. Side elevation of Kingspan AIR-CELL Permifloor® in a suspended framed floor.

Thermal Performance

Kingspan AIR-CELL Permifloor®	Heat flow in	Heat flow out
Unenclosed sub-floor	R _T 0.8	R _T 1.6
Enclosed sub-floor	R _T 1.6	R _T 3.0

The R-values shown are Total R-values for the building element as required by the Energy Provisions of the NCC, calculated in accordance with AS/NZS 4859.2:2018. Kingspan AIR-CELL® products are manufactured, tested and packaged in conformance with AS/NZS 4859.1:2018.

Specification Guide

The underfloor insulation fixed on the floor frame shall be water-permeable, CodeMark-certified Kingspan AIR-CELL Permifloor® fibre-free, thermo reflective insulation, comprising a closed-cell foam structure sandwiched with an anti-glare foil facing on one side and a plain foil facing on the other side manufactured by Kingspan Insulation Pty Ltd, and shall be installed in accordance with the instructions issued by them.

A Project Specific Warranty provided by Kingspan Insulation must be submitted.

Installation Instructions

New Building

1. Lay Kingspan AIR-CELL Permifloor® over and running perpendicular to the bearers and fix in position.
2. Install joists as required.
3. Fix Kingspan AIR-CELL Permifloor® to the underside of joists by stapling or screwing.
4. Butt join or overlap by 50 mm and tape with 48 mm reinforced foil tape (allow 150 mm overlap when joints are not to be taped).
5. Alternatively, Kingspan AIR-CELL Permifloor® can be installed over the joists provided it doesn't compromise the fixing of the chosen flooring, and the insulation is allowed to sag at least 40 mm between joists. For this method the Kingspan AIR-CELL Permifloor® should be butt joined and taped with 48 mm wide reinforced foil tape.

Retrofit to the Underside of Joists

1. Fit Kingspan AIR-CELL Permifloor® under the joists, running perpendicular to the bearers and fix in position.
2. Abut to the side of bearers allowing for down-turn to adequately fix in place.
3. Fix Kingspan AIR-CELL Permifloor® to the underside of joists by stapling or screwing.
4. Butt join or overlap by 50 mm and tape with 48 mm reinforced foil tape (allow 150 mm overlap when joints are not to be taped).

Residential Suspended Framed Floors

Kingspan AIR-CELL Permifloor® 500

Typical Design Details

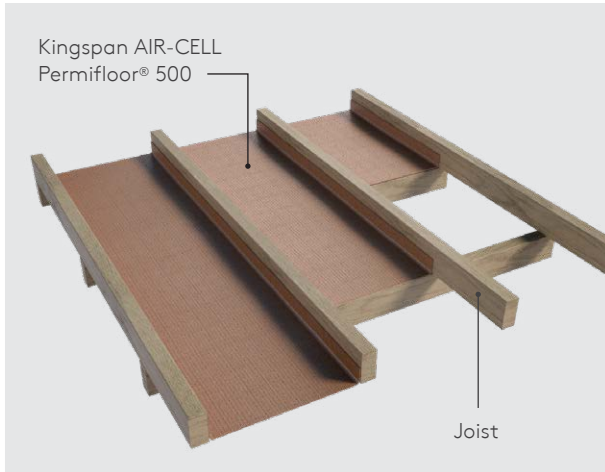


Figure 3. Pre-cut Kingspan AIR-CELL Permifloor® 500 installed between floor joists.

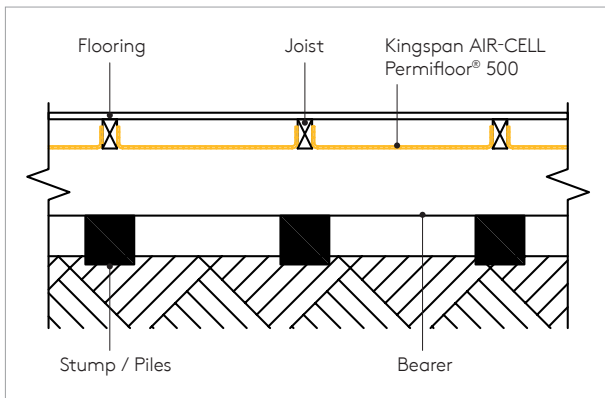


Figure 4. Side elevation of Kingspan AIR-CELL Permifloor® 500 in a suspended framed floor.

Thermal Performance

Kingspan AIR-CELL Permifloor® 500	Heat flow in	Heat flow out
Unenclosed sub-floor	R _T 0.8	R _T 1.6
Enclosed sub-floor	R _T 1.6	R _T 3.0

The R-values shown are Total R-values for the building element as required by the Energy Provisions of the NCC, calculated in accordance with AS/NZS 4859.2:2018. Kingspan AIR-CELL® products are manufactured, tested and packaged in conformance with AS/NZS 4859.1:2018.

Specification Guide

The underfloor insulation fixed between the floor joists shall be water-permeable, CodeMark-certified Kingspan AIR-CELL Permifloor® 500 fibre-free, thermo reflective insulation, comprising a closed-cell foam structure sandwiched with an anti-glare foil facing on one side and a plain foil facing on the other side manufactured by Kingspan Insulation Pty Ltd, and shall be installed in accordance with the instructions issued by them.

A Project Specific Warranty provided by Kingspan Insulation must be submitted.

Installation Instructions

Note: Both these methods will not provide a continuous vapour barrier.

Timber Frame, New Building

1. Roll Kingspan AIR-CELL Permifloor® 500 in parallel direction to floor joists ensuring that it is set in-between joists with the anti-glare side facing upwards.
2. Gently push down on the rolled out sections of the insulation so that the material is set to the depth in line with the bottom of the floor joists.
3. Ensure that there is sufficient up-turned laps of Kingspan AIR-CELL Permifloor® 500 on the inside of each joist.
4. Fix the up-turned laps to the inside of the floor joist using staples or screws at approx a maximum 150 mm centres.

Timber Frame, Retrofit between Joists

1. From below the floor joists, roll Kingspan AIR-CELL Permifloor® 500 in parallel direction to floor joists ensuring that it is set in-between joists with the anti-glare side facing downwards.
2. Gently push up on the rolled out sections of the insulation so that the material is set to a depth to achieve maximum airspace.
3. Ensure that there is a sufficient down-turned lap of Kingspan AIR-CELL Permifloor® 500 on the inside of each joist to adequately fix in place.
4. Fix the down-turned laps to the inside of the floor joist using staples or screws at approx a maximum 150 mm centres.



The Fast and Furious Installation Challenge. Scan to see the video

Product Details

Product Description



Australian-made Kingspan AIR-CELL Permifloor® is insulation designed specifically for suspended framed floor applications delivering a 2-in-1 insulation and moisture management solution.

Kingspan AIR-CELL Permifloor® is manufactured with a closed-cell, cross-linked foam structure sandwiched by reflective foil surfaces and perforated with tiny, evenly-spaced holes. These perforations allow water and vapour to permeate through preventing moisture that can often collect under flooring when using conventional underfloor insulation systems.

500 mm wide pre-cut version available for a perfect fit between joists (Kingspan AIR-CELL Permifloor® 500).



Figure 5. Perforated Kingspan AIR-CELL Permifloor®.

Management Standards

Standard	Management System
ISO 9001:2015	Quality Management
ISO 14001:2015	Environmental Management
ISO 45001:2018	Occupational Health and Safety

Environmental Data

Aspect	Characteristic
Re-usability	Re-usable if removed with care (long term of service expected)
Water Use	No water used in Kingspan Insulation's manufacturing process

Product Details

Product Data

Product Data	Kingspan AIR-CELL Permifloor®	Kingspan AIR-CELL Permifloor® 500
Product Thickness (nom.)	4 mm	4 mm
Product R-value at 23°C	R0.11 m ² .K/W	R0.11 m ² .K/W
Roll Diameter (nom.)	420 mm	420 mm
Roll Weight (nom.)	9.5 kg	6.4 kg
Roll Size	1350 mm x 33.33 m (45 m ²)	2 x 500 mm x 30 m (30 m ²)
Reflectance		
Anti-Glare Face	95%	95%
Reflective Face	97%	97%
Emittance		
Anti-Glare Face	E0.05	E0.05
Reflective Face	E0.03	E0.03
Maximum Span Distance	2.4 m without support mesh	2.4 m without support mesh

Product Specifications

Property	Test Method / Standard	Specification	Classification
Flammability Index	AS 1530.2:1993	≤ 5	Low
Material R-value	ASTM C518-2017 at 23°C	R0.11 m ² .K/W	-
IR Emittance	AS/NZS 4201.5:1994	Reflective Face: 0.03 Anti-Glare Face:0.05	IR Reflective IR Reflective
IR Emittance	-	-	Category RR
Burst Strength	AS 3706.4:2012 (CBR)	0.9 kN	-
Vapour Control	ASTM E96 Part B:2016	Vapour Permeable 1.200 µg/N.s	Class 3
Water Control	AS/NZS 4201.4:1994	Pass	Non-Water Barrier
Moisture Shrinkage	AS/NZS 4201.3:1994	< 0.5%	-
Dry Delamination	AS/NZS 4201.1:1994	Pass	-
Wet Delamination	AS/NZS 4201.2:1994	Pass	-
Surface Water Absorbency	AS/NZS 4201.6:1994	< 100g/m ²	Low
Corrosion Resistance	AS/NZS 4859.1:2018 App. E	Pass	-
Electrical Conductivity	AS/NZS 4200.1:2017 - c.5.3.1.2	Resistance ≤ 10MΩ	Electrically Conductive

Other Information

General Requirements

1. Fit Kingspan AIR-CELL neatly around any penetrations, and tape if necessary to prevent air leakage.
2. When taping a plastic squeegee or blade must be used to apply appropriate pressure to the tape. Surfaces must be dry and free from dust, oil or grease prior to taping (please refer to brochure Kingspan Insulation Tape for further information).
3. Leave minimum 100 mm clearance around heat producing flues or light fittings (refer to light fitting manufacturer).

These instructions are guidelines only and should be interpreted with consideration for the specific building design. The installation of Kingspan AIR-CELL should be in conformance with the applicable clauses from AS 3999:2015 and AS/NZS 4200.2:2017 unless otherwise specified.

Kingspan AIR-CELL can be damaged by intense heat above 105° C and contact with sparks and flame from blow torches, welders, cutting tools, etc. must be avoided.

The installer must make due provision for safety when installing Kingspan AIR-CELL in any application.

Safety Information

- Non-hazardous/non-toxic.
- No personal protective equipment required.
- UV protective sunglasses and screen should be used when installing in direct sunlight.
- Ensure at least 100 mm clearance from hot flues and light fittings (check for safe distance with lighting supplier).
- Foil facings are conductive to electricity – avoid contact with un-insulated electrical cables and fittings.

Handling and Storage

Kingspan AIR-CELL insulation products must be transported and stored in its protective packaging and kept clean and dry. Standing rolls on end reduces risk of damage should moisture be present in the packaging. Surfaces must be kept free of contaminants such as dust and grease, and must not be stored with foil surfaces in contact with alkaline materials i.e. wet cement, lime, etc.

Other Information



The Fast and Furious
Installation Challenge.
Scan to see the video

Contact Details

Australia

Kingspan Insulation Pty Ltd
TF: 1300 247 235
E: info@kingspaninsulation.com.au
www.kingspaninsulation.com.au



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