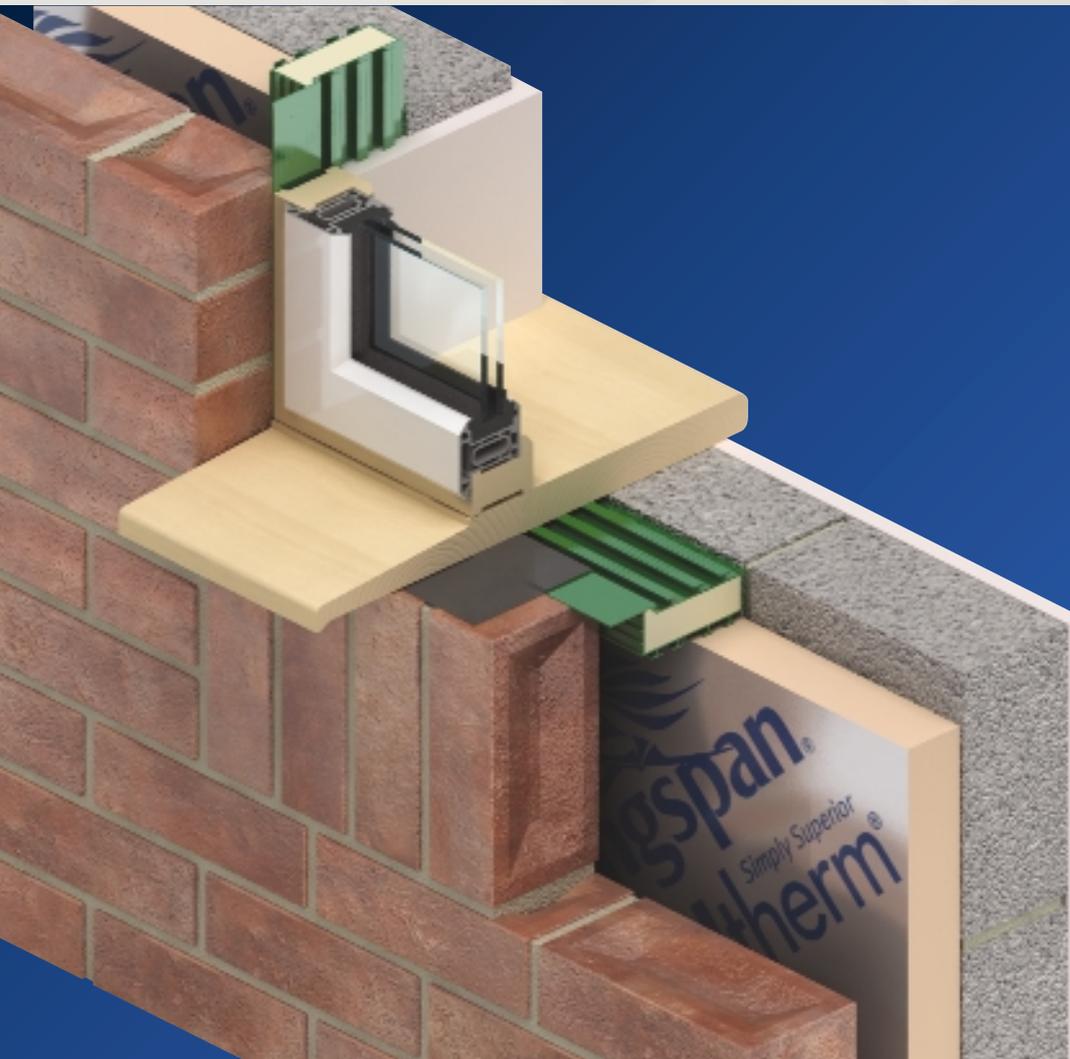


Kingspan ThermAbate® & Kingspan ThermAbate® PLUS

CAVITY CLOSERS



- Continuous insulation – maintains a continuous insulated cavity closer around window and door openings
- Passes half-hour fire test
- Simplified construction – avoids the need for cut bricks, blocks or special reveal blocks
- Reduced heat loss – avoids thermal bridging
- Weather resistant – forms an integral DPC
- Moisture controlling – prevents condensation, pattern staining and mould growth
- Flexible – can either be built in with frames or used to pre-form openings when frames are fitted later
- Simplicity – one basic section satisfies all requirements
- Easy to handle and install
- Non-deleterious material
- CFC/HCFC-free with zero Ozone Depletion Potential (ODP)

*Low Energy -
 Low Carbon Buildings*



Kingspan®



Introduction

Kingspan Thermabate[®] is a PVC-U extrusion with a CFC/HCFC-free rigid urethane insulation core. It is manufactured in six sizes from 50–100 mm, each colour coded for instant identification. Jointing clips extend the range further by allowing the *Kingspan Thermabate*[®] sections to be joined to suit cavity widths of up to 200 mm. It is suitable for use with timber, metal or plastic window frames and can also be supplied to order in curved sections.

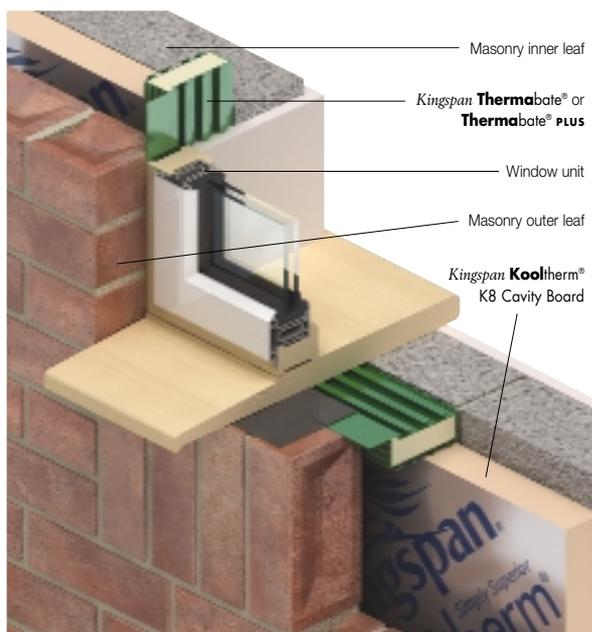
Kingspan Thermabate[®] provides a simple and efficient method of closing cavities around openings in masonry walls. Its rigid urethane insulation core prevents thermal bridging, and its PVC-U box section forms a positive damp proof barrier and key for the direct application of plaster. It effectively prevents condensation, pattern staining and mould growth frequently associated with traditional methods of closing cavities.

Kingspan Thermabate[®] can be used to comply with both the Accredited Construction Details and the Accredited Construction Details (Scotland).

Kingspan Thermabate[®], the original insulated cavity closer is now available pre-formed to help achieve accurate opening sizes. *Kingspan Thermabate*[®] PLUS is made to order, to specified opening sizes. The profile and insulation are of the same high standards present in standard *Kingspan Thermabate*[®] sections. *Kingspan Thermabate*[®] PLUS is available for the same range of cavity widths as standard *Kingspan Thermabate*[®] and helps you to achieve accurate opening sizes.

All these benefits add up to huge savings in time and money.

Typical Design Detail



Specification Clause

Kingspan Thermabate[®] should be described in specifications as:-

Preliminaries

Item Insulated Cavity Closer – rigid box section one piece PVC-U extrusion with mortar fins, flange keys for direct plaster application, projecting fixing flange and fully bonded CFC/HCFC-free rigid urethane insulation core with λ -value of 0.034 W/m·K. *Kingspan Thermabate*[®] (BBA Certificate No. 91/2648) from Kingspan Insulation.

Measured work

Closing cavities # vertically / horizontally with *Kingspan Thermabate*[®] *50 Brown, fixing to # frame / masonry and building in, all in accordance with manufacturers instructions.

NB If required separate reference needs to be made to any optional accessory items.

*Insert reference and colour for appropriate cavity widths

Delete as appropriate

Details also available in NBS Plus.
NBS users should refer to clause:
F30 180 (Standard and Intermediate)
F30 18 (Minor works)



Design Considerations

Thermal Bridging – Basic Principles

Thermal bridging occurs at openings in external walls when the cavities are closed with materials of poor insulating performance.



Heat loss paths around a typical window opening – traditional construction

Such thermal bridging can produce problems of condensation, pattern staining and mould growth at the reveals of these openings. Prolonged exposure to condensation will lead to the deterioration of plaster and paintwork.

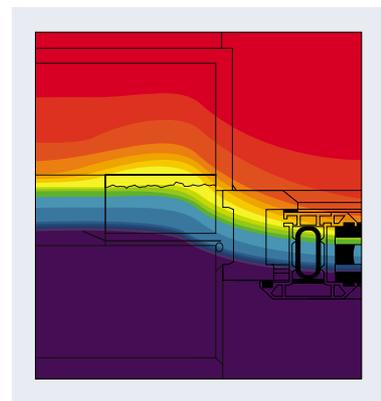
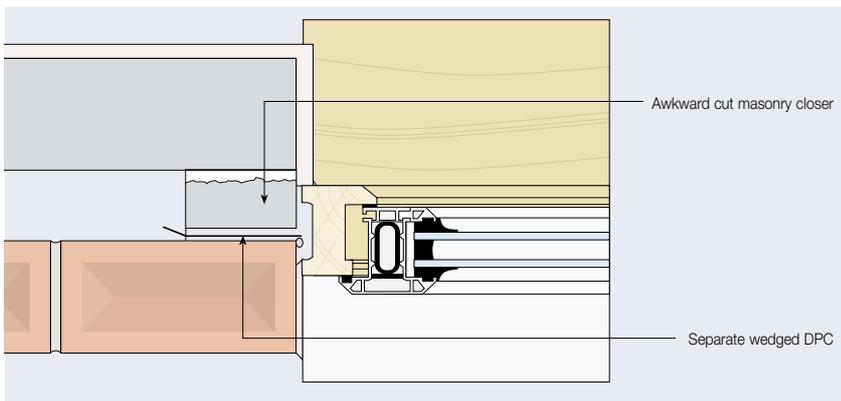


A local drop in the surface temperature around openings, or 'Thermal Bridging', can give rise to unsightly mould growth and damage to reveal finishes.

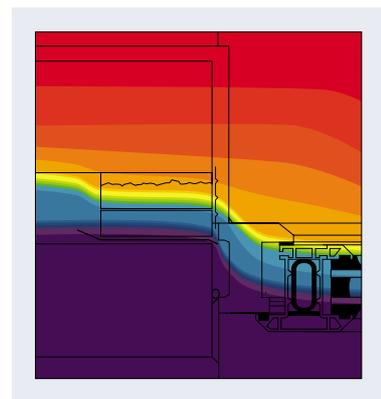
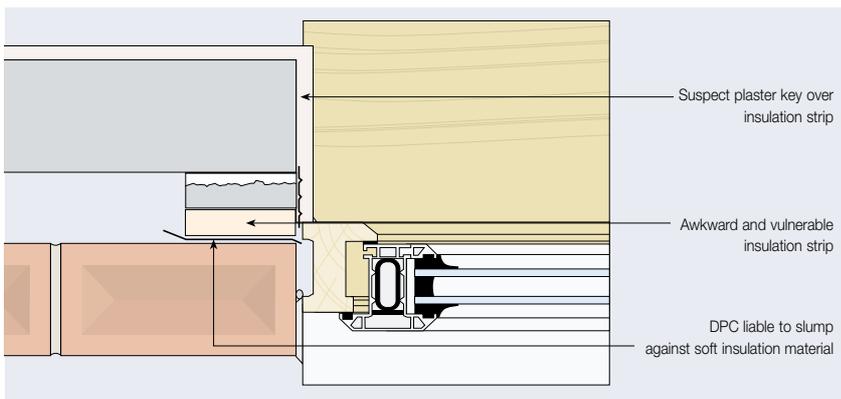
Thermal Bridging – Traditional Closer Methods

The traditional method of closing cavities at wall openings with brickwork and blockwork may result in thermal bridging. The illustrations on this page highlight the problems encountered with traditional constructions which either do not comply with, or will cause practical difficulties for compliance with current Building Regulations in England & Wales and Scotland. The thermographic illustrations alongside each detail show the temperature gradient through the wall, highlighting

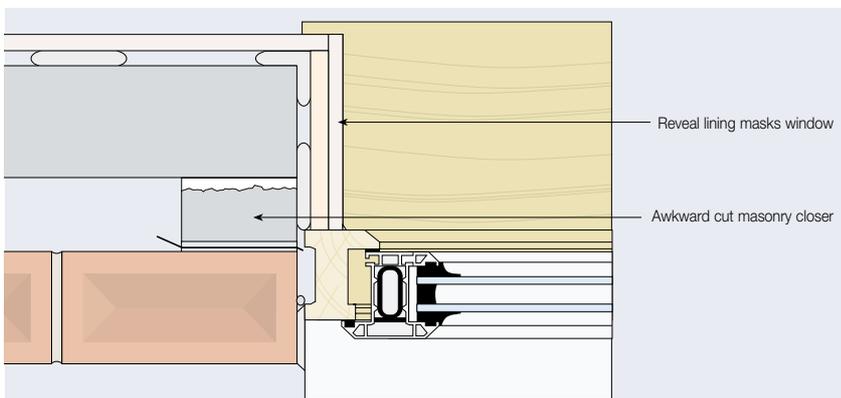
the areas in which the internal temperature is lower than the surrounding insulated elements of structure. Where such reduced internal surface temperatures occur i.e. at the junction between the window and internal finish, heat loss and the risk of condensation are both increased.



Blockwork Closer



Strip of Insulation



Insulated Lining

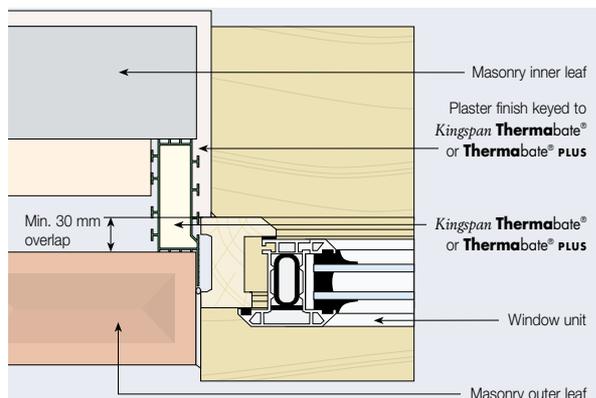
Kingspan **Thermabate**® & **Thermabate**® PLUS

Thermal Bridging – Kingspan **Thermabate**® & **Thermabate**® PLUS

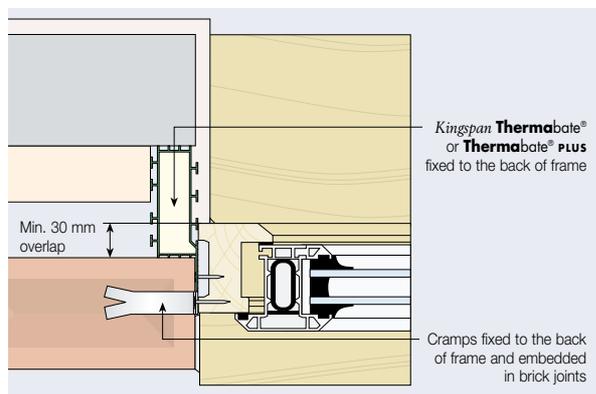
Kingspan **Thermabate**® and **Thermabate**® PLUS provide a clean, simple and efficient solution to thermal bridging at wall openings. They insulate and close the cavity, thus eliminating the need for cut blocks, bricks or special reveal blocks.

Kingspan **Thermabate**® and **Thermabate**® PLUS also avoid the need for separate strips of insulation or the need for internal insulated linings that partially mask the frame. With virtually no restriction in frame position, Kingspan **Thermabate**® and **Thermabate**® PLUS allow the designer much greater versatility in positioning window and door frames within the depth of the reveal.

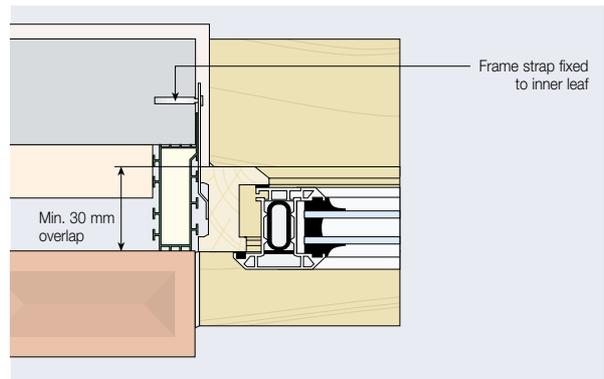
An infinite variety of constructions can be formed with the use of Kingspan **Thermabate**® and **Thermabate**® PLUS. The following details illustrate the design flexibility of Kingspan **Thermabate**® and **Thermabate**® PLUS.



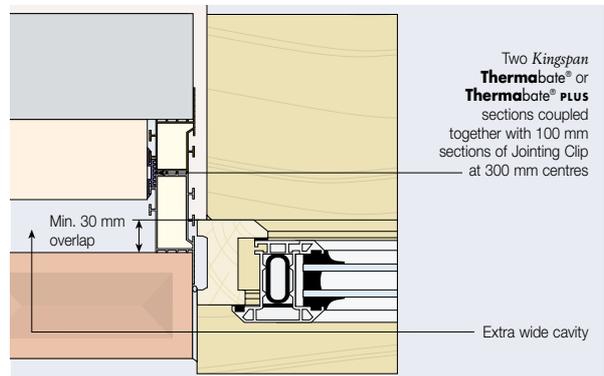
Kingspan **Thermabate**® or **Thermabate**® PLUS at Reveal



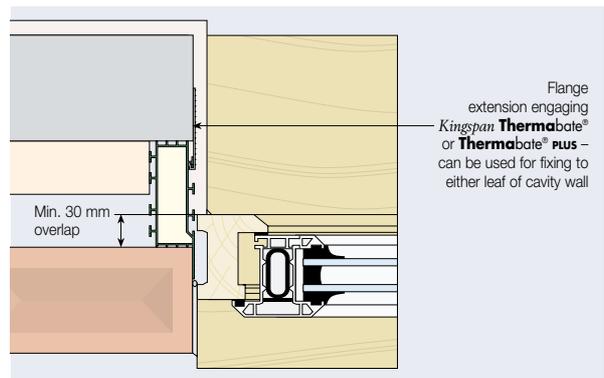
Frame Built-in



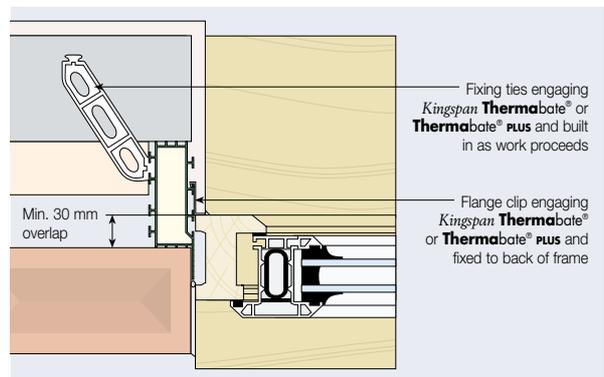
Frame Fitted Later



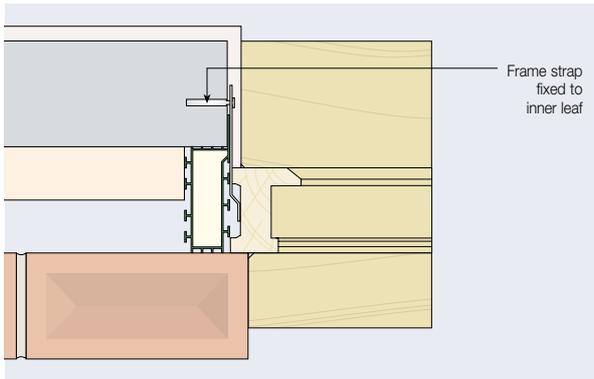
Use of Jointing Clip in Wide Cavity



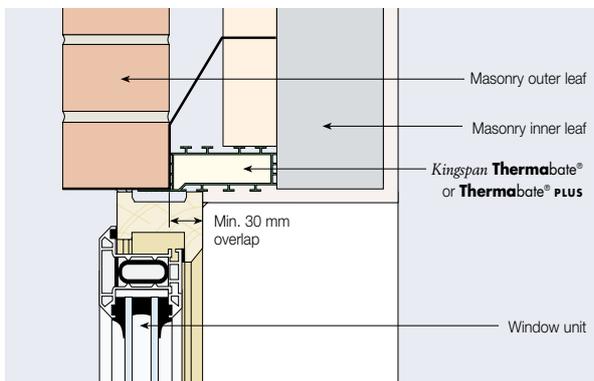
Use of Optional Flange Extension



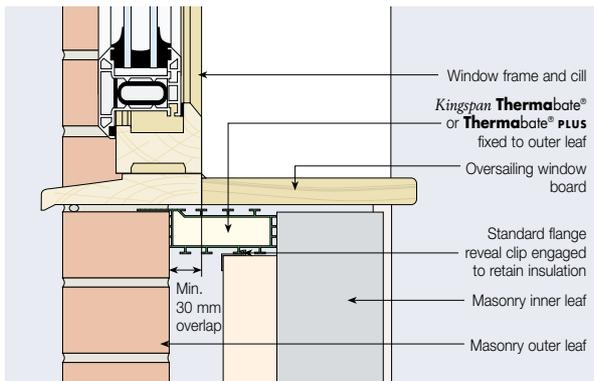
Use of Optional Fixing Tie and Standard Flange Clip



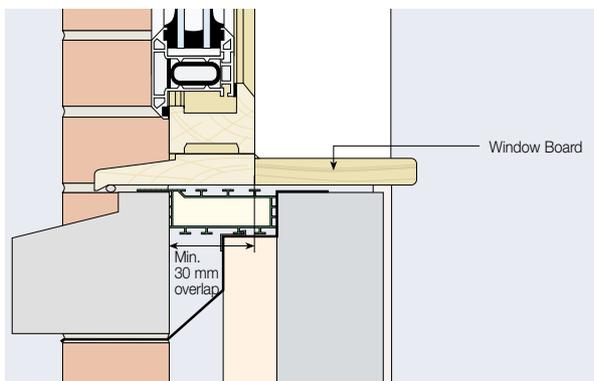
Check Reveal



Kingspan **Thermabate**[®] or **Thermabate PLUS** at Head



Use at Cill with Flush Reveal & 30 mm Overlap



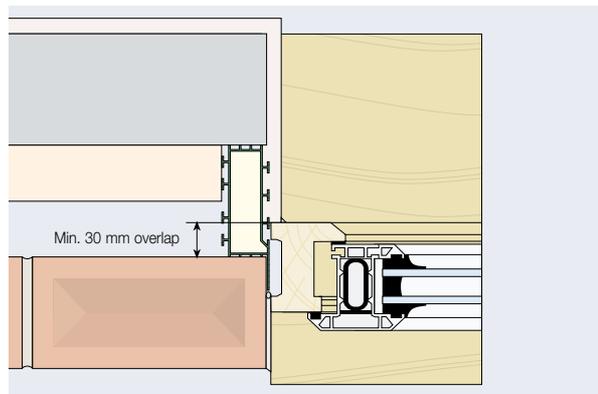
Use with Sub Cill & Check Reveal

Accredited Construction Details

England & Wales the Republic of Ireland and Northern Ireland

A minimum thermal resistance path through the cavity closer of $0.45 \text{ m}^2\cdot\text{K}/\text{W}$ and a minimum overlap of 30 mm between the window frame and the cavity closer are required by the Accredited Construction Details publication in order to gain compliance with the Approved Documents L in England & Wales, Technical Booklets F in Northern Ireland and (at the time of writing) with Technical Guidance Document L in the Republic of Ireland. In the Republic of Ireland, the Accredited Construction Details publication will soon be replaced with the new Acceptable Construction Details publication. The draft of this publication shows the same detail as in the document it supersedes. Thus this guidance should hold true for the Republic of Ireland.

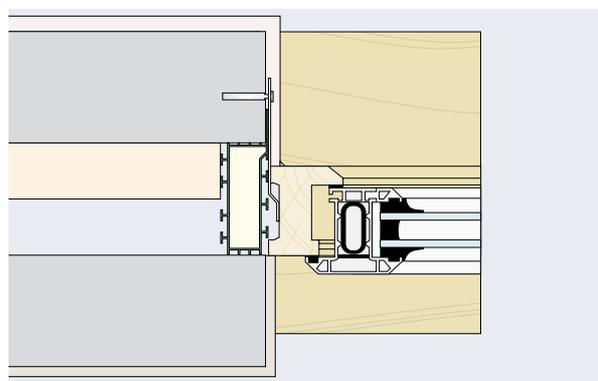
A 30 mm overlap between the window frame and the **Kingspan Thermabate**[®] or **Thermabate PLUS** will exceed the minimum thermal resistance path of $0.45 \text{ m}^2\cdot\text{K}/\text{W}$. This overlap can, of course, be greater than 30 mm to suit individual design requirements.



Compliant Detail for England & Wales, the Republic of Ireland and Northern Ireland

Scotland

Accredited Construction Details (Scotland) shows only a check reveal for compliance with the Technical Handbooks in Scotland. There is no minimum thermal resistance path or overlap as this is not necessary with a check reveal.



Compliant Detail for Scotland

Sitework

Selecting a Section and Deciding “Which Way Round”

The width of cavity to be closed will decide the type of section, or combination of sections to be used. *Kingspan Thermabate*® and *Thermabate*® PLUS are normally fixed with their flange against the outer leaf as shown.



Kingspan Thermabate® or *Thermabate*® PLUS with fixing flange set on outer leaf

The section can be “reversed” to enable frames to be set further back into reveals, especially if a checked reveal is required.



Kingspan Thermabate® or *Thermabate*® PLUS “reversed” for use in flush or check reveal details

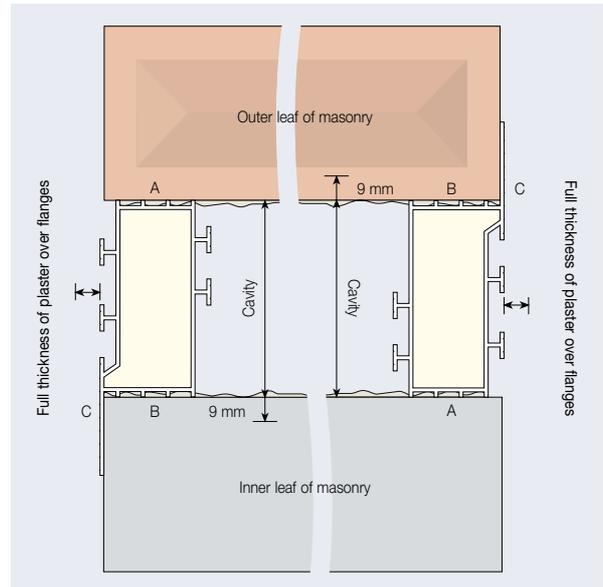
Basic Installation Principles for New Walls

Kingspan Thermabate® and *Thermabate*® PLUS should be built-in as work proceeds. Mortar from bed joints keys into the grooves at each ‘end’ of the box section (A and B).

The fixing flange should always be tight to the masonry (C) and securely fixed with a suitable masonry fixing to the masonry through the holes provided in the fixing flange.

Cavity widths up to 9 mm nominally greater than the *Kingspan Thermabate*® and *Thermabate*® PLUS size can be accommodated with a gap between end grooves and masonry at (B) behind the fixing flange.

An appropriate lintel and damp proof course is incorporated at the head. Where an insulated lintel is used a head closer section will not be required and the jamb sections of closer will butt up against the lintel. If required, a *Kingspan Thermabate*® section can be used at the head where a separate lintel is used for each leaf.



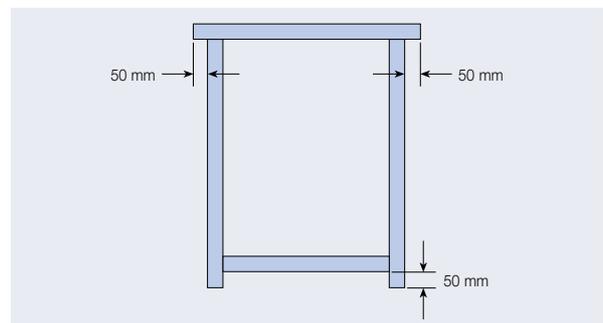
Installation Options

There are four basic options for the installation of *Kingspan Thermabate*® or *Thermabate*® PLUS:

- 1 install cill, jambs and head closer sections individually as the wall is constructed;
- 2 pre-form a *Kingspan Thermabate*® frame on site and install as one piece then construct the wall around the frame;
- 3 install *Kingspan Thermabate*® PLUS then construct the wall around the frame; or
- 4 attach *Kingspan Thermabate*® to the sides of the window frame and install as one piece then construct the wall around the combined frame.

Installation as Individual Sections

For the cill, cut *Kingspan Thermabate*® precisely to the frame width. For the jambs, the sections should overhang the bottom of the cill *Kingspan Thermabate*® by 50 mm. Cut off the fixing flange as necessary to allow fitting of *Kingspan Thermabate*® into the cavity below the frame. If used at the head of the frame, cut *Kingspan Thermabate*® to extend 50 mm beyond each vertical jamb section.



The *Kingspan Thermabate*® sections are built in as the wall is constructed.

Pre-Forming Frames on Site

Cut the *Kingspan Thermabate*[®] sections to the appropriate lengths as detailed on the previous page for installation as individual sections. Set them out on a level surface, and securely fix a profile bracket in each corner. Note that if an insulated lintel is to be used, a top section of *Kingspan Thermabate*[®] (alternatively a length of timber) is fixed temporarily until the opening is formed. Fit timber cross bracings to the brackets as necessary. Check the diagonal dimensions to ensure the frame is square. On larger openings additional bracings may be used horizontally and / or vertically for extra rigidity.



Strong reusable profile brackets allow *Kingspan Thermabate*[®] to be used as an alternative to temporary timber templates for forming openings in walls where frames are fitted at a later stage.

Kingspan Thermabate[®] PLUS Factory Pre-Formed Frames

Kingspan Thermabate[®] PLUS comprises sections of *Kingspan Thermabate* factory pre-formed into a frame and is designed specifically to reduce the labour and time involved in setting out and creating site pre-formed frames.

Installation of Site Pre-Formed Frames & *Thermabate*[®] PLUS

When the wall reaches sill level the pre-formed frame is seated in the cavity and propped vertical.

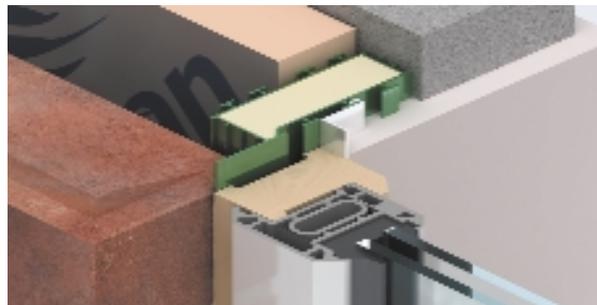
The wall is built around the jamb sections. *Kingspan Thermabate*[®] fixing ties are clipped into the section and bedded into the mortar joints.

When the wall has been completed and the mortar set, the timber bracing is removed, any profile brackets are unscrewed and removed for re-use and the closer sections are fixed to the masonry through the holes provided in the fixing flange.

Window Frame Fixing

When fixing the window follow the frame fixing procedure:

- offer up frame;
- wedge frame in position;
- secure frame in position to masonry; and
- fix standard flange clips or reveal clips to the frame and to the *Kingspan Thermabate*[®] or *Thermabate*[®] PLUS section.

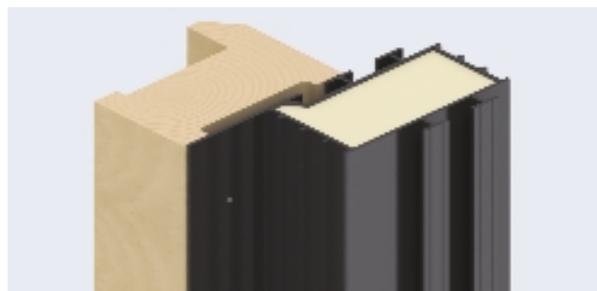


Kingspan Thermabate[®] or *Thermabate*[®] PLUS in position with reveal clip engaged behind window frame.

Use with Built-in Window Frames

Fix *Kingspan Thermabate*[®] to window frame with appropriate nails or screws through the holes provided in the fixing flange. Use self-tapping screws for PVC-U or metal frames. Installation is carried out as per the installation of site pre-formed frames and *Kingspan Thermabate*[®] PLUS with the following exceptions.

Cramps are fixed to the back of the frame and embedded in brick joints rather than using fixing ties attached to the *Kingspan Thermabate*[®] sections and the *Kingspan Thermabate*[®] is not fixed to the masonry through holes in its flange.



Kingspan Thermabate[®] can be pre-fixed to the back of the frame with appropriate fixings. The ribbed flange of *Kingspan Thermabate*[®] has pre-drilled locating holes.

Use in Window / Door Replacement and Refurbishment Procedure

Cut out and clear away any masonry that closes the cavity. *Kingspan Thermabate*[®] must be secured in position with wedges and fixings through the fixing flange to ensure no movement.

Offer up the window / door frame, secure to the masonry and use standard flange clips to fix the frame to the *Kingspan Thermabate*[®] section.

Kingspan **Thermabate**[®] & **Thermabate**[®] PLUS

Use of Butt Joints

Kingspan Thermabate[®] sections can be butt jointed but should be limited to not more than one joint per frame side. To facilitate alignment, machine-cut ends should be butted in a preference to those cut on site. A joint strip will enable abutting sections to be connected and aligned when *Kingspan Thermabate*[®] is built in on its own. The use of adhesive aluminium foil around a joint will prevent water tracking.

Cutting

Cutting should be carried out using a fine toothed saw.

Finishing

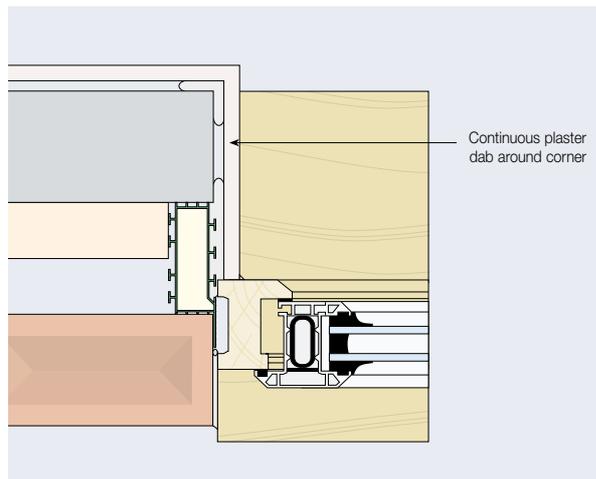
Plaster or floor screed is applied directly to *Kingspan Thermabate*[®] or *Thermabate*[®] PLUS as the section provides an effective key. Where it is used to support a floor screed at a door threshold, the screed should be of sufficient thickness (65 mm minimum) and reinforced to prevent cracking.

Plastering

The top of the tees should be flush with the masonry reveal. Note that the first coat of plaster should be pricked up into the tees and then scored as a key for the next coat of plaster.

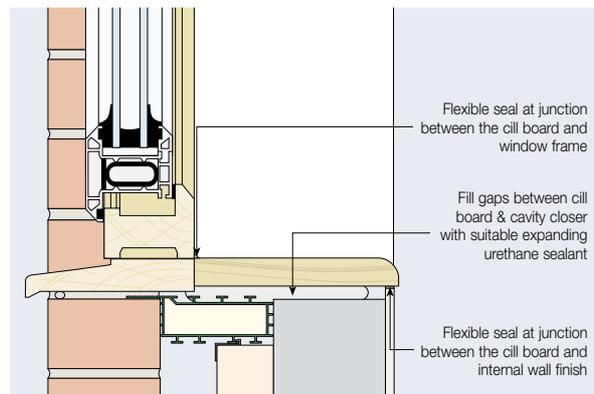
Dry-lining

The dabs for dry lining readily key into the *Kingspan Thermabate*[®] or *Thermabate*[®] PLUS section.



Fixing Oversailing Window Boards

Window boards should be fixed in the conventional manner. Direct fixing to *Kingspan Thermabate*[®] or *Thermabate*[®] PLUS is insufficient. Where an embedded tiled inner cill or threshold is required, the *Kingspan Thermabate*[®] or *Thermabate*[®] PLUS profile provides a key for cement bedding.



Completion

On completion, the frame is sealed to the surrounding masonry and internal plaster in accordance with normal practice.

Limitations of Use

Kingspan Thermabate[®] and *Thermabate*[®] PLUS are non-loadbearing and should not be used to support window or door frames, nor used in place of normal cavity wall ties.

Availability

Kingspan Thermabate[®] is available through specialist insulation distributors and selected builders' merchants throughout the UK, Ireland and Europe. *Kingspan Thermabate*[®] PLUS is made to order and delivered direct to site.

Packaging

According to quantity, *Kingspan Thermabate*[®] sections are supplied in polythene packs. *Kingspan Thermabate*[®] PLUS is supplied without packaging.

Storage

Care must be taken when storing to prevent distortion of the sections and *Kingspan Thermabate*[®] PLUS must be stored propped vertical. *Kingspan Thermabate*[®] and *Thermabate*[®] PLUS should not be exposed to excessive heat. The packaging of *Kingspan Thermabate*[®] and *Thermabate*[®] PLUS should not be considered adequate for long term outdoor protection. Ideally, sections should be stored inside a building. If, however, outdoor storage cannot be avoided then the sections should be stacked clear of the ground and covered with a polythene sheet or weatherproof tarpaulin. Sections where the insulation core has been allowed to get wet should not be used.

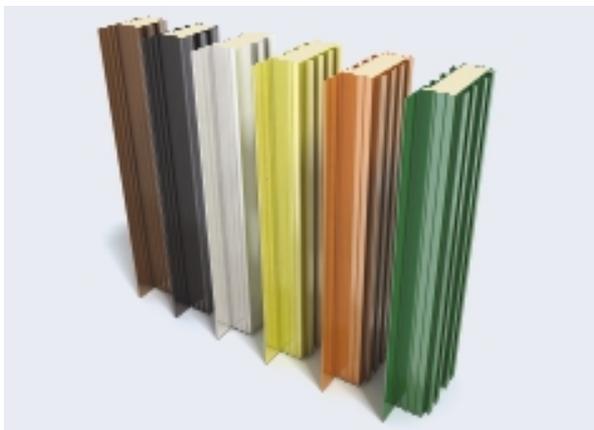
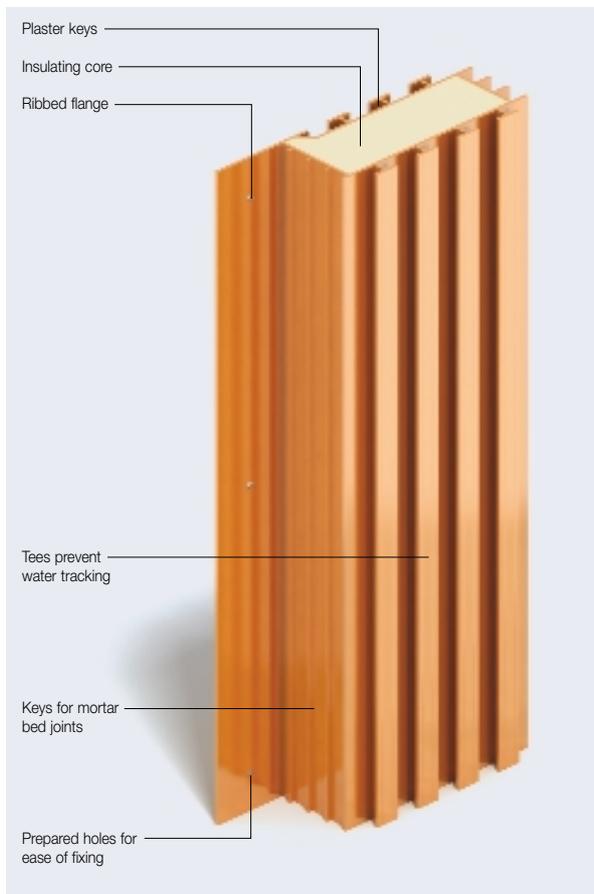
Health and Safety

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).

Product Description

Kingspan Thermabate[®] Sections

Kingspan Thermabate[®] is a PVC-U extrusion with a rigid urethane insulation core that is manufactured without the use of CFCs/HCFCs and has zero Ozone Depletion Potential (ODP). It is manufactured in six sizes to suit cavities 50–110 mm wide, each colour coded for instant identification. Jointing clips extend the range further by allowing the *Kingspan Thermabate*[®] sections to be joined to accommodate wider cavities of up to 200 mm.



Kingspan Thermabate[®] PLUS

Kingspan Thermabate[®] PLUS is available pre-formed to specified opening sizes.

Kingspan Thermabate[®] PLUS is available in the same widths and standard *Kingspan Thermabate*[®], i.e. 50 mm, 65 mm, 75 mm, 85 mm, 90 mm, 100 mm and multiples of these widths up to 200 mm, and temporary timber bracing is provided to maintain the specified opening size.

The section profile and rigid urethane insulation core to the sections are the same as in standard *Kingspan Thermabate*[®] sections.

Kingspan Thermabate[®] PLUS can be used with plastic, timber or metal window frames and an insulated lintel or *Kingspan Thermabate*[®] section can be used at the head.



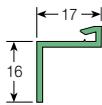
Accessories

Kingspan Thermabate[®] and *Thermabate*[®] PLUS are complemented by a full range of accessories to maximise the efficiency and scope for variable design options. Clip sections are supplied in 1 metre lengths and are colour coded.

Standard Flange Clip

For use as a weathercheck, for fixing closer profiles to window frame (and for retaining partial fill insulation batts in the cavity).

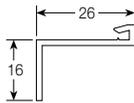
Colour: green



Reveal Clip

This aids construction of check reveals and gives added protection to the frame.

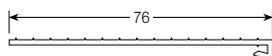
Colour: white



Flange Extension Clip

This clips over *Kingspan Thermabate*[®] and *Thermabate*[®] PLUS to extend the width of the fixing flange. It enables positive fixing of frame over suspect masonry.

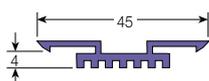
Colour: white



Jointing Clip

This connects two *Kingspan Thermabate*[®] and *Thermabate*[®] PLUS sections for use in cavities greater than 110 mm wide.

Colour: blue



Profile Bracket

These brackets have been developed to enable *Kingspan Thermabate*[®] rigid box sections to be formed into a frame. This is built in as the work proceeds and creates a pre-formed opening into which window frames can be fitted later.

The brackets are made of strong, re-usable polypropylene and supplied in packed sets of four.

Colour: black



Optional Fixing Tie

The tie is an optional / additional fixing and is particularly useful for wider cavities and / or in using *Kingspan Thermabate*[®] and *Thermabate*[®] PLUS to form openings. The tie is designed with different angled ends which slot securely between the tee flanges at the "back" of the *Kingspan Thermabate*[®] and *Thermabate*[®] PLUS section and keys fully into the mortar bed of either masonry skin. They are moulded PVC-U supplied in packs of 150.

Colour: white



Kingspan Thermabate[®]

Curved Sections

Kingspan Thermabate[®] can be factory formed to any specified radius for bullseye windows, curved heads, etc.



Product Data

Standards and Approvals

Kingspan Thermabate® is manufactured to the highest standards under a quality control system due to be approved to BS EN ISO 9001: 2000 (Quality management systems. Requirements). Its use is covered by BBA Certificate 91/2648.



Durability

If correctly applied, *Kingspan Thermabate*® and **Thermabate**® **PLUS** have an indefinite life. Their durability depends on the supporting structure and the conditions of its use.

Resistance to Solvents, Fungi & Rodents

Kingspan Thermabate® and **Thermabate**® **PLUS** are 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 products are installed. Ensure that safe methods of cleaning are used, as recommended by suppliers of the spilt liquid.

Kingspan Thermabate® and **Thermabate**® **PLUS** are not resistant to some solvent-based adhesive systems, particularly those containing methyl ethyl ketone, esters and aromatic hydrocarbons (e.g. toluene, xylene, benzene). Adhesives containing such solvents should not be used in association with these products. Damaged product or product that has been in contact with harsh solvents or acids should not be used.

The insulation core and PVC-U extrusion used in the manufacture of *Kingspan Thermabate*® and **Thermabate**® **PLUS** resist attack by mould and microbial growth and do not provide any food value to vermin.

Fire Performance

Kingspan Thermabate® and **Thermabate**® **PLUS** will achieve the results given below.

| Test | Result |
|--|--|
| BS 476-22: 1987 (Fire tests on building materials and structures. Methods for determination of the fire resistance of non-loadbearing elements of construction) | Passed half hour test – achieved 30 minutes integrity and 22 minutes insulation. |

Thermal Properties

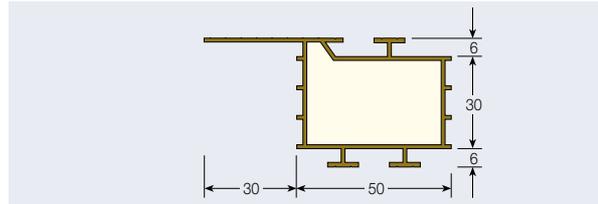
Thermal Conductivity

The thermal conductivity (λ -value) of the rigid urethane insulation core of *Kingspan Thermabate*® and **Thermabate**® **PLUS** is 0.034 W/m·K.

Standard Dimensions

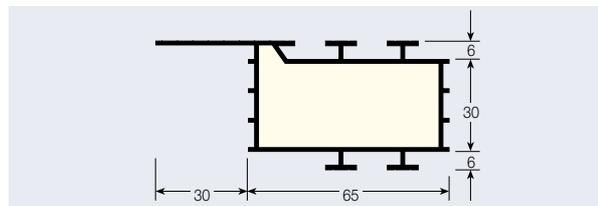
Kingspan Thermabate® 50 (brown)

For cavities 50–60 mm wide



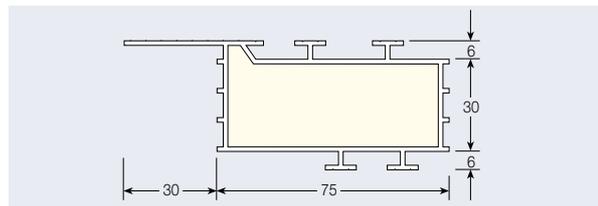
Kingspan Thermabate® 65 (black)

For cavities 65–74 mm wide



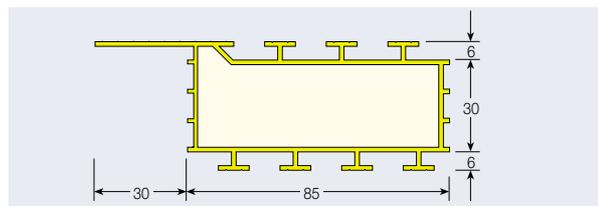
Kingspan Thermabate® 75 (white)

For cavities 75–84 mm wide



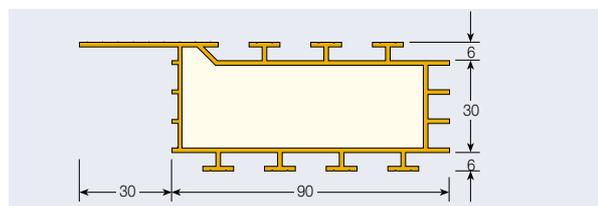
Kingspan Thermabate® 85 (yellow)

For cavities 85–94 mm wide



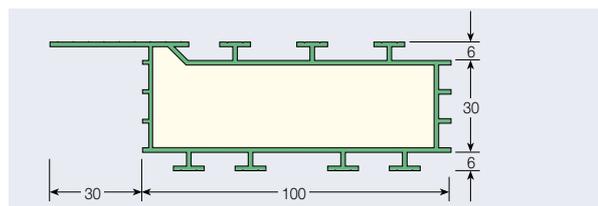
Kingspan Thermabate® 90 (orange)

For cavities 90–99 mm wide



Kingspan Thermabate® 100 (green)

For cavities 100–110 mm wide



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 |
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| Ireland | - Tel: | +353 (0) 42 97 54200 |
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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:

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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.

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