Insulation

A4/8 PS AW2324D
Issue 10 May 2018

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

AUSTRALIAN MADE

CODEMARK® Australia
Certificate CM20029

Fibre-free Core

Kingspan®
Low Energy – Low Carbon Buildings

Reverse Brick Veneer Wall

Typical Design Details

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

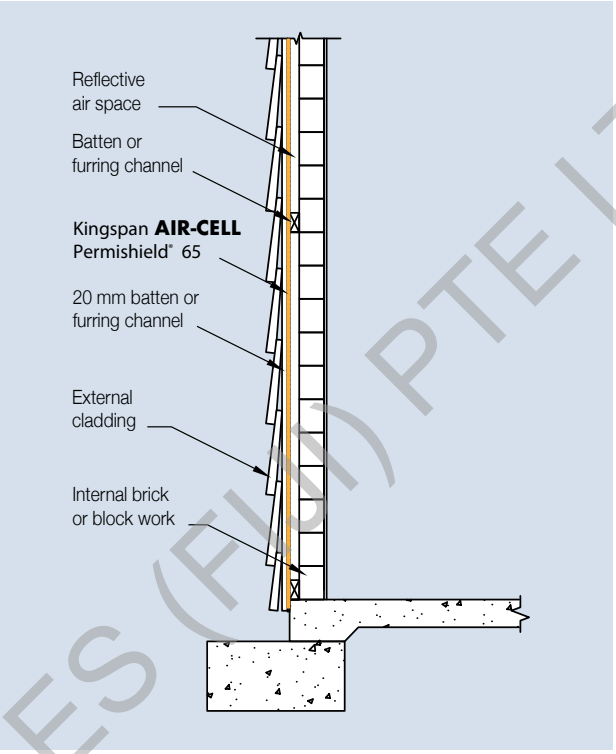

Figure 2 Side elevation of Kingspan **AIR-CELL** Permishield® 65 in a reverse brick veneer wall

Thermal Performance

Reverse brick veneer wall	Heat flow in	Heat flow out
Kingspan **AIR-CELL** Permishield® 65	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

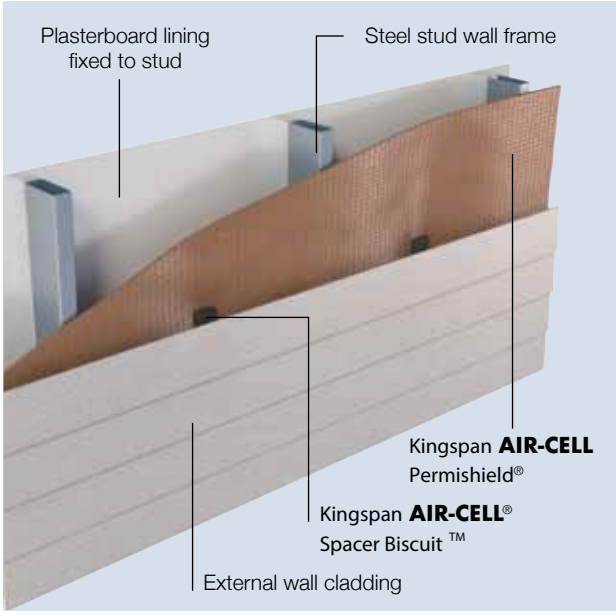

Figure 3 Kingspan **AIR-CELL** Permishield® on steel-framed wall

Thermal Performance

Product	Heat flow in	Heat flow out
Kingspan **AIR-CELL** Permishield® 65	R_T1.6	R_T1.8
Kingspan **AIR-CELL** Permishield® 80	R_T1.7	R_T1.9

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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.

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Scan to see the installation video

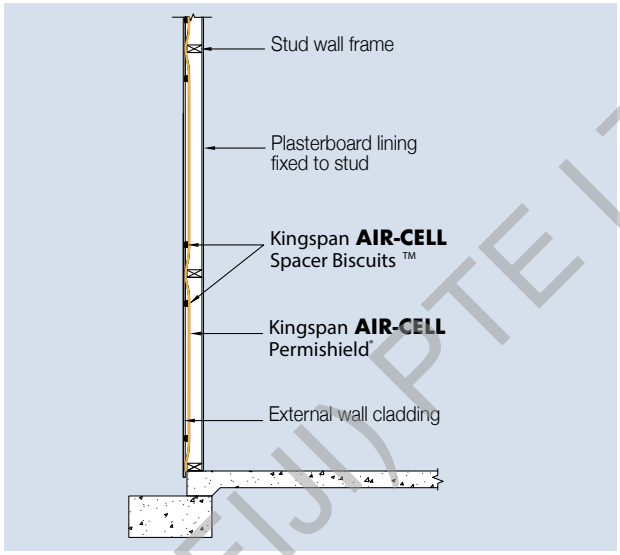

Figure 4 Side elevation of Kingspan **AIR-CELL** Permishield® on steel-framed wall

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

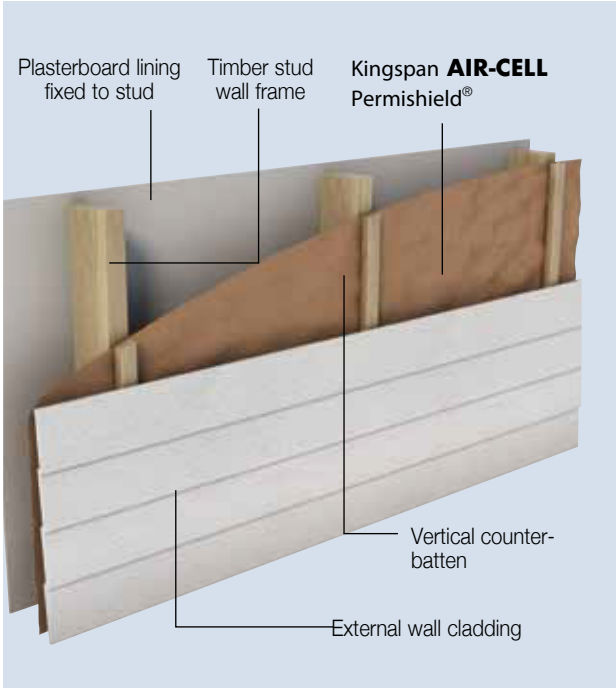

Figure 5 Kingspan **AIR-CELL** Permishield® in a timber-framed wall installation using counter-battens

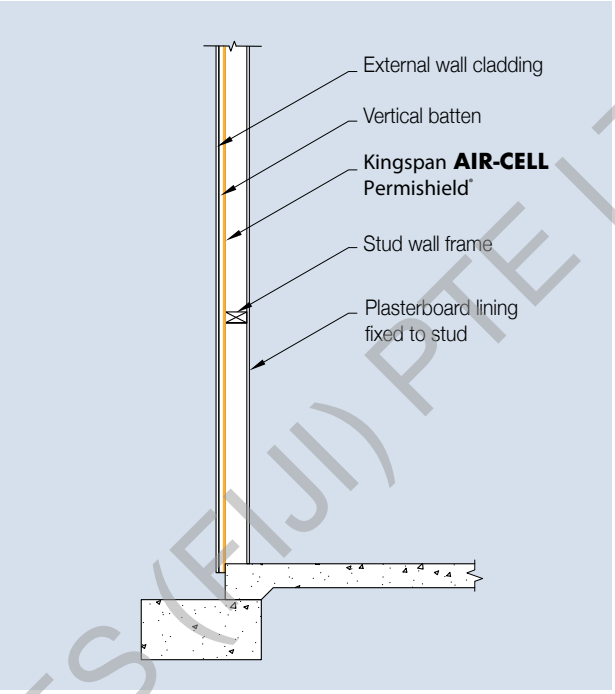

Figure 6 Side elevation of Kingspan **AIR-CELL** Permishield® on timber-framed wall

Thermal Performance

Product	Heat flow in	Heat flow out
Kingspan **AIR-CELL** Permishield® 65	R_T1.6	R_T1.8
Kingspan **AIR-CELL** Permishield® 80	R_T1.7	R_T1.9

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 join 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® (Patent No. 2012100976) is a revolutionary vapour-permeable barrier and insulation wrapped up in a single product. Kingspan **AIR-CELL** Permishield® 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® 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	Kingspan **AIR-CELL** Permishield® 65	Kingspan **AIR-CELL** Permishield® 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^2)	
Reflectance		
Anti-Glare Face	95%	
Reflective Face	97%	
Emittance		
Anti-Glare Face	E0.05	
Reflective Face	E0.03	
Max. Span	2.4 m	

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Figure 7 Vapour-permeable perforations in Kingspan **AIR-CELL** Permishield®

Management Standards

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

Product Specifications

Characteristic	Test Method / Standard	Specification
Flammability Index	AS 1530.2	≤ 5
Material Thermal Resistance	ASTM C518	0.2 m^2·K/W (6.5 mm) 0.25 m^2·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^2 approximately

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 (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®** should be in conformance with the applicable clauses from AS 3999 and AS/NZS 4200.2 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 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®** 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

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