

Insulation



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Issue 6 May 2015

# 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 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



Fibrefree  
Core



  
**Kingspan®**

*Low Energy –  
Low Carbon Buildings*

# Welcome to Kingspan Insulation

Kingspan Insulation is a market leading manufacturer of innovative ultra-thin flexible insulation products and super high performance rigid insulation products for building fabric and building services applications. Kingspan Insulation is committed to providing the world market with high quality, innovative products supported by technical expertise and customer service which is unsurpassed in the industry.

Kingspan Insulation has a vast product range including optimum performance next generation insulation solution **OPTIM-R™**; super high performance rigid thermoset phenolic **Kooltherm®** insulation; flexible fibre-free reflective insulation **AIR-CELL®**; high performance rigid **Therma™** insulation\*; and high performance rigid **Styrozone®** insulation\*. The extensive range of products is suitable for a variety of applications including:

- pitched roofs;
- flat roofs;
- tapered roofing systems;
- cavity walls;
- solid walls;
- insulated dry lining;
- timber and steel framing;
- externally insulated cladding systems;
- externally insulated render systems;
- floors;
- soffits; and
- ductwork in building services applications

Kingspan Insulation also supplies:

- *Kingspan **Thermabate®** Cavity Closer;\**
- *Kingspan **TEK®** range of structurally insulated panels;\**
- the *Kingspan **KoolDuct®** System of pre-insulated ducting;*
- *Pre-insulated plenum boxes;*
- *Kingspan **nilvent®** - breathable membrane for roofs and walls*

Manufacturing excellence, first class customer service and unrivalled expertise in meeting the needs of the market are just some of the many strengths that Kingspan Insulation offers to designers, engineers and contractors.

*\*Not currently available in Australia*



# Residential Metal Roof

## Typical Design Details



Figure 1 **Kingspan AIR-CELL Insulbreak® 65** in a metal roof with a flat ceiling

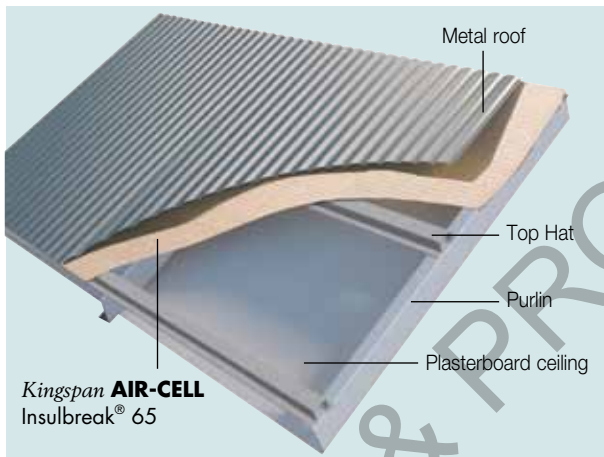


Figure 2 **Kingspan AIR-CELL Insulbreak® 65** in a metal roof with a raked ceiling

## Thermal Performance

Residential Metal Roof	Heat flow in	Heat flow out
Flat ceiling, ventilated	$R_T 2.7$	$R_T 1.3$
Flat ceiling, non-ventilated	$R_T 2.4$	$R_T 1.5$
Raked ceiling	$R_T 2.7$	$R_T 1.5$

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. The R-value will be reduced in the event of the accumulation of dust on the upward facing surfaces and in those cavities that are ventilated.

## Specification Guide

The roof insulation fixed to the battens shall be **Kingspan AIR-CELL Insulbreak® 65** 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.

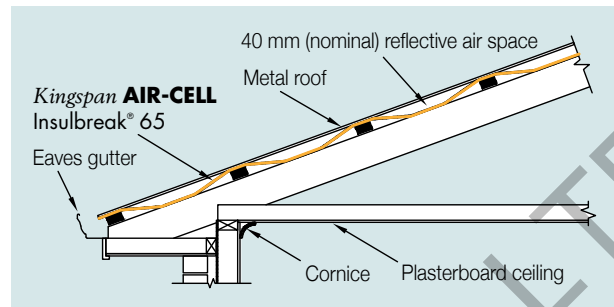


Figure 3 Side elevation of **Kingspan AIR-CELL Insulbreak® 65** in a metal roof with a flat ceiling

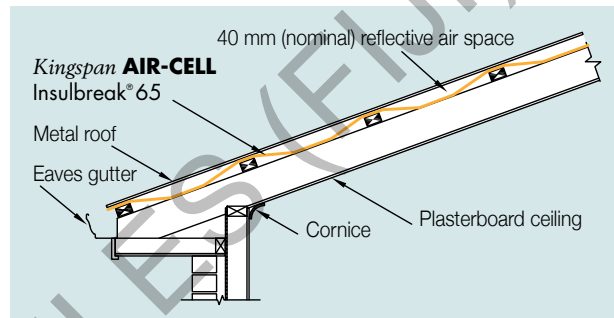


Figure 4 Side elevation of **Kingspan AIR-CELL Insulbreak® 65** in a metal roof with a raked ceiling

## Installation Instructions

1. Lay **Kingspan AIR-CELL Insulbreak® 65** from the ridge to gutter, over and perpendicular to the roof battens.
2. Ensure a 50 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® 65** across the rafters with the anti-glare side up, and ensuring a 50 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



Scan to see the installation video

# Commercial Metal Deck Roof

## Typical Design Details

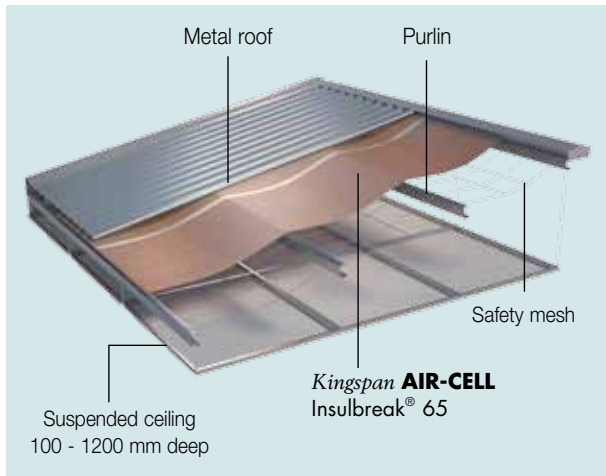


Figure 5 **Kingspan AIR-CELL Insulbreak® 65** in a commercial office installation

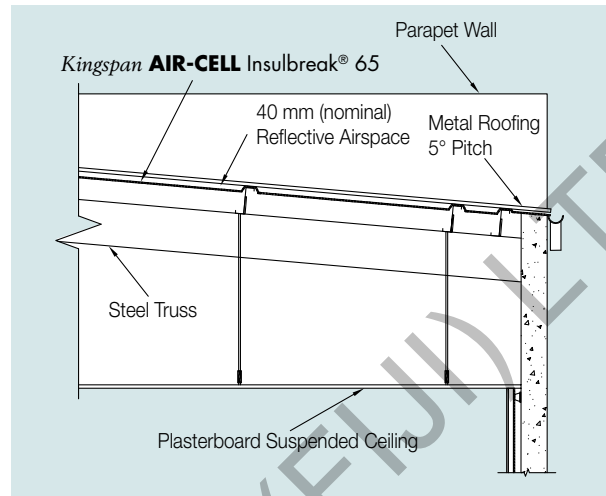


Figure 6 Side elevation of **Kingspan AIR-CELL Insulbreak® 65** in a commercial office

## Thermal Performance

Commercial Office	Heat flow in	Heat flow out
<b>Kingspan AIR-CELL Insulbreak® 65</b>	$R_T 3.2^*$	$R_T 1.4^*$

\* Where a suspended ceiling is present the air space above the suspended ceiling has been assumed to be 100mm - 1200mm deep. For larger ceiling space the heat flow in R value should be reduced by approximately R0.5.

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. The R-value will be reduced in the event of the accumulation of dust on the upward facing surfaces and in those cavities that are ventilated.

## Specification Guide

The roof insulation installed over the purlins shall be CodeMark-certified **Kingspan AIR-CELL Insulbreak® 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.

## Installation Instructions

1. Lay **Kingspan AIR-CELL Insulbreak® 65** perpendicular to purlins ensuring a 50 mm overlap into the gutter.
2. Allow a nominal 40 mm sag between purlins. If mesh is used, ensure that the mesh is installed loosely to allow for this sag.
3. Overlap by 50 mm at joints and apply 72 to 100 mm reinforced foil tape to top of joint (please refer to brochure "Kingspan Insulation Tape" for further information). Alternatively allow 150 mm overlap when joints are not to be taped.
4. End joints should be overlapped by 600 mm if not taped.
5. Fix roof sheeting by screwing through **Kingspan AIR-CELL Insulbreak® 65** to the purlins.

For detailed Installation Instructions please refer to the brochure "Commercial Metal Deck Roofs".



Scan to see the installation video

# Steel-framed Wall

## Typical Design Detail

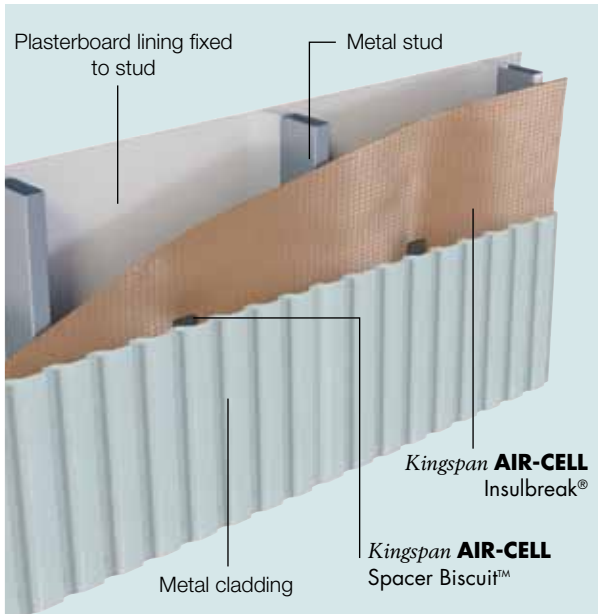


Figure 7 **Kingspan AIR-CELL Insulbreak®** on steel-framed wall

## Thermal Performance

Steel-framed Wall	Heat flow in	Heat flow out
<b>Kingspan AIR-CELL Insulbreak® 65</b>	R <sub>T</sub> 1.6	R <sub>T</sub> 1.8
<b>Kingspan AIR-CELL Insulbreak® 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 CodeMark-certified **Kingspan AIR-CELL Insulbreak®** \_\_\_\_\_ (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.

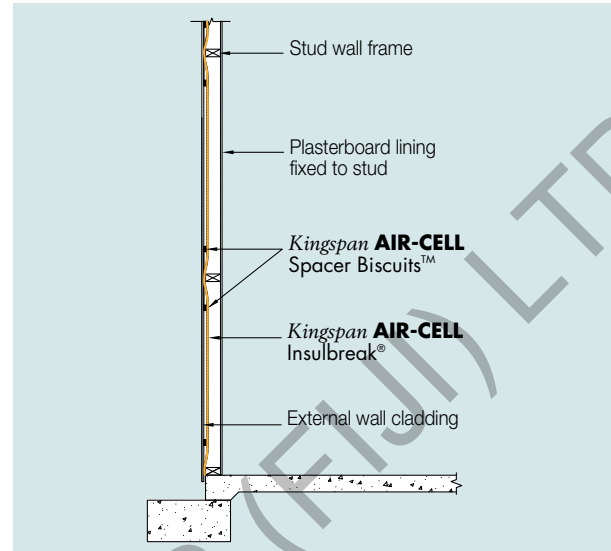


Figure 8 Side elevation of **Kingspan AIR-CELL Insulbreak®** on steel-framed wall

## 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.

For detailed Installation Instructions please refer to the brochure "Steel-framed Walls".



Scan to see the installation video

# Product Details

## 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®** delivers the 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.

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

\* Refer to NCC BCA Vol. 1 Section J 1.3, 1.5; Vol. 2 3.12.1.2, 3.12.1.4

Product Data	<b>AIR-CELL Insulbreak® 65</b>	<b>AIR-CELL Insulbreak® 80</b>
Product Code	TB065	TB080
Product Thickness	6.5 mm	8 mm
Product R-value	R0.20	R0.25
Roll Diameter	450 mm	500 mm
Roll Weight	9.15 kg	10 kg
Roll Size	1350mm 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 without support mesh	

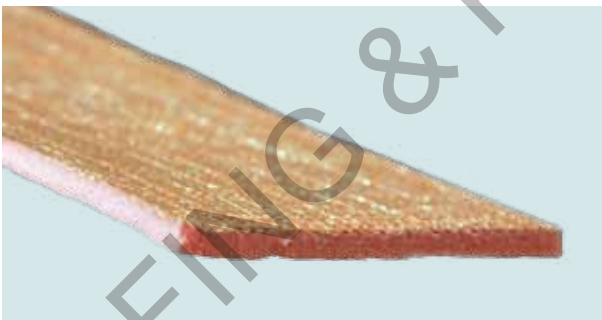


Figure 9 Cross-linked **Kingspan AIR-CELL Insulbreak®**

## 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	0.20 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	1.0 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
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	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

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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