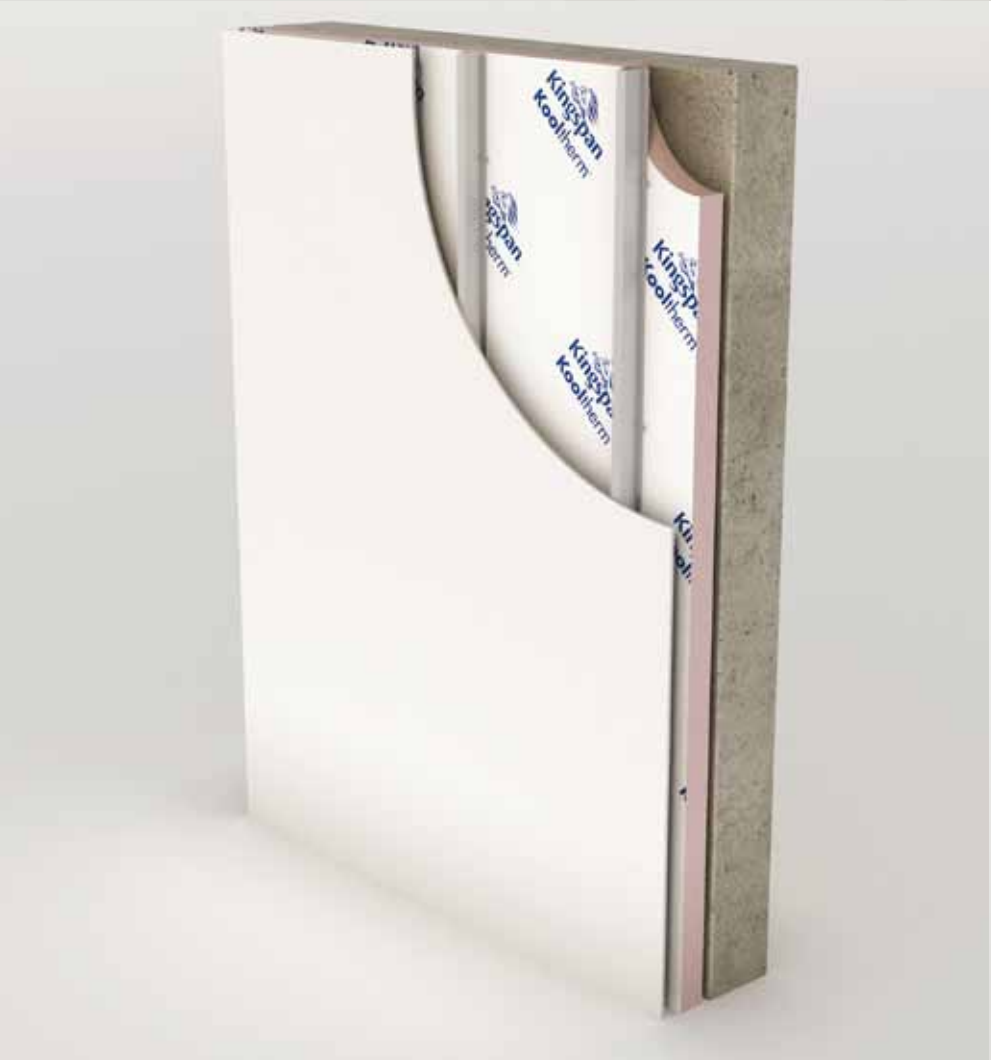
A4/4 | CBW | 1586
Issue 4 | Aug 2011

Concrete Walls & Block Walls

INSULATION GUIDE



- Section J compliant solutions
- Rigid *Kingspan* **Kool**therm® and flexible *Kingspan* **AIR-CELL**® solutions available
- Minimises wall footprint, maximising internal floor space
- Wall cavities remain unfilled and accessible for services
- Fibre-free, non-allergenic, non-irritant solutions available
- Quick and easy to install
- Strong, tough, durable
- Ideal for new builds and refurbishments
- Compliant with BCA and AS/NZS 4859.1

GreenSmart® PARTNER

Kingspan®

Low Energy – Low Carbon Buildings

Kooltherm® K12

Typical Design Detail

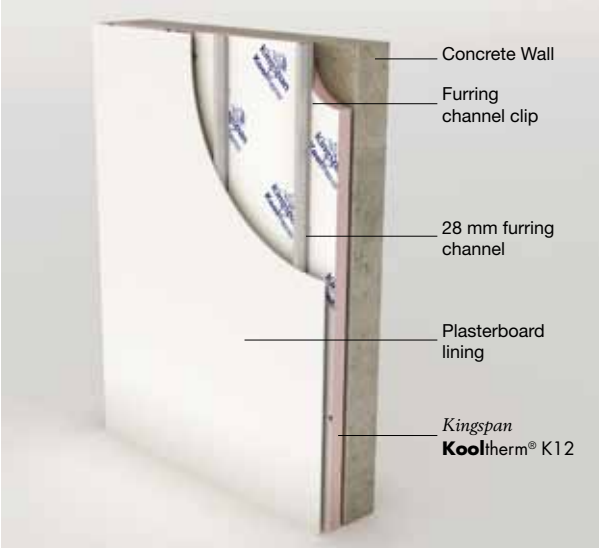


Figure 1 *Kingspan* **Kool**therm® K12 clip-and-channel system

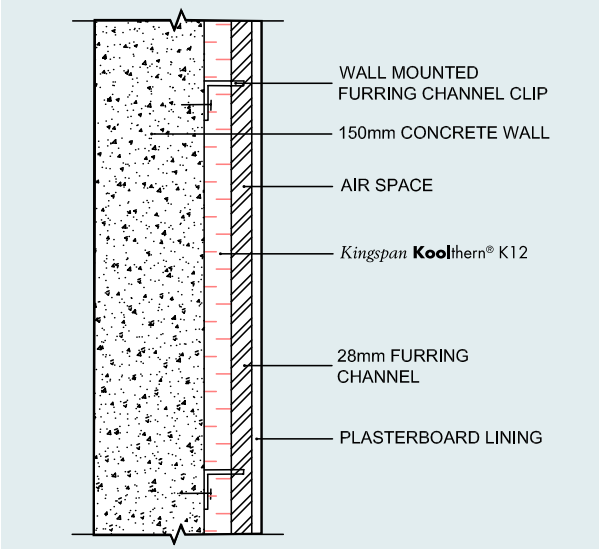


Figure 2 Side elevation of *Kingspan* **Kool**therm® K12 clip-and-channel system

Thermal Performance

Precast concrete wall (150 mm)		
Product Thickness (mm)	Heat flow in	Heat flow out
30	R_T 2.4	R_T 2.5
40	R_T 2.9	R_T 3.0
Block wall (140 mm)		
Product Thickness (mm)	Heat flow in	Heat flow out
30	R_T 2.5	R_T 2.5
40	R_T 3.0	R_T 3.0

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 **Kool**therm® *products are manufactured, tested and packaged in conformance with AS/NZS 4859.1:2002 - Amdt 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 insulation fixed to the internal side of the wall over the furring channel clips shall be *Kingspan* **Kool**therm® K12 ____ mm thick CFC/HCFC-free and zero Ozone Depletion Potential (ODP) rigid thermoset insulation manufactured under a management system certified to BS / I.S. EN ISO 9001:2008, BS / I.S. EN ISO 14001:2004 and BS / I.S. OHSAS 18001:2007 by Kingspan Insulation Pty Limited and shall be installed in accordance with the instructions issued by them.

Installation Instructions

1. Install chosen furring channel clips at required spacing for plasterboard lining.
2. Fit *Kingspan* **Kool**therm® over furring channel clips by pushing over the clips to abut the wall, and so that the wings of the clips penetrate the board. Care should be taken to avoid the foil facing of the *Kingspan* **Kool**therm® separating from the insulation core by neatly trimming the foil face at the point where the furring channel clip penetrates the insulation.
3. Butt join boards of *Kingspan* **Kool**therm® to provide a continuous insulation layer.
4. Install furring channels by clipping into channel clips. Furring channels should be tight against the face of the *Kingspan* **Kool**therm®. Where furring channels are not tight to the insulation contact Kingspan Insulation Technical Service for further advice.
5. Install plasterboard lining.

Taping

It is considered best practice to tape joins of *Kingspan* **Kool**therm® boards in this system with 48 mm wide reinforced aluminium foil tape. Refer to the “General Requirements” section towards the back of this document for more important information regarding taping.

Kooltherm® K17 Insulated Plasterboard

Typical Design Detail

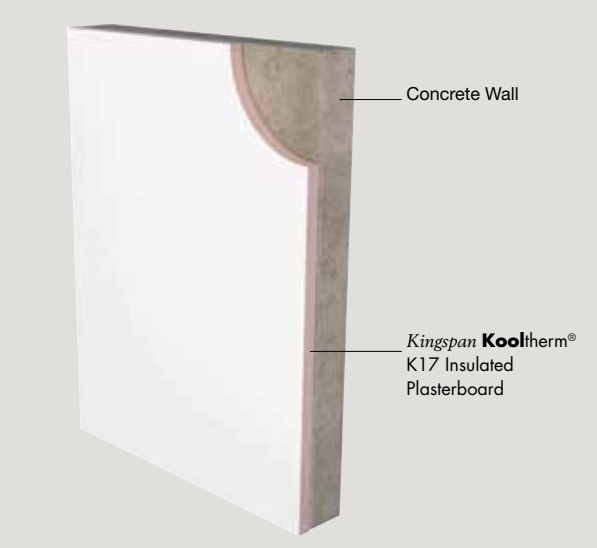


Figure 3 *Kingspan* **Kool**therm® K17 Insulated Plasterboard for plaster daub/adhesive bonding

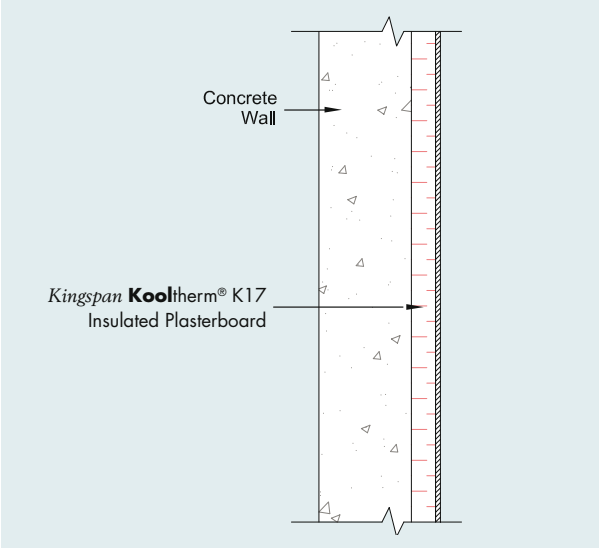


Figure 4 Side elevation of *Kingspan* **Kool**therm® K17 Insulated Plasterboard bonded to a concrete wall

Thermal Performance

Precast concrete wall (150 mm)		
Product Thickness (mm) inc. Plasterboard	Heat flow in	Heat flow out
35	R_T1.5	R_T1.5
40	R_T1.8	R_T1.7
50	R_T2.2	R_T2.2
60	R_T2.8	R_T2.8
70	R_T3.3	R_T3.3
80	R_T3.8	R_T3.8
Block wall (140 mm)		
Product Thickness (mm) inc. Plasterboard	Heat flow in	Heat flow out
35	R_T1.6	R_T1.5
40	R_T1.8	R_T1.8
50	R_T2.3	R_T2.3
60	R_T2.9	R_T2.9
70	R_T3.4	R_T3.4
80	R_T3.9	R_T3.9

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 **Kool**therm® *products are manufactured, tested and packaged in conformance with AS/NZS 4859.1:2002 - Amdt 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 insulation fixed to the internal side of the wall shall be *Kingspan* **Kool**therm® K17 Insulated Plasterboard comprising a 10 mm plasterboard facing bonded to _____ mm thick CFC/HCFC–free and zero Ozone Depletion Potential (ODP) rigid thermoset insulation manufactured under a management system certified to BS / I.S. EN ISO 9001:2008, BS / I.S. EN ISO 14001:2004 and BS / I.S. OHSAS 18001:2007 by Kingspan Insulation Pty Limited and shall be installed in accordance with the instructions issued by them.

Installation Instructions

Traditional Plaster Daub Bonding

1. Set out a continuous fillet of gypsum adhesive around perimeter wall and ceiling junctions, and around any openings in order to provide a seal.
2. Apply daubs of the gypsum adhesive to the wall. The number, size and lay–out of the daubs will depend on the chosen gypsum adhesive manufacturer's recommendations.
3. Locate boards against the adhesive daubs and tap back to align with predetermined guidelines on the floor and ceiling.
4. Mechanical fixings are recommended to complement the plaster daub bond. Apply at a rate of 2 per board after the plaster daubs have set, positioned 15 mm in from the board edge and at mid height with a nominal 25 mm embedment into the solid wall (excluding plaster daub thickness). (Refer to fixing manufacturer instructions for more information).
5. It is recommended that mechanical fixings are positioned in the tapered edge of the boards so that they are covered when the board is finished, (e.g. joints taped and skim coating) at mid height. Boards should be fitted tight to the ceiling/joists.

Proprietary Adhesive Bonding

1. Gun apply blobs of acrylic sealant adhesive to the wall or the back of the board approximately 25 mm in diameter (single squeeze), at 300 mm centres in both directions or to specific adhesive manufacturer's instructions. Ensure that the blobs adjacent to a board joint are approximately 25 mm in from the edge to avoid bridging the joint.
2. Tap the board back firmly using a straightedge, ensuring that the vertical edge is plumb.
3. Continue dry lining in the same manner.
4. Apply fixings in the same manner as Traditional Plaster Daub Bonding.

AIR-CELL Permicav™

Typical Design Detail

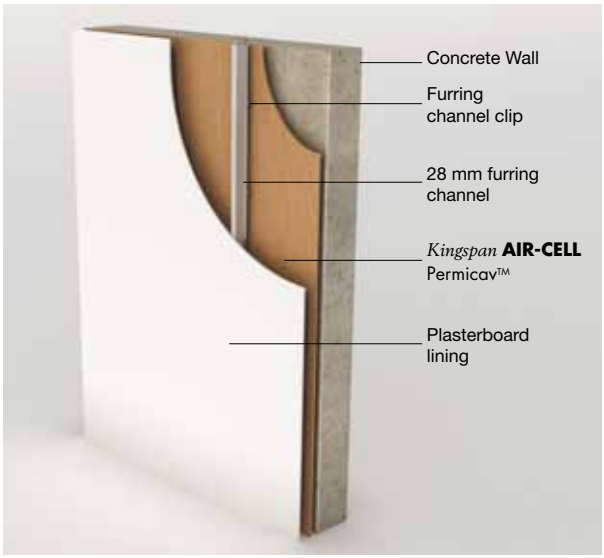


Figure 5 *Kingspan* **AIR-CELL** Permicav™ clip-and-channel system

Thermal Performance

Wall Construction	Heat flow in	Heat flow out
Precast concrete wall (150 mm)	R_T 1.8	R_T 2.0
Block wall (140 mm)	R_T 1.8	R_T 2.0

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 4859.1:2002 - Amdt 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 wall insulation fixed to the internal side of the wall over the furring channel clips shall be breathable *Kingspan* **AIR-CELL** Permicav™ 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, and shall be installed in accordance with the instructions issued by them.

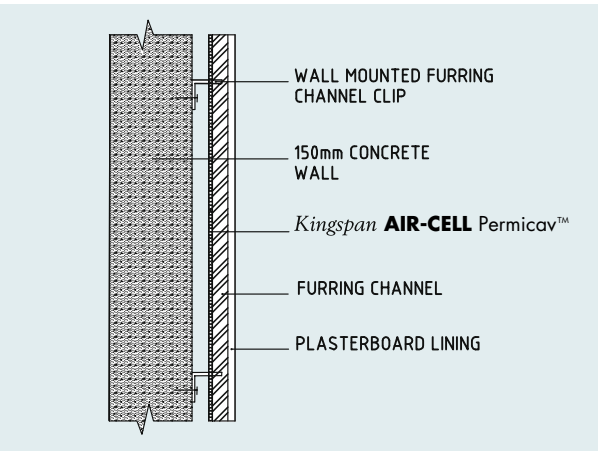


Figure 6 Side elevation of *Kingspan* **AIR-CELL** Permicav™ clip-and-channel system

Installation Instructions

1. Install chosen furring channel clips at required spacing for plasterboard lining.
2. Fit *Kingspan* **AIR-CELL®** over channels and hold in position with tape or screws, or cut slots for the *Kingspan* **AIR-CELL®** to fit over the wings of the channel clips.
3. Butt join rolls of *Kingspan* **AIR-CELL®** and tape with 72 mm wide reinforced aluminium tape.
4. Install furring channel by clipping into channel clips.
5. Install plasterboard lining.

Alternative Installation: Counter-Batten System

1. Install chosen battens or channels at required spacing for plasterboard lining.
2. Fit *Kingspan* **AIR-CELL®** over battens/channels and hold in position with tape, screws, or staples.
3. Butt join rolls of *Kingspan* **AIR-CELL®** and tape with 72 mm wide reinforced aluminium tape.
4. Install counter-batten/channel by screwing into first batten/channel.
5. Install plasterboard lining.

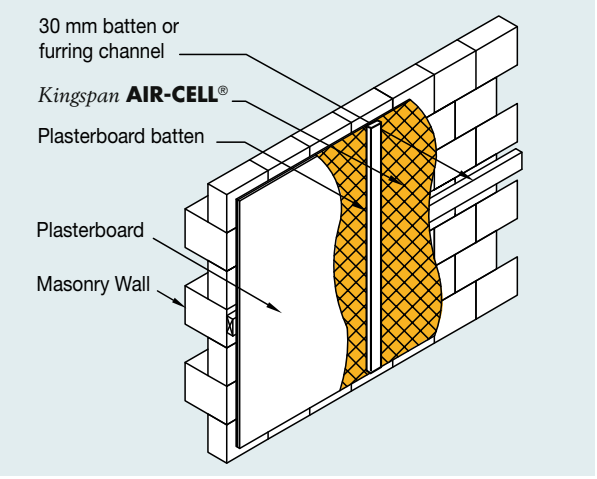


Figure 7 *Kingspan* **AIR-CELL®** counter-batten system

General Requirements

1. Fit *Kingspan* **AIR-CELL**® neatly around doors, windows, and any penetrations, and tape if necessary to prevent air leakage.
2. Foil facings are conductive to electricity and contact with uninsulated electrical cables and fittings must be avoided.
3. 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.
4. 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 135° 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**® and *Kingspan* **Kool**therm® in any application.

Cutting

Koolthern®

Cutting of *Kingspan* **Kool**therm® boards should be carried out either by using a fine toothed saw, or by scoring with a sharp knife, snapping the board over a straight edge and then cutting the facing on the other side. Ensure accurate trimming to achieve close-butting joints and continuity of insulation. Please note that scoring and snapping would not apply to *Kingspan* **Kool**therm® K17 Insulated Plasterboard due to the bonded plasterboard lining.

Handling and Storage

AIR-CELL®

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.

Koolthern®

The packaging of *Kingspan* **Kool**therm® should not be considered adequate for long term outdoor protection. Ideally boards should be stored inside a building. If, however, outdoor storage cannot be avoided then the boards should be stacked clear of the ground and covered with an opaque polythene sheet or weatherproof tarpaulin. Boards that have been allowed to get wet should not be used.

Contact Details

General Enquiries

Tel: 1300 247 235
Email: 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

Kingspan®

Kingspan Insulation Pty Ltd
Tel: 1300 247 235
Email: info@kingspaninsulation.com.au

www.kingspaninsulation.com.au