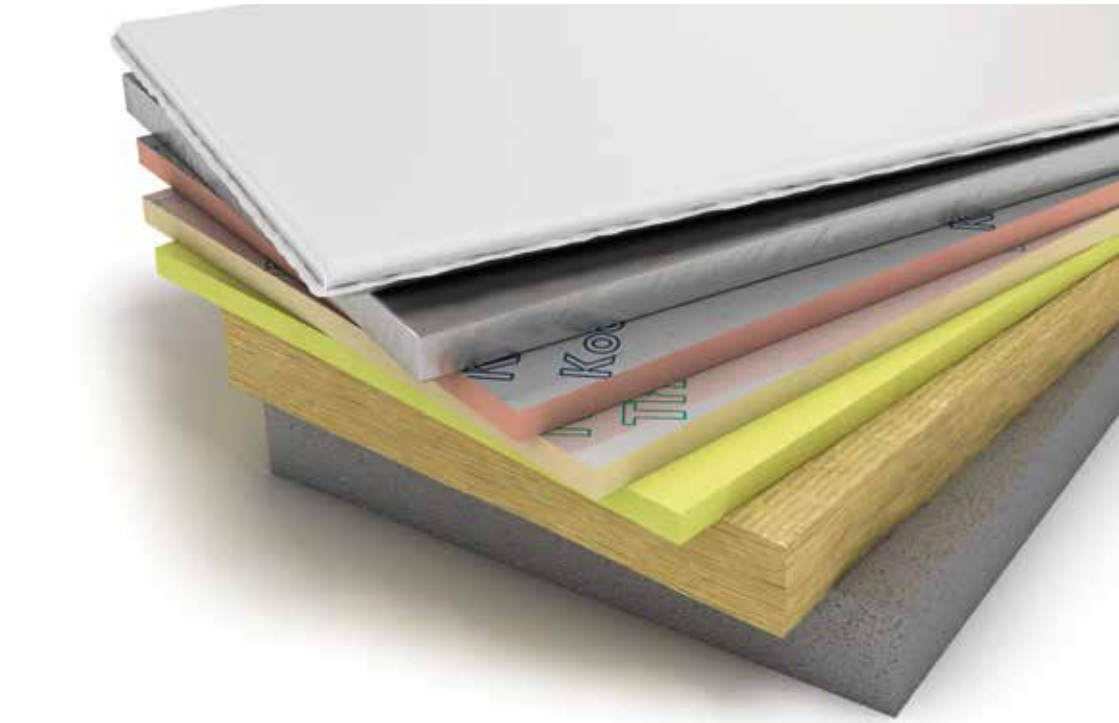
Insulation
Ireland

First Issue | 04/2025

Product Selector

Insulation solutions for roofs, walls and floors



Kingspan®

Contents

Image: Donal McCann Photography Ltd

Building regulations

The Building Regulations in Ireland set clear requirements for building energy performance. These may impact the U-value you need to achieve on both new build and refurbishment projects.

Ireland

The Technical Guidance Documents L (TGDL) give technical guidance on how to meet the energy efficiency requirements contained in Part L of the Building Regulations 2022, as amended, for building work carried out in the Republic of Ireland.

New buildings

	Domestic		Non-domestic	
Element type	Minimum Acceptable U-values – area-weighted (Wm^2K)	Worst Case Point U-values (Wm^2K)	Minimum Acceptable U-values – area-weighted (Wm^2K)	Worst Case Point U-values (Wm^2K)
Wall	0.18	0.60	0.21	0.60
Floor	0.18 (0.15 if underfloor heating is used)	0.60	0.21	0.60
Pitched roof	0.16	0.30	0.16	0.30
Flat roof	0.20	0.30	0.20	0.30

It is important to note that the 'Minimum Acceptable' values are the worst acceptable area-weighted values and, in order to reach a compliant DER/BER, it may be necessary to achieve lower U-values in some or all elements.

As the Minimum Acceptable U-values are area-weighted, certain areas of the construction can be insulated to a worse level providing this is compensated elsewhere in the construction. In all cases, however, no single point should be insulated to a worse level than the Worst Case Point U-values shown in the tables.

Building regulations

Existing buildings – adding or replacing thermal elements

Where a building or space is subject to material alterations or change of use, project teams should look to achieve the area-weighted average U-values shown in column 2 below. For non-domestic projects, this applies to retained thermal elements which exceed the threshold U-values in column 3.

These can be relaxed for individual constructions or areas of constructions if required for design or construction reasons, providing these areas at least meet the elemental U-value shown below. Where values are relaxed, these should be compensated for with improved U-values in other areas.

Element type	Area-weighted average (Wm^2K)	Area-weighted threshold (Wm^2K)	Elemental U-value (Wm^2K)
Wall – cavity insulation	0.55	0.55	0.60
Wall – internal or external insulation	0.35	0.55	0.60
Ground floor	0.45	0.45	0.60
Pitched roof – insulated at ceiling level	0.16	0.16	0.35
Pitched roof – insulated at / between rafters	0.25	0.35	0.35
Flat roof or roof with integral insulation	0.25	0.35	0.35

Where more than 25% of the surface area of the building envelope undergoes renovation, the whole building must be improved to "Cost Optimal" level where this is technically, functionally and economically feasible. Work to the surface area can include:

- recladding walls;
- replacing windows; and
- drylining internally.

The "Cost Optimal" performance level requires the building to achieve a set energy performance level calculated in DEAP or NEAP (see relevant technical guidance document for details). On domestic projects, this may include upgrading roofs insulated at ceiling level to the area-weighted average U-value shown in column 2 above (see relevant technical guidance document for details).

For extensions, project teams should look to achieve the Minimum Acceptable U-values for new build projects (shown in the tables above). To provide more flexibility, project teams can choose to vary the U-value of individual elements providing all areas at least achieve the Worst Case Point U-values and that this is compensated by upgrading other elements so that the overall heat loss through the walls, roof and floor combined is no higher than if the area-weighted values were used.

Building regulations

Northern Ireland

The Technical Booklets F (TBF) give technical guidance on how to meet the energy efficiency requirements contained in Part F of the Building Regulations 2012, as amended, for building work carried out in Northern Ireland.

New buildings

	Domestic		Non-domestic	
Element type	Minimum Acceptable U-values – area-weighted (Wm^2K)	Worst Case Point U-values (Wm^2K)	Minimum Acceptable U-values – area-weighted (Wm^2K)	Worst Case Point U-values (Wm^2K)
Wall	0.18	0.16	0.21	0.60
Floor	0.18 (0.15 if underfloor heating is used)	0.60	0.21	0.60
Roof	0.16	0.30	0.16 (pitched), 0.20 (flat)	0.30

It is important to note that the 'Minimum Acceptable' values are the worst acceptable area-weighted values and, in order to reach a compliant DER/BER, it may be necessary to achieve lower U-values in some or all elements.

As the Minimum Acceptable U-values are area-weighted, certain areas of the construction can be insulated to a worse level providing this is compensated elsewhere in the construction. In all cases, however, no single point should be insulated to a worse level than the Worst Case Point U-values shown in the tables.

Existing buildings – adding or replacing thermal elements

Element type	Maximum U-value for new elements – area-weighted average (Wm^2K)
Wall	0.28
Floor	0.22
Pitched roof – insulated at ceiling level	0.16
Pitched roof – insulated at / between rafters	0.18
Flat roof or roof with integral insulation	0.18

As these are area-weighted average U-values, it is possible to insulate certain areas of an element to worse U-values, provided this is compensated for elsewhere in the construction. In all cases, the U-values should be no worse than the limiting U-values (0.60 W/m^2K – walls and floors, 0.30 W/m^2K – roofs).

Consequential improvements may also apply to the existing buildings with a useable floor area over 1000 m^2 depending on the type of work being carried out (typically for extensions).

See the relevant Technical Booklet for further details on consequential improvements and design flexibility options.

Visit our free online U-value calculator. Offering free, quick and easy calculations for wall, floor and roof constructions.
u-valuecalculator.com/ie

Building regulations

Existing buildings – renovated elements

Ideally, this work should look to achieve the 'Upgraded' U-values shown in the table below as a minimum. Where this isn't technically feasible, or will not provide payback within 15 years, you should look to achieve the best possible U-values which are achievable. In all cases, you should reach, or improve upon, the 'Threshold' U-values shown below.

Element type	Upgraded U-values – area-weighted threshold (Wm^2K)	Threshold U-value (Wm^2K)
Wall – cavity insulation	0.30	0.70
Wall – internal or external insulation	0.30	0.70
Floor	0.25	0.70
Pitched roof – insulated at ceiling level	0.16	0.35
Pitched roof – insulated at / between rafters	0.18	0.35
Flat roof or roof with integral insulation	0.18	0.35

Existing buildings – extensions

When constructing an extension using Standards Based Approach, all new elements will need to meet the requirements for adding and replacing thermal elements whilst any refurbished thermal elements will need to meet those for renovated thermal elements.

For non-domestic buildings where the proposed extension has a useful floor area that is both:

- greater than 100 m^2 and
- greater than 25% of the existing useful floor area.

The extension must meet the TER for new buildings without any percentage uplift.

If greater flexibility is needed, project teams can also choose to take a Calculated Trade-off Approach or Equivalent Carbon Target Approach.

If the floor area of the building is over 1000 m^2, then any extension will also trigger consequential improvements to raise the energy efficiency for the whole building. See the relevant Approved Document for further details.

Building regulations

Northern Ireland

Change of use or energy status

When a building or a section of a building is subject to a change of use (e.g. from office to apartments) or to a change in energy status (e.g. where a loft or garage is converted to become part of the heated building) then the elements within this space must meet the requirements for adding or replacing thermal elements or renovating thermal elements as is appropriate for the work.

Where design flexibility is required, an Equivalent Carbon Target Approach can be used.

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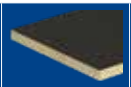
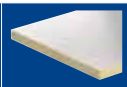
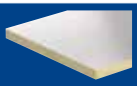
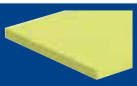
u-valuecalculator.com/ie

Roof solutions

Image: Donal Murphy Photography

Roof solutions overview

	 OPTIM-R® E	 OPTIM-R®	 Kooltherm® K7 Pitched Roof Board	 Thermapitch® TP10	 Thermaroof® TR24	 Thermaroof® TR26
Pitched Roofs						
Over / between / under rafter sarking			✓	✓		
Flat Roofs						
Tapered roofing system		✓				
Under partially bonded built-up felt						
Under cold liquid applied waterproofing		✓				
Under mastic asphalt					✓	
Under mechanically-fixed, single-ply non-bituminous membranes						✓
Under fully adhered singly-ply membranes		✓				
Partially bonded torch applied waterproofing						
Car park decks						
Lightweight protected membrane / maintenance access	✓	✓				
Insulation suitable for use under green roofs / roof gardens	✓	✓				✓

 Thermaroof® TR27	 Thermataper® TT46	 Thermataper® TT47	 Kingspan GreenGuard® GG300 /GG500	 Kingspan GreenGuard® GG700	 K-Roc® Flat Roof Slab
	✓	✓			
✓		✓			
✓		✓			
✓		✓	✓	✓	
✓	✓	✓			✓
✓		✓			
			✓	✓	
			✓	✓	
			✓		
✓	✓	✓	✓	✓	

OPTIM-R® E

Encapsulated vacuum insulation panels for inverted roofs

- Optimum performance rigid vacuum insulation panel with a thermal conductivity as low as 0.008 W/mK, and a design thermal conductivity as low as 0.009 W/mK
- Ideal for constructions where a lack of construction depth or space is an issue
- Protective coating for increased robustness and easier handling
- Protects waterproofing membrane
- Compatible with green roof systems
- Resistant to the passage of water vapour
- Ideal for new build and refurbishment

Please contact the Kingspan Insulation Technical Service Department for specific U-value calculations (see rear cover for details).

Scan for more information

OPTIM-R® Roofing System

Vacuum insulation panels for flat roofs and roof terraces

- Optimum performance rigid vacuum insulation panel with a declared thermal conductivity of 0.007 W/mK
- Ideal for constructions where a lack of construction depth or space is an issue
- Certified by BDA Agrément®*
- Resistant to the passage of water vapour
- Ideal for new build and refurbishment

Scan for more information

Dense concrete deck with suspended ceiling

Insulant thickness (mm)	Kingspan Thermaroof® overlay thickness	U-values (W/m²K)
40	30	0.18
50	25	0.16
50	30	0.15
30 + 30	25	0.14
30 + 30	30	0.13
40 + 30**	25	0.12
40 + 40	25	0.11
50 + 40**	25	0.10
50 + 50	25	0.09

* Certified for thicknesses of 20 – 50 mm.

** Where multiple layers of insulation of different thicknesses are used, the thickest layer should be installed as the outermost layer in the construction.

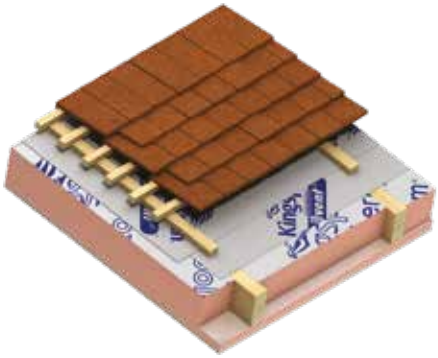
NB For the purposes of these calculations, the bridging effect Kingspan OPTIM-R® flex has been taken to be 11%. This figure is a starting point; for accurate calculations a design will be required and the bridging effect may change the U-values achieved.

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

Kooltherm® K7 Pitched Roof Board

Phenolic insulation for tiled or slated pitched warm roof spaces

- Premium performance rigid thermoset insulation – thermal conductivity as low as 0.021 W/mK
- One of the thinnest commonly used insulants for pitched roofs
- Unaffected by air infiltration
- Resistant to the passage of water vapour
- Easy to handle and install compared to some other commonly used insulants
- Ideal for new build and refurbishment



Unventilated – insulation under & fully filled between rafters at 600 mm centres

U–values (W/m²K) for various thicknesses of Kingspan Kooltherm® K18 assuming rafters of depth shown fully filled with Kingspan Kooltherm® K7		
Rafter depth (mm)	Product thickness of Kingspan Kooltherm® K18* (mm)	
	37.5	62.5
100	0.20	0.16
125	0.17	0.14
150	0.15	0.12

* Product thickness = insulant thickness + 12.5 mm plasterboard.

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

Scan for more information

Thermapitch® TP10

PIR insulation for tiled or slated pitched warm roof spaces

- High performance rigid thermoset polyisocyanurate (PIR) insulation – thermal conductivity 0.022 W/mK
- Unaffected by air infiltration
- Resistant to the passage of water vapour
- Easy to handle and install compared to some other commonly used insulants
- Ideal for new build and refurbishment

Unventilated – insulation under & partially filled between rafters at 400 mm centres

U–values (W/m²K) for various thicknesses of Kingspan Kooltherm® K18 assuming rafters of depth shown partially filled with Kingspan Thermapitch® TP10		
Thickness of Kingspan Thermapitch® TP10 (mm)	Thickness of Kingspan Kooltherm® K18 (mm)	
	62.5	72.5
100 mm deep rafters		
50	0.23	0.21
60	0.21	0.19
70	0.20	0.18
75	0.19	0.18
125 mm deep rafters		
50	0.23	0.21
60	0.21	0.19
70	0.20	0.18
75	0.19	0.18
80	0.19	0.17
90	0.18	0.16
100	0.17	0.16
150 mm deep rafters		
50	0.23	0.21
60	0.21	0.19
70	0.20	0.18
75	0.19	0.18
80	0.19	0.17
90	0.18	0.16
100	0.17	0.16
110	0.16	0.15
120	0.15	0.14
125	0.15	0.14

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

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Thermaroof® TR24

PIR insulation for flat roofs waterproofed with partially bonded torch applied multi-layer bituminous waterproofing

- High performance rigid thermoset polyisocyanurate (PIR) insulation – thermal conductivity 0.024 – 0.027 W/mK
- Compatible with majority of torch applied waterproofing systems
- Resistant to the passage of water vapour
- Easy to handle and install compared to some other commonly used insulants
- Ideal for new build and refurbishment

Dense concrete deck with suspended ceiling

Packer board* thickness (mm)	Insulant thickness (mm)	U-values (W/m²K)
0	100	0.22
0	120	0.18
0	130	0.17
0	140	0.16
0	150	0.15
80	80	0.14
90	100	0.12
100	120	0.11

* The packer board is taken to be Kingspan Thermaroof® TR27.

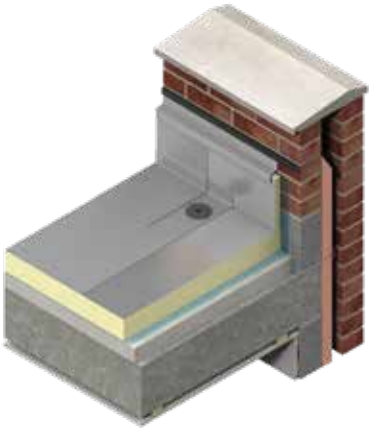
NB Some values may have been omitted from the table because they do not meet the most common minimum requirements.

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

Thermaroof® TR26

PIR insulation for flat roofs waterproofed with mechanically fixed single-ply waterproofing

- High performance rigid thermoset polyisocyanurate (PIR) insulation – thermal conductivity 0.022 W/mK
- For FM approval please see the full product brochure
- Fully compatible with most mechanically fixed single-ply waterproofing systems
- Compatible with most green roof systems
- Installation technique is ideal for fast track building programmes



Dense concrete deck with suspended ceiling

Insulant thickness (mm)	U-values (W/m²K)
70	0.27
80	0.24
90	0.22
100	0.20
110	0.18
120	0.17
130	0.16
140	0.14
150	0.14
160	0.13
90 + 90	0.11
100 + 100	0.10

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

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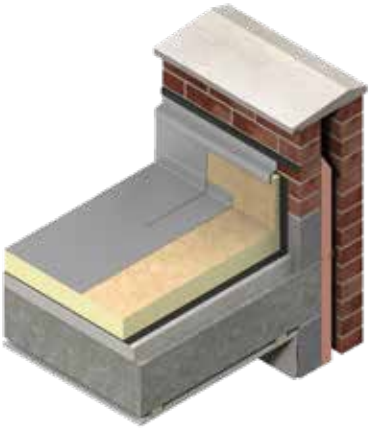
Also available as a tapered insulation board – Kingspan Thermataper® TT46

Thermaroof® TR27

PIR insulation for flat roofs waterproofed with fully adhered single-ply, partially bonded built-up felt, mastic asphalt and cold liquid applied waterproofing

- High performance rigid thermoset polyisocyanurate (PIR) insulation – thermal conductivities as low as 0.024 W/mK
- For FM Approval please see the full product brochure
- Fully compatible with single-ply non-bituminous membranes that are fully bonded with solvent based adhesive systems
- Fully compatible with most bitumen based and mastic asphalt waterproofing systems
- Compatible with most green roof systems



Dense concrete deck with suspended ceiling

U-values (W/m²K) for various thicknesses of insulation and waterproofing systems			
Insulant thickness (mm)	Waterproofing system		
	Partially bonded built-up felt	Mastic asphalt	Fully adhered single-ply / cold liquid applied
90	0.24	0.24	0.24
100	0.22	0.22	0.22
110	0.20	0.20	0.20
120	0.18	0.18	0.18
130	0.17	0.17	0.17
140	0.16	0.16	0.16
150	0.15	0.15	0.15
160	0.14	0.14	0.14
90 + 100*	0.12	0.12	0.12
100 + 100*	0.11	0.11	0.11
100 + 120*	0.10	0.10	0.10

* Where multiple layers of insulation of different thicknesses are used, the thickest layer should be installed as the outermost layer in the construction.

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

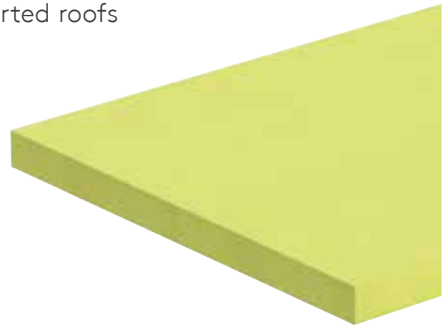
Scan for more information

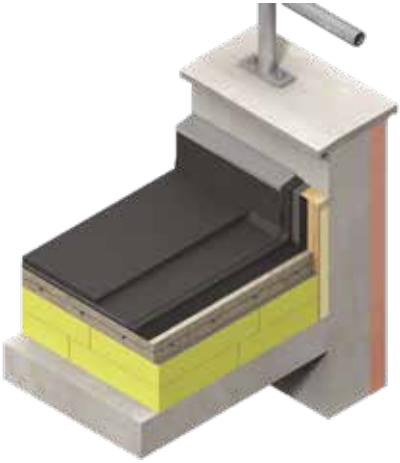
Also available as a tapered insulation board – Kingspan Thermataper® TT47

Kingspan GreenGuard®

Insulation for car park decks and inverted roofs

- Available in three grades
- Rigid extruded polystyrene insulation – thermal conductivities as low as 0.033 W/mK
- High compressive strength withstands vehicle loads
- Resistant to the passage of water vapour
- Easy to handle and install compared to some other commonly used insulants
- Ideal for new build and refurbishment





Car park decks

Kingspan GreenGuard® GG300 thickness (mm)	U-values (W/m²K)
120	0.25
130 (80 + 50)	0.23
140 (80 + 60)	0.22
150	0.20
160 (80 + 80)	0.19
170 (120 + 50)	0.18
180	0.17
190 (150 + 40)	0.16
200 (100 + 100)	0.15
210 (150 + 60)	0.15
220 (120 + 100)	0.14
230 (150 + 80)	0.14
240 (120 + 120)	0.13
250 (150 + 100)	0.13
260 (100 + 80 + 80)	0.12
270 (150 + 120)	0.12
280 (100 + 180)	0.11
300 (150 + 150)	0.11
320 (100 + 100 + 120)	0.10
340 (100 + 120 + 120)	0.09
360 (180 + 180)	0.09
380 (100 + 100 + 180)	0.08

* The above table contains figures for Kingspan GreenGuard® GG300 only. Please consult the Kingspan Insulation Technical Service Department (see rear cover) or U-value Calculator for calculations for other products in the range.

NB Where there are multiple layers of insulation of different thicknesses the thickest insulation board is installed first.

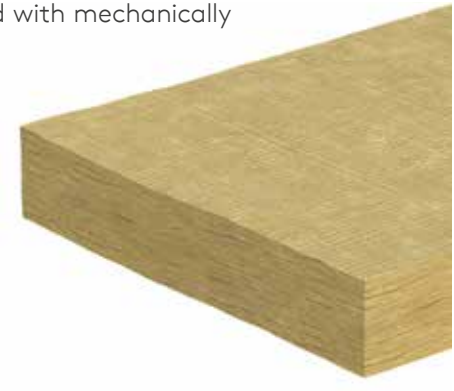
NB Refer to local distributor or Kingspan Insulation for current stock and non-stock sizes.

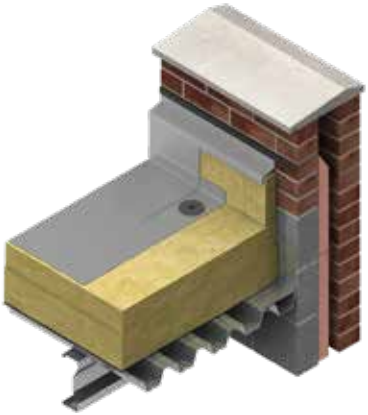
Scan for more information

K-Roc® Flat Roof Slab 70/039

Insulation for flat roofs waterproofed with mechanically fixed single-ply waterproofing

- Rock mineral fibre insulation with a thermal conductivity of 0.039 W/mK
- A1 Euroclass
- Fully compatible with most mechanically fixed single-ply waterproofing systems
- Ideal for new build and refurbishment





Metal deck with no ceiling

Insulant thickness (mm)	U-values (W/m²K)
120	0.31
140	0.27
160	0.24
180 (80 + 100)	0.21
200 (100 + 100)	0.19
220 (100 + 120)	0.17
240 (120 + 120)	0.16
260 (120 + 140)	0.15
280 (140 + 140)	0.14
300 (140 + 160)	0.13
320 (160 + 160)	0.12
340 (100 + 120 + 120)	0.11
380 (100 + 120 + 140)	0.10
420 (140 + 140 + 140)	0.09

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

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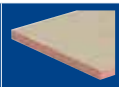
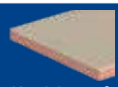
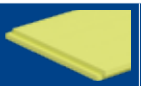
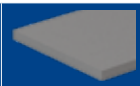
Image: Donal Murphy Photography

Wall solutions

Wall solutions overview

	 AlphaCore® Pad	 Kooltherm® K5 External Wall Board	 Kooltherm® K8 Cavity Board	 Kooltherm® K8 Plus Cavity Board	 Kooltherm® K12 Framing Board	 Kooltherm® K15 Rainscreen Board	 Kooltherm® K17 / K18 Insulated Plasterboard
Full fill cavity walls				✓			
Partial fill cavity walls			✓				
Internal drylining							✓
Insulated render systems		✓					
Behind rainscreen	✓					✓	
Timber frame					✓		
Steel frame					✓	✓	
Basement walls							

 Thermawall® TW50	 Thermawall® TW55	 Kingspan GreenGuard® GG300 / GG500 / GG700	 Aerowall® Platinum®	 EcoBead® Platinum®	 K-Roc® Rainscreen Slab	 K-Roc® Framing Slab
				✓		
✓						
			✓			
					✓	
	✓					
	✓					✓
		✓				

AlphaCore® Pad

Microporous silica-based insulation for use behind rainscreen and brick façades

- Premium performance microporous silica-based insulation – thermal conductivity of 0.020 W/mK
- Provides a slim solution for rainscreen façades
- A2-s1,d0 Euroclass
- Water-repellent core
- Ideal for new build and refurbishment

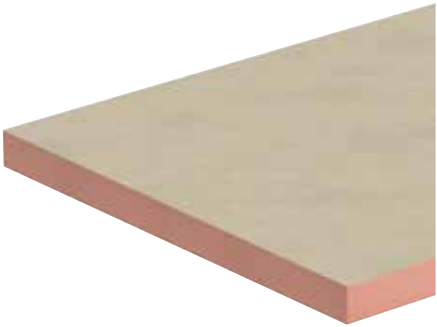
Please contact the Kingspan Insulation Technical Service Department for specific U-value calculations (see rear cover for details).

Scan for more information

Kooltherm® K5 External Wall Board

Phenolic insulation for masonry walls

- Premium performance rigid thermoset insulation – thermal conductivities as low as 0.021 W/mK
- One of the thinnest commonly used insulants for external walls
- Suitable for use behind traditional and lightweight polymer modified renders
- Unaffected by air infiltration
- Resistant to the passage of water vapour
- Ideal for new build and refurbishment



100 mm brick / 50 mm cavity / 100 mm brick wall

U-values (W/m²K) for various thicknesses of Kingspan Kooltherm® K5 with 10 mm polymer render	
Insulant thickness (mm)	U-values (W/m²K)
40	0.39
50	0.32
60	0.28
70	0.24
80	0.22
90	0.20
100	0.17
50 + 60	0.17
60 + 60	0.15
70 + 70	0.14

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

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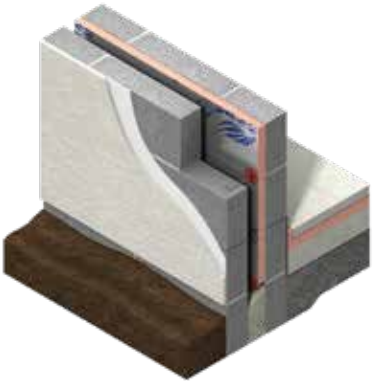
Kooltherm® K8 Cavity Board

Phenolic partial fill cavity wall insulation

- Premium performance rigid thermoset phenolic insulation – thermal conductivity as low as 0.021 W/mK
- One of the thinnest commonly used insulants for cavity walls
- Clear cavity is maintained - resists moisture penetration
- Low emissivity foil facings significantly increase the thermal resistance of the cavity
- Unaffected by air infiltration
- Easy to handle and install compared to some other commonly traditional insulants



20 mm sand and cement rendered 100 mm dense block outer leaf* / 100 mm block inner leaf internal finish with 13 mm lightweight plaster

U-values (W/m²K) for various thicknesses of Kingspan Kooltherm® K8		
Insulant thickness (mm)	Inner leaf with 13 mm lightweight plaster finish and λ-value (W/mK)	
	Dense (1.13)	Medium (0.51)
60	0.25	0.24
70	0.22	0.21
80	0.20	0.19
90	0.18	0.18
100	0.17	0.16
110	0.16	0.15

* Calculations assume dense block outer leaf of λ-value (1.13 W/mK).

NB A 6.6% thermal bridging factor has been assumed for the effect of mortar joints.

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

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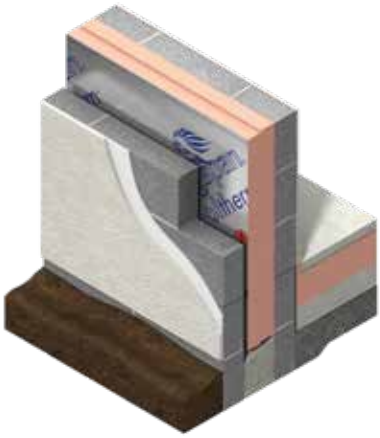
Kooltherm® K8 Plus Cavity Board

Phenolic partial fill cavity wall insulation

- Premium performance rigid thermoset phenolic insulation – thermal conductivities as low as 0.021 W/mK
- One of the thinnest commonly used insulants for cavity walls
- 20 mm clear cavity is maintained – resists moisture penetration
- Engineered jointing to resist water ingress
- Achieves European Classification (Euroclass) C-s2,d0
- U-values as low as 0.14 W/m²K achieved in standard 150 mm cavity
- Low emissivity scrim reinforced foil facings increase the thermal resistance of the cavity



Scan for more information

19 mm sand and cement rendered 100 mm dense block outer leaf* / 100 mm block inner leaf internal finish with 13 mm lightweight plaster

U-values (W/m²K) for various thicknesses of Kingspan Kooltherm® K8 Plus	
Insulant thickness (mm)	100 mm inner leaf of dense blockwork (1.13 W/mK)
90	0.19
130	0.14

* Calculations assume dense block outer leaf of λ-value (1.13 W/mK).

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

Don't forget to download our CAD details and indicative psi-values. Our thermal modelling provides details for wall junctions, that have been carefully developed with the aim of being buildable.

Kooltherm® K12 Framing Board

Phenolic insulation for timber and steel framing systems

- Premium performance rigid thermoset insulation – thermal conductivity as low as 0.021 W/mK
- One of the thinnest commonly used insulants for framing systems
- Can be used between studs or as an insulating sheathing
- Unaffected by air infiltration
- Easy to handle and install compared to some other commonly used insulants
- Ideal for Modern Methods of Construction (MMC)

Insulation between timber frame studs with Kingspan Kooltherm® K18 fixed internally & 102.5 mm brickwork outer leaf

U-values (W/m²K) for various thicknesses of insulation, stud depth and standard breather membrane		
Thickness of Kingspan Kooltherm® K12 between studs (mm)	Thickness of Kingspan Kooltherm® K18* inside studs (mm)	U-values (W/m²K)
100 mm deep timber studs		
80	42.5	0.20
80	52.5	0.18
80	62.5	0.16
80	72.5	0.15
80	82.5	0.14
80	92.5	0.13
80	102.5	0.12
80	112.5	0.12
140 mm deep timber studs		
120	37.5	0.17
120	42.5	0.16
120	52.5	0.15
120	62.5	0.14
120	72.5	0.13
120	82.5	0.12
120	92.5	0.11
120	102.5	0.11
120	112.5	0.10

* Product thicknesses = insulant thickness + 12.5 mm plasterboard.

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

Scan for more information

Kooltherm® K15 Rainscreen Board

Phenolic insulation for use behind rainscreen façades

- Premium performance rigid thermoset phenolic insulation – thermal conductivity as low as 0.021 W/mK
- One of the thinnest commonly used insulants for rainscreen façades
- Unaffected by air infiltration
- Resistant to the passage of water vapour
- Easy to handle and install compared to some other commonly used insulants
- Ideal for new build and refurbishment

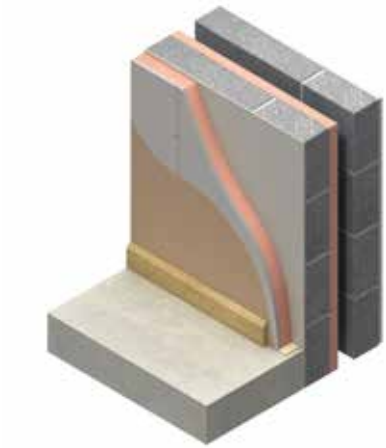
Please contact the Kingspan Insulation Technical Service Department for specific U-value calculations (see rear cover for details).

Scan for more information

Kooltherm® K17 Insulated Plasterboard

Phenolic insulated plasterboard for mechanically fixed and adhesively bonded insulated drylining

- Premium performance rigid thermoset phenolic insulation – thermal conductivity as low as 0.021 W/mK
- One of the thinnest commonly used insulants for internal wall applications
- Allows quick response heating
- Unaffected by air infiltration
- Resistant to the passage of water vapour
- Easy to handle and install compared to some other commonly used insulants
- Ideal for new build, retrofit and refurbishment



20 mm cement rendered / 100 mm block outer leaf / cavity / 100 mm block inner leaf

U-values (W/m²K) for various thicknesses of Kingspan Kooltherm® K17 and Kingspan Kooltherm® K8		
Kingspan Kooltherm K17 thickness* (mm)	Inner leaf blockwork density and λ-value (W/mK)	
	Dense (1.13)	Medium (0.51)
100 mm cavity partially filled with 60 mm of Kingspan Kooltherm® K8		
42.5	0.18	0.18
52.5	0.17	0.17
62.5	0.15	0.15
150 mm cavity partially filled with 110 mm of Kingspan Kooltherm® K8		
42.5	0.13	0.13
52.5	0.12	0.12
62.5	0.11	0.11

* Product thickness = insulant thickness + 12.5 mm plasterboard.

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

Scan for more information

Kooltherm® K18 Insulated Plasterboard

Phenolic insulated plasterboard for mechanically fixed insulated drylining

- Premium performance rigid thermoset phenolic insulation – thermal conductivity as low as 0.021 W/mK
- One of the thinnest commonly used insulants for internal wall applications
- Allows quick response heating
- Unaffected by air infiltration
- Resistant to the passage of water vapour
- Easy to handle and install compared to some other commonly used insulants
- Ideal for new build, retrofit and refurbishment

Solid brickwork masonry walls

U-values (W/m²K) for various thicknesses of Kingspan Kooltherm® K18		
Product thickness* (mm)	Brickwork thickness	
	102.5 mm	215 mm
Timber battens at 600 mm centres		
37.5	0.51	0.47
42.5	0.46	0.43
52.5	0.39	0.37
62.5	0.33	0.31
72.5	0.29	0.27
82.5	0.25	0.25
92.5	0.23	0.22
102.5	0.21	0.20
112.5	0.19	0.19

* Product thickness = insulant thickness + 12.5 mm plasterboard.

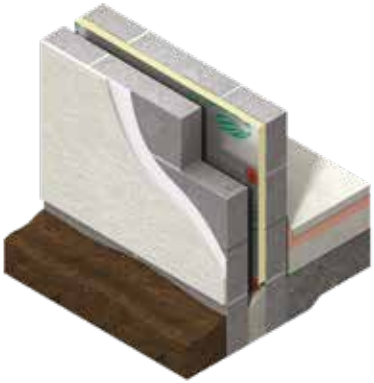
NB Refer to local distributor or Kingspan Insulation for current stock and non-stock sizes.

Scan for more information

Thermawall® TW50

PIR partial fill cavity wall insulation

- High performance rigid thermoset phenolic insulation – thermal conductivity of 0.022 W/mK
- Clear cavity is maintained – resists moisture penetration
- Low emissivity foil facings significantly increase the thermal resistance of the cavity
- Unaffected by air infiltration
- Easy to handle and install compared to some other commonly traditional insulants



Scan for more information

20 mm cement rendered 100 mm dense block outer leaf* / 100 mm fair faced block inner leaf

U-values (W/m²K) for various thicknesses of Kingspan Thermawall® TW50			
Thickness of Kingspan Thermawall® TW50 (mm)	Inner leaf fair faced blockwork density and λ-value (W/mK)		
	Dense (1.13)	Medium (0.51)	Lightweight (0.15)*
40	0.35	0.34	0.30
60	0.28	0.26	0.23
70	0.24	0.23	0.21
80	0.21	0.21	0.19
100	0.18	0.18	0.16

* A 6.6% thermal bridging factor has been assumed for the effect of mortar joints.

NB Calculations assume dense block outer leaf of λ-value (1.13 W/mK).

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

Thermawall® TW55

PIR insulation for timber and steel framing systems

- High performance rigid thermoset polyisocyanurate (PIR) insulation – thermal conductivity of 0.022 W/mK
- Can be used between studs or as an insulating sheathing
- Suitable for use with timber frame and steel frame wall construction
- Unaffected by air infiltration
- Resistant to the passage of water vapour
- Easy to handle and install compared to some other commonly used insulants
- Ideal for new build or refurbishment
- Ideal for Modern Methods of Construction (MMC)

Scan for more information

Timber frame wall with 102.5 mm brickwork outer leaf

U-values (W/m²K) for various thicknesses of insulation and stud depths		
Thickness of Kingspan Thermawall® TW55 between studs (mm)	Thickness of Kingspan Kooltherm® K18* inside studs (mm)	U-values
70	37.5	0.22
70	42.5	0.21
70	52.5	0.19
70	62.5	0.17
70	72.5	0.16

* Product thicknesses = insulant thickness + 12.5 mm plasterboard.

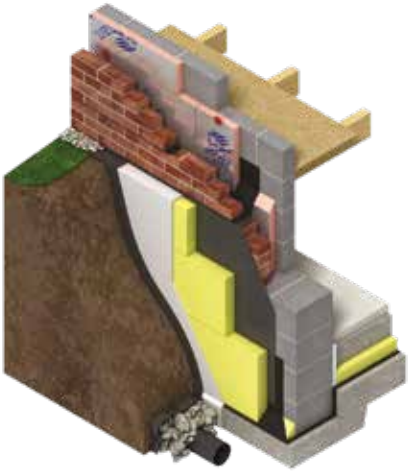
NB Calculations assume a standard breathable membrane.

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

Kingspan GreenGuard®

XPS insulation for basements

- Available in three grades
- Rigid extruded polystyrene insulation – thermal conductivities as low as 0.033 W/mK
- High compressive strength withstands vehicle loads
- Resistant to ground moisture penetration
- Unaffected by air infiltration
- Easy to handle and install compared to some other commonly used insulants



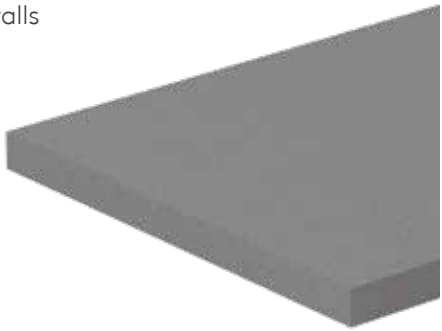
Calculations for basement walls are based on the height of the basement, the P/A ratio of the basement floor and the thermal performance of the basement floor. Once all three variables have been obtained, please contact the Kingspan Insulation Technical Service Department (see rear cover) for the U-values to be calculated.

Scan for more information

Aerowall® Platinum®

EPS external insulation for masonry walls

- Graphite infused rigid expanded polystyrene (EPS) insulation
- Thermal conductivity of 0.031 W/mK
- Suitable for new build and refurbishments
- Installation by accredited installers



215 mm dense block

U-values for various thicknesses of Kingspan Aerowall® Platinum®	
Insulation thickness (mm)	U-value (W/m²K)
100	0.27
130	0.21
160	0.18
200	0.14
300	0.10

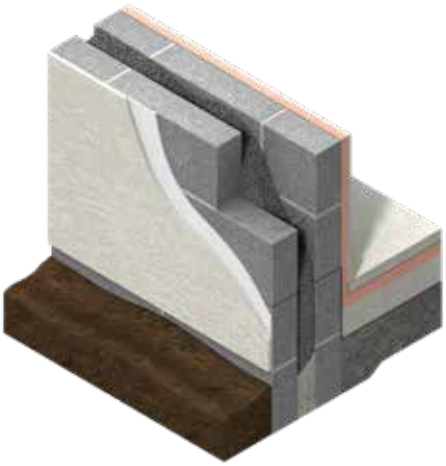
NB Refer to local distributor or Kingspan Insulation for current stock and non-stock sizes.

Scan for more information

EcöBead® Platinum®

EPS cavity wall insulation

- Graphite infused expanded polystyrene (EPS) insulation
- Bonded bead insulation fully filling cavity
- Thermal conductivity as low as 0.033 W/mK
- Easy to install compared to some other commonly used insulants
- 0.14 W/m²K U-value achieved in a 220 mm cavity
- Extensive installer network



U-values (W/m²K) for various thicknesses of Kingspan EcoBead® Platinum® 35 (0.035 W/mK)		
Insulant thickness (mm)	Inner leaf blockwork density and λ-value (W/mK)	
	Dense (1.13)	Medium (0.51)
100	0.30	0.28
130	0.24	0.23
150	0.21	0.20
180	0.19	0.18
200	0.17	0.16
220	0.15	0.15
250	0.14	0.13
300	0.12	0.11

U-values (W/m²K) for various thicknesses of Kingspan EcoBead® Platinum® 33 (0.033 W/mK)		
Insulant thickness (mm)	Inner leaf blockwork density and λ-value (W/mK)	
	Dense (1.13)	Medium (0.51)
100	0.29	0.27
130	0.23	0.22
150	0.20	0.19
180	0.18	0.17
200	0.16	0.15
220	0.15	0.14
250	0.13	0.13
300	0.11	0.11

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

Scan for more information

K-Roc® Rainscreen Slab

Rock mineral fibre insulation for use behind rainscreen façades, including steel and timber frame systems with a masonry outer leaf

- Rock mineral fibre insulation with a thermal conductivity of 0.034 W/mK
- A1 Euroclass
- Successfully tested in a façade system to BS 8414-2: 2015 + A1: 2017 in accordance with the performance criteria set out in BR 135

Please contact the Kingspan Insulation Technical Service Department for specific U-value calculations (see rear cover for details).

Scan for more information

K-Roc® Framing Slab

Rock mineral fibre insulation for steel frame systems

- Rock mineral fibre insulation with a thermal conductivity of 0.036 W/mK
- A1 Euroclass
- 610 mm wide slabs fit neatly between studs at 600 mm centres

Please contact the Kingspan Insulation Technical Service Department for specific U-value calculations (see rear cover for details).

Scan for more information

Image: Donal Murphy Photography

Floor solutions

Image: Donal McCann Photography Ltd

Floor solutions overview

	 AlphaCore® Pad	 OPTIM-R®	 Kooltherm® K3 Floorboard	 Kooltherm® K10 Soffit Board & Kooltherm® K10 PLUS Soffit Board
Solid ground floors		✓	✓	
Suspended ground floors			✓	
Floating ground floors		✓		
Soffit lining	✓			✓
Heavy duty / industrial / cold floor stores				

 Thermafloor® TF70	 Kingspan GreenGuard® GG300 /GG500/ GG700	 K-Roc® Soffit Slab	 Aerofloor®	 Aerofloor® Platinum®
✓	✓		✓	✓
✓			✓	✓
✓			✓	✓
		✓		
	✓			

AlphaCore® Pad

Premium performance insulation for structural ceilings (soffits)

- Premium performance microporous silica-based insulation – thermal conductivity of 0.020 W/mK
- Provides a slim solution for soffits
- A2-s1,d0 Euroclass
- Water-repellent core
- Ideal for new build and refurbishment

Product thickness (mm)	U-value (W/m²K)
50 + 40	0.24
50 + 50	0.22
40 + 40 + 30	0.20
40 + 40 + 40	0.19
50 + 40 + 40	0.17
50 + 50 + 40	0.16
50 + 50 + 50	0.15

NB Calculations assume Kingspan AlphaCore® Pad is mechanically fixed with a metal screw fixing.

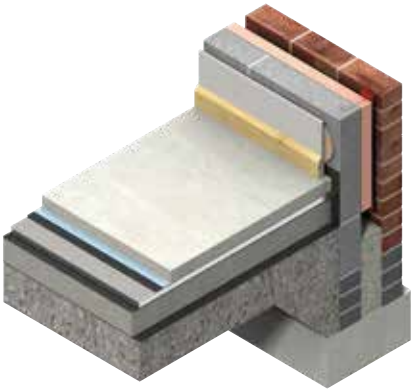
NB Refer to local distributor or Kingspan Insulation for current stock and non-stock sizes.

Scan for more information

OPTIM-R® Flooring System

Vacuum insulation panels for floors

- Optimum performance rigid vacuum insulation panel with a declared thermal conductivity of 0.007 W/mK
- Ideal for constructions where a lack of construction depth or space is an issue
- Certified by BDA Agrément®*
- Resistant to the passage of water vapour
- Ideal for new build and refurbishment



Solid concrete ground based floor – insulation below the floor screed

U-values (W/m²K) for various thicknesses of Kingspan OPTIM-R® and floor perimeter / area ratios						
Insulant thickness (mm)	Perimeter / area (m^{-1})					
	0.2	0.3	0.4	0.5	0.6	0.7
20	0.21	0.25	0.27	0.28	0.30	0.31
25	0.19	0.22	0.23	0.25	0.26	0.26
30	0.17	0.19	0.21	0.22	0.23	0.23
40	0.15	0.16	0.17	0.18	0.18	0.19
50	0.13	0.14	0.15	0.15	0.16	0.16
30 + 30**	0.11	0.12	0.13	0.13	0.13	0.14
30 + 40	0.10	0.11	0.11	0.12	0.12	0.12
40 + 40	0.09	0.10	0.10	0.10	0.11	0.11

* Certified for thicknesses of 20 – 50 mm.

** Where multiple layers of insulation of different thicknesses are used, the thickest layer should be installed as the outermost layer in the construction.

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

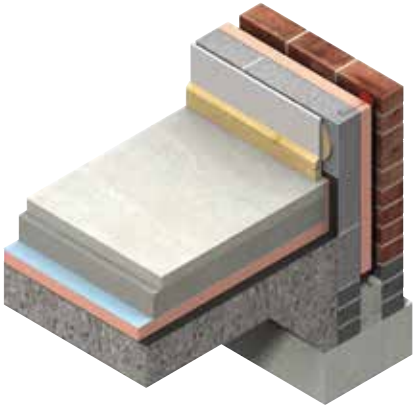
NB For the purposes of these calculations, the bridging effect Kingspan OPTIM-R® flex has been taken to be 15%. This figure is a starting point, for accurate calculations a design will be required and the bridging effect may change the U-values achieved.

Scan for more information

Kooltherm® K3 Floorboard

Phenolic insulation for floors

- Premium performance rigid thermoset phenolic insulation – thermal conductivity as low as 0.021 W/mK
- One of the thinnest commonly used insulants for floors
- Unaffected by air infiltration
- Resistant to the passage of water vapour
- Easy to handle and install compared to some other commonly used insulants
- Ideal for new build and refurbishment



Solid concrete ground based floor – insulation below the floor slab

U-values (W/m²K) for various thicknesses of Kingspan Kooltherm® K3 and floor perimeter / area ratios			
Insulant thickness (mm)	Perimeter / area (m^{-1})		
	0.4	0.5	0.6
40	0.29	0.31	0.32
50	0.25	0.26	0.27
60	0.22	0.23	0.24
70	0.20	0.21	0.22
80	0.18	0.19	0.20
90	0.17	0.18	0.18
100	0.16	0.16	0.17
110	0.15	0.15	0.15
120	0.14	0.14	0.14
130	0.13	0.13	0.13
140	0.12	0.12	0.13
150	0.11	0.12	0.12

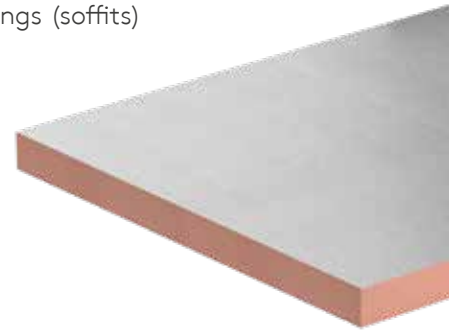
NB Refer to local distributor or Kingspan Insulation price list for current stock and non-stock sizes.

Scan for more information

Kooltherm® K10 Soffit Board

Phenolic insulation for structural ceilings (soffits)

- Premium performance rigid thermoset phenolic insulation – thermal conductivities as low as 0.021 W/mK
- One of the thinnest commonly used insulants for soffits
- For FM approval please see the full product brochure
- Unaffected by air infiltration
- Resistant to the passage of water vapour



Fixed directly to concrete soffit

Insulant thickness (mm)	U-value (W/m²K)
50	0.37
60	0.31
70	0.27
80	0.24
90	0.22
100	0.20
120	0.16
130	0.15
140*	0.14
150*	0.13
170*	0.12

* Supplied in two layers.

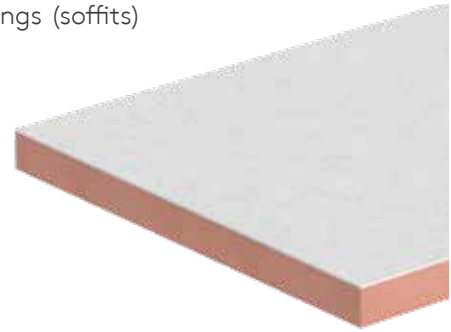
NB Refer to local distributor or Kingspan Insulation for current stock and non-stock sizes.

Scan for more information

Kooltherm® K10 PLUS Soffit Board

Phenolic insulation for structural ceilings (soffits)

- Premium performance rigid thermoset phenolic insulation – thermal conductivities as low as 0.021 W/mK
- One of the thinnest commonly used insulants for soffits
- 6 mm Euroclass A1 building board
- For FM approval please see the full product brochure
- Unaffected by air infiltration
- Resistant to the passage of water vapour
- Easy to handle compared to some other commonly available insulants
- Ideal for new build and refurbishment



Fixed directly to concrete soffit

Insulant thickness (mm)	U-value (W/m²K)
56	0.36
66	0.31
76	0.27
86	0.24
96	0.21
106	0.19
126	0.16
136	0.15

* Product thickness = insulation thickness + 6 mm Euroclass A1 building board.

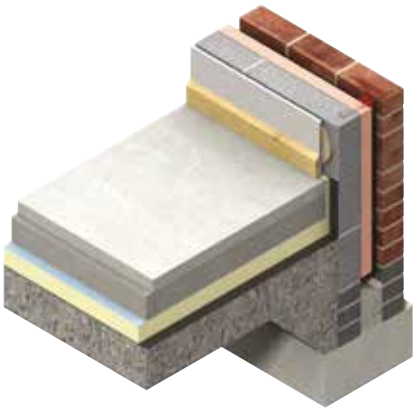
NB Refer to local distributor or Kingspan Insulation for current stock and non-stock sizes.

Scan for more information

Thermafloor® TF70

PIR insulation for solid concrete and suspended ground floors

- High performance rigid thermoset polyisocyanurate (PIR) insulation – thermal conductivity 0.022 W/mK
- Unaffected by air infiltration
- Resistant to the passage of water vapour
- Easy to handle and install compared to some other commonly used insulants
- Ideal for new build and refurbishment



Solid concrete ground based floor – insulation below the floor slab

U-values (W/m²K) for various thicknesses of Kingspan Thermafloor® TF70 and floor perimeter / area ratios						
Insulant thickness (mm)	Perimeter / area (m^{-1})					
	0.2	0.3	0.4	0.5	0.5	0.7
40	0.23	–	–	–	–	–
50	0.20	0.24	–	–	–	–
60	0.19	0.21	0.23	0.24	–	–
70	0.17	0.19	0.21	0.22	0.22	0.23
75	0.16	0.18	0.20	0.21	0.21	0.22
80	0.16	0.18	0.19	0.20	0.20	0.21
90	0.15	0.16	0.17	0.18	0.19	0.19
100	0.14	0.15	0.16	0.17	0.17	0.18
110	0.13	0.14	0.15	0.16	0.16	0.16
120	0.12	0.13	0.14	0.15	0.15	0.15
125	0.12	0.13	0.14	0.14	0.14	0.15
130	0.11	0.13	0.13	0.14	0.14	0.14
140	0.11	0.12	0.12	0.13	0.13	0.13
150	0.10	0.11	0.12	0.12	0.12	0.13

NB Where multiple layers of insulation of different thicknesses are used, the thickest layer should be installed as the outermost layer in the construction.

NB Some values may have been omitted from the table because they do not meet the most common minimum requirements.

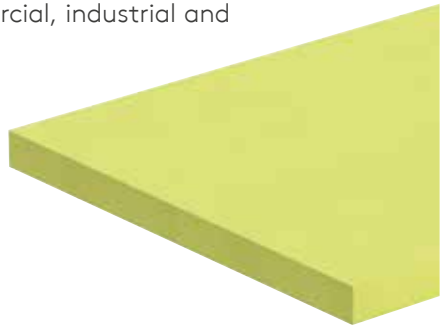
NB Refer to local distributor or Kingspan Insulation price list for current stock and non-stock sizes.

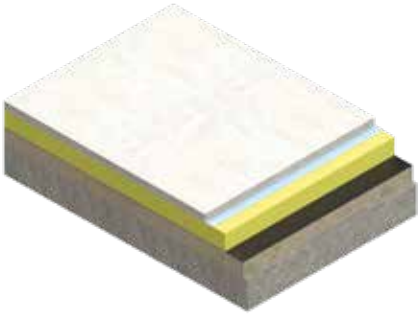
Scan for more information

Kingspan GreenGuard®

XPS insulation for heavy duty commercial, industrial and cold store flooring

- Rigid extruded polystyrene insulation – thermal conductivities as low as 0.033 W/mK
- High compressive strength – available in a number of grades to suit a range of service loads
- Resistant to ground moisture penetration
- Unaffected by air infiltration
- Easy to handle and install compared to some other commonly used insulants
- Ideal for new build and refurbishment





U-values (W/m²K) for various thicknesses of Kingspan GreenGuard® GG300* and floor perimeter / area ratios

Insulant thickness (mm)	Perimeter / area (m^{-1})		
	0.1	0.3	0.5
30	0.16	0.30	0.39
40	0.15	0.28	0.34
50	0.14	0.25	0.31
60	0.13	0.24	0.28
80	0.12	0.20	0.24
90 (50 + 40)	0.12	0.19	0.22
100	0.11	0.18	0.21
110 (60 + 50)	0.11	0.17	0.20
120	0.10	0.16	0.18
130 (80 + 50)	0.10	0.15	0.17
150	0.09	0.13	0.16
160 (80 + 80)	0.09	0.13	0.15
170 (120 + 50)	0.09	0.12	0.14
180	0.09	0.12	0.14
190 (150 + 40)	0.08	0.12	0.13
200 (100 + 100)	0.08	0.12	0.13
210 (150 + 60)	0.08	0.11	0.12
220 (120 + 100)	0.08	0.11	0.12
230 (150 + 80)	0.08	0.10	0.11

* The above table contains figures for Kingspan GreenGuard® GG300 only. Please consult the Kingspan Insulation Technical Service Department (see rear cover) or U-value Calculator for calculations for other products in the range.

NB Where multiple layers of insulation of different thicknesses are used, the thickest layer should be installed as the outermost layer in the construction.

NB If the insulation is installed below the damp proof membrane then design thermal conductivity values should be used for the purposes of U-value calculations.

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

Scan for more information

K-Roc® Soffit Slab

Mineral fibre insulation for structural ceilings (soffits)

- Rock mineral fibre insulation with a thermal conductivity of 0.036 W/mK
- European Classification (Euroclass) A1
- Ideal for new build and refurbishment

Fixed directly to concrete soffit

Insulant thickness (mm)	U-value (W/m²K)
100	0.34
120	0.29
150	0.24
180	0.21
200	0.18
220 (100 + 120)	0.17
240 (120 + 120)	0.15
270 (120 + 150)	0.14
300 (150 + 150)	0.12
320 (200 + 120)	0.12
360 (180 + 180)	0.10

NB Calculations assume the use of six fixings (two metal fixings and four thermally broken telescopic tube fixings).

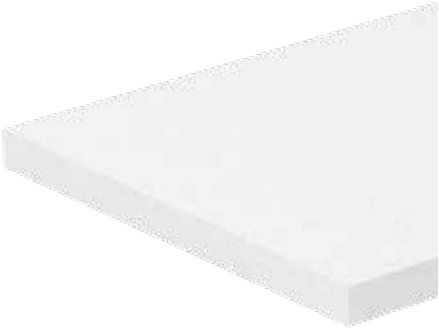
NB Refer to local distributor or Kingspan Insulation for current stock and non-stock sizes.

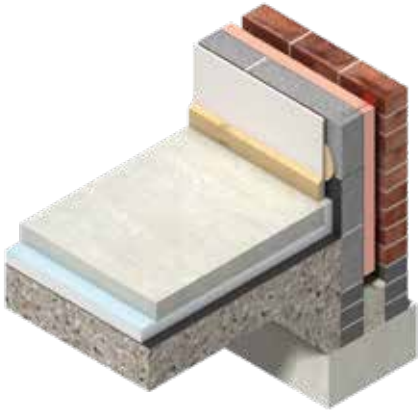
Scan for more information

Aerofloor®

EPS insulation for all floor types

- Rigid expanded polystyrene (EPS) insulation
- Thermal conductivity as low as 0.034 W/mK
- Suitable for use above and below slab
- Easy to handle and install compared to some other commonly used insulants





U-values (W/m²K) for various thicknesses of Aerofloor® 100 and floor perimeter / area ratios						
Insulant thickness (mm)	Perimeter / area (m^{-1})					
	0.2	0.3	0.4	0.5	0.6	0.7
50	0.24	–	–	–	–	–
60	0.22	–	–	–	–	–
75	0.20	0.23	0.25	–	–	–
100	0.18	0.20	0.21	0.23	0.23	0.24
120	0.16	0.18	0.19	0.20	0.21	0.21
150	0.14	0.15	0.16	0.17	0.18	0.18
200	0.12	0.13	0.13	0.14	0.14	0.14
250	0.10	0.10	0.11	0.11	0.12	0.12

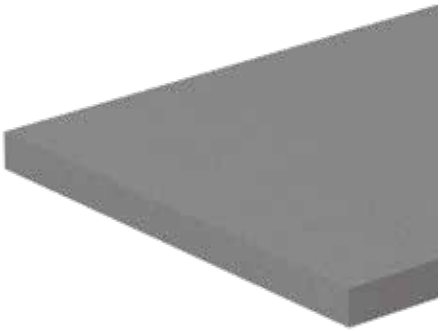
NB Refer to local distributor or Kingspan Insulation price list for current stock and non-stock sizes.

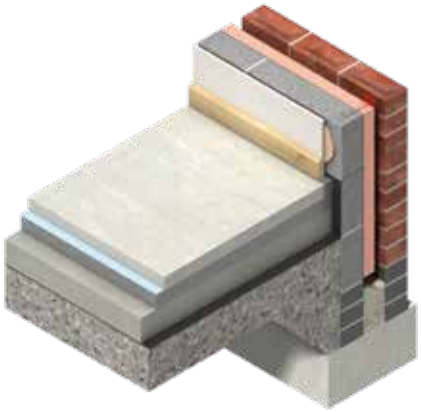
Scan for more information

Aerofloor® Platinum®

EPS insulation for all floor types

- Graphite infused rigid expanded polystyrene (EPS) insulation
- Thermal conductivity of 0.031 W/mK
- Ideal for new build and refurbishment
- Suitable for installation in all weather conditions
- Suitable for use above and below slab
- Easy to handle and install compared to some other commonly used insulants





Solid concrete ground based floors - insulation below the floor screed

U-values (W/m²K) for various thicknesses of Aerofloor® Platinum® 70 and floor perimeter / area ratios						
Insulant thickness (mm)	Perimeter / area (m^{-1})					
	0.2	0.3	0.4	0.5	0.6	0.7
50	0.23	–	–	–	–	–
60	0.21	0.25	–	–	–	–
75	0.19	0.22	–	–	–	–
100	0.17	0.19	0.20	0.21	0.22	0.22
120	0.15	0.17	0.18	0.18	0.19	0.20
150	0.13	0.14	0.15	0.16	0.16	0.16
200	0.11	0.12	0.12	0.12	0.13	0.13
250	0.09	0.10	0.10	0.10	0.11	0.11

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

Scan for more information

Testing and quality

We have a strategic intent that our products consistently and reliably perform. All information is accurate and unambiguous, to enable the design of safe and high performing buildings.

Our Quality Assurance Touchstone comprises of 4 key foundational elements;

- **Capability** – competency of our people and the testing equipment and methodologies employed.
- **Assurance** – the robustness of our actual testing and surveillance, in support of our product performance criteria.
- **Governance** – providing certainty by ensuring compliance with regulatory requirements.
- **Enhancement** – we continue to 'strive for better' so that we become not only compliant but industry leading.

At the heart of these foundational elements is our culture of integrity – we will do the right thing, every time.

External accreditation

All Kingspan Insulation sites in Ireland and Great Britain hold ISO 37301: 2021 (Compliance management systems) certification. Our certified facilities are located in Castleblayney in County Monaghan, Pembridge in Herefordshire and Selby in North Yorkshire.

A Group Compliance Manual has also been developed to share learning, and support Kingspan Group's commitment to see all our global sites accredited to ISO 37301: 2021.

We are actively working to enhance the testing capability across our sites to improve the quality and frequency of testing. All fire sensitive products are subject to independent 3rd party testing to AVCP1 standards. We also publish all BS 8414 test reports (pass and fail).

Accuracy of product information

To ensure the accuracy and transparency of all product and marketing materials across our organisation, we ensure adherence with our Group Marketing Integrity Manual for the global Kingspan business, laying out clear mandatory rules for the business across 13 clauses. These clauses include the competency of people as well as accuracy of information, which aligns with the ISO 37301 : 2021 compliance standard.

All marketing materials must pass through a rigorous auditing process, with any changes clearly logged to ensure traceability. This is supported by annual training with a key focus on representation of testing and accreditations, ensuring our staff are familiar with the essential standards and key updates and that all statements made are transparent, up to date, accurate and verifiable.

Industry support and training

To support best practice in the design and installation of our products, we also offer extensive technical support services including:

- Compliant specification and design advice from our experienced technical services team.
- Popular tools such as our U-value calculator.
- A range of online knowledge articles and advice.

Image: Donal McCann Photography Ltd

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For individual department contact details please visit **www.kingspaninsulation.ie/contact**

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