



**IKO PERMATEC LI**  
LOWER EMBODIED CARBON  
HOT MELT WATERPROOFING SYSTEMS



[IKOGROUP.CO.UK](http://IKOGROUP.CO.UK)



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## WE ARE IKO

With more than 140 years' manufacturing experience, IKO is firmly established as the UK's market leader in roofing, waterproofing and insulation solutions, along with our fast-growing highways maintenance range. This hard-earned reputation has been built on a foundation of high quality products, exemplary customer service and an unwavering commitment to driving positive change and protecting what matters to our people and the planet.

With this comes a responsibility to continue investing in our product solutions, manufacturing facilities and extensive team of experts to deliver excellence at every level.





# MANUFACTURED IN THE UK. MADE FOR THE FUTURE.

Our strategically-located manufacturing plants around the country, supported by our nationwide network of building contractors and distributors, make IKO ideally placed to provide our UK-wide customers with a reliable, responsible and responsive service.

We're BES 6001-accredited, which means our products and raw materials are responsibly sourced. And all of our sites are ISO 9001 and ISO 14001-certified. This includes our Prospect Quarry plant in Grangemill, Derbyshire, which is where our hot melt and mastic asphalt solutions for flat roofing, roads, car parks and pedestrian walkways are manufactured.

In addition to manufacturing these systems to the highest industry standard and minimising our environmental impact, we also provide dedicated project design support.

The IKO team is also on hand to provide specification advice, technical drawings, wind uplift and thermal calculations, site visits and post-project support, such as maintenance and comprehensive guarantees – a comprehensive service that is all free of charge.





# VERSATILE ROOFING SOLUTION

Hot melt waterproofing systems have been successfully installed for decades.

Today, many prestigious buildings in the UK incorporate a hot melt waterproofing system, from residential high-rise apartments to hospitals and colleges. Popular for new build projects, hot melt systems provide a tough, flexible membrane that is suitable for inverted roof applications with a wide range of surface finishes (e.g. green, blue, paved roof areas) and structural waterproofing applications.



## What is IKO Permateg LI?

IKO Permateg LI is a hot-applied waterproofing membrane that is manufactured from a specially formulated combination of refined bitumen, synthetic rubbers, fillers and other additives. British Board of Agrément (BBA No. 03/4009)-certified, it is melted in a purpose-built machine and applied to a prepared structural deck in two nominal 3mm coats, providing a monolithic waterproofing system.

When covered by suitable protection or used in an inverted roof or green roof specification, IKO Permateg LI can be used as a waterproofing layer for new build flat roofing applications and has gained a solid reputation as the system of choice due to its widespread benefits, including:

### Lifetime performance

- Long-term waterproofing integrity
- Formulated to last for the lifetime of the building or structure it has been applied to

### Fully bonded and monolithic

- Applied as a liquid directly to the deck
- A completely seamless solution
- Minimal risk of lap failure

### Flexible design

- Approved for use on zero fall decks
- Not affected by standing water
- Effective detailing to difficult penetrations like 'I' beams, posts, etc

### Safe and speedy installation

- No on-site curing requirements
- Solvent-free formulation

### Ideal for demanding site conditions

- Can be readily applied in low temperatures on clean, dry and frost-free surfaces
- Work can proceed during winter months, reducing lost construction time
  - Not impacted by rain, snow or frost immediately after application
  - Excellent low temperature flexibility and adhesion
- Can be walked on immediately post installation

### Quality workmanship – guaranteed

- IKO Permateg LI is installed by trained, registered operatives
- Dedicated IKO technical engineers monitor site installations
- Long-term guarantees provide ultimate peace of mind

### Strong environmental credentials

- With our focus on innovation and the environment our IKO Permateg LI delivers reduced embodied carbon over 50% compared to our previous IKO Permateg system and has a global warming potential of 150kg per ton of material.
- The IKO Permateg LI Anti-Root system features a compound specifically designed for use in extensive and intensive green roof and biodiverse roof systems
- Utilising the UK first zero wrapper waste - a thin film which blends into the material when heated



# WHY IKO PERMATEC LI

**IKO Permaterc LI offers an environmentally conscious option with a third-party verified and Global Warming Potential (GWP) reduction in embodied carbon of over 50%.**

Reducing embodied carbon in the construction industry has the potential to significantly contribute towards the UK's carbon reduction goals. But how can the sector turn these targets into reality?

IKO Permaterc LI and IKO Permaterc LI Anti-Root are the latest version of our long-lasting hot melt waterproofing solution. With our proprietary technology, this innovative advancement has enabled us to reduce embodied carbon by over 50% compared to our previous IKO Permaterc system, while maintaining the same durability and waterproofing performance. The revised patent-pending formula delivers improved sustainability benefits and is suitable for use in most roofing and structural waterproofing applications. IKO Permaterc LI has been designed to deliver a reduced carbon footprint for environmentally conscious projects.

By choosing IKO Permaterc LI, customers can not only achieve improved BREEAM ratings for their projects but also make a positive impact on the journey towards a lower carbon construction industry.

IKO Permaterc LI provides the same performance benefits as the previous system, plus:

- ✔ Over 50% lower embodied carbon compared to our previous IKO Permaterc system
- ✔ A lower global warming potential of up to 150kg per tonne\* of material

\*Third party EPD certified





# COMPLETE STRUCTURAL WATERPROOFING WITH IKO PERMATEC LI

## Extensive Green Roof

Lightweight green roof system, usually incorporating sedum mats or sedum plug plants and minimal growing medium (concrete, metal or composite decks). See page 18.

## Inverted Ballasted Roof

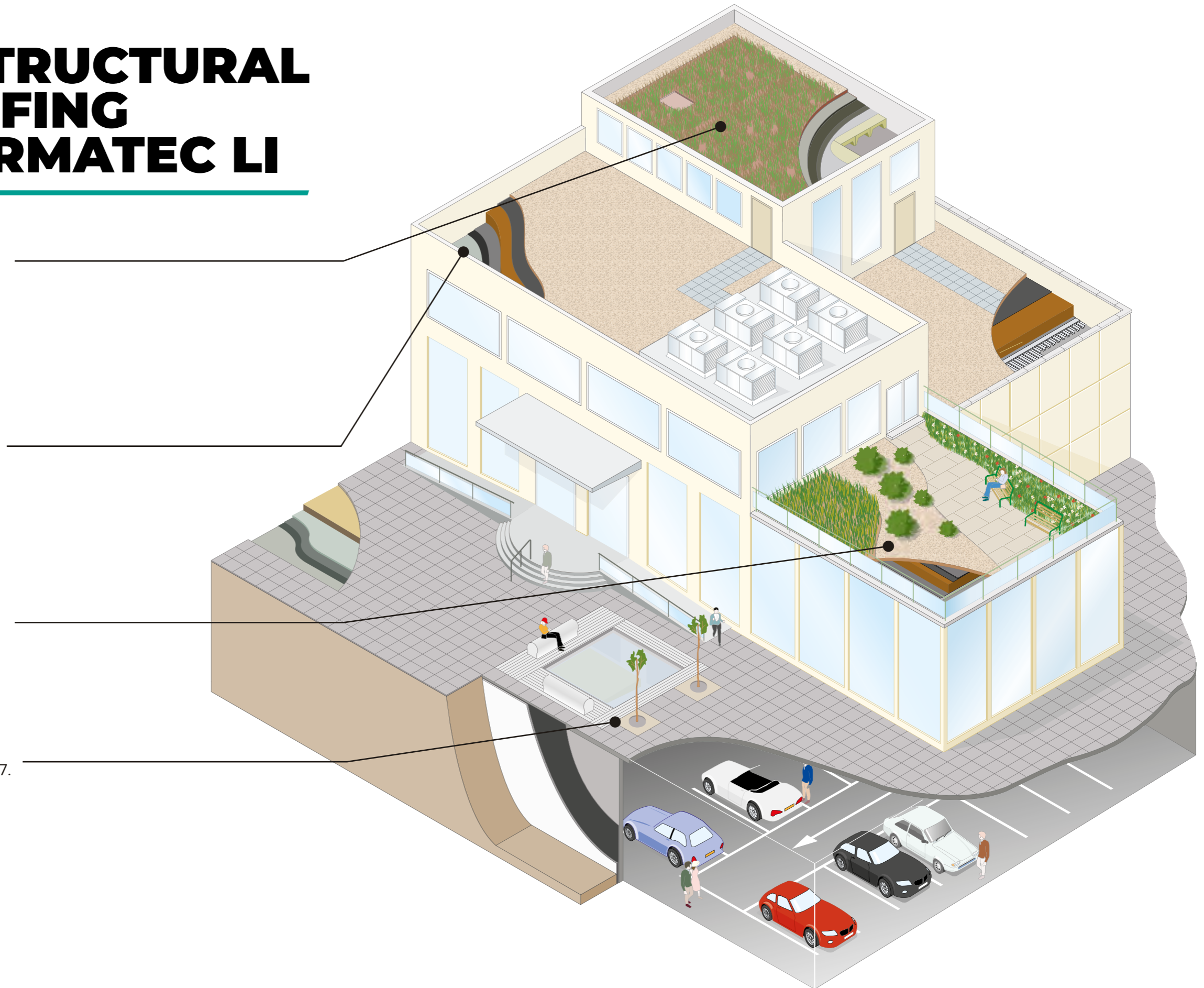
Most popular hot melt system build up, usually installed onto a concrete deck (alternative decks can be used). See page 16.

## Intensive Green Roof

Heavyweight green roof system, usually incorporating bushes, trees, grass etc, and an appropriate depth of growing medium to support them. See page 17.

## Podium Deck

Often used over undercroft car parks to retail and residential buildings, usually uninsulated. See page 17.



# FOCUS ON: INVERTED ROOF SYSTEMS

Inverted roof systems are insulated roof structures in which the waterproofing membrane is placed under the insulation. This 'upside-down' sequence means the structural roof deck is waterproofed first; the waterproofing membrane is then protected from mechanical damage, UV radiation and the elements by an insulation layer which is subsequently covered with surface finishes. The surface finish protects the loose-laid insulation from wind uplift.

## Typical specification

Most inverted roofs are installed on concrete decks. Alternative materials, such as plywood and non-combustible cover boards, can also be installed on to timber joists or metal deck substrates, or metal/insulation composite panels. Hot melt is then fully bonded to the deck.

Certain third-party certified waterproofing and insulating systems are approved for use with zero falls but back falls are not acceptable and should be corrected. In order to ensure a finished surface with a zero fall, a design fall of 1:80 should be used and a detailed structural analysis should account for construction tolerances, settlement and for deflection under load. Where areas are found by a site level survey to have negative falls, i.e. will hold water, remedial action should be taken, e.g. localised screed or additional rainwater outlet.

IKO Permateg LI systems are BBA certified for use on zero fall decks.

Extruded (XPS) or Expanded (EPS) polystyrene insulation is loose-laid on to the top of the waterproofing system. (Note - some waterproofing membranes need to be isolated from the XPS/EPS).

One of the main advantages of this form of construction is its simplicity. With the weatherproofing also acting as an air and vapour control layer, the need for complicated calculations can often be avoided.

In addition, there are advantages in the speed of weatherproofing, ease of drying out, avoidance of entrapped moisture, in-built protection of the weatherproofing, and the ability to upgrade the insulation without disturbing the weatherproofing. This system is preferred to other forms.

- Government's Property Service Agency - Technical Guide to Flat Roofing, Section 2.11



## Water Flow Reducing Layer (WFRL)

A proprietary Water Flow Reducing Layer (WFRL) is loose-laid on top of the insulation. The insulation and separation layer must be weighed down with surface finishes, such as round washed stones, concrete pavers on supports, or hard and soft landscaping to prevent wind uplift. (Note - the minimum ballast weight required is 80kg/m<sup>2</sup>).

## Key considerations

The following two key design factors should always be considered:

1. The capability of the structural deck to support the weight of an inverted roof system, which is usually a minimum of 95kg/m<sup>2</sup>.
2. Fully electronically testing the waterproofing system for damage prior to the insulation and loading coat (ballast/pavers/green roof) being installed. Failure to identify and repair any damage could lead to the loading coat and insulation having to be removed, which is both time-consuming and costly.

For further insight on inverted roof design considerations, download the IKO Permateg LI installation guide or speak to IKO Technical Services on [technical.cc@iko.com](mailto:technical.cc@iko.com) or 01257 255771.





# FOCUS ON: PODIUM AND GREEN ROOF SYSTEMS

Inverted roof waterproofing systems are perfect for podium and green roof designs, addressing the essential requirements of drainage and water retention (for green roofs).

## Podium roofs

Podium roof systems are used to create communal outdoor spaces in the form of roof platforms, predominantly serving as trafficked amenity spaces.

IKO Permateg LI can be used on podium decks in a range of applications, including:

- Shopping centres
- Office blocks
- Leisure centres
- Residential and
- Developments over car parks
- At street level over underground railway stations and other sensitive locations

Green roofs or planters are often incorporated into podium deck designs to create landscaped recreational areas. 'Street furniture' (lighting, walls, handrails and other items) – which are secured to the structural deck through the waterproofing system – can be also securely waterproofed using the appropriate IKO Permateg LI waterproofing detail.

## Green roofs

Green roof systems are inverted or warm roof systems consisting of layers – such as a waterproof membrane, drainage system, growing medium and vegetation – which work together to manage rainwater, provide insulation and support plant growth. Categorised as either extensive or intensive green roofs, they offer various benefits including:

- Improved energy efficiency
- Stormwater management
- Air quality enhancement
- Urban heat island mitigation
- Habitat creation
- Aesthetic appeal

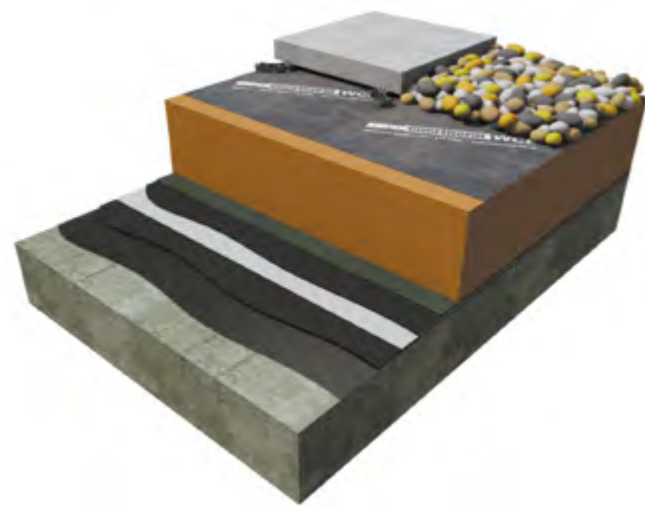
IKO Permateg LI Anti-Root is the world's first monolithic hot melt waterproofing system with built-in root protection. Unlike other hot melt systems, IKO Permateg LI Anti-Root does not require a separate anti-root membrane, making the specification and installation process simpler and more cost-effective. This system achieves FLL four-year root penetration.

For further insight on podium and green roof systems, plus IKO Permateg LI design considerations, download the IKO Permateg LI installation guide or speak to IKO Technical Services on [technical.cc@iko.com](mailto:technical.cc@iko.com) or **01257 255771**.

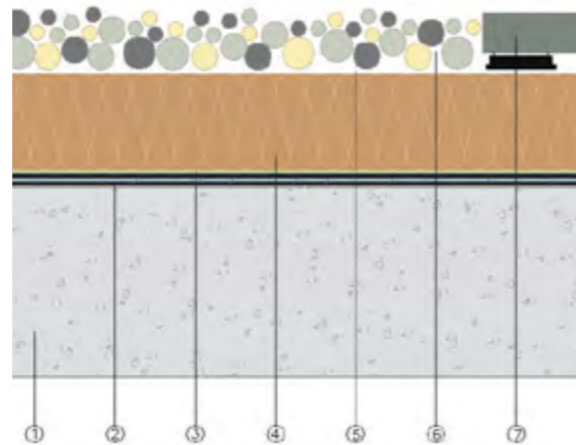


# TYPICAL IKO PERMATEC LI BUILD-UPS

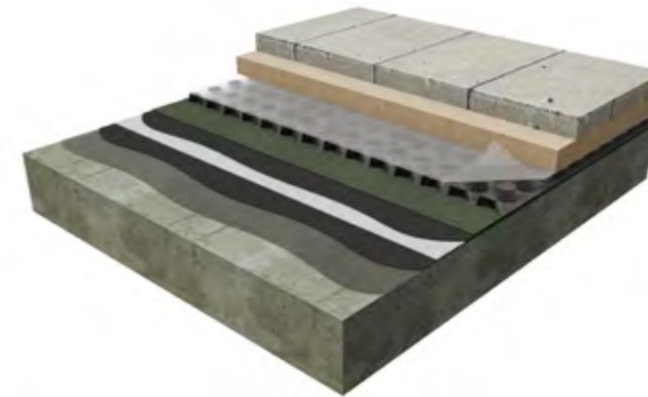
## INVERTED BALLASTED ROOF



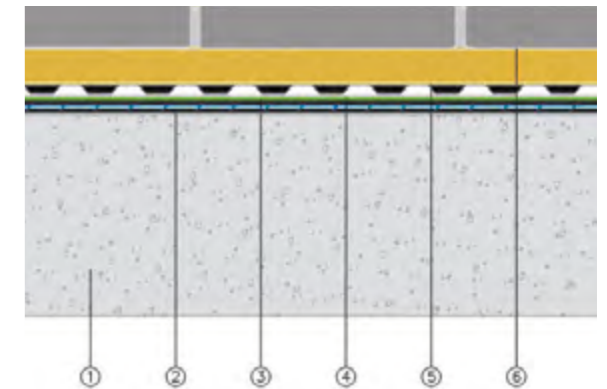
1. Concrete deck primed with IKO Permateg LI Primer
2. 2 coats of IKO Permateg LI incorporating IKO Permaflash-R reinforcement
3. IKO Permaguard-F protection layer
4. IKO enertherm XPS
5. IKO Water Flow Reducing Layer (WFRL)
6. Minimum 50mm layer of 20-40mm rounded washed aggregate
7. Minimum 40mm thick paving slabs on proprietary supports



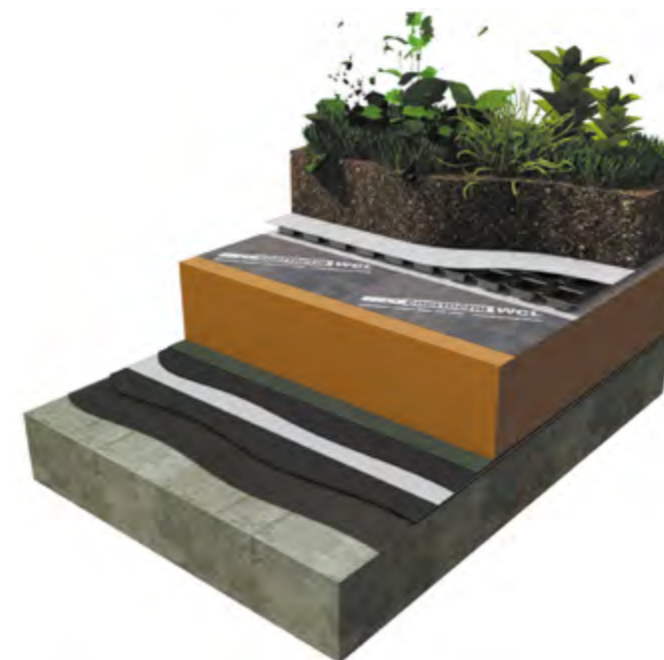
## PODIUM DECK



1. Concrete deck primed with IKO Permateg LI Primer
2. 2 coats of IKO Permateg LI incorporating IKO Permaflash-R reinforcement
3. IKO Permaguard-F protection layer
4. IKO Plasdrain drainage layer
5. Sand/ cement sub-base
6. Brick paviours/ concrete slabs



## INTENSIVE GREEN ROOF



1. Concrete deck primed with IKO Permateg LI Primer
2. 2 coats of IKO Permateg LI Anti-Root incorporating IKO Permaflash-R reinforcement
3. IKO Permaguard-F protection layer
4. IKO enertherm XPS
5. IKO Water Flow Reducing Layer (WFRL)
6. IKO Plasfeed drainage/ moisture retention layer
7. IKO Growing Medium
8. Shrubs and plant finishes

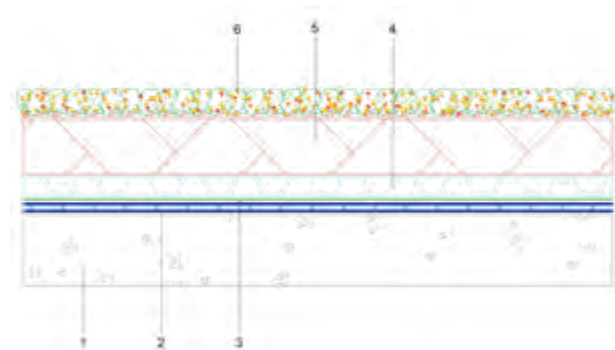




## EXTENSIVE GREEN ROOF



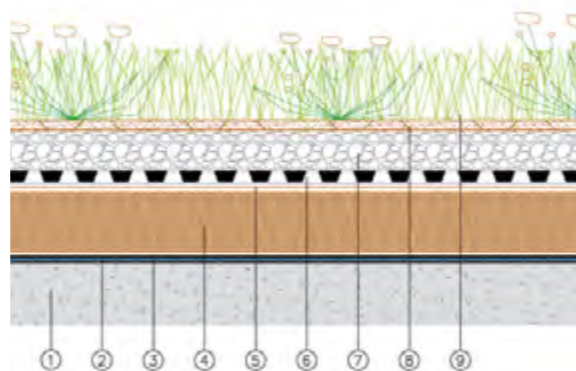
1. Precast concrete planks
2. 150mm wide IKO Permaflash-D150 bonded in IKO Permateg LI
3. 2 coats of IKO Permateg LI Anti-Root incorporating IKO Permaflash-R reinforcement
4. IKO Plasfeed drainage/ moisture retention layer
5. IKO Growing Medium
6. IKO sedum blanket



## BIODIVERSE BROWN ROOF



1. Concrete deck primed with IKO Permateg LI Primer
2. 2 coats of IKO Permateg LI Anti-Root incorporating IKO Permaflash-R reinforcement
3. IKO Permagaard-F protection layer
4. IKO enertherm XPS
5. IKO Water Flow Reducing Layer (WFRL)
6. IKO Plasfeed drainage/moisture retention layer
7. Broken rubble/ brick
8. IKO Biodiversity Growing Medium
9. Wildflower seed mix

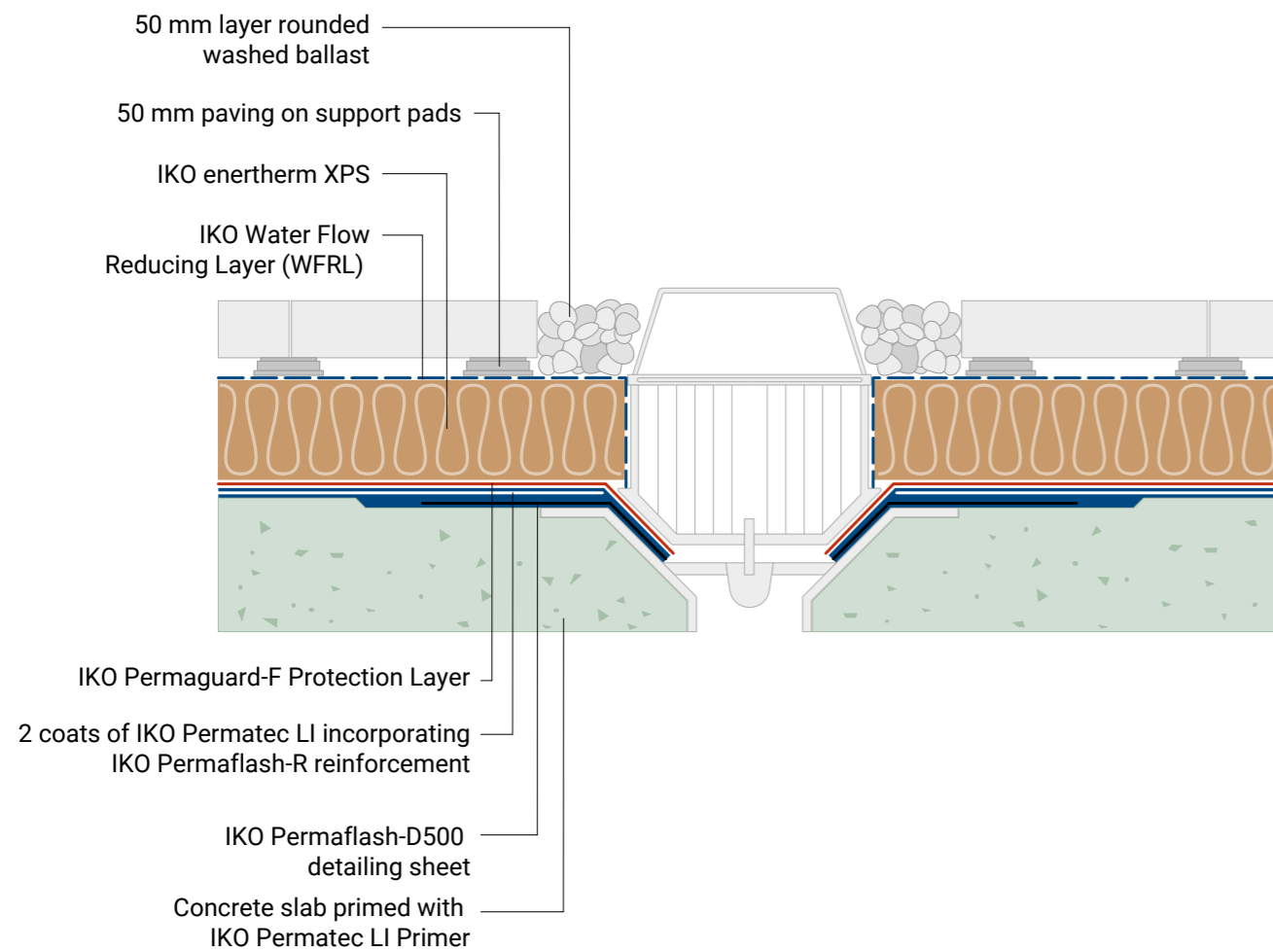




# TYPICAL DETAILS

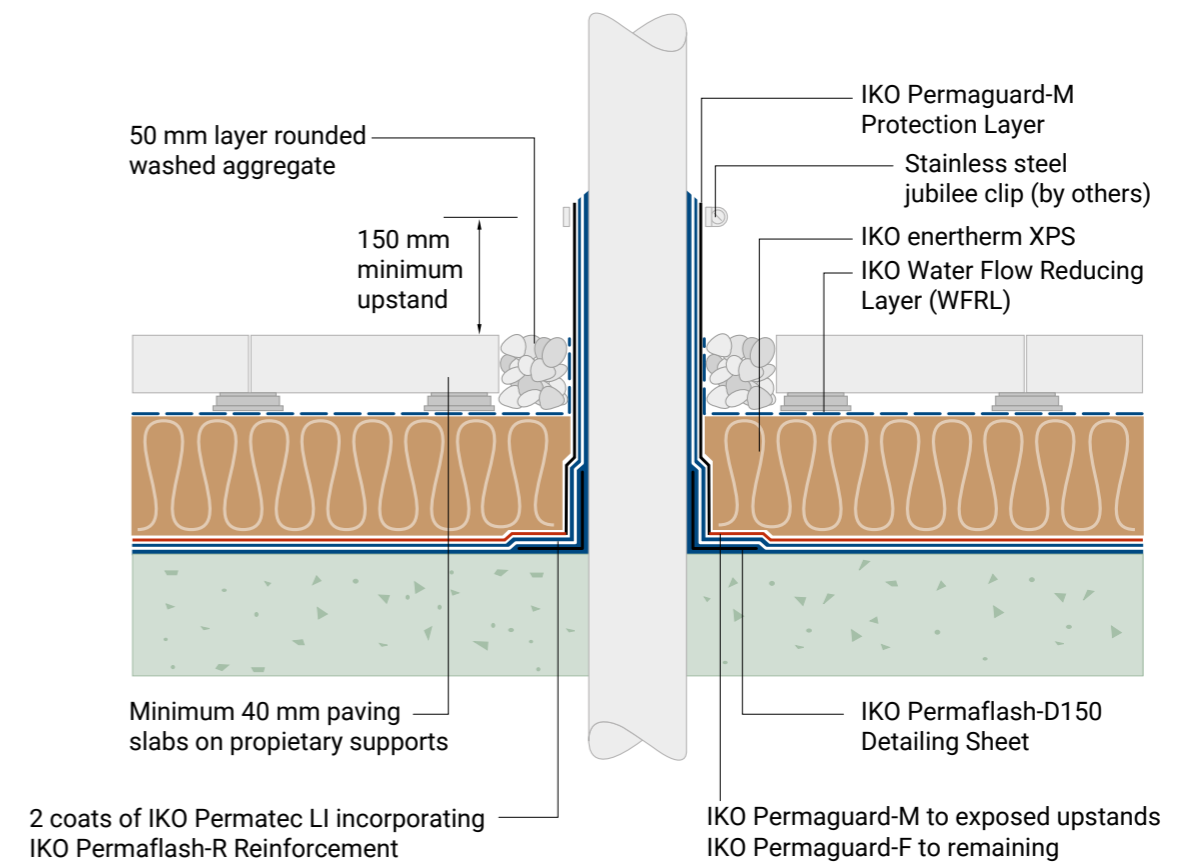
## DRAINAGE

### Rainwater outlet inverted



## PIPE PENETRATION

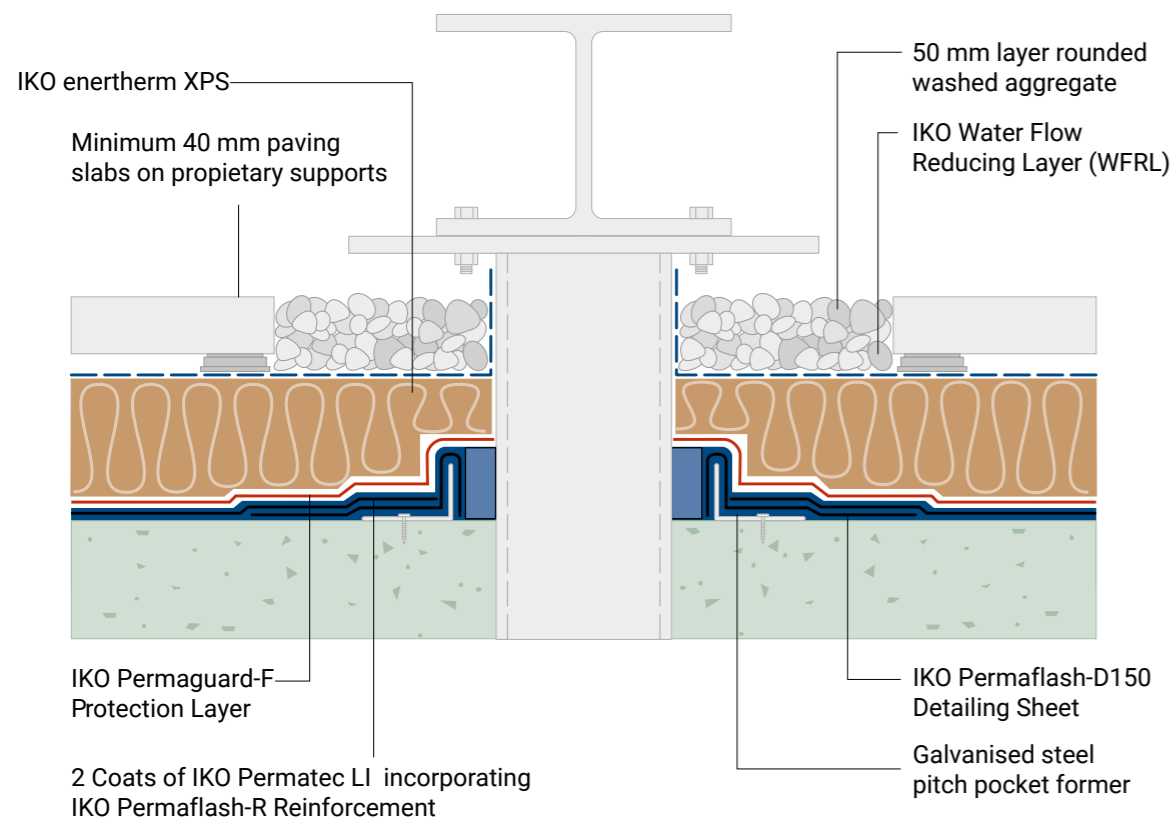
### Typical cold metal penetration detail





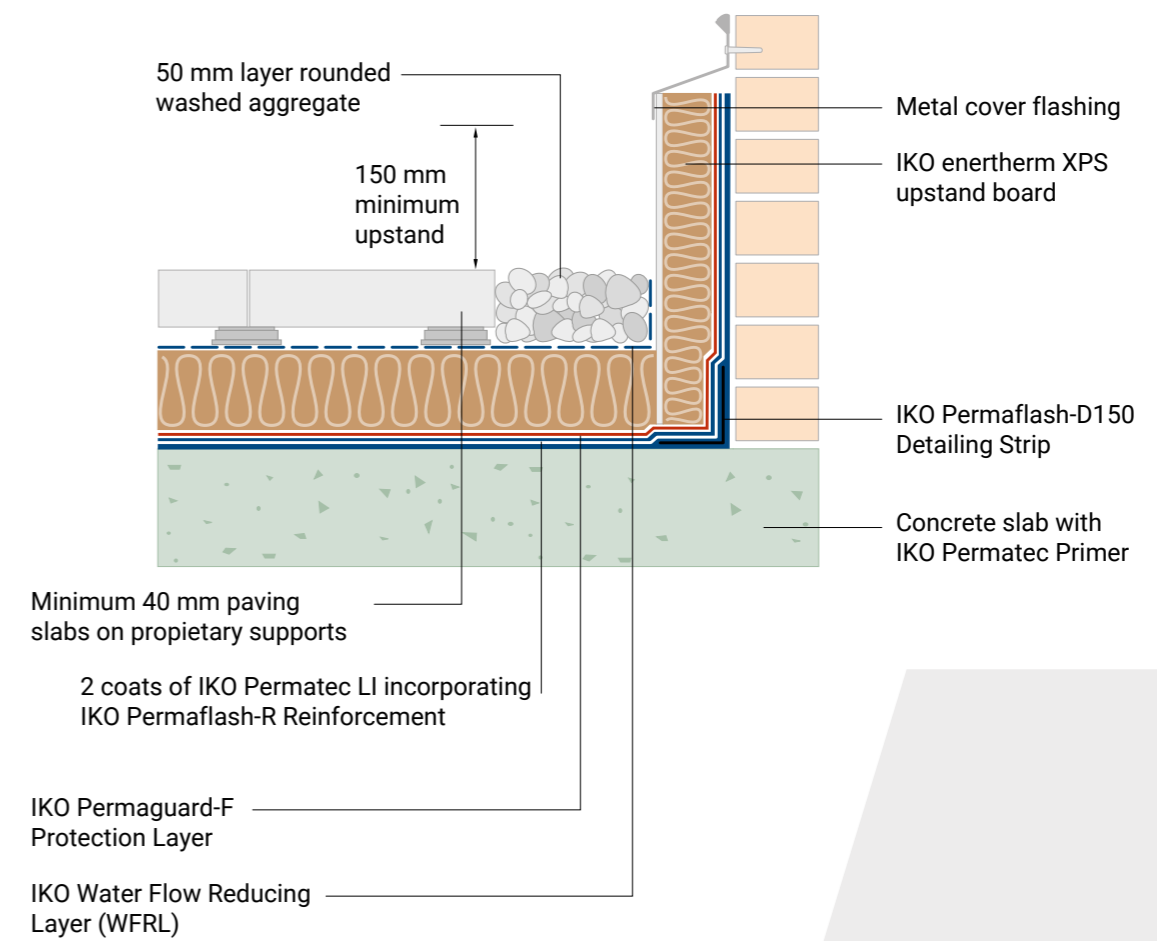
## PITCH POCKET

### Typical pitch pocket detail



## UPSTAND

### Typical insulated upstand section





# OVERCOMING DIFFICULT DETAILS AND WIDER PROBLEM AREAS

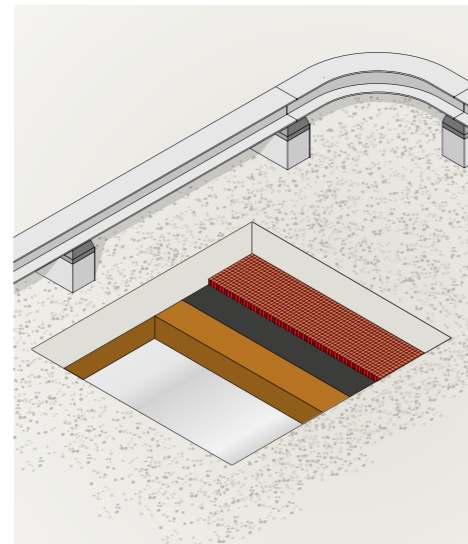
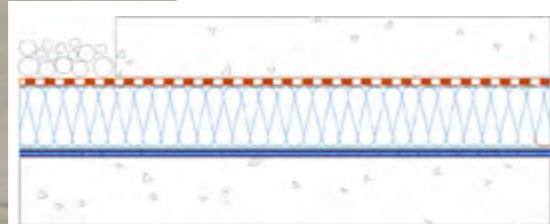
Most roof waterproofing system failures are caused by the waterproofing material being damaged or failure to successfully waterproof difficult detail areas and vulnerable locations.

Due to the many unique advantages of hot melt structural waterproofing systems, a number of simple detailing solutions are available to effectively waterproof detail areas, such as the two listed below, as well as wider problem areas:

## CHALLENGE 1: FLOATING PLINTH DETAIL

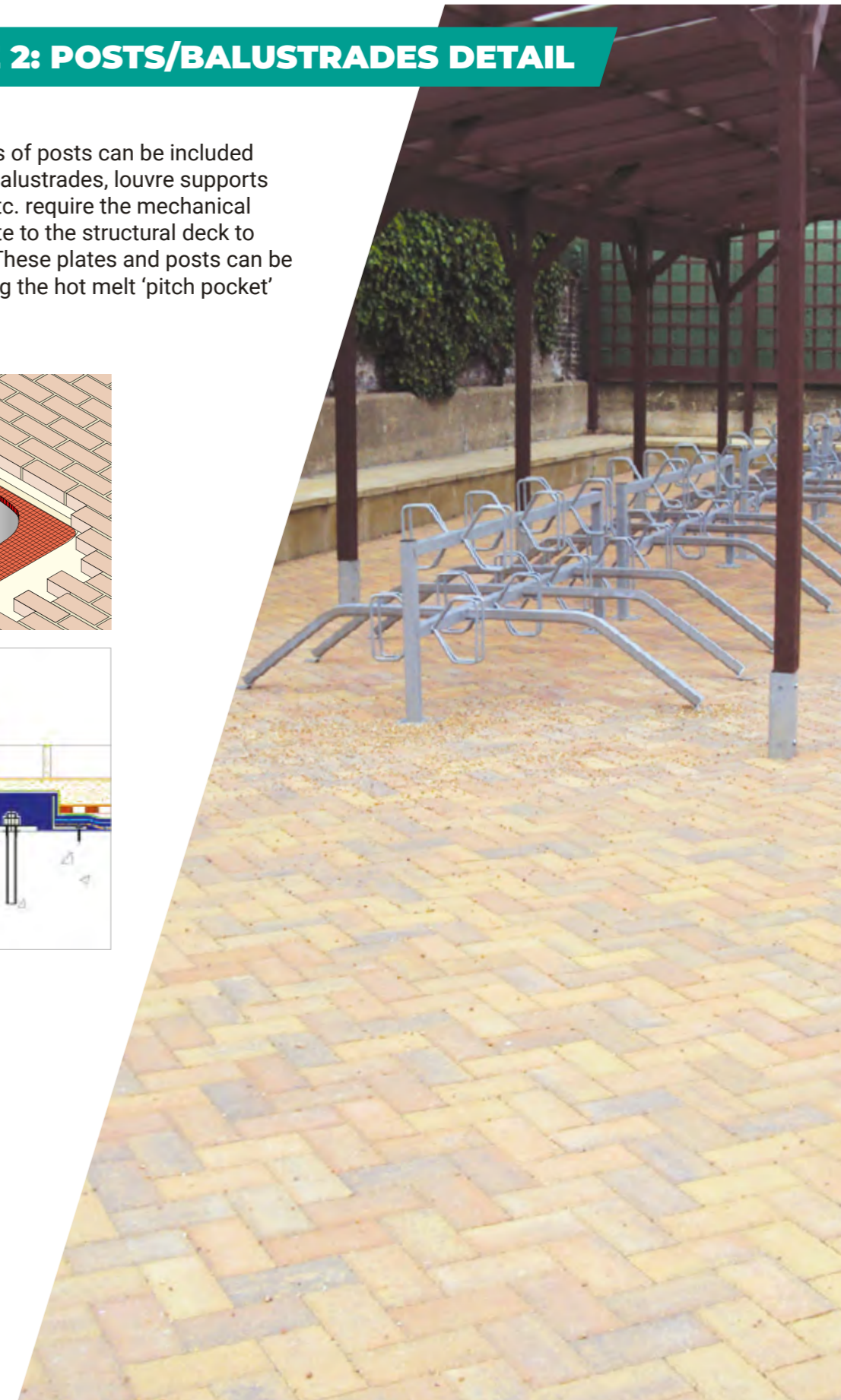
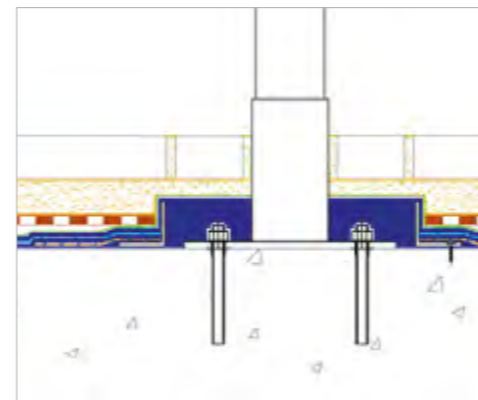
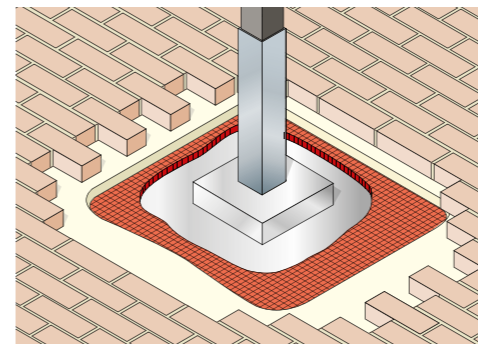
One of the major problems of flat roof design, is the correct placement of roof-mounted plant and the issue of cold bridging the concrete plinths that support the plant.

Hot melt roofing systems provide roof designers with unlimited freedom to support the plant on concrete plinths that are cast on to the top of the IKO enertherm XPS insulation and separation layer, providing an ideal substrate without any cold bridging.



## CHALLENGE 2: POSTS/BALUSTRADES DETAIL

All sorts of different types of posts can be included within flat roof designs. Balustrades, louvre supports and man safe systems, etc. require the mechanical attachment of a base plate to the structural deck to secure the post system. These plates and posts can be simply waterproofed using the hot melt 'pitch pocket' detail.





# IKO IN ACTION CASE STUDIES

## Plot 7, Perry Barr Residential Scheme

Area: 5,200m<sup>2</sup>

The Perry Barr Residential Scheme is a collaborative £700m development designed to deliver 1,400 sustainable, new one- to two-bed apartments in Birmingham.

The complex is on the site of the former Birmingham City University north campus, which was originally earmarked to become an Athletes' Village for competitors in the 2022 Birmingham Commonwealth Games. Instead, the apartments – a proportion of which are affordable properties – form part of Birmingham City Council's long-term masterplan for regenerating north Birmingham over the next 20 years.

Main contractor, Vinci Construction, appointed BriggsAmasco to design and install waterproofing for multiple roofs and a communal podium for Plot 7 of the Perry Barr Residential Scheme. The scheme's £2m waterproofing aspect involved six residential blocks, containing 150 apartments and comprising low- and high-level roofs, terraces, balconies and green roofs across 5,200m<sup>2</sup>.

BriggsAmasco was specifically tasked with delivering a watertight, thermally-efficient seal for ten roofs.



## The solution

For the high and low-level roofs and roof terraces, a system comprising IKO Permateg liquid hot melt was designed and installed as part of a build-up including 160-200mm insulation.

The tough, IKO Permateg Hot Melt system was ideal for the Plot 7 programme because it enabled interior work to begin on time and remain protected against the elements. Meanwhile, IKO's UK manufacturing capabilities and IKO Permateg's high volume of recycled content boosted the project's environmental credentials. The system was also able to be installed within the communal podium area prior to the attractive paving finish. For the balcony areas, BriggsAmasco installed IKO's PMMA cold-applied liquid system.

The project presented a number of logistical and technical challenges. For instance, working in tandem with various trades on up to six different building areas at any one time proved complex. A programme of works was subsequently drawn up between BriggsAmasco, the brickwork contractors and other on-site trades to ensure schedules, site meetings and video conferences stayed on track. Storage space was also limited due to strict site restrictions, which resulted in the materials being delivered in phases.

## The result

Despite the challenging working environment, BriggsAmasco completed the huge, logistically challenging, 19-month Plot 7 project within the agreed deadline and without any health and safety issues being reported, creating a visually-stunning and sustainable building for the ages, in the process.



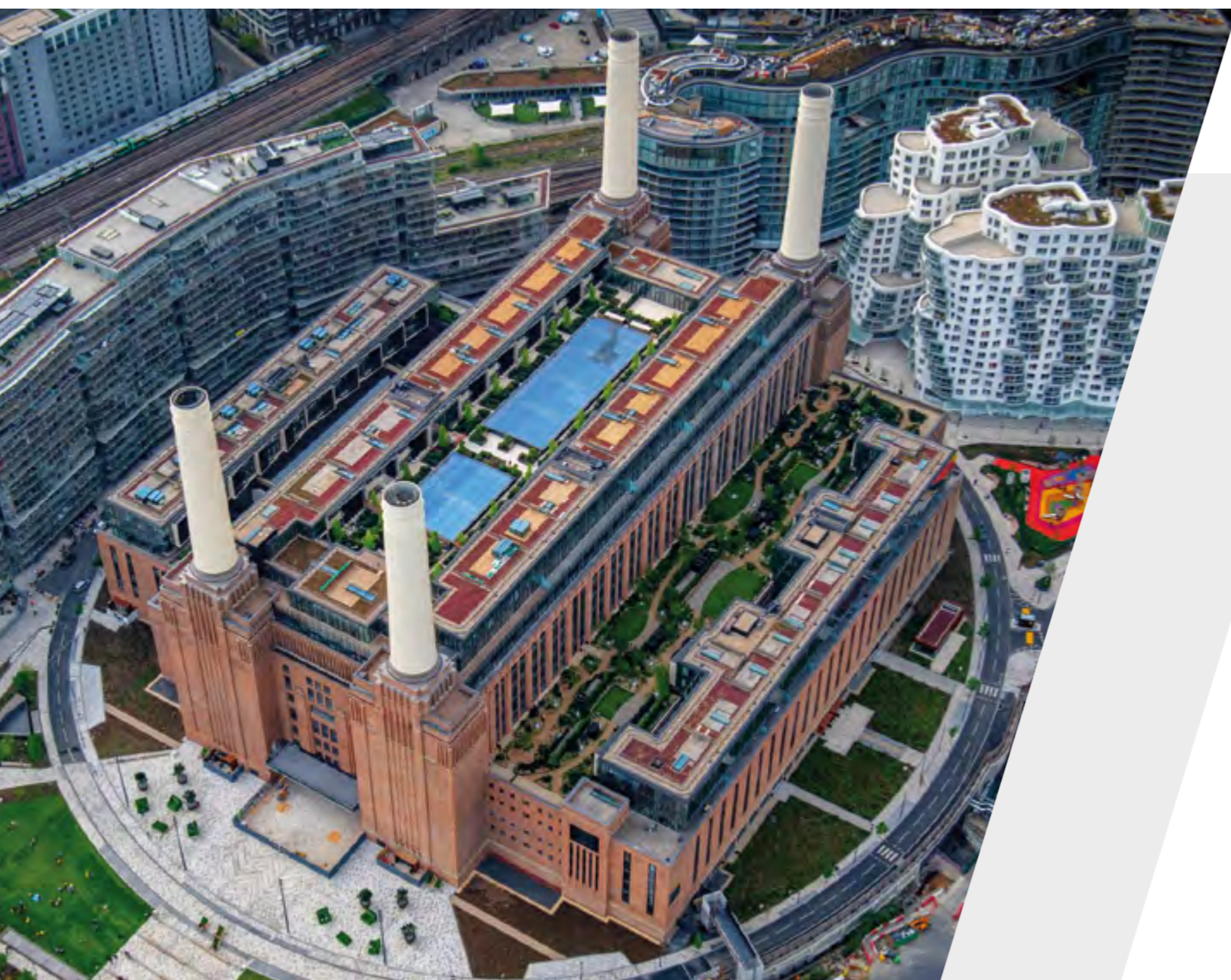




## Battersea Power Station

Area: 45,000m<sup>2</sup>

BriggsAmasco delivered a multiple-application, 45,000m<sup>2</sup> roofing and waterproofing programme as part of the regeneration of the landmark Battersea Power Station. The work formed phase two of the multi-million pound project, one of the largest urban regenerations of its type in Europe.



## The solution

IKO's Permateg hot-applied waterproofing membrane was selected for the power station's main energy centre and retail outlets. The main energy centre is pivotal to the Battersea Power Station development's heating and cooling provision; hence a high-grade waterproofing system was essential to safeguarding its below-ground service equipment.

IKO Permateg was used to provide watertight protection for a ground-level podium area around the energy centre building and below-ground basement levels, where all vital services equipment and technology were under construction.

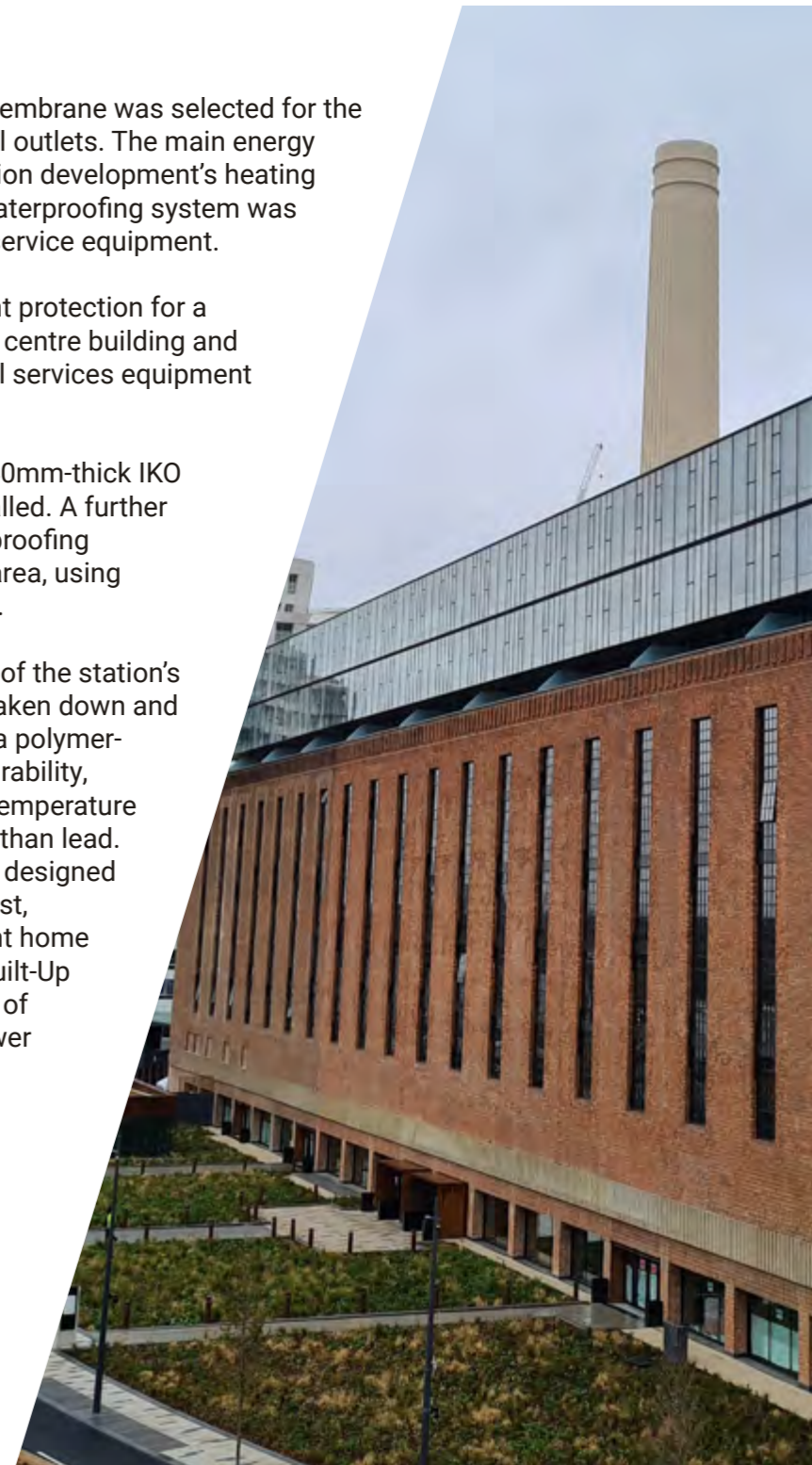
To protect this initial waterproofing layer, a 40mm-thick IKO Permapark mastic asphalt system was installed. A further 8,000m<sup>2</sup> of IKO Permateg hot-applied waterproofing membrane was installed at the retail outlet area, using BriggsAmasco's fleet of zero-emission plant.

A system was also developed to re-waterproof the station's Grade II-listed white chimneys, which were taken down and rebuilt in identical fashion. IKO Permaphalt, a polymer-modified mastic asphalt solution offering durability, increased fatigue resistance and improved temperature stability, was specified for the project rather than lead. A bespoke mastic asphalt solution was also designed to waterproof and line a Peregrine Falcon nest, providing the resident birds with a permanent home within the chimneys. IKO's ULTRA Gold 20 Built-Up Felt Roofing system was applied on a series of apartment terraces within the revamped power station.

## The result

An industry first, the combination of asphalt over the primary waterproofing enabled the below-ground waterproofing's protection layer to remain in-situ, saving removal and recycling costs and reducing the overall environmental impact.

The project's carbon-friendly credentials were further bolstered by using IKO's locally-sourced products, 99.9% of which were manufactured in the UK. Inverted insulation and sedum green roofs were installed across the project, helping to optimise the building's thermal efficiency and environmental credentials.



**For more on our Environmental, Social and Governance (ESG) commitments, turn to page 32.**





# THE IKO SERVICE

From pre-project design advice through to completion, guarantees and aftercare, IKO's experienced and friendly team will guide you through each stage of any project with an all-round support service.



## Consultation

We start by listening to you, your requirements and your brief for the project



## Design

Bespoke to your project requirements and the results of the survey



## Solution

The result of stages 1-3 culminating in the right IKO specification for your project



## Installation

Reassurance that your project will be installed by vetted, IKO-approved contractors



## Inspection

Visits to site before and during the project to achieve a quality, reliable installation



## Guarantee

A long-term commitment from you deserves an equally long-term commitment from us



## Aftercare

The final step, making sure your investment delivers years of faultless service.

For further information, contact IKO's Technical Services team on 01257 255771 or [technical.cc@iko.com](mailto:technical.cc@iko.com)



# PROTECTING WHAT MATTERS

As a responsible UK manufacturer, we aim to limit the environmental impact of our operations and lifecycle of our products, from maximising energy efficiency and minimising waste to locally sourcing raw materials and reducing carbon emissions from transportation. All IKO manufacturing sites in the UK now also run on renewable energy.

## IKO continues to make significant strides forward

We have committed to a programme of continuous improvements that apply to our ways of working, manufacturing and initiatives to reduce, reuse and recycle materials. This includes investing in more sustainable packaging and recycling on-site asphalt and hot charge waste at our Grangemill plant, which enabled us to achieve 100% zero waste-to-landfill.

## Helping our customers meet their sustainability targets

Our R&D and product development teams continue to evolve and grow our portfolio of responsibly sourced products. Within the hot melt sector alone, IKO has been responsible for pioneering the market in terms of environmental responsibility, starting with the first UK-manufactured hot melt waterproofing system in 2002. This was followed by other leading innovations, such as zero waste packaging, anti-root and specially-formulated compounds, allowing for lower application temperatures on-site.

## Meeting our wider ESG goals

We have introduced a number of initiatives as part of our wider ESG strategy, from nurturing the talent of the future to offering mental health support to all IKO people. However, we haven't stopped there – our efforts extend beyond our employees.

Whether it's the people who live in the communities around our manufacturing sites, or those who work, live or learn under our roofing and waterproofing solutions, we aim to protect what matters to them most and create a positive legacy.

Learn more about our ESG journey



“

We specified the IKO Permateg system because of IKO's ongoing commitment to reducing their environmental impact.

Francis Walker, Senior Architect.





**IKO PLC**  
Prospect Quarry  
Grangemill  
Matlock  
DE4 4BW

t: 01257 255771  
e: [getintouch.uk@iko.com](mailto:getintouch.uk@iko.com)  
**Member of the IKO Group**

**Sales Support**  
t: 01257 256865  
e: [sales.uk@iko.com](mailto:sales.uk@iko.com)

**Technical Services**  
t: 01257 256888  
e: [technical.cc@IKO.com](mailto:technical.cc@IKO.com)

**IKO Ireland**  
Unit 502  
Northwest Business Park  
Dublin  
Ireland  
D15 CP3V

t: +353 1 88 55 090  
e: [waterproofing@iko.ie](mailto:waterproofing@iko.ie)  
[www.iko.ie](http://www.iko.ie)

**IKO Northern Ireland**  
2-4 Old Church Road  
Newtownabbey  
Co. Antrim  
BT36 7LU  
Northern Ireland

t: +44 2890 867079  
e: [waterproofing@iko-ni.com](mailto:waterproofing@iko-ni.com)  
[www.iko-ni.com](http://www.iko-ni.com)



**IKOGROUP.CO.UK**

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