Insulation

AIR-CELL® Insulbreak®

Thermal Break Solution

- 3-in-1 Insulation, thermal break and vapour barrier
- Delivers a R0.20 thermal break solution for steel-framed construction
- Helps achieve the home energy efficiency provisions
- 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
- CodeMark-certified for NCC compliance
- Made in Australia

Fibre-free Core

CODEMARK Australia
Certificate-CM20029/1

AUSTRALIAN MADE

Kingspan®

Commercial Metal Deck Roof

Typical Design Details

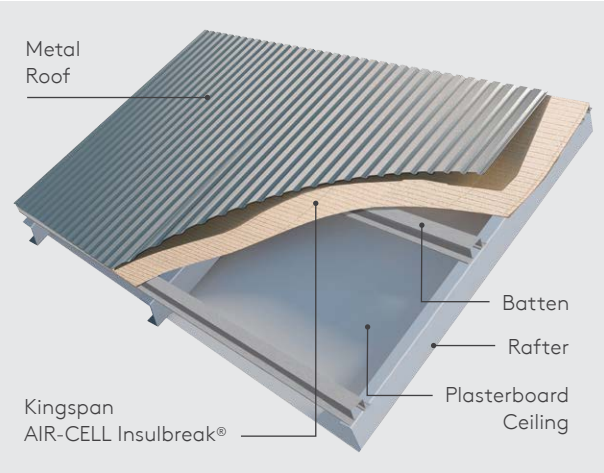

Figure 1. Kingspan AIR-CELL Insulbreak® in a metal roof with a raked ceiling.

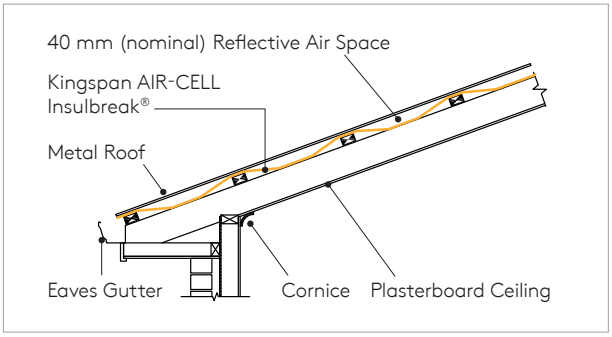

Figure 2. Side elevation of Kingspan AIR-CELL Insulbreak® in a metal roof with a raked ceiling.

Thermal Performance

Metal Roof with Raked Ceiling	Heat flow in	Heat flow out
Kingspan AIR-CELL Insulbreak® 70	R_T 1.9	R_T 1.2

The R-values shown are Total R-values for the building element as required by the Energy Provisions of the NCC, calculated in accordance with AS/NZS 4859.2:2018 and NZS 4214:2006. Kingspan AIR-CELL® products are manufactured, tested and packaged in conformance with AS/NZS 4859.1:2018.

Specification Guide

The roof insulation fixed to the battens shall be CodeMark-certified Kingspan AIR-CELL Insulbreak® (specify 70 or 90) fibre-free, thermo reflective insulation, comprising a cross-linked, closed-cell 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. Lay Kingspan AIR-CELL Insulbreak® from the ridge to gutter, over and perpendicular to the roof battens.
2. Ensure a max. 25 mm overlap into the gutter and a nominal 40 mm sag between battens is achieved.
3. Allow 150 mm overlap at joins (50 mm is adequate when joins are to be taped - please refer to brochure Kingspan Insulation Tape for further information).
4. End joins should be overlapped by 600 mm if not taped.
5. Staple or tape to battens to hold in place until roofing is fixed.

Under Batten Installation

1. Starting at the gutter, roll out the Kingspan AIR-CELL Insulbreak® across the rafters with the anti-glare side up, and ensuring a max. 25 mm overlap into the gutter is achieved.
2. Fix to rafters.
3. Allow 150 mm minimum overlap for joins (or 50 mm is adequate if joins are to be taped - please refer to brochure Kingspan Insulation Tape for further information).
4. End joins should be overlapped by rafter spacing if not taped.
5. Fix battens as per roof cover requirements and applicable.

Commercial Metal Deck Roof

Typical Design Details

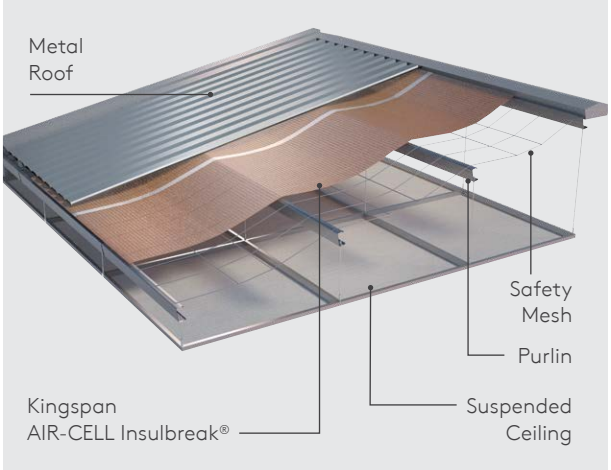

Figure 3. Kingspan AIR-CELL Insulbreak® in a commercial office with suspended ceiling installation.

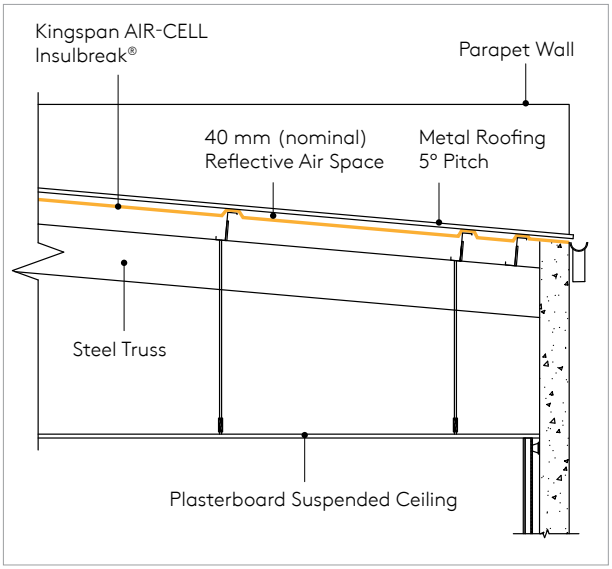

Figure 4. Side elevation of Kingspan AIR-CELL Insulbreak® in a commercial office.

Thermal Performance

Commercial Office	Heat flow in	Heat flow out
Kingspan AIR-CELL Insulbreak® 55	R_T 2.3	R_T 1.3

The R-values shown are Total R-values for the building element as required by the Energy Provisions of the NCC, calculated in accordance with AS/NZS 4859.2:2018 and NZS 4214:2006. Kingspan AIR-CELL® products are manufactured, tested and packaged in conformance with AS/NZS 4859.1:2018.

Specification Guide

The roof insulation installed over the purlins shall be CodeMark-certified Kingspan AIR-CELL Insulbreak® 55 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. Lay Kingspan AIR-CELL Insulbreak® perpendicular to purlins ensuring a max. 25 mm overlap into the gutter.
2. Allow a nominal 40 mm sag between purlins. If safety mesh is used ensure that the safety mesh is not compromised by sagging.
3 Overlap by 50 mm at joins and apply 72 to 100 mm reinforced foil tape to top of join (please refer to brochure Kingspan Insulation Tape for further information). Alternatively allow 150 mm overlap when joins are not to be taped.
4. End joins should be overlapped by 600 mm if not taped.
5. Fix roof sheeting by screwing through Kingspan AIR-CELL Insulbreak® to the purlins.

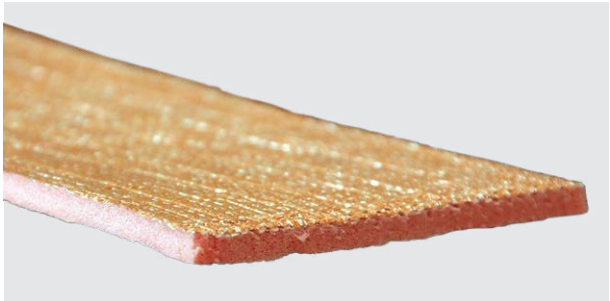

Figure 5. Cross-linked Kingspan AIR-CELL Insulbreak®.

Steel-framed Wall

Typical Design Details

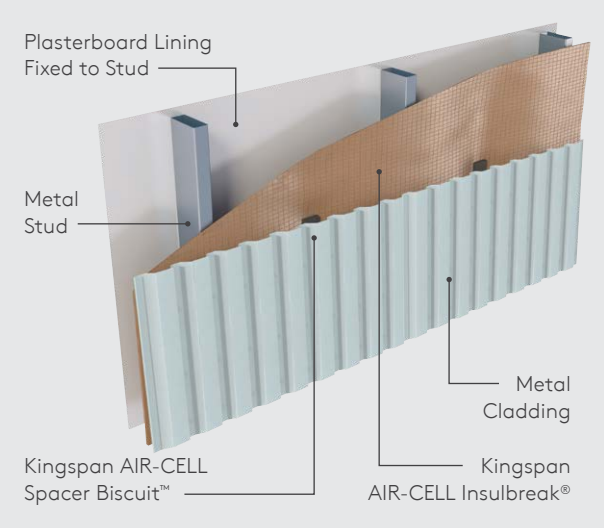

Figure 6. Kingspan AIR-CELL Insulbreak® on steel-framed wall.

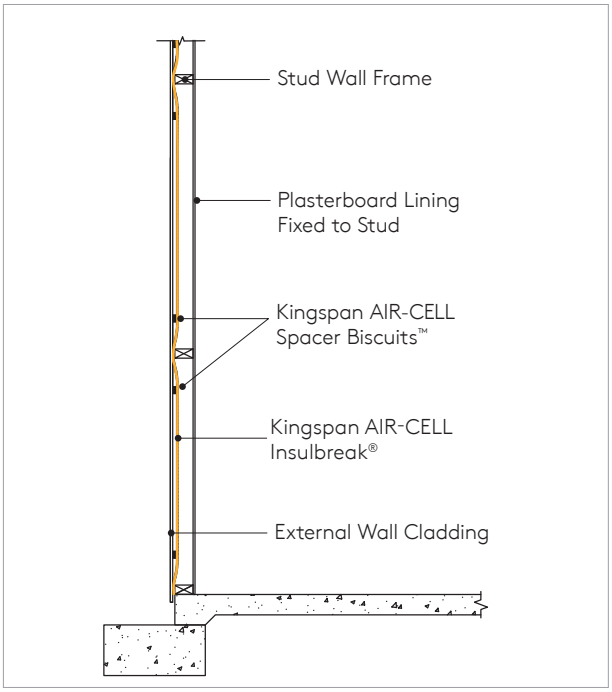

Figure 7. Side elevation of Kingspan AIR-CELL Insulbreak® on steel-framed wall.

Thermal Performance

Steel-framed Wall	Heat flow in	Heat flow out
Kingspan AIR-CELL Insulbreak® 70	R_T 1.3	R_T 1.3
Kingspan AIR-CELL Insulbreak® 90	R_T 1.4	R_T 1.4

The R-values shown are Total R-values for the building element as required by the Energy Provisions of the NCC, calculated in accordance with AS/NZS 4859.2:2018 and NZS 4214:2006. 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 CodeMark-certified Kingspan AIR-CELL Insulbreak® _____ (specify 70 or 90) 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. Fix Kingspan AIR-CELL Insulbreak® loosely to the outside of frame leaving flexibility for the insulation to be dished onto the wall cavity.
2. Cut Kingspan AIR-CELL Insulbreak® carefully around doors, windows and other openings, so that it neatly abuts to frames.
3. Butt join Kingspan AIR-CELL Insulbreak® 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 Insulbreak® (approximately three Biscuits™ per square metre required).
5. Commence installing cladding in accordance with manufacturer's installation instructions.

Residential Metal Roof

Typical Design Details

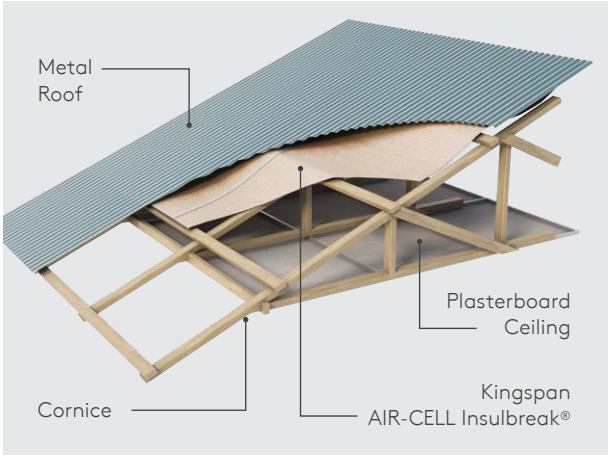

Figure 8. Kingspan AIR-CELL Insulbreak® 55 in a timber framed metal roof sheet, with an attic space and flat ceiling.

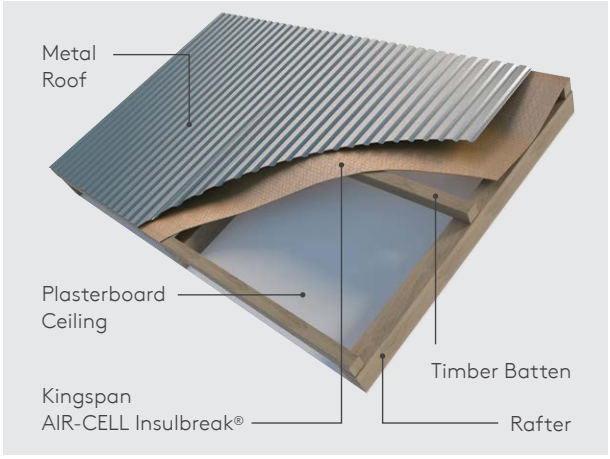

Figure 10. Kingspan AIR-CELL Insulbreak® 55 in a timber framed metal roof sheet, with a raked ceiling.

Thermal Performance

Roof Construction	Heat flow in	Heat flow out
Flat ceiling, ventilated	R_T 2.8	R_T 1.1
Flat ceiling, non-ventilated	R_T 2.5	R_T 1.4
Raked ceiling	R_T 2.6	R_T 1.3

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

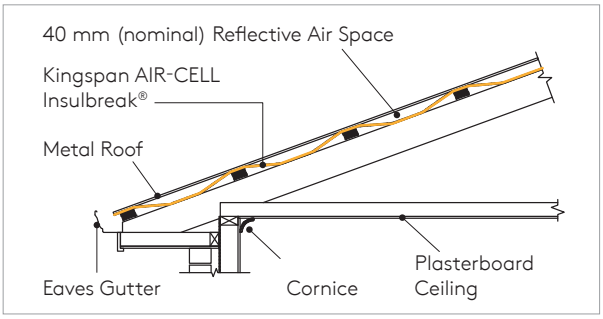

Figure 9. Side elevation of Kingspan AIR-CELL Insulbreak® 55 in a timber framed metal roof sheet, with an attic space and flat ceiling.

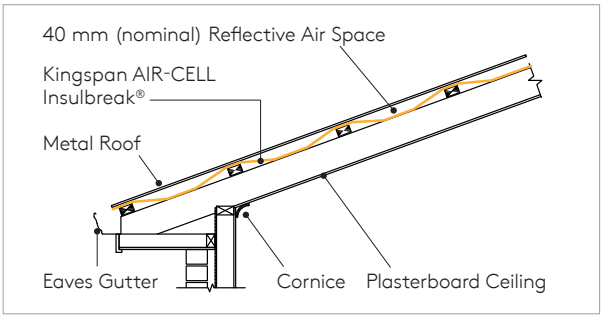

Figure 11. Side elevation of Kingspan AIR-CELL Insulbreak® 55 in a timber framed metal roof sheet, with a raked ceiling.

Specification Guide

The roof insulation fixed to the battens shall be CodeMark-certified Kingspan AIR-CELL Insulbreak® 55 fibre-free, thermo reflective insulation, comprising a cross-linked, closed-cell 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. Lay Kingspan AIR-CELL Insulbreak® 55 from the ridge to gutter, over and perpendicular to the roof battens.
2. Ensure a max. 25 mm overlap into the gutter and a nominal 40 mm sag between battens is achieved.
3. Allow 150 mm overlap at joins (50 mm is adequate when joins are to be taped – please refer to brochure Kingspan Insulation Tape for further information).
4. End joins should be overlapped by 600 mm if not taped.
5. Staple or tape to battens to hold in place until roofing is fixed.

Under Batten Installation

Apply as per Residential Tiled Roof installation instructions.

Residential Tiled Roof

Typical Design Details

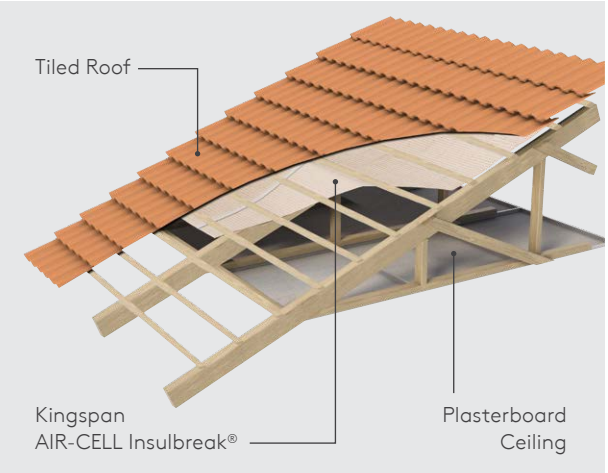

Figure 12. Kingspan AIR-CELL Insulbreak® 55 in a timber framed tiled roof with an attic space and a flat ceiling.

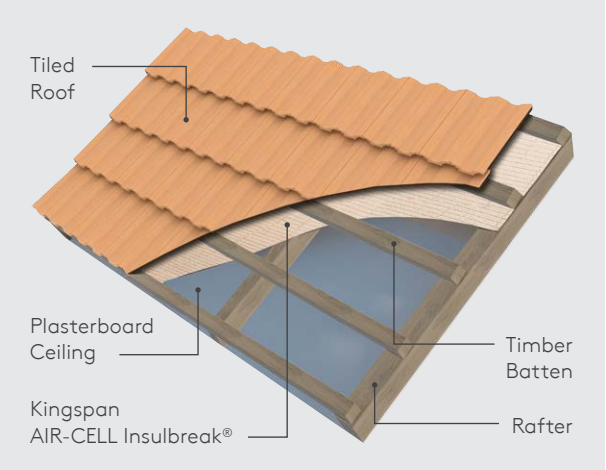

Figure 14. Kingspan AIR-CELL Insulbreak® 55 in a timber framed tiled roof with a raked ceiling.

Thermal Performance

Roof Construction	Heat flow in	Heat flow out
Flat ceiling, ventilated	R_T 2.2	R_T 1.0
Flat ceiling, non-ventilated	R_T 2.0	R_T 1.2
Raked ceiling	R_T 2.0	R_T 1.1

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

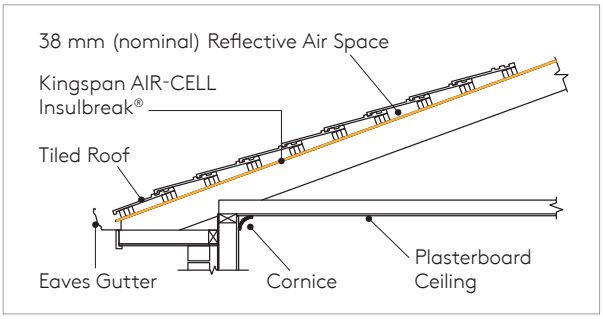

Figure 13. Side elevation of Kingspan AIR-CELL Insulbreak® 55 in a timber framed tiled roof with an attic space and a flat ceiling

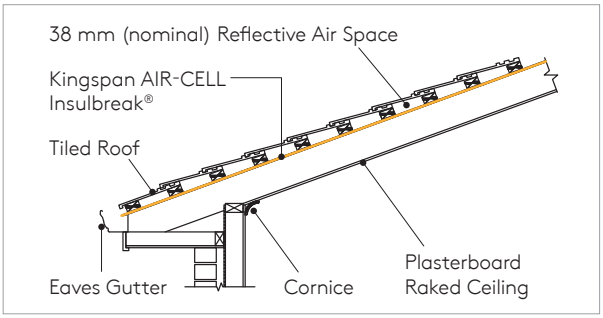

Figure 15. Side elevation of Kingspan AIR-CELL Insulbreak® 55 in a timber framed tiled roof with a raked ceiling.

Specification Guide

The roof insulation fixed to the top of the rafters shall be CodeMark-certified Kingspan AIR-CELL Insulbreak® 55 fibre-free, thermo reflective insulation, comprising a cross-linked, closed-cell 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. Starting at the gutter, roll out the Kingspan AIR-CELL Insulbreak® 55 across the rafters with the anti-glare side up, and ensuring a max. 25 mm overlap into the gutter is achieved.
2. Fix to rafters.
3. Allow 150 mm minimum overlap for joins (or 50 mm is adequate if joins are to be taped – please refer to brochure Kingspan Insulation Tape for further information).
4. End joins should be overlapped by rafter spacing if not taped.
5. Fix battens as per roof cover requirements and applicable standards.

Product Details

Product Data

AIR-CELL Insulbreak®	Insulbreak® 70	Insulbreak® 90	Insulbreak® 55
Product Thickness (nom.)	7.2 mm	9.2 mm	5.5 mm
Product R-value at 23°C	R0.20 m^2.K/W	R0.25 m^2.K/W	R0.15 m^2.K/W
Roll Diameter (nom.)	450 mm	500 mm	410 mm
Roll Weight (nom.)	9.15 kg	10 kg	7.7 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		
Maximum Span	2.4 m without support mesh		

Product Specifications

Property	Test Method / Standard	Specification	Classification
Flammability Index	AS 1530.2:1993	≤ 5	Low
Material R-value	ASTM C518-2017 at 23°C	0.20 m^2.K/W (7.2mm thickness) 0.25 m^2.K/W (9.2mm thickness)	-
IR Emittance	AS/NZS 4201.5:1994	Reflective Face: 0.03 Anti-Glare Face:0.05	IR Reflective IR Reflective
IR Emittance	-	-	Category RR
Burst Strength	AS 3706.4:2012 (CBR)	1.0 kN	-
Vapour Control	ASTM E96 Part B:2016	Vapour Barrier	Class 2
Water Control	AS/NZS 4201.4:1994	Pass	Water Barrier
Moisture Shrinkage	AS/NZS 4201.3:1994	< 0.5%	-
Dry Delamination	AS/NZS 4201.1:1994	Pass	-
Wet Delamination	AS/NZS 4201.2:1994	Pass	-
Surface Water Absorbency	AS/NZS 4201.6:1994	< 100g/m^2	Low
Corrosion Resistance	AS/NZS 4859.1:2018 App. E	Pass	-
Electrical Conductivity	AS/NZS 4200.1:2017 - c.5.3.1.2	Resistance ≤ 10MΩ	Electrically Conductive

Product Description

Australian-made Kingspan AIR-CELL Insulbreak® is a 3-in-1 insulation, vapour barrier and thermal break solution for steel-framed construction. In steel-framed buildings Kingspan AIR-CELL Insulbreak® 70 and Insulbreak® 90 delivers R0.20 thermal break required for NCC BCA compliance, reducing thermal bridging and conductivity between building elements. Kingspan AIR-CELL Insulbreak® is also commonly used in non-steel framed applications such as timber framed roofs.

Kingspan AIR-CELL Insulbreak® is suitable to provide a thermal break for metal framed walls on low rise structures. For consideration in high-rise buildings, please contact Kingspan Insulation's Technical Services Team.

CodeMark-certified Kingspan AIR-CELL Insulbreak® is manufactured with a patented physically cross-linked, closed-cell foam structure, and sandwiched by reflective foil surfaces.

Management Standards

Standard	Management System
ISO 9001:2015	Quality Management
ISO 14001:2015	Environmental Management
ISO 45001:2018	Occupational Health & Safety Management

Environmental Data

Aspect	Characteristic
Re-usability	Re-usable if removed with care (long term of service expected)
Water Use	No water used in manufacturing process

Product Details

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. Consideration of the condensation management provisions of the NCC, relevant to the Climate Zone should be undertaken, when selecting a sarking-type material.

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 3999:2015 and AS/NZS 4200.2:2017 unless otherwise specified.

Should there be specific Local Government standards and/or specific climate requirements, install instructions can be changed accordingly. Alternative install instructions can be provided on request.

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.

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.

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.

Contact Details

Australia

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