



PIR Insulation Product Guide



Contents

Reducing of Energy Consumption	
Opting for IKO enerthem	4
Micro Cell Technology (MCT)	1
IKO enertherm Insulation Board Range	(
IKO enertherm Comparison Charts (Thermal Insulation and Insulation Thickness)	

Insulation Applications:

Flat Roofing	8
Pitched Roofing	10
Internal Walls	11
External Walls	12
Flooring (inc Loft Flooring)	13
Roofing (Tapered Schemes)	14
Ancillary Items	15
Recommended U-Values	16

Reducing Energy Consumption

High-performance insulation for homes, offices and other buildings is the most immediate and efficient solution for making savings in energy consumption when considering a buildings structural make-up. Lower energy consumption means lower CO₂ emissions, which are responsible for global warming. This means that good insulation can make a positive contribution to the environment.

IKO enertherm can help in reducing this energy consumption. Thanks to special properties creating moisture and mould resistance and dimensional stability, IKO enertherm insulation boards have a long service life, while retaining their energy performance.

Energy Loss from an Uninsulated House

Before insulating any type of building, it's important to consider where the building is losing heat. This can come from a number of areas which are depicted below. Although potentially 30% of the energy can be lost through a roof, insulating walls, floors and other uninsulated elements can also save on energy consumption.



Environmentally Sound Production

Not only will insulation help to reduce the energy consumption of a building, IKO enertherm also helps to protect the environment as it is reusable. This also helps reduce CO₂ emissions that occur from production.

Renewable Raw Materials

The use of renewable raw materials is significant. PET bottles, for example, are recycled and used in the PIR insulation production process.

No Waste

In the production process, cutting and sawing waste is processed into briquettes, which are used as additives in concrete. Only 0.5% of the product manufactured ends up as waste.

Spread of Production Sites

The IKO Insulations growth strategy includes the geographical spread of production sites. The shortened transport distances from this expanding network of production facilities contributes to a significant improvement in the ecological footprint.

Opting for IKO enertherm

IKO enertherm is a 100% CFC, HCFC or HFC-free insulation board with a rigid polyisocyanurate foam core, clad on both sides with various facings depending on the application and waterproof finishing required.





Top Quality Multi Layer Facing

IKO enertherm ALU Insulation boards are finished on both sides with a 7 layer facing which is laminated in a single complex. The lamination is tested under extreme conditions with respect to water absorption, mechanical properties and emissivity.

The high quality, multi-layer facing also works as a barrier against any air penetrating the insulation board and disrupting the u-value and the integrity of the board.



Fire Performance

IKO enertherm ALU has a reaction to fire class E in accordance with EN 13501-1 and UK Class 1 in accordance with BS 476 - p7. The insulation board has a low to zero smoke emission rate and does not melt or drip. This fire performance is an inherent part of the foam's cell structure. Reaction to fire Euroclasses up to B-s1,d0 are reached depending on the application and build-up.

Tongue and Groove Edging*

In order to prevent thermal bridging, water ingress and guarantee a wind-tight shield, the IKO enertherm boards can be finished on all sides with tongue and groove edging (TG).

* Only available upon request. Standard straight edging boards will be supplied unless specified.

Recycled Content

The use of renewable raw materials is significant. Polyethylene Terephthalate (PET) bottles, for example, are recycled and used in the PIR insulation production process.

A no waste policy is encouraged. Cutting and sawing waste is processed into briquettes, which are then used as additives in concrete.

Q

Micro Cell Technology (MCT)



With an optimum formulation of raw materials and production parameters, IKO enertherm has an exceptionally fine cell structure created by Micro Cell Technology.



Standard PUR/PIR Board Cell Structure (Microscopic view)



IKO enertherm Cell Structure (Microscopic view)

IKO enertherm MCT Unique Characteristics:

Shape Retention

IKO enertherm insulation boards retain their shape and dimensional stability longer than standard PIR insulation boards with coarser foam. As a result the boards don't shrink, cold bridging is prevented and a longer service life (without loss of insulating properties) is created.

Moisture Resistant

Due to MCT, IKO enertherm insulation boards have a very low long-term water absorption rate (< 0.6%) compared to other insulation materials. Increased weight (as a result of water absorption) is eliminated, the boards are rot and mould proof and the insulation value is retained.

Pressure Resistant

IKO enertherm insulation boards have a high level of elasticity. MCT ensures exceptional pressure resistance, meaning the cells are flexible and don't rupture. This elasticity means IKO enertherm insulation boards can also be walked on without leaving indentations.

This is especially useful when installing within flooring and roofing systems, where the compressive strength of the boards provides piece of mind that foot traffic will not disrupt the structural integrity or the insulation capabilities of the insulation.

IKO enertherm Insulation Board Range



* Please see the IKO enertherm website data sheets: https://www.enertherm.eu/en-uk/technical-data-sheet/

Key





Flat Roofing A Pitched Roofing A Flooring (including loft floor and underfloor heating)



Internal Walls (timber and steel frame and insulated plasterboard)

External Walls (partially filled cavity & external wall cladding)

IKO enertherm Comparison Charts

There are a number of different types of insulation that you may be considering for your next installation, but not all of them are suitable for every application.

Below is a quick guide to which type of insulation can be used in the most common applications within a building envelope: The lower the Lambda value (λ) the better the product's thermal efficiency.



Alongside application, the thickness that is required to produce this thermal efficiency is the most important element to consider before insulating a building. As can be seen from the chart below, the thickness of a PIR insulation board to achieve a lower Lambda value is dramatically thinner compared to its counterparts mineral wool, fibre, EPS and XPS.



The advantage here is that using a thinner insulation board means it doesn't compromise the dimensional structure of the building as much as other insulation materials, meaning fixtures and fittings (such as windows and cavities) still conform to building regulations even when retrofitting.

Flat Roofing



IKO enertherm ALU is used for the insulation of flat roofs within new and refurbishment projects on concrete, steel deck and timber substrates.



The **IKO enertherm ALU** insulation board is suitable for new-builds and the refurbishment of existing buildings with flat roofs. Due to its high compressive strength, the board offers additional protection against foot traffic during installation which makes for a much more efficient project.

The closed cell structure within the core of the insulation board offers further protection against water ingress that may endanger the insulation value and also means a thinner board is sufficient to achieve the insulation requirements. This is extremely helpful when overlying a roofing build-up which includes abutments, sills, rooflights and doorways as this can remove the requirement to adjust these features to conform with building regulations.

Benefits and Usage

- Lightweight boards for ease of transportation and handling
- Wide selection of board widths to suite most installations
- Fit for walking on during work and after (ideal for roofing and loft spaces)
- High dimensional stability and compressive strength assisting with protection against foot traffic
- Can be installed quickly and easily
- End use Fire Class B-s2,d0 of steel deck application

Technical Specification

Flat Roofing

IKO enertherm BGF, BM and MG are used for the insulation of flat roofs.



IKO enertherm BGF, designed specifically for the installation of a torch-on membrane or pour and roll system, clad on both sides with a polypropylene coated bituminous sand and talc free glass fabric.

IKO enertherm MG is clad on both sides with a perforated glass membrane, the MG board has been designed to be incorporated within flame-free applications including; self-adhesive membranes, single ply, mastic asphalt and liquid waterproofing. **IKO enertherm BM** has the versatility required for projects when different application methods are being used. BGF facing on one side and an MG facing on the other. It can also offer value when utilising the same board on different roofing projects.

The variety of facing offered by the IKO enertherm range of insulation boards (BGF, BM and MG in addition to ALU) means that regardless of the roofing build-up there will be an insulation board to suit most roofing requirements. The additional facings still maintain many of the benefits that the ALU facing board provides, including its compressive strength due to the closed cell structure of the insulation boards cores. The roofing build-up and the preferred method of installation will determine which facing board is right for your next project.

Benefits and Usage

- Versatility in application used within a torch-on, pour and roll, self-adhesive, liquid, mastic asphalt, single ply and PU adhesive installation
- High dimensional stability and compressive strength assists with protection against foot traffic
- Wide selection of board widths to suit most installations
- Lightweight for ease of transportation and handling

Technical Specification

Pitched Rooing



IKO enertherm ALU is the perfect pitched roofing insulation solution.



When insulating a pitched roof it is important to choose the right insulation type in order to reduce the risk of creating condensation, which can lead to mould and eventually damage to the building. Using IKO enertherm ALU insulation boards, with a moisture resistant cell structure, alongside an IKO Rubershield Breather Membrane (page 15) helps combat against condensation and reduce thermal bridging.

Other factors to consider are the depth of the rafters, as this will determine the thickness of your insulation. A thicker insulation board may not suit the pre-existing structure or reduce the internal living space.

The variety of thicknesses and the rigidity of the IKO ALU enertherm insulation board is also helpful when it comes to installation, making it quick and easy, even if small adjustments are required for a tight fit, IKO enertherm insulation boards maintain shape eliminating the threat of thermal bridge.

Benefits and Usage

- Can be installed quickly due to it's convenient size and lightweight properties
- Moisture-insensitive and non-deformable
- Thinner alternative to traditional loft insulation materials
- Compatible with the IKO Rubershield Breather Membrane range: https://www.ikogroup.co.uk/pitched-roofing

Technical Specification

Internal Walls

IKO enertherm ALU and PB are used for the thermal insulation of internal walls.w



Insulated Plasterboard

IKO enertherm ALU, with its versatility in application provides the perfect insulation board for internal wall insulation. Due to its closed cell structure, a thinner board can be used to achieve the same insulation value as thicker alternatives. This is especially important when dealing with a reduced or small space/cavity.

Steel Frame

IKO enertherm PB has been created for the specific use of insulating internal walls as well as providing a readymade plasterboard finish with various fixing options: Dot & dab, below truss, over timber frame or stud & steel frame.

Benefits and Usage Internal Walls

Timber Frame

- The dimensional stability of the boards guarantees one unbroken insulation shield
- The outstanding thermal performance of IKO enertherm insulation boards means that one thin layer in the cavity is enough (depending on the construction of the building)
- Quick and easy to cut and install
- The lightweight board facilitates easy transportation
- Fibre-free board, so no irritation during installation

Technical Specification

Please see the IKO enertherm website data sheets: https://www.enertherm.eu/en-uk/technical-data-sheet/

Insulated Plasterboard

- Space saving solution for renovations
- Incorporates a built-in damp screen
- Larger sized boards offer a quick and easy installation

External Walls

IKO enertherm ALU is used for the thermal insulation of cavity and external walls.





External Ventilated Facade

Partial Fill Cavity Wall

IKO enertherm ALU, with its versatility in application provides the perfect insulation board for external wall insulation. Due to its closed cell structure, a thinner board can be used to achieve the same insulation value as thicker alternatives. This is especially important when dealing with a reduced or small space/cavity.

Benefits and Usage

- The dimensional stability of the boards guarantees one unbroken insulation shield
- The outstanding thermal performance of IKO enertherm means that one thin layer of insulation board in the cavity is enough (depending on the construction of the building)
- Quick and easy to cut and install
- The lightweight board facilitates easy transportation
- Fibre-free board, so no irritation during installation

Technical Specification

Please see the IKO enertherm website data sheets: https://www.enertherm.eu/en-uk/technical-data-sheet/

- The tongue and groove connection avoids thermal bridging and ingress of water
- Compatible with IKO Rubershield Breather Membrane as a house wrap, reducing condensation and protecting internal walls from moisture.

https://www.ikogroup.co.uk/pitched-roofing



Flooring (inc Loft Flooring)



IKO enertherm ALU is used for the thermal insulation of floors (including loft flooring).



Beam & Block Detail

Suspended Timber Floor Above Ground Bearing Slabs

Loft Flooring

Whether at ground level or for a loft floor, IKO enertherm ALU provides a convenient solution when insulating a floor space within new and refurbished properties.

Utilising IKO enertherm ALU insulation boards within a loft floor (or any ceiling that is above a cold space such as a garage) can help to reduce heat loss within the rest of the building, especially when the roofing structure does not provide any further insulation (i.e. between the rafters).

Depending on how the building has been designed will depend on the method of insulation you will need. Regardless of whether this is above or below ground, IKO enertherm ALU can be easily and efficiently installed.

Benefits

- Exceptional dimensional and compressive stability
- Walkable loft flooring during and after installation
- Insensitive to moisture and rot proof
- Can be installed quickly due to it's convenient size and lightweight properties
- IKO Hyload Structural Waterproofing products can be used when insulating ground floors:

https://www.ikogroup.co.uk/product/ iko-hyload-universal-dpm-1200/

Usage

- Below and above a concrete floor slab
- Below a cement based screed on a concrete slab with a hard-core base
- Below a suitable OSB plywood or shipboard covering on a solid floor
- Above a suspended concrete floor (e.g. beam & block) with a cement based screed
- Between the joists of a suspended timber ground floor

Technical Specification

Roofing (Tapered Schemes)



IKO enertherm ALU Tapered is used for the insulation of flat roofing specification projects where tapered schemes (creating a pitch/slope) are required.



For roofs that require a pitch or slope to enhance the drainage of ponding water, an **IKO enertherm ALU Tapered** insulation board can be designed to the bespoke requirements of the building. As one of the most cost effective ways of introducing a fall to a flat roof, an IKO designed tapered scheme can not only reduce ponding water but also increase the lifespan of the waterproofing roofing system by reducing algae and mould growth as well as thermal shock.

As IKO enertherm ALU Tapered insulation boards are manufactured ready for installation, the time it takes to install onsite and create the adequate fall(s) is dramatically reduced from that of a screed, which requires drying time (typically over several weeks).

The IKO Technical Team can work with you to assess, design and manufacture the tapered insulation scheme exactly to a building's requirement in order to meet building regulations. This can also include the complete waterproofing build-up with an extensive range of roofing systems.

Usage

- Built-Up Roofing Systems
- Single Ply
- Liquid Waterproofing

Benefits

- Bespoke tapered scheme to fit your roofing requirements
- Reduces ponding water
- Expands the lifespan of the roof
- Compatible with numerous IKO roofing build-ups
- Efficient installation with no time lost due to additional screed drying times

Technical Specification

Ancillary Items



The below items can enhance any project's quality and efficiency, especially when installed within an IKO enertherm System build-up.

IKO Adhesives							
Product	Description	Colour	Container Size				
IKOpro PU Adhesive	A high-foaming PU adhesive specifically developed to securely bond a wide range of insulation boards to various roof substrates. It is solvent-free, non-flammable and low-odour.	Green	6L				
IKOpro Sprayfast IBA (Insulation Bonding Adhesive)	A moisture-curing polyurethane foam adhesive that can be applied faster and more accurately than standard hand-poured PU adhesives.	Green	450 x 330mm				

IKO Breather Membranes

Type LR Breathable Membranes conforming to the requirements of BS5534:2014 when installed within a ventilated, cold pitched roof construction. BBA approved* for use within cold and warm unventilated pitched roof construction and for use within vertical applications.

Product	Description	Colour	Container Size
IKO Rubershield Eco	100g/m ² Type LR breathable membrane with a tear resistance of 70N.	Grey	
IKO Rubershield Eco Extra	120g/m ² Type LR breathable membrane with a tear resistance of 80N.	Brown	1/1 Em v E0m
IKO Rubershield Pro	140g/m ² Type LR breathable membrane with a tear resistance of 100N.	Black	1/1.500 X 5000
IKO Rubershield Pro Extra	160g/m ² Type LR breathable membrane with a tear resistance of 100N.	Green	
IKO Rubershield Jointing Tape	Bonds both breather and non-breather pitched roofing membranes at overlaps and areas of detailing, improving overlap security against wind uplift and air leakage.		45mm x 25m
*Note: Laps were taped using 15/5190	Jointing Tape, BRE Report 302-776 Issue 5, 19th March 2015; The use of taped products is currently outsid	e the scope o	f BBA Certificate

Damp Proof Membranes			
Product	Description	Colour	Container Size
IKO Hyload Universal DPM (1200 and 2000 gauge)	Suitable for use above or below concrete floor slabs, or above precast concrete flooring systems, in accordance with clause 11 of CP 102:1973, where there may be capillary rise of moisture but not where it may be subject to hydrostatic pressure (below ground). Manufactured from 100% recycled polyethylene.	Black	4 x 12.5m (2000) or 25m (1200)
IKO Hyload Gastite LL DPM	A robust polyethylene membrane with a low permeability to radon, carbon dioxide and low levels of methane. Suitable for projects assessed under NHBC and CIRIA C665, but unsuitable for projects assessed under BS8485:2015.	Orange	2 x 25m

Angle Fillets			
Product	Description	Colour	Container Size
IKO enertherm ALU	Used at all horizontal and vertical abutments in bituminous roofing systems. Adhered and	Silver	50 x 50mm
Insulation Angle Fillet	bonded in IKO PU Adhesive or IKO Stickall sealant.		

Recommended U-Values

omplete U-Value and condensation risk analysis for

The IKO Technical Team can provide a complete U-Value and condensation risk analysis for each part of your project, to ensure complience with Building Regulations.

For any type of project, the U-Value calculation will be used to assess what level of thermal insulation is required to meet England & Wales and Section 6 (Scotland) of the Building Regulations for both new-builds and refurbishment projects.

The value will depend on a number of different factors including:

- The location of the project (England, Wales or Scotland, as they all have different regulations)
- The type of building (domestic or commercial)
- The application of the insulation (roof, wall or floor)
- Positioning (internal or external)

To produce a calculation that complies with the building regulations of each region can be complicated, as not only are the above factors taken into consideration, but also;

- The build-up the insulation is part of
- Cavity requirements
- Slope and incline of a roof
- P/A (perimeter area) ratio

The following tables highlight the target U-Values that are required depending on the application and geographical location.

England - April 2014

	Domestic Buildings			Non-Domestic Buildings			
	New Build	Existing Buildings		New Build	Existing	Buildings	
	Best Starting Point	Extension	Refurbish	Best Starting Point	Refurbishment & Extensions		
	(Fabric Only)			(Fabric Only)	Extension	Refurbish	
Wall	0.16	0.28	0.30	0.15	0.17	0.22	
Floor	0.11	0.22	0.25	0.13	0.15	0.18	
Pitched Roof - Ceiling Level	0.11	0.16	0.16	0.10	0.11	0.15	
Pitched Roof - Rafter Level	0.11	0.18	0.18	0.10	0.13	0.18	
Flat Roof	0.11	0.18	0.18	0.10	0.13	0.18	

Wales - July 2014

	Domestic Buildings			Non-Do					
	New Build	Existing Buildings		Build Existing Buildings		New Build	Existing	Buildings	
	Best Starting Point (Fabric Only)	Extension	Refurbish	Best Starting Point (Fabric Only)	Extension (domestic in character)	Extension (other buildings)	Refurbish		
Wall	0.18	0.21	0.30	0.26	0.21	0.26	0.30		
Floor	0.15	0.18	0.25	0.22	0.18	0.22	0.25		
Pitched Roof - Ceiling Level	0.11	0.15	0.16	0.18	0.15	0.15	0.16		
Pitched Roof - Rafter Level	0.11	0.15	0.18	0.18	0.15	0.18	0.18		
Flat Roof	0.11	0.15	0.18	0.18	0.15	0.18	0.18/0.20**		

Scotland - October 2015

	Domestic Buildings				Non-Domestic Buildings			
	New Build	Existing Buildings		New Build	Existing	Buildings		
	Best Starting Point	Extension Conver		Conversion of	Best Starting Point	Refurbishment	& Extensions*	
	(Fabric Only)	A Ketu	B	Heated Buildings	(Fabric Only)	Extension	Refurbishment	
Wall	0.15	0.17	0.22	0.30	0.18	0.25	0.30	
Floor	0.13	0.15	0.18	0.25	0.15	0.20	0.25	
Pitched Roof - Ceiling Level	0.10	0.11	0.15	0.25	0.14	0.15	0.25	
Pitched Roof - Rafter Level	0.10	0.13	0.18	0.25	0.14	0.15	0.25	
Flat Roof	0.10	0.13	0.18	0.25	0.14	0.15	0.25	

* Column A for extensions where existing dwelling's walls and roof U-values are worse than 0.70 W/m.K in the walls and worse than 0.25 W/m.K in the ceiling. Column B is for other extensions, upgraded existing thermal elements, non-exempt conservatories and conversion of unheated buildings.

** 0.20 only applies when integral insulation is used.



IKO Worldwide and in the UK

IKO is a truly global company with manufacturing facilities all over the world, shipping to nearly 100 countries.

In the UK, the IKO name has been built on a foundation of quality and an ethos of customer service which remains as strong today as it did over 100 years ago.

IKO PLC is well established as a UK market leader in the design, manufacture and installation of roofing, waterproofing and insulation products and systems. We are committed to sustainability and continued investment in innovative ways of manufacturing, production and distribution within UK Manufacturing.

IKO PLC have been manufacturing in the UK for over 130 years and continue to invest in manufacturing; developing and producing new products to service market demand directly from the various manufacturing plants around the country. Manufacturing in the UK comes with a number of excellent benefits such as, quality control, speed of response and decreased CO, emissions from transportation.



'Thinking globally, acting locally'

IKO firmly believe in assisting local communities in a number of ways. The Fix That Hut initiative (founded in 2006) invites applications from worthy projects which are at the heart of local communities and in need of roof repairs. The reduced carbon footprint from our UK Manufactured products (delivered locally) can also have a positive impact on your own environmental credentials. Compared to some European imports, an IKO roofing system can provide over a +90% reduction in CO, emissions by delivering directly from the source of manufacture to site.

Our Values

There are 6 IKO Values that are core to the business; Sharing Knowledge, Integrity, Long-Term, Performance, Humility and Agility. These help define IKO's history and provide the blueprint for what IKO can achieve both today and in the future.

www.ikogroup.co.uk/about-iko/iko-values







IKO Insulations

IKO PLC (Head Offce) Appley Lane North Appley Bridge Wigan WN6 9AB

www.ikogroup.co.uk

Member of the IKO Group

July 2019

Sales Support

t: 01257 256 751 iko.enertherm.uk@iko.com

Technical Services

t: 01257 256 754 enertherm.technical.uk@iko.com

Whilst every care is taken to see that the information given in this literature is correct and up to date it is not intended to form part of any contract or give rise to any collateral liability, which is hereby specifically excluded. Intending purchases of our materials should therefore verify with the company whether any changes in our specification or application details or otherwise have taken place since this literature was issued.

