Insulation

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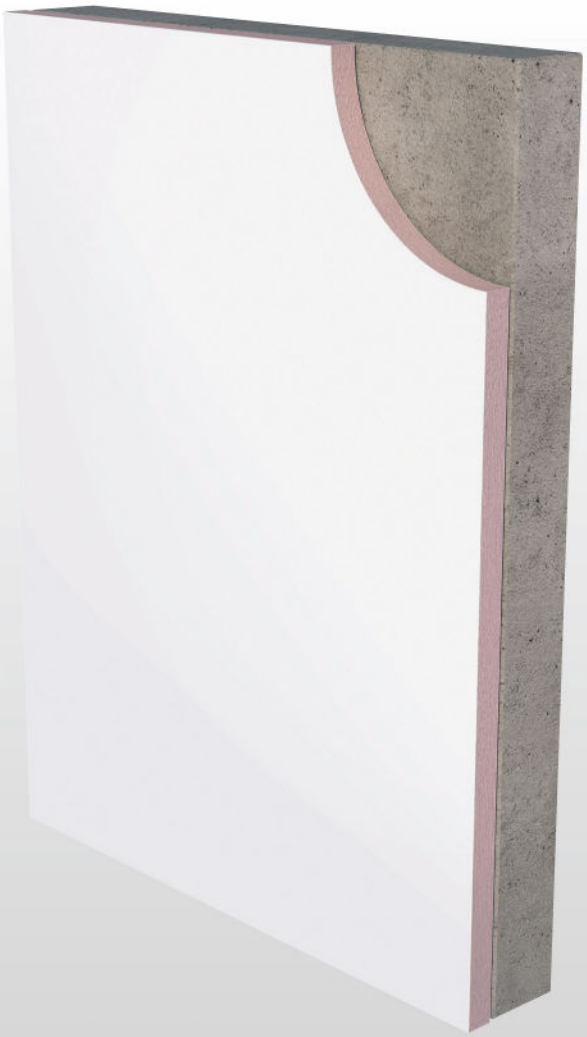
external building products

# Kooltherm® K17 Insulated Plasterboard

## INSULATED DRY-LINING PLASTERBOARD FOR ADHESIVE BONDING



- High performance 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 determined in a full room AS ISO 9705 test in accordance with AS 5637
- Resistant to the passage of water vapour
- Easy to handle and install
- Ideal for new build and refurbishment
- No CFC or HCFC used in manufacture
- Has zero ODP and low GWP
- Compliant with AS/NZS 4859.1:2018
- CodeMark-certified for NCC compliance
- Made in Australia

GROUP 1
NCC Classification: AS 5637

CODEMARK® Australia
Certificate CM20045

Fibre-free Core

AUSTRALIAN MADE

Kingspan®
*Low Energy – Low Carbon Buildings*

# Typical Constructions and Total R-values

## Adhesive Bonding to Concrete Wall (150 mm)

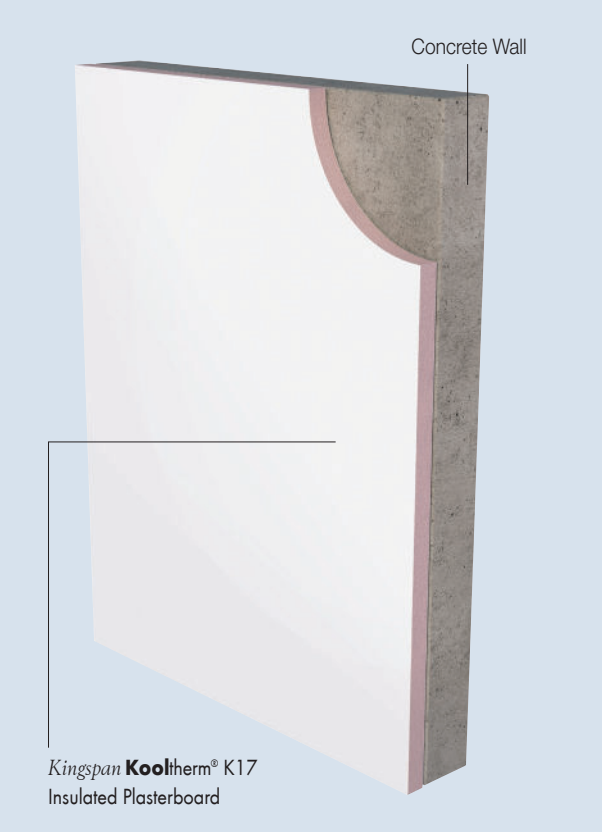



Figure 1

## Adhesive Bonding to Masonry Block Wall (140 mm)

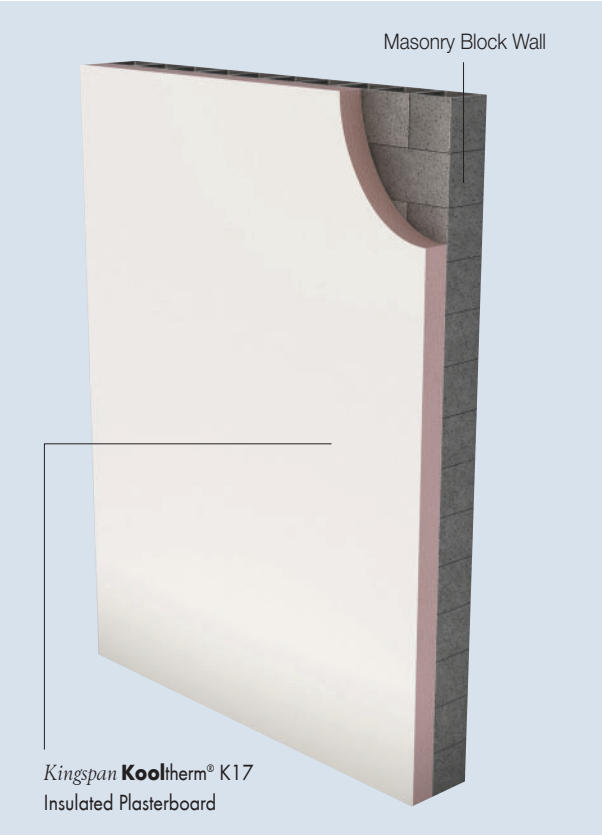



Figure 2

## Thermal Performance

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

Total R–values for various thicknesses of *Kingspan* **Kool**therm® K17 Insulated Plasterboard applicable for NCC Volume One, Class 2 to 9 buildings & NCC Volume Two, Class 1 & 10a buildings

| Product Thickness (inc. Plasterboard) | Heat flow in | Heat flow out |
|---|---|---|
| 35 mm | $R_T$1.4 | $R_T$1.4 |
| 40 mm | $R_T$1.6 | $R_T$1.7 |
| 50 mm | $R_T$2.0 | $R_T$2.1 |
| 60 mm | $R_T$2.5 | $R_T$2.6 |
| 70 mm | $R_T$3.0 | $R_T$3.1 |
| 80 mm | $R_T$3.4 | $R_T$3.6 |
| 90 mm | $R_T$3.8 | $R_T$4.0 |

Total R–values for various thicknesses of *Kingspan* **Kool**therm® K17 Insulated Plasterboard applicable for NCC Volume One, Class 2 to 9 buildings & NCC Volume Two, Class 1 & 10a buildings

| Product Thickness (inc. Plasterboard) | Heat flow in | Heat flow out |
|---|---|---|
| 35 mm | $R_T$1.4 | $R_T$1.5 |
| 40 mm | $R_T$1.6 | $R_T$1.7 |
| 50 mm | $R_T$2.0 | $R_T$2.1 |
| 60 mm | $R_T$2.6 | $R_T$2.7 |
| 70 mm | $R_T$3.0 | $R_T$3.2 |
| 80 mm | $R_T$3.4 | $R_T$3.6 |
| 90 mm | $R_T$3.9 | $R_T$4.1 |

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

**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

*Kingspan* **Kool**therm® K17 Insulated Plasterboard is a super high performance, 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.

Fibre-free Core

*Kingspan* **Kool**therm® K17 Insulated Plasterboard is manufactured without the use of CFCs/HCFCs and has zero Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP).

zero o.d.p

| Product Data | | |
|---|---|---|
| Declared Thermal Conductivity | Insulant | 0.022 W/m.K at 23°C (Insulant thickness ≥ 45 mm)<br>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 $m^2$)<br>Other dimensions available upon enquiry.<br>Minimum order quantities apply |
| Nominal Product Thickness (inc. Plasterboard) | | 35, 40, 50, 60, 70, 80, 90 mm<br>Other thicknesses available upon enquiry.<br>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 in our *Kingspan* **Kool**therm® K17+ Insulated Lining Board range. Please contact us for more information.

## 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 |

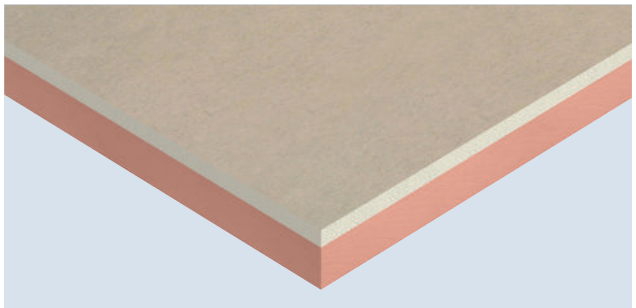


Figure 3 Super high performance *Kingspan* **Kool**therm® K17 Insulated Plasterboard

## Specification Guide

*Kingspan* **Kool**therm® K17 Insulated Plasterboard

The wall dry-lining insulation shall be Group 1 CodeMark-certified *Kingspan* **Kool**therm® K17 Insulated Plasterboard _____ mm thick, with a tested $SMOGRA_{RC}$ of not more than 10 $m^2/s^2$ x 1000, comprising a CFC/HCFC–free and zero Ozone Depletion Potential (ODP) 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* **Kool**therm® K10 insulation board used in the manufacture of this composite insulated plasterboard product.

## Standards and Approvals

*Kingspan* **Kool**therm® K10 insulation board used for *Kingspan* **Kool**therm® 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 Testing

| Characteristic | Standard | Result |
|---|---|---|
| Compressive Stress (Insulant) | AS 2498.3 | Typically exceeds 100 kPa at 10% compression |
| Water Vapour Resistance | AS 2498.5 | > 35 MN·s/g<br>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 |
|---|---|---|
| Ignitability, Flame spread Heat release, Smoke release | AS 1530.3 | Spread of Flame Index: 0<br>Smoke Development ≤ 3* |
| NCC Group Number in accordance with AS 5637.1 | AS ISO 9705 | Group 1<br>Tested in accordance with AS 5637 as required by NCC 2016 Amdt.1 |
| $SMOGRA_{RC}$ | AS ISO 9705 | ≤ 10 $m^2/s^2$x1000 |

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

# Installation Instructions

## Durability

If correctly applied, *Kingspan* **Kool**therm® 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* **Kool**therm® products are warranted for a period of 10 years for both residential and commercial installations.*

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

## Limitations

*Kingspan* **Kool**therm® 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 |
|---|---|
| Recyclability | Non-contaminated insulation site waste is recyclable, but there are currently no facilities in Australia to process returned material |
| Re-usability | Re-usable if removed with care (long term of service expected) |
| Water Use | No water used in Kingspan Insulation's manufacturing process |
| Blowing Agent Global Warming Potential (GWP) | Manufactured with a blowing agent that has low GWP |
| Blowing Agent Ozone Depletion Potential (ODP) | Manufactured with a CFC/HCFC-free blowing agent that has zero ODP |
| Packaging | Contains 0% recycled product Polythene wrap and EPS skids 100% recyclable |

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

## Dry Wall Plasterboard

*Kingspan* **Kool**therm® K17 Insulated Plasterboard can be applied utilising a variety of traditional or modern dry-lining techniques, to dry and structurally sound walls. These include the construction adhesive bonding method. The particular system employed will depend on the construction or design of the wall to which *Kingspan* **Kool**therm® 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 contaminate 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 2 per board after the adhesive has set, positioned 15 mm in from the board edge and at mid height with a nominal 25 mm embedment into the wall. (Refer to fixing manufacturer instructions for more information).
7. For boards 3 m and longer 4 fixings should be used.
8. When using the Kingspan Kooltherm K17+ Insulated Lining Board Range, use a minimum of 6 mechanical fixings per board. Positioned 15 mm in from the edge, at the top, middle and bottom of the board.
9. 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.

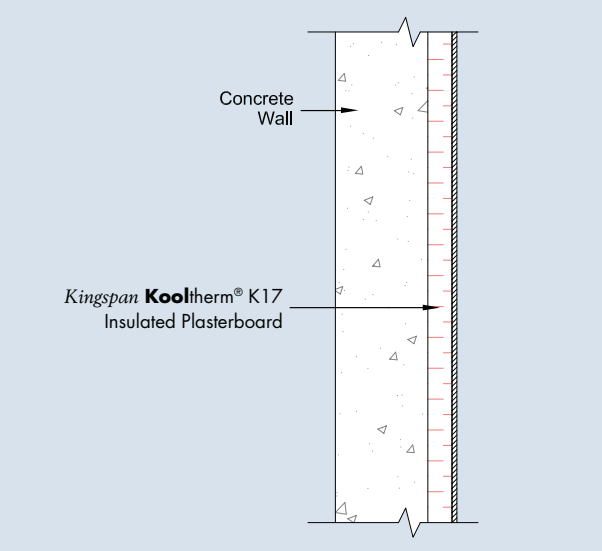



Figure 4 Side elevation - Concrete wall with *Kingspan* **Kool**therm® K17 Insulated Plasterboard

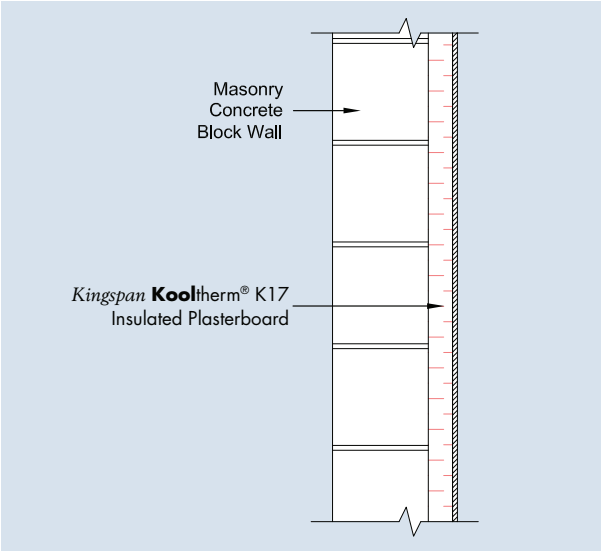



Figure 5 Side elevation - Masonry block wall with *Kingspan* **Kool**therm® K17 Insulated Plasterboard

## Mechanical Fixing

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.

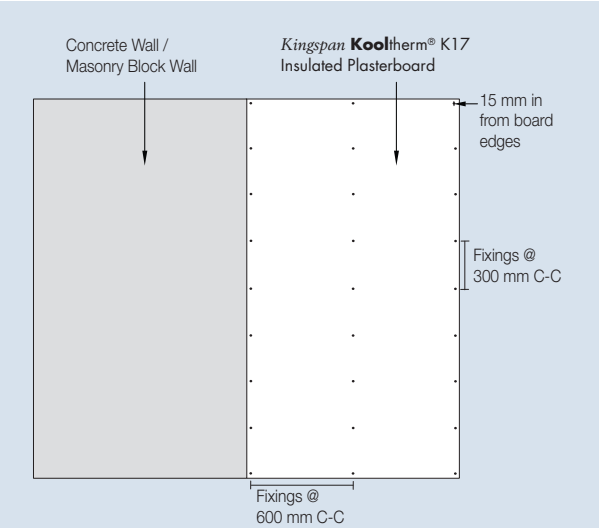



Figure 6 *Kingspan* **Kool**therm® K17 Insulated Plasterboard Installation Details for mechanical fixing

# Installation Instructions (continued)

## Corner & Skirting Details

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 7 & 8).

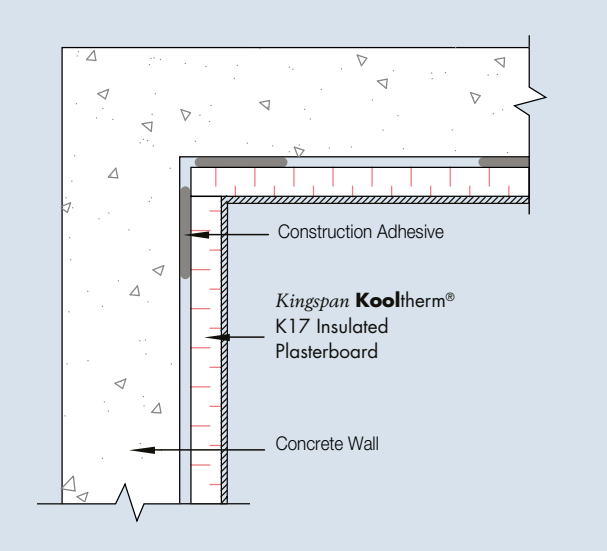



Figure 7 Internal corner detail with *Kingspan* **Kool**therm® K17 Insulated Plasterboard

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 8).

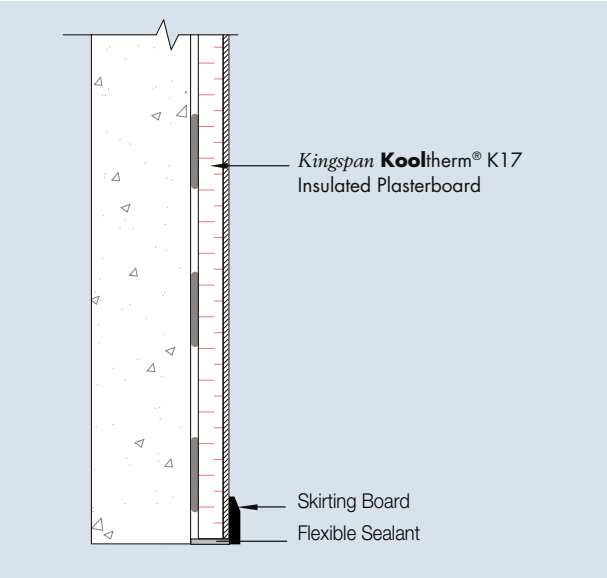



Figure 8 Packer and skirting detail with *Kingspan* **Kool**therm® K17 Insulated Plasterboard

## Window / Door Reveals & Soffit Details

A thinner sheet of *Kingspan* **Kool**therm® K17 Insulated Plasterboard at reveals may be necessary (see Figure 9) to account for opening frames. Where adhesives are employed at openings, strips of insulated plasterboard should be temporarily supported.

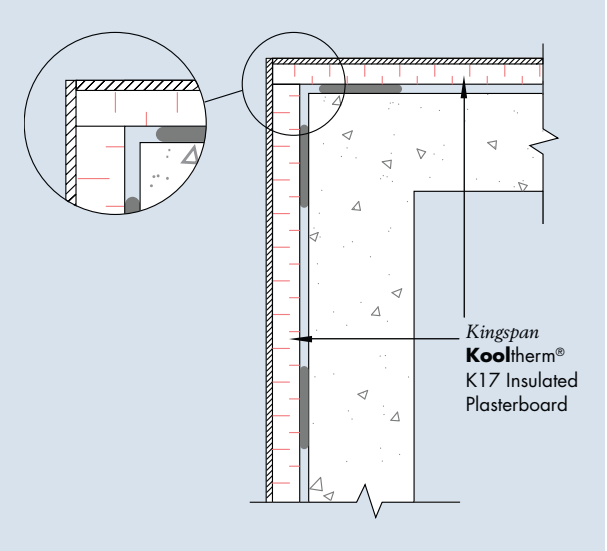



Figure 9 Insulated reveal and external corner with *Kingspan* **Kool**therm® K17 Insulated Plasterboard

## 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. Figure 10.

### Board Orientation

The *Kingspan* **Kool**therm® 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 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* **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.

### 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.

### OH & S

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 Bulk Thermal Insulation Installation and AS 3000 Electrical Installations (Wiring Rules).

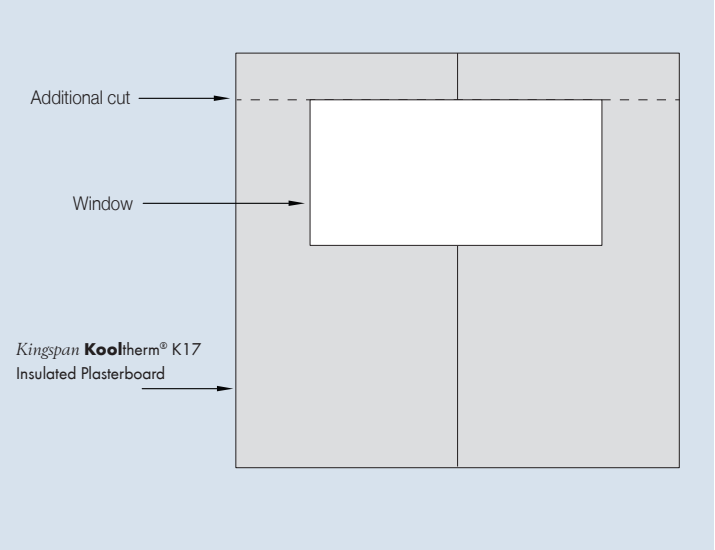



Figure 10 *Kingspan* **Kool**therm® K17 Insulated Plasterboard Installation Details for cutting

# Contact Details

AUSTECH

Distributor Partner

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