

IKO single ply[®] Polymeric Roofing Systems

DESIGN GUIDE



A specifier's guide to
polymeric single ply roofing

About IKO

The IKO Group is a worldwide group of companies with extensive experience and specialist technical knowledge. IKO is a leader in the design, manufacture and installation of proven roofing and waterproofing systems.

The IKO Group was founded in 1951 in Calgary, Canada and offers customers across internal markets a comprehensive range of waterproofing, roofing and insulation materials.

- A global leader in the manufacture and supply of waterproofing and insulation
- Customers in more than 70 countries
- Over 30 factories worldwide

Continued Success

At IKO, we believe that the foundation for continued success and longevity of our company is based on several key attributes:

- The knowledge of our people
- Top quality products
- Outstanding customer service
- Continuous innovation
- Excellence in manufacturing.

Our mission is to further strengthen and expand our offer through ongoing development, innovation and technological advancement.

Product Range

Our unrivalled choice of systems is one of the reasons we are preferred partners for so many specifiers, contractors, building managers and local authorities across the UK and beyond.

Our extensive product portfolio is a result of significant investment in research and development on a global scale. Unparalleled in the industry, the IKO range encompasses both traditional roofing and waterproofing systems as well as innovative solutions including green roofs and photovoltaics.

A Complete Service

IKO provides a full service offer from initial consultation through specification and design to ongoing monitoring and maintenance. The company is registered with BSI as having in place a BS EN ISO 9001 and BS EN ISO 14001 quality management system covering design, manufacture, delivery, training and installation functions.



About IKO Single Ply

IKO Single Ply offers a full range of polymeric single ply roofing systems, incorporating all of the components required to deliver a complete high performance roof waterproofing solution.



IKO's single ply membranes deliver exceptional performance. Single ply is an extremely versatile waterproofing solution for both new build and refurbishment projects. With a proven track record across Europe dating back 40 years and boasting a number of unique qualities, single ply is a popular design choice for specifiers.

Many of these membranes have high reflectivity which means a lower roof temperature. Less temperature fluctuations on the roof lead to an enhanced lifespan and the high reflection value helps save energy. For the building user this also means less need for air conditioning during summer months, enhanced comfort and reduced energy bills.

IKO's single ply membranes have a choice of applications and can be adhered, mechanically fixed or ballasted.

IKO complement the membranes with standing seam profiles which aesthetically can replicate the appearance of aluminium, lead etc. and a choice of pre-formed details to ensure a watertight application.



Manufactured in the UK

The key features that make single ply such a popular choice are;

- Performance
- BBA certified
- Safe and reliable installation
- Choice of application methods
- Sleek, attractive finish
- Secure seam welding
- High UV and chemical resistance
- Long life expectancy
- Complete range of fixings and accessories.

Spectraplan TPE: membranes use the latest in advanced polymer technology combining the best performance characteristics of thermo-plastics and elastomers.

Armourplan PVC: roofing membranes are polyester reinforced which exhibit exceptional mechanical characteristics.

Both Spectraplan TPE and Armourplan PVC have been independently approved by the British Board of Agrément (BBA).

Manufactured in the UK

IKO Single Ply membranes are produced in a dedicated manufacturing unit in Chesterfield, UK. The latest extrusion technology and computer controlled manufacture ensure consistently high quality whilst also saving on energy and waste.

IKO Single Ply and the Environment

IKO is committed to minimising environmental impact throughout the product life cycle including planning and paperwork, manufacturing processes and the distribution and use of materials. These also include our energy balance or 'carbon footprint', resource consumption, pollution control and improvements to our surrounding habitat.

The Single Ply manufacturing plant has BS EN ISO 9001 and BS EN ISO 14001* accreditation. It is built using recycled building materials and is designed in accordance with BREEAM**, the world's leading and most widely used environmental assessment method for buildings. It also re-uses by-products from manufacture, wraps products in minimal packaging and employs a streamline transportation network.

All polymeric materials offered by IKO Single Ply are resistant to weathering, chemical oxidation and UV radiation which ensures long term durability, a key factor in environmental sustainability.

* ISO 9001 is the 'International Standards Organisation' Standard for Quality Management Systems
ISO 14001 is the 'International Standards Organisation' Standard for Environmental Management Systems

** Building Research Establishment Environmental Assessment Method

Visit www.breeam.org for more information.

Design considerations

The Specification of Roofs

The specification and design process is critical to be sure of long term, good quality roof protection that meets the requirements of building regulations.

A roof performance is dependent upon material specification, correct design detailing and installation by fully trained operatives, followed up with regular inspection and maintenance.

Your roof is one of your most valuable assets and it is therefore important to be confident that you have made the right choice from the very start.

IKO take great care in providing services and products that offer clients and specifiers effective and positive solutions to meet guidelines set in CDM regulations (Construction Design Management), Codes of Practice set by British Standards, Building Regulations, including Part L, Government Guidelines and BRE AAM (British Research Establishment Environmental Assessment Method).

IKO offer an extensive consultation service regarding design, specification and material selection. This service is delivered via a national team of regional design specialists and head office based technical services.

IKO Single Ply

- Minimises the risks through the design process
- Specifies your roof to meet British Standards and Codes of Practice
- Provides British Board of Agrément (BBA) accredited systems
- Offers thermographic roof surveys to identify exact problem areas
- Calculates U-Values
- Produces condensation risk analysis
- Presents a good choice of systems
- Includes a range of HCFC and CFC free insulations
- Guarantees the materials, workmanship and design.



Design is influenced by;

Building use

Deck types

Thermal design

Condensation control

Insulation types

Falls and methods of drainage.

Building use

The purpose of the building will impact on the design choices. The specification will consider the users and residents, location, surrounding environment, access and specific client criteria.

Deck types

The structural deck provides the primary support for a roofing system. It must be structurally sound and therefore resist dead loads, live loads and wind loads as specified in BS 6229 and BS 6399, Parts 2 and 3. It may also be installed so as to provide a suitable fall for surface drainage. Key decks to today's construction are;

Timber - plywood (min. 18mm thick) or OSB3 board

Concrete - cast in-situ, pre-cast or screeds

Metal - aluminium or galvanised steel

It is important to note that some decks are moisture sensitive and the deck must be selected to take into account the humidity range over which it needs to perform.

Thermal design

Thermal design deals with the flow of both heat and water vapour through a roof construction, and the effect it has upon the components of the roof build up.

Suitable thermal insulation should be included with the roof build-up. U-Values express the rate of heat transfer through any element of a building, including walls, roofs and windows. IKO can calculate insulation thicknesses to comply with current building regulations.



Spectrarooft TPE roofing sheets

Spectraplan roofing systems use the very latest in advanced polymer technology. Incorporating a range of membranes and accessories, these next generation TPE systems combine the best performance characteristics of thermo-plastics (e.g. PVC) and elastomerics (e.g. EPDM). This ensures optimum results both during installation and in performance.

Spectraplan roofing membranes can be mechanically fastened, adhered or loose laid and ballasted. The range comes in two standard colours: light grey (RAL 7035) and dark grey (RAL 7011).

Spectraplan roofing membranes have the additional environmental benefits of being free from plasticizers, chlorine, (H)CFCs, halogens and heavy metals. They can also be recycled into primary products at the end of their long useful life.

Spectraplan SM

Spectraplan SM is a polyester scrim reinforced TPE membrane suitable for mechanically fixing to flat or sloping roofs. During the production process two identical layers of TPE are laminated to and through a polyester scrim reinforcement, resulting in very high mechanical properties.

Spectraplan SM sheets are loose laid on the substrate and mechanically fixed to the deck using IKOfix mechanical fastenings. The exceptional mechanical strength and joint weld strength of the Spectraplan SM roofing sheets enable the systems to easily withstand calculated wind uplift forces. Lap joints in the sheets are welded with a hot air gun.

Spectraplan SM is available in 1.2mm thickness.

Spectraplan SG

Spectraplan SG is a polyester fleece-backed TPE membrane suitable for bonding to flat or sloping roofs. During the production process two identical layers of TPE are laminated to each other and into a polyester fleece, resulting in a very high degree of adhesion between the TPE sheet and the fleece backing. Spectraplan SG sheets are bonded to

the substrate using Spectrabond adhesives. The exceptional mechanical strength and joint weld strength of the Spectraplan SG roofing sheets enable the systems to easily withstand calculated wind uplift forces. Lap joints in the sheets are welded with a hot air gun.

Spectraplan SG is available in 1.2mm thickness.

Spectraplan D

Spectraplan D is an un-reinforced (homogeneous) TPE membrane suitable for executing complex details. During the production process two identical layers of TPE are laminated together, resulting in excellent flexibility and mechanical properties.

Spectraplan D sheets are used in conjunction with Spectraplan SM and SG TPE roofing sheets for detailing purposes. Bonding of the membrane can be carried out by using a suitable adhesive. Lap joints in the sheets are welded with a hot air gun.

Spectraplan Walkway

Heavy duty walkway membrane with slip resisting surface.

A comprehensive range of accessories is also available to complement the Spectraplan membranes.



Summary of benefits

- Latest polymer technology
- Environmental benefits
- No need for solvent cleaning or preparation
- Compatible with bitumen and expanded polystyrene
- High resistance to ageing and wind uplift
- Non-capillary construction - does not absorb moisture
- Resistance to root penetration
- Excellent welding characteristics
- Elasticity
- Complete range of fixings and accessories.

Approval

Spectraplan TPE membranes have been independently certified by the British Board of Agrément (BBA No. 05/4203) to provide a durable roof covering with a service life in excess of 20 years.



TPE as the basic polymer in Spectraplan roofing sheets

TPE is the collective term for a particular group of polyolefins with the basic properties of elastomers (flexibility, elasticity), but which can be processed as thermoplasts (thermal softening, plastic deformation).

Polyolefins are polymers (plastics) based exclusively on carbon and hydrogen; examples include modified polyethylene and polypropylene.

These more traditional polyolefins are well known thermoplasts which exhibit some excellent properties, and are commercially known as TPO.

However, the use of state-of-the art catalysts in a unique process gives rise to very pure polyolefins with a predominantly elastomeric nature, resulting in the thermoplastic properties being more controllable (TPE).

TPE in Spectraplan, offers the favourable properties of both thermoplasts and elastomers.

- TPE has a chemically ingrained flexibility, in contrast with the thermoplasts, the flexibility of which is derived from the physical behaviour of the additions to the polymer chains (softeners, rubber additives, synthetic modifiers).
- TPE displays wide-ranging flow behaviour, while elastomers do not exhibit any flow behaviour. Thanks to the unique properties of TPE as an engineered polymer, TPE has already been used for many years in extreme industrial applications, and now also as roofing sheets. Spectraplan TPE roofing sheets offer solutions for all existing single ply roofing systems; mechanically fastened, bonded, loose laid and ballasted.



The exceptional product properties of Spectraplan roofing sheets

High resistance to ageing

Spectraplan roofing sheets hardly degrade under UV exposure. The action of ozone does not cause surface erosion. Standing water does not have any detrimental or leaching effects. This ensures a very long life expectancy for Spectraplan TPE roofing systems.

Reliable and secure seam welding

The Spectraplan TPE polymer has a very broad 'thermal welding range', which minimises its operational sensitivity. This is determined by the excellent flow behaviour of the TPE polymer. Spectraplan roofing sheets also have high internal cohesion.

The use of identical TPE polymers at the top and bottom side of the roofing sheets, combined with the excellent flow behaviour, produces a homogeneous and reliable weld, which is stronger than the roofing sheet itself.

The TPE polymer does not absorb water, thus ensuring a high quality heat-welded joint, even after ageing.

Non-capillary construction

The excellent flow behaviour of the polymer ensures perfect coating of the polyester fibres of the carrier so that no capillaries are created.

Spectraplan TPE roofing sheets are reinforced with fibres that do not absorb moisture.

Resistance to root penetration

The elastomeric nature of the TPE provides Spectraplan roofing sheets with particularly good resistance to root penetration.

Chemical resistance and compatibility

The high degree of purity in the TPE polymers, their amorphous structure and the absence of volatile substances lead to exceptionally high chemical resistance.

Spectraplan TPE roofing sheets are resistant to many organic and inorganic substances and solvents.

Spectraplan TPE roofing sheets are also compatible with bitumen and they can be directly applied to existing bituminous coverings and polystyrene (EPS/XPS), without a separation layer being required.

Elasticity

Due to the long lasting high degree of elasticity of TPE, Spectraplan roofing sheets have high resistance to fatigue and point loading.

Movement within the substructure can also largely be accommodated without the need for special detailing.

Memory-effect

Unlike TPOs, the memory effect associated with elastomers occurs with Spectraplan TPE roofing sheets. As a result of this the installations can benefit from a taut appearance, without this being caused by the exertion of force as tension at the perimeter..

Spectrarooft TPE roofing sheets

Long life expectancy

The homogeneity of Spectraplan TPE basic polymers and the absence of softeners result in a very stable chemical compound.

Spectraplan roofing sheets remain elastic almost indefinitely and barely age. They do not absorb moisture, do not degrade under UV and/or ozone exposure, do not leach and are rot resistant.

Spectraplan TPE roofing sheets have exceptional chemical resistance and are compatible with all standard building materials. Spectraplan TPE roofing sheets can deservedly be considered as a further development and improvement of the current generation of TPO roofing sheets. The life expectancy of Spectraplan TPE roofing systems is at least 25 years.

Environmentally friendly and recyclable

In contrast to the chlorine containing polymer sheets which exist in the market, Spectraplan TPE roofing sheets are particularly environmentally friendly.

Spectraplan TPE roofing sheets are free of halogens (Chlorine, Fluorine, Bromine and Iodine), softeners, (H)CFCs and heavy metals. TPE polymer is homogeneous and pure, so that recycling as a durable raw material in new primary end products is possible at the end of its long lifespan.

Spectraplan TPE roofing systems do not leach and can therefore be installed on a wide range of water storage applications and on roofs where rainwater is directly discharged to surface drainage.

Safe and reliable installation

Spectraplan TPE roofing sheets are thermally welded using hot air. No noxious or irritating vapours or smoke are released during the welding process. Spectraplan TPE roofing sheets contrast sharply with all commercially available thermoplasts thanks to their unique and broad welding range and the excellent flow behaviour of the TPE polymer. This results in fast installation with a high degree of certainty and excellent quality of the weld, which is stronger than the actual roofing sheet itself.

The use of noxious detergents is not required following the welding.

Spectraplan TPE roofing sheets can be easily processed even at the highest summer temperatures and also remain flexible under cold winter conditions.

Spectraplan TPE roofing systems can even be applied on roofs under extreme loads such as rooftop car parks and roof gardens.





Optimal fire safety for people and the environment

Spectraplan TPE roofing systems are fire resistant in accordance with the new stringent European fire standard ENV1187. The fire retardants used in Spectraplan TPE polymer are non-toxic and free of halogens. In case of fire Spectraplan TPE roofing sheets do not contribute to the smoke load and no toxic gases are released; nor does any flame extension take place due to melting TPE polymer dripping down.

High resistance to wind uplift

The IKOFix mechanical fastening systems has been specifically designed for the Spectraplan SM sheet range.

It includes corrosion resistant screws and washer plates, flat bars for clamping frames, and is applicable to any substrate suitable for mechanical attachment.

The combination of IKOFix mechanical fastening system with the exceptional mechanical properties of Spectraplan SM TPE roofing sheets results in a particularly high capacity to absorb forces and divert them to the substructure.

This makes it feasible to calculate a cost-effective fastening system for each and every project.

Maintenance and repair friendly

Spectraplan TPE roofing systems do not absorb moisture and are only affected by dirt-pickup to a very small degree.

This means that it remains possible to make repairs or add further details if required in the future.

Spectraplan TPE roofing systems are easy to clean with solutions of soft soap, using a soft broom or rubber wiper.

High-pressure cleaners can also be used.



Armourplan reinforced PVC roofing membranes

Armourplan is a polyester-reinforced PVC membrane which is suitable for use on a wide range of roofing applications, including specialist installations such as simulated metal roofs.

Armourplan PVC

Produced in a range of different membranes, each designed for specific applications. The range comes in two standard colours; mid grey (RAL 7046) and slate grey (RAL 7015) with a wide range available to meet project requirements*.

The flexibility of the Armourplan range of products offers a number of build-up applications each designed to provide optimum waterproof protection. Armourplan is suitable for warm or cold roofs whether the roof is flat, inverted, or sloped.

The IKO warm roof build-up consists of the latest technology from the installation of the high performance vapour control layer and insulation to the final layer.

Armourplan PVC membranes can be mechanically fastened, adhered or ballasted providing maximum system flexibility.

Armourplan SM

Armourplan SM is a polyester scrim reinforced PVC single ply roofing membrane. Suitable for use in a wide range of roofing applications on both flat and sloping roofs it forms an aesthetically pleasing sleek skin. Armourplan SM can be installed onto most common substrates and is suitable for both new build and refurbishment installations and for specialist applications such as simulated metal roofs.

Armourplan SM is primarily mechanically fixed using suitable IKOfix stress plates and IKOfix screws, but can also be fully adhered. It forms a sleek skin on many types of roof application. All overlaps are heat welded using suitable hot-air welding equipment.

Armourplan SM is also used as the upstand detailing membrane on all Armourplan systems.

Armourplan SM is available in either 1.2mm or 1.5mm thicknesses.

Armourplan SG

Armourplan SG is a polyester fleece-backed PVC membrane suitable for adhesive bonding to flat or sloping roofs. Armourplan SG sheets are partially or fully bonded to the substrate using IKO's low foaming PU adhesive. Lap joints in the sheets are welded with a hot air gun.

Armourplan SG can be installed onto the following substrates:

- Plywood, oriented strand board or timber boarding
- Smooth concrete
- Profiled galvanised steel
- Woodwool slab
- PIR Insulation

Armourplan SG is available in either 1.2mm or 1.5mm thicknesses.

Armourplan P

Armourplan P is a robust polyester reinforced membrane which offers enhanced mechanical properties over standard PVC membranes and is completely UV stable throughout.

Armourplan P is a versatile membrane which can be mechanically fixed, adhered or ballasted. It is suitable for a variety of roofing applications on both flat and sloping roofs.

Armourplan P is available in 1.2mm thickness.

Armourplan Walkway

Armourplan Walkway is a heavy duty PVC membrane in roll form finished with a slip resisting surface.

The membrane is designed to provide a designated walkway to lightly trafficked areas and protects the prime waterproofing function of the underlying Armourplan roofing membrane.

Armourplan Walkway is quick and easy to install, by welding to the finished roof surface.

A comprehensive range of accessories is also available to complement the Armourplan membranes.

*Minimum volumes and extended lead times required for non-standard colours.



Summary of benefits

- Exceptional mechanical properties
- Excellent product performance
- Choice of RAL colours
- High UV resistance
- Sleek finish
- Secure seam welding quality
- Complete range of fixings and accessories.

Performance

Due to a high specification reinforcement and advanced manufacturing techniques, Armourplan exhibits exceptional mechanical characteristics available in a range of thicknesses and widths to suit every requirement.

Approval

Armourplan PVC roofing membranes have been independently certified by the British Board of Agrément (BBA No. 05/4287) to provide a durable roof waterproofing with a service life in excess of 30 years.



Reliable protection

Armourplan membranes are manufactured using a state of the art extrusion process with enhanced polymer technology, and have been intensively tested to ensure they retain their stunning visual appearance. The reinforcement is therefore encapsulated by high performance PVC, providing consistent and enduring protection.

A sleek, attractive finish

Armourplan forms a sleek skin on many types of roof application, whether mechanically secured or adhered. Design can be further enhanced with the use of the wide range of ancillary items including standing seam profiles, where a traditional metal appearance is desired.

Aesthetically pleasing

Armourplan membranes are available in a wide range of innovative and attractive colours and are UV-stable. A roof can therefore be transformed into an attractive feature, giving the client almost unlimited design possibilities.

Secure seam welding

Armourplan PVC membranes are designed to be welded together to form homogenous, reliable joints. In addition, our premium membrane, Armourplan P is produced by utilising the same high quality UV resistant PVC compound on both the upper and lower sides of the membrane to ensure optimal weld strength and quality.



IKO Solar energy roofs

Installing energy saving and energy generating systems on a roof gives it added value. Effectively the roof works harder and becomes more than just a waterproof covering, providing the building owner with an attractive opportunity to create clean, renewable energy. IKO's polymeric single ply options are particularly versatile and can be used with any of the IKO Solar systems.

IKO Solar photovoltaic (PV) roofing systems convert natural sunlight energy into electrical current. The range includes solutions for both new build and refurbishment applications and offers some of the most efficient energy production available in the market today.

An energy-saving roof does not solely consist of the photovoltaic panels – these are just one element. All building materials and components should complement each other, as well as harmonise with the roof structure.

Important considerations include the roof's function, the installation method and the service life, as well as adhering to regulations for thermal performance, fire integrity and reflective capacity.

Which IKO Solar photovoltaic system is right for me?

The IKO Solar range comprises of four carefully selected energy roof options which each have their own unique characteristics.

IKO Solar F – a thin-film photovoltaic modules comprising of a flexible strip that are adhered horizontally onto the waterproofing system.

IKO Solar X – high performance crystalline panels which are weighted down using ballast

IKO Solar M – consists of Solar F modules applied to an aluminium plate canted by 11°, ideal for retro-fit applications.

Features and Benefits

- Works from the sun's natural power
- Saves energy
- Generates usable energy
- Maintains internal building temperatures
- Choice of system designs

For more information please refer to the IKO Solar brochure.



| | IKO Solar F | IKO Solar M | IKO Solar X |
|--|-------------------------------|--|------------------|
| Lightweight roof structures | ✓✓ | ✓✓ | ✓ |
| Low pitch roof/ high risk of standing water | ✓ | ✓✓ | ✓✓ |
| Building orientation critical | NO | YES | YES |
| Minimum roof area | >400 | >400 | >300 |
| Attachment method | Adhered to approved substrate | Loose laid and secured with membrane strap | Loose laid |
| Weight (kg/m2) | 3.5 | 6 | 10/23 |
| PV technology | Thin film (a-Si) | Thin film (a-Si) | CHRY (Poly/Mono) |
| Allowance needed for shadowing | N/A | YES | YES |
| Suitability for retro-fit | ✓ | ✓✓ | ✓✓ |
| Spectraplan TPE | ✓ | ✓ | ✓ |
| Armourplan PVC | ✗ | ✓ | ✓ |

IKO green roofs

In this age of urban development and increased city and industrial areas, green roof design can help to redress the balance of nature by significantly improving air quality and reducing water run-off.

Spectraplan TPE integrates exceptionally well with green roof systems providing a sound waterproofing foundation.



Green roofs can improve the acoustics, thermal properties and aesthetic qualities of a building, whilst also providing additional space for recreational use. In addition, they provide extra protection for the waterproofing membrane from the extremes of climatic conditions.

The reduction in storm water run-off is a major benefit. From the results gained by practical trials, the average extensive system can absorb approximately 50% of the rainwater falling on it, and also significantly delay the passage of remaining water, reducing the pressure on drainage facilities and flooding. Intensive systems incorporating sufficient soil depth can retain 75% of rainfall up to 90% with greater soil depths.

Thermal transmission is also key. In addition to the thermal insulation installed as part of the waterproofing system, green roofs can further reduce the energy consumption of a building by up to 10%.

What are the green roof options?

The IKOgreen range has been designed to work with all types of green roof constructions.

Extensive green roofs - low maintenance planting without the need for specific irrigation. Add instantly to the aesthetics of the roof.

Intensive roof gardens - a designed garden with increased growing medium, drainage and irrigation. Shrubs and trees can be accommodated.

Biodiverse (brown) roofs - constructed to incorporate recycled materials (e.g crushed brick, concrete etc) into the growing medium. Creates a natural wasteland to attract fauna and flora of all kinds.



Features and Benefits

- Extension of the living accommodation
- Aesthetically pleasing with seasonal variation
- Maintain fauna and flora
- Reductions in storm water run off
- Reduction in urban heat island effect
- Building regulation compliance
- Reduced energy cost
- Reduces temperature extremes
- Reduces risk of mechanical/accidental damage
- Protects waterproofing system from ultraviolet light
- Increases insulation value
- Increases life expectancy of roof.



High Performance Thermal Insulation

IKO insulation boards are made from lightweight, fire resistant, rigid PIR foam core, with high compressive strength and dimensional stability. The highly efficient closed cell structure has a low thermal conductivity and easily achieves required U-Values with a minimum thickness. The current requirements for thermal insulation are set out in Building Regulations Approved Documents L1 and L2 2010: Conservation of fuel and power.



Key benefits of IKO insulation

- Fire performance polyisocyanurate foam core
- Mineral glass or composite aluminium facings available
- Lightweight and easy to handle
- High insulation value/low thermal conductivity
- Rot proof, durable and maintenance free
- Ideal for meeting the increasingly demanding Building Regulations and Part L requirements
- Tapered/cut-to-falls boards also available
- Zero global warming potential
- Zero ozone depletion potential
- Fire classification for ALU boards - Euroclass Bs2 d0 (application on metal decks)

IKO Enertherm PIR MG

A totally CFC/HCFC-free, rigid polyisocyanurate foam insulation board, faced on both sides with perforated (mineral coated) glass tissue. IKO Enertherm PIR MG has a thermal conductivity value of 0.027W/mK (90mm thickness and above).

Board Size: 1200 x 1000mm

Standard thicknesses:

30/40/50/60/70/80/90/100/120/140mm

IKO Enertherm PIR ALU

A totally CFC/HCFC-free, rigid polyisocyanurate foam insulation board, clad on both sides with a structured aluminium sheet. IKO Enertherm PIR ALU offers outstanding insulating properties, with a thermal conductivity of 0.023W/mK (90mm thickness and above).

Board Size: 1200 x 1000mm

Standard thicknesses:

30/40/50/60/70/80/100/120/140mm

U-values (W/m²K)

| Insulation thickness (mm) | IKO Enertherm PIR ALU* | IKO Enertherm PIR MG* |
|---------------------------|------------------------|-----------------------|
| 50 | 0.37 | 0.42 |
| 60 | 0.32 | 0.37 |
| 70 | 0.28 | 0.32 |
| 80 | 0.25 | 0.29 |
| 90 | 0.23 | 0.26 |
| 100 | 0.21 | 0.24 |
| 110 | 0.19 | 0.22 |
| 120 | 0.17 | 0.20 |

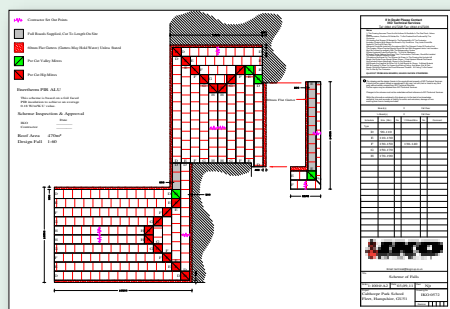
* The U-value calculations are based on the following construction build up: Built-up Roofing – Selected Insulation – Metal Lined Vapour Barrier – 18mm Ply/Timber Decking – Ceiling Void – 13mm Plasterboard – 2mm Plaster Skim

For other deck types please contact IKO Technical Services



Tapered insulation schemes

Available subject to survey.



Systems components and accessories

IKO offer a range of complementary products to complete and safeguard your roof project.

Vapour control layers

A range of polyethylene and bituminous options to ensure optimum performance when used in a warm roof build up.

Adhesives and sealants

IKO's portfolio includes PU low foaming and contact adhesives for bonding membranes, PU adhesive for bonding insulation boards, fibre reinforced liquid detailings, primers and substrate cleaners. PVC and TPE sealants and mastics are also available.

Mechanical fixings and clamping bars

A complete choice of accessories including IKOfix mechanical fastening systems from synthetic to steel parts depending on the requirements of your roof. This includes telescopic fixing plates, screws, pressure plates and flatbars, all designed to meet the demands of numerous deck types and insulation thicknesses. N.B. stainless steel fixings to be used on aluminium decks.

Cover straps

Armourplan Straps are reinforced or homogenous straps for joining Armourplan SG sheet ends. They are also used for detailing and weathering additional mid-sheet fasteners.

Pre-fabricated bespoke details/corners

IKO offer a number of pre-formed details to assist rapid, watertight application. The range includes internal and external corners and roof outlet pipes. Bespoke PVC pre-fabricated details are also available.

Walkway membrane

Spectraplan and Armourplan Walkways are a heavy duty walkway membranes with a slip resistant surface.

Rainwater outlets

Specialist units to assist with drainage off a roof.

Rooflights

IKO offer rooflights with curved dome or pyramid profiles in a wide range of sizes. A full range of ventilation and opening options accompanies the portfolio. A circular dome option is also available (supplied with a GRP kerb).

IKO D-Marc

A wind-resistant demarcation system for flat rooftops. Applications may be for the purpose of preventing access to hazards during regular rooftop maintenance or to provide safe access across the roof.

IKO rail guard rail system

Guardrails which can be fixed to a roof permanently or can be non-penetrative in the form of free-standing with the use of a counter weight.

Standing seam profile

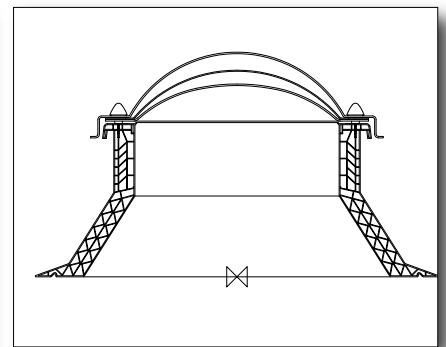
IKO's standing seam profiles are pre-formed profiles designed to replicate the appearance of a metal standing seam joint and is manufactured from homogenous TPE or PVC.



IKO D-marc™ Roof Demarcation System



Bespoke PVC pre-fabricated detail

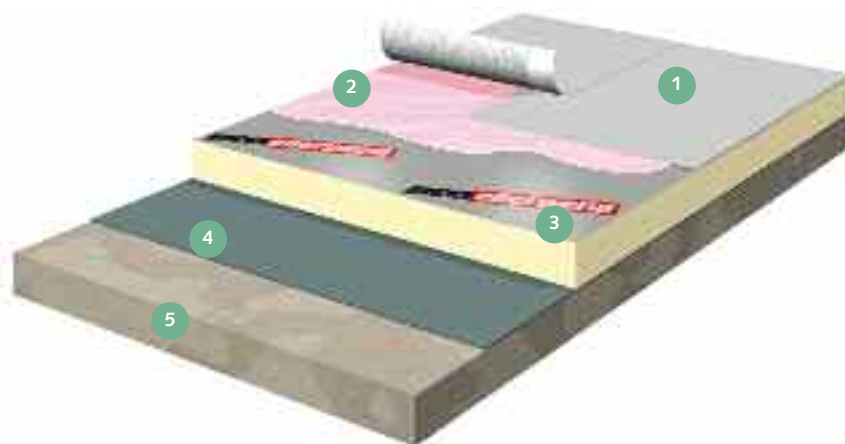


Typical build-ups

These drawings represent typical roof build-ups. IKO's technical services team can advise on specific design elements required for individual projects.

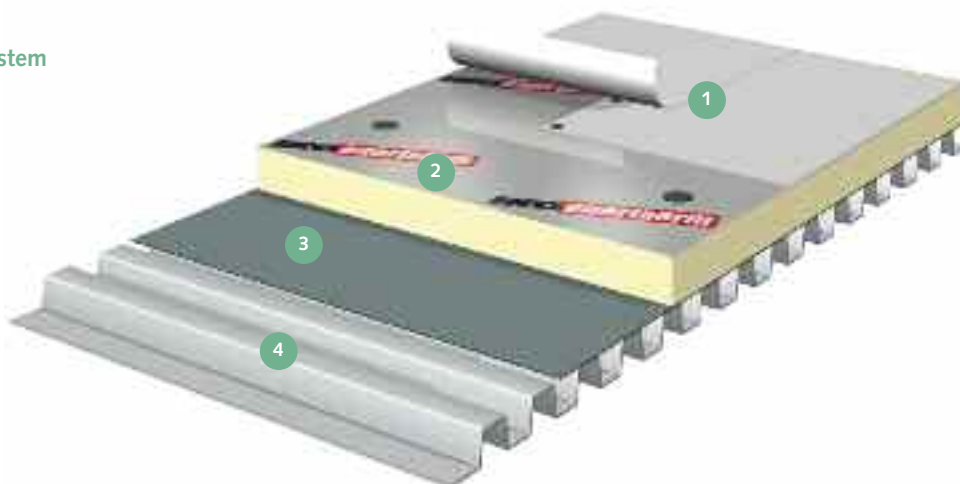
Adhered roofing system

1. Spectraplan or Armourplan membrane
2. IKOpro PU Adhesive
3. IKO Enertherm insulation
4. Vapour control layer
5. Structural deck



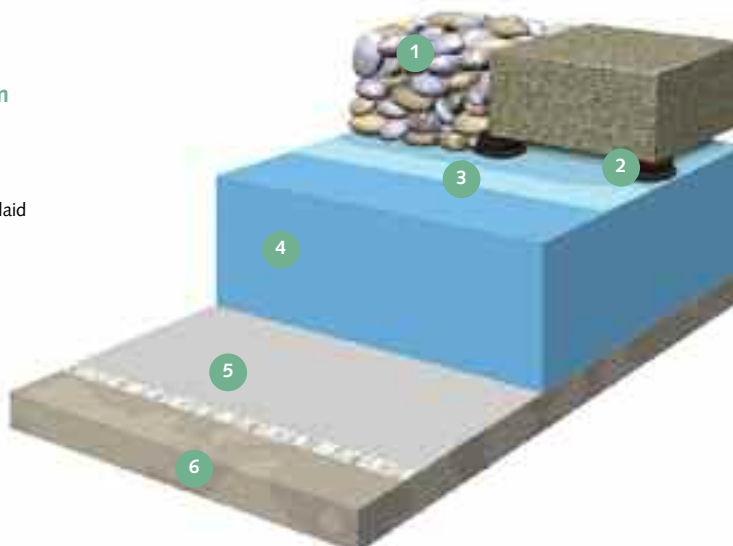
Mechanically fastened roofing system

1. Spectraplan or Armourplan membrane mechanically fixed
2. IKO Enertherm ALU insulation
3. Vapour control layer
4. Structural deck



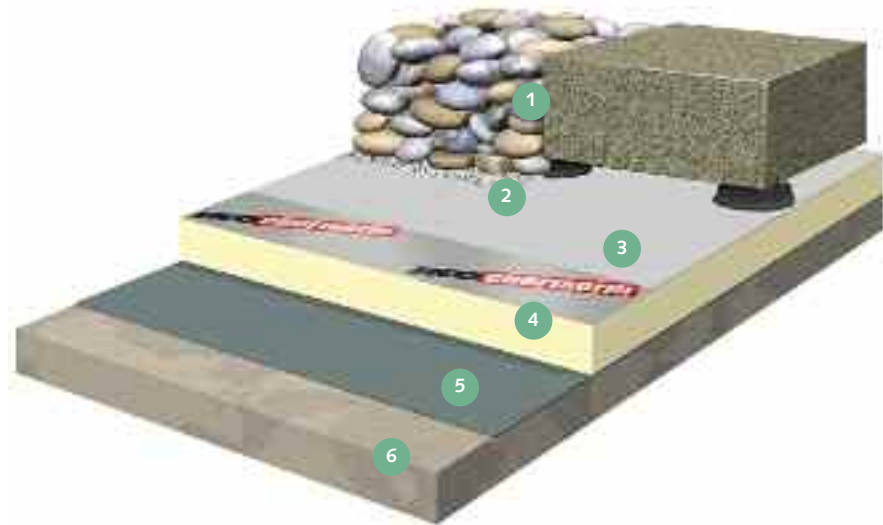
Inverted and ballasted roofing system

1. Ballast and/or concrete loading coat
2. Paving support pads
3. IKO Separation Membrane
4. Extruded polystyrene (loose laid)
5. Spectraplan or Armourplan membrane (loose laid or fixed)
6. Structural deck



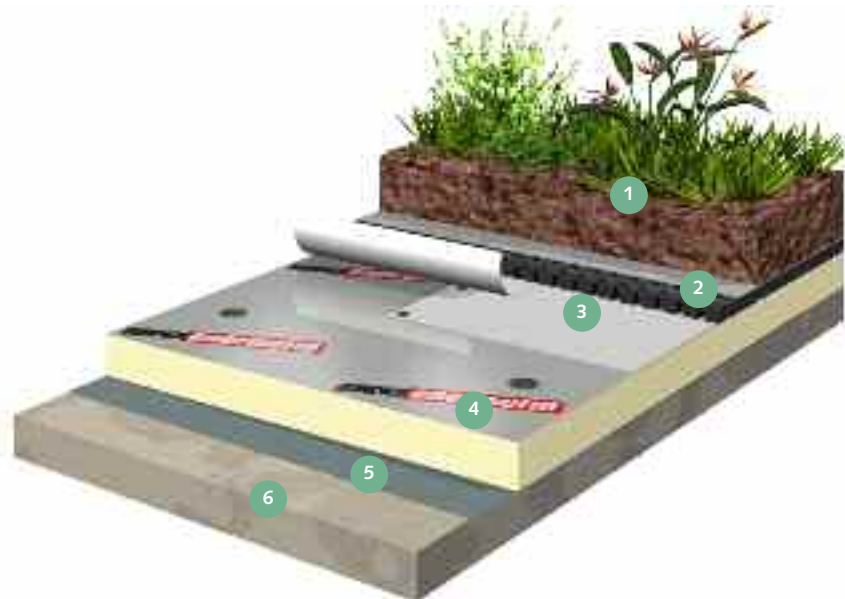
Warm ballasted roofing system

1. Ballast and/or concrete loading coat
2. IKO Separation Fleece
3. Spectraplan or Armourplan membrane (loose laid or fixed)
4. IKO Enertherm insulation
5. Vapour control layer
6. Structural deck



Green roofing system

1. Growing medium
2. Filtration and drainage layer
3. Spectraplan membrane mechanically fixed
4. IKO Enertherm ALU insulation
5. Vapour control layer
6. Structural deck



Solar roof

1. IKO Solar F solar modules
2. Spectraplan membrane
3. IKO Enertherm insulation
4. Vapour control layer
5. Structural deck

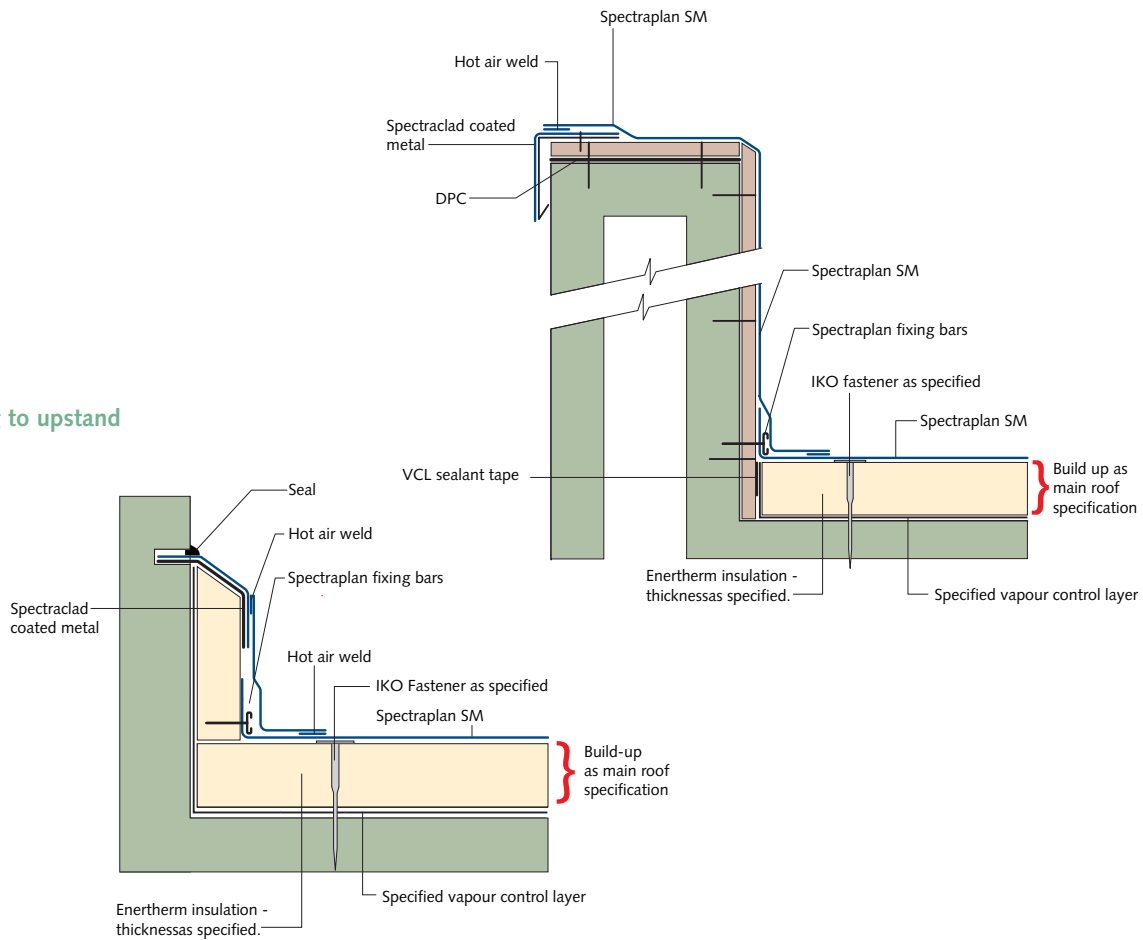


Typical details

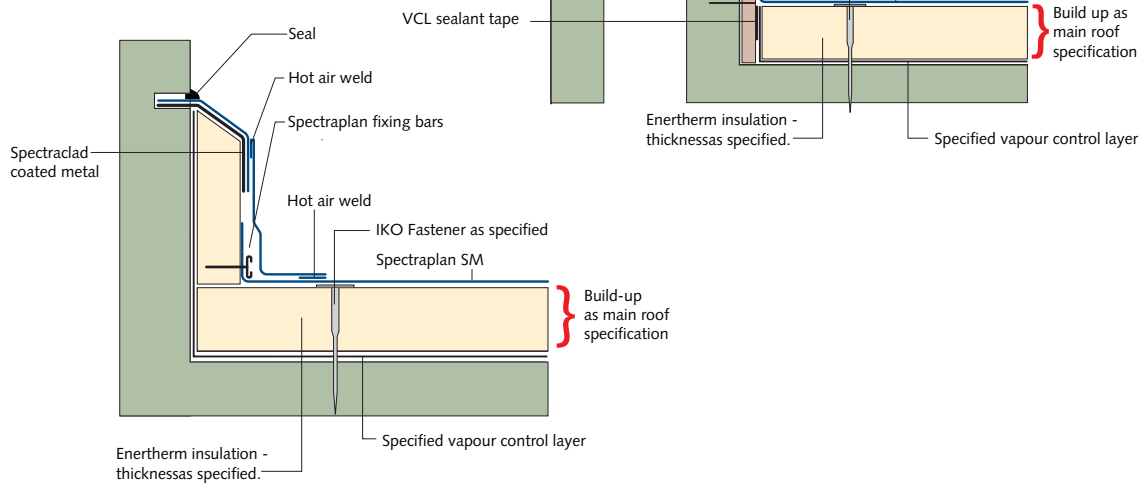
These pages show a number of typical details. The detailing stage of a roof waterproofing project is an essential final element that will present an aesthetically pleasing roof and also ensure a watertight finish. It is paramount when designing any waterproofing system that details are formed in accordance with BS 8217.

For further information or expert advice concerning details please contact IKO's technical services team.

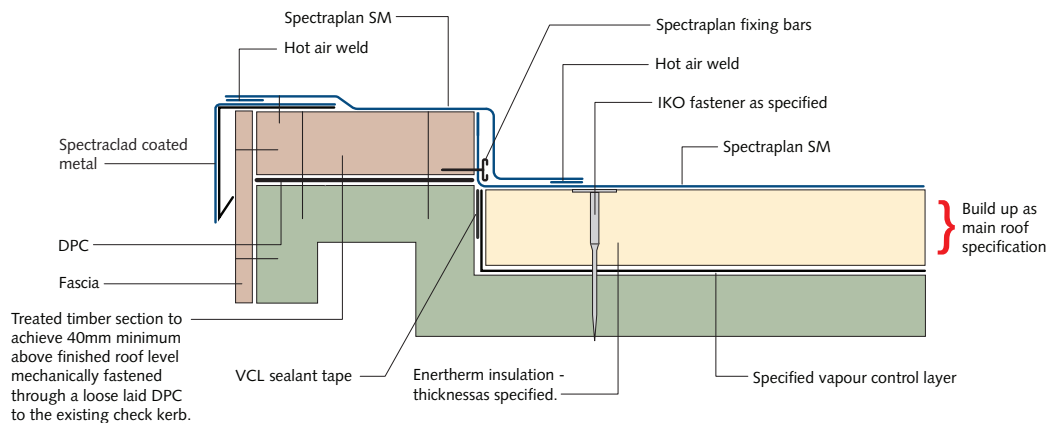
Waterproofing to parapets



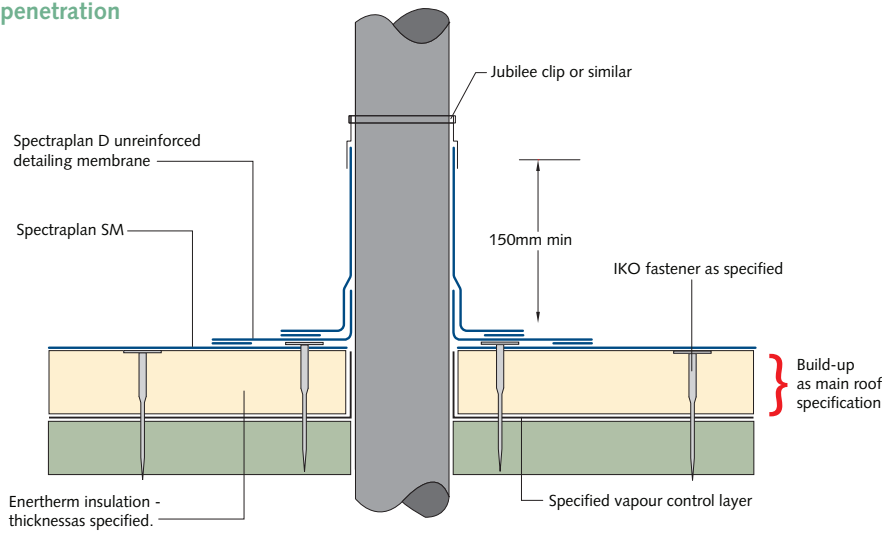
Skirting to upstand



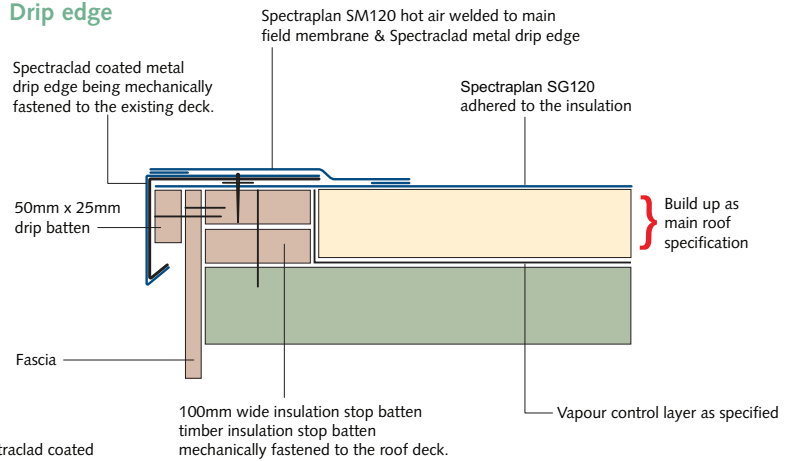
Check kerb



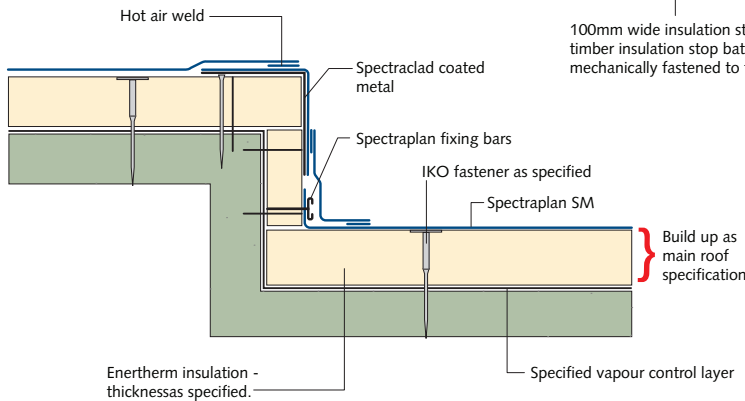
Cold pipe penetration



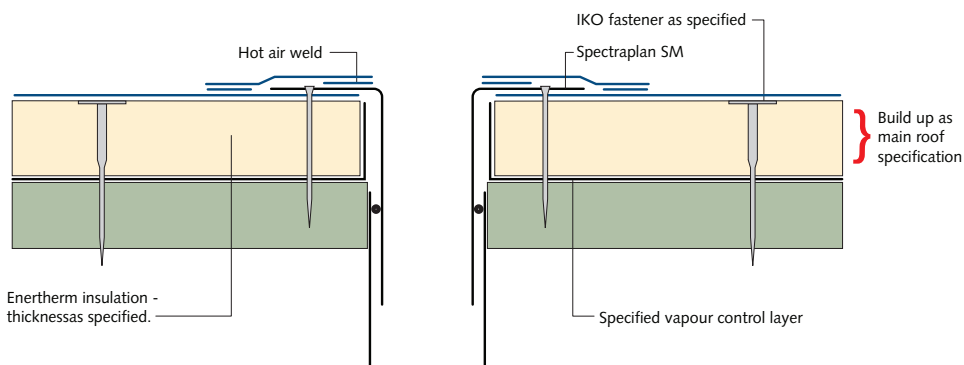
Drip edge



Change in level



Internal rainwater outlet



A complete service

Delivering quality is at the heart of IKO. The company provides a full service offer from initial consultation through specification and design to ongoing monitoring and maintenance.

By understanding your requirements from your perspective, we are able to deliver bespoke packages than suit the criteria of your project.

Consultation and Survey

An essential first step is to establish the type of roof being constructed and confirm all the elements that will form the criteria for selecting the appropriate materials with a relevant design framework.

IKO consults with the client to evaluate their brief to meet the demands set by the project. IKO also offer thermographic surveys via the IKO Roofscan service, which can be particularly helpful for a refurbishment project.

Thermographic surveys accurately assess the level of water penetration within an existing roofing system in conjunction with opening up and inspection.

The latest infra-red imaging technology is used to identify specific areas for removal and those suitable for overlay, thus providing more informed data for planning and budgeting.

Design assistance

Be it an individual detail or an entire roofing project, our customers can be assured of comprehensive and professional design advice. IKO will cover;

- Assessment of thermal design and condensation risk
- Building regulations compliance
- Tapered insulation schemes
- Accessories and access planning
- CAD site plan
- Photovoltaics and green roof design

Your specification will provide a full programme of works to be carried out and includes necessary design detailing, illustrated by drawings produced on one of our fully dedicated CAD systems.

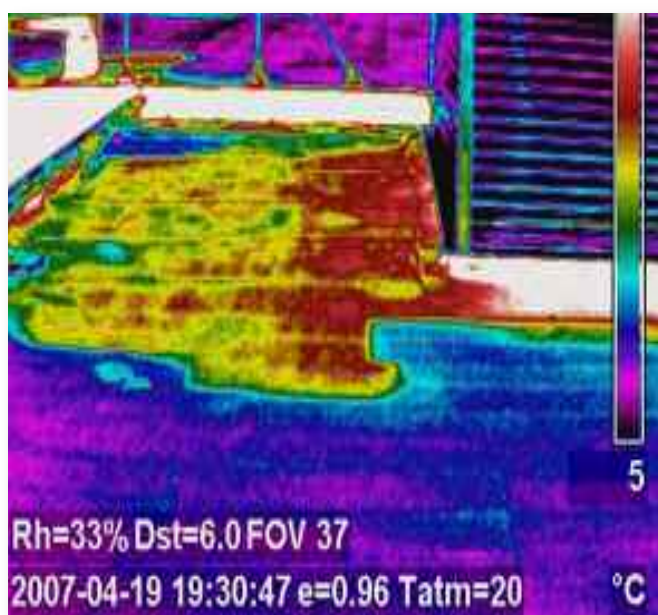
On site assistance and project monitoring

As part of IKO's ongoing service commitment, a member of the technical team will visit site and work with the contractor to ensure a satisfactory conclusion to any issue that occur.

An IKO technical engineer will carry out post installation inspections which will include regular written reports (including the final sign off inspection) with photographic records that will be recorded on IKO's centralised database containing all the technical details.

On site energy assessment service

Using government approved software and processes, we can measure the energy performance of your roof, and suggest ways to reduce carbon emissions and meet industry legislation.



Thermographic camera view: the red and yellow areas indicate moisture trapped within the roofing system.



Normal view

Performance guarantees

IKO Single Ply offers a range of guarantees of up to 20 years to support your roofing specification.

Approved contractor scheme

IKO's roofing systems are only ever installed by approved contractors that have undertaken one of IKO's dedicated training programmes at our specialist training facilities.

With selection and training criteria that are among the most demanding in the industry and nationwide network coverage, you can be confident that wherever you call upon their services, your installation will be managed to the highest possible standards.





Plummerswood, Scottish Borders:
Spectraplan TPE/IKOgreen biodiverse specification.
To view this and other case studies visit ikogroup.co.uk.

References

Some additional reference information

British/European Standards

BS 6229: 2003, Code of Practice for flat roofs with continuously supported coverings

BS 6399: Loading for buildings, Part 3, 1988, Code of Practice for imposed roof loads

BS EN 12056: 2000, Gravity drainage systems inside buildings. Sanitary pipework, layout and calculation

BS 5250: 2002, Code of Practice for control of condensation in buildings

BS 8000 Part 4:1989, Workmanship on building sites. Code of Practice for waterproofing

BS 476 Part 3: 2004, Fire tests on building materials and structures. Classification and method of test for external fire exposure to roofs

Building Regulations

www.planningportal.gov.uk

Approved Document L1 and L2 2000 (2010 amendment) - Conservation of Fuel and Power

Approved Document H 2000 (2002 amendment) - Drainage and Waste Disposal

Approved Document B - Volumes 1 and 2 (2006 Edition) - Fire safety

Certification Bodies

British Board of Agrément
www.bbacerts.co.uk

Building Research Establishment
www.bre.co.uk

Loss Prevention Certification Board (Red Book)
www.redbooklive.com



n5Plus



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