



# AIR-CELL Permishield®

## VAPOUR-PERMEABLE INSULATION MEMBRANE



- 3-in-1 Insulation, thermal break and vapour-permeable sarking
- Helps achieve a 6-star house energy rating
- Fibre-free, non-allergenic, non-irritant
- Quick and easy to install
- Strong, tough, durable
- Water-resistant and unaffected by moisture
- Anti-bacterial and anti-fungal
- Rodent and insect resistant
- Compliant with AS/NZS 4859.1
- CodeMark-certified for BCA compliance
- Made in Australia



# Reverse Brick Veneer Wall

## Typical Design Details



Figure 1 **Kingspan AIR-CELL Permishield® 65** in reverse brick veneer wall installation

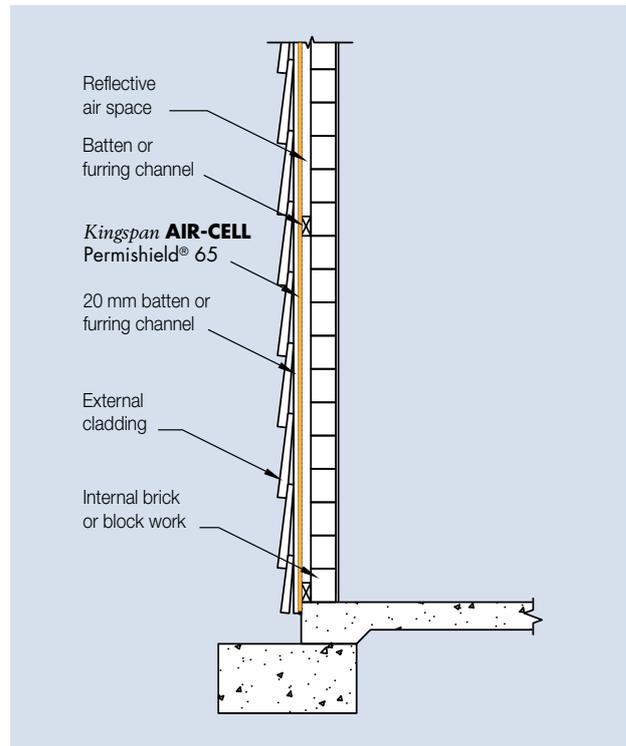


Figure 2 Side elevation of **Kingspan AIR-CELL Permishield® 65** in a reverse brick veneer wall

## Thermal Performance

Reverse brick veneer wall	Heat flow in	Heat flow out
<b>Kingspan AIR-CELL Permishield® 65</b>	$R_T 2.0$	$R_T 2.1$

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

The wall insulation fixed to the batten shall be vapour-permeable, CodeMark-certified **Kingspan AIR-CELL Permishield® 65** fibre-free, thermo reflective insulation, comprising a cross-linked, closed-cell foam core 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

1. Roll out **Kingspan AIR-CELL Permishield® 65** horizontally and fix to batten.
2. Cut **Kingspan AIR-CELL Permishield® 65** carefully around doors, windows and other openings, so that it neatly abuts to frames.
3. Butt join **Kingspan AIR-CELL Permishield® 65** sheets and tape with a 48 mm wide reinforced foil tape (please refer to brochure "Kingspan Insulation Tape" for further information).
4. Fix counter battens and exterior cladding.

# Steel-framed Wall

## Typical Design Detail

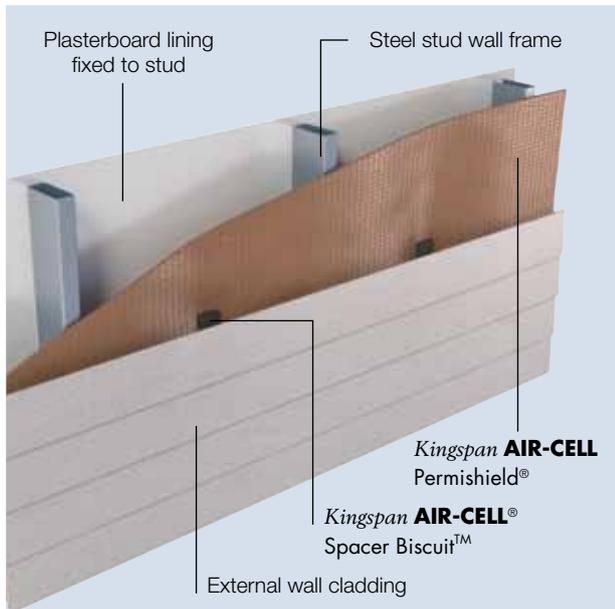


Figure 3 **Kingspan AIR-CELL Permishield®** on steel-framed wall

## Thermal Performance

Product	Heat flow in	Heat flow out
<b>Kingspan AIR-CELL Permishield® 65</b>	R <sub>T</sub> 1.6	R <sub>T</sub> 1.8
<b>Kingspan AIR-CELL Permishield® 80</b>	R <sub>T</sub> 1.7	R <sub>T</sub> 1.9

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

The wall insulation fixed to the outside of the stud frame shall be vapour-permeable, CodeMark-certified **Kingspan AIR-CELL Permishield®** \_\_\_\_ (specify 65 or 80) fibre-free, thermo reflective insulation, comprising a cross-linked, closed-cell foam core 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.



Scan to see the installation video

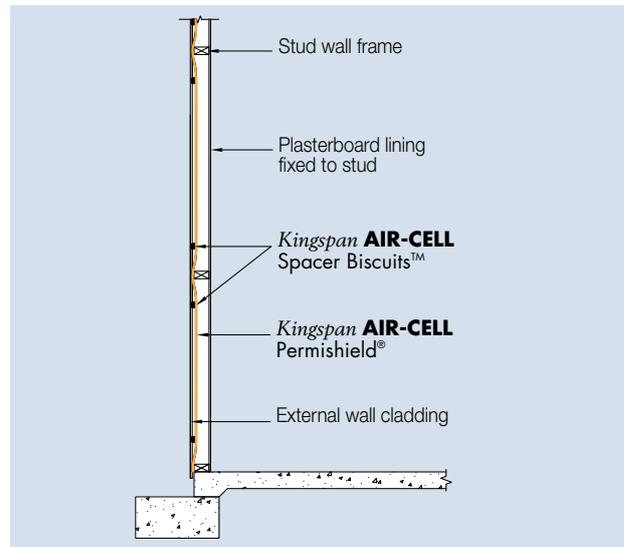


Figure 4 Side elevation of **Kingspan AIR-CELL Permishield®** on steel-framed wall

## Installation Instructions

1. Fix **Kingspan AIR-CELL Permishield®** loosely to the outside of frame leaving flexibility for the insulation to be dished onto the wall cavity.
2. Cut **Kingspan AIR-CELL Permishield®** carefully around doors, windows and other openings, so that it neatly abuts to frames.
3. Butt join **Kingspan AIR-CELL Permishield®** sheets and tape with a 48 mm wide reinforced foil tape (please refer to brochure "Kingspan Insulation Tape" for further information).
4. Provide for outer air space by adhering the **Kingspan AIR-CELL Spacer Biscuits™** to the outer face of the **Kingspan AIR-CELL Permishield®** (approximately three Biscuits™ per square metre required).
5. Commence installing cladding in accordance with manufacturer's installation instructions.

### Advisory Note: Fibre-cement Cladded Walls

Vapour-permeable **Kingspan AIR-CELL Permishield®** is recommended for cladding products that require vapour permeance. If fibre-cement cladding products are used, the cladding should be fixed by screwing through the **Kingspan AIR-CELL Permishield®** to the steel frame. Even pressure should be applied to ensure that the upper board overlap is in full contact with the lower board. If gaps occur, close using brad nails. Care must be taken that the screw gun torque and depth settings are appropriate to apply even pressure on the **Kingspan AIR-CELL Permishield®** without over-stressing the cladding material, particularly when installing cladding less than 12 mm thick that does not fit flat to the frame. **Kingspan AIR-CELL Permishield® 65** should be used when this is the case. For installations with fibre-cement claddings that are less than 12 mm in thickness the Counter-batten Method is the preferred method. Please refer to the "Timber-framed Walls" method for more information.

# Timber-framed Wall

## Typical Design Detail

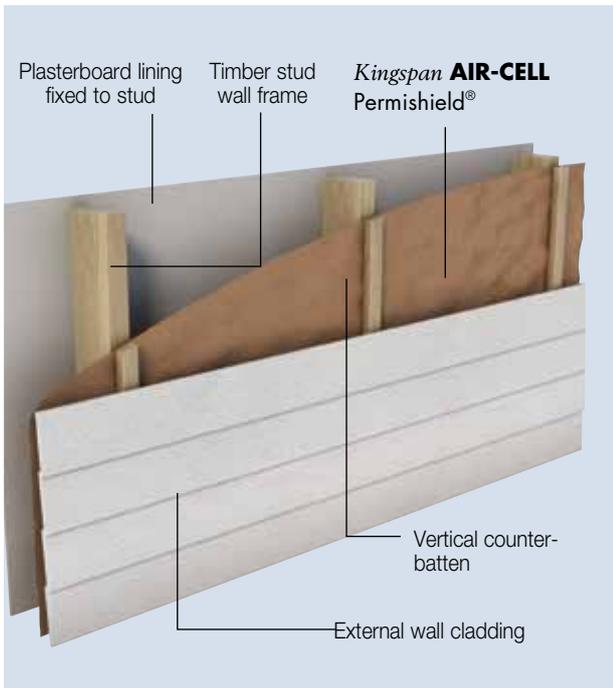


Figure 5 **Kingspan AIR-CELL Permishield®** in a timber-framed wall installation using counter-battens

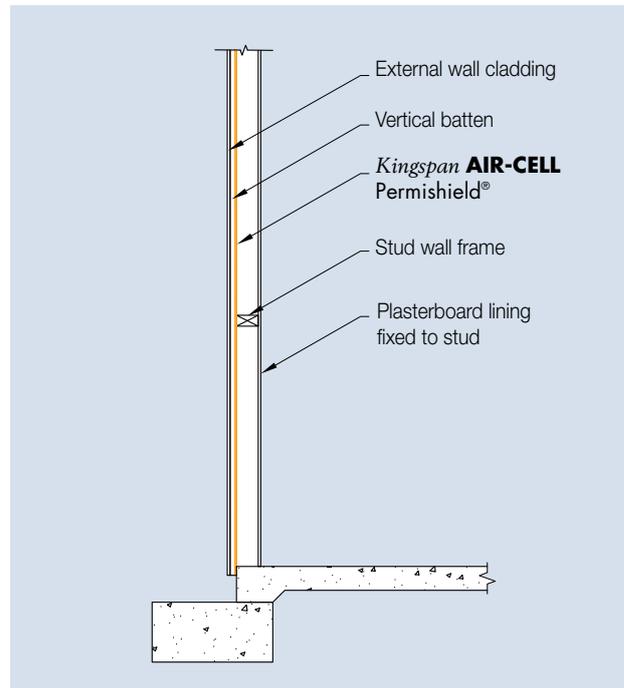


Figure 6 Side elevation of **Kingspan AIR-CELL Permishield®** on timber-framed wall

## Thermal Performance

Product	Heat flow in	Heat flow out
<b>Kingspan AIR-CELL Permishield® 65</b>	R <sub>T</sub> 1.6	R <sub>T</sub> 1.8
<b>Kingspan AIR-CELL Permishield® 80</b>	R <sub>T</sub> 1.7	R <sub>T</sub> 1.9

*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

The wall insulation fixed to the outside of the stud frame shall be vapour-permeable, CodeMark-certified **Kingspan AIR-CELL Permishield®** \_\_\_\_\_ (specify 65 or 80) fibre-free, thermo reflective insulation, comprising a cross-linked, closed-cell foam core 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

1. Roll out **Kingspan AIR-CELL Permishield®** horizontally and fix to outside of frame.
2. Cut **Kingspan AIR-CELL Permishield®** carefully around doors, windows and other openings, so that it neatly abuts to frames.
3. Butt joint insulation sheets and tape with a 48 mm wide reinforced foil tape (please refer to brochure "Kingspan Insulation Tape" for further information).
4. Fix counter battens and exterior cladding.



Scan to see the installation video

# Product Details

## Product Description

Australian-made *Kingspan AIR-CELL Permishield*<sup>®</sup> (Patent No. 2012100976) is a revolutionary vapour-permeable barrier and insulation wrapped up in a single product. *Kingspan*

**AIR-CELL Permishield**<sup>®</sup> is designed specifically for steel-framed wall applications for use behind lightweight cladding materials that require vapour permeance. Manufactured with a patented closed-cell structure sandwiched by highly reflective foil surfaces and pierced with tiny, evenly-spaced breather holes, *Kingspan AIR-CELL Permishield*<sup>®</sup> allows building professionals to do away with the traditional sarking-plus-batts combination in order to achieve thermal compliance as well as satisfy vapour permeance.

Product Data	<i>Kingspan AIR-CELL Permishield</i> <sup>®</sup> 65	<i>Kingspan AIR-CELL Permishield</i> <sup>®</sup> 80
Product Code	PS065	PS080
Product Thickness	6.5 mm	8 mm
Product R-value	R0.2	R0.25
Roll Diameter	450 mm	500 mm
Roll Weight	9.15 kg	10 kg
Roll Size	1350 mm x 22.25 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	

*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*<sup>®</sup> *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.*



Figure 7 Vapour-permeable perforations in *Kingspan AIR-CELL Permishield*<sup>®</sup>

## Management Standards

Standard	Management System
BS / I.S. EN ISO 9001:2008	Quality Management
AS/NZS ISO 14001:2004	Environmental Management

## Product Specifications

Characteristic	Test Method / Standard	Specification
Flammability Index	AS 1530.2	≤ 5
Material Thermal Resistance	ASTM C518	0.2 m <sup>2</sup> -K/W (6.5 mm) 0.25 m <sup>2</sup> -K/W (8 mm)
Emittance	ASTM E408	Reflective Face E0.03 Anti-Glare Face E0.05
Duty Rating (Burst Force)	AS 3706.4	0.9 kN - equivalent to Extra Heavy Duty
Vapour Barrier	ASTM E96	Medium Resistance
Shrinkage	AS/NZS 4201.3	< 0.5%
Dry Delamination	AS/NZS 4201.1	Pass
Wet Delamination	AS/NZS 4201.2	Pass
Water Barrier	AS/NZS 4201.4	High Resistance
Water Absorbency	AS/NZS 4201.6	Unclassified
Corrosion Resistance	AS/NZS 4859.1 Appendix I	Pass

## 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	43 MJ/m <sup>2</sup> approximately

# General Requirements

1. Fit *Kingspan AIR-CELL*<sup>®</sup> 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 (please refer to brochure 'Kingspan Insulation Tape' for further information).
3. Leave minimum 50 mm clearance around heat producing flues or light fittings (refer to light fitting manufacturer).

The instructions in this document are guidelines only and should be interpreted with consideration for the specific building design. The installation of *Kingspan AIR-CELL*<sup>®</sup> should be in conformance with the applicable clauses from AS 3999 and AS/NZS 4200.2 unless otherwise specified.

*Kingspan AIR-CELL*<sup>®</sup> 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*<sup>®</sup> 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 50 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*<sup>®</sup> 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](http://www.kingspaninsulation.com.au)*



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