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Neuchâtel Permatec

DESIGN & SPECIFICATION GUIDE

003, JUNE 2025

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CodeMark
CMNZ70010

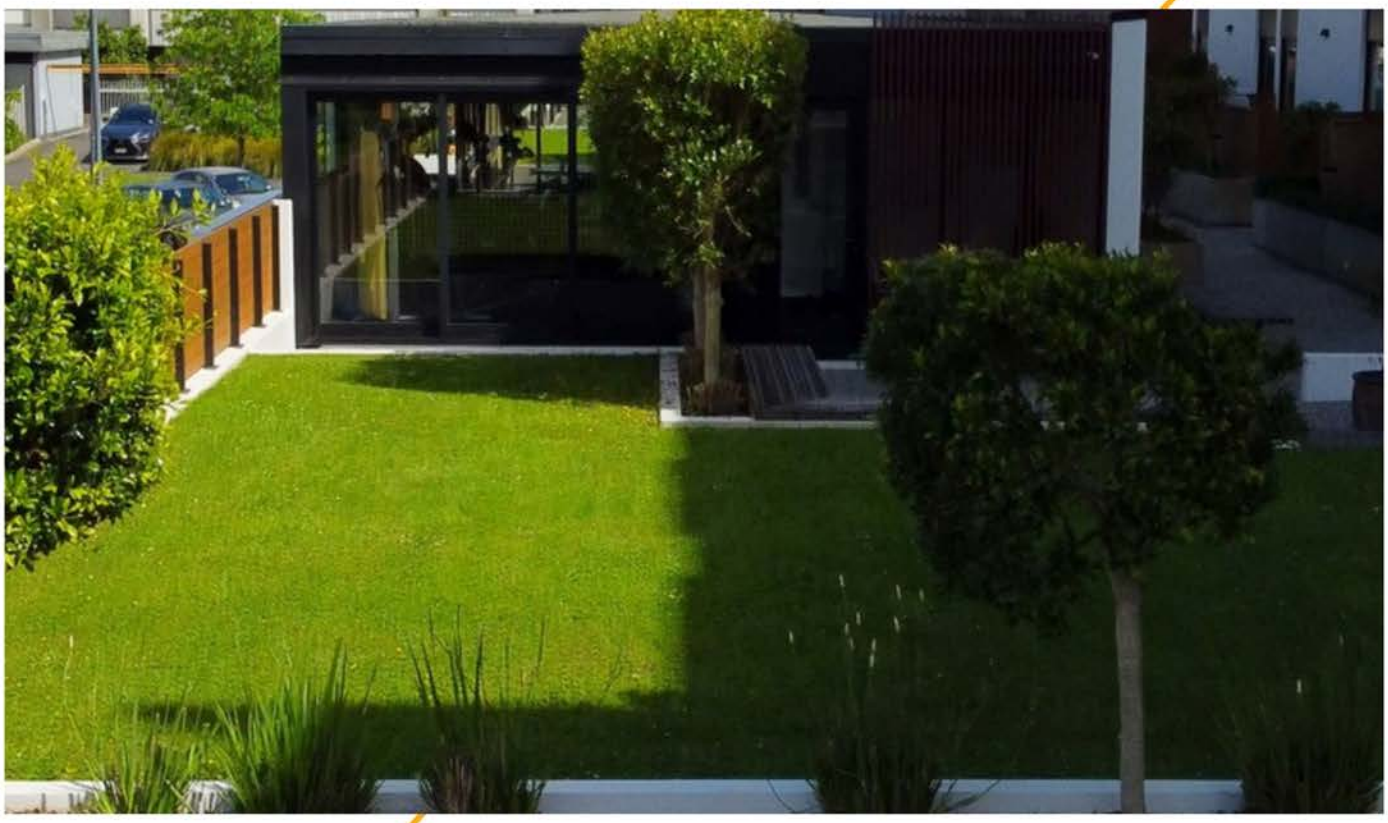
CONTENTS

The Greenhouse, Ponsonby - Ockham Residential

WE ARE NEUCHÂTEL

For the last 120 years, Neuchâtel has helped countless architects and construction professionals in New Zealand to protect their buildings with advanced, durable structural waterproofing systems.

From Neuchâtel Mastic Asphalt to technical waterproofing membranes, for cold, warm or green roofs, floors, walls, paving and carparks, Neuchâtel has a proven solution for the entire building envelope. Our products are designed and engineered to handle New Zealand's unique conditions, high rainfall, and the ongoing challenges of climate change.



Bellus Apartments. Onehunga - Warren Mahoney

WHO is IKO?

IKO is Neuchatel's trusted international manufacturing product partner. With more than 140 years' experience, IKO is firmly established as the UK's market leader in roofing, waterproofing and insulation solutions. 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. With this comes a responsibility to continue investing in product solutions, manufacturing facilities and extensive team of experts to deliver excellence at every level.

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MANUFACTURED IN THE UK. MADE FOR THE FUTURE.

IKO's strategically-located manufacturing plants in the UK, supported by Neuchatel's network of roofing contractors in New Zealand, make us best placed to provide our customers with a reliable, responsible and responsive service.

All Neuchâtel products are CodeMark certified, backed by IKO's BES 6001-accreditation, which means their products and raw materials are responsibly and, where possible, locally sourced, minimising their environmental impact. And all of their sites are ISO 9001 and ISO 14001-certified. This includes our Prospect Quarry plant in Grangemill, Derbyshire, which is where their hot melt and mastic asphalt solutions for flat roofs, roads, car parks and pedestrian walkways are manufactured.

All Neuchâtel projects are regularly monitored during installation by our dedicated Technical Services department, helping maintain full specification compliance and ensuring any site queries are handled quickly and effectively.

Neuchâtel also provide dedicated project design support. The Neuchatel team is 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.

Te Uru Apartments. Hobsonville - Construkt

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VERSATILE ROOFING SOLUTION

Hot melt waterproofing systems have been successfully installed for decades. Today, many prestigious buildings in the UK, and now in New Zealand, incorporate a hot melt waterproofing system, from residential high-rise apartments to hospitals and commercial buildings.

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.

France St Apartments. Eden Tce - Paul Brown & Associates

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What is Neuchâtel Permatec?

Neuchâtel Permatec is a hot-applied waterproofing membrane that is manufactured from a specially formulated combination of refined bitumen, synthetic rubbers, fillers and other additives. CodeMark (CMNZ70010) and 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, Neuchâtel Permatec 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 & 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

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 & adhesion.
- Can be walked on immediately post installing

Safe & speedy installation

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

Quality workmanship – guaranteed

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

Strong environmental credentials

- The Neuchâtel Permatec 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
- With our focus on innovation and the environment our Neuchâtel Permatec LI delivers reduced embodied carbon over 50% compared to our standard Neuchâtel Permatec system and has a global warming potential of 150kg per ton of material.

COMPLETE STRUCTURAL WATERPROOFING WITH NEUCHÂTEL PERMATEC

Extensive Green Roof

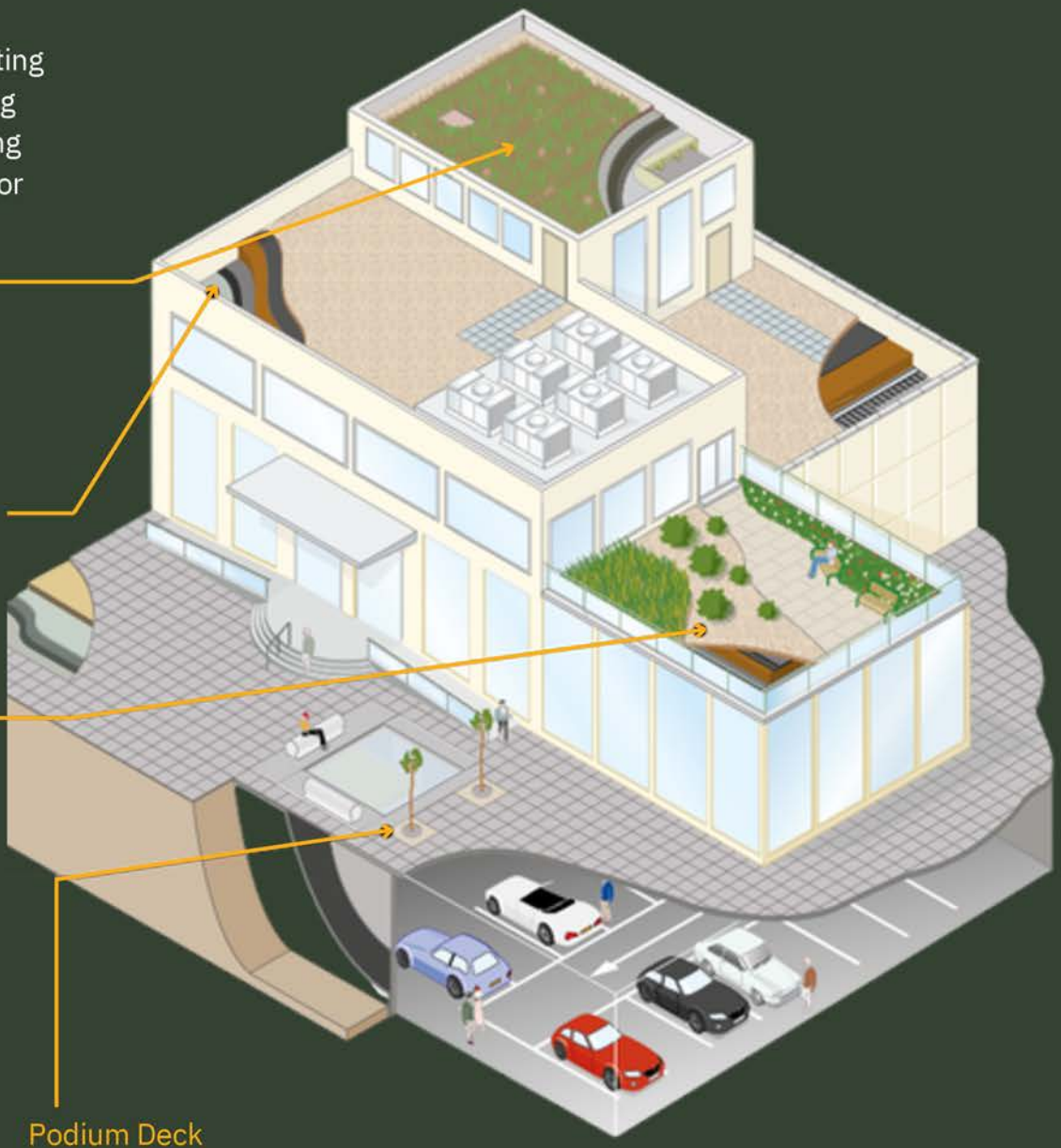
Lightweight green roof system, usually incorporating sedum mats or sedum plug plants and minimal growing medium (concrete, metal or composite decks).
See page 17.

Inverted Ballasted Roof

Most popular hot melt system build up, usually Installed onto a concrete deck. See page 14.

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 16.



Podium Deck

Often used over underground car parks to retail and residential buildings, usually uninsulated. See page 15.

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INTRODUCING NEUCHÂTEL PERMATEC LI

A more sustainable hot melt waterproofing membrane with over 50% lower embodied carbon than standard Neuchâtel Permatec.

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

Neuchâtel Permatec LI and Neuchâtel Permatec LI Anti-Root are the latest version of our long-lasting hot melt waterproofing solution – but with over 50% lower embodied carbon compared to our standard Neuchâtel Permatec, offering improved sustainability benefits.

The system is suitable for use in most roofing and structural waterproofing applications and has been designed to deliver a reduced carbon footprint for environmentally conscious projects. By choosing Neuchâtel Permatec 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.

*Third party EPD certified

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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. Neuchâtel Permatec systems are New Zealand CodeMark and 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. NB: 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/m2).

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 mininium of 95kg/m2.

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.

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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.

Neuchâtel Permatec can be used on podiums decks in a range of applications, including:

- Shopping centres
- Office blocks
- Leisure centres
- Residential
- 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 Neuchâtel Permatec 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

Neuchâtel Permatec Anti-Root is the world's first monolithic hot melt waterproofing system with built-in root protection. Unlike other hot melt systems, Neuchâtel Permatec 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.

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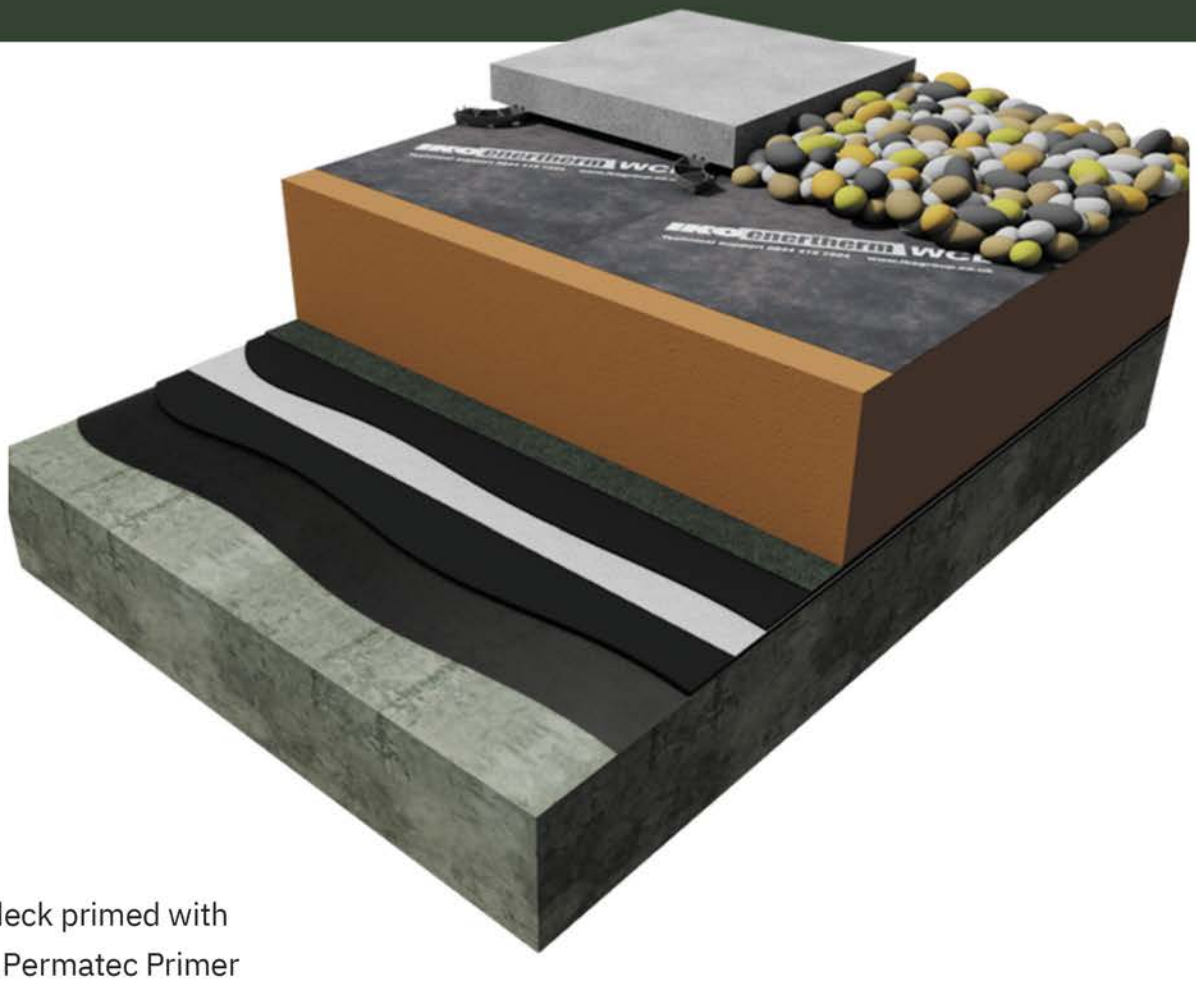
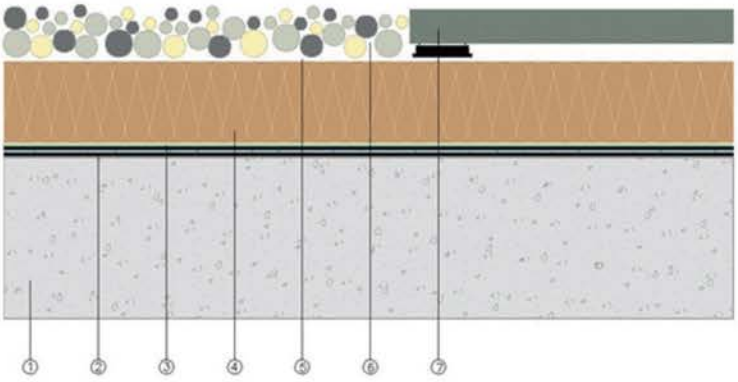
CMNZ70010

TYPICAL NEUCHÂTEL PERMATEC BUILD-UPS

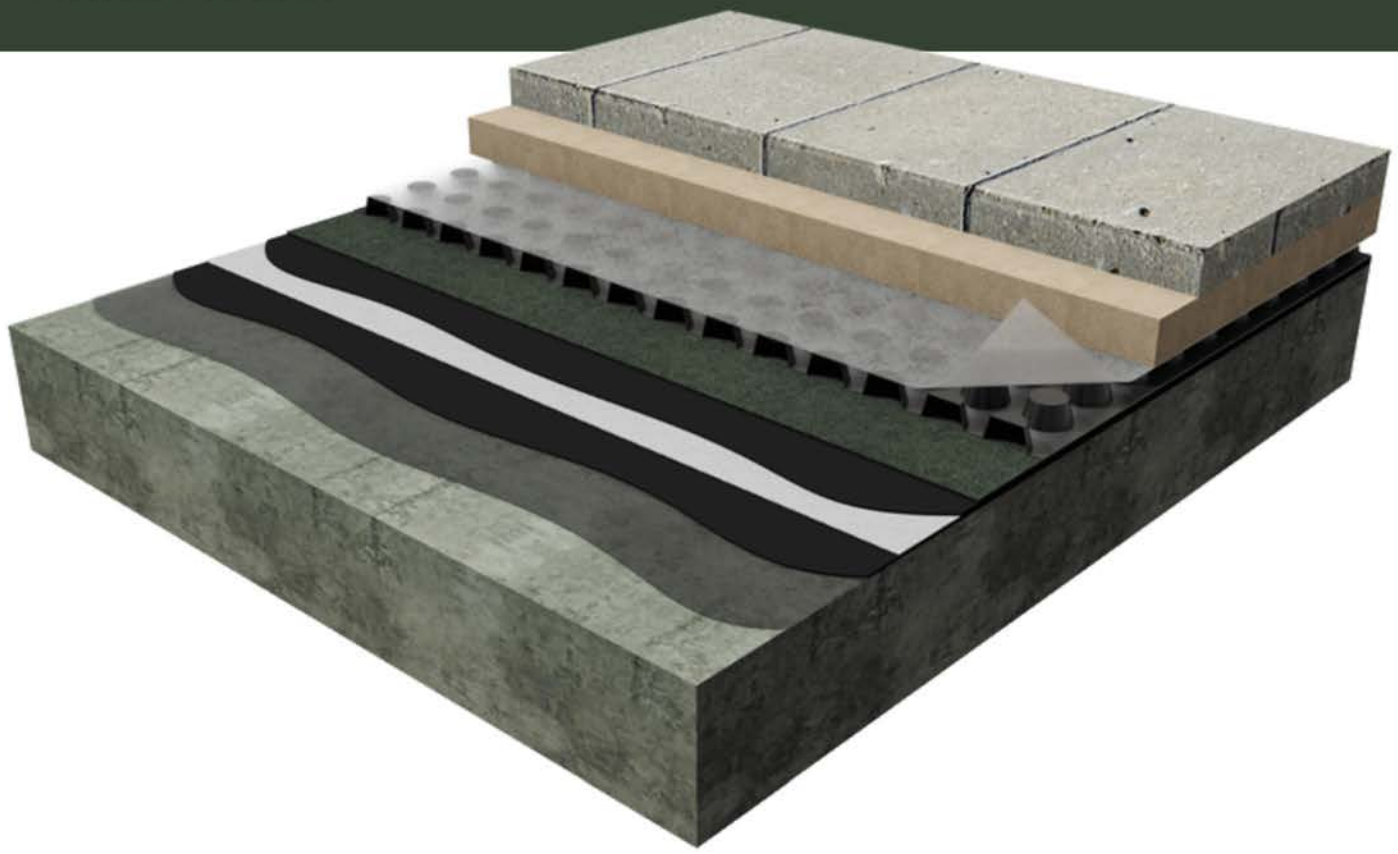
INVERTED BALLASTED ROOF



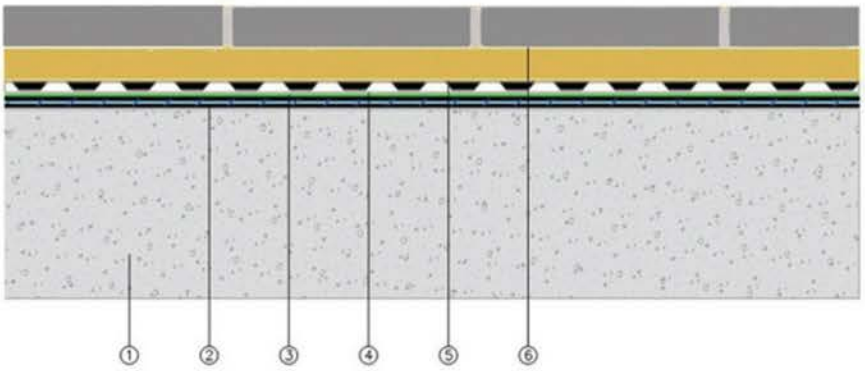
1. Concrete deck primed with Neuchâtel Permatec Primer
2. 2 coats of Neuchâtel Permatec/ Neuchâtel Permatec LI incorporating Permaflash-R reinforcement
3. Permaguard-F protection layer
4. Enertherm XPS
5. Water Flow Reducing Layer (WFRL)
6. Minimum 50mm layer of 20-40mm rounded washed aggregate
7. Minimum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



PODIUM DECK



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

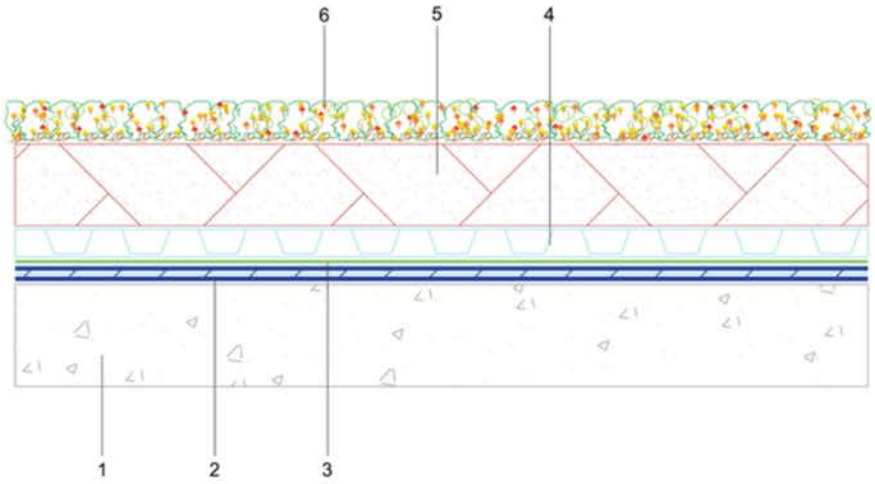


INTENSIVE GREEN ROOF

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

EXTENSIVE GREEN ROOF

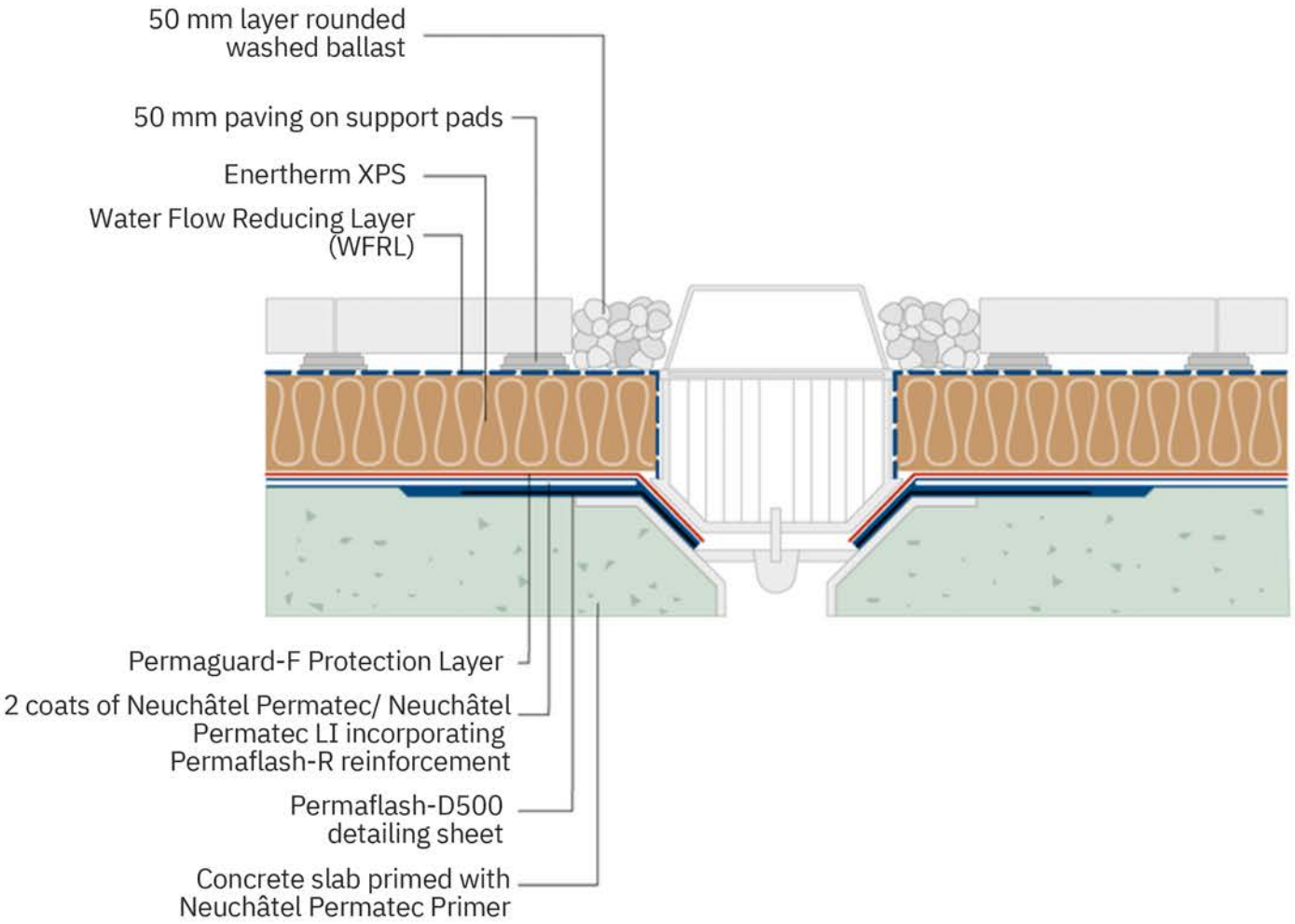
1. Precast concrete planks
2. 150mm wide Permaflash-D150 bonded in Neuchâtel Permatec
3. 2 coats of Neuchâtel Permatec Anti-Root / Neuchâtel Permatec LI Anti-Root incorporating Permaflash-R reinforcement
4. Plasfeed drainage/moisture retention layer
5. Growing Medium
6. Sedum blanket



TYPICAL DETAILS

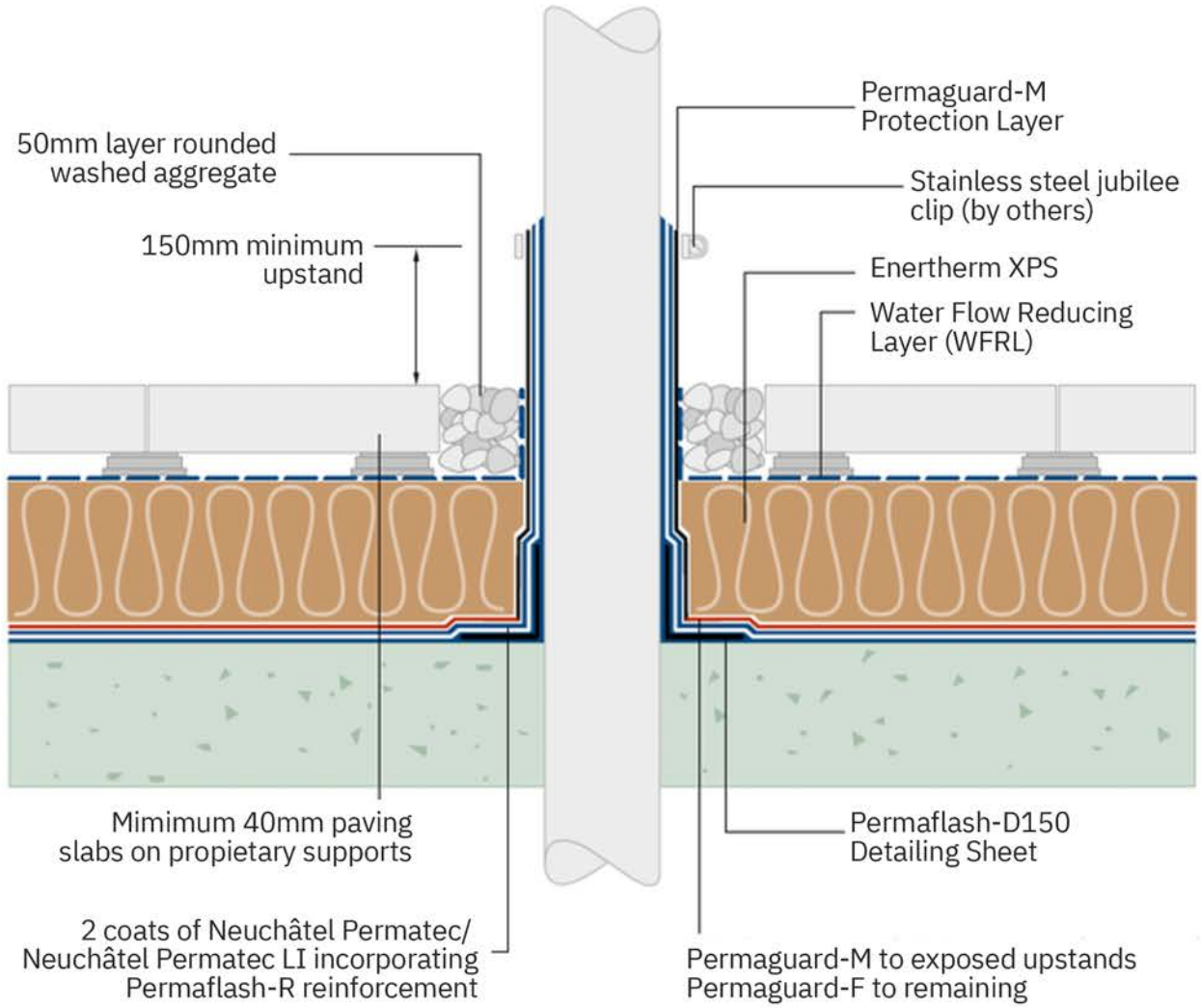
DRAINAGE

Rainwater outlet inverted



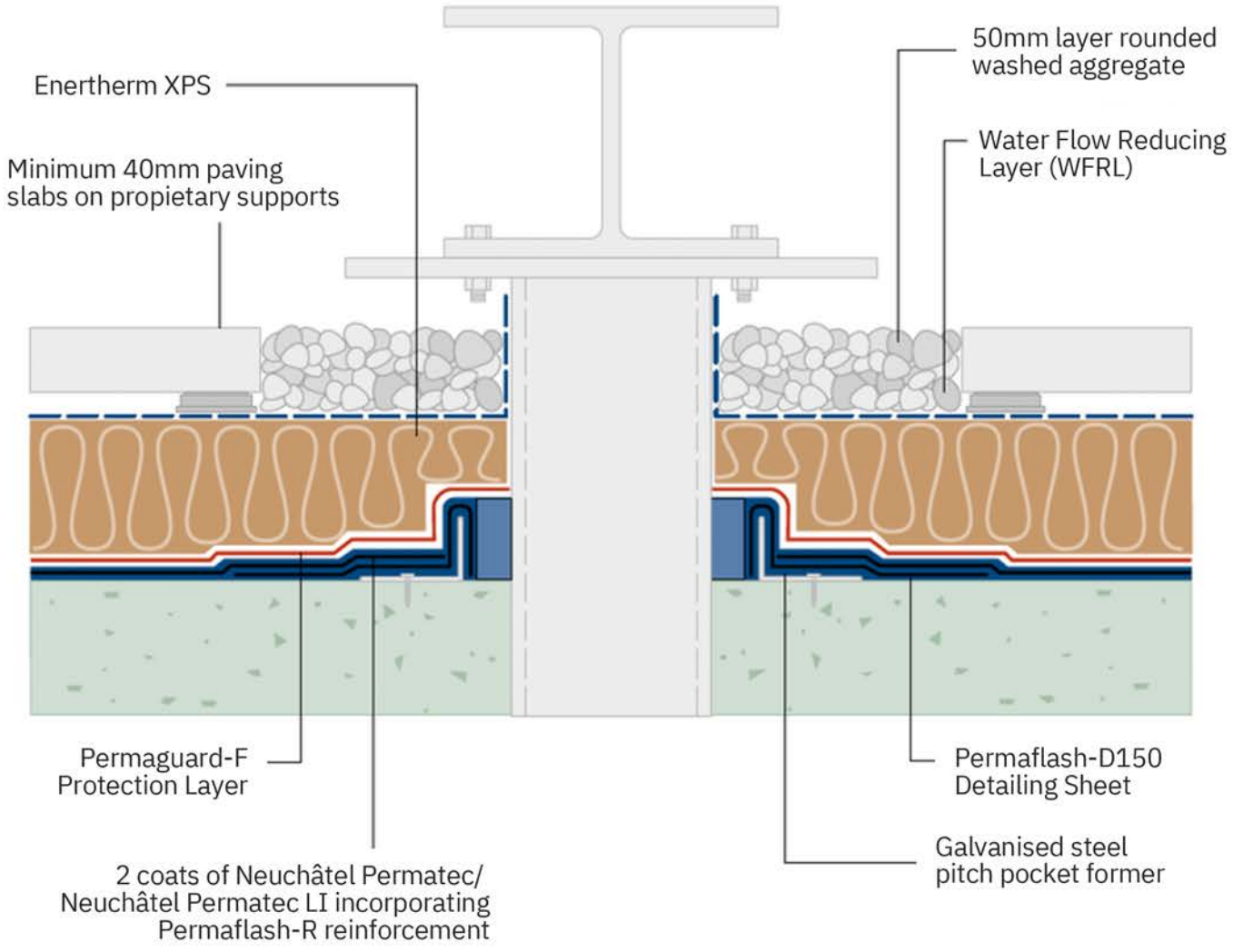
PIPE PENETRATION

Typical cold metal penetration detail



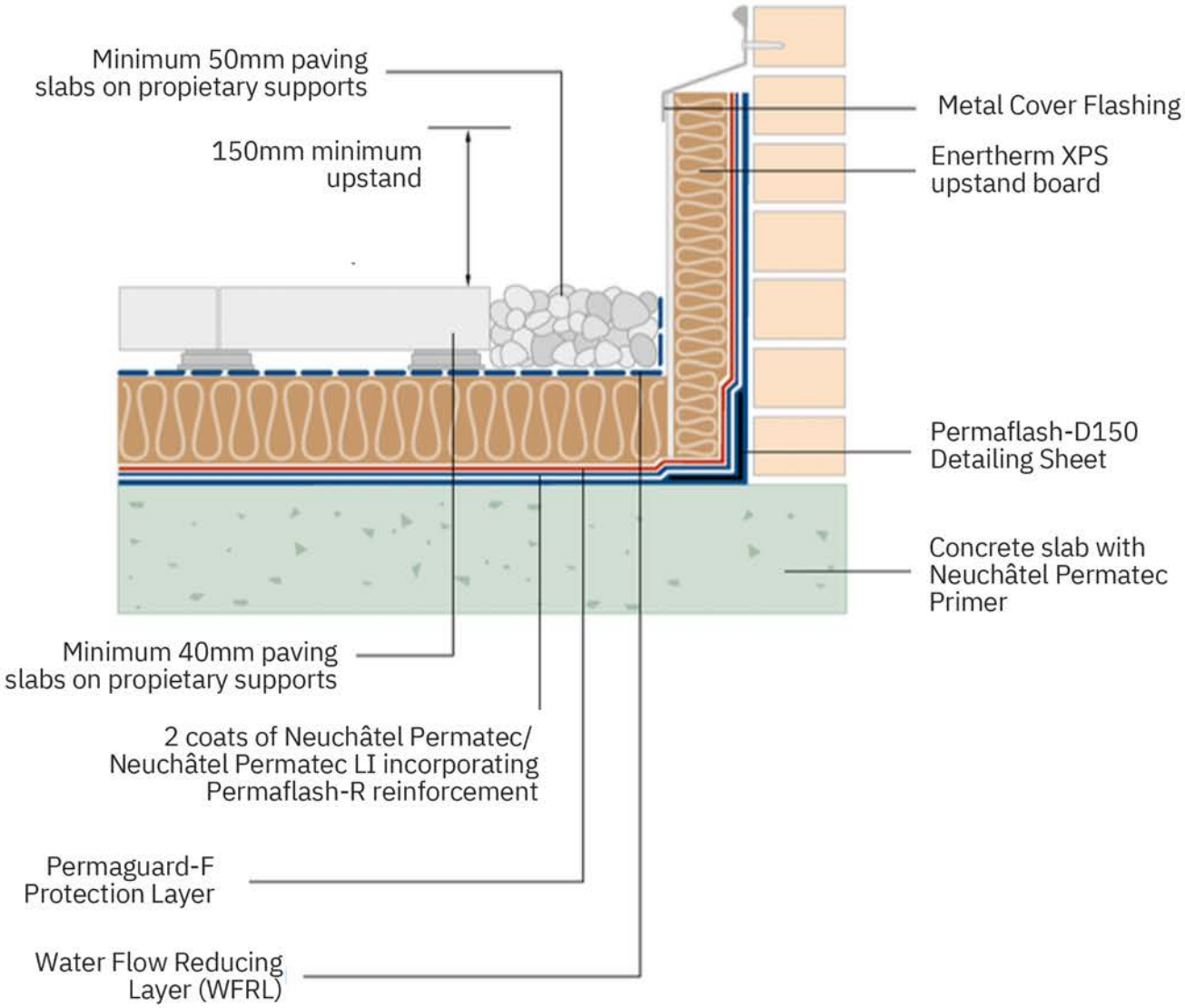
PITCH POCKET

Typical pitch pocket detail



UPSTAND

Typical insulated upstand section



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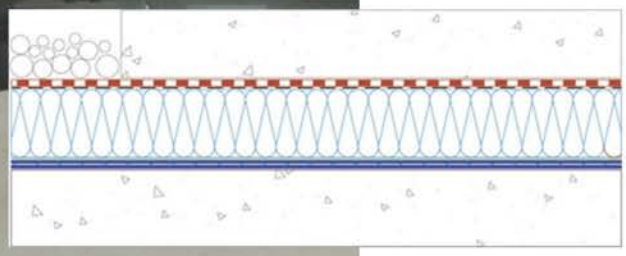
OVERCOMING DIFFICULT DETAILS AND WIDER PROBLEM AREAS

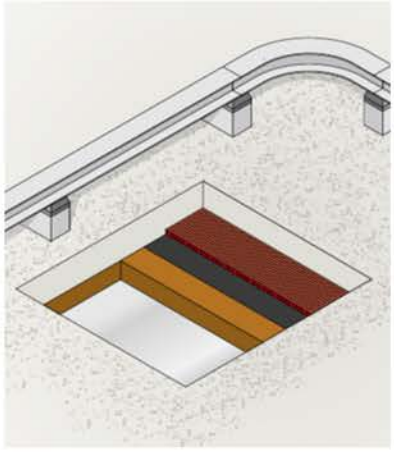
Most roof waterproofing system failures are caused by the waterproofing material being damaged or failure to successfully waterproof difficult detail areas and vulnerable locations. Due to the many unique advantages of hot melt structural waterproofing systems, a number of simple detailing solutions 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 roofmounted plant and the issue of cold bridging the concrete plinths that support the plant.

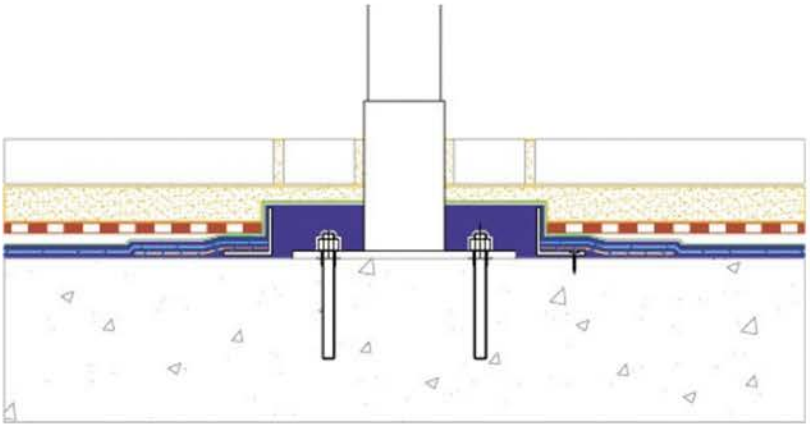
Hot melt roofing systems provide roof designers with unlimited freedom to support the plant on concrete plinths that are cast on to the top of the Enertherm XPS insulation and separation layer, providing an ideal substrate without any cold bridging.

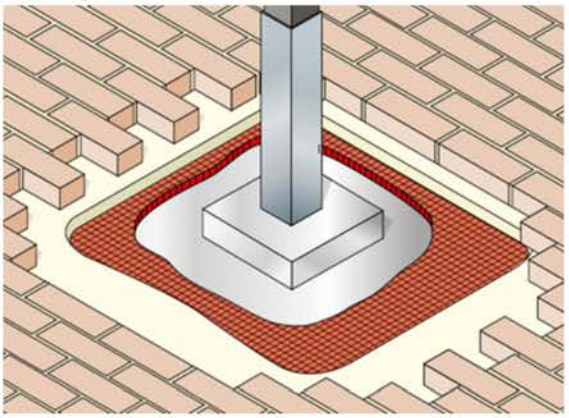




CHALLENGE 2: POSTS/BALUSTRADES DETAIL

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.





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NEUCHÂTEL PERMATEC IN ACTION
CASE STUDIES

Case Study 1: THE GREENHOUSE, PONSONBY

Beautifully situated in the heart of Ponsonby, The Greenhouse seamlessly blends modern architecture with a respect for the natural environment. Developed by Ockham Residential, this striking landmark is set to redefine urban living.

Neuchâtel was brought in during the early planning phase, collaborating closely with the architectural team. Our technical specialists addressed intricate detailing requirements, ensuring the selection of the right waterproofing solutions for the project.

Architect	Ockham Residential
Contractor	Ockham Residential
Date	May 2024
Product Systems	Neuchâtel Permatec Intensive Green Roof System Neuchâtel Permatec Podium Deck System

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Case Study 1: THE GREENHOUSE, PONSONBY

SOLUTION

For the green roof, our advanced Neuchâtel Permatec Intensive Green Roof System was selected. With a fast and easy installation process, backed by our 20-year guarantee, Permatec is bonded directly to the substrate, ensuring maximum protection against moisture intrusion. With an inbuilt antiroot inhibitor, it resists penetration of roots into the product and enhances its longevity.

Neuchâtel Permatec was also used on balconies situated over habitable spaces. Lightweight and easy to install, Permatec's monolithic nature allowed seamless integration by our awesome applicator partner, Asphaltech Waterproofing, allowing for flawless transitions around doorways and windows.

It's exciting to see developments like The Greenhouse pushing boundaries and redefining what's possible in urban living. With its focus on craftsmanship, design innovation, and respect for the natural world, it was an absolute privilege to be involved in such a unique project.


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Case Study 2: TE URU, HOBSONVILLE POINT

OVERVIEW

Te Uru Apartments sit comfortably in Hobsonville Point — smart, considered architecture in step with its surroundings.

With 58 units across three levels, Te Uru brings a mix of scale and typology that fits naturally into the evolving neighbourhood. Clean, contemporary forms reflect the area's forward-looking feel.

Architect	Construkt Architects
Contractor	Kalmar Construction
Date	2024
Product	Neuchâtel Permatec
System	Permatec Inverted Ballasted Roof

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Case Study 2: TE URU, HOBSONVILLE POINT

SOLUTION

Neuchâtel was privileged to be engaged early in the design phase of Te Uru to select the best waterproofing products and systems for the project. Looking for a thermally efficient roof without the added cost of full tenting, the team opted for Neuchâtel's CodeMark-certified Permatec system. Unlike traditional tapered insulation setups, Permatec can waterproof directly to the structure, with insulation laid above. The result is a durable, UV- and traffic-resistant surface that sheds water cleanly and cuts out unnecessary layers and labour.

Permatec's inverted roof approach sped up installation and reduced costs—key advantages on a multi-unit project like Te Uru. The system's performance and simplicity align well with the project's wider goals: smart detailing, long-term durability, and clean, modern execution.

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NEUCHÂTEL PERMATEC IN ACTION
INTERNATIONAL CASE STUDY

Case Study 3: BATTERSEA POWER STATION

BriggsAmasco delivered a multiple-application, 45,000m2 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.

Contractor	BriggsAmasco
Date	2024
Size	45,000m2
Product	Neuchâtel Permatec

Case Study 3: BATTERSEA POWER STATION

SOLUTION

The Permatec 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. Permatec 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 8,000m2 of Permatec 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 polymermodified 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.

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 34.


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THE NEUCHÂTEL SERVICE

From pre-project design advice through to completion, guarantees and aftercare, Neuchâtel'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, Neuchâtel-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

After Care

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

For further information, contact Neuchâtel's Technical Services team on **info@neuchatel.co.nz** or **+64 21 840 660**.

PROTECTING WHAT MATTERS: SUSTAINABLE INNOVATION

As a responsible supplier of imported waterproofing products, we place great trust in our UK manufacturer, IKO. One of the primary reasons Neuchâtel chose to partner with IKO is their focus on sustainability.

IKO's aim is to limit the environmental impact of their operations and lifecycle of their 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.

We continue to make significant strides forward

Neuchâtel has committed to a programme of continuous improvements that apply to our ways of working and initiatives to reduce, reuse and recycle materials. This includes investing in more sustainable packaging and recycling on-site asphalt. Our product partner, IKO, also recycles hot charge waste at their Grangemill plant, which enabled them to achieve 100% zero waste-to-landfill in 2021/2022.

Leading the way in sustainable waterproofing solutions

Our R&D and product development teams continue to evolve and grow our portfolio of responsibly sourced products. Within the hot melt sector alone, our product partner, 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.

Neuchâtel proudly brings these environmentally responsible, innovative IKO products to New Zealand, supporting the local market with sustainable waterproofing solutions that lead the way in performance and ecological impact.

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“We specified the (Neuchâtel) Permatec system because of (their) ongoing commitment to reducing their environmental impact.”

Francis Walker, Senior Architect

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Resido Apartments. Sylvia Park - Ashton Mitchell

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Since 1905.

003, JUNE 2025