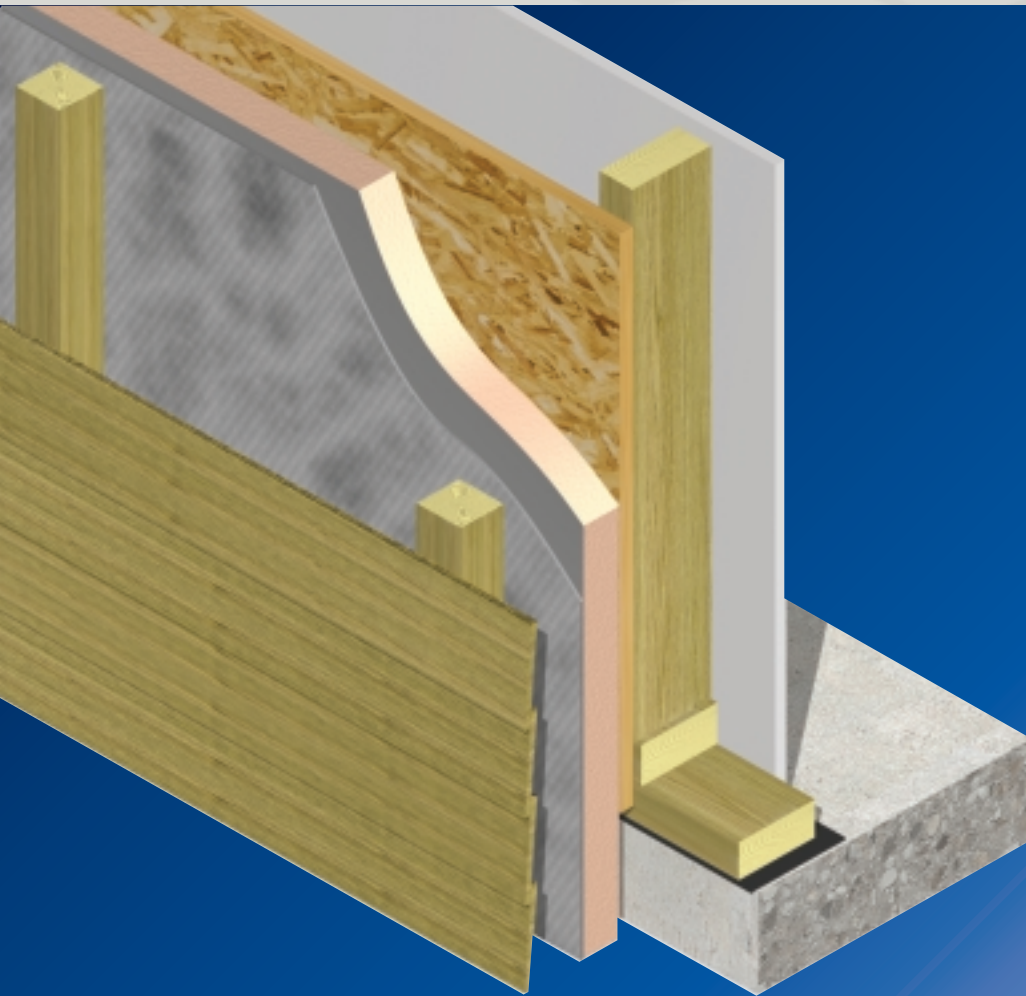


Kooltherm® K12 Framing Board

INSULATION FOR TIMBER AND STEEL FRAMING SYSTEMS



- Premium performance rigid phenolic insulation – thermal conductivity as low as 0.021 W/m-K
- Class O/Low Risk fire rating
- Negligible smoke obscuration
- Can be used between studs or as an insulating sheathing
- Suitable for use with timber frame and steel frame wall constructions
- Can eliminate cold bridging
- Unaffected by air movement
- Resistant to the passage of water vapour
- Easy to handle and install
- Ideal for newbuild or refurbishment
- Non-deleterious material
- CFC/HCFC-free with zero Ozone Depletion Potential (ODP)



Kooltherm® K12 Framing Board

Typical Design Detail

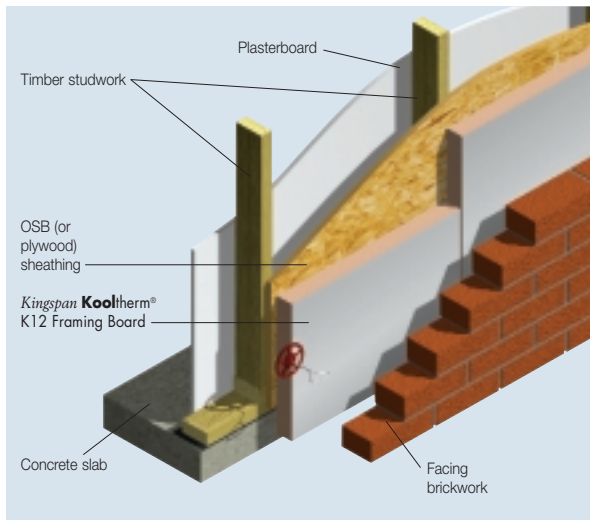


Figure 1 Brick Faced Timber Frame Wall (Insulating Sheathing)

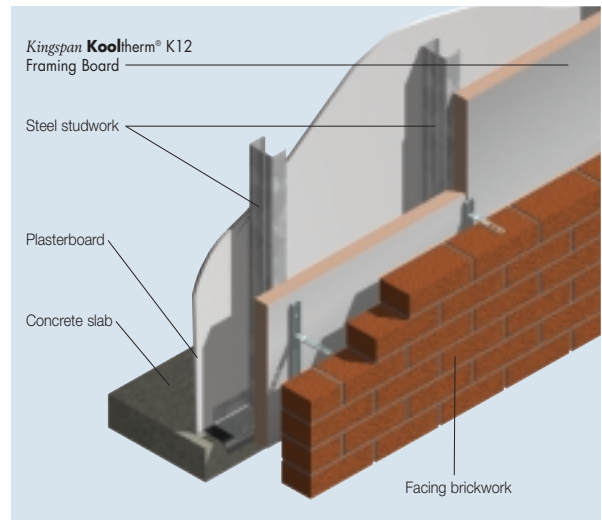


Figure 2 Brick Faced Steel Frame Wall (Insulation Between Studs)

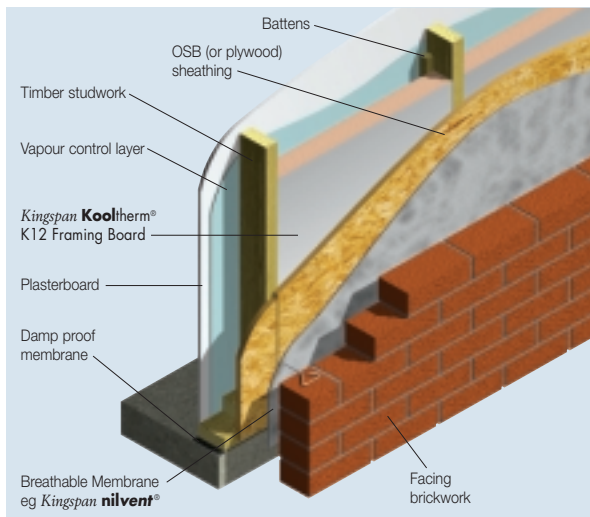


Figure 3 Brick Faced Timber Frame Wall (Insulation Between Studs)

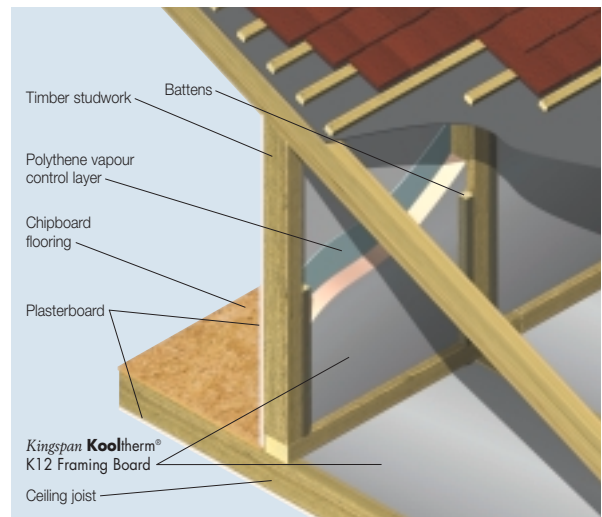


Figure 4 Dwarf Walls (Insulation Between Studs)

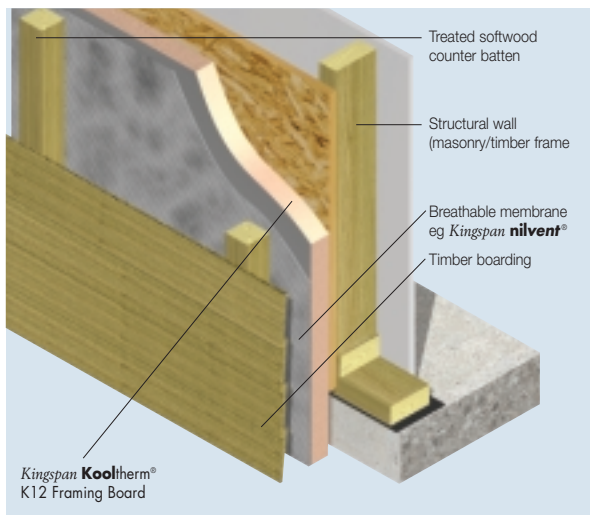


Figure 5 Timber Clad/Tile Hung Framed Wall

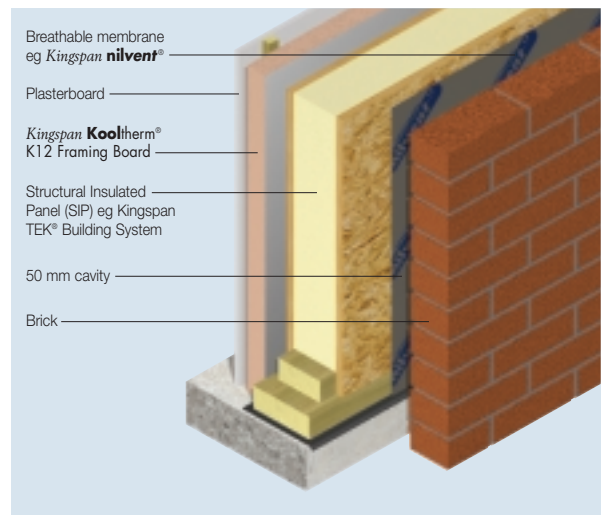


Figure 6 Brick Faced/Structural Insulated Panel (SIP)

Specification Clause

Kingspan Kooltherm® K12 Framing Board should be described in specifications as:-

The stud wall insulation shall be *Kingspan Kooltherm*® K12 Framing Board ____mm thick comprising a CFC/HCFC-free rigid phenolic insulation core with composite foil facings on both sides manufactured to the highest standards under quality control systems approved to BS EN 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):
F30 151, P10 210
(Standard and Intermediate)
F30 12, P10 40 (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 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 complete and openly publish an independently certified Ecoprofile (a type of LCA) on one of its product ranges. The Ecoprofile was carried out on the Therma zero ODP range of rigid urethane insulation products by the Building Research Establishment (BRE). The product range comfortably achieves a BRE Green Guide A rating.



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® K12 Framing Board

Typical Applications

Kingspan Kooltherm® K12 Framing Board may be installed either between or outside timber studwork. The insulation boards are easily cut to individual studwork spacings. Once installed, *Kingspan Kooltherm® K12 Framing Board* can exceed Building Regulations/Standards requirements for these applications.

Cold Bridging

When installed between timber studwork, the effects of cold bridging must be taken into account. In most cases this can represent up to 15% of the external surface area of the building which will significantly affect the overall U-value.

This problem is avoided when insulating outside the studwork. By insulating the entire building envelope, the problem of cold bridging can be eliminated completely.

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 Services Department can provide a condensation risk analysis of your proposed design (see rear cover). 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 wall lining can be increased by the use of a vapour check plasterboard or by the application of two coats of Gyproc Drywall Sealer if required.

Fire Stops

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

Typical U-values

The following examples have been calculated using the combined method for compliance with Building Regulations/Standards revised after the year 2002. These values are based upon a construction comprising of a skim coated 12.5 mm plasterboard, timber studwork and 9 mm OSB sheathing or steel studwork, both with facing brick outer leaf or rendered concrete block (λ -value = 0.51 W/m·K). The thermal conductivity of the timber studs is taken as 0.12 W/m·K. If your construction is any different, please consult the Kingspan Insulation Technical Services Department.

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 using the combined method as detailed in 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 Services 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.

These figures quoted are for guidance only. A detailed U-value calculation, together with a condensation risk analysis should be completed for each individual project. Please call the Kingspan Insulation Technical Services Department for assistance (see rear cover).

Brick Faced Timber Frame Wall

(Kingspan **Kooltherm**® K12 Framing Board as an insulating sheathing)

Insulant Thickness (mm)	U-value (W/m ² ·K)
25	0.41
30	0.38
35	0.35
40	0.33
45	0.29
50	0.27
60	0.24
65	0.23

NB combined method calculation accounts for the effect of using a stainless steel fixing of 6.0 mm diameter, giving a cross sectional area of 7.45 mm², fasteners per square metre 4.4 off.

Brick Faced Steel Frame Wall

(Kingspan **Kooltherm**® K12 Framing Board as an insulating sheathing)

Insulant Thickness (mm)	U-value (W/m ² ·K)
25	0.41
30	0.38
35	0.36
40	0.33
45	0.30
50	0.28
55	0.27
60	0.25
65	0.24
70	0.23

NB combined method calculation accounts for the effect of using carbon fixing screws for fixing the channel through the insulation. For the purposes of these calculations a default correction figure of 0.02 W/m·K has been taken from table A4 of Approved Document L1 and L2. Factored to the appropriate thermal resistance of the insulation layer penetrated by the fixings in accordance with BRE Digest 465.

Brick Faced Timber Frame Wall – Insulation Between Studs

(Kingspan **Kooltherm**® K12 Framing Board between 89 mm deep timber studs – 15% thermal bridging)

Insulant Thickness (mm)	U-value (W/m ² ·K)
35	0.44
40	0.42
45	0.38
50	0.36
55	0.35
60	0.33
65	0.32

65 mm is the maximum practical thickness of Kingspan **Kooltherm**® K12 Framing Board for installation between 89 mm deep timber studs whilst maintaining a minimum 20 mm service void. For U-values below 0.32 W/m²·K, there are three options:

Option 1

Brick Faced Timber Frame Wall

(65 mm Kingspan **Kooltherm**® K12 Framing Board between 89 mm deep timber studs – 15% thermal bridging – in conjunction with the following thicknesses of Kingspan **Kooltherm**® K18 Insulated Dry-lining Board in lieu of a skim coated 12.5 mm plasterboard)

Product Thickness* (mm)	U-value (W/m ² ·K)
32.5	0.25

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

Option 2

Brick Faced Timber Frame Wall

(Kingspan **Kooltherm**® K12 Framing Board between 89 mm deep timber studs – 15% thermal bridging – and Kingspan **Kooltherm**® K12 Framing Board as an insulating sheathing)

Insulant Thickness (mm)	U-value (W/m ² ·K)
20+25	0.31
25+25	0.28
25+30	0.26
30+35	0.24
35+35	0.23

NB first thickness refers to thickness between studs, second thickness sheathing. NB the thermal resistance of the sheathing must be ≥ that of the insulation between the studs so as to avoid condensation.

Option 3

Brick Faced Timber Frame Wall

(Kingspan **Kooltherm**® K12 Framing Board between timber studs – 15% thermal bridging – timber studs deep enough to allow 20 mm minimum service void)

Insulant Thickness (mm)	U-value (W/m ² ·K)
70	0.31
75	0.30
80	0.28
85	0.27
90	0.26
95	0.25
100	0.25
105	0.24

Kooltherm® K12 Framing Board

Rendered Block Faced Timber Frame Wall

(Kingspan Kooltherm® K12 Framing Board as an insulating sheathing)

Insulant Thickness (mm)	U-value (W/m ² ·K)
25	0.40
30	0.37
35	0.34
40	0.32
45	0.28
50	0.26
55	0.25
60	0.23

NB combined method calculation accounts for the effect of using a stainless steel fixing of 6.0 mm diameter, giving a cross sectional area of 7.45 mm², fasteners per square metre 4.4 off.

Rendered Block Faced Steel Frame Wall

(Kingspan Kooltherm® K12 Framing Board as an insulating sheathing)

Insulant Thickness (mm)	U-value (W/m ² ·K)
25	0.39
30	0.37
35	0.34
40	0.32
45	0.29
50	0.27
60	0.25
65	0.23

NB combined method calculation accounts for the effect of using carbon fixing screws for fixing the channel through the insulation. For the purposes of these calculations a default correction figure of 0.02 W/m²·K has been taken from table A4 of Approved Document L1 and L2. Factored to the appropriate thermal resistance of the insulation layer penetrated by the fixings in accordance with BRE Digest 465.

Rendered Block Faced Timber Frame Wall

(Kingspan Kooltherm® K12 Framing Board between 89 mm deep timber studs – 15% thermal bridging)

Insulant Thickness (mm)	U-value (W/m ² ·K)
35	0.42
40	0.39
50	0.35
55	0.33
60	0.32
65	0.31

65 mm is the maximum practical thickness of Kingspan Kooltherm® K12 Framing Board for installation between 89 mm deep timber studs whilst maintaining a minimum 20 mm service void. For U-values below 0.31 W/m²·K, there are three options:

Option 1

Rendered Block Faced Timber Frame Wall

(65 mm Kingspan Kooltherm® K12 Framing Board between 89 mm deep timber studs – 15% thermal bridging – in conjunction with the following thicknesses of Kingspan Kooltherm® K18 Insulated Dry-lining Board in lieu of a skim coated 12.5 mm plasterboard)

Product Thickness* (mm)	U-value (W/m ² ·K)
32.5	0.24

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

Option 2

Rendered Block Faced Timber Frame Wall

(Kingspan Kooltherm® K12 Framing Board between 89 mm deep timber studs – 15% thermal bridging – and Kingspan Kooltherm® K12 Framing Board as an insulating sheathing)

Insulant Thickness (mm)	U-value (W/m ² ·K)
25+25	0.27
30+30	0.25
35+35	0.23

NB first thickness refers to thickness between studs, second thickness sheathing. NB the thermal resistance of the sheathing must be ≥ that of the insulation between the studs so as to avoid condensation.

Option 3

Rendered Block Faced Timber Frame Wall

(Kingspan Kooltherm® K12 Framing Board between timber studs – 15% thermal bridging – timber studs deep enough to allow 20 mm minimum service void)

Insulant Thickness (mm)	U-value (W/m ² ·K)
70	0.30
75	0.29
80	0.28
85	0.27
90	0.26
100	0.24

Dwarf Walls

(Kingspan Kooltherm® K12 Framing Board between studs at 600 mm centres – ventilated roof)

Insulant Thickness (mm)	U-value (W/m ² ·K)
50	0.44
60	0.38
65	0.36
70	0.34
75	0.32
80	0.30
90	0.27
100	0.25
105	0.24

Timber Clad/Tile Hung Framed Wall

(Insulation – OSB – 89 mm deep timber studs – 12.5 mm plasterboard)

Product Thickness (mm)	U-value (W/m ² ·K)
40	0.42
45	0.37
50	0.34
60	0.30
65	0.28
70	0.26
75	0.25

Brick Faced/Structural Insulated Panel (SIP)

(Brick – cavity – Structural Insulated Panel (SIP) – insulation – battens – 12.5 mm plasterboard)

Product Thickness (mm)	U-value (W/m ² ·K)
20	0.16
25	0.16
30	0.15
35	0.15
40	0.14
50	0.13
60	0.12

Sitework

Insulating Sheathing Timber Frame Wall

Kingspan Kooltherm[®] K12 Framing Board should be fixed to the external surface of the timber frame structure (outside of any OSB or plywood sheathing) and restrained using temporary fixing in the form of large headed galvanised clout nails prior to being tied into the brickwork with an appropriate timber frame wall tie. Ensure that *Kingspan Kooltherm*[®] K12 Framing Boards are tightly butted and that any requirements of the timber frame manufacturer are met. Please contact the Kingspan Insulation Technical Services Department for further information (see rear cover).

Insulating Sheathing Steel Frame Wall

Similarly fixed as for 'Timber Frame', *Kingspan Kooltherm*[®] K12 Framing Board should be restrained to the outside of the steel frame construction ensuring vertical board joints coincide with a vertical member. Fixings should be in accordance with the steel frame manufacturers recommendations. Please contact the Kingspan Insulation Technical Services Department for further information.

Insulation Between Studs Timber Frame Wall

To restrain insulation boards from moving within the timber stud cavity, side nail battens to the stud to provide a 'stop'. (This should coincide with board thickness, allowing the *Kingspan Kooltherm*[®] K12 Framing Board to finish flush with the outside surface of the timbers).

Insulation boards that have been individually cut to fit the stud spacings may be temporarily held to the battens with large headed clout nails. An additional restraint to the boards will be provided by a plasterboard lining fixed to the inside face of the timbers. When utilising *Kingspan Kooltherm*[®] K12 Framing Board between studwork, the plasterboard lining should be of the vapour check type or a separate polythene vapour control layer used.

Ensure there is a tight fit between *Kingspan Kooltherm*[®] K12 Framing Board and the adjoining structure. Fill all gaps with expanding urethane sealant.

Insulation Between Studs Dwarf Wall

To restrain insulation boards from moving within the timber stud cavity, side nail battens to the stud to provide a 'stop'. (This should coincide with board thickness, allowing the *Kingspan Kooltherm*[®] K12 Framing Board to finish flush with the inside surface of the timbers).

Insulation boards that have been individually cut to fit the stud spacings may be temporarily held to the battens with large headed clout nails. An additional restraint to the boards will be provided by a plasterboard lining fixed to the inside face of the timbers. When utilising *Kingspan Kooltherm*[®] K12 Framing Board between studwork, the plasterboard lining should be of the vapour check type or a separate polythene vapour control layer used.

Ensure there is a tight fit between *Kingspan Kooltherm*[®] K12 Framing Board and the adjoining structure. Fill all gaps with expanding urethane sealant.

Kooltherm® K12 Framing Board

Timber Clad/Tile Hung Framed Wall

Where the intended external cladding is to be timber boarding, *Kingspan Kooltherm® K12 Framing Board* boards are temporarily pinned in place with all joints tightly butted. A breathable membrane eg. *Kingspan nilvent®* is applied over the insulation boards and temporarily stapled or pinned in place. Preservative treated softwood counter battens are fixed vertically to the wall structure at 600 mm centres. The timber boarding system is then fixed to the counter battens. Should the external wall be of timber frame construction the counter battens should be fixed at centres to coincide with the timber frame wall studs. Application advice should be sought from the appropriate membrane manufacturer. Timber boarding should be secured in accordance with the boarding manufacturer's recommendations.

Fixing *Kingspan Kooltherm® K12 Framing Board* direct (via battens to create service void) to SIP (eg. *Kingspan TEK® Building System*)

Kingspan Kooltherm® K12 Framing Board can be fixed direct to the SIP panel via vertical battens.

Kingspan Kooltherm® K12 Framing Board should be temporarily secured to the face of the SIP panel. The battens (min. 25 mm deep by 38 mm wide for subsequent plasterboard fixing) placed at 600 mm centres will allow the creation of a service void for electrical wiring. Short lengths of timber should be fixed horizontally between vertical battens at the head, midpoint and foot of the wall. The main fixing should be a suitable length drywall screw at 200 mm centres along all timbers which can then penetrate both battens and the *Kingspan Kooltherm® K12 Framing Board* to secure through the SIP panel.

Plasterboard is then fixed as per the manufacturers requirements

Wall Ties/Timber Frame Wall

The outer leaf of brickwork may be constructed in the conventional manner using appropriate wall ties to restrain the two wall skins together. The ties should be inserted whilst constructing the outer leaf ensuring a slight offset is achieved, sloping the tie downwards towards the outer leaf.

Wall Ties/Steel Frame Wall

Advice should be sought from the appropriate steel frame manufacturer for recommendations of a suitable wall tie specification.

Tile Hanging

Where the intended external cladding is to be wall tiling, preservative treated softwood counter battens should be fixed vertically to coincide with the timber studs utilising appropriate fasteners.

Tile hanging should be secured in accordance with the tile manufacturers recommendations.

Cutting

Cutting should be carried out using a fine toothed saw, or by scoring with a sharp knife and snapping the board over a straight edge and cutting the facing on the other side. Ensure accurate trimming to achieve close butting joints and continuity of insulation.

Availability

Kingspan Kooltherm® K12 Framing Board is available through specialist insulation distributors and selected Builders Merchants throughout the UK, Ireland and Europe.

Packaging

The boards are supplied in labelled packs shrinkwrapped in polythene.

Storage

The packaging of *Kingspan Kooltherm® K12 Framing Board* should not be considered adequate for long term outside protection. Ideally boards should be stored inside a building. If however, outside storage cannot be avoided the boards should be stacked clear of the ground and covered with 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.

Product Description

The Facings

Kingspan Kooltherm® K12 Framing Board is faced on both sides with a low emissivity composite foil facing which is highly resistance to the transmission of water vapour. This reflective, low emissivity surface increases the thermal resistance of the cavity in which the board is placed.

The Core

The core of *Kingspan Kooltherm*® K12 Framing Board is a premium performance CFC/HCFC-free rigid phenolic insulant of typical density 45 kg/m³.

CFC/HCFC-free

Kingspan Kooltherm® K12 Framing Board is manufactured without the use of CFC's/HCFC and has zero Ozone Depletion Potential (ODP).



Product Data

Standards and Approvals

Kingspan Kooltherm® K12 Framing Board is manufactured to the highest standards under a quality control system approved to BS EN ISO 9001: 2000 (Quality management systems. Requirements).



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

Standard Dimensions

Kingspan Kooltherm® K12 Framing Board is available in the following standard size and thicknesses:

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

**Kingspan Kooltherm*® K12 Framing Board is available in other widths subject to quantity. Extended lead times and price premiums will apply

Insulation 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, page 4).

Durability

If correctly applied, *Kingspan Kooltherm*® K12 Framing Board has an indefinite life. It's durability depends on the supporting structure and the conditions of its use.

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 spilled 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*® K12 Framing Board resist attack by mould and microbial growth, and do not provide any food value to vermin.

Fire Performance

Kingspan Kooltherm® K12 Framing Board will achieve the results given below which enables it to be classified by the Building Regulations as being Class O and 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)	Index of performance (I) not exceeding 12 and sub Index (i) 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 of the fire performance of Kingspan Insulation products may be obtained from the Kingspan Insulation Technical Services Department (see rear cover).

Kooltherm® K12 Framing Board

Thermal Properties

The λ -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 boards achieve a thermal conductivity (λ -value) of 0.024 W/m·K (insulant thickness 15–24 mm), 0.023 W/m·K (insulant thickness 25–44 mm), 0.021 W/m·K (insulant thickness \geq 45 mm).

Thermal Resistances

Thermal resistance (R-value) varies with thickness and is calculated by dividing the thickness of the board (expressed in metres) by its thermal conductivity.

Insulant Thickness (mm)	Thermal Resistance (m ² ·K/W)
20	0.80
25	1.05
30	1.30
35	1.50
40	1.70
45	2.10
50	2.35
55	2.60
60	2.85
65	3.05
70	3.30
75	3.55
80	3.80
90	4.25
100	4.75

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-fabricated/ 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 specialise in the solution of insulation problems. The Kingspan Insulation range of insulation products meet the exacting requirements of the construction industry 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 O 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 0.022–0.028 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 Services Department on the numbers below:

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

Ireland – Telephone: +353 (0) 42 97 95000
– Fax: +353 (0) 42 97 46129
– email: commercial.ie@insulation.kingspan.com

Literature & Samples

Kingspan Insulation produce 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 – Telephone: +44 (0) 870 733 8333
– Fax: +44 (0) 1544 387 299
– email: literature.uk@insulation.kingspan.com

Ireland – Telephone: +353 (0) 42 97 95038
– Fax: +353 (0) 42 97 46129
– email: literature.ie@insulation.kingspan.com

Tapered Roofing

For technical guidance, quotations, order placement and details of despatches please contact the Kingspan Insulation Tapered Roofing Department on the numbers below:

UK – Telephone: +44 (0) 870 761 7770
– Fax: +44 (0) 1544 387 289
– email: tapered.uk@insulation.kingspan.com

Ireland – Telephone: +353 (0) 42 97 95032
– Fax: +353 (0) 42 97 95669
– email: tapered.ie@insulation.kingspan.com

Technical Advice/Design

Kingspan Insulation Ltd support all of their 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 **TECHLINE** 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 Services 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 Building Fabric Insulation Technical Services Department on the **TECHLINE** numbers below:

UK – Telephone: +44 (0) 870 850 8333
– Fax: +44 (0) 1544 387 278
– email: techline.uk@insulation.kingspan.com

Ireland – Telephone: +353 (0) 42 97 95032
– Fax: +353 (0) 42 97 95669
– email: techline.ie@insulation.kingspan.com

General Enquiries

For all other enquiries contact Kingspan Insulation on the numbers below:

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

Ireland – Telephone: +353 (0) 42 97 95000
– Fax: +353 (0) 42 97 46129
– email: info.ie@insulation.kingspan.com

Kingspan Insulation reserve the right to amend product specifications without prior notice. Product thicknesses shown in this document should not be taken as being available ex-stock and reference should be made to the current Kingspan Insulation price-list or advice sought from Kingspan Insulation Sales Department. The information, technical details and fixing instructions etc. included in this literature are given in good faith and apply to uses described. Recommendations for use should be verified as to the suitability and compliance with actual requirements, specifications and any applicable laws and regulations. For other applications or conditions of use, Kingspan Insulation offers a Technical Advisory Service (see left) whose advice should be sought for uses of Kingspan Insulation products that are not specifically described herein. Please check that your copy of the literature is current by contacting the Kingspan Insulation Marketing Department (see above).



A Member of UKTFA

Kingspan Insulation are members of the UK Timber Frame Association (UKTFA)



Kingspan Insulation Ltd

Pembridge, Leominster, Herefordshire HR6 9LA, UK
Castleblayney, County Monaghan, Ireland

www.insulation.kingspan.com