Insulation

Koolthern®

K17 Insulated Plasterboard

Insulated Dry-lining Plasterboard for Adhesive Bonding and Mechanical Fixing

- Rigid thermoset phenolic insulation
- Fibre-free, closed cell insulation core
- 3-in-1 insulation, dry-lining and vapour control
- Also available in a range of other selected lining materials
- Group 1 NCC fire classification
- Resistant to the passage of water vapour
- Easy to handle and install
- Ideal for new build and refurbishment
- NCC and AS/NZS 4859.1:2018 compliant
- CodeMark-certified for NCC compliance
- Made in Australia

Fibre-free Core

CodeMark Australia Certificate-CM20045

AUSTRALIAN MADE

Kingspan®

Typical Constructions and Total R-values

Adhesive Bonding to Concrete Wall (150 mm)

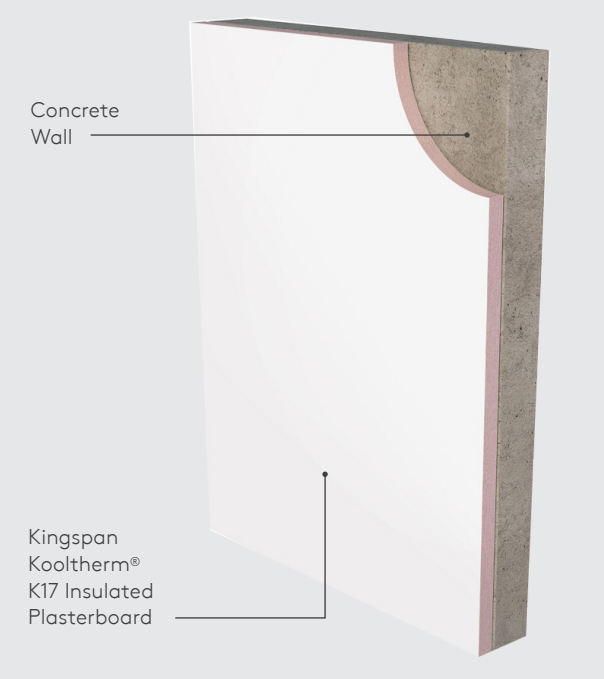

Figure 1. Adhesive Bonding to Concrete Wall (150 mm).

Adhesive Bonding to Masonry Block Wall (140 mm)

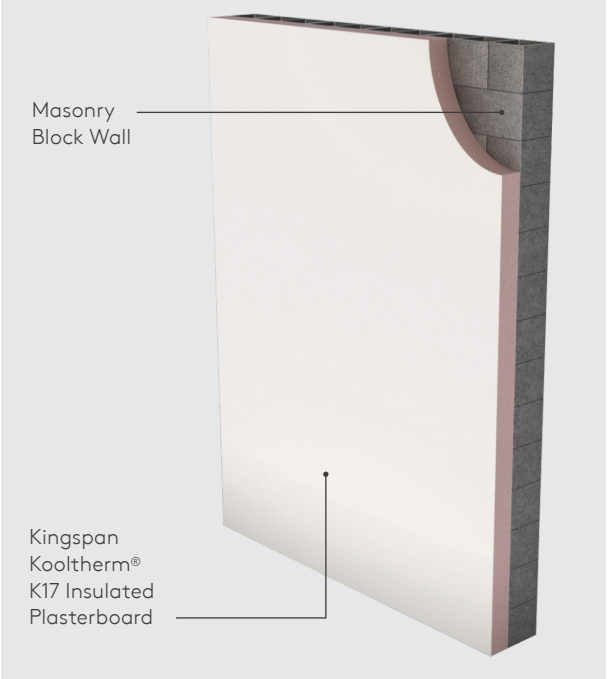

Figure 2. Adhesive Bonding to Masonry Block Wall (140 mm).

Thermal Performance

Total R–values for various thicknesses of Kingspan Kooltherm® K17 Insulated Plasterboard applicable for NCC Volume One, Class 2 to 9 buildings & NCC Volume Two, Class 1 & 10a buildings		
Product Thickness (incl. Plasterboard	Heat Flow In	Heat Flow Out
35 mm	R_T1.4	R_T1.4
40 mm	R_T1.6	R_T1.7
50 mm	R_T2.0	R_T2.1
60 mm	R_T2.5	R_T2.6
70 mm	R_T3.0	R_T3.1
80 mm	R_T3.4	R_T3.6
90 mm	R_T3.8	R_T4.0

Assumptions

The R-values shown are Total R-values for the building element as required by the Energy Provisions of the National Construction Code 2022, calculated in accordance with AS/NZS 4859.2:2018 & NZS 4214:2006. Kingspan Kooltherm® products are manufactured, tested and packaged in conformance with AS/NZS 4859.1:2018.

Total R–values for various thicknesses of Kingspan Kooltherm® K17 Insulated Plasterboard applicable for NCC Volume One, Class 2 to 9 buildings & NCC Volume Two, Class 1 & 10a buildings		
Product Thickness (incl. Plasterboard	Heat Flow In	Heat Flow Out
35 mm	R_T1.4	R_T1.5
40 mm	R_T1.6	R_T1.7
50 mm	R_T2.0	R_T2.1
60 mm	R_T2.6	R_T2.7
70 mm	R_T3.0	R_T3.2
80 mm	R_T3.4	R_T3.6
90 mm	R_T3.9	R_T4.1

Fire Resistance

Examples shown are suitable for NCC Class 1 & 10a housing and Fire-Resisting Construction Type C walls in NCC Class 2-9 buildings. For Fire-Resisting Construction Type A & B walls in NCC Class 2-9 buildings a Performance Solution is required.

Please contact Kingspan Insulation Technical Services on 1300 247 235 or email technical@kingspaninsulation.com.au for further guidance.

Product Details

Product Description

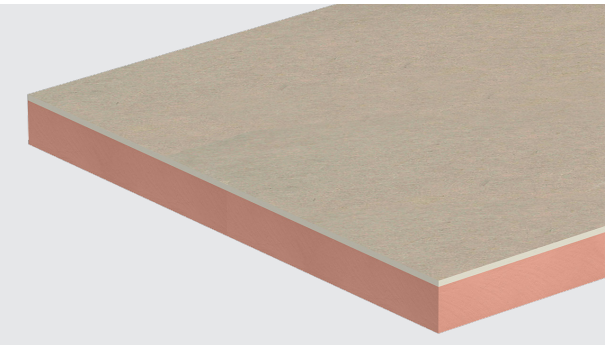

Figure 3. Kingspan Kooltherm® K17 Insulated Plasterboard.

Kingspan Kooltherm® K17 Insulated Plasterboard is a fibre-free rigid thermoset, closed cell phenolic insulation, sandwiched between a front facing of tapered edge gypsum based plasterboard and a reverse tissue based facing autohesively bonded to the insulation core during manufacture.

Product Data		
Declared Thermal Conductivity (λ-value) AS/NZS 4859.1:2018 / ASTM C518-2017	Insulant	0.022 W/m.K at 23°C Insulant thickness ≥ 45 mm 0.023 W/m.K at 23°C Insulant thickness 25-44 mm
	Plasterboard	0.17 W/m.K at 23°C Plasterboard thickness 10 mm
Product Dimensions		2400 mm x 1200 mm (2.88 m^2) Other dimensions available upon enquiry. Minimum order quantities apply.
Nominal Product Thickness (inc. Plasterboard)		35, 40, 50, 60, 70, 80, 90 mm. Other thicknesses available upon enquiry. Minimum order quantities apply.
Nominal Plasterboard Thickness		10 mm

Alternative lining boards, such as fibre cement sheets, can also be bonded to the insulation core to create customised finishes and facings. Please contact us for more information regarding alternative lining boards requests.

Product R-value

Nominal Product Thickness (inc. Plasterboard)	Declared Product R-value at 23°C
35 mm	R1.15
40 mm	R1.35
50 mm	R1.80
60 mm	R2.35
70 mm	R2.80
80 mm	R3.25
90 mm	R3.70

Specification Guide

Kingspan Kooltherm® K17 Insulated Plasterboard

The wall dry-lining insulation shall be Group 1 CodeMark-certified Kingspan Kooltherm® K17 Insulated Plasterboard _____ mm thick, with a tested $SMOGRA_{RC}$ of not more than 10 m^2/s^2 x 1000, comprising a rigid thermoset phenolic insulation core with 10 mm plasterboard facing bonded to its front surface and a tissue based facing on its reverse surface, manufactured* under a management system certified to ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 and ISO 50001:2018 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.

* Applies only to the Kingspan Kooltherm® K10 insulation board used in the manufacture of this composite insulated plasterboard product.

Standards and Approvals

Kingspan Kooltherm® K17 Insulated Plasterboard is manufactured to the highest standards and certified under the following management systems:

Standard	Management System
ISO 9001:2015	Quality Management
ISO 14001:2015	Environmental Management
ISO 45001:2018	Occupational Health and Safety
ISO 50001:2018	Energy Management

Product Details

Product Testing

Characteristic	Standard	Result
Compressive Stress (Insulant)	AS 2498.3:1993	On average exceeds 100 kPa at 10% compression
Water Vapour Transmission	ASTM E96 Part B-2016	> 35 MN.s/g For the purpose of calculation of condensation risk, the resistivity of the plasterboard component of the product should be taken as 50 MN·s/g·m.

Fire Performance

Test	Test Method	Result
Early Fire Hazard Properties. (Ignitability, Flame spread, Heat release, Smoke release)	AS 1530.3:1999	Spread of Flame Index: 0 Smoke Development ≤ 3*
NCC Group Number	AS 5637.1:2015 / AS ISO 9705: 2003 (R2016)	Group 1
$SMOGRA_{RC}$	AS ISO 9705: 2003 (R2016)	≤ 10 m^2/s^2x1000

* Applies only to the Kingspan Kooltherm® K10 insulation board used in the manufacture of this composite insulated plasterboard product.

Durability

If correctly applied, Kingspan Kooltherm® products can be expected to have a long life of service.

Their durability depends on the supporting structure and the conditions of its use.

Kingspan Kooltherm® products are warranted for a period of 10 years for both residential and commercial installations.*

* Subject to the terms of the complete Kingspan Kooltherm® warranty document which is available upon request or downloadable from www.kingspaninsulation.com.au

Limitations

Kingspan Kooltherm® K17 Insulated Plasterboard has a gypsum plasterboard face. It should, therefore, not be used to isolate dampness nor be used in continuously damp or humid conditions.

Environmental Data

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

Steel & Timber Frame

Utilised for Commercial and Residential buildings, Kingspan Kooltherm® K17 Insulated Plasterboard provides an efficient solution for framed or masonry construction methods in New Builds and Renovations.

Information on Insulation for Residential Buildings and Home Improvements can be found on the Kingspan Insulation Residential Sector webpage.

Kingspan Kooltherm® K17 Insulated Plasterboard provides the perfect insulation solution for fast build systems such as Modular Construction. Further information can be found on the Modular Sector webpage.

Installation Instructions

Installation should be in accordance with AS 3999:2015 Bulk thermal insulation - Installation.

Dry Wall Plasterboard

Kingspan Kooltherm® K17 Insulated Plasterboard can be applied utilising a variety of traditional or modern dry-lining techniques, to dry and structurally sound walls. These include construction adhesive bonding and mechanical fixed methods. The particular system employed will depend on the construction or design of the wall to which Kingspan Kooltherm® K17 Insulated Plasterboard is to be fixed. If an acceptable adhesive bond cannot be achieved due to the wall surface, consideration should be given to a mechanically fixed option. The tapered edge to the plasterboard enables a flat seamless surface equal to traditional plaster finishes after the correct jointing procedures as per plasterboard manufacturer's recommendation have been completed.

Construction Adhesive Bonding

This method is for application to brick, block or concrete masonry cavity walls which are free from moisture penetration.

1. Ensure that the wall surface to be bonded to is free from oil, grease, paint, release agent, or any contamination that may affect the bond of the adhesive to the wall.
2. Gun apply a continuous blob of construction adhesive around perimeter wall and ceiling junctions, and around any openings, such as windows and doors, in order to provide a seal.
3. Gun apply blobs of construction 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.
4. Tap the board back firmly using a straightedge, ensuring that the vertical edge is plumb.
5. Continue dry lining in the same manner.
6. Appropriate mechanical fixings are recommended to complement the adhesive bond. Apply four per board after the adhesive has set, positioned 15 mm in from the board edge and top and bottom with a nominal 25 mm embedment into the wall. (Refer to fixing manufacturer instructions for more information).
7. For boards 3 m and longer, four fixings should be used.
8. 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.

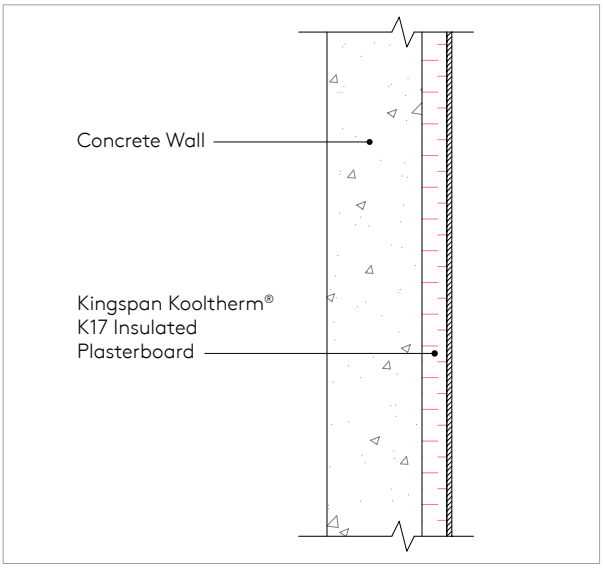

Figure 4. Side elevation - Concrete wall with Kingspan Kooltherm® K17 Insulated Plasterboard.

Mechanical Fixing to Masonry

This method is for application to brick, block or concrete masonry cavity walls which are free from moisture penetration and an adhesive bond is not suitable or heavy surface linings such as tiles are to be applied.

1. Ensure the wall is true and free from projections which may prevent the board from sitting flat.
2. Predrill into the wall substrate using a masonry bit.
3. Insert a masonry anchor with a minimum of 25 mm embedment into the structure.
4. Fixings should be driven straight, with the heads embedded just below the surface of the plasterboard. Care should be taken not to overdrive screws.
6. Screws should be fixed at 600 mm max. horizontal centres and 300 mm max. vertical centres.

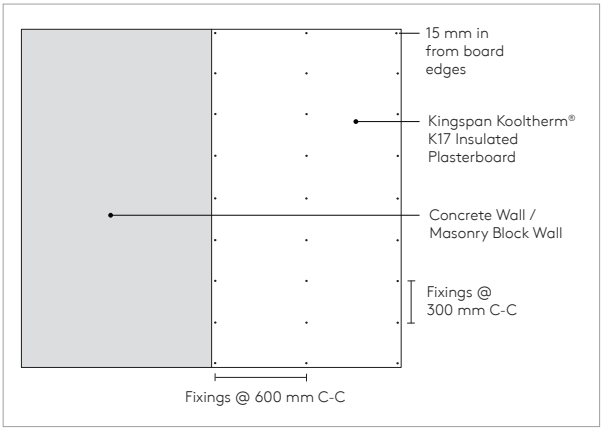

Figure 5. Kingspan Kooltherm® K17 Insulated Plasterboard Installation Details for mechanical fixing.

Installation Instructions

Mechanical Fixing to Metal or Timber Frames/Metal Stud and Track/Battens

Kingspan Kooltherm® K17 Insulated Plasterboard may be used on frame constructions or on any dry, stable masonry construction capable of taking the fixings for the battens/ furrings.

The guidance below should be followed when installing Kingspan Kooltherm® K17 Insulated Plasterboard with pre-treated timber battens or metal/timber framing:

- Battens/Furrings can be packed out using proprietary shims in order to correct alignment and provide space to accommodate services, as required.
- Walls are to be marked at 600 mm centres (max.) to indicate vertical batten and board positioning.
- Battens/Furrings should be fixed vertically at 600 mm centres (max.) to support the boards around the perimeter of the wall, windows and doors and any services which penetrate the system.
- Give close consideration at this stage for any additional mounting points required for internal fittings.
- Kingspan Kooltherm® K17 Insulated Plasterboard should be located centrally over the framing. Kingspan Kooltherm® K17 Insulated Plasterboard should be firmly held against the framing after being cut to allow for a 5-10 mm height clearance.
- Kingspan Kooltherm® K17 Insulated Plasterboard should be fixed to all the framing members using drywall screws at 300 mm centres, (reduced to 200 mm centres at external corners for metal and timber framework solutions).
- Appropriate length screws should be selected to provide a nominal 10 mm penetration into metal, or 25 mm for timber studs.
- Fixings should be driven straight, with the heads embedded just below the surface of the plasterboard without fracturing it.
- Boards should be lightly butted, with screws no closer than 10 mm from bound edges.

Corner & Skirting Details

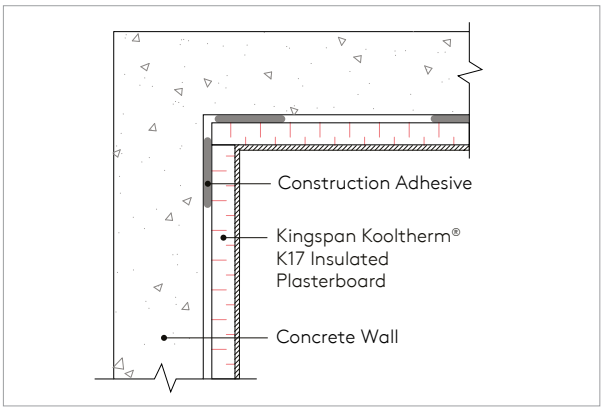

Figure 6. Internal corner detail with Kingspan Kooltherm® K17 Insulated Plasterboard.

For internal and external corners, sheets should be cut and rebated to allow a plasterboard / plasterboard joint at the angle. Ensure sheets are lightly butted and air gaps minimised to reduce the risk of cold bridging. (See Figures 6 & 7).

A 5 mm packer should be used at the base of the wall to provide a level surface from which to build up the boards. Replace with a flexible urethane / acoustic sealant prior to skirting being fitted (see Figure 7).

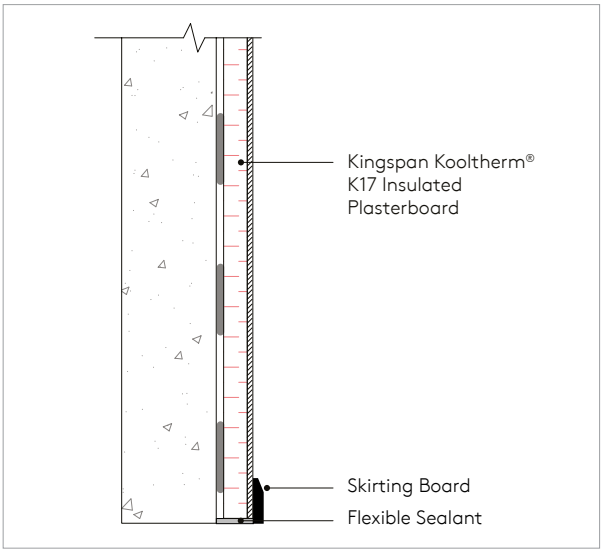

Figure 7. Packer and skirting detail with Kingspan Kooltherm® K17 Insulated Plasterboard.

Window / Door Reveals & Soffit Details

A thinner sheet of Kingspan Kooltherm® K17 Insulated Plasterboard at reveals may be necessary (see Figure 8) to account for opening frames. Where adhesives are employed at openings, strips of insulated plasterboard should be temporarily supported.

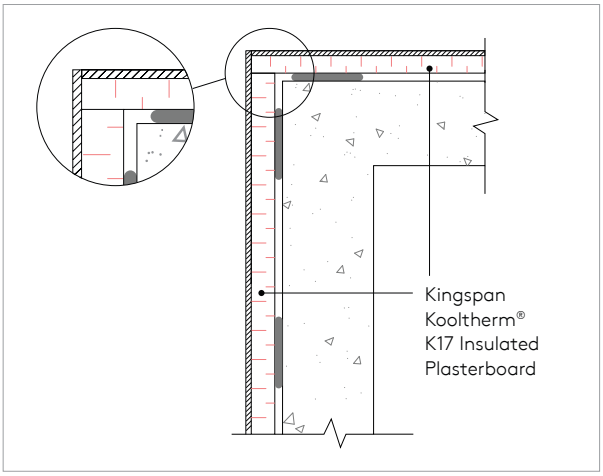

Figure 8. Insulated reveal and external corner with Kingspan Kooltherm® K17 Insulated Plasterboard.

Other Information

General

Cutting

Cutting should be carried out either by using a fine toothed saw, or by using a sharp knife to cut through the insulation and paper backing of the plasterboard, then snapping the board face down over a straight edge and cutting the paper facing of the plasterboard on the other side. Ensure accurate trimming to achieve close butting joints and continuity of insulation. Sheets being cut should be adequately supported to prevent breakage.

When using a fine toothed saw, ensure edges are supported to avoid excessive vibration.

When multiple cuts on a board are required, such as around windows, consider segmenting the board into smaller sections to prevent excessive movement of the board (see Figure 9).

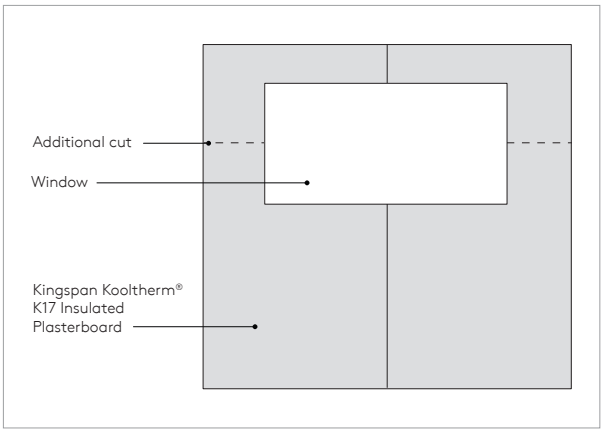

Figure 9. Kingspan Kooltherm® K17 Insulated Plasterboard Installation Details for cutting.

Board Orientation

The Kingspan Kooltherm® K17 Insulated Plasterboard can be laid in a horizontal or vertical orientation to best suit the room configuration.

Services

Where electrical and plumbing services are not surface mounted or chased into the structure, carefully recess the back of the insulation to accommodate the services.

To ensure an appropriate rate of heat dissipation from cables, the current-carrying capacity of any electrical services partially surrounded by thermal insulation should be determined in accordance with AS/NZS 3008.1:2017 series.

Ensure excess insulation is not removed to minimise thermal weaknesses.

Packaging

According to quantity, the boards are supplied in packs, labelled and shrink-wrapped in polythene.

Handling and Storage

Storage

The packaging of Kingspan Kooltherm® 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.

Resistance to Solvents

The insulation core is resistant to short–term contact with petrol and with most dilute acids, alkalis and mineral oils. However, it is recommended that any spills be cleaned off fully before the boards are installed. Ensure that safe methods of cleaning are used, as recommended by suppliers of the spilt liquid. The insulation core is not resistant to some solvent-based adhesive systems, particularly those containing methyl ethyl ketone. Adhesives containing such solvents should not be used in association with this product. Damaged boards or boards that have been in contact with harsh solvents or acids should not be used.

Safety Information

Kingspan Insulation products are chemically inert and safe to use. A Product Safety Information Sheet is available from Kingspan Insulation Pty Ltd.

Installation must be in accordance with AS 3999:2015 Bulk Thermal Insulation Installation and AS 3000:2018 Electrical Installations (Wiring Rules).

Contact Details

Australia

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