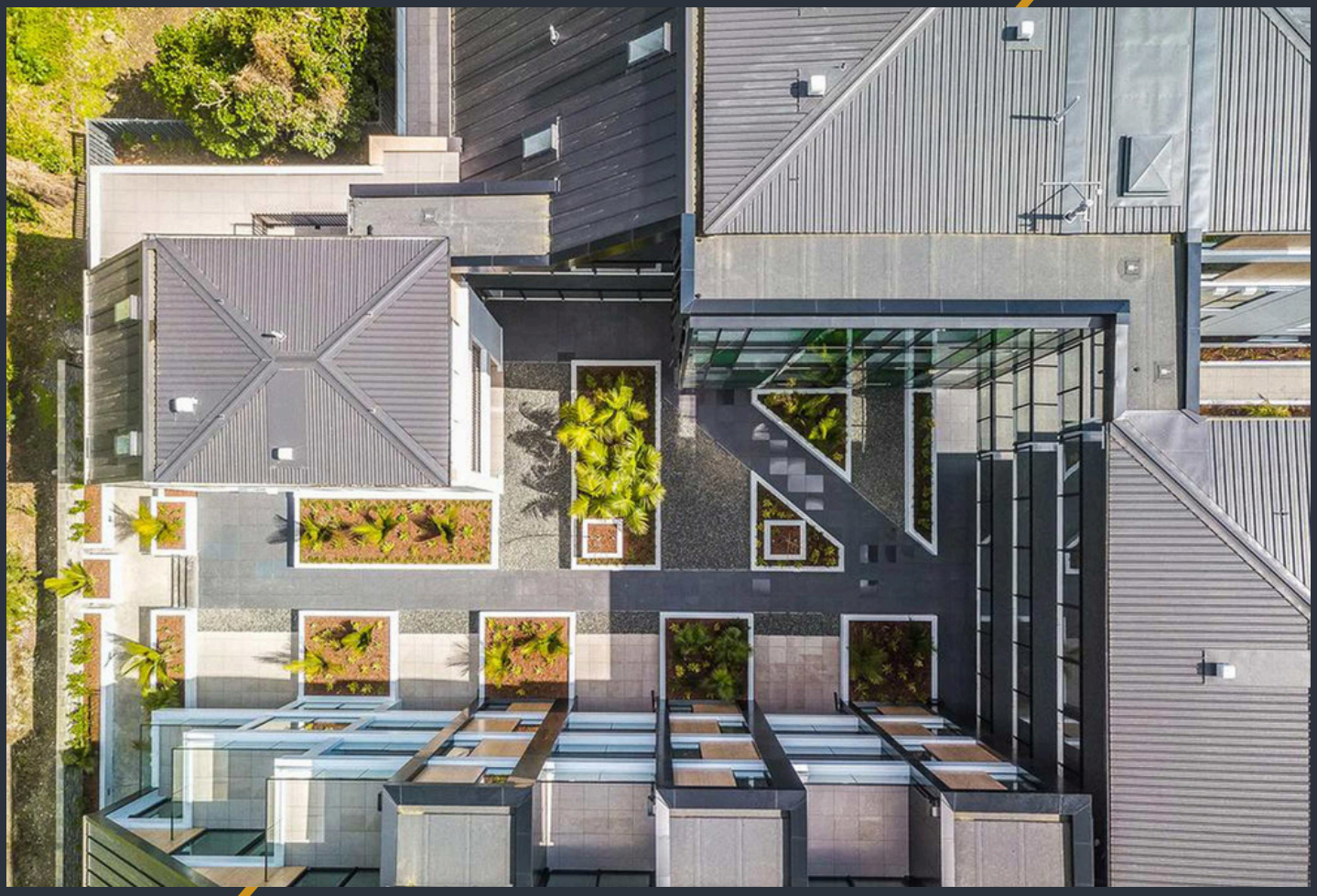
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Neuchâtel Mastic Asphalt



TECHNICAL MANUAL

004

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The Neuchâtel Mastic Asphalt Technical Manual is intended to provide guidance and advice to assist with the specification of Neuchâtel Mastic Asphalt surfaces.

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CodeMark
CMNZ70012

NEUCHÂTEL MASTIC ASPHALT

Neuchâtel Mastic Asphalt is a CodeMark approved Zero Fall waterproofing system, supplied and installed with a 20 year system guarantee.

Beware of Substitution

All Neuchâtel products and systems have been designed and tested to ensure that they are suitable for New Zealand conditions. Neuchâtel provides a number of solutions for different surfaces. Once specified, only Neuchâtel supplied products installed in accordance with the guidance provided within the Neuchâtel Mastic Asphalt Technical Manual and in accordance with BS 8218 and BS 8000: Part 4 will be considered for the Neuchâtel 20 year Guarantee.

Scope of Use

Neuchâtel Mastic Asphalt has been successfully used to provide unbeatable protection from water penetration for centuries. In recent years the material has been reformulated to include advanced polymers for increased durability, combining its traditional strengths with modern technology.

Not simply a roofing material, it is used in various applications, including walkways and roads. It is highly resistant to all types of weather situation and attacks from thermal shock (rapid temperature changes), which are a frequent source of break down in many other types of membrane. Its durability and seamless application means that it is one of the few membranes able to handle consistent heavy foot and vehicular traffic, including from Heavy Goods Vehicles, and still maintain its waterproof integrity. It is also easy to repair should alterations or damage occur.

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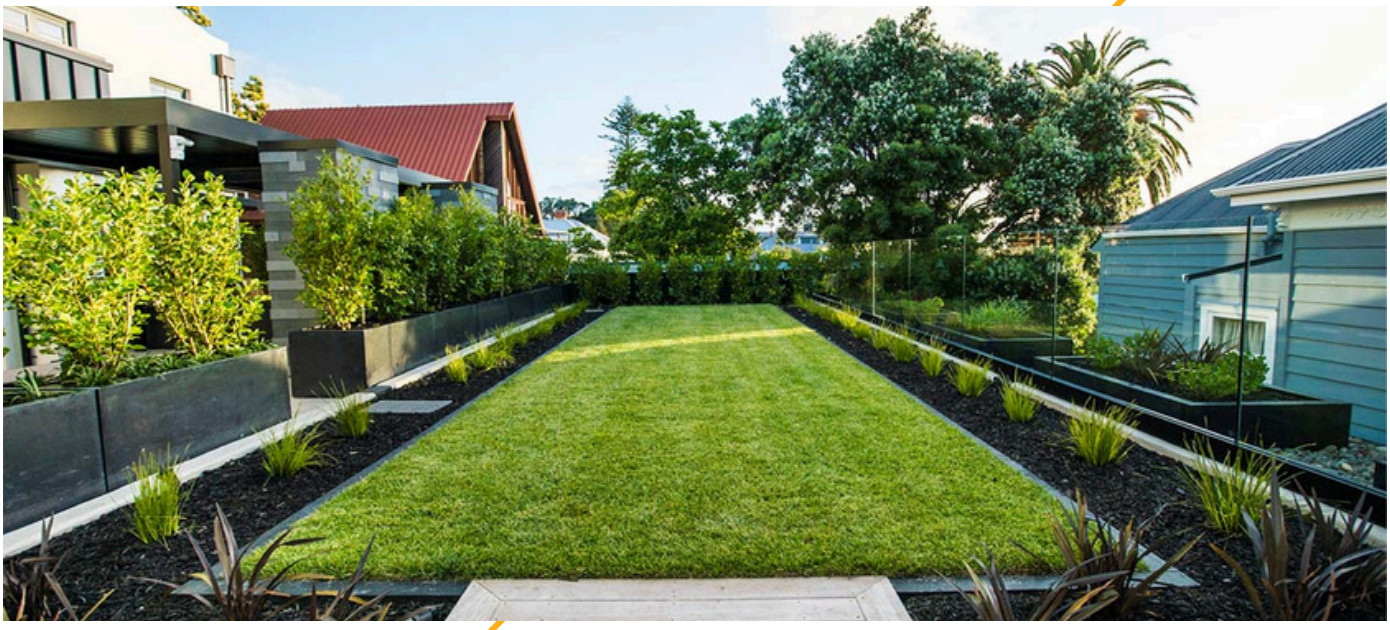


Chambers & Station, Mt Eden - A Studio Architects

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.



Chambers & Station, Mt Eden - A Studio Architects

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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BUILT TO LAST: THE TIMELESS APPEAL OF NEUCHÂTEL MASTIC ASPHALT

Mastic asphalt has been tried, tested and trusted by the roofing industry for centuries. Its exceptional durability has earned it a reputation as a robust solution that can last for generations.

Here, we delve into why mastic asphalt remains a compelling choice and explore how this traditional solution can meet the demands for sustainable construction while offering a design life that spans more than a century.

Why Neuchâtel Mastic Asphalt?

Neuchâtel Mastic asphalt is one of the most enduring materials in the construction industry and boasts a rich history and impressive life-span. The first patent for mastic asphalt dates back almost 200 years, though its use extends much further into the past.

Composed primarily of bitumen, limestone filler and aggregate, masti asphalt is applied in a molten state, which allows it to be molded to fit any shape, contour or detail, creating a seamless, monolithic finish. Its long-lasting performance makes mastic asphalt the go-to choice for protecting the integrity of cherished buildings in New Zealand and in the UK.

In recent years, Neuchâtel's mastic asphalt solutions have been specified for high-profile projects at iconic landmarks in New Zealand such as Auckland's War Memorial and Wellington's Beehive and some of the UK's Battersea Power Station, the Tower of London, Westminster Cathedral and St Paul's Cathedral.

These projects highlight the material's ability to preserve architectural heritage and provide protection against the elements.

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WHY NEUCHÂTEL MASTIC ASPHALT?

Despite its traditional roots, mastic asphalt has evolved to meet modern technological standards. Neuchâtel Mastic Asphalt uses advanced polymer technology for optimal temperature stability, flexibility and fatigue resistance, making it ideal for refurbishment projects.

VERSATILITY AND PERFORMANCE

Neuchâtel Mastic Asphalt has an advanced formulation making it a versatile solution for various waterproofing applications, from flat roofing to water features. Its adaptability means it can be tailored for a variety of project needs. Its hard-wearing properties support heavy foot traffic and extreme conditions, while its seamless finish ensures long-lasting waterproofing integrity.

SUSTAINABILITY

Neuchâtel's international product partner, IKO, sources raw materials for its products responsibly and locally, where possible. As Neuchâtel's mastic asphalt solutions are manufactured in the UK, transportation emissions are lower than materials sourced and shipped from overseas. What's more, at the end of its life Neuchâtel Mastic Asphalt can be upcycled into other asphalt products. Its long lifespan reduces the need for frequent replacements, thereby minimising the environmental impact associated with roofing materials.

CONFIDENCE IN CRAFTSMANSHIP

All Neuchâtel Mastic Asphalt installers undergo an intensive apprenticeship and achieve a minimum NVQ level 2 qualification, ensuring the highest standards in craftsmanship. Neuchâtel works with a network of skilled installers, supported by field engineers and business development managers with industry experience, providing invaluable advice and technical support.

ENGINEERED FOR ENDURANCE

Can mastic asphalt meet today's roofing challenges? Absolutely. Neuchâtel Mastic Asphalt can ensure the longevity and preservation of New Zealand's new build and landmark buildings, proving that sometimes, traditional solutions are the best answer to contemporary challenges.

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Why Neuchâtel Mastic Asphalt:

- Long-lasting and durable
- Continuous waterproofing over flat, sloped or curved surfaces
- Easily worked round pipes, roof lights and other projections
- Low temperature flexibility and high temperature stability
- Highly versatile and suitable for numerous substrates
- Traditional roofing technique for listed buildings
- In keeping with the look of prestigious buildings
- CodeMark & BBA approved
- Installed by Neuchâtel approved installers only
- Backed with a 20-year guarantee
- Zero waste wrapper - the first of its kind in the UK


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DESIGN CONSIDERATIONS

Fire Performance

Fire Safety

The high mineral content of Neuchâtel Mastic Asphalt renders it virtually incombustible. Neuchâtel Mastic Asphalt fulfils all the external fire resistance required for a roof covering and achieves the highest rating (p60) – now (AA) – when tested in accordance with BS.1476 part 3:1975. It has also been tested in accordance with draft European standards prEN1187-1 and prEN1187-2. No significant spread of flame was observed and no flame penetration occurred. Neuchâtel Mastic Asphalt systems also have LPCP accreditation for fire safety.

Flame free application

Because Neuchâtel Mastic Asphalt is laid in molten form it is frequently confused with other types of membrane that require naked flame or torch on application.

For major projects the material is usually taken to site by hot charge tankers direct from the manufacturer and taken to the point where it is needed for rapid installation - a major advantage for contracts with critical time constraints. For smaller projects solid blocks are preheated in boilers placed at ground level. At no time is there any type of naked flame at the point of installation and because Neuchâtel Mastic Asphalt is so highly flame resistant, there is little or no potential of fire risk.


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Continental Cars BMW Showroom Carpark, Wairau Valley - Ignite

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DESIGN CONSIDERATIONS

Structural

Structural deck

The structural deck provides the primary support for the roofing system. It must resist dead, live and wind loads, including storms. It must also be suitable for the proposed Neuchâtel Mastic Asphalt roofing system, and subsequent use.

Relevant structural and loading codes for each material must be followed, and the requirements of the current building regulations must be checked and observed. If the use of the roof is to be changed, the suitability of the deck and the structure must be re-confirmed. The deck must also be laid or fixed so as to provide a suitable fall for drainage of the roof surface, as required in BS 6229, Code of Practice for flat roofs with continuously supported coverings.

In-situ concrete decks

Cast in-situ reinforced concrete decks can be laid to achieve an adequate fall, or a screed can be laid to falls. The finished surface must be adequately dry to accept the specified Neuchâtel Mastic Asphalt roof waterproofing system, and free of any ridges or hollows.

The most suitable surface is provided by a wood float finish. Construction surface water should be drained by forming temporary drainage holes through the slab, as specified in NZBC E2/ASI Acceptable solution.

Pre-cast concrete decks

A variety of pre-cast deck units are available, and these should be used and fixed in accordance with manufacturer's instructions. A screed is normally required to provide an even surface for waterproofing and to provide drainage falls, if falls cannot be incorporated in the supporting structure. Construction surface water should be minimised, and where present, drained by leaving the deck joints open on the underside.

Plywood decks / substrate

Plywood to be a minimum of 17mm thick and complying with AS/NZS 2269.0, minimum CD structural grade with the sanded C side upwards. Hazard Class H3.2 with water-borne CCA treatment and kiln dried after treatment. Lay with staggered joints (brick bond) with all edges of the sheets fully supported.

Provide 20mm H3.2 timber fillets at the base of all up stands and chamfer all external edges with a minimum radius of 5mm. Fix with 10 gauge x 50mm stainless steel countersunk head screws,with a 3mm gap between all sheets. Fix at 150mm Centre on edges and 200mm in the body of the sheets.

Plywood and the timber substructure to have a maximum moisture content of 20% when the membrane is adhered. Consult with plywood manufacturer's correct testing technique. Provide whichever is the greater falls: - as shown on the drawings - to the membrane manufacturer's requirements.




PORT-A-LOO

DESIGN CONSIDERATIONS

Falls, drainage and roof penetrations

Zero fall flat roofs

It is generally accepted as good practice for flat roofs to be designed to clear surface water and it would be unusual for a Neuchâtel Mastic Asphalt roof to be designed without falls, however Neuchâtel Mastic Asphalt can be laid to a Zero fall situation.

Neuchâtel Mastic Asphalt can be used for a pond liner or a tanking membrane as it can be permanently immersed.

Flat roofs are defined as those having a minimum finish fall of 1.80 and Zero fall roofs as those having a minimum finish fall which can vary between 00 and 0.70.
When selecting a low pitched roof positive drainage would have to be incorporated to elevate most of the water from the roof. Specifications for this design should be sought from Neuchâtel's technical design team.

Design of falls

In general, flat roofs should be constructed to a minimum fall of 1 in 80. To achieve this, the designer needs to adopt a design fall which will allow for deflections and inaccuracies in construction. BS 6229 recommends 1 in 40 as the design fall, to ensure a finished fall of at least 1 in 80. An alternative approach is to choose an intermediate figure of 1 in 60, which is usually sufficient.

The design of falls and drainage patterns will have a considerable influence on the depth of the total roof construction or roof zone, which should be a fundamental consideration at the very earliest stages of conception of a building. It is only after assessing the depth of roof zone that the designer can decide the levels of all other aspects of construction above the level of the flat roof.

Falls may be formed in the structure or can be created within the specification above the deck. Falls in the structure can be achieved by adjusting the height of supporting beams or purlins, by using tapered supports, or by the addition of firing pieces before the deck is laid. The latter method is normally used with decks such as timber, pre-cast concrete and metal decking. In the case of an in-situ cast concrete slab, falls are normally provided by using a screed.

In some circumstances it may be deemed necessary to control the rate of water run-off from flat roofs and paved areas so as to avoid overloading ground drainage. Where this is a requirement, consideration should be given to using green roofs or roof top gardens where the horticultural finishes can be used to absorb rainfall and release it into surface water more slowly. However, it is still important to make the correct provision for adequate drainage, even with garden roofs, to avoid water-logging the growing medium or overloading the structure.

Roof drainage

Flat roofs may be drained by two basic methods: towards the outer edges and into external gutters, or towards internal gutters or outlets within the main roof area. Straight falls to external gutters are simple to form by screeding or using tapered timber strips. Internal drainage will be achieved by straight falls to gutters or a pattern of falls and cross falls to outlets.

Gutters

Where the roof fall is into an eaves gutter the Neuchâtel Mastic Asphalt can be finished over a lead flashing set into a rebate in the sub- structure.

The lead must be welded at the back and the depth of the rebate must allow for a full thickness of Neuchâtel Mastic Asphalt over the welt. Alternatively, an apron or purposely made GRP Edge Trim can be used.

Gutters can be lined in Neuchâtel Mastic Asphalt to follow any shape of contour in the substructure. Where a gutter is formed between a parapet wall and a tiled or pitched roof, the Neuchâtel Mastic Asphalt is carried up the slope and over the tilting fillet. It is generally preferable to avoid the use of integral gutters on flat roofs, using, instead, falls and cross falls to direct the flow of water to rainwater outlets.


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DESIGN CONSIDERATIONS

Falls, drainage and roof penetrations

Rainwater outlets

A number of outlets can be used in conjunction with Neuchâtel Mastic Asphalt but cast bronze or aluminium outlets with a bell mouth and internal clamp ring are particularly recommended. Where a syphonic drainage system is required, the outlets must be designed specifically for use with Neuchâtel Mastic Asphalt. For further details please contact Neuchâtel Technical Services.

Movement joints

Twin kerb movement joints are recommended with a metal cap flashing fixed to one kerb only, or a capping system held by cleats or spring clips. In either case suitable fixings should be provided to avoid penetrating the asphalt. All ends should be boxed as necessary to complete the waterproofing but still allow movement. The design of the structure should avoid flush surface movement joints if at all possible. However, proprietary systems are available for this application and specialist advice is necessary.

Projections through roofs

Projections passing through the roof, such as handrails, stanchions and metal pipes, can usually receive a collar direct. Neuchâtel Mastic Asphalt is then dressed 150mm above finished roof level and the upper edge protected with an apron flashing. In situations where Neuchâtel Mastic Asphalt cannot be applied directly to the projection, a lead sleeve should be fixed to the substrate.

Skirtings and flashings

In the case of concrete, brickwork and similar sub-structures, a two-coat Neuchâtel Mastic Asphalt skirting is necessary at all up stands to a nominal thickness of 13mm and a minimum height of 150mm above finished roof level. A two-coat angle fillet should be formed at the junction of the vertical and the flat. The top of the skirting is splayed and turned into a chase 25mm x 25mm unless the asphalt continues horizontally. Skirtings above 300mm high are regarded as 'shown vertical' and Neuchâtel Mastic Asphalt is applied in three coats to a nominal thickness of 20mm.

Where differential movement is likely to occur between the roof deck and up stands e.g. substrates consisting of timber board, or metal, a free standing up stand fixed to the deck minimum 12mm clear of walls and abutments is necessary. This is usually provided by a timber kerb or metal angle with plywood facing. Neuchâtel Mastic Asphalt is then applied in three coats to a total thickness of 20mm on to expanded metal lathing fixed over black sheathing felt. The skirting is cover-flashed and protected by an application of solar reflective paint.

Where insulation is used beneath Neuchâtel Mastic Asphalt, but not continued up the verticals, a minimum 25mm wide support leg to the skirting is essential. Alternatively a flexible up stand incorporating Neuchâtel Mastic Asphalt high performance bitumen membranes can be used.

Roof lights and ventilators

Roof lights and ventilators should be mounted on kerbs minimum 150mm above the roof finish. Neuchâtel Mastic Asphalt is then taken up the side and over the top of the kerb. Proprietary kerb adaptors are recommended for such details and these must be applied before the roof light is fixed. Advice on the suitability of PVC and metal roof light kerbs to receive Neuchâtel Mastic Asphalt directly must be obtained from the manufacturer. However, a timber facing fixed to the kerb followed by expanded metal lathing fixed over black sheathing felt would normally be required.

Plinths

Plinths to receive rooftop equipment must be constructed off the deck or screed level. Neuchâtel Mastic Asphalt is dressed in a minimum 150mm above finished roof level and the top protected with a cover flashing.

Note: These are the British Standard guidelines. All works undertaken in New Zealand must comply with the relevant New Zealand standards and building codes. All structures must also be checked or designed by an Engineer.


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PACOFLEX
PURE
ASPHALT

DESIGN CONSIDERATIONS

Falls, drainage and roof penetrations

Control of condensation

When designing a roof the problem of condensation must always be borne in mind. Any provision required to control condensation should be determined as recommended in BS 6229 but with the calculation method modified to conform to BS 5250: 2002, Code of Practice for control of condensation in buildings.

In the case of a roof incorporating Neuchâtel Mastic Asphalt, a suitable thermal insulation maybe included within the system. This layer must have sufficient insulation value for its underside to remain above the temperature at which condensation can start, even on the coldest nights. The provision of insulation alone, however, may not be sufficient to prevent condensation. If the insulation is permeable to water vapour, the vapour will pass upwards through it and condense on the underside of the waterproof membrane.

To prevent this, a vapour control layer in the form of a vapour barrier should be provided on the underside of the insulation. A vapour barrier can be an approved metal lined vapour barrier or 13mm thick single coat of Neuchâtel Mastic Asphalt roofing on an underlay of glass fibre tissue.

Note: The need for a separate vapour control layer may be avoided by specifying the inverted roof system or a fully bonded system.




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SCREEDS

Screeds

Screeds provide a suitable surface to receive Neuchâtel Mastic Asphalt and can also be used to achieve falls and cross-falls. In addition, some screeds can provide a level of thermal insulation and contribute to the U-value of the roof.

Neuchâtel Screed

Neuchâtel screed is manufactured from selected bitumen's, limestone filler and specially graded aggregates. It is designed to provide drainage falls as well as a stable base for the specified roof waterproofing system. Neuchâtel screed can be applied at a wide range of thicknesses (minimum 10mm) and falls, usually on in-situ and pre-cast concrete bases.

It is suitable for insulated warm roofs, inverted roofs, green roofs and balcony/terrace applications. A major advantage of this type of screeding is that the laid material can be accessed and the waterproofing installed as soon as the Neuchâtel screed has cooled to ambient temperature. Neuchâtel screed will accept, without damage, the type of traffic and concentrated loads associated with the installation of a flat roof waterproofing system.

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Features and benefits

- Rapid cooling
- Fast-track application - avoids extended curing time associated with wet screeds
- Ideal for both new build and refurbishment projects
- Can be trafficked or covered as soon as it has cooled to ambient temperature
- Provides temporary roof waterproofing
- Avoids the need for a separate vapour control layer
- Can be laid to a wide range of falls and thicknesses (minimum thickness 10mm at low points)
- Does not require compaction
- Easily worked around roof penetrations



Park Residencies, Auckland CBD - Leuschke Group Architects


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OTHER SCREEDS

Sand and cement screeds

Sand and cement screeds are normally mixed in the ratio 4:1 and the surface should be finished with a wood float. The screed should be laid directly onto the deck to obtain a good key. It should be laid in areas not exceeding 10m2, to reduce the incidence of cracking due to drying and shrinkage.

These screeds contain considerable amounts of water and the surface should be adequately cured and dry before the Neuchâtel roofing specification is applied. Where screeds are formed or supported on permanent shuttering or metal profiles, provision must be made for water to drain adequately, in accordance with the manufacturer's instructions.

Aerated Screeds

Aerated screeds consist of Portland cement, water and a foaming emulsion, which are combined to produce a cellular material; this offers a hard surface when dry.

Lightweight aggregate screeds (cement bonded)

Suitable lightweight aggregates are formed from expanded clay or sintered pulverised fuel ash, bonded with a cement binder. The material must be laid soon after mixing, otherwise the cement binder could dry too fast, and not bond the aggregate together. A 13mm sand and cement topping is necessary to provide a smooth level surface for the roofing specification.

Insulating cement screeds

A range of cement based screeds containing Perlite, Vermiculite, recycled EPS and other additives are available from various sources. These are often of a lighter weight than just sand and cement and impart a degree of insulation to the roof structure. Guidance on the thermal performance and installation of these products must be sought from the individual manufacturer concerned.

Surface Protection & Roof Finishes

Surface Protection

With the exception of vertical and steeply sloping work, the finished Neuchâtel Mastic Asphalt must be sand rubbed to reduce the incidence of crazing. Where Neuchâtel Mastic Asphalt is laid onto insulation in a warm roof or inverted roof construction, a protective surface should be applied to all flat areas using a suitable solar reflective paint such as Solaflect, promenade surfacing or stone chippings.

Solar reflective paint

Exposed asphalt skirtings and vertical areas will require an approved reflective paint to provide adequate protection for Neuchâtel Mastic Asphalt. Periodic repainting will be required.

Concrete wear slab

A decorative concrete wear slab can be cast on top of the Neuchâtel Mastic Asphalt. A single layer of polythene or suitable drainage matt and filter cloth that has been approved by Neuchâtel may also be used to separate between the concrete and the finished Neuchâtel Mastic Asphalt and allow for any potential movement of the structure. A suitable protection layer of min 20mm high density polystyrene or an alternative approved by the supplier should be used as protection between the finished horizontal Neuchâtel Mastic Asphalt and the finished vertical Neuchâtel Mastic Asphalt.

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Promenade surfacing

Porous concrete or GRC promenade tiles provide a decorative lightweight and durable surface finish to Neuchâtel Mastic Asphalt. They are particularly suited for areas where pedestrian traffic or point loads are anticipated, such as balconies and terraces. The tiles are bonded directly onto the asphalt with either bitumen or proprietary adhesive in accordance with the manufacturer's instructions. Concrete paving slabs minimum 50mm thick are also suitable as promenade surfacing and can be positioned on Neuchâtel Rubber or polypropylene paving supports.

Note: Thinner slabs may be acceptable - seek guidance from supplier to confirm.

The surface can also consist of thin concrete slabs, external grade quarry tiles, external grade ceramic floor tiles, brick paving, stone sets, and natural stone, marble or slate. These would usually be laid over a sand and cement mortar bed either direct or to the suppliers instructions. A single layer of building paper or polythene is required beneath the bedding to allow for differential movement between the surfacing and the asphalt. An allowance for expansion is necessary and it will usually be sufficient to set the tiles or slabs back 75mm from the vertical at the roof perimeter and around interruptions with intermediate joints at 3m centres.



33 Broadway, Newmarket - Formis

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Roofing systems for Neuchâtel Mastic Asphalt

There are 2 common types of insulated roofing systems: the Inverted roof system or the Warm roof system.

Neuchâtel supplies a range of CFC/HCFC free rigid thermal insulation boards suitable for use with our flat roofing systems. Neuchâtel insulation materials come in a range of uniform thickness or in tapered form, to suit individual circumstances and R-value requirements.

Warm Roof System

Inverted Roof System

R-value guidance

The table is intended to be used for guidance only, but gives approximate thermal resistance (R-value) figures for our range of thermal insulations based on the following construction build-up:

20mm Neuchâtel Mastic Asphalt - separating layer(s) - selected insulation - metal lined vapour barrier - 150mm

Concrete deck with nominal 50mm sand/cement screed - ceiling void - 13mm plasterboard – 2mm plaster skim.

The XPS figures are based on a typical inverted roof construction build-up of 50mm paving slabs on proprietary supports - XPS with WCM layer above and filtration layer beneath - 20mm Neuchâtel Mastic Asphalt - separating layer - 150mm concrete deck with nominal 50mm sand/cement screed - ceiling void - 13mm plasterboard - 2mm plaster skim.

Target R-value	Neuchâtel Mastic Asphalt PIR Warm Roof	Neuchâtel Mastic Asphalt XPS INV Roof
2.7	60mm	75mm
3.1	70mm	85mm
3.6	80mm	100mm
4.5	100mm	125mm
5.5	120mm	150mm

Warm roof thermal insulated systems

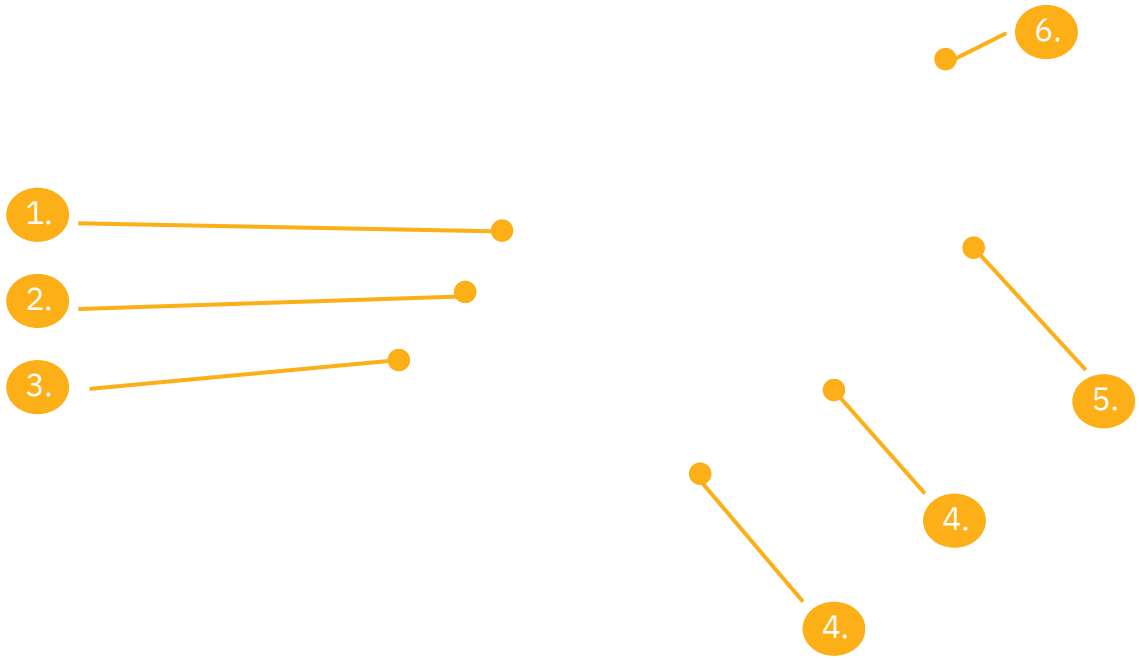
PIR insulation boards are Totally CFC/HCFC free rigid polyisocyanurate insulation boards, with plain perforated glass tissue facings on both sides.

The highly efficient closed cell foam core has an exceptionally low thermal conductivity and achieves required U-values with a minimum thickness. E PIR MG provides an ideal substrate for Neuchâtel Mastic Asphalt standard warm roof system.

Neuchâtel Mastic Asphalt Insulated Car Park - Roof X-sectional Detail

TYPICAL NEUCHÂTEL MASTIC ASPHALT ROOFING BUILD-UPS

NEUCHÂTEL MASTIC ASPHALT WARM ROOF



1. Solar paint colours (white, grey, green) 0.4kg/m2
2. Neuchâtel Mastic Asphalt 20mm thick (2X10mm coats) 42.92Kg/m2
3. Separation layer 3mm thick 1.9kg/m2
4. PIR Insulation boards 50140mm (10mm increments) 140mm = 4.48kg/m2
5. Vapour barrier- metal lined vapour control layer 3mm thick 3.8kg/m2
6. Concrete deck

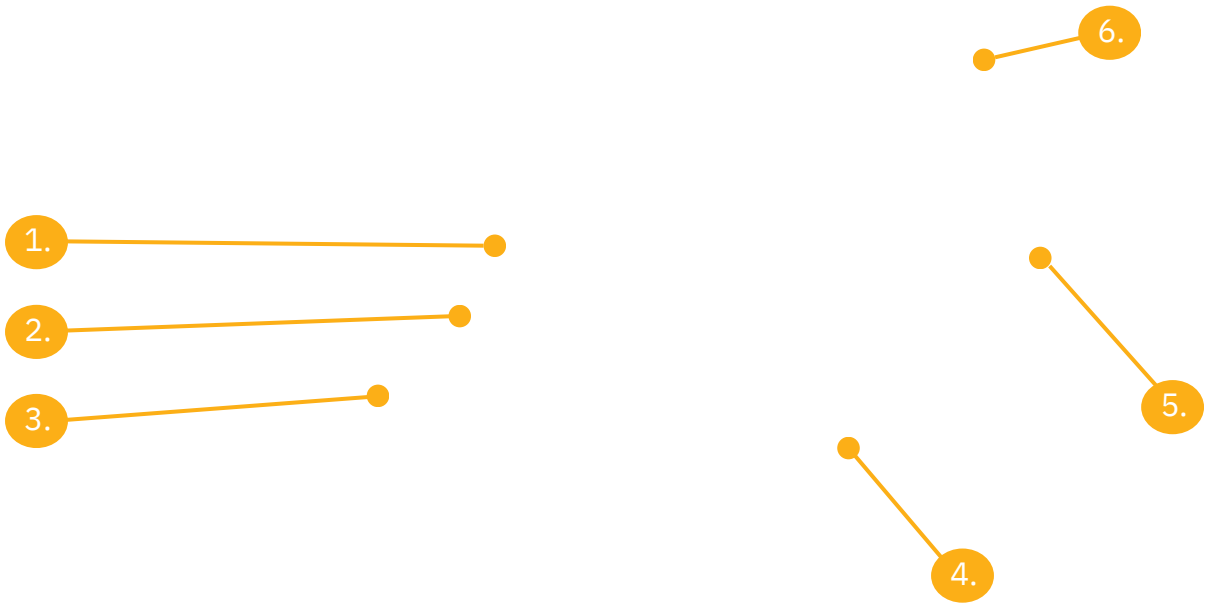
Inverted Roof System

Inverted roof construction XPS A CFC/HCFC free extruded polystyrene insulation, for use above Neuchâtel Mastic Asphalt in all inverted roof specifications.

XPS is resistant to water and will provide long term protection to the Neuchâtel Mastic Asphalt waterproofing system.

Neuchâtel Mastic Asphalt inverted insulated roof X-sectional

NEUCHÂTEL MASTIC ASPHALT INVERTED ROOF



1. 40mm Paver or tile on a tile jack. 88.8 kg/m2
2. Geotextile sheet 1.7mm thick, 0.2kg/m2
3. Extruded polystyrene Insulation 100mm thick 3.3Kg/m2
4. Neuchâtel Mastic Asphalt 20mm thick (2X10mm coats) 42.92Kg/m2
5. Separation layer 3mm thick 1.9kg/m2
6. Concrete deck

Flat Roofs

Where Neuchâtel Mastic Asphalt is required as a roofing surface only with little or no traffic, it is laid in two coats to a nominal thickness of 20mm. The first coat is laid to a thickness of 10mm and the second coat 10mm.

It is applied in a liquid form and spread out to form a homogeneous surface which whilst liquid can be formed to any shape or surface as required. It can then be protected by a solar reflective UV resistant paint.

Cast Concrete Up-stand Detail

NEUCHÂTEL MASTIC ASPHALT TO CONCRETE ROOF/DECK



1. Solar paint colours (white, grey, green) 0.4kg/m2
2. Neuchâtel Mastic Asphalt 20mm thick (2X10mm coats) 42.92Kg/m2
3. Separation layer 3mm thick 1.9kg/m2
4. Concrete deck

Applications for Neuchâtel Mastic Asphalt

Car Park Trafficable Surfaces

Trafficable roofs are recognised as one of the most durable car parking waterproofing systems available and are used extensively throughout the world on Bridge decks elevated car parks and loading docks. They can consist of a torch on membrane 1 or 2 layers of the Neuchâtel Mastic Asphalt as the waterproofing layer. Then a wear slab of either Neuchâtel Mastic Asphalt paving grade, reinforced concrete or paving on a suitable substrate, these toppings vary in thickness subject to their final requirements.

Neuchâtel Mastic Asphalt Car Park/Roof Parapet

NEUCHÂTEL MASTIC ASPHALT CARPARK SURFACE CONSTRUCITON



1. Neuchâtel Mastic Asphalt paving layer 30mm thick 64.38Kg/m2
2. Neuchâtel Mastic Asphalt 10mm thick 21.46Kg/m2
3. Fibreglass tissue 1mm thick 0.6kg/m2
4. Concrete deck

Terraces and Balconies

Where Neuchâtel Mastic Asphalt is required as an exposed paving subjected to foot traffic only, it is laid in two coats to a nominal thickness of 25mm. The first coat is laid to a thickness of 10mm and the second coat 15mm incorporating 15% by weight of coarse aggregate.

Where insulation is incorporated beneath Neuchâtel Mastic Asphalt on balconies and terraces, or in situations where point loading is anticipated, promenade surfacing should be provided by suitable concrete tiles or paving slabs.

NEUCHÂTEL MASTIC ASPHALT PODIUM ROOF/DECK CONSTRUCITON



1. 20mm Paver or tile on a tile jack. 44.4kg/m2
2. Neuchâtel Mastic Asphalt 20mm thick (2X10mm coats) 42.92Kg/m2
3. Separation layer 3mm thick 1.9kg/m2
4. Concrete deck

Green Roofs

Neuchâtel Mastic Asphalt is an ideal waterproofing material for extensive green roofs, intensive roof gardens and biodiversity roofs. These finished can enhance environments, control water run-off, and reduce noise transmission.

Extensive green roofs require little long term maintenance. It is completely resistant to root penetration and does not require an additional anti-root barrier.

NEUCHÂTEL MASTIC ASPHALT GREEN ROOF



1. Planting medium - minimum 80mm thick 86KG/m2
2. Geotextile sheet 1.7mm thick, 0.2 kg/m2 per layer
3. Drainage Cell 3kg/m2
4. Neuchâtel Mastic Asphalt 20mm thick (2X10mm coats) 42.92Kg/m2
5. Separation layer 3mm thick 1.9kg/m2
6. Concrete deck

Fully Bonded System

Introducing the ultimate waterproofing system mastic asphalt full bond. Combining the best of products we are able to achieve a system without compromise. A 2mm or 4mm torch-on membrane is fully bonded to the roof deck. Then one or two layers of Neuchâtel Mastic Asphalt is applied to the deck to achieve a truly bullet proof system.

Neuchâtel Green Roof/Concrete Up-stand/Edge Trim X-sectional Detail

NEUCHÂTEL MASTIC ASPHALT FULLY BONDED SYSTEM CONSTRUCITON



1. Solar paint colours (white, grey or green) 0.4kg/m2
2. Neuchâtel Mastic Asphalt 15-20mm thick either 32.19kg/m2 or 42.92Kg/m2
3. 2mm fully bonded Torch-on membrane 4.5kg/m2
4. Concrete deck

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SYSTEMS DETAILS

GUTTER DRIP EDGE DETAIL

BLOCKWALL UPSTAND DETAIL

DOWNPIPE PENETRATION DETAIL

BLOCKWALL PARAPET OUTLET DETAIL

HOCKEY STICK’ PIPE PENETRATION DETAIL

OUTLET DETAIL

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CHANGE OF LEVEL DETAIL

BLOCKWALL TORCH-ON UPSTAND DETAIL

TYPICAL DRIP EDGE DETAIL

CAST CONCRETE UPSTAND DETAIL

CAST CONCRETE PARAPET WITH CAP FLASHING

BLOCKWALL THRESHOLD UPSTAND DETAIL

Neuchâtel Mastic Asphalt Maintenance Guide

General

A flat roof which has been designed and installed in accordance with the recommendations of our specifications and relevant British standards can be expected to provide trouble free service provided it is maintained. Maintenance inspections should be carried out regularly by certified Neuchâtel Mastic Asphalt applicators.

Neuchâtel Mastic Asphalt roofs should be inspected annually, preferably in the autumn, to clear leaves, debris and dirt which may prevent proper drainage or cause deterioration, and to identify at an early stage are signs of potential failure. Where the roof is in an area of high dust or pollution, or in close proximity to trees, more frequent inspection may be necessary. Inspection should be carried out both externally and internally. Particular attention should be given externally to roof covering abutments, joints, gutters and outlets and internally to corners, abutments and penetrations.

Observations by occupants of the buildings should be noted. During the course of regular maintenance inspection the whole of the roof should be systematically checked and a note made of any items requiring attention. The following checklist should be used.

Surfaces finishes and solar reflectors

Check that surface chippings are evenly distributed and unaffected by wind scour and that ballast has not been displaced. Note any cracked or damaged tiles and slabs. Where reflection paint has been used, assess the necessity for renewal, taking into account the roofs age its formation, i.e. the presence and type of insulation etc.

Skirtings, kerbs and turndowns

Check the up-stands are intact and fully adhered. Note any blistering, distortions or slumping. Pay particular attention to fillets and arise for cracks from movement or impact. Where skirtings are tucked into a chase in concrete or brickwork, check the condition of the pointing.

Edge trimmings

Check for signs of movement displacement or stress, particularly at the joints between adjacent section for trim, and for retraction between asphalt and back edge of trim.

Drainage

Ensure that all gutters, rainwater outlets and discharge points are clean and that the water discharge from the roofs is uninterrupted. Carefully examine the junction between the asphalt and rainwater outlet. Note any apparent defects or signs of silting or ponding.

Neuchâtel Green Roof/Concrete Up-stand/Edge Trim X-sectional Detail

General area

Examine the whole of the general roof area, note any areas of stress or blistering and any signs of hollowing denoting failure of insulant or timber. Record the extent and type of any defects.

Repair procedures

(All in accordance with the code of practice BS 8218:1998) Repairs should only be carried out after the type and extent of any defects have been noted and their underlying cause is identified. The intention of repair work should be to restore the Neuchâtel Mastic Asphalt to its original condition and ensure its continuing performance. All repairs should therefore be carried out using materials, accessories and a standard of workmanship comparable with the original installation.

Check that surface chippings are evenly distributed and unaffected by wind scour and that ballast has not been displaced. Note any cracked or damaged tiles and slabs. Where reflection paint has been used, assess the necessity for renewal, taking into account the roofs age its formation, i.e. the presence and type of insulation etc.

Any surface treatment that has been damaged or displaced should be made good to match the existing surface. Defective pointing should be broken out and renewed.

Split or broken non-ferrous metal cover flashings should be repaired or renewed as necessary. Excessive blistering may be indicative of more serious underlying problems and should be cut out and the substrate examined to establish the cause. All repair work to a Neuchâtel Mastic Asphalt surface should be performed by a qualified Neuchâtel Mastic Asphalt operative. If it is necessary to remove an area of Neuchâtel Mastic Asphalt, the line of the cuts should be covered with molten Neuchâtel Mastic Asphalt until the underlying material has softened. The Neuchâtel Mastic Asphalt should not be removed until this has taken place. In no circumstances should hammer and chisel be used to cut cold Neuchâtel Mastic Asphalt. Alternatively, a disc cutter may be used to remove Neuchâtel Mastic Asphalt. When the area is sufficiently soft, it should be removed carefully.

When jointing new Neuchâtel Mastic Asphalt to existing asphalt, the principle of the lapped joint should be observed. The perimeter of existing Neuchâtel Mastic Asphalt should be softened to permit removal of material to a depth of half its thickness for a width if not less than 75mm. Due to the hardness of Neuchâtel Mastic Asphalt paving, electrical or mechanical disc cutters may be used in the removal of defective areas. The use of a forced flow hot air torch or the controlled use of a gas gun may be acceptable for specific requirements; in the case of the latter extreme care should be taken to avoid contact between the naked flame and the Neuchâtel Mastic Asphalt.

NEUCHÂTEL MASTIC ASPHALT IN ACTION | PROJECTS

We would like to thank all the architects and builders who have chosen to select our products. Some of the systems used in this manual are referenced here.

BMW Showroom, Continental Cars

Architect	Ignite
Contractor	Sime Darby
Date	September 2024
Product	Neuchâtel Mastic Asphalt
System	Neuchâtel Mastic Asphalt Car Park System
Size	900m2



Resido BTR, Sylvia Park

Architect	Ashton Mitchell
Contractor	Naylor Love
Date	May 2024
Product	Neuchâtel Mastic Asphalt
System	Neuchâtel Mastic Asphalt Podium System



Risland Albany

Architect	Leuschke Group Architects
Contractor	CMP
Date	January 2024
Product	Neuchâtel Mastic Asphalt
System	Neuchâtel Mastic Asphalt Podium System



50 Albert St Plant Room

Architect	Mansons TCLM
Contractor	Mansons TCLM
Date	2024
Product	Neuchâtel Mastic Asphalt
System	Neuchâtel Mastic Asphalt Podium System
Size	2000m2



Baradene College Hockey Pitch

Architect	Jasmax
Contractor	Savory Construction
Date	2019
Product	Neuchâtel Mastic Asphalt
System	Neuchâtel Mastic Asphalt Podium System
Size	6000m2



Westfield Newmarket

Architect	Scentre Group
Contractor	Scentre Group
Date	2019
Product	Neuchâtel Mastic Asphalt
System	Neuchâtel Mastic Asphalt Podium System
Size	4000m2



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Baradene College Hockey Pitch

Architect	Jasmax
Contractor	Savory Construction
Date	2019
Product	Neuchâtel Mastic Asphalt
System	Neuchâtel Mastic Asphalt Podium System
Size	6000m2



Victoria Residences, Auckland CBD

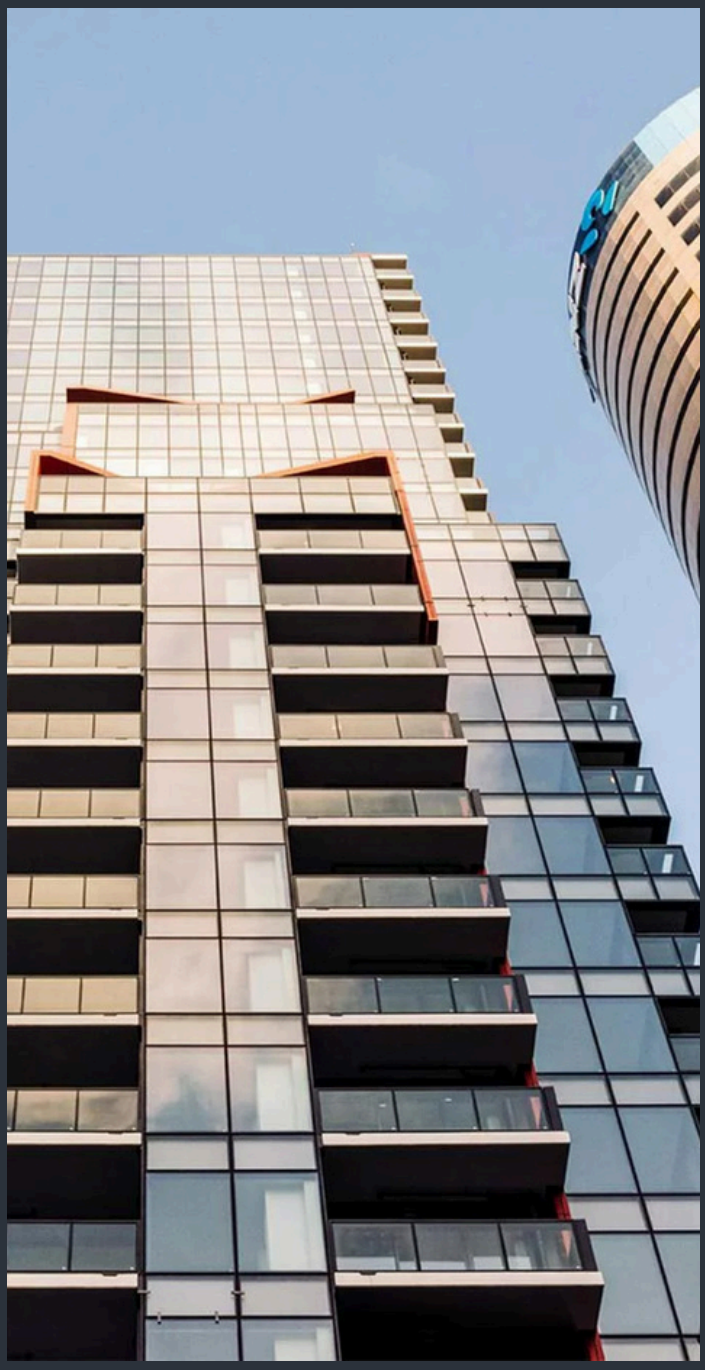
Architect	euschke Group
Contractor	Dominion Constructors Ltd
Date	2018
Product	Neuchâtel Mastic Asphalt
System	Neuchâtel Mastic Asphalt Podium System
Size	400m2



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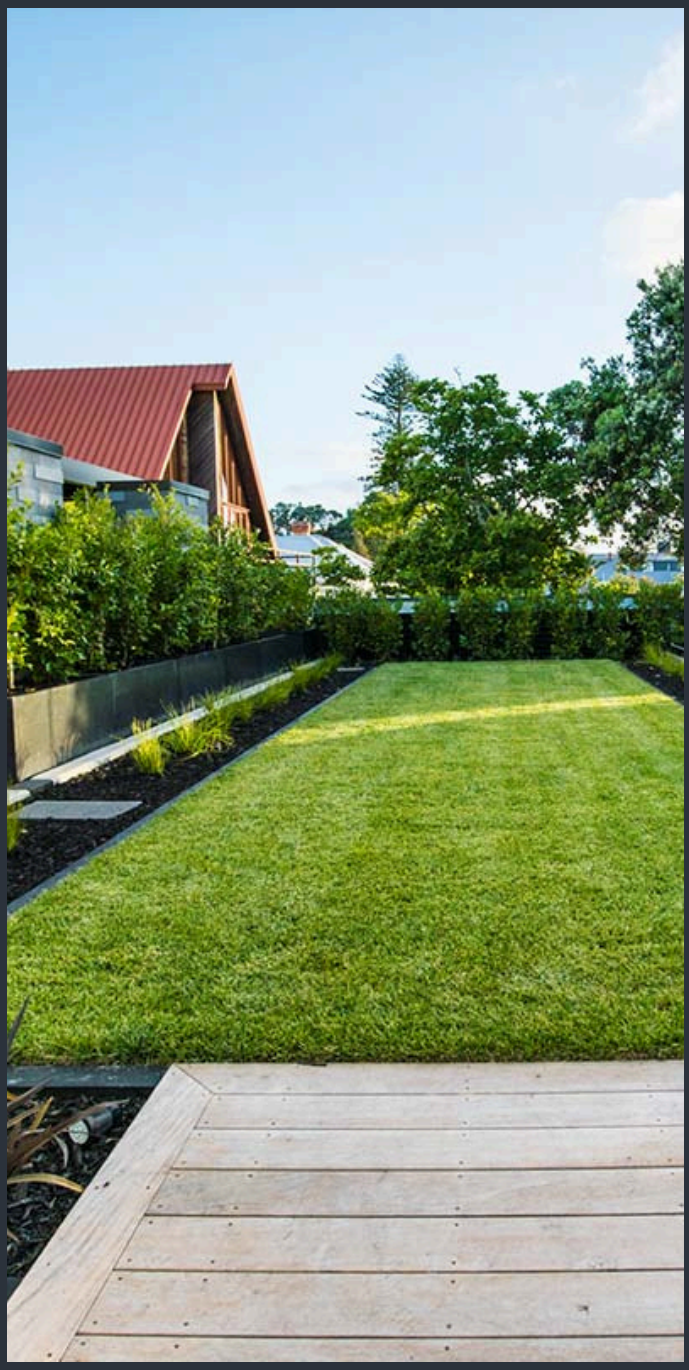
Park Residences, Albert St

Architect	Leuschke Group
Contractor	Scarbro
Date	2017
Product	Neuchâtel Mastic Asphalt
System	Neuchâtel Mastic Asphalt Flat Roof System
Size	800m2



Chambers & Station

Architect	A Studio Architects
Contractor	Watts & Hughes Construction
Date	2017
Product	Neuchâtel Mastic Asphalt
System	Neuchâtel Mastic Asphalt Green Roof System
Size	700m2



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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, Approved IKO 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**.

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PROTECTING WHAT MATTERS: SUSTAINABLE INNOVATION

As a responsible supplier of imported waterproofing products, Neuchâtel places great trust in our UK manufacturing partner, 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

IKO's 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.

Neuchâtel proudly brings these environmentally responsible, innovative 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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Since 1905.

May 2025

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