



AIR-CELL Permifloor®

WATER-PERMEABLE UNDERFLOOR INSULATION



- Helps achieve a 6-star house energy rating
- 2-in-1 insulation and moisture management solution
- Fibre-free, non-allergenic, non-irritant
- Quick and easy to install
- Strong, tough, durable
- Rodent and insect resistant
- Flammability Index ≤ 5
- Compliant with AS/NZS 4859.1
- CodeMark-certified for BCA compliance



*Low Energy –
Low Carbon Buildings*

Typical Constructions and Total R-values

Suspended Framed Floors

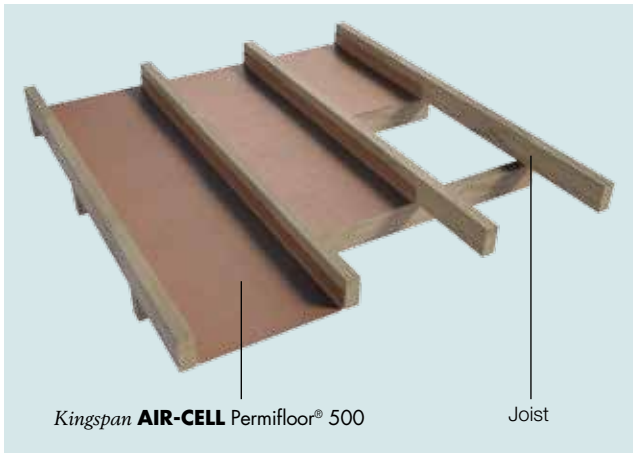


Figure 1 Pre-cut **Kingspan AIR-CELL Permifloor® 500** installed between floor joists

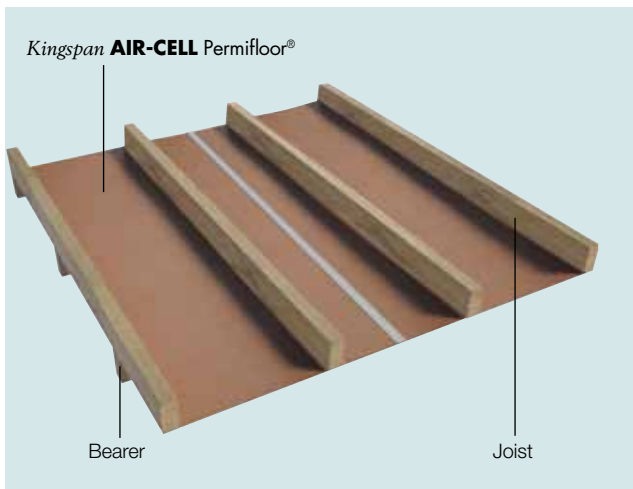


Figure 2 **Kingspan AIR-CELL Permifloor®** installed over bearers

Product Options

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

Thermal Performance

| Unenclosed sub-floor | Heat flow in | Heat flow out |
|--|--------------|---------------|
| Kingspan AIR-CELL Permifloor® / Kingspan AIR-CELL Permifloor® 500 | R_T 1.2 | R_T 1.9 |
| Enclosed sub-floor | Heat flow in | Heat flow out |
| Kingspan AIR-CELL Permifloor® / Kingspan AIR-CELL Permifloor® 500 | R_T 1.9 | R_T 3.3 |

The R-values shown are Total R-values for the building element as required by the Energy Provisions of the Building Code of Australia. **Kingspan AIR-CELL®** products are manufactured, tested and packaged in conformance with AS/NZS 4859.1. The contribution of the product Total R-values depends on installation and environmental conditions.

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, and shall be installed in accordance with the instructions issued by them.

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, and shall be installed in accordance with the instructions issued by them.

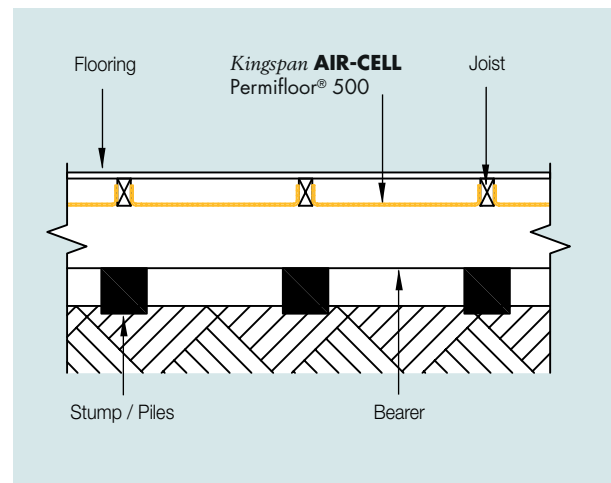


Figure 3 Side elevation of **Kingspan AIR-CELL Permifloor® 500** in a suspended framed floor

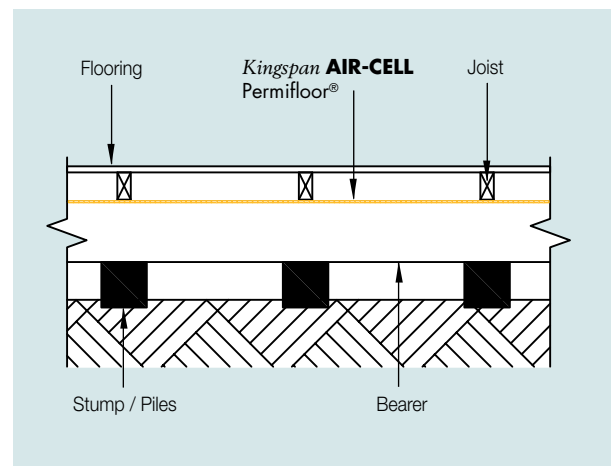


Figure 4 Side elevation of **Kingspan AIR-CELL Permifloor®** in a suspended framed floor

Product Details

Product Description

Kingspan AIR-CELL Permifloor® 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® is manufactured with a patented 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®* 500).

| Product Data | <i>Kingspan AIR-CELL Permifloor®</i> | <i>Kingspan AIR-CELL Permifloor®</i> 500 |
|--------------------|---|---|
| Product Thickness | 4 mm | |
| Reflectance | | |
| Anti-Glare Face | 95% | |
| Reflective Face | 97% | |
| Emittance | | |
| Anti-Glare Face | E0.05 | |
| Reflective Face | E0.03 | |
| Roll Size | 1350 mm x 33.33 m (45 m ²) | 2 x 500 mm x 30 m (30 m ²) |
| Roll Diameter | 420 mm | |
| Roll Weight | 9.5 kg | 6.4 kg |
| Material R-value | R0.12 | |
| Max Span | 2.4 m without support mesh | |



Figure 5 Perforated *Kingspan AIR-CELL Permifloor®*

Management Standards

| Standard | Management System |
|----------------------------|--------------------|
| BS / I.S. EN ISO 9001:2008 | Quality Management |

Product Testing

| Test | Test Method | Result |
|----------------------|--------------------------|-----------------|
| Corrosion Resistance | AS/NZS 4859.1 Appendix I | Pass |
| Flammability | AS 1530.2 | Low (Index ≤ 5) |
| Ignitability | | |
| Flame Spread | AS 1530.3 | 0/0/0/0-1 |
| Heat Release | | |
| Smoke Release | | |
| Vapour Transmission | ASTM-E96 | Medium |
| Dry Delamination | AS/NZS 4201.1 | Pass |
| Wet Delamination | AS/NZS 4201.2 | Pass |
| Shrinkage | AS/NZS 4201.3 | ≤ 0.5% |
| Water Penetration | AS/NZS 4201.4 | Unclassified |
| Water Absorbency | AS/NZS 4201.6 | Unclassified |
| Duty | AS 4200.1 6.1.4 | Extra Heavy |

Environmental Data

| Aspect | Characteristic |
|-------------------------------------|--|
| Recycled Content | Approx 3% |
| 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 |
| Processing Greenhouse Gas Emissions | No Greenhouse Gas Emissions 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 |
| Transport | Distribution policy incorporating the principals of ISO 14001 |
| Embodied Energy | 35 MJ/m ² approximately |

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.

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 doors, windows, and 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.
3. Leave minimum 50 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.

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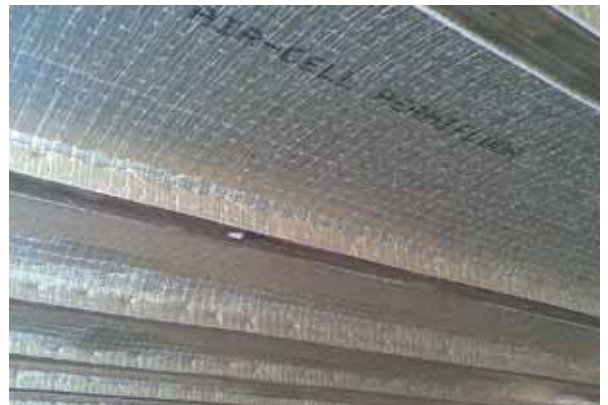
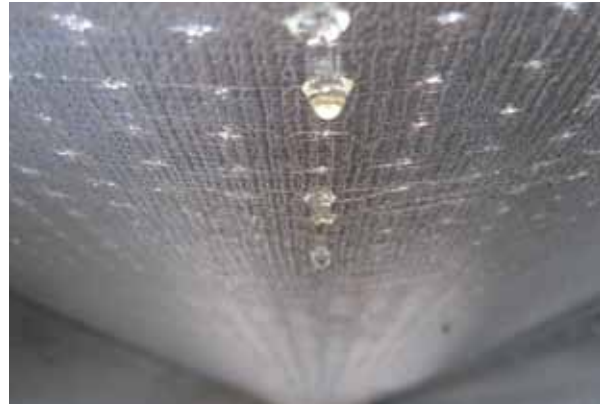
Foil facings are conductive to electricity and contact with un-insulated electrical cables and fittings must be avoided.

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.



Contact Details

General Enquiries

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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



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