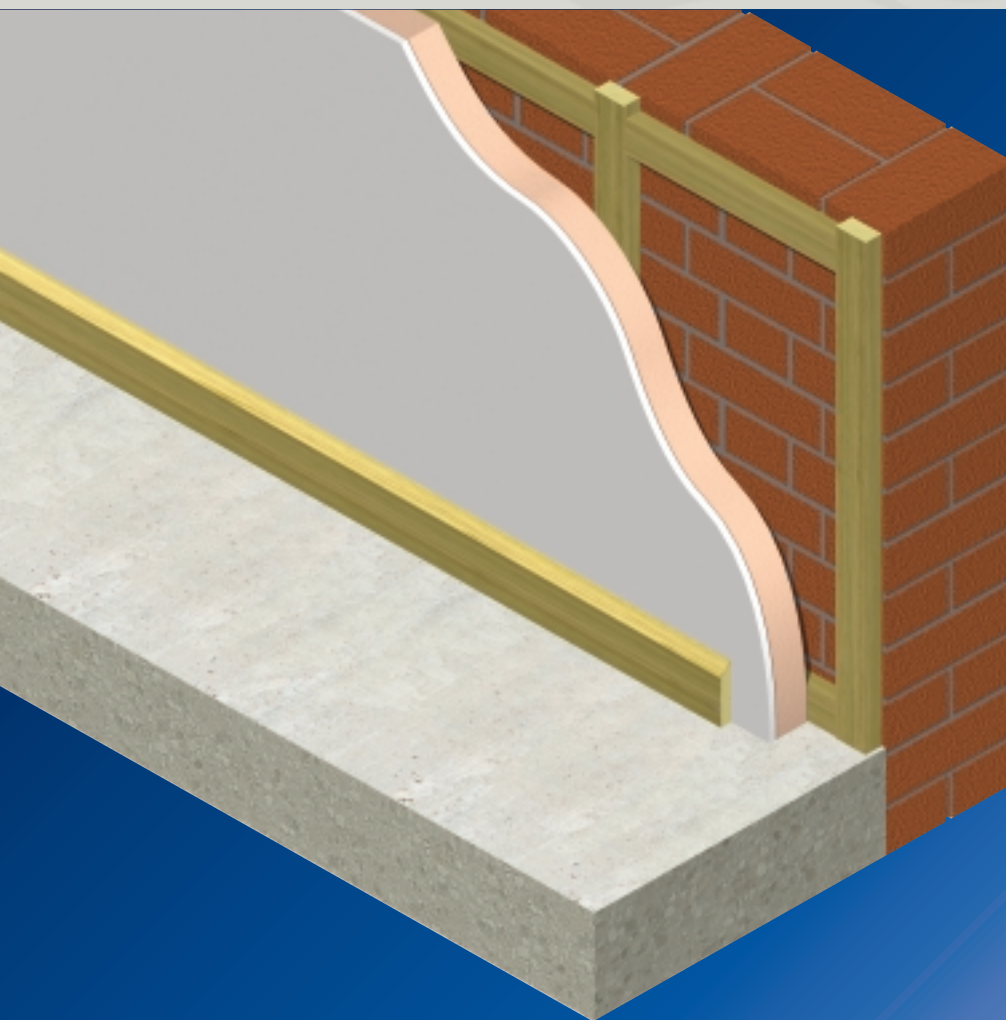


# Kooltherm® K18 Insulated Dry-lining Board

INSULATED DRY-LINING PLASTERBOARD FOR MECHANICAL FIXING



- Premium performance rigid phenolic insulation – thermal conductivity as low as 0.021 W/m·K
- Class 0 / Low Risk fire rating
- Negligible smoke obscuration
- Insulation, dry-lining and vapour control in one board
- Little encroachment on room space
- Energy saving – allows quick response heating
- Resistant to the passage of water vapour
- Easy to handle and install
- Ideal for new build or refurbishment
- Non-deleterious material
- CFC/HCFC-free with zero Ozone Depletion Potential (ODP)



# Kooltherm® K18 Insulated Dry-lining Board

## Typical Design Detail

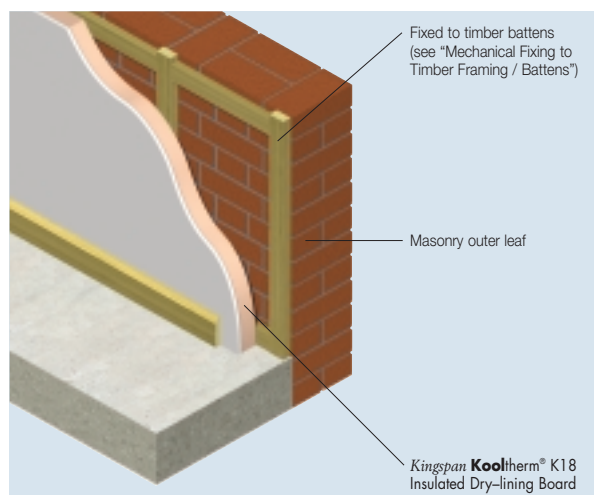


Figure 1 Mechanically Fixed to Vertical Timber Battens

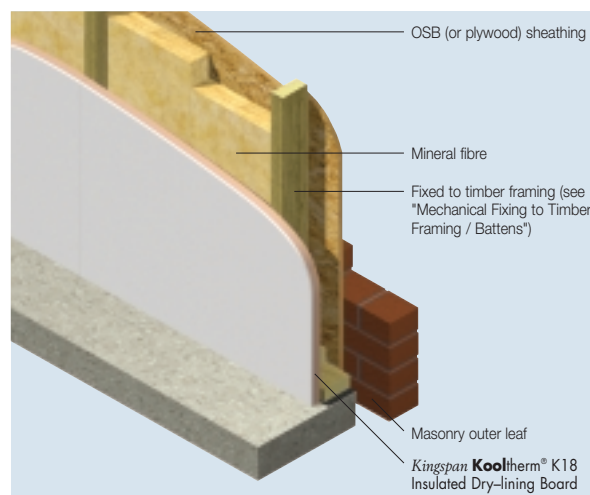


Figure 2 Mechanically Fixed to Timber Framing

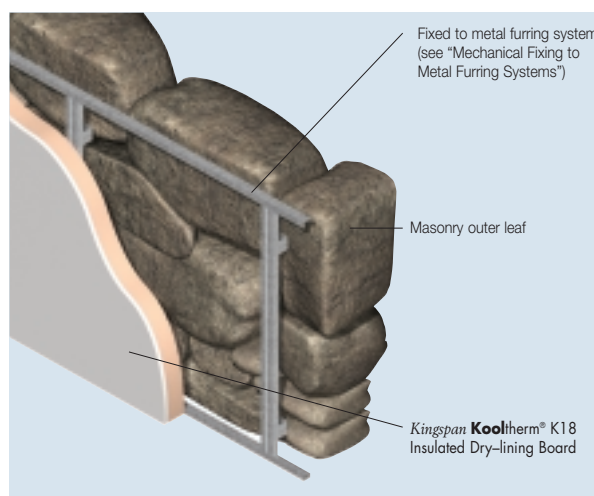


Figure 3 Mechanically Fixed to Metal Furring System

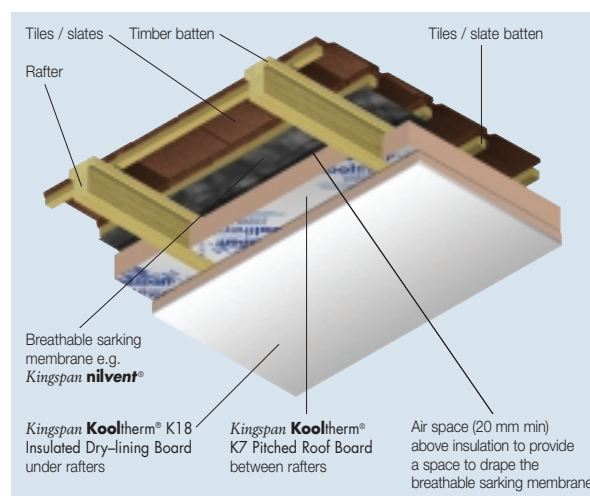


Figure 4 Mechanically Fixed to Timber Rafters

## Specification Clause

Kingspan Kooltherm® K18 Insulated Dry-lining Board should be described in specifications as:-

The wall dry-lining insulation shall be Kingspan Kooltherm® K18 Insulated Dry-lining Board comprising a 12.5 mm plasterboard facing bonded to \_\_\_mm thick CFC/HCFC-free rigid phenolic insulation during manufacture to the highest standards under quality control systems approved to BS EN ISO 9001: 2000 / I.S. ISO 9001: 2000 by Kingspan Insulation Limited and shall be applied in accordance with the instructions issued by them.

Details also available in NBS Plus.

NBS users should refer to clause(s):

K10 145, K10 155, K10 165,

K10 175, K10 205

(Standard and Intermediate)

K10 15, K10 35, K10 41 (Minor Works)



## Design Considerations

### Sustainability

In the past, erroneously, the relative environmental sustainability of insulation materials has been compared on the basis of embodied energy and ozone depletion potential. It is now recognised that a much wider basket of embodied environmental impacts (including those caused by their embodied energy), rather than embodied energy alone, is the only credible tool of comparison. Time has also annulled ozone depletion potential as an issue as all insulation materials are now banned from using CFC and HCFC blowing agents by law.

For buildings designed to today's Building Regulations energy use standards it is now also known that the embodied environmental impacts of all of the materials and labour used to create a building are insignificant in comparison with the lifetime operational environmental impacts of that building, and so are of very limited importance. Since it is operational energy use that creates the vast majority of operational environmental impact, saving energy by specifying the lowest U-values possible is the most environmentally sustainable action to take.

However, one of the most neglected facts about environmentally sustainable buildings is that the longevity of their standards of operational energy use, and therefore the longevity of their operational environmental impacts, is critical. The performance of some insulants, such as mineral fibre, can deteriorate rapidly if exposed to water penetration, air movement or compression. This may increase operational energy use and hence compromise the environmental sustainability of the finished building to an alarming degree. Other insulation materials, such as rigid phenolic or rigid urethane, are not vulnerable to any of these problems.

In summary, designers should:

- (a) specify the lowest possible U-value regardless of insulation type;
- (b) design out the risk of their chosen insulant not performing as specified; and
- (c) if the latter is not possible, choose an insulant that is at low risk of failure e.g. a cellular plastic insulation material.

However, manufacturers should not rest on their laurels; it is a matter of social responsibility to be open and honest about the environmental impact of the manufacture of a product, and a full Life Cycle Analysis (LCA) based on a much wider basket of environmental impacts, rather than embodied energy alone, is recognised as the preferred tool to achieve this. Kingspan Insulation was the first insulation manufacturer to openly complete and publish independently certified Ecoprofiles (a type of LCA) on its product ranges. The Ecoprofile for the **Kingspan Therma™** range of rigid urethane insulation products was performed by Building Research Establishment (BRE).

The product range comfortably achieves a BRE Green Guide A rating. Kingspan Insulation is currently completing a BRE Ecoprofile of its **Kingspan Kooltherm®** K-range of rigid phenolic insulation products.



But there is far more to sustainability than whether or not a product, process or company affects the environment in a positive or a negative way. A company can, and should, demonstrate its financial viability and social responsibility, as well as ensure that its materials and methods do not add unduly to the burden placed on the planet.

Kingspan Insulation has now put the manufacture of its products at its Pembridge facility in Herefordshire through a rigorous independent appraisal of its economic, social, environmental and natural resource impacts using Arup's SPeAR® tool.

The results show a well balanced performance in terms of sustainability, and that Kingspan Insulation is already meeting legislation or best practice in most areas, even moving beyond best practice in some. Kingspan Insulation is the first and only construction material manufacturer to have taken this bold move and openly publish the results.

# Kooltherm® K18 Insulated Dry-lining Board

## Design Standards

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

## Dry Wall Lining

*Kingspan Kooltherm® K18 Insulated Dry-lining Board* can be applied utilising mechanical fixing techniques. These include fixing to metal furring systems and to timber framing / battens. The tapered edge board enables flat seamless surfaces equal to traditional plaster finishes after the correct jointing procedures have been completed.

## Cold Bridging

In order to avoid the effects of cold bridging, window and door reveals should also be insulated. The margins of window and door reveals should therefore be sufficient to accommodate the thickness of the *Kingspan Kooltherm® K18 Insulated Dry-lining Board* being employed. The possibility of a cold bridge occurring via the window boards should also be considered and provision made to insulate this area.

## Water Vapour Control

### Surface Condensation

Surface condensation can be controlled by the selection of the correct thickness of insulation, the heating and ventilation system being designed with condensation in mind, and subsequently the combination of heating and ventilation being used correctly.

### Interstitial Condensation

The Kingspan Insulation Technical Service Department (see rear cover) can provide a condensation risk analysis of your proposed design. Alternatively, the designer can undertake an independent assessment by following the procedures set out in BS 5250: 2002 (Code of practice for the control of condensation in buildings).

The vapour resistance of the internal wall lining can be increased by application of two coats of British Gypsum Drywall Sealer, if required.

## Typical U-values

The following examples have been calculated using the Combined Method for compliance with Building Regulations / Standards revised after 2002. These examples are based on the use of 3 mm skim coated *Kingspan Kooltherm® K18 Insulated Dry-lining Board* mechanically fixed to 25 x 50 mm treated timber battens attached to the construction described, unless otherwise stated. If your construction is any different, please contact the Kingspan Insulation Technical Service Department (see rear cover).

Combined Method – U-values were calculated using the method which has been adopted to bring National standards in line with the European Standard calculation method, BS / I.S. EN ISO 6946: 1997 (Building components and building elements. Thermal resistance and thermal transmittance. Calculation method).

*NB When calculating U-values to BS / I.S. EN ISO 6946: 1997, the type of mechanical fixing used may change the thickness of insulation required. Please contact the Kingspan Insulation Technical Service Department (see rear cover) for project calculations.*

*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 together with condensation risk analysis should be completed for each individual project. Please contact the Kingspan Insulation Technical Service Department (see rear cover) for assistance.*

### Solid Brickwork

Product Thickness* (mm)	U-value (W/m <sup>2</sup> ·K)	
	Brick Thickness	
	102.5 mm	215 mm
32.5	0.56	0.53
37.5	0.51	0.47
42.5	0.46	0.43
47.5	0.42	0.40
52.5	0.39	0.37
57.5	0.34	0.32
62.5	0.32	0.30
67.5	0.30	0.29
72.5	0.28	0.27
77.5	0.26	0.25
82.5	0.25	0.24

\*Product thickness = insulant thickness + 12.5 mm plasterboard.

### Solid Blockwork – Dense

Product Thickness* (mm)	U-value (W/m <sup>2</sup> ·K)	
	Block Thickness	
	100 mm	215 mm
32.5	0.56	0.55
37.5	0.51	0.48
42.5	0.46	0.44
47.5	0.42	0.41
52.5	0.39	0.37
57.5	0.34	0.33
62.5	0.32	0.31
67.5	0.30	0.29
72.5	0.28	0.27
77.5	0.26	0.26
82.5	0.25	0.24

\*Product thickness = insulant thickness + 12.5 mm plasterboard.

NB Calculations assume the use of dense blockwork of thermal conductivity 1.13 W/m·K and a 20 mm external render finish.

### Solid Blockwork – Medium Dense

Product Thickness* (mm)	U-value (W/m <sup>2</sup> ·K)	
	Block Thickness	
	100 mm	215 mm
32.5	0.55	0.49
37.5	0.48	0.44
42.5	0.44	0.40
47.5	0.40	0.37
52.5	0.37	0.35
57.5	0.33	0.31
62.5	0.31	0.29
67.5	0.29	0.27
72.5	0.27	0.26
77.5	0.26	0.25
82.5	0.24	0.23

\*Product thickness = insulant thickness + 12.5 mm plasterboard.

NB Calculations assume the use of medium dense blockwork of thermal conductivity 0.51 W/m·K and a 20 mm external render finish.

### Solid Blockwork – Lightweight

Product Thickness* (mm)	U-value (W/m <sup>2</sup> ·K)	
	Block Thickness	
	100 mm	215 mm
32.5	0.48	0.39
37.5	0.43	0.36
42.5	0.40	0.33
47.5	0.37	0.31
52.5	0.34	0.30
57.5	0.31	0.27
62.5	0.29	0.25
67.5	0.27	0.24
72.5	0.26	0.23
77.5	0.24	0.22
82.5	0.23	0.21

\*Product thickness = insulant thickness + 12.5 mm plasterboard.

NB Calculations assume the use of lightweight blockwork of thermal conductivity 0.19 W/m·K and a 20 mm external render finish.

### Solid Blockwork – Aerated

Product Thickness* (mm)	U-value (W/m <sup>2</sup> ·K)	
	Block Thickness	
	100 mm	215 mm
32.5	0.43	0.33
37.5	0.39	0.30
42.5	0.36	0.29
47.5	0.34	0.27
52.5	0.32	0.26
57.5	0.28	0.24
62.5	0.27	0.22
67.5	0.25	0.21
72.5	0.24	0.21
77.5	0.23	0.20
82.5	0.22	0.19

\*Product thickness = insulant thickness + 12.5 mm plasterboard.

NB Calculations assume the use of aerated blockwork of thermal conductivity 0.11 W/m·K and a 20 mm external render finish.

### Solid Stonework Utilising Metal Furring System

Product Thickness* (mm)	U-value (W/m <sup>2</sup> ·K)	
	Stone Thickness	
	300 mm	450 mm
32.5	0.63	0.60
37.5	0.56	0.54
42.5	0.50	0.49
47.5	0.45	0.44
52.5	0.42	0.41
57.5	0.36	0.35
62.5	0.33	0.33
67.5	0.31	0.31
72.5	0.29	0.29
77.5	0.28	0.27
82.5	0.26	0.26

\*Product thickness = insulant thickness + 12.5 mm plasterboard.

NB Calculations assume the use of sandstone of thermal conductivity 2.3 W/m·K.

### Timber Frame Filled With Mineral Fibre

Product Thickness*	U-value
32.5	0.31
37.5	0.28
42.5	0.27
47.5	0.25
52.5	0.24

\*Product thickness = insulant thickness + 12.5 mm plasterboard.

NB Calculations assume 3 mm skim coated Kingspan **Kooltherm**® K18 Insulated Dry-lining Board, 90 mm mineral fibre (0.040 W/m·K) between 89 mm deep studs, 15% framing factor, breather membrane, 50 mm cavity and 102.5 mm brick outer leaf. Thickness shown is only the dry-lining insulation component.

# Kooltherm® K18 Insulated Dry-lining Board

## Sitework

Depending on the specified fixing method; nailing / screwing to vertical timber framing or battens, screwing to adhesive bonded metal furring systems, nailing / screwing to timber joists or rafters or mechanical fixing directly to masonry substrates, fixing should proceed as follows:-

### Preparation

The ceiling lining should be in position before wall lining commences.

Wall mounted fittings such as electrical sockets should be fitted so as to take into account the additional wall thickness. Heavy surface mounted fittings will require provision for the fixing load to be applied direct to the supporting wall and not to the *Kingspan Kooltherm® K18 Insulated Dry-lining Board* in isolation. On existing constructions all surfaces should be clean and free of loose or flaking materials. Wallpaper should be stripped and surface mounted fittings removed.

### Window / Door Reveals and Soffits

Narrow widths of board should be cut and rebated to allow a plasterboard / plasterboard joint at the angle. Fixing should employ the same method as is used for the plain wall areas. Care should be taken to ensure that the cavity in cavity wall constructions is not bridged by the board or fixing medium in such a manner that would allow the passage of water through to the inner leaf. Where adhesives are employed, soffit boards and boards at window heads should be temporarily supported.

### Mechanical Fixing to Vertical Timber Framing / Battens

This method may be used on timber frame constructions or on any dry masonry walls that will support and retain the battens and associated fixings. *Kingspan Kooltherm® K18 Insulated Dry-lining Board* should be fixed to timber framing / battens set at maximum 600 mm centres and positioned horizontally at floor and ceiling level. The timbers should run vertically and be wide enough to offer a minimum 20 mm support to all four edges of the board. Drywall screws or, alternatively, galvanised clout nails, long enough to allow a minimum 25 mm penetration of the timber, should be placed at 150 mm centres and not less than 10 mm from the edges of the board. They should be driven straight with the heads embedded just below the surface of the board. Care should be taken not to overdrive nails / screws. Timbers should be treated where appropriate.

### Mechanical Fixing to Metal Furring Systems

*Kingspan Kooltherm® K18 Insulated Dry-lining Board* can be fixed by the use of proprietary metal framing systems to brick, block, stone or concrete walls. The metal frame should be fixed to the masonry or concrete wall in accordance with the manufacturer's instructions to provide a true and level base for the board. The frame should be set vertically at a maximum of 600 mm centres to coincide with board joints and mid point of board. Short lengths of metal framing should be fixed horizontally between the vertical pieces at skirting level, at the midpoint of the board and just below the ceiling or soffit level. Provision for horizontal services behind the board can be made by the use of two pieces of metal framing set no more than 300 mm apart. *Kingspan Kooltherm® K18 Insulated Dry-lining Board* should be screw fixed to each metal framing section with self drilling and tapping, countersunk, surface coated (to avoid corrosion), screws placed at 150 mm centres. Screws should not be sited less than 10 mm from the edges of the board. The screws should be driven straight until the heads are slightly below the paper surface of the plasterboard facing. Care should be taken not to overdrive screws.

### **Mechanical Fixing to Timber Joists or Rafters**

*Kingspan Kooltherm*® K18 Insulated Dry-lining Board may be used to line ceilings. Installation is similar to that of standard plasterboard. Boards must always be placed with the long edge running across the joists, rafters or battens and all edges must be supported. Timbers must offer a minimum 20 mm support to all four edges of the board. This will necessitate the use of noggings placed between the joists / rafters to coincide with the long edges of the board. Dry wall screws or, alternatively, large-headed galvanised / sheradised clout nails should be used to fix the board. These must be long enough to allow a minimum 25 mm penetration of the supporting timber, and be placed not less than 10 mm from the edges of the board and be spaced at 150 mm intervals along all supporting timbers.

### **Mechanical Fixing Directly to Masonry Substrates**

This method is for application to fair finished brick, block and concrete cavity walls where *Kingspan Kooltherm*® K18 Insulated Dry-lining Board is to be finished with gypsum plaster. The wall should be sound, dry and level (as surface irregularities may impede fixing of the board). The board should be fully restrained using mechanical fixings. The number and type of such fixings should be in accordance with the fixing supplier's recommendations, and should be evenly distributed over the whole area of the board. Fixings should not overlap board edges.

### **Finishing**

Tapered edged boards allow the employment of standard dry-lining techniques. A plaster skim finish can also be applied to the boards. The finishing should be carried out in accordance with the specified manufacturer's instructions, particularly in relation to the need to allow thorough drying of the plaster prior to decoration.

### **Fire Stops**

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

### **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.

### **Availability**

*Kingspan Kooltherm*® K18 Insulated Dry-lining Board is available through specialist insulation distributors and selected builders' merchants throughout the UK, Ireland and Europe.

### **Packaging**

The boards are supplied palletised in labelled packs with protective corner pieces, shrinkwrapped in polythene.

### **Storage**

The packaging of *Kingspan Kooltherm*® K18 Insulated Dry-lining Board should not be considered adequate for outdoor protection. Boards should be stored inside a building. If, however, temporary outdoor storage cannot be avoided then the boards should be stacked flat on a level base, clear of the ground, and completely protected from inclement weather by use of a polythene sheet or weatherproof tarpaulin. Boards 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 leaflet on this topic which satisfies the requirements set out in the Control of Substances Hazardous to Health Regulations 1988 (COSHH) is available from the Kingspan Insulation Marketing Department (see rear cover).

*Please note that the reflective surface on this product is designed to enhance its thermal performance. As such, it will reflect light as well as heat, including ultraviolet light. Therefore, if this board 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 facing used on this product can be slippery underfoot 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 board unless it is fully supported by a load bearing surface.*

# Kooltherm® K18 Insulated Dry-lining Board

## Product Description

### The Front Facing

The front facing of *Kingspan Kooltherm® K18 Insulated Dry-lining Board* is a tapered edge gypsum based plasterboard which readily accepts dry-jointing materials, plaster skim or direct decoration.

### The Core

The core of *Kingspan Kooltherm® K18 Insulated Dry-lining Board* is a premium performance CFC/HCFC-free rigid phenolic insulant of typical density 35 kg/m<sup>3</sup>.

### The Reverse Face

The reverse facing of *Kingspan Kooltherm® K18 Insulated Dry-lining Board* is a composite foil autohesively bonded to the insulation core during manufacture.

### CFC/HCFC-free

*Kingspan Kooltherm® K18 Insulated Dry-lining Board* is manufactured without the use of CFCs/HCFCs and has zero Ozone Depletion Potential (ODP).



## Product Data

### Standards and Approvals

*Kingspan Kooltherm® K18 Insulated Dry-lining Board* is manufactured to the highest standards under quality control systems approved to BS EN ISO 9001: 2000 / I.S. EN ISO 9001: 2000 (Quality management systems. Requirements).



Manufactured to BS EN ISO 9001: 2000  
Certificate No. 388



I.S. EN ISO 9001: 2000  
Registration No. 19.0633

### Standard Dimensions

*Kingspan Kooltherm® K18 Insulated Dry-lining Board* is available in the following standard size:

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

Typically exceeds 125 kPa at 10% compression when tested to BS EN 826: 1996 (Thermal insulating products for building applications. Determination of compression behaviour).

### Water Vapour Resistance

Modified to include board facings, the boards achieve a resistance far greater than 100 MN·s/g, when tested in accordance with BS 4370-2: 1993 (Methods of test for rigid cellular materials. Methods 7 to 9). Where additional vapour control is required an appropriate surface treatment should be applied over the completed insulated wall area (refer to 'Water Vapour Control').

### Durability

If correctly applied, *Kingspan Kooltherm® K18 Insulated Dry-lining Board* has an indefinite life. Its durability depends on the supporting structure and the conditions of its use.

### Limitations

*Kingspan Kooltherm® K18 Insulated Dry-lining Board* has a gypsum plasterboard face. It should, therefore, not be used to isolate dampness nor be used in continuously damp or humid conditions.



### 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*® K18 Insulated Dry-lining Board resist attack by mould and microbial growth and do not provide any food value to vermin.

### Fire Performance

*Kingspan Kooltherm*® K18 Insulated Dry-lining Board will achieve the results given below, which enable it to be classified by the Building Regulations as being Class 0 and as Low Risk by the Technical Standards in Scotland.

Test	Result
BS 476-6:1989 (Fire tests on building materials and structures. Method of test for fire propagation for products)	Fire propagation index of performance (I) not exceeding 12 and sub index (i <sub>1</sub> ) not exceeding 6 (for rigid phenolic insulation core)
BS 476-7:1997 (Fire tests on building materials and structures. Method of test to determine the classification of the surface spread of flame of products)	Class 1 rating
BS 5111-1:1974 (Smoke Obscuration)	< 5%

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

# Kooltherm® K18 Insulated Dry-lining Board

## Thermal Properties

The  $\lambda$ -values and R-values quoted are in accordance with the principles in the Harmonised European Standard BS EN 13166: 2001 (Thermal insulation products for buildings – Factory made products of phenolic foam (PF) – Specification) using so called 90 / 90 principles. Comparison with alternative products may not be appropriate unless the same procedures have been followed.

### Thermal Conductivity

The thermal conductivity ( $\lambda$ -value) of the plasterboard component of *Kingspan Kooltherm® K18 Insulated Dry-lining Board* is 0.19 W/m·K.

The thermal conductivity ( $\lambda$ -value) of the insulation core of *Kingspan Kooltherm® K18 Insulated Dry-lining Board* is 0.024 W/m·K (insulant thickness 15–24 mm), 0.023 W/m·K (insulant thickness 25–44 mm) and 0.021 W/m·K (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 and adding the resultant figures together.

*Product Thickness (mm)	Thermal Resistance (m <sup>2</sup> ·K/W)
32.5	0.90
37.5	1.15
42.5	1.35
47.5	1.55
52.5	1.80
57.5	2.20
62.5	2.40
67.5	2.65
72.5	2.90
77.5	3.15
82.5	3.35

\*Product thickness = insulation thickness + 12.5 mm plasterboard.

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

## Kingspan Insulation

Kingspan Insulation offers an extensive range of premium and high performance insulation products, breathable membranes and pre-insulated systems for the construction industry. Following an extensive investment programme, Kingspan Insulation is continuing to lead the insulation industry by manufacturing its insulation products with zero Ozone Depletion Potential (ODP) and quoting thermal performance data in accordance with the new harmonised European Standards.

Kingspan Insulation Limited specialises in the solution of insulation problems. The Kingspan Insulation range of insulation products meet the exacting requirements of the construction industry and are produced to the highest standards, including BS EN ISO 9001: 2000 / I.S. EN ISO 9001: 2000. Each product has been designed to fulfil a specific need and has been manufactured to precise standards and tolerances.

### Insulation for:

- Pitched Roofs
- Flat Roofs
- Cavity Walls
- Timber and Steel Framing
- Externally Insulated Cladding Systems
- Floors
- Soffits

### Solutions:

- Insulated Dry-Lining
- Tapered Roofing Systems
- Kingspan **KoolDuct**® Pre-Insulated Ducting
- Kingspan **nilvent**® Breathable Membranes

## The Kingspan Insulation Product Range

### The Kingspan **Kooltherm**® **K-range**

- With a thermal conductivity of 0.021–0.024 W/m·K CFC/HCFC-free rigid phenolic insulation is the most thermally efficient insulation product commonly available.
- Utilises the thinnest possible insulation board to achieve required U-values.
- Fire performance can be equivalent to mineral fibre.
- Achieves a Class 0 fire rating to the Building Regulations and Low Risk rating for the Technical Standards in Scotland.
- Achieves the best possible rating of < 5% smoke obscuration when tested to BS 5111: Part 1: 1974.
- CFC/HCFC-free with zero Ozone Depletion Potential (ODP).

### The Kingspan **Therma**™ **Range**

- With a thermal conductivity of 0.023–0.028 W/m·K CFC/HCFC-free rigid urethane insulation is one of the most thermally efficient insulation products commonly available.
- Easily achieves required U-values with minimum board thickness.
- Achieves the required fire performance for the intended application.
- CFC/HCFC-free with zero Ozone Depletion Potential (ODP).

### The Kingspan **Styrozone**® & **Purlcrete**® **Ranges**

- Rigid extruded polystyrene insulation (XPS) has the highest compressive strength of any commonly available insulant.
- Ideal for specialist applications such as inverted roofing and heavy-duty flooring.
- Easily achieves required U-values with minimum board thickness.
- Achieves the required fire performance for the intended application.
- CFC/HCFC-free with zero Ozone Depletion Potential (ODP).

### All Products

- Their closed cell structure resists both moisture and water vapour ingress – problems which can be associated with open cell materials such as mineral fibre and which can result in reduced thermal performance.
- Unaffected by air movement – problems that can be experienced with mineral fibre and which can reduce thermal performance.
- Safe and easy to install – non-fibrous.
- Provide reliable long term thermal performance over the lifetime of the building.

# Contact Details

## Customer Service

For quotations, order placement and details of despatches please contact the Kingspan Insulation Customer Service Department on the numbers below:

UK – Tel: +44 (0) 870 850 8555  
– Fax: +44 (0) 870 850 8666  
– email: commercial.uk@insulation.kingspan.com

Ireland – Tel: +353 (0) 42 97 54200  
– Fax: +353 (0) 42 97 54299  
– email: commercial.ie@insulation.kingspan.com

## Literature & Samples

Kingspan Insulation produces a comprehensive range of technical literature for specifiers, contractors, stockists and end users. The literature contains clear 'user friendly' advice on typical design; design considerations; thermal properties; sitework and product data.

Available as a complete Design Manual or as individual product brochures, Kingspan Insulation technical literature is an essential specification tool. For copies please contact the Kingspan Insulation Marketing Department on the numbers below:

UK – Tel: +44 (0) 870 733 8333  
– Fax: +44 (0) 1544 387 299  
– email: literature.uk@insulation.kingspan.com

Ireland – Tel: +353 (0) 42 97 54298  
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## Tapered Roofing

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## Technical Advice / Design

Kingspan Insulation supports all of its products with a comprehensive Technical Advisory Service for specifiers, stockists and contractors.

This includes a computer-aided service designed to give fast, accurate technical advice. Simply phone the Kingspan Insulation Technical Service Department with your project specification. Calculations can be carried out to provide U-values, condensation / dew point risk, required insulation thicknesses etc... Thereafter any number of permutations can be provided to help you achieve your desired targets.

The Kingspan Insulation Technical Service Department can also give general application advice and advice on design detailing and fixing etc... Site surveys are also undertaken as appropriate.

Please contact the Kingspan Insulation Technical Service Department on the numbers below:

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## General Enquiries

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