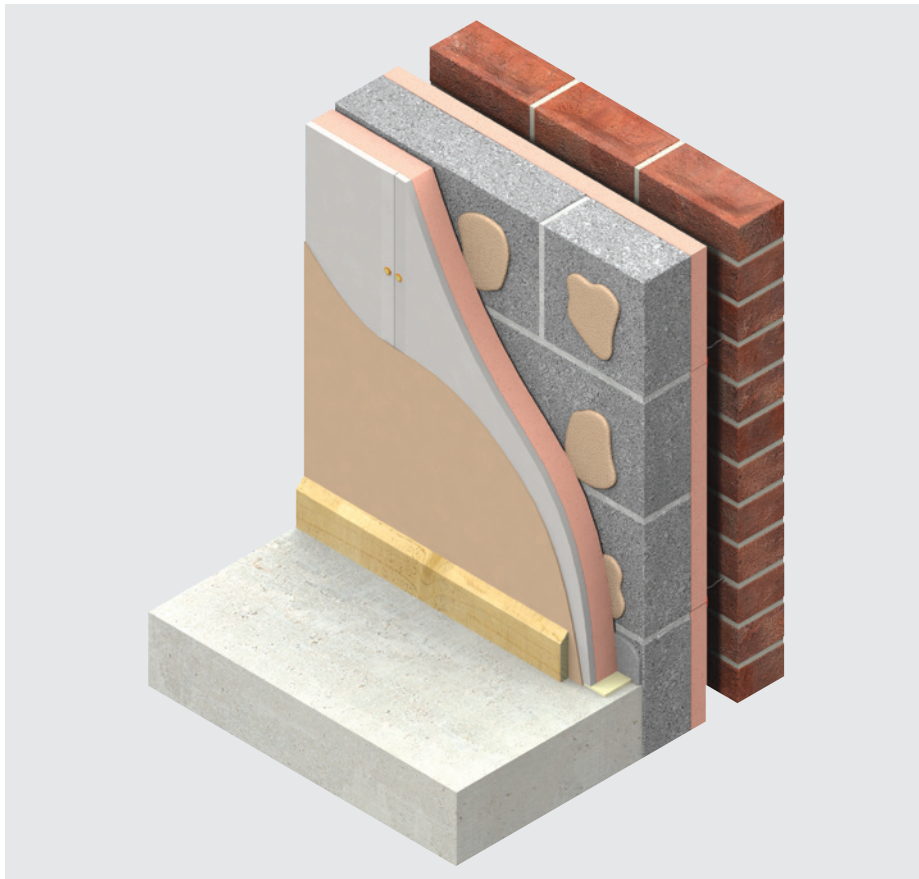


Insulation



Kooltherm® K16 Insulated Plasterboard

Insulated Plasterboard for Mechanically Fixed & Adhesively Bonded
Insulated Dry-Lining



- Premium performance rigid thermoset phenolic insulation - thermal conductivity as low as 0.021 W/mK
- Allows quick response heating
- Unaffected by air infiltration
- Resistant to the passage of water vapour
- Easy to handle and install
- Ideal for new build, retrofit and refurbishment
- Non-deleterious material
- Manufactured with a blowing agent that has zero ODP and low GWP

Fibre-free
Core



Kingspan®

Typical Constructions and U-values

Assumptions

The U-values in the tables that follow have been calculated using the method detailed in BS EN ISO 6946: 2017 (Building components & building elements. Thermal resistance & thermal transmittance. Calculation methods), and using the conventions set out in BR 443 (Conventions for U-value calculations). They are valid for the constructions shown in the details immediately above each table.

These examples are based on the use of 3 mm skim coated Kingspan Kooltherm® K16 dot and dab bonded to the construction supplemented with appropriate secondary fixings, or mechanically fixed to both 25 x 47 mm treated softwood timber battens and metal studding / channels.

NB When calculating U-values to BS EN ISO 6946: 2017, the type of mechanical fixing used may change the thickness of insulation required. For the mechanically fixed options to timber battens or metal studding / channels, the use of carbon steel fasteners of cross sectional area 4 mm² has been assumed at a density of 16.7 per m².

No correction factor for mechanical fixings has been taken into account as appropriate secondary fixings, such as nailable plugs or helical anchor fixings at a rate of 2 or 6 per board, do not have an adverse effect on U-values.

NB For the purposes of these calculations the standard of workmanship has been assumed good, and therefore the correction factor for air gaps has been ignored.

NB The figures quoted are for guidance only. A detailed U-value calculation and a condensation risk analysis should be completed for each project.

NB If your construction is different from those specified, and / or to gain a comprehensive U-value calculation along with a condensation risk analysis of your project, please consult the Kingspan Insulation Technical Service Department for assistance (see rear cover).

Masonry Cavity Walls

20mm Cement Rendered / 100 mm Block Outer Leaf / Cavity / 100 mm Block Inner Leaf

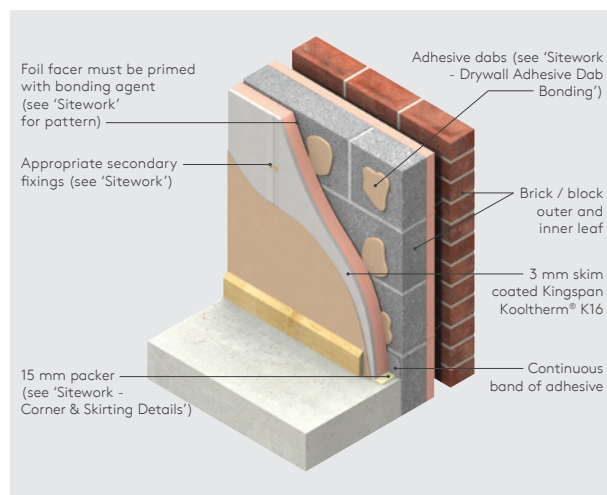


Figure 1

U-values (W/m²K) for various product thicknesses of Kingspan Kooltherm® K16 insulated plasterboard and thicknesses of Kingspan Kooltherm® K8 cavity board

Kingspan Kooltherm® K16 Product Thickness* (mm)	Inner Leaf Blockwork Density and λ-value W/mK)	
	Dense (1.13)	Medium (0.51)
100 mm Cavity Partially Filled with 60 mm of Kingspan Kooltherm® K8 Cavity Board†		
42.5	0.18	0.18
52.5	0.17	0.17
62.5	0.15	0.15
150 mm Cavity Partially Filled with 110 mm of Kingspan Kooltherm® K8 Cavity Board†		
42.5	0.13	0.13
52.5	0.12	0.12
62.5	0.11	0.11

102.5 mm Brick Outer Leaf / Cavity / 100 mm Block Inner Leaf

U-values (W/m²K) for various product thicknesses of Kingspan Kooltherm® K16 insulated plasterboard and thicknesses of Kingspan Kooltherm® K8 cavity board

Kingspan Kooltherm® K16 Product Thickness* (mm)	Inner Leaf Blockwork Density and λ-value W/mK)	
	Dense (1.13)	Medium (0.51)
100 mm Cavity Partially Filled with 60 mm of Kingspan Kooltherm® K8 Cavity Board†		
42.5	0.18	0.18
52.5	0.17	0.17
62.5	0.15	0.15
150 mm Cavity Partially Filled with 110 mm of Kingspan Kooltherm® K8 Cavity Board†		
42.5	0.13	0.13
52.5	0.12	0.12
62.5	0.11	0.11

* Product thickness = insulant thickness + 12.5 mm plasterboard.

† Please read the section entitled 'Residual Cavity Width' in the literature for Kingspan Kooltherm® K8 for details of cavity width requirements in the UK and Ireland.

NB Refer to local distributor or Kingspan Insulation price list for current stock and non-stock sizes.

Typical Constructions and U-values

Linear Thermal Bridging at Junctions

Basic Principles

Linear thermal bridging describes the heat loss at junctions between elements, which is additional to the losses occurring through roofs, walls and floors. This heat loss is represented by the junction's psi (ψ) value. The lower the ψ -value, the better the performance of a junction detail. The ψ -values and lengths of linear thermal bridges are accounted for in a new building's energy and carbon dioxide emissions calculations. Existing building junction losses are not typically accounted for in whole building heat loss calculations and only the risk of surface condensation and mould growth are considered.

Heat typically flows through the easiest path, for example in a masonry cavity wall the linear thermal bridge is primarily the inner leaf of masonry and in a timber frame wall the linear thermal bridge is primarily the sole plate and the construction below it. These linear thermal bridges can be reduced by increasing the distance that the heat has to travel.

Whilst there are some 'approved' details available, they are specifically targeted at new build constructions. However, where applicable, they are also considered good practice for refurbishment.

Reducing Linear Thermal Bridging

Detailing at junctions to minimise the effects of thermal bridging and the associated risk of condensation or mould growth is important and there are some simple design considerations that can be adopted when insulating internally to help mitigate the risks and to reduce heat loss.

At a window or door opening, the primary linear thermal bridge is the reveal. This heat loss can be reduced by insulating the reveal. The key factor is the thermal resistance (R-value) of the insulation layer. Reveals should be designed to accommodate 32.5 mm (min.) of Kingspan Kooltherm® K16.

The application of internal insulation above and below an intermediate floor reduces the overall heat loss, but can increase the losses through the intermediate or separating floor. To reduce these losses, where possible, the edge of the intermediate floor within the floor void should also be insulated.

Where the properties to both sides of a party wall are to be insulated, best practice to minimise heat losses through the junction with external walls would be to return the insulation back along the party wall for at least 400 mm back from the external wall.

NB Where insulating the external walls to only one side of a party wall, and the other property remains uninsulated, it is better not to insulate back along the return, as this can increase the losses to the uninsulated side, increasing the risk of surface condensation and mould growth for the uninsulated property.

For further advice on details to reduce linear thermal bridging please contact the Kingspan Insulation Technical Service Department (see rear cover for details).

Design Considerations

Sustainability & Responsibility

Kingspan Insulation has a long-term commitment to sustainability and responsibility: as a manufacturer and supplier of insulation products; as an employer; as a substantial landholder; and as a key member of its neighbouring communities.

Kingspan Kooltherm® K16 produced at Kingspan Insulation's Castleblayney, Co. Monaghan manufacturing facility is manufactured under a management system certified to ISO 14001: 2015.

NB The above information is correct at the time of writing. Please confirm at the point of need by visiting the Kingspan Insulation website (see rear cover), from which copies of Kingspan Insulation's certificates can be obtained.

Specification Clause

Kingspan Kooltherm® K16 should be described in specifications as:-

The wall dry-lining insulation shall be Kingspan Kooltherm® K16 Insulated Plasterboard_____ mm thick: comprising a premium performance fibre-free rigid thermoset phenolic insulation core with 12.5 mm plasterboard bonded to its front surface and a kraft paper facing on its reverse surface. The product shall be manufactured: with a blowing agent that has zero Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP); under a management system certified to ISO 9001: 2015, ISO 14001: 2015; ISO 45001: 2018 and ISO 50001: 2018; by Kingspan Insulation Limited; and installed in accordance with the instructions issued by them.

Design Standards

BS 8212: 1995 (Code of practice for dry lining and partitioning using gypsum plasterboard) should be considered.

Fixing Methods

Kingspan Kooltherm® K16 can be installed utilising either mechanical fixing or adhesive techniques.

Limitations

Kingspan Kooltherm® K16 has a gypsum plasterboard face. It should, therefore, not be used to isolate dampness, nor be used in continuously damp or humid conditions.

When fixing Kingspan Kooltherm® K16 to walls, the boards are normally fixed with their long edges vertical. Boards may be fixed horizontally with an increased number of timber noggins, metal fixing straps or fixing T's. For ceilings, the boards must be installed with the long edge running perpendicular to the joists or rafters (see 'Sitework - Mechanical Fixing - To Timber Framing Studs / Battens').

Fire Stops

Current Building Regulations / Standards should be considered with regard to the requirements for and provision of fire stops.

For specialist advice, including configuration and installation, refer to:

Kingspan Technical Insulation Ltd
www.kingspanpassivefireprotection.co.uk
+44 (0) 1524 388 898

Water Vapour Control / Condensation

Consideration should be given to the risk of condensation, when designing thermal elements.

When internally lining a construction with insulation, condensation can be controlled by ensuring there is a layer of high vapour resistance on the internal surface of the construction. If required, the vapour resistance of the wall lining can be increased by the application of two coats of Gyproc Drywall Sealer.

A condensation risk analysis should be carried out following the procedures set out in BS 5250: 2011 + A1: 2016 (Code of practice for control of condensation in buildings). The Kingspan Insulation Technical Service Department (see rear cover) can provide this service.

Sitework

Preparation

- Kingspan Kooltherm® K16 is only suitable to dryline new or existing insulated cavity walls or as part of an insulated roof assembly subject to condensation risk analysis, it is not suitable to dryline existing solid wall construction.
- The existing structure should be surveyed to ensure the construction is capable of supporting the weight of the internal wall system, ancillary items and any post-installation fittings.
- Existing wallpaper, skirting, picture rails, gloss paint and projecting window boards may need to be removed. Some internal finishes, such as vinyl wallpaper or gloss paint, can be scored or sanded as an alternative method to removal.
- The wall surface should be clean, stable and free from dust, contamination and loose or friable materials.
- The amount of preparation and removal required will be dependent on the chosen internal wall system.
- Check the structure is dry. Remedial work should be undertaken to remove dampness before installation of the internal wall insulation. Internal wall insulation must not be used to isolate dampness.
- Ensure there are no gaps at the perimeter (including floors, ceilings, internal corners or junctions), or around openings or service penetrations. For optimum airtightness, existing gaps should be sealed using a continuous fillet of drywall adhesive or flexible sealant, before wall lining commences.
- Positions for all new services should be determined. Existing services should be assessed to determine any alterations that may need to be made, for example relocating sockets and switches. Wall mounted fixings, such as electrical sockets, should be fitted to take into account the additional wall lining thickness.
- New wall linings must be designed to accommodate the thickness of the new insulated dry lining solution, particularly at reveals, heads, sills and in relation to ceiling height.

Mechanical Fixing

To Timber Framing Studs / Battens

- Consideration should be given to the specification of Kingspan Kooltherm® K18 which has an aluminium foil facing providing additional thermal resistance.
- This method may be used on timber frame constructions or on dry, stable constructions capable of supporting battens and associated fixings. Timber battens can be packed out using proprietary shims to correct alignment and provide a space to accommodate services.
- Guidelines should be marked out at maximum 600 mm centres to indicate the positioning of the vertical battens.
- Vertical timber framing studs / battens should be set at maximum 600 mm horizontal centres, around the perimeter of the walls, at floor and ceiling, and around any openings and services which penetrate the system.
- If fixing to battens, they should be mechanically fixed to the wall, and comprise 25 x 47 mm (min.) treated softwood, backed with a strip of damp proof course (DPC).
- Each sheet of Kingspan Kooltherm® K16 should lap timber framing studs / battens / noggins by 19 mm (min.) at sheet joints.
- Battens should be fixed approximately 75 mm from the ends of each timber batten and positioned at a maximum 600 mm apart.
- Where joints between sheets of insulated plasterboard are unsupported by the timber framing studs / battens, timber noggins should be installed.
- Each sheet of insulated plasterboard should be lightly butted, with fixings located no less than 10 mm from the bound edges of the sheet.
- Kingspan Kooltherm® K16 should be cut approximately 5 mm short of the floor to ceiling height.
- Sheets of Kingspan Kooltherm® K16 should be located centrally over the timber studs / battens and fixed using either drywall screws at 300 mm centres (or 200 mm at external corners), or large headed galvanised clout nails at 150 mm centres. Each sheet of insulated plasterboard should be lightly butted.
- When installing sheets onto timber, fixings should be long enough to allow minimum 25 mm penetration of the timber frame or minimum 22.5 mm penetration of the the timber battens. Fixings should not penetrate through the battens.
- Fixings should be driven straight, with the heads embedded just below the surface of the plasterboard.
- Care should be taken not to overdrive nails / screws.
- The perimeter of the Kingspan Kooltherm® K16 and the 5 mm clearance gap at the base of the wall should be sealed with a flexible sealant or equivalent.

Sitework

To Metal Wall Liner Systems

- Consideration should be given to the specification of Kingspan Kooltherm® K18 which has an aluminium foil facing providing additional thermal resistance. This method may be used on any dry, stable constructions capable of supporting the stand-off brackets, tracks and associated fixings. It can be used to correct substantial substrate irregularities, or where a larger cavity is required to accommodate services.
- Because metal framing systems are proprietary, sitework guidance should be sought from the framing system manufacturer.
- However, in the absence of any other guidance, the instructions laid out below may be followed.
- The maximum undulation on the wall or service protrusion should be measured to determine the required cavity depth.
- Guidelines should be marked out on the floor and ceiling to indicate where the metal tracks will be positioned.
- The metal tracks should be fixed to the floor, ceiling and perimeters at a maximum of 600 mm centres using appropriate fixings for the proprietary system.
- Vertical guidelines should be marked out on the wall at a maximum 600 mm centres to indicate the position of the lining channels. Horizontal marks should also be made at 800 - 900 mm vertical centres (see manufacturers details for specific dimensions) to indicate the fixing points for the individual stand-off brackets. Brackets should be fixed using appropriate fixings.
- The lining channels should be fitted and fixed into the metal tracks at ceiling and floor level at a maximum of 600 mm centres, in line with the stand-off bracket positions, using appropriate fixings for the proprietary system, extending if required.
- Bracket legs on the stand-off brackets should be bent forward. Screws should then be inserted through holes in the brackets and fixed to the lining channels using appropriate fixings, such as 13 mm wafer headed drywall screws or jack point screws. Bracket legs can then be bent back to sit clear of the channel face.
- At internal angles or corner, a lining channel or track should be positioned tight into the corner to provide support for the lining.
- Fixing straps or fixing T's should be used to secure unsupported board joints. Metal channels or tracks should also be positioned around the perimeter of openings to support the board.
- Kingspan Kooltherm® K16 should be cut approximately 5 mm short of the floor to ceiling height.
- Kingspan Kooltherm® K16 should be located centrally over the metal lining channels and fixed using self-tapping drywall screws at 300 mm centres (or 200 mm at external corners). Each sheet of insulated plasterboard should be lightly butted.
- Fixings should be located no less than 10 mm from bound edges of the sheet, and be long enough to allow minimum 10 mm penetration of the metal.
- Fixings should be driven straight, with the heads embedded just below the surface of the plasterboard.
- Care should be taken not to overdrive screws.
- The perimeter of the Kingspan Kooltherm® K16 and the 5 mm clearance gap at the base of the wall should be sealed with a flexible sealant or equivalent.

Adhesive Bonding

Drywall Adhesive Dab Bonding

- Kingspan Kooltherm® K16 is only suitable to dryline new or existing insulated cavity walls or as part of an insulated roof assembly subject to condensation risk analysis, it is not suitable to dryline existing solid wall construction.
- Drywall adhesive dab bonding must always be used in conjunction with a bonding agent applied to the foil facer, as per the following sitework instructions.
- The cavity formed by the dabs can be used to incorporate services less than 25 mm in depth. Alternatively, minimum chasing of the background will be required.
- Minor irregularities of the substrate can be corrected within the dab depth. Typically, gypsum based adhesive should be applied in dabs of 10 - 25 mm thickness, therefore the existing substrate should not exceed a 15 mm tolerance from the high spot of the background to either end of the wall.
- A bonding agent may be required on the substrate to reduce suction or improve mechanical key. This should be applied in continuous bands to correspond with the drywall adhesive dab or band locations.
- Where Kingspan Kooltherm® K18 is used with gypsum based adhesive dabs, the foil facer must first also be primed with a generous coat of bonding agent.
- A total distance of 10 mm plus the thickness of the Kingspan Kooltherm® K16 should be allowed for from the wall's high point. A line should then be drawn across the floor. This should be plumbed for alignment before transferring the line to the ceiling and extending the line to the room corners. Guidelines should also be marked out vertically on the walls at 1,200 mm horizontal centres to indicate where the edges of the Kingspan Kooltherm® K16 should finish.

Sitework

- There are many suitable adhesives that can be used. Once the bonding agent has set, appropriate fixings must then be installed.
- The drywall adhesive should be appropriate for use on the intended masonry substrate. Advice should be sought from the drywall adhesive manufacturer for its recommended system.
- Kingspan Kooltherm® K16 should be cut approximately 15 mm short of the floor to ceiling height.
- A continuous band of drywall adhesive is applied around the perimeter of each wall and around any openings or services, in order to support the insulation board edges and act as a fire stop / cavity barrier if required.
- The adhesive adjacent to the board joints should be applied approximately 25 mm in from the edge of the boards to avoid bridging the joint.
- Adhesive dabs are generally applied to the background in three vertical rows, but a minimum of 20% of the insulated plasterboard area should be covered with adhesive. Each drywall adhesive dab should be 50 to 75 mm wide and approximately 250 mm long, positioned vertically at approximately 300 mm centres and horizontally at 600 mm centres.

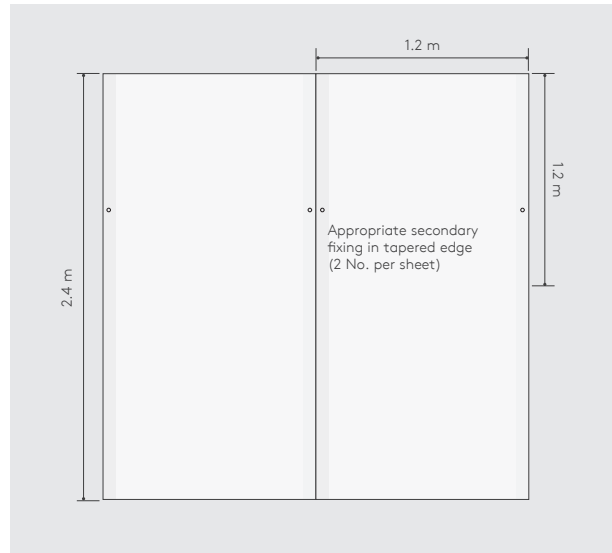


Figure 2 - Appropriate Secondary Fixing Pattern

- Fixings should be long enough to allow minimum 25 mm penetration into the fair faced masonry.
- Fixings should be driven straight, with the heads embedded just below the surface of the plasterboard.
- Care should be taken not to overdrive screws.
- Each sheet of insulated plasterboard should be lightly butted.
- The perimeter of the Kingspan Kooltherm® K16 Insulated Plasterboard should be sealed. The 15 mm clearance gap at the base of the wall should be sealed with a combination of flexible polyurethane foam and flexible sealant or equivalent.

Sitework

To Timber Joists or Rafters

- Sheets of Kingspan Kooltherm® K16 may be used to line ceilings (see Figure 3).

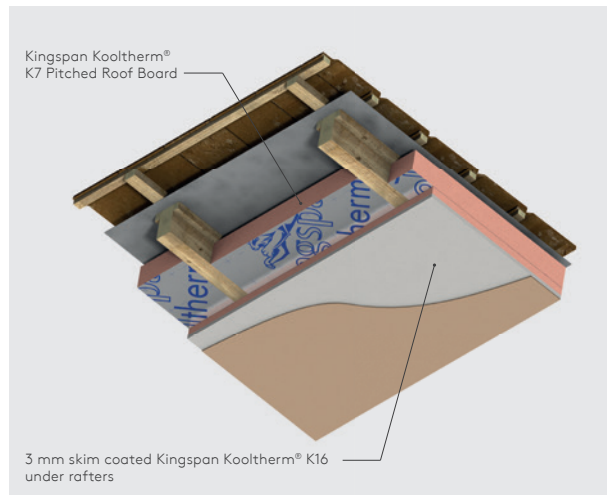


Figure 3 - Mechanically Fixed to Timber Rafters with Kingspan Kooltherm® K7 Pitched Roof Board Between Rafters

- Sheets must always be placed with the long edge running across the joists or rafters, and all edges must be supported.
- Where joints between sheets of insulated plasterboard are unsupported by the timber joists / rafters, timber noggins should be installed.
- Each sheet of insulated plasterboard should lap joists / rafters / noggins by 19 mm (min.) at sheet joints.
- Sheets should be fixed using either drywall screws at 230 mm centres, or large-headed galvanized clout nails placed at 150 mm centres.
- Each sheet of insulated plasterboard should be lightly butted, with fixings located no less than 10 mm from the bound edges of the sheet. Fixings should be long enough to allow a minimum 25 mm penetration of the timber.
- Fixings should be driven straight, with the heads embedded just below the surface of the plasterboard.
- Care should be taken not to overdrive nails / screws.
- The perimeter of the Kingspan Kooltherm® K16 should be sealed with a flexible sealant or equivalent.

Fixing Heavy Internal Fittings

- Suitable mechanical fixings should be used for heavy internal fittings (kitchen units, shelving etc), to ensure the load is applied direct to the supporting wall and not to the Kingspan Kooltherm® K16.

For details on fixings refer to:

Tiger Fixings +44 (0) 8456 038 877

www.tigerfixings.com

MAK Fasteners +353 (0) 1 451 99 00

www.makfasteners.com

Fischer Fixings +353 (0) 1 642 6700

www.fischer.ie

- Alternatively, where there are to be extensive heavy internal fittings, the construction outlined in Figure 4 can be adopted.

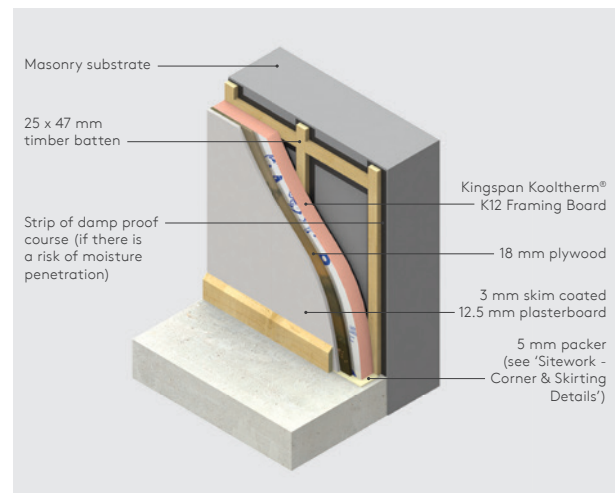


Figure 4 - Mechanically Fixed Construction Suitable for Heavy Internal Fittings

- Vertical timber framing studs / battens should be set at maximum 600 mm horizontal centres.
- If fixing to battens, they should be mechanically fixed to the wall, and comprise 25 x 47 mm (min.) treated softwood, backed with a strip of damp proof course (DPC).
- Kingspan Kooltherm® K12 Framing Board should be cut approximately 5 mm short of the floor to ceiling height.
- Where insulation board joints are unsupported by the timber framing studs / battens, timber noggins should be installed.

Sitework

- Each insulation board should lap timber framing studs / battens / noggins by 19 mm (min.) at board joints.
- Boards of Kingspan Kooltherm® K12 should be temporarily fixed / nailed to timber framing studs / battens.
- 18 mm plywood should then be fixed through insulation boards to the timber framing studs / battens, using either drywall screws at 300 mm centres, or large headed galvanised clout nails at 150 mm centres.
- When fixing plywood through the insulation boards onto timber battens, fixings should be located no less than 10 mm from the bound edges of the sheets, and be long enough to allow minimum 22.5 mm penetration of the timber. Fixings should not penetrate through the battens.
- When fixing plywood through the insulation boards onto a timber frame, fixings should be located no less than 10 mm from the bound edges of the sheets, and be long enough to allow a minimum 25 mm penetration of the timber.
- Fixings should be driven straight, with the heads embedded just below the surface of the plywood.
- 12.5 mm plasterboard is then fixed to the plywood, using either drywall screws at 300 mm centres, or large headed galvanised clout nails at 150 mm centres.
- Fixings should be driven straight, with the heads embedded just below the surface of the plasterboard.
- Care should be taken not to overdrive nails / screws.
- The 5 mm clearance gap at the base of the wall should be sealed with a flexible sealant or equivalent.
- Heavy fittings can be fixed through the plasterboard directly to the plywood.

Corner & Skirting Details

- For external corners (including reveals), the lining should run past the corner and the insulating backing of Kingspan Kooltherm® K16 should be cut back to create a junction (see Figures 5 & 7). Sheets should be cut and rebated to allow a plasterboard / plasterboard joint at the angle (see Figures 5 & 6).
- Ensure sheets are lightly butted and air gaps minimised to reduce the risk of cold bridging (see Figures 5 & 7). Any air gaps should be sealed with flexible sealant or equivalent, or a combination of flexible polyurethane foam and flexible sealant or equivalent.

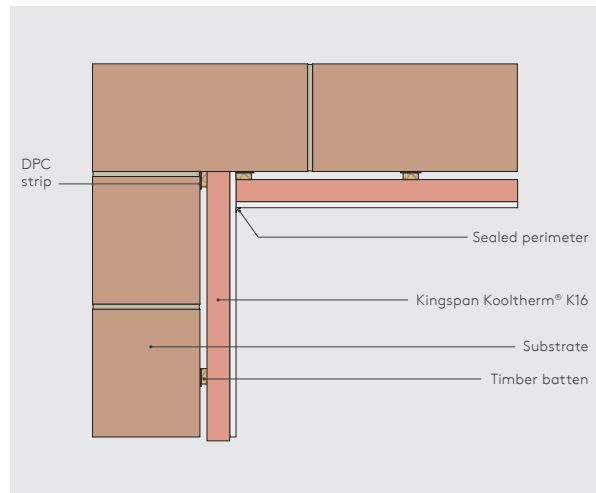


Figure 5 - Internal Corner Detail

- For mechanically fixed applications, 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.
- For adhesively bonded applications, a 15 mm packer should be used at the base of the wall to provide a level surface from which to build up the boards.
- The packer should be replaced with a flexible / sealant or equivalent (for 5 mm gaps), or with a combination of flexible polyurethane foam and flexible sealant or equivalent (for 15 mm gaps) (see Figure 6).

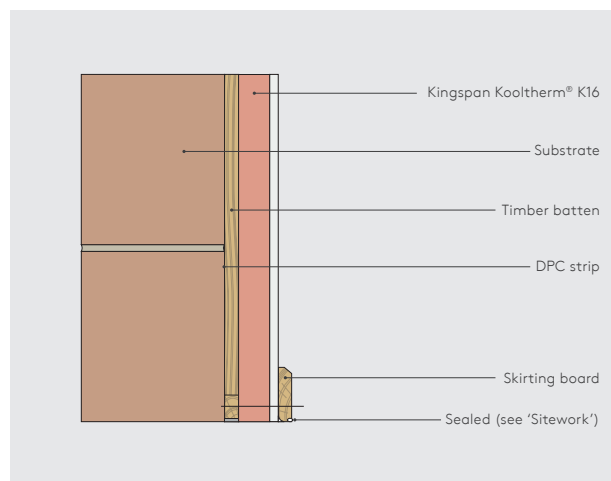


Figure 6 - Packer and Skirting Detail

Sitework

Window / Door Reveals, Separating / Internal Walls & Soffit / Head Details

- Reveal lining can be either bonded in place or mechanically fixed. Secondary fixings should be used when bonding the lining in place.
- If the main wall lining has been installed using timber battens / studs or metal framing, then the reveal linings can still be bonded, providing the secondary fixings are installed into the timber battens / studs or metal studs, either side of the opening and to the head and sill of the opening.
- A 32.5 mm sheet of Kingspan Kooltherm® K16 should be used to line the window or door reveals. Where the depth of the window or door frames does not allow for this, the reveal can be cut back or the existing lining can be removed.
- The junction of the external wall and separating / internal wall should also be insulated with 32.5 mm (min.) of Kingspan Kooltherm® K16, for a minimum distance of 400 mm back from the external all lining.

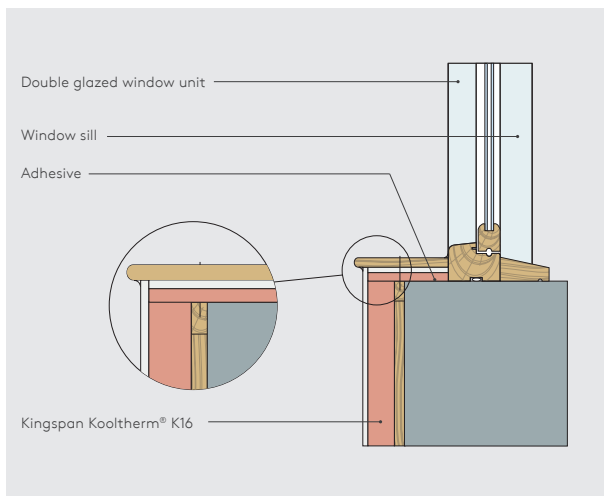


Figure 7 - Insulated Reveal and External Corner

Finishing

- To avoid air leakage, any penetrations through the insulation (electrical sockets, plumbing and wiring etc) should be sealed with flexible sealant or equivalent, or a combination of flexible polyurethane foam and flexible sealant or equivalent.
- Any remaining gaps between boards / sheets of insulation should be filled with flexible sealant or equivalent, or a combination of flexible polyurethane foam and flexible sealant or equivalent.
- Tapered edged boards allow the employment of standard dry-lining techniques.

- Plasterboard tape should be employed at all board joints, and a plaster skim finish applied.
- The skimming should be carried out in accordance with the specified plaster manufacturer's instructions, particularly in relation to the need to allow thorough drying of the plaster prior to decoration.

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 sheet 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.

Availability

- Kingspan Kooltherm® K16 is available through specialist insulation distributors and selected builders' merchants throughout Ireland and Northern Ireland.

Packaging and Storage

- The polyethylene packaging of Kingspan Insulation products, which is recyclable, should not be considered adequate for outdoor protection.
- Ideally sheets should be stored inside a building. If, however, temporary outdoor storage cannot be avoided then the sheets should be stacked flat on a level base, clear of the ground, and completely protected from inclement weather by use of an opaque polythene sheet or weatherproof tarpaulin. Sheets that have been allowed to get wet should not be used.

Health and Safety

- Kingspan Insulation products are chemically inert and safe to use.
- A Safety Information Data Sheet for this product is available from the Kingspan Insulation website www.kingspaninsulation.ie/safety.

Please note that the reflective surfaces on this product are designed to enhance its thermal performance. As such, they will reflect light as well as heat, including ultraviolet light. Therefore, if this product is being installed during very bright or sunny weather, it is advisable to wear UV protective sunglasses or goggles, and if the skin is exposed for a significant period of time, to protect the bare skin with a UV block sun cream.

The reflective facings used on this product can be slippery when wet. Therefore, it is recommended that any excess material should be contained to avoid a slip hazard.

Warning - do not stand on or otherwise support your weight on this product unless it is fully supported by a load bearing surface.

Product Details

The Front Facing

The front facing of Kingspan Kooltherm® K16 is a tapered edge gypsum based plasterboard which readily accepts dry-jointing materials and plaster skim.

The Core

The core of Kingspan Kooltherm® K16 is a premium performance rigid thermoset fibre-free phenolic insulant manufactured with a blowing agent that has zero Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP).



The Reverse Face

The reverse facing of Kingspan Kooltherm® K16 is a kraft paper facing, autohesively bonded to the insulation core during manufacture.

Standards & Approvals

Kingspan Kooltherm® K16 is manufactured to the highest standards under a management system certified to ISO 9001: 2015 (Quality Management Systems. Requirements), ISO 14001: 2015 (Environmental Management Systems. Requirements), ISO 45001: 2018 (Occupational Health & Safety Management Systems. Requirements) and ISO 50001: 2018 (Energy Management Systems. Requirements with guidance for use).

Standard Dimensions

Kingspan Kooltherm® K16 is available in the following standard size(s):

Nominal Dimension		Availability
Length	(m)	2.4
Width	(m)	1.2
Plasterboard Thickness	(mm)	12.5
Insulant Thickness	(mm)	Refer to local distributor or Kingspan Insulation price list for current stock and non-stock sizes.

Compressive Strength

The compressive strength of Kingspan Kooltherm® K16 typically exceeds 100 kPa at 10% compression, when tested to BS EN 826: 2013 (Thermal insulating products for building applications. Determination of compression behaviour).

Durability

If correctly installed, Kingspan Kooltherm® K16 can have an indefinite life. Its durability depends on the supporting structure and the conditions of its use.

Product Details

Resistance to Solvents, Fungi & Rodents

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 the 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.

The insulation core and facings used in the manufacture of Kingspan Kooltherm® K16 resist attack by mould and microbial growth and do not provide any food value to vermin.

Fire Performance

The plasterboard element of Kingspan Kooltherm® K16 achieves Euroclass A2-s1,d0 when classified to EN 13501-1: 2018.

Further details of the fire performance of Kingspan Insulation products may be obtained from the Kingspan Insulation Technical Service Department (see rear cover).

Thermal Properties

The λ -values and R-values detailed below are quoted in accordance with BS EN 13166: 2012 + A2: 2016 (Thermal insulation products for buildings. Factory made phenolic foam (PF) products. Specification).

Thermal Conductivity

The thermal conductivity (λ -value) of the plasterboard component of Kingspan Kooltherm® K16 is 0.19 W/K.

The boards achieve a thermal conductivity (λ -value) of: 0.022 W/mK (insulant thickness 25 - 44 mm); and 0.021 W/mK (insulant thickness \geq 45 mm).

Thermal Resistance

Thermal resistance (R-value) varies with the thickness of each component. It is calculated by dividing the thickness of each component (expressed in metres) by its thermal conductivity, followed by adding the resulting figures together. The sum is rounded down to the nearest 0.05 (m²K/W).

*Product Thickness (mm)	Thermal Resistance (m ² K/W)
37.5	1.20
38.5	1.20
42.5	1.40
44.5	1.50
52.5	1.85
54.5	1.95
62.5	2.40
65.5	2.55
72.5	2.90
75.5	3.05
82.5	3.35
86.5	3.55
92.5	3.85
96.5	4.05

* Product thickness = insulation thickness + 12.5 mm plasterboard.

NB Refer to local distributor or Kingspan Insulation price list for current stock and non-stock sizes.

Contact Details

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