



# AIR-CELL Permishield® XV 70

## VAPOUR PERMEABLE REFLECTIVE INSULATION MEMBRANE



- CodeMark certified for NCC compliance
- 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 4859.1:2018
- Made in Australia



# Residential Reverse Brick Veneer Wall

## Typical Design Details

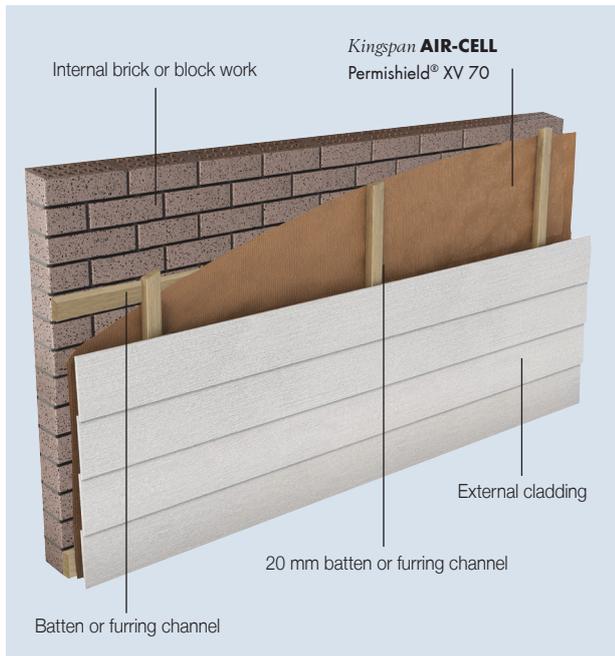


Figure 1 Kingspan AIR-CELL Permishield® XV 70 in reverse brick veneer wall installation

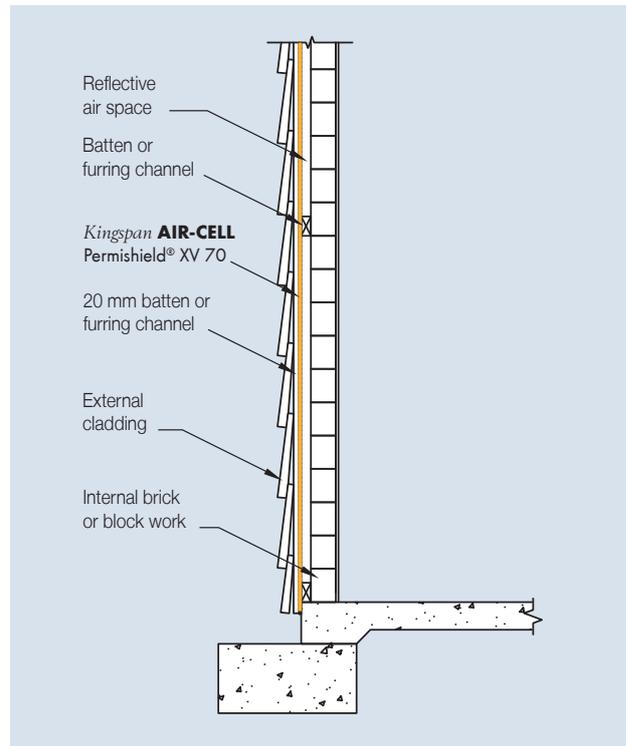


Figure 2 Side elevation of Kingspan AIR-CELL Permishield® XV 70 in a reverse brick veneer wall

## Thermal Performance

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

Reverse brick veneer wall	Heat flow in	Heat flow out
Kingspan AIR-CELL Permishield® XV 70	$R_T$ 1.9	$R_T$ 1.8

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

The wall insulation fixed to the batten shall be vapour-permeable, CodeMark-certified Kingspan AIR-CELL Permishield® XV 70 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® XV 70 horizontally and fix to batten.
2. Cut Kingspan AIR-CELL Permishield® XV 70 carefully around doors, windows and other openings, so that it neatly abuts to frames.
3. Butt join Kingspan AIR-CELL Permishield® XV 70 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.

# Residential Steel-framed Wall

## Typical Design Detail

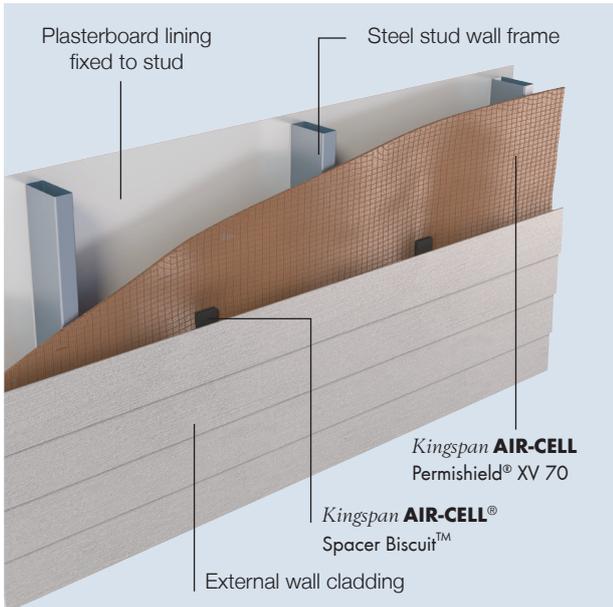


Figure 3 Kingspan AIR-CELL Permishield® XV 70 on steel-framed wall

## Thermal Performance

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

Product	Heat flow in	Heat flow out
Kingspan AIR-CELL Permishield® XV 70	R <sub>T</sub> 1.7	R <sub>T</sub> 1.7

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

The wall insulation fixed to the outside of the stud frame shall be vapour-permeable, CodeMark-certified Kingspan AIR-CELL Permishield® XV 70 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

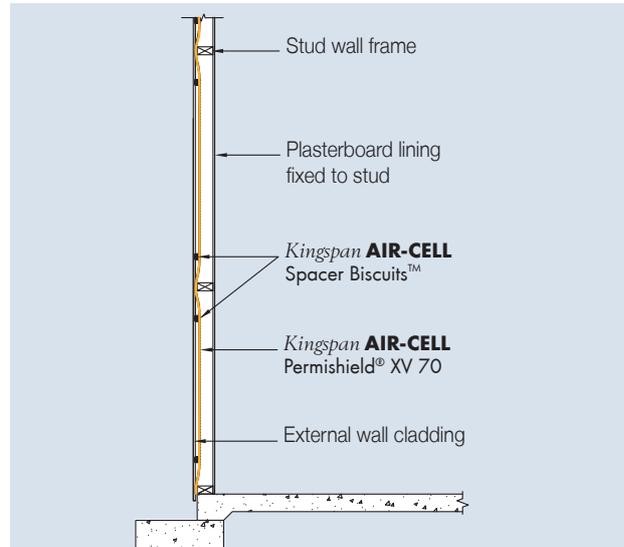


Figure 4 Side elevation of Kingspan AIR-CELL Permishield® XV 70 on steel-framed wall

## Installation Instructions

1. Fix Kingspan AIR-CELL Permishield® XV loosely to the outside of frame leaving flexibility for the insulation to be dished onto the wall cavity.
2. Cut Kingspan AIR-CELL Permishield® XV carefully around doors, windows and other openings, so that it neatly abuts to frames.
3. Butt join Kingspan AIR-CELL Permishield® XV 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® XV (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® XV 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® XV 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® XV without over-stressing the cladding material, particularly when installing cladding less than 12 mm thick that does not fit flat to the frame.

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.

# Residential Timber-framed Wall

## Typical Design Detail

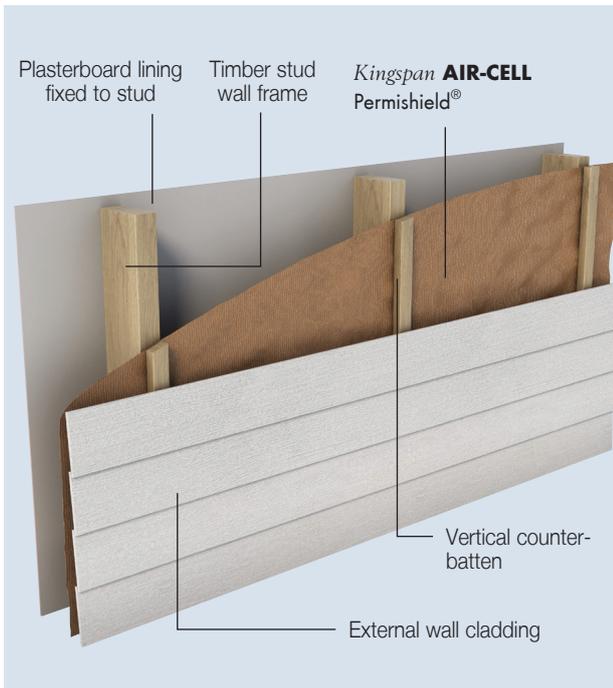


Figure 5 **Kingspan AIR-CELL Permishield® XV** in a timber-framed wall installation using counter-battens

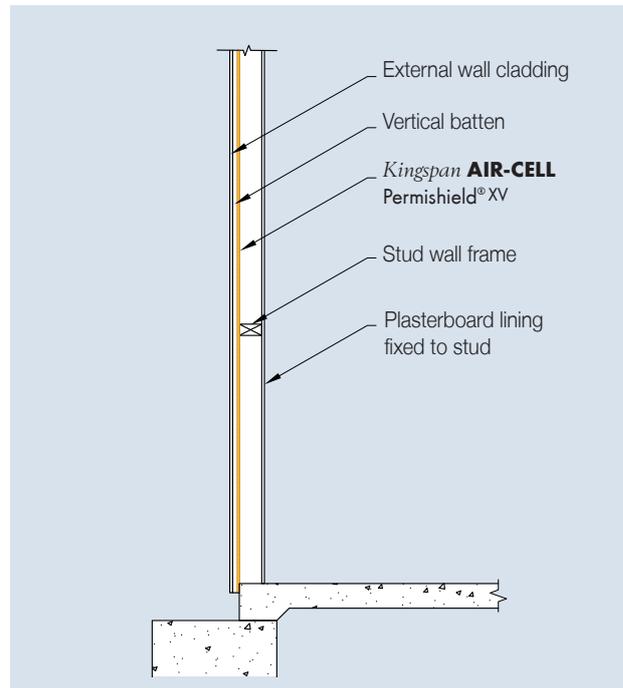


Figure 6 Side elevation of **Kingspan AIR-CELL Permishield® XV** on timber-framed wall

## Thermal Performance

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

Product	Heat flow in	Heat flow out
<b>Kingspan AIR-CELL Permishield® XV 70</b>	$R_T 1.7$	$R_T 1.7$

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

The wall insulation fixed to the outside of the stud frame shall be vapour-permeable, CodeMark-certified **Kingspan AIR-CELL Permishield® XV 70** 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® XV** horizontally and fix to outside of frame.
2. Cut **Kingspan AIR-CELL Permishield® XV** 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® XV* (patent application nos. 2015245930 (AUS) and 724525 (NZ)) is a revolutionary vapour-permeable barrier and insulation wrapped up in a single product. *Kingspan*

CodeMark-certified **AIR-CELL Permishield® XV** is designed specifically for steel-framed wall applications for use behind lightweight cladding materials that require vapour permeance. It is manufactured with a patented closed-cell structure sandwiched by highly reflective foil surfaces and pierced with tiny and evenly-spaced breather holes.

Product Data	<i>Kingspan AIR-CELL Permishield® XV 70</i>
Product Thickness (nom.)	7.2 mm
Product R-value at 23°C	R0.20 m <sup>2</sup> .K/W
Roll Diameter (nom.)	450 mm
Roll Weight (nom.)	9.15 kg
Roll Size	1350 mm x 22.25 m (30 m <sup>2</sup> )
<b>Reflectance</b>	
Anti-Glare Face	88%
Reflective Face	97%
<b>Emittance</b>	
Anti-Glare Face	E0.12
Reflective Face	E0.03
Max. Span	2.4 m

## Management Standards

Standard	Management System
ISO 9001:2015	Quality Management
ISO 14001:2015	Environmental 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 the product's manufacturing process
Ozone Depleting Substances	None present in the finished product
Packaging	Packaging 100% recyclable
Embodied Energy	43 MJ/m <sup>2</sup> approximately



Figure 7 Vapour-permeable perforations in *Kingspan AIR-CELL Permishield® XV 70*

## Product Specifications

Property	Test Method/Standard	Specification	Classification
Flammability Index	AS 1530.2	≤ 5	Low
Material R-value	ASTM C518 at 23°C	0.20 m <sup>2</sup> .K/W	-
IR Emittance	AS/NZS 4201.5	Reflective face: 0.03 Anti-Glare Face: 0.12	IR Reflective IR Semi Reflective
IR Emittance	-	-	Category RS
Burst Strength	AS 3706.4 (CBR)	0.9 kN	-
Vapour Control	ASTM E96	Vapour Permeable 0.300 µg/N.s	Class 3
Water Control	AS/NZS 4201.4	Pass	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>	High
Corrosion Resistance	AS/NZS 4859.1:2018 App. E	Pass	-
Electrical Conductivity	AS/NZS 4200.1:2017 - c.5.3.1.2	≤ 10 MΩ	Electrically Conductive

# Condensation

As thermal performance requirements for the building fabric continue to rise, condensation is becoming an increasingly important design consideration for healthy buildings. Ineffective management of moisture and vapours can potentially lead to indoor health issues and structural defects which require expensive remedial works.

Interstitial condensation (condensation that occurs within the cavities of the building fabric) can go unnoticed for long periods of time and when persistent it promotes the growth of mould, rot in timber, and corrosion of metal framing and fixings. This interstitial condensation can be effectively mitigated by carefully selecting an appropriate building membrane with a suitable water vapour permeance, allowing moisture to harmlessly pass through the structure.



## 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 100 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 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.

# 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)*



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