ELMICH

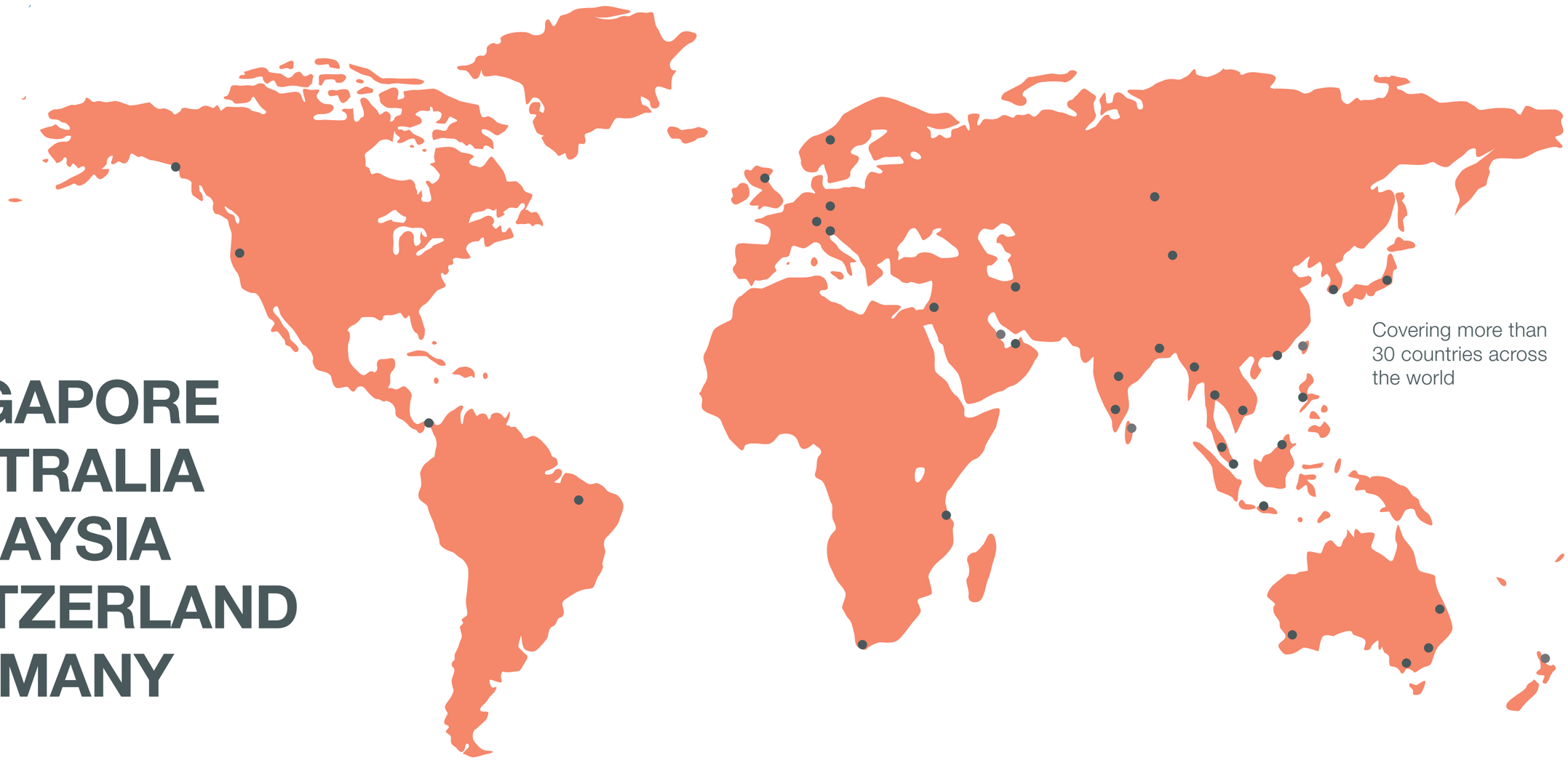
Waterproofing & Drainage Products

We make the difference.
The Elmich Difference.

Elmich in brief

Elmich is a leader in ecologically-minded urban landscaping, waterproofing and stormwater management solutions. We design and deliver innovative, sustainable and proprietary Elmich solutions to developers, architects and builders worldwide. With our global network and dedicated technical expertise, we aim to make the Elmich Difference.

At Elmich, we are focused on enhancing lives for the present and future generations.



Covering more than 30 countries across the world

SINGAPORE
AUSTRALIA
MALAYSIA
SWITZERLAND
GERMANY
USA

ENTERPRISE 50

TÜVRheinland CERTIFIED Management System ISO 9001:2015 ISO 14001:2015 ISO 22301:2019

U.S. GREEN BUILDING COUNCIL MEMBER

SINGAPORE GREEN BUILDING COUNCIL

Strategic Partner

The Vital Role of
Waterproofing + Drainage

Water seepage in buildings can cause damage to building structures and finishing, as well as poor environment quality and health problems for inhabitants. Protection against water's destructive forces is thus vital in the design and construction of buildings. The effective approach is the integration of good waterproofing and drainage systems – a simple concept of keeping water out and channeling water away quickly. While simple in concept, proper planning, design, selection and installation of every component is required to make sure that the systems work.

A comprehensive system is an integrated combination of compatible products. It is critical that product suitability to the building environment and compatibility with other products and materials are properly evaluated. This is necessary to achieve cost effectiveness, meet construction detail requirements and maximise product advantages.

Ultimately, the system must stand the rigours of the weather and the test of time. It must work throughout the life of the building. Such demanding performance requirement is provided by Elmich, the proven specialist for over 30 years in Singapore and Southeast Asia.

Creating Cities
Where Urban Meets Nature

Our Team

Elmich has a dedicated and dynamic team of professionals from the various building and engineering disciplines. They possess comprehensive appreciation of international and local standards, as well as knowledge of different products and conditions in the markets in which we are present.

Our Products & Services

Our products range from traditional materials to state-of-the-art thermoplastics and polymeric products. These materials have excellent track records and a comprehensive range of accessories. They provide complete waterproofing security and drainage efficiency for all types of residential, commercial, institutional, industrial and infrastructure projects. We stock more than S$1m worth of products ready for delivery to our customers at short notice.

Our technical design team provides waterproofing planning, specification, detailing and design services for architects and contractors. We use the latest BIM and CAD software to ensure that we are closely integrated in the management of various projects.

Our Approach

At Elmich, we take pride in being a one-stop waterproofing and drainage specialist and ensuring successful completion of each project we are involved in.

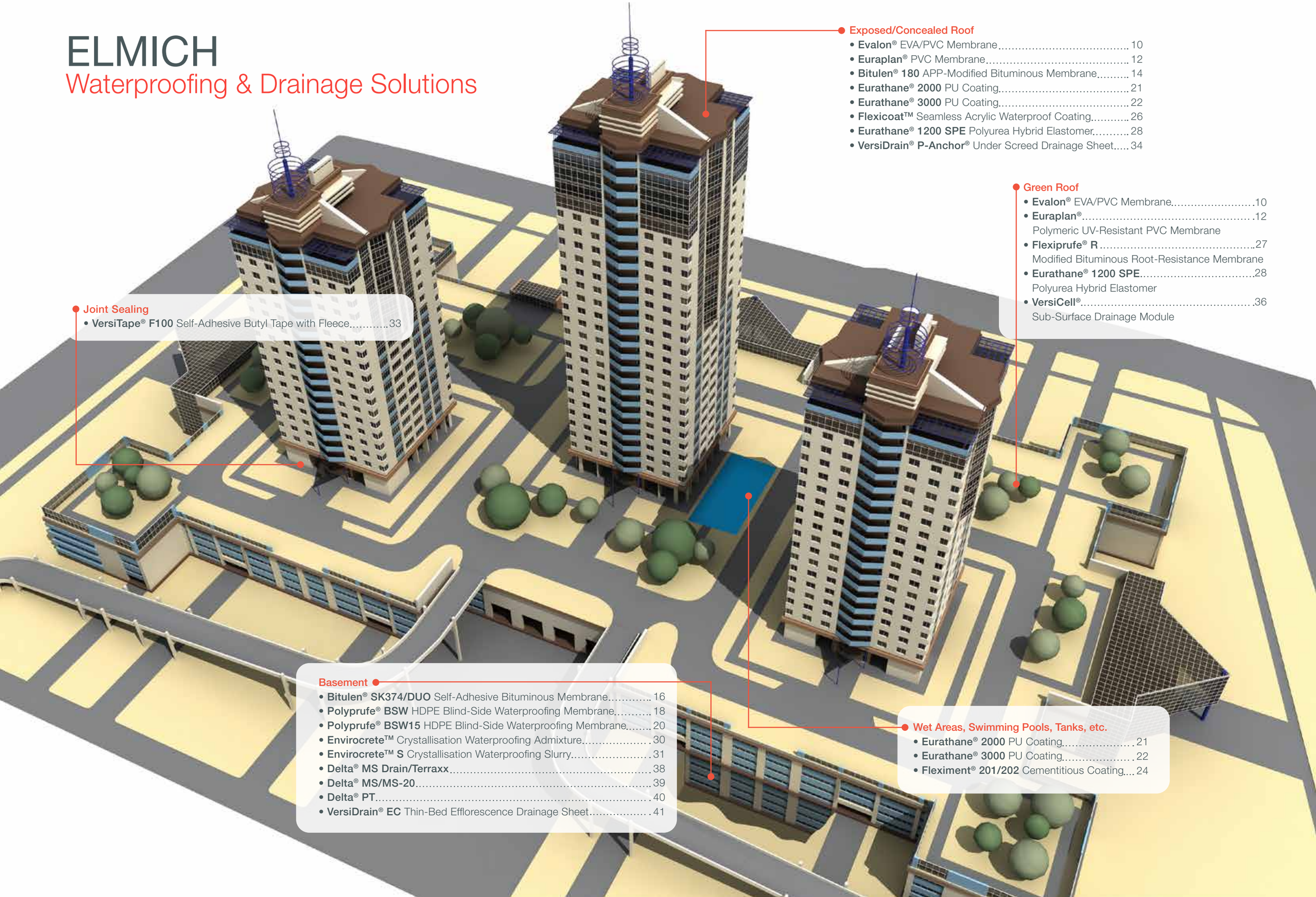
- We work closely with building consultants by advising on areas that require waterproofing and drainage, and recommending the most appropriate system for each area.
- We provide customised, comprehensive specifications and installation details and on-site monitoring of installation works.
- We understand that leaks are frequently caused by poor workmanship, incorrect system design or unsatisfactory detailing and not product failure itself.
- As an industry leader, we hold informational and educational seminars for building professionals concerning material selection and design details.
- We continuously invest in the latest technology, product improvement system, equipment, CAD and BIM design capabilities to support our clients.
- We have developed methods and details suitable for local conditions, such as use of drainage sheeting and strip drainage in inverted roof design that are now standard details in the construction industry.

Our Partners & Suppliers

We source from only reliable and environmentally-conscious manufacturers. All our suppliers are certified to ISO 9001 and ISO 14000 standards. Our products are high-quality and proven, compliant with internationally recognized standards and/or certifications such as EN, DIN, BS, ASTM, BBA, FM, UEAtc, AS and PSB. Most of them are also certified to ISO 14025, Singapore Green Building Council and Singapore Green Label standards.

We work closely with selected applicators who are suitably trained and qualified to install our products. To give customers a peace of mind, we provide single product-installation warranty with our applicators.

ELMICH
Waterproofing & Drainage Solutions



Exposed/Concealed Roof

Green Roof

Joint Sealing

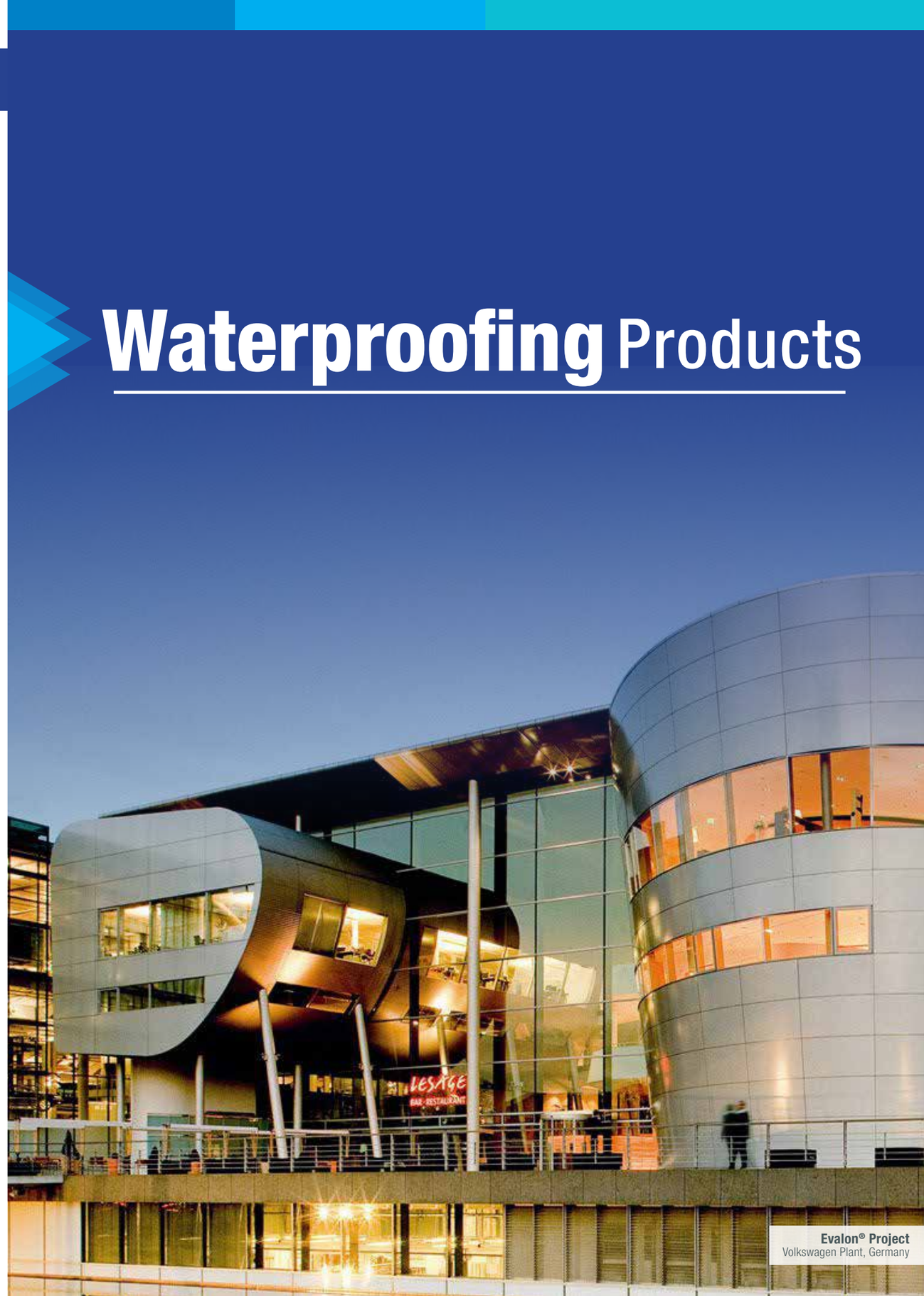
Basement

Wet Areas, Swimming Pools, Tanks, etc.

Contents

WATERPROOFING

Waterproofing Products



Evalon® Project
Volkswagen Plant, Germany


Installation @ Marina Bay Sands


Esplanade, Theatres on the Bay, Singapore


Marina Bay Sands, Singapore


Family Indoor Playground, Germany


Forest City, Malaysia

Evalon®

EVA/PVC Membrane

MADE IN GERMANY

Evalon® membranes are of superior quality, consisting of an alloy of Polyvinyl Chloride (PVC) and a high molecular polymer elasticiser, Ethylene Vinyl Acetate (EVA) terpolymer. Both components are solids and thus form a stable membrane which remains unchanged over time, retaining its physical properties and optimising the membrane's life expectancy. The material is calendered to create a homogeneous, soft and elastic membrane, which may come with a fleece-backing depending on the application.

Features & Advantages

- Excellent thermal and mechanical properties
- Bitumen & polystyrene compatible
- Excellent vapour permeability
- FLL root and rot resistant
- Easy and quick installation
- Solid elasticisers do not vaporise or migrate, unlike liquid plasticisers

Applicable Areas

- All flat roof configurations, both concealed and exposed
- Green roofs and landscape areas
- Multi-storey car park decks
- Driveways/road

Installation Procedures

All surfaces shall be smooth and free from dust or loose materials.

The surfaces shall then be cleaned and allowed to dry before applying a thick coat of Flexiprufe® adhesive onto the substrate.

For horizontal surfaces, unroll the Evalon® V waterproofing membrane onto the Flexiprufe® while it is still tacky. Do this while applying pressure from the centre to prevent air being trapped under the Evalon® V membrane. All laps shall be a minimum of 50 mm and shall be welded together by hot air welding. The Evalon® V membrane shall be bonded and installed until the extent/ base of parapet walls/ upturn areas.

For vertical surfaces, Evalon® waterproofing membrane shall be used. The Evalon® membrane shall be terminated at 300 mm above the structural level and bonded with an approved adhesive.

TECHNICAL SPECIFICATION

Products	Description	Dimensions	Thickness
Evalon®	Non-backed	2 x 25 m	1.2 mm, 1.5 mm
Evalon® V	Fleece-backed	2.05 x 19 m	2.2 mm, 2.5 mm

Properties	Test Method	Typical Value
Solid content	-	>90%
Tensile strength	EN 12311-2	≥12.5 N/mm² (long.) ≥12.5 N/mm² (trans.)
Elongation at break	EN 12311-2	≥450% (long.) ≥450% (trans.)
Dimensional stability after heat aging	EN 1107-2	≤0.07% (long.) ≤0.07% (trans.)
Low temperature flexibility	EN 495-5	≤-25°C
Water vapour permeability	EN 1931	≤20,000μ ≤48 g/m²/day
Joint peel resistance	EN12316-2	≥80 N/50mm
Durability/ Life span	British Board of Agrément	≥30 years
Bitumen compatibility	EN 1548	Bitumen compatible
Root penetration resistance	FLL	Passed
UV exposure	EN 13948	Passed
Fire resistance	EN 13501-1	Class E

Preformed Membrane (Rooftop)

Euraplan®

Polymeric UV-Resistant PVC Membrane

Euraplan® is a polymeric PVC-based waterproofing membrane that is reinforced with a polyester fibre mesh, to bolster the membrane's strength and elastic capabilities.

Euraplan®, attributing to the membrane's outstanding resistance to weathering and permanent UV irradiation, may be utilised as an exposed waterproofing membrane. The membrane may be installed on flat roofs and decking areas for both exposed and concealed applications.

The membrane is also suitable for concealed applications on flat roofs and decking areas.

Euraplan® boasts high resistance to aging, tensile strength and vapour permeability, which makes it excellent for a variety of climates, and the membrane meets the fire performance standards of the European Union.

Installation Procedures

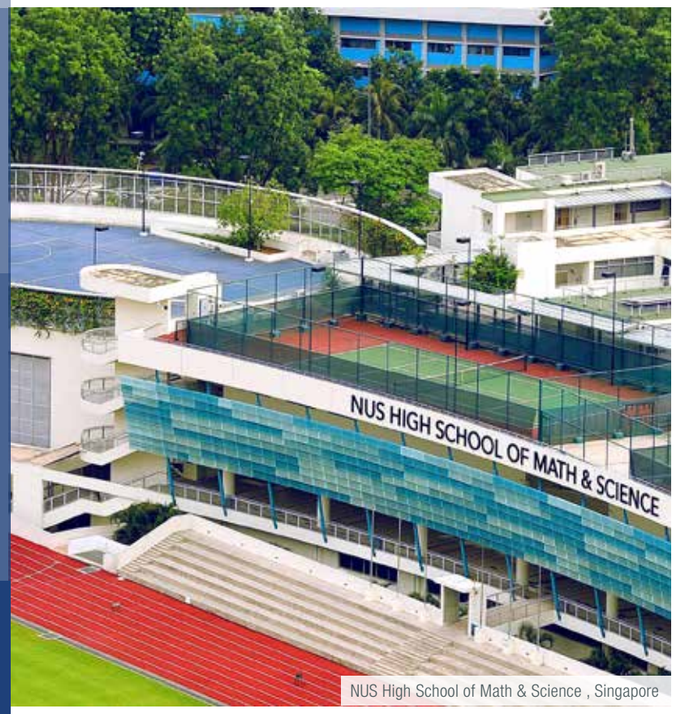
All surfaces shall be smooth and free from dust or loose materials.

Euraplan® shall be loose laid with a minimum of 50 mm lapping between membranes. Lappings shall be welded together by hot air welding.

For vertical surfaces such as parapet walls and upturn areas, Euraplan® shall be terminated at 300 mm above structural level and bonded with an approved adhesive.

TECHNICAL SPECIFICATION

Properties	Test Method	Typical Value
Dimension	-	2.1 m x 20 m
Max tensile force	EN 12311-2	>1300 N/50 mm (long.) >1200 N/50 mm (trans.)
Elongation at break	EN 12311-1	>300% (long.) >200% (trans.)
Joint shear resistance	EN 12317-2	>1100 N/50 mm
Tear strength	ASTM D624-2000	>79 N/mm² (long.) >80 N/mm² (trans.)
Dimensional stability	EN 1107-2	<0.08%
Durability (UV exposure, high temperature and water)	EN 1297	Passed
Water vapour permeability	EN 1931	20,000 μ
Hail resistance	EN 13583	25 m/s
Bitumen & polystrene compatibility	-	No
External fire performance	EN 13501-1	Class B_{ROOF} (t1) + (t3)
Root resistance	EN 13948	Passed



NUS High School of Math & Science , Singapore

Bitulen® 180

APP-Modified Bituminous Membrane

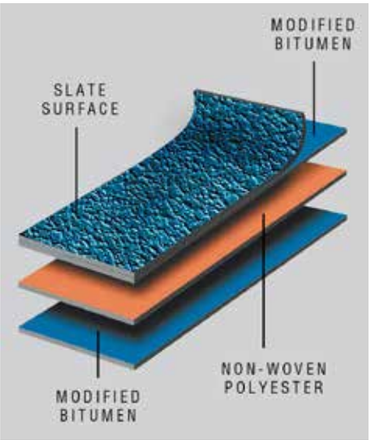
Bitulen® 180 is a non-woven polyester & glass reinforced atactic-polypropylene polymers (APP) modified bituminous waterproofing membrane, suited for use in climatic conditions with significantly higher ambient temperatures.

Features & Advantages

- Available in different coloured slated-coated surface
- Conforms to Singapore Standard SS374:1994
- High temperature sealing capability
- Dimensionally stable
- UV-resistant
- High static puncture resistance

Applicable Areas

- Trafficable or non trafficable flat roofing
- Inverted roofs
- Roof refurbishment
- Foundation and underground structures



Installation Procedures

All surfaces shall be smooth, dry, and free from dust or loose materials.

Bitulen® 180 installation should follow recommended practices for torch-on membranes. Care must be taken when using Bitulen® 180 in close proximity to other combustible materials, decorative coatings and other heat sensitive materials.

Bitulen® 180 is installed by melting the heat dispersible film backing and coating with a high temperature flame to create a molten flow in front of the roll. The flame of the torch should be applied at the low point where the roll meets the substrate or underlay. As the film and bitumen melt, roll the membrane forward allowing for side laps of 100 mm and end laps of 150 mm. A bead of bitumen must exude from all lap joints to ensure a uniform seal.

TECHNICAL SPECIFICATION

	Test Method	Typical Value
Roll size	-	1 m (W) x 10 m (L)
Tensile strength	SS 374	≥5.0 N/mm² (long.) ≥3.6 N/mm² (trans.)
Elongation	SS 374	>48% (long.) >55% (trans.)
Tensile shear at joints	SS 374	≥560 N
Resistance to leakage at joints	SS 374	Passed
Hydrostatic test	SS 374	Passed
Water vapour transmission	SS 374	0.20 g/m²/hr
Water absorption	SS 374	<0.9%
Dimension stability	SS 374	<0.1% (long.) <0.1% (trans.)

Preformed Membrane (Rooftop)

Edusports University Town, Singapore

Treelodge @ Punggol, Singapore

Photo Courtesy of PUB, Singapore 's national water agency

Marina Barrage, Singapore

Bitulen® SK374/DUO

040-049

Self-Adhesive Bituminous Membrane

Bitulen® SK374 is a SBS modified bituminous self-adhesive waterproofing membrane for below grade application with concrete, brickwork and blockwork constructions to protect building against groundwater ingress. It comprises a cross-laminated polyethylene film coated with modified bitumen.

Bitulen® SK374 DUO is available as a double-side self-adhesive membrane.

Features & Advantages

- Self-adhesive with easily removable silicone release sheet
- Impermeable to moisture
- Consistent thickness
- Superior flexibility
- Puncture-resistant with high tensile strength
- Minimum hydrostatic head resistance of 30 metres

Applicable Areas

- Basement walls
- Tunnels
- Concrete structures

Installation Procedures

All surfaces shall be dry, smooth, free from voids, dust, oil, loose particles, and sharp protrusions. Concrete must be cured for at least 7 days before priming with an approved high penetration bituminous primer and allowed to dry tack-free before installing Bitulen® SK374.

All corners shall be covered first applying a 150 mm wide strip of Bitulen® SK374 before the installation of the full width membrane.

After removing the release paper, Bitulen® SK374 is then pressure bonded to the primed substrate. All laps must be at least 75 mm wide.

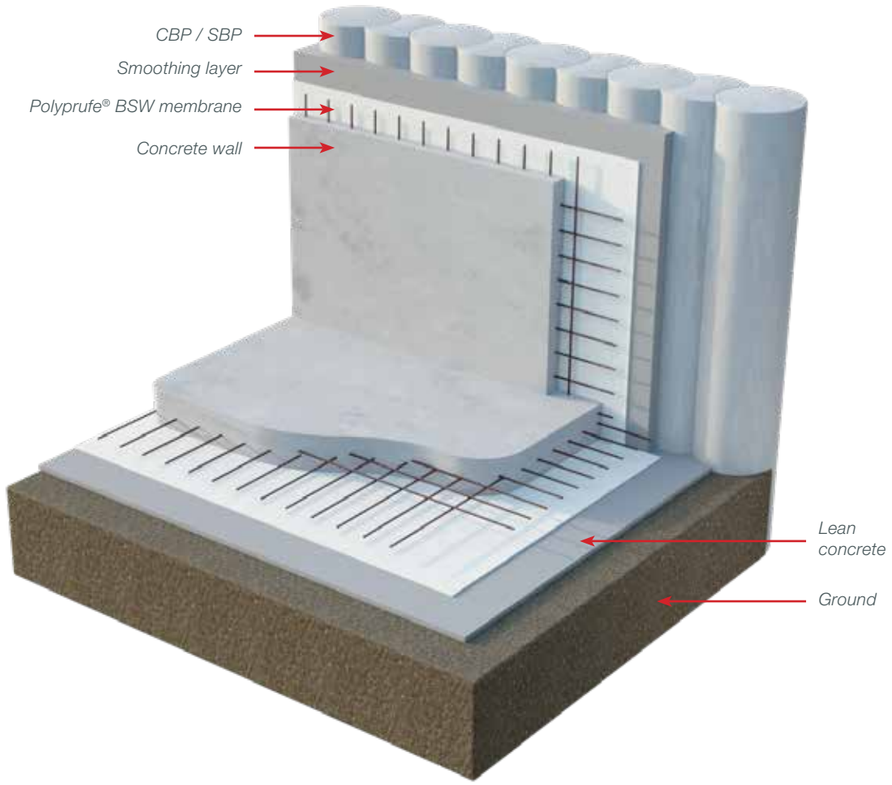
For floors, the installation of Bitulen® SK374 should be continued up the wall to connect with the damp-proof course in the walls. An angle fillet shall also be placed at junction and covered with a reinforcing strip prior to installing the membrane.

Bitulen® SK374 requires a protection layer of screed or polystyrene boards for slabs and walls respectively, or any other approved protection layers.

TECHNICAL SPECIFICATION

	Test Method	Bitulen® SK374	Bitulen® SK374 DUO
		Typical Value	
Thickness	-	1.5 mm	1.5 mm
Dimension	-	1 m x 20 m	1 m x 20 m
Tensile strength	SS 374	>3.0 N/mm² (long.) >3.0 N/mm² (trans.)	>6.0 N/mm² (long.) >5.0 N/mm² (long.)
Elongation	SS 374	>800% (long.) >360% (trans.)	>800% (long.) >400% (trans.)
Tensile shear at joints	SS 374	Passed	Passed
Resistance to leakage at joints	SS 374	Passed	Passed
Hydrostatic test	SS 374	Passed	Passed
Water vapour transmission	SS 374	0.07 g/m²/hr	0.17 g/m²/hr
Water absorption	SS 374	0.11 %	0.22%
Dimension stability	SS 374	0.06% (long.) 0.08% (trans.)	0.10 (long.) 0.15 (trans.)
Cold temperature flexibility	ASTM D5147	-30	-30

Preformed Membrane (Below Ground)



Polyprufe® BSW

Blind-Side Waterproofing Membrane

Polyprufe® BSW is a high-performance HDPE Blind-Side waterproofing membrane designed for applications where the waterproofing must be laid prior to the pouring of concrete. It allows for a fully-bonded waterproofing membrane to be applied to the positive-side of the building structure even where the said surface is inaccessible to application personnel.

Polyprufe® BSW is highly resistant to hydrostatic pressure, ground settlement and soil chemicals. As it forms a fully chemically bonded system, it is non water-tracking in the unlikely event of damage to the membrane. This provides long-term watertight integrity even in the most demanding of applications.

Features & Advantages

- Excellent adherence to poured concrete
- Non water-tracking
- High resistance to hydrostatic pressure
- High resistance to tears and punctures
- Strong mechanical bond
- Permanently bonds to structural concrete
- No membrane protection required
- Resistant to soil chemicals
- Conforms to LTA Standards

Applicable Areas

- Substrate basement
- Wall slabs

Installation Procedures

Polyprufe® BSW shall be loose-laid adhered with the release film facing the concrete pour. On vertical surfaces, the membrane is to be mechanically fastened to the top of the blinding layer before applying subsequent layers. Overlaps shall be 75 mm, and staggered in order to prevent a bulge from forming, and all succeeding layers must be clean and dry before application in order to ensure a strong, watertight bond.

The substrate shall be mechanically stable and not shift during concrete pouring. The substrate shall also be smooth with no gaps or voids. Any penetrations should be grouted in order to ensure stability. Prior to concrete pouring, ensure that all plastic release films are removed. To prevent damage to the membrane, ensure that no sharp objects are used to consolidate the concrete.

TECHNICAL SPECIFICATION

	Test Method	Typical Value
Thickness	DIN 53353 : 1979-12	1.2 mm
Dimensional stability	SS374 1994 (2017)	<0.4 (long.) <0.4 (long.)
Tensile strength	SS374 1994 (2017)	>30 N/mm² (long.) >36 N/mm² (trans.)
Elongation at break	SS374 1994 (2017)	>980% (long.) >1350% (trans.)
Resistance to hydrostatic test	DIN 16726 : 2011	8 bar – no leakage
Puncture resistance	ASTM E154/E154M: 2008a(2013)e1	>1300 N
Peel adhesion to concrete	ASTM D903 : 1998 (2010)	>1200 N/m
Water vapour transmission	ASTM E96/E96M:2016	0 g/m²/hr
Water vapour permeance	ASTM E96/E96M:2016	0 ng/Pa.s.m²
Lateral water resistance	ASTM E154/E154M: 2008a(2013)e1	Passed

Preformed Membrane (Below Ground)

Polyprufe® BSW15

HDPE Blind-Side Waterproofing Membrane

Polyprufe® BSW15 is a high-performance HDPE Blind-Side waterproofing membrane designed for applications where the waterproofing must be laid prior to pouring of the concrete. It allows for fully-bonded waterproofing membrane to be applied to the positive-side of the building structure even where the said surface is inaccessible to application personnel.

Polyprufe® BSW15 is highly resistant to hydrostatic pressure, ground settlement and soil chemicals. It is also fully mechanically bonded, making it non watertracking in the unlikely event of damage to the membrane, providing long-term watertight integrity even in the most demanding of applications.

Polyprufe® BSW15 is a pressure-sensitive self-adhesive membrane which allows for watertight sealing of overlapping sheets. It is cold-applied and easily installed in restricted and confined spaces.

Features & Advantages

- Excellent adherence to poured concrete
- Non water-tracking
- High resistance to hydrostatic pressure
- High resistance to tears and punctures
- Strong mechanical bond
- Permanently bonds to structural concrete
- No membrane protection required
- Resistant to soil chemicals

Applicable Areas

- Substrate basement
- Wall slabs

Installation Procedures

Polyprufe® BSW15 shall be loose-laid adhered with the release film facing the concrete pour. On vertical surfaces, the membrane is to be mechanically fastened to the top of the blinding layer before applying subsequent layers.

Overlaps shall be 75 mm, and staggered in order to prevent a bulge from forming, and all succeeding layers must be clean and dry before application in order to ensure a strong, watertight bond.
The substrate shall be mechanically stable and not shift during concrete pouring.

The substrate shall also be smooth with no gaps or voids. Any penetrations should be grouted in order to ensure stability.

Prior to concrete pouring, ensure that all plastic release films are removed. To prevent damage to the membrane, ensure that no sharp objects are used to consolidate the concrete.

TECHNICAL SPECIFICATION

	Test Method	LTA Requirement	Test Result
Thickness	DIN EN ISO 2286-3	>1.2 mm	Pass
Dimensional stability	SS374	<0.5%	Pass
Tensile strength	SS374	>25 MPa	Pass
Elongation at break	SSS374	>300%	Pass
Resistance to hydrostatic head	DIN 16726	>50 m	Pass
Puncture resistance	DIN 16726	1000 N	Pass
Peel adhesion to concrete	ASTM D903	>750 N/m	Pass

Preformed Membrane (Below Ground)

Eurathane® Polyurethane Coating

Eurathane® polyurethane coating is a cold-applied waterproofing system that can be readily and easily applied on concrete, metal, or plywood surfaces by brush, roller, squeegee, or trowel. When fully cured, the membrane has excellent flexibility, elongation, adhesion strength, and crack bridging properties.

Features & Advantages

- Low VOC
- Excellent flexibility and elongation
- Maintains a waterproof seal over a wide range of temperatures
- Easily applied to complex and irregular shapes to form a seamless waterproofing coating

Eurathane® systems are available as three different products:

- Eurathane® 1200 SPE • Eurathane® 2000 • Eurathane® 3000

Khoo Teck Phuat Hospital, Singapore

Republic Polytechnic, Singapore

Eurathane® 2000

GreenLabel Singapore 032-019

Moisture-Cured Single Component

Eurathane® 2000 is a single-component, concealed application polyurethane waterproofing coating for under tile or screed application.

Applicable Areas

- Internal wet area
- Water-retaining structure (concealed and non-potable water storage)
- Lift pits, culverts and drains
- Damp-proofing in sandwich constructions

Installation Procedures

Eurathane® 2000 shall be applied by brush, roller, squeegee or trowel to obtain a continuous, unbroken film. It shall be applied at a rate of 0.75 litre/m^2/coat. Two coats are recommended, allowing the first to fully dry prior to application of the second coat. A dry film thickness of 1.0 mm to 1.2 mm is recommended.

Extremely porous substrates shall be primed with a Eurathane® Primer prior to coating. Application must be made uniformly to avoid pin holes.

As with all waterproofing treatment, it is essential that Eurathane® 2000 is protected from mechanical damage during subsequent construction work or backfilling.

Surfaces on which Eurathane® 2000 is to be applied shall be dry, smooth, sound and free from honeycombs, protrusions, voids, laitance, dust, loose material, paint, oil, curing agent or any other contaminants. Blockwork shall be smooth rendered and brickwork flush pointed.

TECHNICAL SPECIFICATION

	Test Method	Typical Value
Solid content	BS ISO 124:2001	>95%
Tensile strength	ASTM D412	>2.0 N/mm^2
Elongation	ASTM D412	>400%
Crack bridging	ASTM C836	2 mm
Water vapour transmission	ASTM E96	<20 g/m^{2}d
Adhesion to concrete	ASTM D903	0.9 N/mm^2
Hardness shore A	ASTM D2240	50

313 Somerset, Singapore

Eurathane® 3000

Seamless Elastomeric Waterproof Coating

Eurathane® 3000 is a premium single-component polyurethane coating based on pure elastomeric hydrophobic polyurethane resins, which results in excellent mechanical, chemical, thermal, UV, and natural element resistance properties. To suit various design requirements, different colours and finishing are available on demand.

Applicable Areas

- Roof
- Balconies, terraces and verandas
- Internal and external wet areas
- Pedestrian and vehicular traffic decks
- Stairways

Installation Procedures

Eurathane® 3000 shall be applied by brush, roller, squeegee or trowel to obtain a continuous, unbroken film. It shall be applied at a rate of 0.75 litre/m^2/coat. Two coats are recommended, allowing the first coat to fully dry prior to application of the second coat. A dry film thickness of 1.0 mm to 1.2 mm is recommended.

Extremely porous substrates shall be primed with a high penetration solvent-based polyurethane primer prior to coating. Application must be made uniformly to avoid pin holes.

As with all waterproofing treatments, it is essential that Eurathane® 3000 is protected from mechanical damage during subsequent construction work or backfilling.

Surfaces upon which Eurathane® 3000 is to be applied shall be dry, smooth, sound and free from honeycombs, protrusions, voids, laitance, dust, loose material, paint, oil, curing agent or any other contaminants. Blockwork shall be smoothly rendered and brickwork flush pointed.

TECHNICAL SPECIFICATION

Eurathane® 3000	Test Method	Typical Value
Solid content	ASTM D2369	>80%
Chemical resistance	ASTM D1308	Passed
QUV accelerated weathering test	ASTM G154	Passed (1000 hrs)
Hardness shore A	ASTM D2240	70
Adhesion to substrate	ASTM C836	>2 N/mm^2
Water vapour transmission	ASTM E96	72 g/m^2.h
Crack bridging	ASTM C836	2 mm
Tensile strength	ASTM D412	>5.5 N/mm^2
Elongation	ASTM D412	>500%
Eurathane® 3000 Top Coat		
Set to touch @ 25°C	-	30 mins - 2 hrs
Pot life	-	3 hrs
Full cure	-	24 hrs - 48 hrs
Eurathane® 3000 Primer		
Colour	-	Transparent
Viscocity @ 25°C	-	<300 cps
Density	-	0.95 - 0.99 g/cm^3

Liquid Applied Membrane

Universal Studios, Singapore

Vivo City, Singapore

Fleximent®

032-019

Flexible Cementitious Coating

Fleximent® 201 is a two-component, polymer-modified flexible cementitious waterproofing coating that cures by pozzolanic reaction. Fleximent® 201 meets the Singapore Standard SS375 for direct contact with potable water and is Singapore Green Label certified. Fleximent® 201 provides excellent adhesion strength for plastering and subsequent tiling works making it suitable for wet areas.

Fleximent® 202 is a slurry cementitious waterproofing coating.

Features & Advantages

- Easy to mix and apply
- Excellent adhesion to wide range of construction materials
- High elongation
- Resistant to frost and thawing salts
- Non-toxic, compatible with potable water usage

Applicable Areas

- Internal wet areas
- Lift pits
- Potable water tanks
- Storm drains, canals, water excluding structures

Installation Procedures

Surfaces shall be clean and free from honeycombs, voids, dirt, loose material, paint, oil, curing agents, or other contaminants.

Prior to application, dampen substrate with a brush or roller.

a. Pour Part A (liquid) into a clean container.
b. Pour Part B (powder) slowly into Part A.
c. Mix with a low speed drill fitted with purpose-made paddle
d. Ensure that mix is homogeneous and lump-free.

Apply Fleximent® 201 by squeegee, roller or brush to horizontal and vertical surfaces. Ensure that air is not entrapped in the membrane. Apply slurry with a brush at joints and corners ensuring that areas are worked and covered well. Allow curing to take place completely before applying the second coat.

Protect freshly applied surfaces from strong sunlight and drying winds with a polyethylene sheet. Cover Fleximent® 201 with protective screed immediately after curing. Exercise care to prevent damage to waterproofing during subsequent construction work prior to laying of protection screed.

Apply Fleximent® 201 in 2 coats at 1.0 kg – 1.1 kg per sq.m. per coat for final dry film thickness of approximately 1.2 mm.

TECHNICAL SPECIFICATION

	Test Method	Fleximent® 201	Fleximent® 202
		Typical Value	
Adhesion to substrate	ASTM D4541	>1.0 N/mm^2	1.09 N/mm^2
Water vapour transmission	ASTM E96-93	21 g/m^2.d	-
Hardness shore A	ASTM D2240	60	88
Tensile strength (before & after aging)	ASTM D412	>1.6 N/mm^2	1.43 N/mm^2
Elongation at break (before & after aging)	ASTM D412	>150%	11.8%
HDB coefficient of permeability	ASTM D412	-	4.32 x 10^{-3}
Water penetration test	DIN 1048	0, no water penetration	
Crack bridging	ASTM C836	2 mm	

Liquid Applied Membrane

Flexicoat™

Seamless Acrylic Waterproof Coating

Flexicoat™ is a liquid-applied, single-component waterborne acrylic waterproofing coating for roofing applications. It forms a seamless elastomeric waterproofing membrane in an exposed or protected system.

Flexicoat™ offers exceptional elongation and flexibility, capable of withstanding day-to-day fluctuations in temperature. When reinforced with a layer of fiberglass, Flexicoat has high tensile strength and prolonged durability.

TECHNICAL SPECIFICATION		
	Test Method	**Typical Value**
Tensile strength	ASTMD 412-16	>7.5 Mpa
Crack bridge	ASTM C836	No cracks at 2 mm
Total solid content	ISO 124: 2014	98%
Resistance to water penetration	DIN 1048	0
QUV accelerated	ASTM G 154-16	Passed
Daylight reflectance	ASTM E903-12	Passed

Flexiprufe® R

Modified Bituminous Root-Resistance Membrane

Flexiprufe® is a modified bituminous root-resistant membrane that prevents root penetration to protect hardscapes and structures. It provides effective and long-lasting protection while ensuring that roots are not damaged and plants remain healthy.

Compared to preformed membranes that require termination and overlapping joints at edges and around irregularly-shaped features, application of Flexiprufe® R is simpler and more efficient as a liquid coating applied onto surfaces.

TECHNICAL SPECIFICATION		
	Test Method	**Typical Value**
Tensile strength	ASTMD 412-16	>7.5 Mpa
Crack bridge	ASTM C836	No cracks at 2 mm
Total solid content	ISO 124: 2014	98%
Resistance to water penetration	DIN 1048	0
QUV accelerated	ASTM G 154-16	Passed
Daylight reflectance	ASTM E903-12	Passed

University Town, Singapore

Eurathane® 1200 SPE

Polyurea Hybrid Elastomer

Eurathane® 1200 SPE is a solvent free, two-component spray applied polyurea hybrid waterproofing coating.

Features & Advantages

- Fast application and curing
- Solvent free with very low VOC
- 100% solids
- Elastomeric with excellent elasticity
- High tensile strength

Applicable Areas

- Roof tops
- Green roofs
- Stadiums
- Car parks
- Retaining walls

Installation Procedures

Substrate Preparation

Surfaces on to which Eurathane® 1200 SPE is to be applied shall be dry, smooth, sound and free from honeycombs, protrusions, voids, laitance, dust, loose material, paint, oil, incompatible curing agent, or any other contaminants. Blockwork shall be smooth rendered and brickwork flush pointed.

Priming

(concrete substrate)

Apply Eurathane® 1200 SPE Primer at a rate of 0.2–0.3 kg/m² by brush or roller and sand seeded to prepare substrate. Allow primer to fully cure 4–20 h.s before proceeding with application of Eurathane® 1200 SPE.

(steel substrate)

Apply Eurathane® 1200 SPE Primer at a rate of 0.2–0.3 kg/m² by brush or roller to stell substrate.

Mixing

Mix Eurathane® 1200 SPE at 1:1 ratio by volume in heated (65°C) multi-component spray equipment (min. 2000 psi). The coverage of Eurathane® 1200 SPE is dependent on substrate type and condition. Generally, for dry film thickness (DFT) of 1.5mm, consumption is approximately 1.5 kg/m².

Top Coat (when applicable)

Mixing Eurathane® 1200 SPE Top Coat at 1:1 forms an elastic coating that provides non-slip quality that is suitable for floor decoration as well as coating for architectural surfaces. It is a soft touch, anti-abrasion coating with superior adhesion for a beautiful finish.

TECHNICAL SPECIFICATION

Eurathane® 1200	Test Method	Typical Value
Solid content	ASTM D1644	>75%
Mix ratio	-	1:1
Set-to-touch @ 23°C	ASTM D1640	12 s
Tensile strength	DIN 53504	≥14.0 N/mm²
Elongation	DIN 53504	>700%
Hardness shore A	DIN 53505	72
Adhesion to concrete	ASTM D4541	1.5 N/mm²
Water vapour transmission	ASTM E96	28.2 g/m²/day
Water absorption	DIN EN ISO 62	2%
Abrasion resistance	ASTM D4060	0.007 g/1000 cycles
Crack bridging	ASTM C836	6 mm
Tear strength	DIN 53363	>600 N/mm
Eurathane® 1200 SPE Primer		
Viscosity @ 25°C	-	50 cps
Appearance	-	Light brown liquid
Density @ 25°C	-	0.93
Solid content		~40% (wt)
Eurathane® 1200 SPE Steel Primer	**A (6 kg)**	**B (12 kg)**
Viscosity @ 25°C	30	6000 cps
SP. GR @ 25°C	1.027	1.140
Solid content	54	48
Appearance	Brown liquid	Grey liquid
Mixing ratio (w/w)	1	2
Mix viscosity @ 25°C	300	
Pot life	1 hr	

Spray Applied Membrane

Envirocrete™

032-019

Crystallisation Waterproofing Admixture

Envirocrete™ is an integral waterproofing system consisting of Portland cement, treated silica sand, and various active chemicals. Added to concrete at batching, Envirocrete™ generates non-soluble crystals throughout the capillaries and pores in the concrete, creating a physical barrier to water.

Features & Advantages
- Maximizes waterproofing of concrete
- Will withstand extreme hydrostatic pressure > 7 bar
- Exceptional durability at -20°C to 50°C

Applicable Areas
- Basements
- Tunnels
- Water tanks
- Precast concrete

Installation Procedures
For waterproofing concrete, the recommended dosage at Envirocrete™ is 0.8% - 1.2% by weight of cement. For enhanced chemical resistance please consult with Elmich to determine the approximate dosage. Envirocrete™ is added to the concrete at the time of batching. The sequence of procedures for addition will vary according to the type of batch plant operation and equipment.

An ideal water cement ratio of <0.42, and should not exceed 0.46 to ensure Envirocrete™ performs as specified.

Curing
Normal practices for placing and curing concrete should be followed as laid out in your local standards.

TECHNICAL SPECIFICATION

	Test Method	Typical Value
Water permeability	BTD/TP/02/2002	$<5.0 \times 10^{-13}$
Water penetration @ 5 bar for 72 hours	BS EN 12390-8:2009	<20 mm
Effects on setting time	-	None
Chemical resistance	-	Resists mild acids and caustic materials in the pH range 3–12

Envirocrete™ S

Crystallisation Waterproofing Slurry

Envirocrete™ S is a surface applied waterproofing system consisting of Portland cement, treated silica sand, and various active chemicals. Envirocrete™ S penetrates the concrete and provides a permanent waterproofing protection layer.

Features & Advantages
- Maximizes waterproofing of concrete
- Will withstand hydrostatic pressure > 3 bar
- Exceptional durability at -20°C to 50°C
- Reduces shrinkage and cracking

Applicable Areas
- Basements
- Tunnels
- Water tanks
- Precast concrete

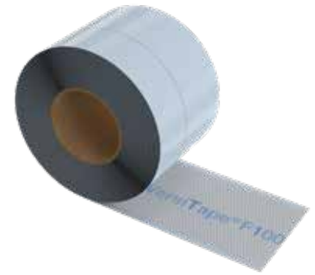
Installation Procedures
Surfaces should be clean, free from honeycombs, voids, dirt, loose material, paint, oil, curing agents, or other contaminants.

Prior to application, dampen substrate with a brush or roller.
a. Use 5 parts Envirocrete™ S to 2 parts water by volume
b. Mix with a low speed drill fitted with purpose-made paddle
c. Ensure that mix is homogeneous and lump-free.

Apply two coats of Envirocrete™ S using a masonry brush or appropriate power spray equipment. Apply the second coat whilst the first coat is still “green”. During the curing period the Envirocrete™ S treatment must be protected from rainfall and water puddles. Consumption of two coats is approximately 1.5 kg/m^2.

TECHNICAL SPECIFICATION

	Test Method	Typical Value
Water permeability	BTD/TP/02/2002	$< 8.50 \times 10^{-13}$
Water penetration @ 5 bar for 72 hours (mm)	BS EN 12390-8:2009	20 mm
Pot life (hr)	-	1
Chemical resistance	-	Resists mild acids and caustic materials in the pH range 3–12



VersiTape® F100

Self-Adhesive Butyl Tape with Fleece

VersiTape® F100 is a self-adhesive sealing tape made of a butyl rubber compound protected by a fleece in polypropylene. The tape is used to prevent cracking of the waterproofing membrane at construction joints, and subtitutes metal on concrete chamfers at construction joints.

Features & Advantages

- Self-adhesive and self-sealing
- Excellent heat stability
- Solvent free

Applicable Areas

- Seal joint between floor slab and wall under wet areas

Installation Procedures

Prepare the surface and proceed as follows:

- The surface shall be clean, dry, smooth, and dust-free
- Unroll the tape until the desired length is reached
- Remove the silicone release film that covers the adhesive part of the tape and position VersiTape® F100
- Press with a roller or a cloth pad

TECHNICAL SPECIFICATION

	Test Method	Typical Value
Standard thickness	-	1.0 mm
Compound colour	-	Grey
Resistance to water penetration	DIN 1048	0 mm
Water absorption	SS 374	<3.5%
Soluble matter lost	SS 374	0%
Tensile force	EN 12311-1	150 N/50 mm

Brunei Cancer Center, Brunei

Khoo Teck Phuat Hospital, Singapore

Marina Bay Sands Promenade, Singapore

VersiDrain® P-Anchor®

Under Screed Drainage Sheet

VersiDrain® P-Anchor® is a lightweight drainage sheet that is positioned between the structural slab and topping screed to create a drainage and ventilation cavity that allows entrapped water in the screed to escape. It provides architects and developers with the definitive solution to minimize unsightly efflorescence on concrete and tiled surfaces, as well as protection against damage to waterproofing membranes during construction.

Features & Advantages

- Effective drainage under screed
- Minimises efflorescence
- Reduces surface cracking
- Protects waterproofing membrane
- Snap-on interlocking modules minimises wastage
- Root and rot resistant

Applicable Areas

- Balconies, terraces and podium decks
- Swimming pool decks and patios
- Shower areas, changing and wash rooms

Installation Procedures

VersiDrain® P-Anchor® shall be protected from excessive UV exposure especially between the time of delivery and installation. This shall be done by storing under tarpaulin or other approved methods.

The substrate shall be smooth, even and maintain a slope to fall towards the drainage outlets, and adequate protection to the waterproofing membrane shall be ensured during installation.

Lay and position the drainage mats with its dimples directly on the substrate/waterproofing membrane. Align and snap on interlocking pins with corresponding holes of adjacent mats to form a continuous carpet over the installation area. For corners, plinth areas, curved areas and drainage gullies, cut the mats with shears to fit the sizes or by other approved methods.

Lay wire mesh above drainage mats and apply cement screed according to project requirements.

TECHNICAL SPECIFICATION

	Typical Value
Material	Polypropylene
Dimensions	500 x 500 mm
Sheet thickness	1.2 mm
Overall height	6 mm
Weight	~3 kg/m²
Compressive strength - unfilled - sand-filled	 >80 t/m² >1500 t/m² (with Grade 20 cement and sand screed)
Service temperature	-30°C to 80°C
Biological resistance	Unaffected by moulds and algae
Chemical resistance	Resistant to rot, oils, acids, alkalis, bitumen and naturally occurring soil chemicals
Fire resistance	B2 (DIN 4102)

Drainage & Damp-Proofing Materials


Skool4Kidz Preschool, Singapore


Gardens By The Bay, Singapore

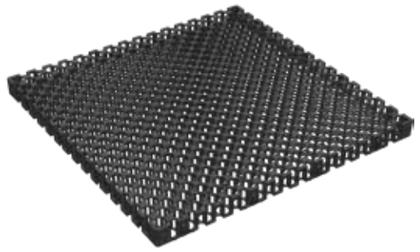

CalPERS, USA


Raffles Dubai Hotel, Middle East


City of Dreams, Philippines

VersiCell®

Sub-Surface Drainage Module



VersiCell® is designed and engineered for sub-surface drainage as well as providing waterproofing membrane protection and, heat and sound insulation.

It eliminates the use of heavy gravel aggregates for sub-surface drainage and screeds for waterproofing membrane protection in planter boxes and roof gardens. VersiCell® is also applied on retaining walls to prevent build up of hydrostatic pressure.

Features & Advantages

- High internal void
- High compressive strength
- Lightweight
- Modules interlock for stability and easy installation
- Protects waterproofing membranes

Applicable Areas

- Intensive green roofs
- Landscaped decks
- Planter boxes
- Basement walls
- Retaining walls
- Paved areas & roadways
- Sports fields

Installation Procedures

VersiCell® shall be protected from excessive UV exposure especially between the time of delivery and installation. This shall be done by storing under tarpaulin or other approved method.

The substrate shall be smooth, even and maintain a slope to fall towards drainage outlets, and adequate protection to the waterproofing membrane shall be ensured during installation.

Lay and position drainage modules directly on the substrate/waterproofing membrane and cover over drainage outlets. Align and interlock adjacent modules along connecting edges. For corners, plinth areas, curved areas and drainage gullies, cut the modules with shears to fit the sizes or by other approved methods.

Cover VersiCell® modules with geotextile and make sure that ends of all installed drainage modules are properly sealed with geotextile to ensure sand and soil particles do not enter the drainage modules. Proceed with in-filling according to project requirements.

TECHNICAL SPECIFICATION

	VersiCell® 3150	VersiCell® 3050	VersiCell® 2050
Material	Polypropylene		
Colour	Black		
Dimensions	500 (L) x 500 (W)x 30 (H) mm	500 (L) x 500 (W)x 30 (H) mm	500 (L) x 500 (W)x 20 (H) mm
Weight	~2.0 kg/m²	~2.5 kg/m²	~2 kg/m²
Compressive strength	max. 600 kN/m²	max. 800 kN/m²	max. 800 kN/m²
Drainage capacity @1% gradient	~16.5 l/m.s	~16.5 l/m.s	~13.0 l/m.s
Surface void area	~62%		
Internal void area	~95%		
Biological/chemical resistance	Unaffected by moulds and algae. Good resistance to alkali and bitumen		

Drainage & Damp-Proofing Materials

Ren Ci Community Hospital, Singapore

Delta® MS Drain/ Terraxx

MADE IN GERMANY

Delta® MS Drain/Terraxx is a HDPE dimple sheet with factory welded polypropylene geotextile manufactured from 100% virgin material. It is used primarily around basement walls for surface drainage, protection of waterproofing membrane, and relief of hydrostatic pressure. It is tested in accordance to both the German DIN and British EN standards.

Features & Advantages

- High compressive strength
- Permanent filtration drainage
- Protects waterproofing system

Applicable Areas

- External basement wall
- Green roof drainage

TECHNICAL SPECIFICATION

	Delta® MS Drain	Delta® Terraxx
Overall height	4 mm	9 mm
Drainage capacity	~1.0 l/s.m	~3.5 l/s.m
Compressive strength	>600 kN/m²	>350 kN/m²
Tensile strength	>19 MPa	>22 MPa
Elongation @ break	>340%	>400%
Thickness	0.3 mm	0.6 mm
Material	virgin HDPE	
Temperature resistance	-30°C to 80°C	
Chemical properties	Chemical, root and rot resistant	
Fire resistance*	B2 (DIN 4102)	

*upon request

Delta® MS/ MS-20

MADE IN GERMANY

Delta® MS/MS-20 is a HDPE dimple sheet manufactured from 100% virgin material without plasticizer and is fully recyclable. It is tested to German Standard DIN 18195 and fire resistance standard DIN 4102.

Features & Advantages

- High compressive strength
- Non-polluting
- Rot-proof and non-degradable in soil
- Flat overlapping edges for precise-fitting joints
- Diagonal dimple configuration to permit straight creases

Applicable Areas

- Sub-base course under concrete ground slab
- Foundation wall protection
- Seepage layer in cavity wall

TECHNICAL SPECIFICATION

	Delta® MS	Delta® MS-20
Overall height	8 mm	20 mm
Drainage capacity	~2.25 l/s.m	~10.0 l/s.m
Compressive strength	>200 kN/mm²	>160 kN/mm²
Elongation @ break	>48%	>37%
Tensile strength	>20 MPa	
Material	virgin HDPE	
Thickness	0.6 mm	
Temperature resistance	-30°C to 80°C	
Chemical properties	Chemical, root and rot resistant	
Fire resistance	B2 (DIN 4102)	


Lufthansa Training Centre, Germany

Delta® PT

MADE IN GERMANY

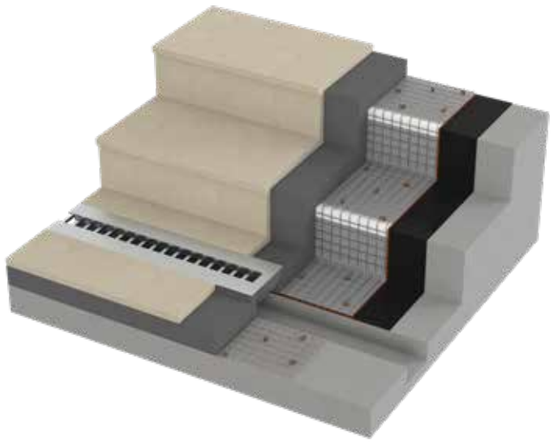
Delta® PT is a ventilated HDPE dimple sheet manufactured from 100% virgin material and is incorporated with a bonded twist-woven mesh. It is used internally for water management and elimination of damp or leaking walls. Its slim and efficient profile creates an air gap to isolate damp, salt affected and leaking walls.

Features & Advantages

- High compressive strength
- Rot-free and free of recycled material
- Non polluting

TECHNICAL SPECIFICATION

	Typical Value
Overall height	8 mm
Drainage capacity	~4,39 l/s.m
Material	virgin HDPE with twisted HDPE mesh
Compressive strength	70 kN/mm²
Tensile strength	>22 MPa
Elongation @ break	>400%
Material	virgin HDPE
Thickness	0.6 mm
Temperature resistance	-30°C to 80°C
Chemical properties	Chemical, root and rot resistant
Fire resistance	B2 (DIN 4102)



VersiDrain® EC

Thin-Bed Efflorescence Drainage Sheet

VersiDrain® EC is a low profile composite drainage sheet used in conjunction with Bitulen® SK374 and VersiTape® F100 in the VersiDrain® Waterproofing System.

Designed for use on thin-bed cement mortar such as those in stairs, the System mitigates efflorescence by creating a separation gap between the finish layers and the base structure. This relieves entrapped moisture within the cement mortar.

Features & Advantages

- Time-saving
- High compressive strength
- Efficient drainage

Applicable Areas

- External basement wall
- Green roof drainage
- Stairs

TECHNICAL SPECIFICATION

Material	HDPE
Dimple height	~4 mm
Air volume between dimples	~2.6 l/m²
Thermal stability	-30°C to +80°C
Characteristic opening size	~0.6 mm (EN ISO 13433)
Drainage rate	~0.6 l/s.m²
Compressive strength	~500 kN/m²
CE conformity	DIN EN 13252
Roll dimensions	30 m × 2.00 m

Drainage & Damp-Proofing Materials

McDonald's Jurong Central Park, Singapore

Universal Studios, Singapore

KK Hospital Rooftop, Singapore

Temasek Polytechnic, Singapore

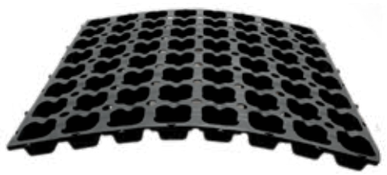
VersiDrain® 30

Extensive Planting Tray

VersiDrain® 30 is a lightweight interlocking modular green roof tray designed for versatility. Its flexibility allows it to be easily cut to fit different shapes and conforms with ease to curved surfaces. Its easy-to-interlock feature facilitates connecting adjacent trays together for stability.

VersiDrain® 30 comprises a network of reservoirs that stores over 11 litres per square metre of rainwater for irrigating the plants, thus reducing watering requirements and costs, promoting plant growth in a sustainable manner.

VersiDrain® 30 has a smooth and flat base which allows it to be placed directly over roof waterproofing membranes.



Features & Advantages

- Provides efficient drainage
- Reduces irrigation requirement
- Protects waterproofing membrane
- Enable on-site rainwater retention
- Lightweight and flexible
- Recyclable
- Suitable for retrofitting and/or new projects
- Mitigate urban runoff
- Can be cut to fit any shaped green roof

Applicable Areas

- Extensive green roofs
- Planter boxes
- Roadside turfing

TECHNICAL SPECIFICATION

	Typical Value
Material	Polypropylene
Size	500 mm x 500 mm
Height (overall)	30 mm
Soil depth	*Variable
Reservoir capacity	11.6 l/m^2

**according to design preference and parameters*

Installation Procedures

VersiDrain® 30 shall be protected from excessive UV exposure especially between the time of delivery and installation. This shall be done by storing under tarpaulin or other approved method.

The substrate shall be smooth, even and maintain a slope to fall towards drainage outlets, and adequate protection to the waterproofing membrane shall be ensured during installation.

Lay and position green roofing trays directly on the substrate/waterproofing membrane and covered over drainage outlets. Align and interlock adjacent trays along connecting edges. For corners, plinth areas, curved areas and drainage gullies, cut the modules with shears to fit the sizes or by other approved methods.

Cover VersiDrain® 30 modules with geotextile and make sure that ends of all installed green roofing trays are properly sealed with geotextile to ensure sand and soil particles do not enter the water storage dimples. Proceed with in-filling according to project requirements.

Green Roof

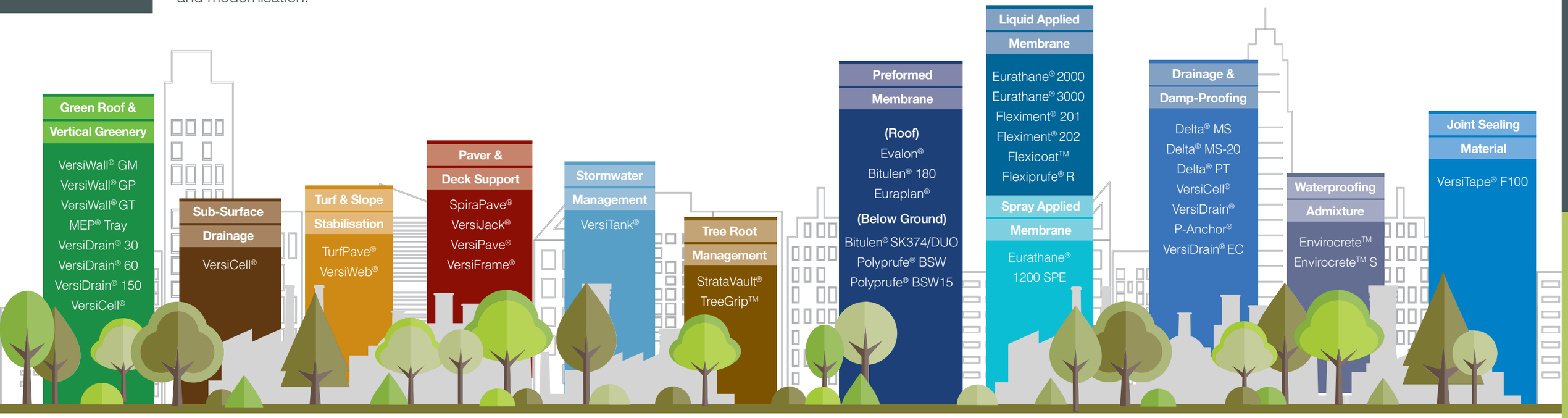
PRODUCT SELECTION GUIDE

			Below Grade				At/Above Grade					Water Retaining			Roofs			
Description	Technology	Product	Base-ments	Blind-Side Application	Lift / Sump Pits	Cut & Cover Tunnel	Terrace, Plaza, Podium, Balcony	Fire Engine Hard-standing Area	Planters	Carpark Decks	Internal Wet Areas	Swimming Pool	Potable Water Tank	Non-potable Water Tank	Exposed RC Roof	Concealed RC Roof	Roof Gardens	Sky Terrace / Trafficable Roof
Spray Applied Membrane	Polyurea	Eurathane® 1200 SPE	•		•	•	•	•	•	•		•		•	•	•	•	•
Preformed Membrane	EVA/PVC	Evalon®					•	•	•	•		•			•	•	•	•
	PVC	Euraplan®					•	•	•	•					•	•	•	•
	Bituminous Torch-on	Bitulen® 180					•								•	•		
	HDPE Blind-side	Polyprufe® BSW	•	•	•													
	HDPE Blind-side	Polyprufe® BSW15	•	•	•	•												
	Bituminous Self-adhesive	Bitulen® SK 374/DUO	•		•	•												
	Polyurethane	Eurathane® 2000	•		•	•	•	•			•					•		
Integral Waterproofing	Crystalline Admixture	EnviroCrete™ EnviroCrete™ S	•	•	•	•				•		•	•	•				
Liquid Applied Membrane	UV-resistant Polyurethane	Eurathane® 3000	•		•	•	•	•							•	•		•
	Cementitious	Fleximent® 201/202									•	•	•	•				
	Acrylic	Flexicoat™													•			
	Bituminous	Flexiprufe® R							•									
Drainage	High Density Polyethlene	Delta® MS	•	•		•	•											
		Delta® MS-20	•	•		•	•											
		Delta® Terraxx	•	•	•	•	•		•								•	
		Delta® PT	•	•			•											
	Polypropylene	VersiDrain® P-Anchor®					•								•	•		
		VersiCell®							•								•	•
	High Density Polyethlene	VersiDrain® EC					•											
Green Roof	Polypropylene	VersiDrain® 30							•								•	
Joint Sealing	Butyl Tape with PP Fleece	VersiTape® F100									•	•	•	•	•	•		

Sustainability In Our Products

Elmich urban greenery products help our customers achieve their eco-friendly goals in every phase of a building's lifecycle - from design to maintenance. Our products contribute to green building certifications as we strive towards sustainable growth and modernisation.

"Our vision is to provide sustainable building solutions to **create cities, where urban meets nature.**"



What Sets Us Apart From The Rest?

Product Management

Elmich aims to deliver environmentally-safe, innovative, and cost-effective urban greening solutions to our customers worldwide.

Every aspect of our business, from research and development to supply chain management is centrally coordinated, ensuring the delivery of a well-engineered and tested product.

Innovative Spirit

Our commitment towards sustainable green building drives us towards constant innovation and improvement of our products to deal with the ever-changing requirements of the industry.


GREEN TECHNOLOGY AWARDS: TOP HONOUR

A track record of innovation

Elmich has invested heavily in developing sustainable products that reduce costs and save the environment

By Sue-Ann Chia

AFTER operating his waterproofing business for a decade, Alan Lee spotted an opportunity to develop a new line of business. The founder of green technology firm Elmich saw that many buildings in Singapore had used gravel to drain rainwater.

But, at the time in the early 1990s, another new product had come onto the market: a plastic drainage cell that would do the same job as gravel, but in a much more efficient manner.

"It was a no brainer. Between 50kg of gravel and a 2.5kg plastic drainage cell, clearly one was the better choice," he says. With a lighter load, there is more freedom for architects and engineers to design build-ings, he notes.

"We were the first in Asia and Singapore to introduce the product to the market. It took time but now no one uses gravel any more."

This is the type of prodigy Mr Lee considers to be sustainable: one that increases efficiency, whether by saving less energy, resources or manpower. "It has to make sense. Otherwise why have products that say they are sustainable?" he says.

Over time, the firm – which was founded in 1982 and now has offices in 27 countries – has introduced other products that have made a difference to the build-environment sector in terms of saving the planet as well as resources for the firm.

Another example is the boardwalk linking Jurong to VivoCity. Initially, the plans had stipulated concrete stumps to support the structure. But Elmich's proposal was to put pedestals made of plastic that could be fitted to measure according to the height required to support the boardwalk.

"Concrete was heavy and you needed to cast it, and it had to be perfectly cast. With our product you could easily adjust when required," he says. It saves manpower, materials and costs. That's sustainable.

Elmich was given the Top Honour at the Green Technology Awards this year for its contributions to the industry. The company has gone to great lengths to develop innovative products, holding more than 1,70 patents.

It has also ensured that the firm it works with buy only from its approved suppliers, ensuring both quality as well as sustainability.

"So virtually all our products are made from recycled plastics which are quite abundant, we have been able to contain the prices to levels significantly lower than non-green alternatives," says Mr Lee. The company has five engineers among its staff of about 45 who attend and can help fix problems for their clients.

Mr Lee also notes that in many Asian tropical countries, such as Germany and Switzerland, environmental sustainability is a major consideration and customers are prepared to pay more for these products. Here, there is less willingness for customers to pay unless the products are "green and cheap".

"One of our clients, a German-owned institution, gave us nearly perfect scores in their assessment of supplies, except for one category: price," he says. "They said the price can be a bit better. We got eight out of 10. That's pretty good I think."

Still, Mr Lee believes that the sustainable way of doing business has to come mainstream and broken-well by companies like his. "This is no fluff in the gas. This way of doing business is here to stay."

Green Today for a Better Tomorrow

We are conscious and proud of our unique role in co-creating a sustainable planet. Green label certified products using 100% recycled plastics is just one of the ways we reduce our carbon footprint.

Green Certifications

Elmich's products are awarded with Green accreditation from Singapore Environment Council or Singapore Green Building Council, as well as Australia's Ecospecifier accreditation.

ISO 9001 Certification

Elmich assures its clients of high quality products and services.


SINGAPORE SUSTAINABILITY AWARDS 2015

A yardstick for sustainable business


business

New benchmark label to promote green business

Business Continuity Management

Elmich has been certified Business Continuity Management (BCM) ready according to ISO 22301 standard since November 2011. This means business as usual for our customers even in the event of a crisis.

Member of Green Building Councils

Elmich affirms its commitment towards green and sustainable building efforts through its membership in both the US and Singapore green building councils.

elmich.com

ELMICH

Elmich: Singapore Brand. International Network.

We are a leader in ecologically-minded urban landscaping, waterproofing and stormwater management solutions. Through a network that spans 30 countries in 6 continents, Elmich is committed to delivering innovative and sustainable building solutions to developers, architects and builders worldwide.

Since our founding, Elmich has always understood that every project and customer is different. To achieve this, we have established a dedicated research team focused on the design and testing of highly-customised solutions for the built environment. We have accumulated numerous registered designs and patents for proprietary Elmich products through the years – a testament to our expertise and technical know-how. In spite of this, Elmich quality assurance processes are still continuously reviewed and refined for our customers, partners and the communities that we serve.

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