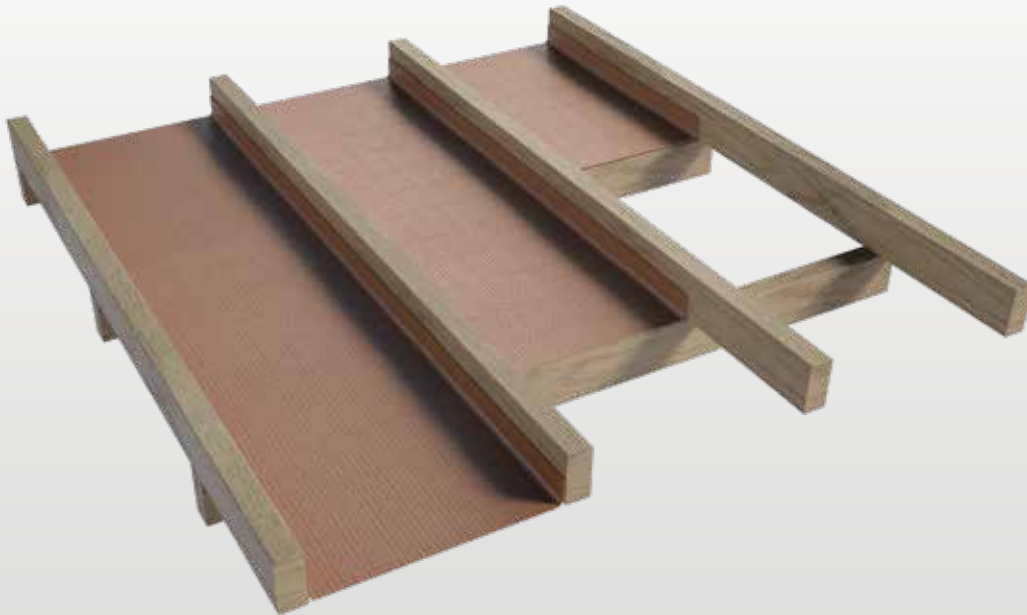




# AIR-CELL Permifloor®

## WATER-PERMEABLE UNDERFLOOR INSULATION



- 3x faster to install\* than foil-faced polystyrene panels
- Helps achieve a 6-star house energy rating
- 2-in-1 insulation and moisture management solution
- Fibre-free, non-allergenic, non-irritant
- Strong, tough, durable
- Rodent and insect resistant
- Flammability Index  $\leq 5$
- Compliant with AS/NZS 4859.1:2018
- CodeMark-certified for NCC compliance
- Made in Australia



\* Fast and furious installation challenge – see page 5



Low Energy –  
Low Carbon Buildings

# Residential Suspended Framed Floors

## Typical Design Details

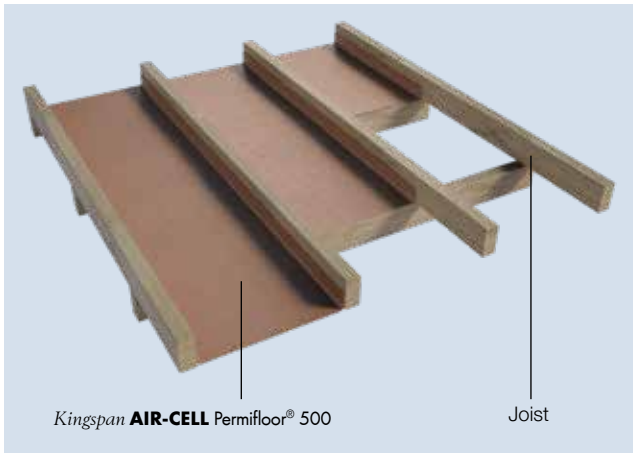


Figure 1 Pre-cut **Kingspan AIR-CELL Permifloor® 500** installed between floor joists

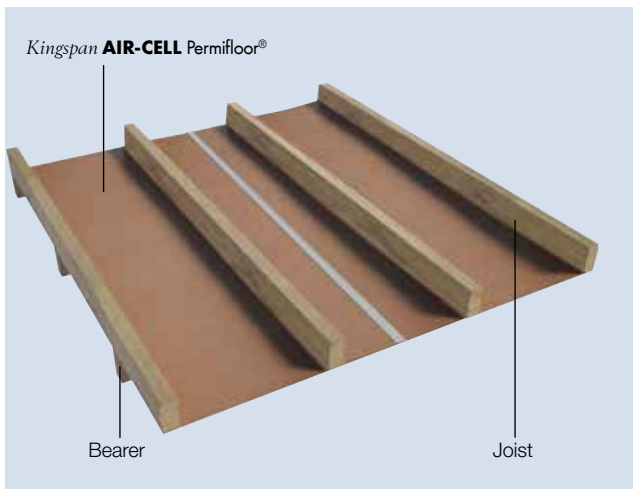


Figure 2 **Kingspan AIR-CELL Permifloor®** installed over bearers

## Product Options

- **Kingspan AIR-CELL Permifloor®**
- **Kingspan AIR-CELL Permifloor® 500** (pre-cut for a perfect fit between joists)

## Thermal Performance

NCC 2019 prescribes different methods to determine Total R-value Calculations for Volume 1 and Volume 2.

Unenclosed sub-floor	Heat flow in	Heat flow out
<b>Kingspan AIR-CELL Permifloor®</b> / <b>Kingspan AIR-CELL Permifloor® 500</b>	R <sub>T</sub> 0.8	R <sub>T</sub> 1.6
Enclosed sub-floor	Heat flow in	Heat flow out
<b>Kingspan AIR-CELL Permifloor®</b> / <b>Kingspan AIR-CELL Permifloor® 500</b>	R <sub>T</sub> 1.6	R <sub>T</sub> 3.0

The R-values shown are Total R-values for the building element as required by the Energy Provisions of the NCC Volume 2, 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

### **Kingspan AIR-CELL Permifloor® 500**

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.

### **Kingspan AIR-CELL Permifloor®**

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.

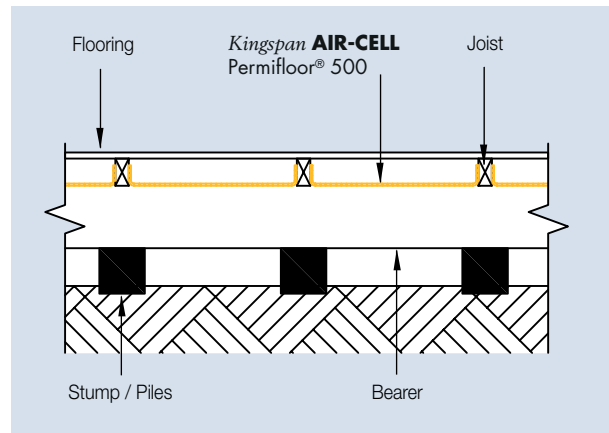


Figure 3 Side elevation of **Kingspan AIR-CELL Permifloor® 500** in a suspended framed floor

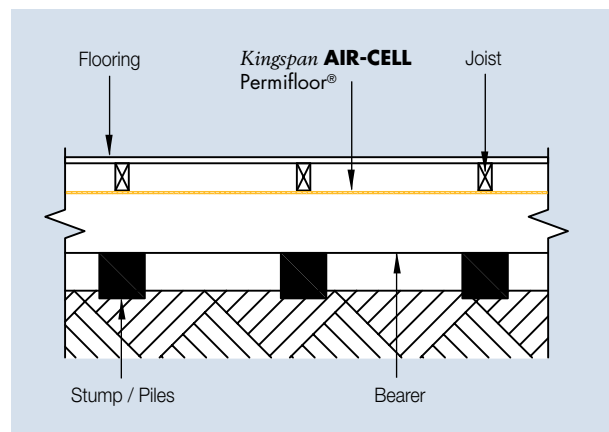


Figure 4 Side elevation of **Kingspan AIR-CELL Permifloor®** in a suspended framed floor

# Product Details

## Product Description

Australian-made *Kingspan AIR-CELL Permifloor*<sup>®</sup> is an insulation innovation designed specifically for suspended framed floor applications delivering a 2-in-1 insulation and moisture management solution.

*Kingspan AIR-CELL Permifloor*<sup>®</sup> is manufactured with a closed-cell, cross-linked foam structure sandwiched by highly 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*<sup>®</sup> 500).

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

## Management Standards

Standard	Management System
ISO 9001:2015	Quality Management
ISO 14001:2015	Environmental Management
OHSAS 18001:2007	Safety Management

## Environmental Data

Aspect	Characteristic
Recyclability	Waste not recyclable Roll width to suit most applications to minimise on site waste
Re-usability	Re-usable if removed with care (long term of service expected)
Water Use	No water used in Kingspan Insulation's manufacturing process
Ozone Depleting Substances	None present in the finished product or in Kingspan Insulation's manufacturing process
Packaging	Contains approx 10% recycled product Packaging 100% recyclable
Embodied Energy	35 MJ/m <sup>2</sup> approximately

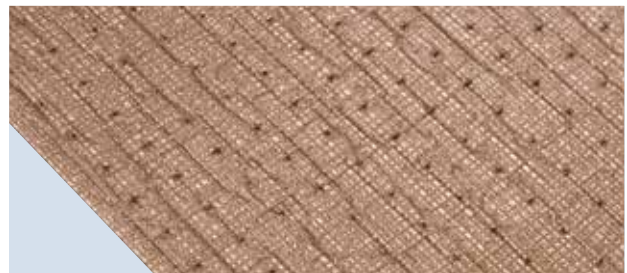


Figure 5 Perforated *Kingspan AIR-CELL Permifloor*<sup>®</sup>

## Product Specifications

Property	Test Method / Standard	Specification	Classification
Flammability Index	AS 1530.2	≤ 5	Low
Material R-value	ASTM C518 at 23°C	0.11 m <sup>2</sup> .K/W	-
IR Emittance	AS/NZS 4201.5	Reflective face: 0.03 Anti-Glare Face: 0.05	IR Reflective IR Reflective
IR Emittance	-	-	Category RR
Burst Strength	AS 3706.4 (CBR)	0.9 kN	-
Vapour Control	ASTM E96	Vapour Permeable 1.200 µg/N.s	Class 3
Water Control	AS/NZS 4201.4	Pass	Non-Water Barrier
Moisture Shrinkage	AS/NZS 4201.3	< 0.5%	-
Dry Delamination	AS/NZS 4201.1	Pass	-
Wet Delamination	AS/NZS 4201.2	Pass	-
Surface Water Absorbency	AS/NZS 4201.6	< 100g/m <sup>2</sup>	Low
Corrosion Resistance	AS/NZS 4859.1:2018 App. E	Pass	-
Electrical Conductivity	AS/NZS 200.1:2017 - c.5.3.1.2	≤ 10 MΩ	Electrically Conductive

# Installation Instructions

## *Kingspan* **AIR-CELL** Permifloor® 500

*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.



*Scan to see the installation video*

### **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.

## *Kingspan* **AIR-CELL** Permifloor®

### **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 joins 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 joins are not to be taped).

## 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).

*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.

## OH & S

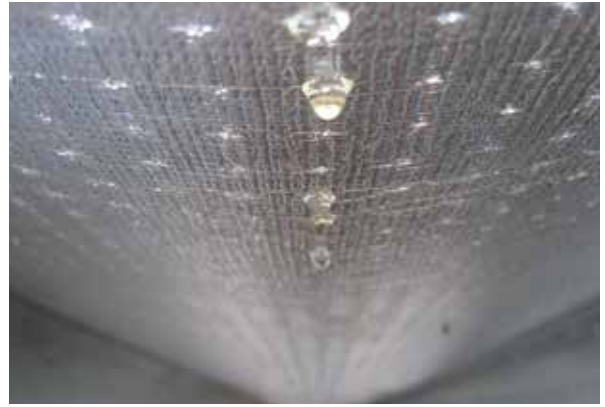
Foil facings are conductive to electricity and contact with un-insulated electrical cables and fittings must be avoided.

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 and AS/NZS 4200.2 unless otherwise specified.

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

## 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.



**THE FAST & FURIOUS  
INSTALLATION  
CHALLENGE**



*Scan to  
watch the  
video*

# Contact Details

## General Enquiries

Tel: 1300 247 235

Email: [info@kingspaninsulation.com.au](mailto:info@kingspaninsulation.com.au)

*Kingspan Insulation Pty. Ltd. reserves the right to amend product specifications without prior notice. The information, technical details and fixing instructions etc. included in this literature are given in good faith and apply to uses described. Recommendations for use should be verified as to the suitability and compliance with actual requirements, specifications and any applicable laws and regulations. For other applications or conditions of use, Kingspan Insulation offers a Technical Advisory Service the advice of which should be sought for uses of Kingspan Insulation products that are not specifically described herein. Please check that your copy of the literature is current by contacting us or visiting [www.kingspaninsulation.com.au](http://www.kingspaninsulation.com.au)*



**Kingspan Insulation Pty Ltd**

Tel: 1300 247 235

Email: [info@kingspaninsulation.com.au](mailto:info@kingspaninsulation.com.au)

[www.kingspaninsulation.com.au](http://www.kingspaninsulation.com.au)

*\*Applies to AIR-CELL Permifloor® 500*

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