ROOFING HANDBOOK Sarnafil® AT

INFORMATION FOR THE PLANNING AND INSTALLATION OF
Sarnafil® AT ROOF WATERPROOFING MEMBRANES

Sarnafil® AT

BUILDING TRUST

Sika®

WORLDWIDE CONSTRUCTION AND INDUSTRY SOLUTIONS

Sika's history began in 1910 with the electrification of the Gotthard railway tunnels. The Swiss company founded by Kaspar Winkler played a decisive role in this momentous project. A revolutionary new waterproofing mortar was developed, marking the beginning of Sika's global reputation for high quality.

Today the Sika Group is a leading global manufacturer of construction chemical products and systems as well as industrial sealants and adhesives. The Group's core competencies – sealing, bonding, damping, reinforcing and protecting load-bearing structures – have been enabling a wide range of applications in the construction sector and in industrial production for over 100 years. The high-quality product range includes concrete admixtures, special mortars, sealants and adhesives, damping and reinforcing materials, floor coating systems, sealing membranes and corrosion protection products.

Sika annually produces a volume of roofing membrane that could cover the entire area of Manhattan.
More than 10,000 roofing contractors in over 85 countries are Sika-trained and certified, which ensures qualified installation.

All our customers – developers, building owners, architects, engineers, consultants and contractors – receive expert advice from our highly competent team. Building on a foundation of trust, we offer our experience and knowledge to provide recommendations and long-lasting solutions for any project you may have.

Roofing can be selected and designed to meet the specific technical requirements and budget of almost any roofing project. Our tailored solutions allow freedom of design and form, with no limitations on geometry or color, to meet the specific requirements of any type of roof.

STRATEGIC SUCCESS THROUGH GLOBAL PRESENCE

- With subsidiaries in over 100 countries, Sika offers local presence worldwide
- Sika operates over 300 production sites and sales locations
- Sika employs approx. 25'000 people worldwide
- The Sika umbrella brand covers some 980 Sika product trademarks

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Sarnafil® – THE RIGHT CHOICE

Sika Roofing has been developing and producing high-quality polymeric waterproofing membranes and system solutions for new construction and renovation projects for over 60 years.

Whether building a giant shopping mall, an international airport, an efficient factory or an ecological residential building - owners, architects, engineers and contractors can profit from decades of experience and know-how gained through thousands of installations worldwide.

With highly modern and environmentally responsible manufacturing processes, innovative development, and local service in over 100 countries, Sika Roofing delivers proven solutions that meet the highest standards of quality.

Sika Roofing solutions include both standard systems and individually tailored solutions that are designed to perfectly meet customers, needs. For customers this means **added value on the roof.**

Sarnafil® AT – REACHING NEW HEIGHTS IN ROOFING MEMBRANES
In 50 years, Sarnafil® established itself as the prime brand in the roofing industry. Protecting your building, protecting your investment, protecting your company. We reached the top, but we didn't stop. We challenged ourselves to produce the next generation of roofing membranes: Sarnafil® AT. Advanced technology that pushes the boundaries of roofing membranes.

SECURITY
A flat roof provides security when it is watertight and reliably protects the building. The consequences of a leaking roof become evident only when it is too late. The security of a flat roof is the result of an optimal combination of the right planning, material selection and installation.

Sarnafil® IS THE RIGHT CHOICE FOR ROOF SECURITY
- Individual support in planning and selecting the best product system
- Over a billion installed square metres of flat roof experience

FIRE PROTECTION
Flat roofing systems that are flame sealed can easily initiate fire damage to buildings. The fire behaviour of the roofing system after installation is also important. And a further aspect to be considered is the built-in fire load.

Sarnafil® IS THE RIGHT CHOICE FOR MINIMIZING FIRE RISK
- Hot-air welded seams, no open flame during installation
- Comprehensive testing for resistance to spreading flames and radiating heat, and thus classified as "hard roofing"
- Reduced fire load as a single-layer roof waterproofing system

SUSTAINABILITY
Sustainable construction is now an established must. More and more private builders and public owners are requesting products and systems with proven environmental performance.

Sarnafil® IS THE RIGHT CHOICE FOR SUSTAINABLE PERFORMANCE
- The option of sustainable construction certification through EPD / LEED
- No hazardous materials

Sarnafil® – MORE THAN JUST A ROOF WATERPROOFING MEMBRANE

REFURBISHMENT
Damage repair is a necessity also for flat roofs. When it comes to preserving the value and substance of a building, replacement of an older roof often makes more sense in practical and economical terms than attending to constant repairs year after year.

Sarnafil® IS THE RIGHT CHOICE FOR REFURBISHMENT PROJECTS
- Qualified advice from experienced engineers and technicians
- Comprehensive root-cause analysis of problems
- Building-specific refurbishment concepts
- The expertise of application technicians on site

ADDED VALUE
Flat roofs should not be considered "wasted space". With good building design, roof surfaces can be made useable in a cost-effective way. Treating the roof as a design element requires systems with which design concepts can be easily realized.

Sarnafil® IS THE RIGHT CHOICE FOR ADDING VALUE
- Comprehensive know-how and optimal coordination of the roofing system with any type of photovoltaic system
- Use of the roof surface as a terrace or roof garden
- Freedom in roof design – through colors, graphics, decor profiles, etc.

SERVICE
Today products are defined not only by material properties and test results but increasingly more by the services provided in connection with the product systems. Ideally, service does not end with delivery but accompanies you throughout the product lifecycle.

Sarnafil® IS THE RIGHT CHOICE WHEN IT COMES TO SERVICE
- Individual support for all players involved in the construction project
- Qualified technical consultants who assist in project-specific detailed planning
- Application technicians on site
- A strong service team in the office and in the field

PARTNERSHIP
In addition to all these aspects, one concern is paramount to us: We want to be a reliable partner you can count on at all times. From consulting to execution to support throughout the service life of your building. For optimal collaboration amongst client, planner and applicator. With this vision in mind, we live up to our promise:

Sarnafil® STANDS FOR RESPONSIBLE ROOF WATERPROOFING SOLUTIONS THAT PROVIDE LONGTERM VALUE AND PEACE OF MIND

SERVICE INFORMATION

TECHNICAL SUPPORT ALONG Sarnafil® ROOF WATERPROOFING SYSTEMS

Sarnafil® – THE CONCEPT

Sarnafil® MEANS MORE THAN HIGH-QUALITY WATERPROOFING MEMBRANE
The brand is built upon a whole philosophy – the Sarnafil® concept. This concept links the tasks of the planners and applicators with our Sarnafil® polymeric waterproofing membranes, coordinated system components, and our comprehensive and competent technical consulting for application. This begins in the planning phase and continues through implementation with intensive on-site service. The Sarnafil® concept stands for optimal teamwork amongst planners, applicators and Sika – to ensure cost-effective, long-lasting and reliable roofing.

SECURITY THROUGH THE Sarnafil® SYSTEM
- Service life expectancy of several decades
- Guarantee up to 20 years
- Comprehensive range of coordinated system accessories
- Field-tested installation systems
- Sustainable roofing systems (Cradle to Cradle Certified® and LCA available)
- Over six decades of flat roof experience

SERVICES FOR PLANNERS
- Project specific consulting by highly qualified technicians and engineers – Sika technical roofing experts
- Preparation of specifications / alternative concepts
- Calculation assistance
- Building physics calculations
- Preparation of individual refurbishment concepts
- Fastening plans for the roof
- Project monitoring and final inspection
- Support with documentation for building certifications such as EPD and LEED
- Installation monitoring

SERVICES FOR APPLICATORS
- Comprehensive advice from Sika technical roofing experts
- Individual site supervision by Sika roofing application technicians
- Complete product range from a single source
- Certified Sarnafil® installation training

SIKA TECHNICAL ROOFING EXPERTS

SUPPORT FROM SIKA TECHNICAL ROOFING EXPERTS

- Object-related consulting for architects / planners, building owners and applicators
- Preparation of refurbishment concepts
- Preparation of building physics calculations
- Clarification of normative and constructive framework conditions
- Support in detailing design
- Providing various calculation tools
- Preparation of fastening layouts for roof areas

SIKA ROOFING APPLICATION TECHNICIANS

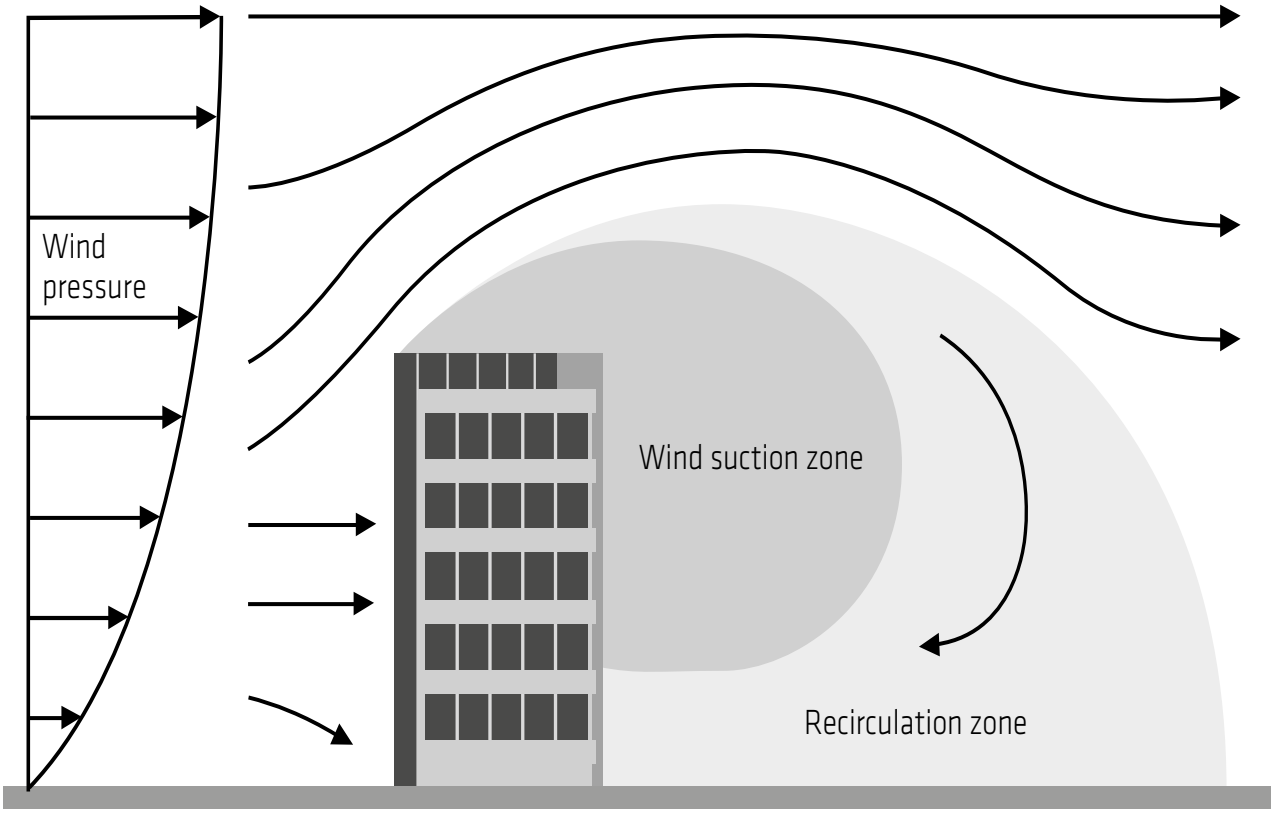
TRAINING COURSE OUTLINE
Our training courses teach the latest Sika Roofing technology. Thorough and continuing training of applicators is the best way to ensure first-class workmanship. Contact your sales organisation for information about our training courses.

Training course outline:
- Welding machines
- Welding procedures; welding seams
- Testing welded seams
- Perimeter securement

Detailing of:
- Inside and outside corners
- Vent pipe flashings
- Skylights

WIND LOAD CALCULATIONS

Wind creates heavy uplift forces which can damage roofs. Wind loads at corners and perimeter can be two or three times higher than those in the inner area of flat roofs. When calculating uplift loads, characteristics of the building such as size, height, form, and type of construction must be considered, as prescribed by local standards.



Sika offers a commercial, web-based software – RoofCalculator™ which is a versatile tool, used by the local Sika sales organizations to calculate mechanical fastened, adhered or ballasted roofing systems.
The basis for performing roofing calculations is the normative standard EN 1991-1-4 – wind actions on building structures including country specific national annexes and Factory Mutual meeting FM datasheet 1-28 requirements.
The customer receives a roof plan for optimized and efficient installation of the membranes and fasteners. The attached bill of quantities defines the numbers and types of fasteners to be used and the required quantity of membrane for the specific project.

THE MAIN FACTORS THAT INFLUENCE WIND LOADS ARE

The building location (topography and surrounding environment)

- Building height
- Building shape and geometry
- Air permeability of the building shell (internal building pressure)
- Openings in the building (number and size)
- Design of the roof area (substructures and penetrations)

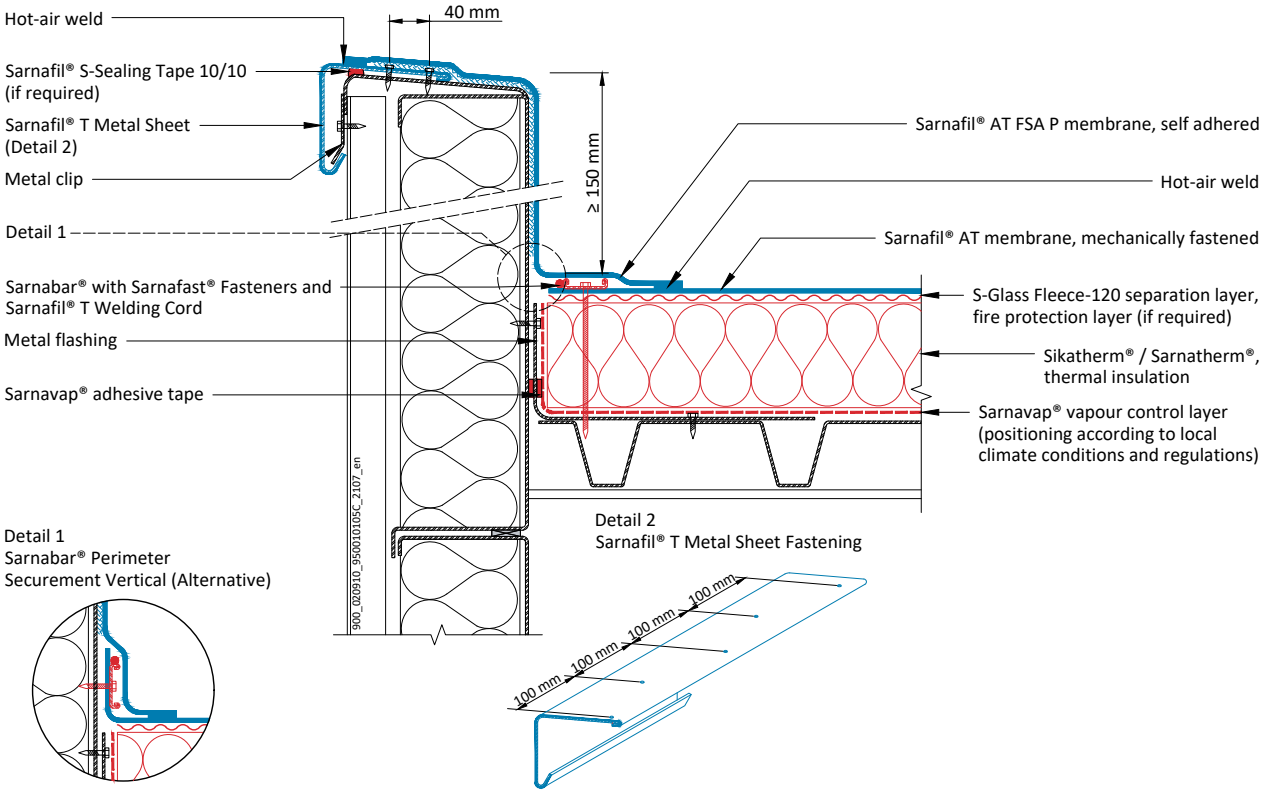

Sarnafil®
Sarnafil®
PE-LD
EPAL

COMPUTER AIDED DESIGN (CAD) DETAIL DRAWINGS AND PACKAGES

Demanding specification selling requires customized and project specific detail drawings. Responsible Sika market organization is able to provide CAD detail drawings and packages for Sika Roofing.

The roof waterproofing layer of a specific Roofing System is blue indicated whilst all other products which can be offered by Sika are red indicated in the detail.

On each detail drawing, Membrane Technology, Roofing System, Type of Detail and Variant are mentioned. Beside that an individual numbering of the detail is also provided to make every detail unique!



SARNAFIL® AT TPO - MECHANICALLY FASTENED ROOF SYSTEM ON METAL DECK WITH THERMAL INSULATION

SF AT TPO - 001.01.05 - Parapet - Sarnafil® T Metal Sheet - Self Adhered on Metal Parapet Element

Sika General Detail. Template for translation.

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January 2020

ROOF DRAINAGE

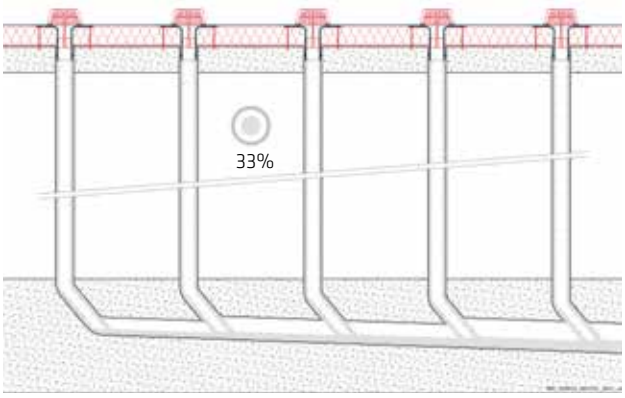
DRAINAGE OF FLAT ROOFS

The drainage of flat roofs is essential to drain off rain water and to protect the roof against moisture damage and warping. Sika products are available for flat roofs of solid or lightweight construction. These days, the most common roof structure is the single-ply, non-ventilated flat roof (warm roof). This can also be converted to an inverted roof. Unlike a conventional non-ventilated flat roof, in a inverted roof construction the waterproofing is located beneath the thermal insulation. Technical details of the drainage solutions will always need to be tailored to the particular features of the building. Generally speaking, when dealing with flat roofs, a distinction is made between non-utilised surfaces, i.e foot traffic only occurs for the purpose of maintenance, and utilised flat roofs, which can withstand the weight and impact of pedestrian and / or vehicle traffic.

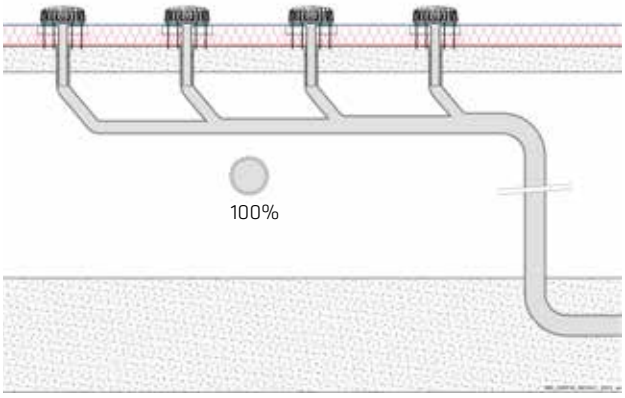
DESIGN CONSIDERATION

In the case of flat roofs, drainage is carried out at roof low points; each low point of a roof surface is drained via a roof drain and an overflow drain. Drainpipes must be thermally insulated if the rooms below are heated as they represent thermal bridges in the roof structure. Heated drains prevent icing in freezing temperatures, particularly if the rooms below are not heated.

Roof drains must be positioned so that their flange outer edge is at least 30 cm away from the outer edges of other installations on the roof, joints or other ducts penetrating the roof membrane. Roof drains are delivered with connecting flanges that are welded to the roof waterproofing membranes.



Gravity drainage system with partially (33%) filled rain water pipes.



Siphonic drainage system with fully (100%) filled rain water pipes.

GRAVITY DRAINAGE

With gravity drainage, the water is drained over several downpipes into a drainage pipe laid in the slope where it is drained away from the roof. Drainage of the rainwater occurs according to the physical law of gravity. The drainage rate is primarily influenced by the slope of the outlet pipe and the structure of the roof drain. The pipe system for gravity drainage should always be partially filled with water.

SIPHONIC DRAINAGE

In the case of siphonic drainage, the outlet flows of the individual drains are transported to a common downpipe via connecting pipes underneath the roof structure. Drainage of the rainwater creates a negative pressure in the collecting main, which ensures the quick and effective drainage of the roof area at a high flow rate. Because the pressure pipe system is operated fully-filled acc. to the physical law of negative pressure, the pipes running underneath the roof can be laid without a slope, enabling spaces to be used more effectively.

OVERFLOW DRAINAGE

The controlled functionality of the rain drainage system, both in the partial load range and in the event of an overload, e.g. in the case of once-in-a-century rainfall levels, must be ensured at all times. For such events, the standard stipulates the need for an overflow drainage system in the form of an overflow drain. Furthermore, the overflow drainage system must be connected to a dedicated outflow from which the water can drain freely onto floodable land - it must not be connected to the normal drainage system.

GUARANTEES

Performance over time is the ultimate demonstration of the quality of a roofing system. We have been successfully developing, producing and installing Sika Roofing Systems for over 50 years. An investment in a Sika Roofing System is an investment in a proven technology and performance – proven by thousands of watertight roofs around the world.

GUARANTEE TYPE

Sika roofing membranes are produced using controlled high-quality raw materials. The membranes are subject to many stages and forms of quality control during and after manufacturing. Sika thus offers a guarantee for Sarnafil® product line. This guarantee covers:

- Watertightness of Sarnafil® membrane and its accessories
- Products delivered by Sika are compatible with these membranes and fulfill their respective functions within the roof build-up

Guarantee will be issued individually for each project by the local Sika Organization, in conformance with local laws. The guarantee can be issued as requested either to the applicator or the owner.

BUILDING TRUST

ROOFING SYSTEM GUARANTEE
15 YEARS
APPLICATOR – [Name of Company]

Guarantee No.:	
Building with address:	
Size of roof area: Size in m²:	
Guarantee Period:	**15 years from the date of issuance**
Applicator:	
Sika [Name of Company]:	
Date / Place:	
Delivered membranes:	
Other Sika Products delivered[1]:	
Delivery Date:	

1. Sika [Name of Company] ("Sika") warrants to the Applicator that the membranes listed above and supplied by it fulfill their waterproofing function. All other Sika Products delivered by Sika are compatible with the membranes and fulfill their respective function within the roof build-up.

2. Should the Applicator during the Guarantee Period give written notice of any defect for which Sika is responsible pursuant to clause 1 of this Guarantee, Sika shall rectify such defect at its own expense as well as any property damage resulting from water ingress, to the extent caused by such defect. The scope and extent of the remedial work is in the sole discretion of Sika and such remedial work is the sole remedy of the Applicator under this Guarantee.

[1] Membranes and other Sika Products jointly referred to as "Sika Products"

PRODUCT INFORMATION

Sarnafil® AT ROOF WATERPROOFING MEMBRANES AND CORRESPONDING Sarnafil® T / AT ACCESSORIES

PRODUCT OVERVIEW

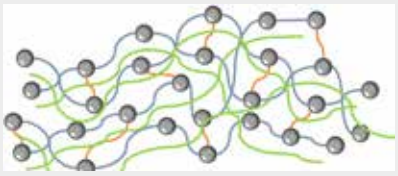
UNIQUE HYBRID TECHNOLOGY FOR A SMARTER ROOFING EXPERIENCE

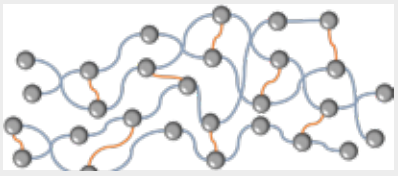
Sarnafil ®AT FOR THE NEXT GENERATION
With this patented hybrid technology, you will discover a versatile membrane that is easy-to-apply and long-lasting for sustainably designed roofs. The new hybrid technology available as Sarnafil ®AT is a great step forwards and the evolution of a new generation of roof membrane solutions. Smart, because it combines advantages from all existing membrane technologies, with good durability and the freedom of design, to flexibly adapt to different project demands. Easy to use and apply, allowing easy detailing and fast installation, with an overall time saving on site.

Sarnafil® AT-TECHNOLOGY
Sarnafil® AT is an elastomer modified FPO Membrane for roofing applications. The technology combines the advantages of FPO and elastomer membranes (as a hybrid). That means the Sarnafil® AT has excellent and easy weldability, safe and easy application (no solvents required), high hail resistance and good application behaviour at low temperatures.
Sarnafil® AT contains FPO thermoplastic and elastomer.

THERMOPLASTIC
Thermoplastics consist of threadlike, unlinked molecular chains. Thermoplastics can easily be deformed in a certain temperature range. This process is reversible, i.e. it can be repeated as often as desired by cooling and reheating to the molten state. With rising temperature, the molecular chains become increasingly mobile during the melting process. They may also disentangle themselves and slip apart. This molecular mobility makes it possible to weld the membrane.

ELASTOMER
Elastomers are plastics whose special property is their high rubber-like elasticity, even at low temperatures. Elastomers are therefore dimensionally stable, but as they are elastic will return to their original shape after deformation. The molecular chains of elastomers are described as beeing wide meshed.



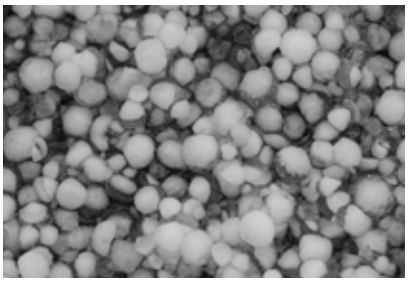


BENEFITS FOR THE ARCHITECTS AND SPECIFIERS

SUSTAINABLE

No oils, plasticizers or precarious heavy metals, ideal for sustainable buildings.

HAIL RESISTANCE



High resistance to impact to ensure longer service life of buildings.

LONG TERM PERFORMANCE

QUV testing for a durable roof over decades.

BENEFITS FOR THE APPLICATORS

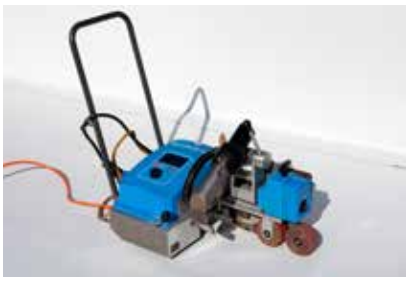
HIGHLY FLEXIBLE

Highly flexible like EPDM, even at low temperature which allows the faster roll-out of membranes on construction site.

EASY TO APPLY / FASTER

Easy and fast application and detailing work. Possibility for self adhesive tapes for detailing and upstands.

HOT AIR WELDABLE



Easy and reliable welding works like PVC with a wider range of welding temperature window.

COMPATIBLE

Variety of accessories available, as it is compatible with existing Sarnafil® FPO-Systems.

IMPACT / PUNCTURE RESISTANCE

High resistance to impact to avoid unnecessary punctures during constructions.

SEAM PERFORMANCE

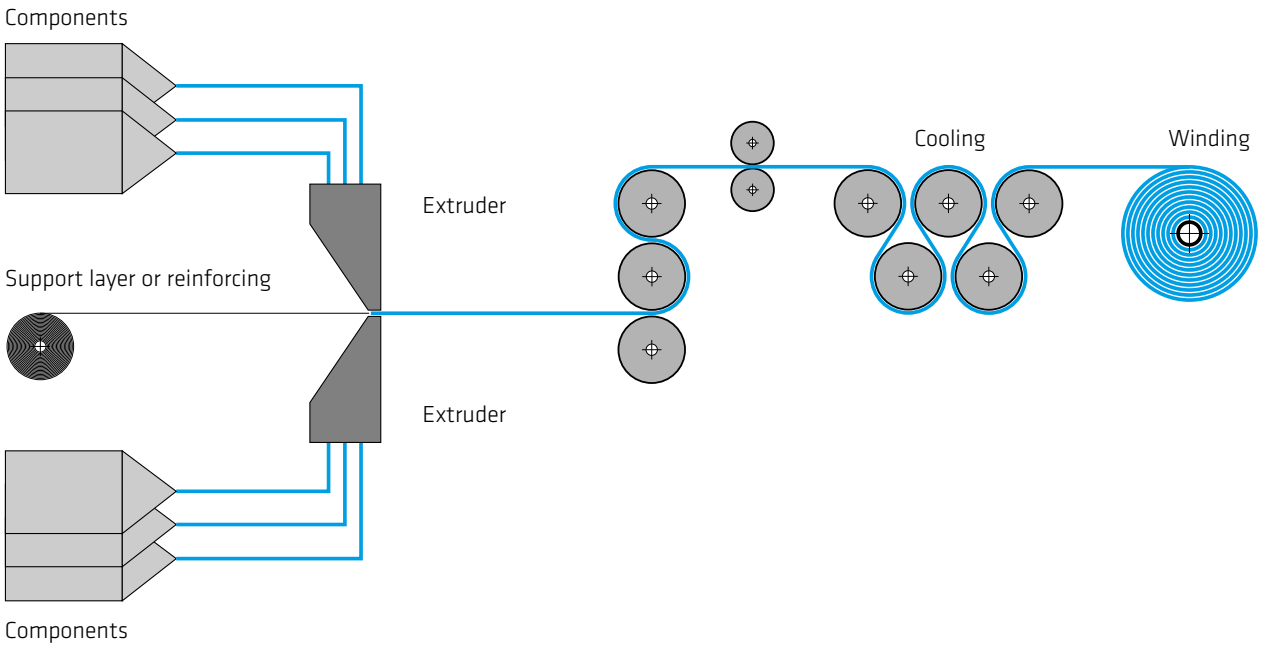
Collapsing value at more than 3 × than EPDM to achieve long lasting waterproof seams.

MATERIAL AND MANUFACTURING

PRODUCTION PROCESS

Sarnafil® AT roofing membrane is produced from a new combination of high-quality, flexible polyolefins (FPO). Using a well-proven extrusion production process, the carrier reinforcement is coated and the membrane is created.

The result is a tension-free roof waterproofing membrane that like all of the Sarnafil® membranes, is manufactured with great care in specially developed production facilities. In the extruders, the membrane components are melted, dispersed and applied in uniform layers over the carrier reinforcement. The fabric is thus homogeneously embedded centrally in the material and on what is to be the upper side, this is specially pigmented to be reflective and reduce the surface temperature.

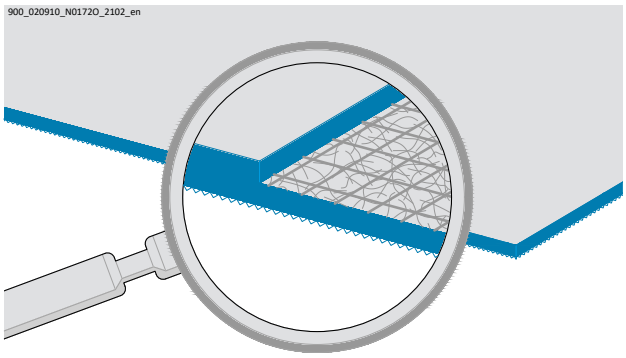


QUALITY MANAGEMENT

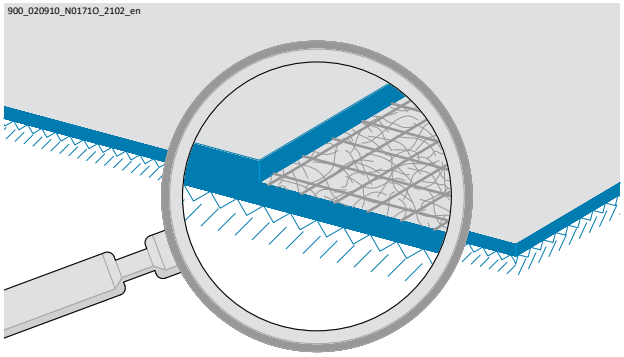
Sika roof waterproofing membranes are under permanent quality monitoring during manufacturing process. The monitoring also includes the controlling of incoming admixtures and materials during all stages of production up to the testing of produced membranes until shipped to the project site, complete recorded by ISO-9001 quality management, ISO 14001 environmental management and OHSAS 18001 occupational health and safety management system certification.
Beside the internal testing of our Sika roof waterproofing membranes, external quality control is provided by independent and governmental material test institutes.

Based on this reasons and our experience for decades, Sika provides waterproofing systems on highest technical level.

INLAYS, FLEECE- AND SELF ADHESIVE FILM BACKINGS



Sarnafil® AT
Sarnafil® AT has an embedded inlay of glass non-woven / glass scrim fabric plus a polyester reinforcement mesh and a backing. The embedded reinforcement increases resistance to wind uplift forces and the glass fleece backing optimises dimensional stability.



Sarnafil® AT FSA P
Sarnafil® AT FSA P uses the same product design and manufacturing process as Sarnafil® AT. The polyester and glass mix fleece backing provides an integrated separation layer together with a factory-applied self-adhesive film for surface adhesion.

Accessory product – no declaration under EN 13956.

AT	Advanced Technology

15 / 18 / 20 /25	Membrane thickness (in tenths of mm)
FSA P	Felt with self-adhesive film for parapets

ROOF DESIGN

DECOR PROFILES
Sarnafil® decor profiles can imitate the appearance of a sheet metal roof with a standing seam covering. The decorative profiles are particularly suitable for the renovation of old buildings where the original appearance is to be retained. In addition, architecturally attractive aspects can be set in relation to the roof design.

Sikagard® GRAPHICS
Sikagard®-950 is particularly suitable for graphic surface design of Sarnafil® waterproofing membranes. It can be used to color mark rescue and maintenance routes, to mark hospitals or to apply (company) logos, for example near airports or for satellite images on the Internet.

CHEMICAL RESISTANCE

The chemical resistance of Sarnafil® AT roof waterproofing membranes generally depends on concentration, temperature and duration of exposure.
The table below shows the resistance of Sarnafil® AT roof waterproofing membranes to a range of substances at an ambient temperature of +20 °C. If exposed to certain substances mentioned below, discoloration or other surface changes may occur, but these have no influence on the waterproofing function (even in the long term). For example bitumen, lactic acid, bird droppings etc.

Contact your sales organisation for information on resistance to other substances and types of exposure you expect in your specific project.

Type	Assessment
Asphalt	●
Bird droppings	●
Bitumen	●
Carbon black	●
Common salt	●
Detergends	●
Diesel oil	◐
Fats Animal / Vegetable	◐
Ferrous residue	●
Fuel oil	◐
Fungizide	●
Gasoline	○
Glycol	●
Hydrochloric acid 5%	◐
Insecticides	●
Kerosene	◐
Lactic acid	●
Lake water	●
Mineral oils (non-aromatic)	◐
Motor oil	◐
Natron lye 5%	●
Oils Animal / Vegetable	◐
Paraffin	◐
Paraffin oil	◐
Petroleum	◐

Type	Assessment
Plasticizers	○
Polystyrene	●
Polyurethan	●
Potash lye 5%	●
Red algae	●
Salt (without splitt)	●
Salt of	
– Aluminium	●
– Ammonium	●
– Calcium	●
– Kalium	●
– Potassium	●
– Sodium	●
Sea water	●
Silicone oil	◐
Soft soap	●
Sulphuric acid 5%	◐
Tar	◐
Turbentine oil	◐
Urea	●
Water glass	●
Wax	○
Weed killer	●
Weed killer (aqueous)	●
Wood preservative	
– Water-based	●
– Solvent-based	●[1)]

● Resistant
◐ Conditionally resistant
○ Non resistant

[1)] Paint needs to dry for at least 24 hours

PRODUCT OVERVIEW

Membrane type	Thickness	ROOF SYSTEMS					
		Mechanically fastened	Adhered	Green	Gravel ballasted	Utility	Inverted
Sarnafil® AT-15	1.50 mm	●		●	●	●	●
Sarnafil® AT-18	1.80 mm	●		●	●	●	●
Sarnafil® AT-20	2.00 mm	●		●	●	●	●
Sarnafil® AT-25	2.50 mm	●		●	●	●	●
Sarnafil® AT-18 FSA P	1.80 mm						
Sikalastic®-625 N							
Sarnafil® TG 63	various			Protection layer for ballasted roofs (not UV-resistant)			
Sarnafil® T 66-15 D	1.50 mm	Homogeneous membrane for detailing					

● Standard
○ Suitable

Products according to CE Marking EN 13956

FM	Factory Mutual – approval standard 4470
FLL	Forschungsgesellschaft Landschaftsentwicklung Landschaftsbau e.v. – resistance to root penetration, according to EN 13948
BBA	British Board of Agrément – approval inspection, testing certification
EPD	Environmental Product Declaration – as per ISO 14025 and 15804
LEED	Leadership in Energy & Environmental Design – green building rating system

		SUSTAINABILITY			PRODUCT CERTIFICATION		
Upstands	Details	EPD	LEED	Cradle to Cradle Certified®	FM	FLL	BBA
●		●	●	●		●	under evaluation
●		●	●	●		●	under evaluation
●		●	●	●		●	under evaluation
●		●	●	●		●	under evaluation
●	●						
●	●	●	●				

EXTERNAL FIRE PERORMANCE MECHANICALLY FASTENED ROOFS

Thermal insulation	Glass fleece	Membrane thickness	BROOF T1	BROOF T2	BROOF T3	BROOF T4
			Sarnafil® AT			
EPS	yes	1.50 mm	< 20°			
	yes	1.80 mm	< 20°			
	yes	2.00 mm	< 20°			
	yes	2.50 mm	< 20°			
PIR	no	1.50 mm	< 20°			< 10°
	no	1.80 mm	< 20°			< 10°
	no	2.00 mm	< 20°			< 10°
	no	2.50 mm	< 20°			< 10°
Mineralwool	no	1.50 mm	< 20°			< 10°
	no	1.80 mm	< 20°			< 10°
	no	2.00 mm	< 20°			< 10°
	no	2.50 mm	< 20°			< 10°
Wood	no	1.50 mm	< 20°			
	no	1.80 mm	< 20°			
	no	2.00 mm	< 20°			
	no	2.50 mm	< 20°			
Bitumen	no	1.50 mm	< 20°			
	no	1.80 mm	< 20°			
	no	2.00 mm	< 20°			
	no	2.50 mm	< 20°			
Concrete	no	1.50 mm	< 20°			
	no	1.80 mm	< 20°			
	no	2.00 mm	< 20°			
	no	2.50 mm	< 20°			

Glass fleece min. 120 g/m²

CRADLE TO CRADLE CERTIFIED® ROOF WATERPROOFING MEMBRANE

Cradle to Cradle Certified® is a globally recognized measure of safer, more sustainable products made for the circular economy. Product developers, manufacturers and brands around the world rely on the Cradle to Cradle Certified Product Standard as a transformative pathway for designing and making products with a positive impact on people and planet.
To receive certification, products are assessed on environmental and social performance across five critical sustainability categories:

MATERIAL HEALTH
The material health category helps to ensure products are made using chemicals that are as safe as possible for humans and the environment through a process of inventorying, assessing and optimizing material chemistries.

MATERIAL REUTILIZATION
The material reutilization category aims to eliminate the concept of waste in a product cycle from production through to use and reuse.

RENEWABLE ENERGY
The renewable energy category helps to ensure products are manufactured using renewable energy so that the impact of climate changing greenhouse gases due to the manufacturing of the product is reduced or eliminated.

WATER STEWARDSHIP
The water stewardship category helps ensure water is recognized as a valuable resource, watersheds are protected, and clean water is available to people and all other organisms.

SOCIAL FAIRNESS
The social fairness category aims to design business operations that honor all people and natural systems affected by the manufacture of a product.

A product is assigned an achievement level (Basic, Bronze, Silver, Gold, Platinum) for each category. The product's lowest category achievement also represents its overall certification level. The standard encourages continuous improvement over time by awarding certification based on ascending levels of achievement and requiring certification renewal every two years.

For more information about **Cradle to Cradle Certified®**, visit the Cradle to Cradle Products Innovation Institute's website:

SIKA ACHIEVES ITS FIRST CRADLE TO CRADLE CERTIFICATED® PRODUCT CERTIFICATION

Sarnafil® AT is a new revolutionary thermoplastic roofing membrane technology (sold under the brand name SikaRoof® AT in Switzerland). Through its innovative products, Sika is committed to design, measure and communicate sustainable value creation. Certifications such as the rigorous **Cradle to Cradle Certified®** scheme demonstrate this commitment.

Sika embarked on its first **Cradle to Cradle Certified®** project in autumn 2019 for Sarnafil® AT and was successful in achieving an overall Silver certification level. Sarnafil® AT is the first thermoplastic roofing membrane in the market to be **Cradle to Cradle Certified®**.

Becoming **Cradle to Cradle Certified®** is an important first step for Sarnafil® AT, helping Sika to identify key actions for continuous improvement which will be revisited every two years as part of the recertification process.

Sarnafil® AT & SikaRoof® AT
Sika Services AG
Version 3.1 / Renewal 23 June 2022

	BASIC	BRONZE	SILVER	GOLD	PLATINUM
MATERIAL HEALTH			●		
MATERIAL REUTILIZATION				●	
RENEWABLE ENERGY			●		
WATER STEWARDSHIP			●		
SOCIAL FAIRNESS				●	

For further information, please visit the Sarnafil® AT page on the Cradle to Cradle Products Innovation Institute's website: https://www.c2ccertified.org/products/scorecard/sarnafil-at-sika-services-ag.

PRODUCT PROPERTIES

Sarnafil® AT

DESCRIPTION

Sarnafil® AT is a multi-layer synthetic membrane based on flexible polyolefines (FPO) with an internal fabric and backing according to EN 13956. Sarnafil® AT is a hot air weldable roof membrane formulated for direct exposure and designed for use in all global climatic conditions.

USES

Sarnafil® AT may only be used by experienced professionals.
Waterproofing membrane for:

- Loose laid ballasted roofs with different ballast materials (e.g. gravel, concrete slabs)
- Green roofs (intensive, extensive)
- Utility roofs
- Inverted roofs
- Terraces with pedestrian traffic

CHARACTERISCTICS / ADVANTAGES

- Resistant to UV exposure
- Resistant to permanent wind exposure
- Resistant to all common environmental influences
- Hot air weldable
- No open flame equipment required
- High dimensional stability from glass fleece inlay
- Resistant against impact load and hail
- Resistant to mechanical influences
- Resistant to root penetration
- Compatible with old bitumen

APPEARANCE / COLOR

Surface:

- Matt

Top surface:

- Beige
- Window grey (RAL 7040)
- Traffic white (RAL 9016)

Bottom surface:

- Dark grey

SYSTEM STRUCTURE

The following products must be considered for use depending on roof design:

- Sarnafil® AT-18 FSA P self adhered membrane for upstands
- Sarnafil® T 66-15 D sheet for detailing
- Sarnafil® T Metal Sheet
- Sarnabar® / Sarnafast®
- Sarnafil® T Welding Cord
- Sarnafil® T Clean
- SikaRoof® Tape P

Wide range of accessories is available e.g. prefabricated parts, roof drains, scuppers, walkway pads and decor profiles.

Sarnafil® AT-18 FSA P

DESCRIPTION

Sarnafil® AT-18 FSA P is a reinforced multi-layer, self-adhesive, synthetic roof waterproofing sheet based on flexible polyolefins (FPO). Sarnafil® AT-18 FSA P is a hot air weldable, UV-resistant roof detailing membrane for upstands.

USES

Sarnafil® AT-18 FSA P may only be used by experienced professionals.
Self-adhered membrane for the exposed application on roofing upstands:

- Hot air welded to the installed Sarnafil® AT roof waterproofing membranes

CHARACTERISCTICS / ADVANTAGES

- Fast installation of membrane
- Resistant to permanent UV exposure
- Resistant to most common environmental influences
- High dimensional stability due to glass fleece inlay
- Resistant against impact load and hail
- Resistant to micro organisms
- Resistant to old bitumen
- Hot air welding without use of open flame

■ APPEARANCE / COLOR

Surface:

- Matt

Top surface:

- Beige
- Window grey (RAL 7040)
- Traffic white (RAL 9016)

Bottom surface:

- Dark grey

SYSTEM STRUCTURE

The following products must be considered for use depending on roof design:

- Sarnafil® T Metal Sheet
- Sarnabar® / Sarnafast®
- Sarnafil® T Welding Cord
- Sarnafil® T Prep / Sarnafil® T Wet Task Set
- Sarnafil® T Clean

Accessory product – no declaration under EN 13956.

Sikalastic®-625 N

DESCRIPTION

Sikalastic®-625 N is a 1-part polyurethane, reinforced, cold-applied liquid membrane. It provides a flexible, seamless waterproofing solution using Sika's unique i-Cure technology.

USES

Designed for the following waterproofing applications:
Roof waterproofing for new construction and refurbishment projects

- Unreinforced waterproofing system for profiled metal roofs
- Reinforced waterproofing of flat and pitched roof structures, communal walkways, podium decks and roof terraces exposed to pedestrian traffic
- Waterproofing structures with numerous details such as penetrations, drains, roof lights and complex geometry
- Waterproofing existing substrates of concrete, bituminous felt and coatings, brick, stone, asbestos cement, metal, wood, unglazed ceramic tiles
- For exterior use only
- Sikalastic®-625 N may only be used by experienced professionals

CHARACTERISTICS / ADVANTAGES

- 1-Part ready to use
- Low maintenance
- Seamless
- Easy and quick application by brush, roller or spray
- Suitable for trafficable areas
- Vapour permeable
- Good UV resistance and colour stability
- Retains flexibility at low temperatures
- Cold applied – requires no heat or flame
- Moisture triggered technology develops early rain resistance
- Good elastic properties
- Low temperature application > +2 °C

COLOR

Note: Applied colors selected from color charts will be approximate, for color matching; apply color sample and confirm selected color under real lighting conditions.

- Light grey (RAL 7035)
- White (RAL 9016)
- Slate grey (RAL 7015)

Accessory product – no declaration under EN 13956.

DETAILING MEMBRANE

Sarnafil® T 66-15 D

DESCRIPTION

Sarnafil® T 66-15 D is an unreinforced multi-layer, synthetic roof waterproofing sheet based on flexible polyolefins (FPO). Sarnafil® T 66-15 D is a hot air weldable, UV-resistant roof detailing membrane.

USES

Detailing sheet for Sarnafil® AT roof waterproofing membranes:

- Welded to the installed Sarnafil® AT roof waterproofing membranes

CHARACTERISTICS / ADVANTAGES

- Resistant to permanent UV exposure
- Resistant to most common environmental influences
- Resistant to micro organisms
- Resistant to old bitumen
- Hot air welding without use of open flame
- Can be applied on either side as both surfaces have a different color

APPEARANCE / COLOR

Surface:

- Matt

Top surface:

- Beige
- Window grey (RAL 7040)

Bottom surface:

- Beige
- Window grey (RAL 7040)
- Other colors on request

TECHNICAL INFORMATION

Length:	20.00 m
Width:	0.50 m
Thickness:	1.50 mm

METAL SHEET / COIL

Sarnafil® T Metal Sheet / Coil

DESCRIPTION

Sarnafil® T Metal Sheet / Coil is a galvanised steel sheet or coil, laminated with Sarnafil® T flexible polyolefin (FPO) roof waterproofing membrane.

USES

Production of profiles for perimeter fastenings and junctions:

- Sarnafil® AT (FPO) roof waterproofing membrane systems

CHARACTERISTICS / ADVANTAGES

- Resistant to UV exposure
- Can be cut and shaped either on site or in metal workshop
- Sarnafil® T lamination is hot air weldable

APPEARANCE / COLOR

Surface:

- Smooth

Top surface:

- Beige
- Window grey (RAL 7040)
- Other colors on request

Bottom surface:

- Metal: cut (Epoxy-protection coated)

TECHNICAL INFORMATION

Sarnafil® T Metal Sheet
Length: 2.00 m / 3.00 m
Width: 1.00 m / 1.00 m

Sarnafil® T Metal Coil
Length: 30.00 m
Width: 1.00 m

Thickness

Sarnafil® T lamination:	1.10 mm
Galvanised metal:	0.60 mm
Total thickness:	1.70 mm

WELDING PREPARATION / CLEARNERS

Sarnafil® T Prep

DESCRIPTION
Mixture of organic solvents.

USES
Sarnafil® T Prep is used to prepare seams of Sarnafil® AT in order to ensure optimum seam quality.
Sarnafil® T Prep is also suitable as general purpose cleaner to remove light dirt or bitumen residue from Sarnafil® AT.

CHARACTERISTICS / ADVANTAGES
- Ensures optimum seam quality
- Dissolves surface dirt
- Evaporates quickly
- Highly flammable

Sarnafil® Wet Task-Set

DESCRIPTION
The Wet Task-Set includes a dispenser bucket and a roll of 280 solvent-resistant white cloth.

USES
The set is filled with 5 litres of Sarnafil® T Prep and the lid firmly closed. The cloth removed through the dispenser opening are soaked with Sarnafil® T Prep for economical seam preparation. A volume fleece roll (refill towels) is offered for the reusable dispenser bucket.

CHARACTERISTICS / ADVANTAGES
- Economical method of seam preparation, as clean, impregnated cloths are always available
- Refillable
- No discoloration of the towels
- Lint-free
- Significantly lower cleaner consumption

Sarnafil® Seam Preparation Cloths

DESCRIPTION
The Sarnafil® Seam Preparation Cloths consist of 150 white, solvent-resistant fleece cloths (6 × 25 cloths).

USES
The Sarnafil® seam preparation cloths are an aid for seam pretreatment and possible cleaning. The cloths must be changed during cleaning. Fresh cloths should be used for seam pretreatment. Wipes soaked with Sarnafil® T Clean must not be used for seam pre-treatment with Sarnafil® T Prep.

CHARACTERISTICS / ADVANTAGES
- No discoloration of the towels
- Lint-free
- Significantly lower cleaner consumption

Sarnafil® T Clean

DESCRIPTION
Mixture of organic solvents.

USES
Sarnafil® T Clean is a cleaner to remove heavy soiling and adhesive residues from Sarnafil® AT membranes.
Sarnafil® T Clean is also suitabe for cleaning tools and degreasing metal sheets.

CHARACTERISTICS / ADVANTAGES
- Dissolves surface dirt
- Evaporates quickly
- Suitable for heavily stained seam overlaps of Sarnafil® AT membranes
- Highly flammable

SOLVENT FREE CLEANERS

SikaRoof® Clean Set Detail

DESCRIPTION
SikaRoof® Clean Set Detail consists of various cleaning items.

USES
To clean small areas of polymeric membrane surfaces.

CHARACTERISTICS / ADVANTAGES
- Fast and easy to use
- Water-based cleaning liquid
- Economical usage

SikaRoof® Clean Pad Detail

DESCRIPTION
SikaRoof® Clean Pad Detail is a pad to clean polymeric roofing membranes.

USES
To clean polymeric membrane surfaces in combination with the SikaRoof® Clean Set Detail.

CHARACTERISTICS / ADVANTAGES
- Fast and easy to use

SikaRoof® Clean Agent

DESCRIPTION
The SikaRoof® Clean Agent is a mild alkaline cleaning agent for roof waterproofing membranes.

USES
To clean polymeric membrane surfaces in combination with the SikaRoof® Clean Set Detail and Area.

CHARACTERISTICS / ADVANTAGES
- Water-based
- Economical usage

SikaRoof® Clean Set Area

DESCRIPTION
The SikaRoof® Clean Set Area consists of various cleaning items.

USES
To clean polymeric membrane surfaces.

CHARACTERISTICS / ADVANTAGES
- Fast and easy to use

SikaRoof® Clean Pad Area

DESCRIPTION
The SikaRoof® Clean Pad Area is a pad to clean polymeric roofing membranes.

USES
To clean polymeric membrane surfaces in combination with the SikaRoof® Clean Set Area.

CHARACTERISTICS / ADVANTAGES
- Fast and easy to use

ADHESIVES, PRIMERS AND SEALANTS

Sarnacol®-2116

DESCRIPTION

Sarnacol®-2116 is a water based 1-part synthetic resin based adhesive.

USES

Binder for binding gravel on horizontally applied Sarnafil® AT membranes (not for bonding).

SikaRoof® Tape P

DESCRIPTION

SikaRoof® Tape P is a polyacrylate double-sided adhesive tape used with Sarnafil® T / AT roof membranes. SikaRoof® Tape P may only be used by experienced professionals.

USES

Bonds Sarnafil® T / AT roofing membranes to a range of upstand substrates.

CHARACTERISTICS / ADVANTAGES

- High tack and long-term adhesion
- Finger-lift release liner
- Contains no halogen or heavy-metal compounds
- Easily applied

TECHNICAL INFORMATION

Length:	25.00 m
Width:	115.00 mm
Thickness:	Overall 0.50 mm

SikaRoof® Board Adhesive

DESCRIPTION

SikaRoof® Board Adhesive is a polyurethane 1- part, fast curing, gun grade, foam adhesive that bonds insulation boards to various types of construction material substrates.

USES

Insulation board types:

- Extruded polystyrene boards (XPS)
- Expanded polystyrene boards (EPS)
- PUR / PIR boards
- Mineral fibre boards with sufficient compressive strength and appropriate type of bonding surface

CHARACTERISTICS / ADVANTAGES

- Easy, efficient and clean application with spray application gun
- One container covers an area of up to ~13 m^2
- Fast moisture curing for quick bonding
- Fire Behaviour B1 class (DIN 4102-1)
- Good adhesive tensile strength
- Adheres to solid, clean, dry or slightly moist surfaces
- HFC-free

Sika® Primer-3 N

DESCRIPTION

Sika® Primer-3 N is a solvent-based, 1-component primer.

USES

Sika® Primer-3 N is designed for Sikaflex®, SikaHyflex®, SikaBond® and Sikasil® products used on porous substrates (e.g. concrete) and metals.

CHARACTERISTICS / ADVANTAGES

- Easy to apply
- Water repellent
- Short flash-off time

Primer-780

DESCRIPTION

Water based dispersion primer.

USES

Primer-780 is a ready to use product, used for applying self-adhered Membrane:

- Sarnafil® AT FSA P onto various substrates

CHARACTERISTICS / ADVANTAGES

- Solvent free
- Fast drying
- High adhesion to different structural decks and substrates
- Application at 5 °C

ADHESIVES, PRIMERS AND SEALANTS

Primer T-501

DESCRIPTION

Primer T-501 is a 1-part, ready to use, solvent-based, polymeric primer for improving the adhesion properties of absorbent substrates.

USES

Primer T-501 may only be used by experienced professionals.
Primer:

- Application of Sarnaplast®-2235 onto absorbent substrates / metals / Sarnafil® AT
- Application of Sikagard®-950 on Sarnafil® AT

CHARACTERISTICS / ADVANTAGES

- 1-part ready to use
- Easily applied by brush
- High adhesion to different structural decks and substrates

S-Sealing Tape 10/10

DESCRIPTION

S-Sealing Tape 10/10 is a polyurethane, single-sided adhesion soft foam sealing tape with acrylate dispersion impregnation.

USES

Placed between laminated metal sheet flashings and the substrate to prevent the penetration of wind driven water.

CHARACTERISTICS / ADVANTAGES

- Easily applied strip with integral adhesive and release liner
- Finger-lift release liner

APPEARANCE / COLOR

Color:

- Grey
- Black

TECHNICAL INFORMATION

Length: 25.00 m
Width: 10 mm
Thickness: 10 mm

Sarnaplast®-2235

DESCRIPTION

Sarnaplast®-2235 is a 1-part transparent elastomeric silicone sealant for sealing connection details on Sarnafil® flat roof systems.

USES

Sarnaplast®-2235 may only be used by experienced professionals.
A Sealant to seal:
- Flashing joints
- Expansion joints
- Perimeter flashings

CHARACTERISTICS / ADVANTAGES

- Resistant to UV exposure
- Application onto rough and smooth substrates
- Bonds to most construction materials
- Applied using standard sealant gun

Sikaflex®-11 FC+

DESCRIPTION

Sikaflex®-11 FC+ is a 1-part, multipurpose elastic adhesive and joint sealant with very good application properties which bonds and seals most construction material substrates. Internal and external use.

USES

An adhesive to bond construction components and materials such as:
- Concrete
- Masonry
- Reconstituted or cast stone
- Ceramic
- Wood
- Metal
- Glass
- A sealant to seal vertical and horizontal joints

CHARACTERISTICS / ADVANTAGES

- Movement capability of ±35 %
- Bonds well to defined substrates without surface pre-treatment
- Good mechanical and weathering resistance
- Very low emissions
- Adhesive-sealant with CE marking

RELEASED / APPROVED APPLICATIONS FOR SEALANTS

		Sikaflex®-11 FC+	Sarnaplast®-2235
Application		**Various**	**Various**
Membranes and Metal Sheets	Sarnafil® AT	Sikalastic® Primer FPO	Primer T-501
	Sarnafil® T Metal Sheet (Bottom surface)	None	Sarnafil® T Clean
Substrates	Concrete, natural stone	Sika® Primer-3 N	Primer T-501
	Fibre cement	Sika® Primer-3 N	Primer T-501
	Copper	Not tested	Not tested
	Aluminium uncoated	Abrasive treatment + Sika® Activator-205	Primer T-501
	Alumium anodised	Sika® Activator-205	Primer T-501
	Titanium zinc	Sika® Activator-205	Primer T-501
	Steel	Sika® Activator-205	Primer T-501
	EPDM	Not compatible	Not compatible

ADHESIVES, PRIMERS AND SEALANTS

RELEASED / APPROVED APPLICATIONS FOR ADHESIVE TAPES

Substrates	Sarnatape®-60	SikaRoof® Tape P
	Acryl	
Metals		
Zinc	●	●
Titanium zinc	●	●
V2A	●	●
Copper	●	●
FPO		
Sarnafil® AT	●	●
Sarnafil® T Metal Sheet	●	●
Other substrates		
Wood decks (OSB)	◐ installation aid	●
Wood deck (OSB) + Primer	◐ with Primer-130	◐ with Primer 600 / 780
Concrete	◐ installation aid	○
Concrete + Primer	◐ with Primer-130	◐ with Primer 600 / 780
Brick	●	●
Vapour- Control Layers / Barriers		
Sarnavap®-1000 E	●	○
Sarnavap®-2000 E	◐ installation aid	○
Sarnavap®-3000 M	●	○
S-Vap-4000 E SA FR	●	○
Sarnavap®-5000 E SA	●	○
Sarnavap®-5000 E SA FR	●	○
Bituminous vapour control layers	○	○

● Approved
◐ Conditionally approved – see remark
○ Not approved / not applicable

RELEASED / APPROVED APPLICATIONS FOR SEALING TAPES

Substrates	Sarnavap® Tape F	Sarnatape®-20	S-Sealing Tape 10/10
	Butyl		Acryl
Metals			
Zinc	○	● tightness	●
Titanium zinc	○	● tightness	●
V2A	○	● tightness	●
Copper	○	● tightness	●
FPO			
Sarnafil® AT	○	● tightness	○
Sarnafil® T Metal Sheet	○	● tightness	● backside metal sheet
Other substrates			
Wood decks (OSB)	○	● tightness	●
Wood deck (OSB) + Primer-130	○	● tightness	●
Concrete	○	● tightness	●
Concrete + Primer-130	○	● tightness	●
Vapour- Control Layers / Barriers			
Sarnavap®-1000 E	● taping overlaps	● taping overlaps	○
Sarnavap®-2000 E	● taping overlaps	● taping overlaps	○
Sarnavap®-3000 M	● taping overlaps	● taping overlaps	○
S-Vap-4000 E SA FR	○	○	○
Sarnavap®-5000 E SA	○	○	○
Sarnavap®-5000 E SA FR	○	○	○
Bituminous vapour control layers	○	○	○

● Approved
○ Not approved / not applicable

PREFABRICATED PRODUCTS

Sarnafil® T Preformed Components CI / WA

DESCRIPTION
The Sarnafil® T Preformed Components corner are made of homogeneous flexible polyolefins by injection moulding.

USES
The Sarnafil® T Preformed Components parts (inner and outer corners) are used:
- In the connection area of the Sarnafil® AT flat roof systems

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Ease and safe application
- Hot air weldable

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Beige
- Window grey (RAL 7040)
- Other colors on request

Sarnafil® T Corner 90° I / A

DESCRIPTION
Sarnafil® T Corner 90° I / A is based on flexible polyolefins (FPO) manufactured by injection moulding.

USES
Sarnafil® T Corner 90° I / A may only be used by experienced professionals.
- Prefabricated corners for Sarnafil® AT flat roof systems

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Ease and safe application
- Hot air weldable

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Beige
- Window grey (RAL 7040)
- Other colors on request

Sarnafil® T Pipe Flashing

DESCRIPTION
Sarnafil® T Pipe Flashing is made of synthetic roof waterproofing membrane based on premium-quality flexible polyolefins (FPO), containing stabilizers, with inlay of glass non-woven.

USES
Sarnafil® T Pipe Flashing is used as a prefabricated part for:
- Pipe / vent flashing on Sarnafil® AT flat roof systems

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Ease and safe application
- Hot air weldable

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Beige
- Window grey (RAL 7040)
- Other colors on request

Sarnafil® T Post Flashing

DESCRIPTION
Sarnafil® T Post Flashing is a prefabricated roof post flashing based on an FPO waterproofing membrane.

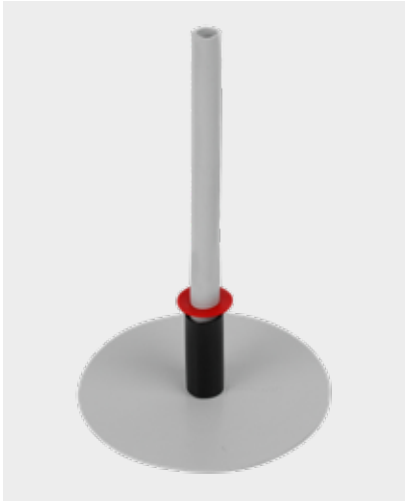
USES
Sarnafil® T Post Flashing may only be used by experienced professionals.
- Post flashing on Sarnafil® AT flat roof systems

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Ease and safe application
- Hot air weldable

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Beige
- Window grey (RAL 7040)
- Other colors on request

Sarnafil® T Lightning Conductor Flashing



DESCRIPTION
Sarnafil® T Lightning Conductor Flashing is made of premium-quality flexible polyolefin (FPO) by injection moulding procedure.

USES
Sarnafil® T Lightning Conductor Flashing is used as a prefabricated part for:
- Lightning Conductor Flashing on Sarnafil® AT flat roof systems

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Ease and safe application
- Hot air weldable
- Product is delivered incl. shrink hose

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Beige
- Window grey (RAL 7040)
- Other colors on request

TECHNICAL INFORMATION

Diameter base plate:	160 mm
Inside pipe diameter conical:	11.00 – 15.00 mm
Height:	250 mm
Thickness:	2.00 mm

PREFABRICATED PRODUCTS

Sarnafil® T Lightning Conductor Circus

DESCRIPTION
Sarnafil® T Lightning Conductor Circus is a flexible polyolefin (FPO) lightning conductor clip connecting disc formed from FPO waterproofing membrane.

USES
This product may only be used by experienced professionals:
- Connects S-Lightning Conductor Clips and S-Lightning Conductor Clips (V2A) to Sarnafil® AT roof waterproofing membranes

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Hot air weldable without the use of open flames

APPEARANCE / COLOR
Surface:
- Matt

Color:
Top surface:
- Beige

Bottom surface:
- Beige

TECHNICAL INFORMATION

Diameter:	200 mm
Centre hole diameter:	23 mm
Thickness:	1.50 mm

S-Lightning Conductor Clip

DESCRIPTION
S-Lightning Conductor Clip is a polyamide / Nylon (PA) clip for securing lightning conductor cables to Sarnafil® roof membranes.

USES
S-Lightning Conductor Clip may only be used by experienced professionals:
- S-Lightning Conductor Clip is used as lightning conductor clip on flat roofs. Suitable for conductor Ø 8 mm – 10 mm

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Suitable for Sarnafil® FPO flat roof systems

APPEARANCE / COLOR
Top surface:
- Grey

TECHNICAL INFORMATION

Base plate:	Ø 110 mm
Height:	45 mm

S-Lightning Conductor Clip V2A

DESCRIPTION
S-Lightning Conductor Clip V2A is a stainless steel clip on a polyamide / nylon support base which is used for securing lightning conductor cables to Sarnafil® roof membranes.

USES
This product may only be used by experienced professionals:
- Lightning conductor cable clip for flat roofs with conductor cable diameters in the range of 8 mm to 10 mm

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Suitable for Sarnafil® FPO flat roof systems

APPEARANCE / COLOR
Top surface:
- Grey

TECHNICAL INFORMATION

Base plate:	Ø 110 mm
Height:	40 mm

ROOF DRAINAGE

Sarnafil® T Gully Set

DESCRIPTION

The Sarnafil® T Gully Set is a prefabricated rigid polypropylene rainwater outlet for flat roofs used with Sarnafil® AT roofing membranes. It is also available with a combined heating system.

USES

The Sarnafil® T Gully Set may only be used by experienced professionals:

- Rainwater outlet for use with Sarnafil® T roofing membranes

CHARACTERISTICS / ADVANTAGES

- Resistant to UV exposure
- Membrane can be welded directly to the base plate
- Hot air weldable
- Vapour control layer can be connected to the base plate to form an airtight seal

APPEARANCE / COLOR

Surface:

- Smooth

Color:

- Beige

Sarnafil® T Gully Horizontal / Vertically

DESCRIPTION

The Sarnafil® T Gully is made of high quality pressure stable polyolefin injection moulding. The product is available with or without heating.

The Sarnafil® T Gully consists of:

- Sarnafil® T Gully, thermally insulated, incl. built-in backwater seal
- Gravel basket

USES

The Sarnafil® T Gully is used for drainage of flat roofs.

CHARACTERISTICS / ADVANTAGES

- Simple electrical connection
- Sarnafil® AT waterproofing membranes can be welded directly to the flange
- Easy application
- Meets the standards of DIN EN 1253

APPEARANCE / COLOR

Surface:

- Smooth

Color:

- Beige

TECHNICAL INFORMATION

Electrical connection:
Main Voltage: 230 V
Connected load: 15 Watt

ROOF DRAINAGE

Sarnafil® T Drain

DESCRIPTION

Sarnafil® T Drain is an FPO (PP) pre-fabricated injection moulded rainwater outlet for flat roofs. Outlet is used with Sarnafil® AT roofing membranes which are heat welded onto the baseplate.

USES

Sarnafil® T Drain may only be used by experienced professionals:

- Rainwater outlet for use with Sarnafil® AT roofing membranes

CHARACTERISTICS / ADVANTAGES

- Resistant to UV exposure
- Membrane can be welded directly onto the base plate
- Ease of application
- Hot air weldable

APPEARANCE / COLOR

Surface:

- Smooth

Top surface:

- Beige

S-Gully Overflow screw-on device

DESCRIPTION

S-Gully Overflow screw-on device is a polypropylene (PP) flat roof gully overflow manufactured by injection moulding.

USES

This product may only be used by experienced professionals:

- An overflow screw-on device for Sarnafil® T Gully, Sarnafil® T add-on element Ø 125 flat roofs systems

CHARACTERISTICS / ADVANTAGES

- Resistant to UV exposure
- Height adjustable from 30 mm to 65 mm
- Easily inserted into top of gully

APPEARANCE / COLOR

Surface:

- Smooth

Top surface:

- Red / black

Sarnafil® T Overflow – round

DESCRIPTION

The Sarnafil® T Overflow – round has a straight tray and is made of high-quality pressure-resistant PP (polypropylene) injection moulding.

USES

The Sarnafil® T Overflow – round is used:

- For Sarnafil® AT roof waterproofing as an emergency overflow with horizontal pipe penetration through roof edge upstands

CHARACTERISTICS / ADVANTAGES

- Sarnafil® AT waterproofing membranes can be welded directly to the flange
- Easy applicationg
- Special lengths available on request

APPEARANCE / COLOR

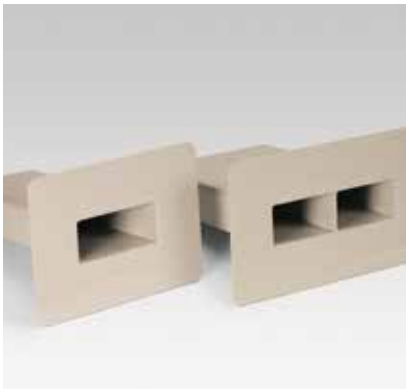
Surface:

- Smooth

Top surface:

- Beige

Sarnafil® T Overflow – square



DESCRIPTION
Sarnafil® T Overflow – square is a prefabricated rigid FPO overflow outlet for flat roofs.

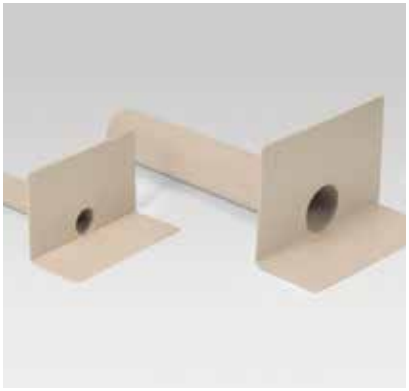
USES
This product may only be used by experienced professionals:
- Overflow outlet through flat roof parapets for use with Sarnafil® AT roofing membranes

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Membrane can be welded directly to the base plate
- Hot air weldable

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Silk grey (nearest RAL 7044)

Sarnafil® T Scupper – round



DESCRIPTION
Sarnafil® T Scupper – round is a rigid polyolefin prefabricated injection moulded rainwater outlet for flat roofs used with Sarnafil® AT roof waterproofing membranes which can be heat welded onto the drain.

USES
Rainwater outlet through the parapet for use with Sarnafil® AT roof waterproofing membranes.

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Membrane can be welded directly to the base plate
- Ease of application
- Hot air weldable

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Beige

SikaRoof® Drain Inspection chamber

DESCRIPTION
SikaRoof® Drain inspection chamber is a high density fibre reinforced concrete inspection chamber for accessing drains on green roofs.

USES
SikaRoof® Drain inspection chamber may only be used by experienced professionals:
- Accessing drains on green roofs

CHARACTERISTICS / ADVANTAGES
- Easy to install
- Insulated lid

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Brown

TECHNICAL INFORMATION
Frame: 350 mm × 350 mm × 120 mm
Thickness: 10 mm
Lid insulation: 20 mm XPS board

ROOF DRAINAGE

S-Leafguard round

DESCRIPTION
S-Leafguard round is a prefabricated Polypropylene (PP) basket with fixing wing nut.

USES
This product may only be used by experienced professionals:
- The S-Leafguard round is used as a gravel and leaf protection for Sarnafil® T-Drains in flat roofs

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Ease of application

APPEARANCE / COLOR
Surface:
- Smooth

TECHNICAL INFORMATION
Basket outside diameter: 237 mm
Basket height: 82 mm

S-Gravel Frame stainless steel

DESCRIPTION
S-Gravel Frame stainless steel is a stainless steel gravel frame for ballasted terraces.

USES
Gravel protection for roof drains in ballasted flat roof systems.

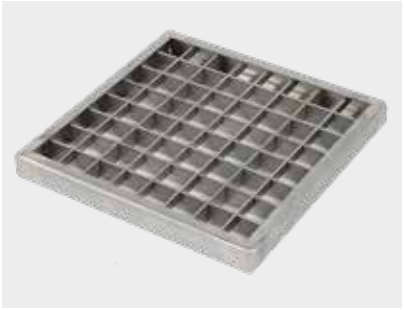
CHARACTERISTICS / ADVANTAGES
- Ease of application over gulley

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Stainless steel

TECHNICAL INFORMATION
Dimensions: 200 × 200 × 40 / 60 mm
Thickness: 2.00 mm

S-Grid stainless steel



DESCRIPTION
S-Grid stainless steel is a prefabricated, stainless steel, grid for ballasted roof drainage systems.

USES
S-Grid stainless steel may only be used by experienced professionals:
- Insert grid for the S-Gravel Frame

CHARACTERISTICS / ADVANTAGES
- Easily placed into gulley frame

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Stainless steel

TECHNICAL INFORMATION
Dimensions: 190 × 190 × 20 mm
Thickness: 1.50 / 2.00 mm

Gravel Frame with adjustable put on frame

DESCRIPTION
Gravel Frame with adjustable put on frame is a stainless steel gravel frame with adjustable insert (put on frame) for ballasted terraces.

USES
Gravel protection for roof drains in ballasted flat roof systems.

CHARACTERISTICS / ADVANTAGES
- Adjustable height: 50 – 80 mm
- Ease of application over gulley

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Stainless steel

TECHNICAL INFORMATION
Dimensions: 200 × 200 × 50 – 80 mm
Thickness: 1.00 mm

Perforated strainer

DESCRIPTION
Perforated strainer is a prefabricated, stainless steel, strainer for ballasted roof drainage systems.

USES
This product may only be used by experienced professionals:
- Perforated strainer for the Sika Gravel Frame with adjustable frame insert (put on frame)

CHARACTERISTICS / ADVANTAGES
- Easily placed into gulley frame

APPEARANCE / COLOR
Surface:
- Smooth

Color:
- Stainless steel

TECHNICAL INFORMATION
Dimensions: 195 × 195 × 20 mm
Thickness: 1.00 mm

S-Duoseal Couplings

DESCRIPTION
The S-Duoseal Couplings is made of ethylene propylene diene monomer rubber (EPDM) by injection moulding procedure.

USES
The S-Duoseal Couplings is used with Sarnafil® T Drain.
- It provides an economic method of solving the problem of sealing a new Sarnafil® T Drain into an existing roof drain during a roof refurbishment.

CHARACTERISTICS / ADVANTAGES
- Ease of application
- Secure and durable backflow seal
- Each S-Duoseal Couplings fits a wide range of sizes

ANCILLARY COMPONENTS

SikaRoof® Cable Duct-110

DESCRIPTION
SikaRoof® Cable Duct-110 is a PE-HD prefabricated pipe bend with sliding socket and protection lid.

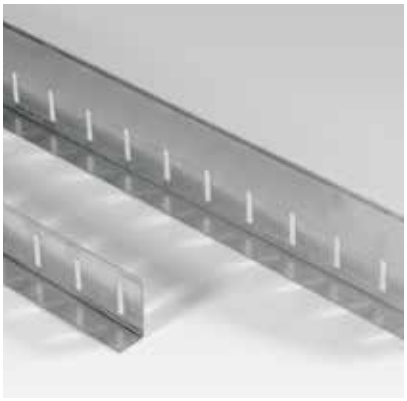
USES
This product may only be used by experienced professionals:
- Provides a watertight cable bushing detail on exposed roofs

CHARACTERISTICS / ADVANTAGES
- Constructed of durable PE-HD
- Proven waterproofing detail
- Easily connected over roof penetration

APPEARANCE / COLOR
Top surface:
Pipe bend with sliding socket:
- Black

TECHNICAL INFORMATION
Dimension pipe diameter: 110 mm

S-Gravelstop Profile



DESCRIPTION
S-Gravelstop Profile is a perforated stainless steel gravel stop profile for ballasted flat roofs.

USES
Gravel stop at roof perimeters in ballasted roofing systems or other ballast free roof areas:
- Separation profile between different types of roof ballast

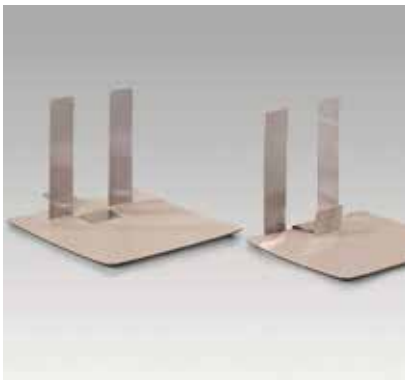
CHARACTERISTICS / ADVANTAGES
- Stainless Steel
- Suitable for FPO ballasted roofing systems

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Stainless steel

TECHNICAL INFORMATION
Height: 60 / 100 mm
Length: 3000 mm
Width: 30 mm

Sarnafil® T Gravelstop bracket



DESCRIPTION
Sarnafil® T Gravelstop bracket is a prefabricated bracket to fasten the S-Gravelstop Profile to Sarnafil® AT (FPO) roof waterproofing membranes by heat welding and without penetrating the membrane.

USES
Sarnafil® T Gravelstop bracket may only be used by experienced professionals:
- Fastening the S-Gravelstop Profile to Sarnafil® AT (FPO) roof waterproofing membranes with slopes of < 5°

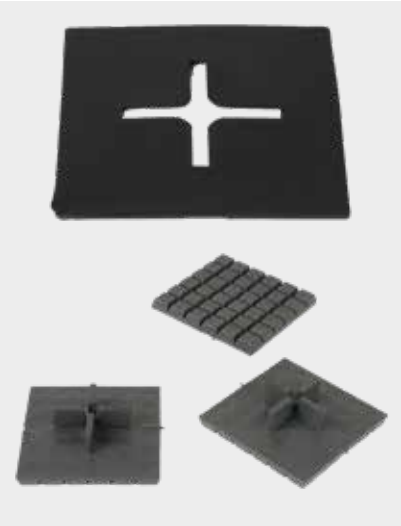
CHARACTERISTICS / ADVANTAGES
- Sarnafil® AT (FPO) membrane on corrosion resistant stainless steel bracket
- Suitable for ballasted roofing systems
- Easy application without penetrating the membrane
- Hot air weldable

APPEARANCE / COLOR
Top surface:
Membrane:
- Beige

Top surface:
Bracket:
- Stainless steel

TECHNICAL INFORMATION
Outside Bracket / Inside Bracket
Length: 150 mm / 120 mm
Width: 140 mm / 140 mm
Height: 120 mm / 120 mm

Paving support Pad/ levelling shim



DESCRIPTION

Paving support Pad/ levelling shim is a prefabricated high density polyethylene (HD-PE) paving support pad manufactured by injection moulding. It enables the correct positioning of paving slabs and provides water drainage between and underneath the slabs.

USES

Paving support Pad/ levelling shim may only be used by experienced professionals:

- Placement of paving slabs on flat roofs, plaza decks, balconies, verandas, courtyards, terraces etc.

CHARACTERISTICS / ADVANTAGES

- Ease of application
- Resistant to UV exposure
- Correctly positions paving slabs
- Securely holds paving slabs in place
- Uniform spacing between paving slabs
- Very good water drainage between slabs and below the paving level
- Paving not fixed, allowing slabs to be removed easily

APPEARANCE / COLOR

Top surface:

- Black

TECHNICAL INFORMATION

Paving support pad 1/20 with cross:
Joints

Length × width:	105 ×105 mm
Thickness:	9.50 mm
Height of lug:	20 mm
Thickness of lug:	5.00 mm
Length of cross lug:	58.50 mm

Paving levelling shim

Length × width:	106 × 106 mm
Thickness:	2.00 mm

Snow guard holder galvanized

DESCRIPTION

Two-piece galvanized steel bracket for ¾ inch tubes, mounted in a row and evenly spaced horizontally. The bottom part (base plate) is fixed in the substructure. The upper part (sword) is screwed through the sealing in the base plate and receives pipes in the snow guard system with two holes arranged one above the other.
The snow guard holder consists of:

- Stainless steel base plate with safety nuts M8
- Galvanized or powder-coated snow catcher Sword
- Two seals NBR, 150 × 100 mm to be ordered separately

USES

Snow protection system with double pipe passage (drill holes) to protect against the sliding of snow masses on flat sloping roofs.

CHARACTERISTICS / ADVANTAGES

- For heavier snow loads
- Resistant to environmental influences

ANCILLARY COMPONENTS

Snow guard stainless steel

DESCRIPTION

Two-piece stainless steel bracket for ¾ inch tubes or 1 inch tubes mounted in a row and evenly spaced horizontally. The lower part (base plate) is fixed in the substructure. The upper part (sword) is screwed together by the seal in the base plate and accommodates pipes in the snow guard system with two holes arranged one above the other.

The snow guard consists of:

- Base plate with safety nuts M8
- Snow catcher sword
- Two seals NBR, 90 × 50 mm to be ordered separately

USES

Snow protection system with double pipe passage (drill holes) to protect against the sliding of snow masses on flat sloping roofs.

CHARACTERISTICS / ADVANTAGES

- Light weight
- Resistant to environmental influences

WALKWAYS

Sarnafil® T Walkway Pad

DESCRIPTION
Sarnafil® T Walkway Pad is made of premium-quality flexible polyolefin (FPO) by injection moulding procedure.

USES
Sarnafil® T Walkway Pad is used:
- To provide a durable slip resisting walkway for roof maintenance or access on any Sarnafil® AT roofing system

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Slip resistant surface
- Hot air weldable
- Rainwater drainage from beneath the Sarnafil® AT
- Walkway Pad is provided by a network of moulded channels

APPEARANCE / COLOR
Surface:
- Chevron pattern with an alternating rib height of the embossing

Top surface:
- Dark grey

TECHNICAL INFORMATION
Length: 600 mm
Width: 600 mm without welding tabs
Thickness: 9.30 mm Including 3/5 mm non slip chevron pattern embossing

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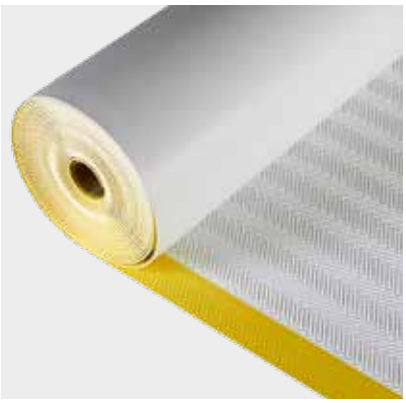
Sarnafil® T TuffLane 40 YB



DESCRIPTION
Sarnafil® T TuffLane 40 YB is a walkway / protection sheet based on flexible fibrous mixture of polyolefins (FPO) containing ultraviolet light stabilizers and flame retardant.

USES
Sarnafil® T TuffLane 40 YB is used as a protection layer on top of Sarnafil® AT roof waterproofing membrane without ballast as a frequent walkway for roof maintenance.

CHARACTERISTICS / ADVANTAGES
- Applicable for exposed roofing
- Good slip resistant surface due to embossed surface
- Innovative yellow safety border technology
- Ease of application
- Hot air weldable

APPEARANCE / COLOR
Surface:
- Herringbone embossed pattern

Top surface:
- White (nearest RAL 9010)

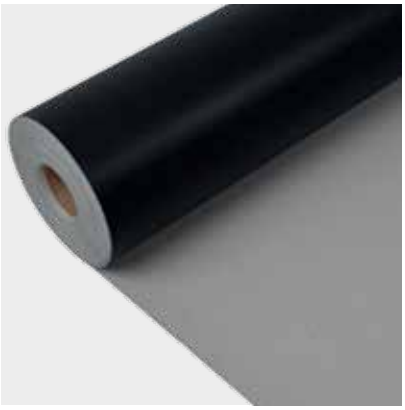
Border:
- Approx. 50 – 60 mm yellow safety edge

Bottom surface:
- White (nearest RAL 9010)

TECHNICAL INFORMATION
Length: 15.00 m
Width: 0.76 m
Thickness: 4.00 mm (incl. embossing)
2.00 mm (depth of embossing)

WALKWAYS

Sarnafil® TG-20 WW



DESCRIPTION

Sarnafil® TG-20 WW is a protection sheet based on flexible polyolefins (FPO) with inlay of glass non-woven containing ultraviolet light stabilizers and flame retardant.

USES

- Sarnafil® TG-20 WW is used as a protection layer on top of Sarnafil® AT roof waterproofing membrane without ballast as a frequent walkway for roof maintenance.

CHARACTERISTICS / ADVANTAGES

- Applicable for exposed roofing
- Ease of application
- Hot air weldable

APPEARANCE / COLOR

Surface:
- Texturized

Top surface:
- Grey (nearest RAL 7040)

Bottom surface:
- Dark grey

TECHNICAL INFORMATION

Length: 20.00 m
Width: 0.66 m
Thickness: 2.00 mm (incl. embossing)
0.30 mm (depth of embossing)

CONNECTION SYSTEM

Sarnafil® T Dilatec® ER-300

DESCRIPTION

Sarnafil® T Dilatec® ER-300 is a flexible, multi-layer, flexible polyolefin (FPO), sealing tape containing stabilisers, a glass fleece non-woven inlay and a single-sided fabric strip. It is bonded on one side with Sikadur Combiflex® CF Adhesive Normal or Rapid and welded on the other side (without fabric strip) to the Sarnafil® AT roof waterproofing membrane.

USES

Sarnafil® T Dilatec® ER-300 may only be used by experienced professionals:

- End tape for Sarnafil® AT roof waterproofing membranes on concrete and metal substrates

CHARACTERISTICS / ADVANTAGES

- Resistant to UV exposure
- High dimensional stability from glass fleece inlay
- Resistance to all common environmental influences
- Heat weldable
- No open flame equipment required

Sikadur Combiflex® CF Adhesive Normal / Rapid

DESCRIPTION

Sikadur Combiflex® CF Adhesive Normal / Rapid is a 2-part epoxy based thixotropic adhesive for bonding the modified flexible Polyolefin (FPO) waterproofing tapes Sarnafil T Dilatec® ER-300 to different substrates. Internal and external use.

USES

Adhesive for the Sarnafil T Dilatec® ER-300 system.

CHARACTERISTICS / ADVANTAGES

- Easy to mix and apply
- Excellent adhesion to many materials
- Performs well within a wide temperature range
- Good resistance to many chemicals
- No primer needed
- High mechanical resistance

APPLICATION TEMPERATURE

Normal: +10 °C to +30 °C
Rapid: +5 °C to +15 °C

FASTENING PRODUCTS

Sarnafast® Washer KTL

DESCRIPTION
Zinc plated steel washer with diamond-shaped reinforcement and specially stamped barbs for the mechanical fastening of roof waterproofing membranes.

USES
Mechanically fastened roof waterproofing membranes by Sarnafast® spot fastening in overlaps and / or intermediate spot fastening in combination with Sarnafast® Fastener SBF-6.0 on all decks. Only for fastening roof waterproofing membranes over compressible thermal insulation (not for use on hard substrates).

CHARACTERISTICS / ADVANTAGES
- Lightweight
- Resistance against common environmental influences
- Easy application in use with recommended setting tools
- Recyclable

TECHNICAL INFORMATION
Dimension: 82 × 40 mm
Hole diameter: 7.50 mm
Thickness: 1.00 mm
Corrosion resistance:
15 cycles according to Kesternich

Sarnafast® Washer KT

DESCRIPTION
Zinc plated steel washer with diamond-shaped reinforcement and specially stamped barbs for the mechanical fastening of roof waterproofing membranes.

USES
Mechanically fastened roof waterproofing membranes by Sarnafast® spot fastening in overlaps and / or intermediate spot fastening in combination with Sarnafast® Fastener SF-4.8 into corrugated steel and plywood / OSB decks. Only for fastening roof waterproofing membranes over compressible thermal insulation (not for use on hard substrates).

CHARACTERISTICS / ADVANTAGES
- Lightweight
- Resistance against common environmental influences
- Easy application in use with recommended setting tools
- Recyclable

TECHNICAL INFORMATION
Dimension: 82 × 40 mm
Hole diameter: 4.90 mm
Thickness: 1.00 mm
Corrosion resistance:
15 cycles according to Kesternich

Sarnafast® Washer IF/IG-C

DESCRIPTION
Zinc plated steel washer for the mechanical fastening of roof waterproofing membranes.

USES
Mechanically fastened roof waterproofing membranes by Sarnafast® spot fastening in overlaps and / or intermediate spot fastening in combination with Sarnafast® Fastener SF-4.8 into corrugated steel and plywood / OSB decks or Sarnafast® Fastener SBF-6.0 on all decks. Also for fastening roof waterproofing membranes over hard substrates.

CHARACTERISTICS / ADVANTAGES
- Lightweight
- Resistance against common environmental influences
- Easy application in use with recommended setting tools
- Recyclable

TECHNICAL INFORMATION
Dimension: 82 × 40 mm
Hole diameter: 7.50 mm
Thickness: 1.00 mm
Corrosion resistance:
15 cycles according to Kesternich

FASTENING PRODUCTS

Sarnafast® Tube SFT-50

DESCRIPTION
Polyamide tube (PA 6) with teeths for the mechanical fastening of roof waterproofing membranes and thermal insulation.

USES
Mechanically fastened roof waterproofing membranes by Sarnafast® spot fastening in overlaps and / or intermediate spot fastening in combination with Sarnafast® Fastener SBF-6.0 on all decks. Only for fastening roof waterproofing membranes over compressible thermal insulation (not for use on hard substrates). Further for the mechanical fastening of thermal insulation boards.

CHARACTERISTICS / ADVANTAGES
- Lightweight
- Resistance against common environmental influences
- Easy application in use with recommended setting tools
- Recyclable

TECHNICAL INFORMATION
Diameter: 50 mm (at collar)
Available lengths: 40 – 300 mm
Hole diameter: 12.40 mm
30 h conditioned in conditioning cell

Sarnafast® Insulation Washer DTL

DESCRIPTION
Zinc plated steel washer for the mechanically fastening of thermal insulation.

USES
Mechanically fastened thermal insulation in combination with Sarnafast® Fastener SBF-6.0 on all decks.

CHARACTERISTICS / ADVANTAGES
- Lightweight
- Resistance against common environmental influences
- Easy application in use with recommended setting tools
- Recyclable

TECHNICAL INFORMATION
Dimension: 70 × 70 mm
Hole diameter: 7.50 mm
Thickness: 1.00 mm
Corrosion resistance:
15 cycles according to Kesternich

Sarnafast® Insulation Washer DT

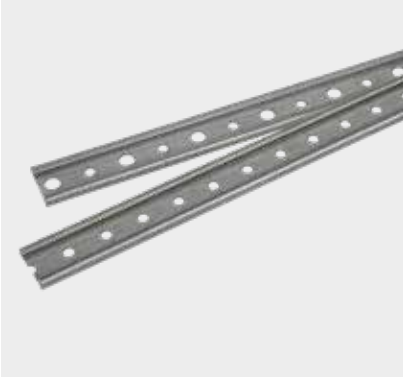
DESCRIPTION
Zinc plated steel washer for the mechanically fastening of thermal insulation..

USES
Mechanically fastened thermal insulation in combination with Sarnafast® Fastener SF-4.8 into corrugated steel and plywood / OSB decks.

CHARACTERISTICS / ADVANTAGES
- Lightweight
- Resistance against common environmental influences
- Easy application in use with recommended setting tools
- Recyclable

TECHNICAL INFORMATION
Dimension: 70 x 70 mm
Hole diameter: 4.90 mm
Thickness: 1.00 mm
Corrosion resistance:
15 cycles according to Kesternich

Sarnabar® Fastening Profiles



DESCRIPTION
Folded profile hot-dip coated steel for the perimeter fastening.

USES
Perimeter fastening system in combination with Sarnafast® SF 4.8 into corrugated steel and plywood / OSB decks or Sarnafast® SBF-6.0 on all decks. Also with specific Sarnabar® Fastening Profile 6 / 15, Sarnabar® Tube SBT-20 and Sarnafast® SBF-6.0 on all decks.

CHARACTERISTICS / ADVANTAGES
- Lightweight
- Resistance against common environmental influences
- Easy application in use with recommended setting tools
- Recyclable

TECHNICAL INFORMATION

Length:	2250 / 4500 mm
Width:	30 mm
Height:	7 mm
Hole diameter:	6.50 / 10 / 15 mm
Thickness:	1.50 mm

Corrosion resistance:
15 cycles according to Kesternich

Sarnabar® Tube SBT-20

DESCRIPTION
Polyamide tube (PA 6) for the perimeter fastening and induction welding.

USES
Tube perimeter fastening and induction welding system in combination with Sarnabar® Fastening Profile 6/15 or Sarnaweld® Disc 16.0 - TPO and Sarnafast® Fastener SBF-6.0 on all decks.

CHARACTERISTICS / ADVANTAGES
- High resistance against mecanical inputs
- Lightweight
- Resistance against common environmental influences
- Easy application in use with recommended setting tools
- Recyclable

TECHNICAL INFORMATION

Diameter:	20 mm (at collar)
Hole diameter:	12.40 mm

Available lengths: 40 – 300 mm
30 h conditioned in conditioning cell

FASTENING PRODUCTS

Sarnabar® Connection Clip

DESCRIPTION
Polyamide clip (PA 6).

USES
Connecting of standard Sarnabar® Fastening Profiles.

CHARACTERISTICS / ADVANTAGES
- Wasy and fast connection of the Sarnabar® Fastening Profiles
- 3 in 1 product (connection, protection and spacer)
- Easy application due to click function
- Makes use of a butt strap obsolete

TECHNICAL INFORMATION
Width: 34.50 mm
Length: 80 mm
Height: 11 mm

Sarnafil® T Welding Cord

DESCRIPTION
Cord made of FPO compound by extruding procedure.

USES
In combination with Sarnabar® Fastening Profiles preventing the membranes from slipping.

CHARACTERISTICS / ADVANTAGES
- Hot air weldable
- Recyclable

TECHNICAL INFORMATION
Diameter: 4.00 mm
Length: 100 mm

Sarnafast® Fastener SBF-6.0

DESCRIPTION
Hardened carbon steel fastener.

USES
Fastener in combination with Sarnafast® Washer KTL, IF/G-C, Sarnafast® Tube SFT-50, Sarnaweld® Disc 6.8 and 16.0 - TPO, Sarnafast® Insulation Washer DTL, Sarnabar® Fastening Profiles and Sarnabar® Tube SBT-20 into corrugated steel, concrete and plywood / OSB decks.

CHARACTERISTICS / ADVANTAGES
- Resistance against common environmental influences
- Easy application in use qith recommended setting tools
- Self drilling fastener, no pre-drilling for steel and plywood / OSB applications
- Chrome VI-free
- Recycable

TECHNICAL INFORMATION
Diameter: 6.00 mm
Head diameter: 9.80 mm
Available lengths: 35 – 300 mm
Torx T25
Corrosion resistance:
15 cycles according to Kesternich

Sarnafast® Fastener SF-4.8

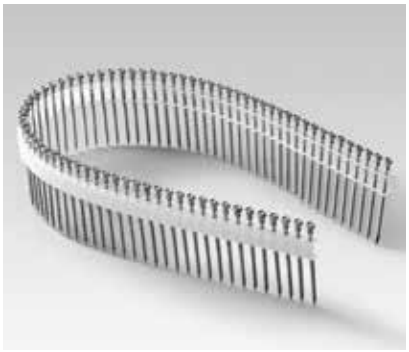
DESCRIPTION
Hardened carbon steel fastener.

USES
Fastener in combination with Sarnafast® Washer KT, IF/G-C, Sarnafast® Insulation Washer DT and Sarnabar® Fastening Profiles into corrugated steel and plywood / OSB decks.

CHARACTERISTICS / ADVANTAGES
- Tread-fast solution
- Lightweight
- Resistance against common evironmental influences
- Easy application in use with recommended setting tools
- Self-drilling fastener, no pre-drilling for steel application
- Chrome VI-free
- Recycable

TECHNICAL INFORMATION
Diameter: 4.80 mm
Head diameter: 8.00 mm
Available lengths: 60 – 300 mm
80 – 300 mm
(magazine loaded)
Drive:
Hexagon head srew 8.00 mm
Corrosion resistance:
15 cycles according to Kesternich

Sarnafast® Fastener SF-M 4.8



Also available in magazine loaded version Sarnafast Fastener SF-M 4.8 with automated setting tool.

FASTENING PRODUCTS – INDUCTION WELDING

Sarnaweld® Disc 6.8 – TPO

DESCRIPTION
Zinc plated steel fastening discs with a green coloured hot melt adhesive coating for induction welding with Sarnafil® AT roof waterproofing membranes.

USES
Mechanically field fastening of Sarnafil® AT roof waterproofing membranes on thermal insulation or hard substrates by induction welding to the membrane in combination with Sarnafast® Fastener SBF 6.0 on all decks.

CHARACTERISTICS / ADVANTAGES
- Lightweight
- Resistant against all common environmental influences
- Ease of application in use with recommended tools and equipment
- Corrosion resistant
- Recyclable

TECHNICAL INFORMATION
Dimension: 80 mm
Hole diameter: 6.80 mm
Steel thickness: 0.80 mm
Corrosion resistance:
15 cycles according to Kesternich

Sarnaweld® Disc 16.0 – TPO

DESCRIPTION
Zinc plated steel fastening discs with a green coloured hot melt adhesive coating for induction welding with Sarnafil® AT roof waterproofing membranes.

USES
Mechanically field fastening of Sarnafil® AT roof waterproofing membranes only over compressible thermal insulation (not for use on hard substrates) by induction welding to the membrane in combination with Sarnafast® Fastener SBF 6.0 and Sarnabar® Tube SBT-20 on all decks.

CHARACTERISTICS / ADVANTAGES
- Lightweight
- Resistant against all common environmental influences
- Ease of application in use with recommended tools and equipment
- Corrosion resistant
- Recyclable

TECHNICAL INFORMATION
Dimension: 80 mm
Hole diameter: 15.20 mm
Steel thickness: 0.80 mm
Corrosion resistance:
15 cycles according to Kesternich

Sarnaweld® Cardboard Pad

DESCRIPTION
Cardboard pad.

USES
Sarnaweld® Cardboard Pad must be used on top of EPS / XPS thermal insulation directly placed under Sarnaweld® Disc 6.8 or 16.0 – TPO. Preventing the thermal insulation from melting during the induction welding process.

isoweld® 3000

USES

User-friendly and ergonomic stand-up induction welding tool for use with the Sarnaweld® field fastening system for induction welding of the Sarnafil® AT roof waterproofing membranes to the Sarnaweld® Disc 6.8 or 16.0 - TPO.
Integrated safety and security features, such as search and control functions, temperature and power compensation, quick and simple calibration process, ensuring proper and correct welds.

Hand inductor FI-H

USES

Hand inductor welding tool for use with the Sarnaweld® field fastening system for welding Sarnafil® AT roof waterproofing membranes to the Sarnaweld® Disc 6.8 or 16.0 – TPO in narrow and tight roof spaces and on vertical areas.

Magnets FI-Magnet

USES

Magnetic heatsink for use with the Sarnaweld® field fastening system. Positioned on the Sarnafil® AT roof waterproofing membrane over the Sarnaweld® Disc 6.8 or 16.0 – TPO to apply pressure and to dissipate heat.
Extension rods included for working in an up-right position.

FASTENING PRODUCTS – COMBINATIONS

SPOT- / INTERMEDIATE AND PERIMETER FASTENING SYSTEMS

		Metal Faster
Deck type	**Corrugated steel deck**	
Insulation fastening	Sarnafast® Insulation Washer DT Sarnafast® Fastener SF-4.8	Sarnafast® Insulation Washer DTL Sarnafast® Fastener SBF-6.0
Membrane fastening on soft substrates	Sarnafast® Washer KT Sarnafast® Fastener SF-4.8	Sarnafast® Washer KTL Sarnafast® Fastener SBF-6.0
Membrane fastening on hard substrates	Sarnafast® Washer IF/IG-C Sarnafast® Fastener SF-4.8	Sarnafast® Washer IF/IG-C Sarnafast® Fastener SBF-6.0
Perimeter fastening	Sarnabar® Fastening Profile Sarnafast® Fastener SF-4.8	Sarnabar® Fastening Profile Sarnafast® Fastener SBF-6.0
		Tube Fasten
Insulation fastening	○	Sarnafast® Tube SFT-50 Sarnafast® Fastener SBF-6.0
Membrane fastening	○	Sarnafast® Tube SFT-50 Sarnafast® Fastener SBF-6.0
Perimeter fastening	○	Sarnabar® Fastening Profile Sarnabar® Tube SBT-20 Sarnafast® Fastener SBF-6.0

○ Not suitable

INDUCTION WELDING SYSTEMS

		Metal Faster
Deck type	**Corrugated steel deck**	
Insulation and membrane fastening	○	Sarnaweld® Disc 6.8 - TPO Sarnafast® Fastener SBF-6.0
Perimeter fastening	○	Sarnabar® Fastening Profile Sarnafast® Fastener SBF-6.0
		Tube Fasten
Insulation and membrane fastening	○	Sarnaweld ® Disc 16.0 – TPO Sarnabar® Tube SBT-20 Sarnafast® Fastener SBF-6.0
Perimeter fastening	○	Sarnabar® Fastening Profile Sarnabar® Tube SBT-20 Sarnafast® Fastener SBF-6.0

○ Not suitable

ning Systems		
Concrete deck	**Plywood / OSB deck**	
Sarnafast® Insulation Washer DTL Sarnafast® Fastener SBF-6.0	Sarnafast® Insulation Washer DT Sarnafast® Fastener SF-4.8	Sarnafast® Insulation Washer DTL Sarnafast® Fastener SBF-6.0
Sarnafast® Washer KTL Sarnafast® Fastener SBF-6.0	Sarnafast® Washer KT Sarnafast® Fastener SF-4.8	Sarnafast® Washer KTL Sarnafast® Fastener SBF-6.0
Sarnafast® Washer IF/IG-C Sarnafast® Fastener SBF-6.0	Sarnafast® Washer IF/IG-C Sarnafast® Fastener SF-4.8	Sarnafast® Washer IF/IG-C Sarnafast® Fastener SBF-6.0
Sarnabar® Fastening Profile Sarnafast® Fastener SBF-6.0	Sarnabar® Fastening Profile Sarnafast® Fastener SF-4.8	Sarnabar® Fastening Profile Sarnafast® Fastener SBF-6.0
ning Systems		
Sarnafast® Tube SFT-50 Sarnafast® Fastener SBF-6.0	○	Sarnafast® Tube SFT-50 Sarnafast® Fastener SBF-6.0
Sarnafast® Tube SFT-50 Sarnafast® Fastener SBF-6.0	○	Sarnafast® Tube SFT-50 Sarnafast® Fastener SBF-6.0
Sarnabar® Fastening Profile Sarnabar® Tube SBT-20 Sarnafast® Fastener SBF-6.0	○	Sarnabar® Fastening Profile Sarnabar® Tube SBT-20 Sarnafast® Fastener SBF-6.0

ning Systems		
Concrete deck	**Plywood / OSB deck**	
Sarnaweld® Disc 6.8 - TPO Sarnafast® Fastener SBF-6.0	○	Sarnaweld® Disc 6.8 - TPO Sarnafast® Fastener SBF-6.0
Sarnabar® Fastening Profile Sarnafast® Fastener SBF-6.0	○	Sarnabar® Fastening Profile Sarnafast® Fastener SBF-6.0
ning Systems		
Sarnaweld ® Disc 16.0 – TPO Sarnabar® Tube SBT-20 Sarnafast® Fastener SBF-6.0	○	Sarnaweld ® Disc 16.0 – TPO Sarnabar® Tube SBT-20 Sarnafast® Fastener SBF-6.0
Sarnabar® Fastening Profile Sarnabar® Tube SBT-20 Sarnafast® Fastener SBF-6.0	○	Sarnabar® Fastening Profile Sarnabar® Tube SBT-20 Sarnafast® Fastener SBF-6.0

FASTENING PRODUCTS – TOOLS

SETTING- AND INSTALLATION TOOLS FOR FASTENING PRODUCTS

	Product	Uses
		For the automated setting of magazine loaded Sarnafast® Fastener SF-M 4.8
	IF240-B	Automated setting tool for the fast and economic installation of fasteners and washers. For belted fasteners Sarnafast® Fastener SF-M 4.8 with washers Sarnafast® Washer IF/IG-C, KT and Sarnafast® Insulation Washer DT.
BITS AND ACCESSORIES FOR FASTENING PRODUCTS		**For the installation of Sarnafast® Fastener SBF-6.0 and Sarnafast® Fastener SF-4.8 inside Sarnabar® Tube SBT-20 or Sarnafast® Tube SFT-50**
	T25-32-M6	Insert bit with T25 drive
	ZA1/4"-M6-300 / -750	Drive bar for installation of fasteners and tubes, length 300 and 750 mm
	ZA1/4"-M6-EXT100	Drive bar extension, length 100 mm
	ZH-12-RING	Adapter to hold Sarnabar® Tube SBT-20 and Sarnafast® Tube SFT-50 onto drive bar
	ZA 1/4"-DL	Helps to prevent pull-over failures and acts as a depth stop for pre-assembled tube / fastener combinations
	E320-1/4"-25	Socket for fastener with HEX 8 head
	E320-1/4"-25-M6	Connecting piece between E320 socket and drive bar
		For the manual installation of Sarnafast® Fastener SBF-6.0 with T25 drive
	T25-25-HEX1/4"	Insert bit with T25 drive and HEX shaft
	Bit holder ZA1/4"	Bit holder for bits with HEX shaft
		For the manual installation of Sarnafast® Fastener SF-4.8 with HEX 8 head
	E380-3/8"-34	Socket for fastener with HEX 8 head, for manual fastener installation
	ZA1/4"	Drive bar for socket, for manual fastener installation

DRILL BITS FOR FASTENING PRODUCTS

	Product	Uses
	SDS-4,8	SDS drill bits – available in different lengths
	SDS-5,0	
	SDS-5,2	
	SDS-6,3	
		For the use in combination with Sarnabar® Tube SBT-20 and Sarnafast® Tube SFT-50 on concrete
	ZVK-4,8 × 100 × 160	Conus drill bits for combination with ZAK drill extension
	ZVK-5,0 × 55 × 115	
	ZVK-5,0 × 100 × 160	
	ZVK-5,2 × 100 × 160	
	ZVK-4,8 × 100 × 165-STOP	Conus drill bits with stop function for combination with ZAK drill extension
	ZVK-5,0 × 25 × 90-STOP	
	ZVK-5,0 × 35 × 100-STOP	
	ZVK-5,0 × 45 × 110-STOP	
	ZVK-5,0 × 55 × 120-STOP	
	ZVK-5,2 × 25 × 90-STOP	
	ZVK-5,2 × 35 × 100-STOP	
	ZVK-5,2 × 45 × 110-STOP	
	ZVK-5,2 × 100 × 165-STOP	
	ZAK-500 / -750 / -1000	Drill extension for ZVK conus drill bits, length 500, 750 and 1000 mm
		For the use in combination with Sarnabar® Tube SBT-20 and Sarnabar® Fastening Profiles, 15 mm hole
	ZAK-14-500	Drill extension for ZVK-14 conus drill bits with 14 mm outer diameter, length 500 mm
	ZVK-14-5,0 × 100 × 135	Conus drill bit for combination with ZAK-14 drill extension with 14 mm outer diameter
	ZVK-14-5,0 × 45 × 80-STOP	Conus drill bit with stop function for combination with ZAK-14 drill extension with 14 mm outer diameter

ROOF DESIGN

Sarnafil® T Decor Profile

DESCRIPTION
Sarnafil® T Decor Profile is an FPO extruded profile made which is welded to Sarnafil® AT roof waterproofing membranes to replicate standing seam metal roofing systems.

USES
Sarnafil® T Decor Profile may only be used by experienced professionals:
- Creating an appearance of a standing seam metal roof

CHARACTERISTICS / ADVANTAGES
- Applicable for exposed roofing
- Ease of application
- Suitable for any roof slope
- Hot air weldable

APPEARANCE / COLOR
Surface:
- Smooth

Color:
- Window grey (RAL 7040)
- Anthracite (RAL 7016)
- Other colors on request

TECHNICAL INFORMATION
Length: 3000 mm
Width: 35 mm
Height: 25 mm

Sikagard®-950

DESCRIPTION
Sikagard®-950 is a 2-part, water-based, UV resistant, colored polyurethane-coating for Sarnafil® AT roof waterproofing membranes.

USES
Sikagard®-950 may only be used by experienced professionals:
- Decorative coating for Sarnafil® AT roof waterproofing membranes for:
- Flat and sloping fully exposed roof structures
- New roofs
- Roof refurbishment
- Roof graphics
- Architectural detailing
- Marking out safety zones

CHARACTERISTICS / ADVANTAGES
- Good opacity
- Resistant to UV exposure
- High flexibility
- Available in many colors
- Good mechanical properties
- PVC plasticiser blocking properties
- Easily cleanable
- Low surface soiling
- Easy application by brush, roller or airless spray

Sikalastic® Primer FPO

DESCRIPTION
Sikalastic® Primer FPO is an one-component, transparent, slightly yellowing, solvent-based synthetic polymer primer, specifically formulated to bond Sikagard®-950 onto Sarnafil AT roof waterproofing membranes.

USES
Sikalastic® Primer FPO may only be used by experienced professionals.

CHARACTERISTICS / ADVANTAGES
- One-component – easy and ready to use
- Enhance adhesion to Sarnafil AT roof waterproofing membranes
- Fast curing-overcoating possible after max 1 hour

PRODUCT OVERVIEW FELTS AND GLASS FLEECE

	S-Felt A-300	Sikaplan® W Felt 500 PP	S-Felt S-800	S-Felt T-300	S-Glass Fleece-120	S-Felt VS-140	S-Felt GK-400
Function	Levelling- and Protection Layer	Levelling- and Protection Layer	Levelling- and Protection Layer	Separation-, Levelling- and Protection Layer	Separation- and Fire Protection Layer	Filter Layer	Protection- and Slip Layer
Properties							
Base material	Polypropylene (PP)	Polypropylene (PP)	Polypropylene (PP)	Polyester (PES)	Glass fibre	Polypropylene (PP)	Polypropylene with PE film (PP / PE
Weight (g/m²)	300	500	800	300	120	140	400
Roll size (m)	2 × 50	2 × 25	2 × 25	2 × 50	2 × 100	2 × 50	2 × 50
Resistance							
UV irradiation				●			
Bitumen	●	●	●	●	●	●	●
Alkaline solutions (ph 12)	●	●	●	○		●	●
Heat (+60 °C)	●	●	●	●	●	●	●
Practical Application							
Bitumen new or aged	○	●	●	●●			○
PVC aged	●	●	●	●			●
Concrete	●	●	●				●
Inverted Roof System with XPS							
Filter Layer						●●	
Protection- and Slip Layer							●●

●● Most suitable
● Suitable
○ Conditionally suitable

LEVELLING- AND PROTECTION LAYERS

S-Felt A-300

DESCRIPTION
S-Felt A-300 is a levelling- and protection layer made of polypropylene (PP).

USES
Levelling layer between Sarnafil® AT membranes and rough surfaces.

CHARACTERISTICS / ADVANTAGES
- Bitumen resistant
- Easily applied

APPEARANCE / COLOR
Surface:
- Structured

Color:
- Multi-colored

Weight:
- 300 g/m²

Sikaplan® W Felt 500 PP

DESCRIPTION
Sikaplan® W Felt 500 PP is a levelling- and protection layer made of polypropylene non woven fabric.

USES
Levelling layer between Sarnafil® AT membranes and rough surfaces.

CHARACTERISTICS / ADVANTAGES
- Bitumen resistant
- Easily applied

APPEARANCE / COLOR
Surface:
- Structured

Color:
- Multi-colored

Weight:
- 500 g/m²

S-Felt S-800

DESCRIPTION
S-Felt S-800 is a levelling- and protection layer made of polypropylene (PP).

USES
Levelling layer between Sarnafil® AT membranes and rough surfaces.

CHARACTERISTICS / ADVANTAGES
- Bitumen resistant
- Easily applied

APPEARANCE / COLOR
Surface:
- Structured

Color:
- Multi-colored

Weight:
- 800 g/m²

SEPARATION-, LEVELLING- AND PROTECTION LAYER

S-Felt T-300

DESCRIPTION

S-Felt T-300 is a separation-, levelling- and protection layer made of polyester (PES).

USES

S-Felt T-300 is used as a separation and levelling layer between Sarnafil® AT membranes and incompatible sub-strates. S-Felt T-300 can also be used as a protection layer between Sarnafil® AT membranes and any protective topping or pavement.

CHARACTERISTICS / ADVANTAGES

- Bitumen resistant
- Non decaying
- Suitable for mechanical fastening (drill proved)
- Recyclable

APPEARANCE / COLOR

Surface:

- Structured

Color:

- White

SEPARATION- AND FIRE PROTECTION LAYER

S-Glass Fleece-120

DESCRIPTION
S-Glass Fleece-120 is a glass fibre separation- and fire protection layer.

USES
Separation and fire protection layer between Sarnafil® AT membranes and EPS / XPS insulation.

CHARACTERISTICS / ADVANTAGES
- Easily applied

APPEARANCE / COLOR
Surface:
- Structured

Color:
- White

FILTER LAYER

S-Felt VS-140

DESCRIPTION

S-Felt VS-140 is a filter layer made of polypropylene (PP)

USES

Filter layer in inverted roofs systems to prevent small particles from penetrating gaps and voids in the thermal insulation layer.

CHARACTERISTICS / ADVANTAGES

- Bitumen resistant
- Alkali resistant (pH 11,6)
- Ease of application

APPEARANCE / COLOR

Surface:

- Structured

Color:

- Grey

PROTECTION- AND SLIP LAYER

S-Felt GK-400

DESCRIPTION

S-Felt GK-400 is a protection and slip layer made of polypropylene (PP) with a polyethylene (PE) coating on one side.

USES

Protection- and slip layer beneath paving or poured cementitious toppings.

CHARACTERISTICS / ADVANTAGES

- Bitumen resistant
- Acids resistant (pH 2,4)
- Easily applied

APPEARANCE / COLOR

Surface:

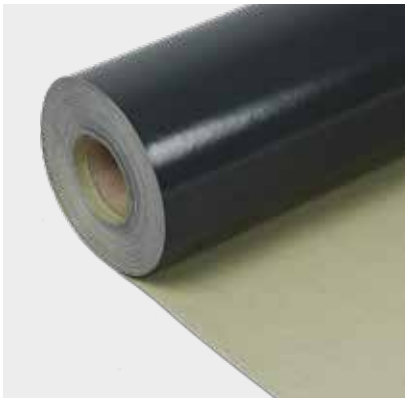
- Structured and smooth

Color:

- Multi-colored / black

PROTECTION LAYERS

Sarnafil® TG 63



DESCRIPTION
Sarnafil® TG 63 is a protection sheet based on flexible polyolefins (FPO) with a glass non-woven flame retardant inlay.

USES
Protection layer on top of Sarnafil® AT roof waterproofing membranes for ballasted flat roof systems.

CHARACTERISTICS / ADVANTAGES
- Hot air weldable
- Good mechanical strength

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Greenish
- Anthracite

Bottom surface:
- Dark grey

TECHNICAL INFORMATION
Length: 25.00 / 15.00 / 10.00 m
Width: 2.00 m
Thickness: 1.30 / 2.00 / 2.50 mm

S-Protection Sheet RS

DESCRIPTION
S-Protection Sheet RS is made of technical-grade recycled rubber granulate, polyurethane-bonded.

USES
S-Protection Sheet RS is a versatile protection layer on flat roofs and building structures.

CHARACTERISTICS / ADVANTAGES
- Easy to install
- High compressive strength
- Extremly rugged and durable
- Rot-resistant
- Recyclable

APPEARANCE / COLOR
Surface:
- Grain-textured

Top surface:
- Black with multicolored speckles

TECHNICAL INFORMATION
Length: 10.00 / 8.00 m
Width: 1.25 m
Thickness: 6.00 / 8.00 mm

PROTECTION-, DRAINAGE- AND FILTER LAYERS

Aquadrain 550

DESCRIPTION
Aquadrain 550 is made of mechanically strengthened Polypropylene (PP) fibres.

USES
Aquadrain 550 is used as drainage, water retention and protection layer for extensive and intensive green roof systems with a minimal slope of 1.50%.

CHARACTERISTICS / ADVANTAGES
- 3 in 1 product (drainage, water retention and protection)
- Suitable for extensive and intensive green roofs with slopes of minimum 1.50%
- Ease of application
- Non decaying
- Not UV stable

APPEARANCE / COLOR
Surface:
- Structured

Color:
- Brown

SikaRoof® Drainage Layer 20L2F

DESCRIPTION
SikaRoof® Drainage Layer 20L2F comprises of a threedimensional composite polymer drainage core connected to a fleece filter (PP) on both sides.

USES
SikaRoof® Drainage Layer 20L2F may only be used by experienced professionals:
- It is used as a drainage, filter and protection layer for flat roof extensive and intensive green roof systems

CHARACTERISTICS / ADVANTAGES
- 3 in 1 product (drainage, protection and filter layer)

APPEARANCE / COLOR
Color:
Drainage core
- Black

Filter fleece
- Light grey

SYSTEM OVERVIEW SikaRoof® CONTROL / MONITORING SYSTEMS

Aspects such as sustainability and energy efficiency are becoming increasingly important in today's world. This development is based on a holistic view of a building in its entire life cycle. SikaRoof® Control / Monitoring Systems enable to inspect water ingress and detect / locate the defective area and help to secure material assets and prevent consequential damages. The continuous monitoring of the building condition allows for a targeted and cost-effective maintenance.
The SikaRoof® Control / Monitoring is designed as a modular system.

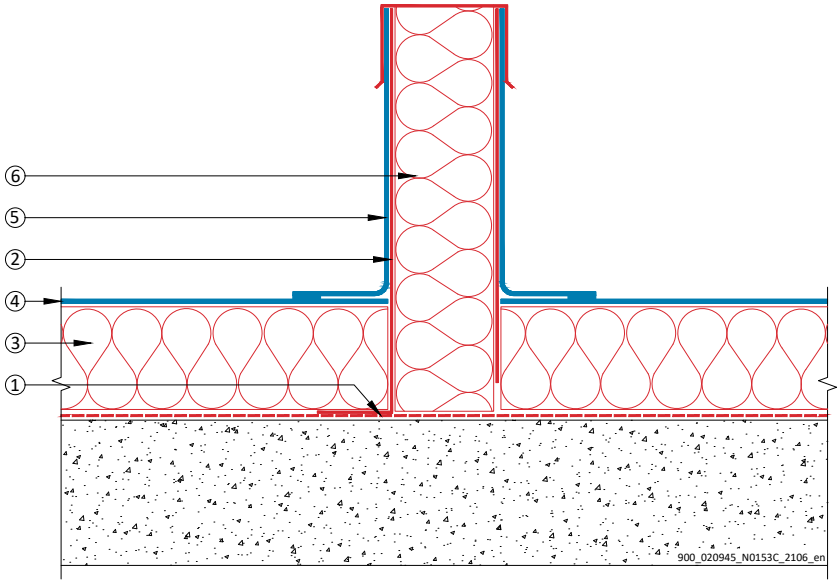
	Control Pipe – manual visual inspection possibilty	**Control Pipe – with integrated 24/7 monitoring**	**Compartments / Waterstop System**	**SikaRoof® Control (precise leak detection)**
Detection of water on vapour control layer	● (visual check / passive)	● (monitoring / active)	○	○
Limiting the area of water spread inside the roof build-up	○	○	● (100 – 600 m² compartment size)	○
Precise leak detection possibility	○	○	○	● (high / low voltage test)

● Suitable
○ Not suitable

SikaRoof®
CONTROL / MONITORING

CONTROL PIPE – MANUAL VISUAL INSPECTION POSSIBILITY

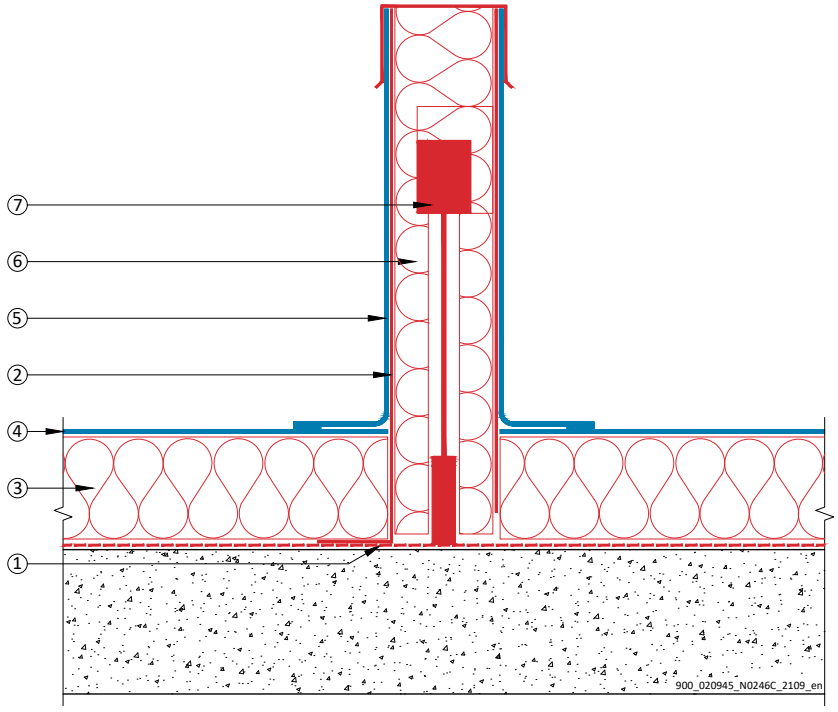
Enables inspecting any water ingress by visually inspecting the control pipe on the roof. The roof area is usually divided into compartments.



1 Vapour control layer
2 Sarnafil® T Control Pipe
3 Thermal insulation
4 Sarnafil® AT membrane
5 Prefabricated Sarnafil® T flashing
6 Cap with integrated insulation plug

CONTROL PIPE – WITH INTEGRATED 24/7 MONITORING

Permanent electronic roof monitoring in the control pipe with SikaRoof® Sensor Active R. The roof area is usually divided into compartments.



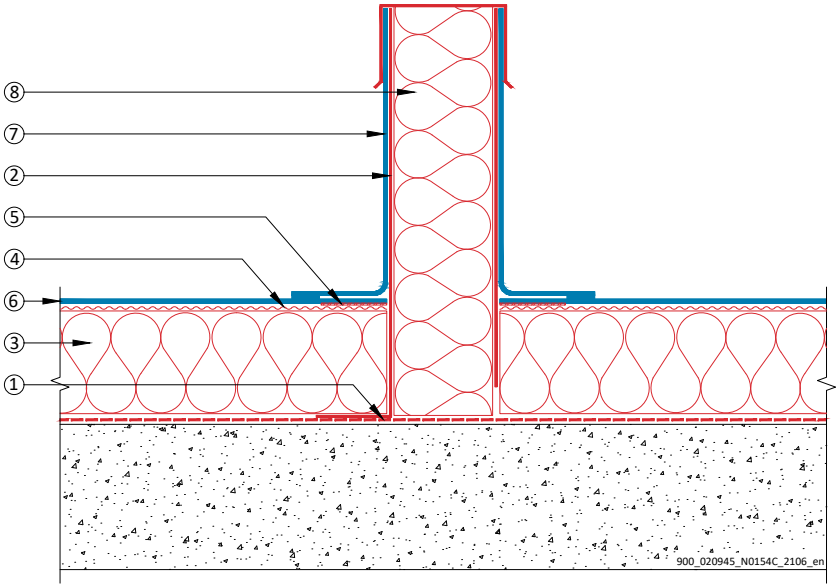
1 Vapour control layer
2 Sarnafil® T Control Pipe
3 Thermal insulation
4 Sarnafil® AT membrane
5 Prefarbricated Sarnafil® T flashing
6 Cap with integrated insulation plug
7 SikaRoof® Sensor Active R

SikaRoof® CONTROL / MONITORING

CONTROL PIPE – WITH INTEGRATED LEAK DETECTION POSSIBILITY

Enables inspecting any water ingress by visually inspecting the control pipe on the roof and precise leak detection possibility.

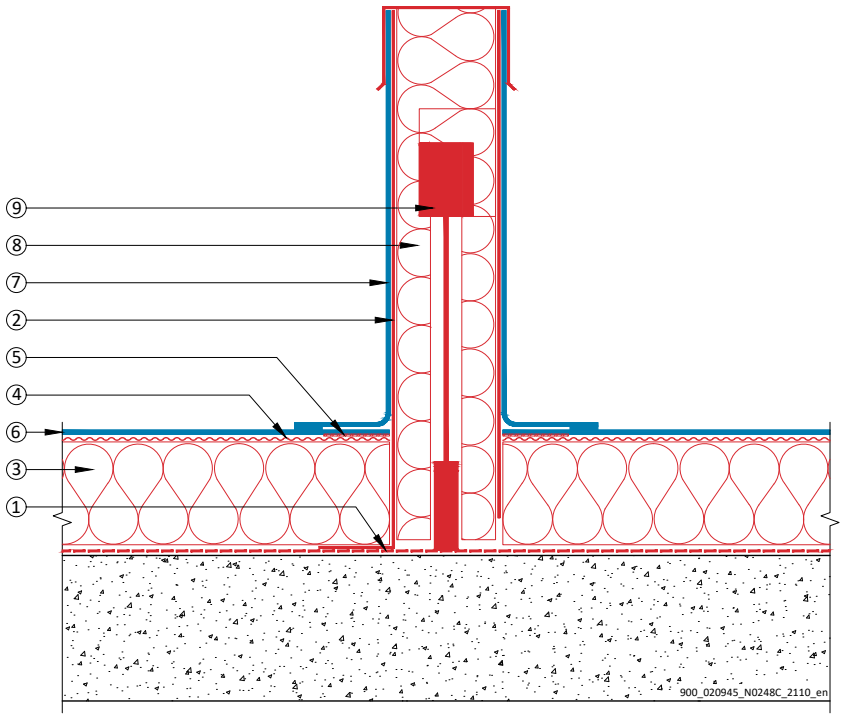
The SikaRoof® Glass – Graphite Fleece (electrical conductive) is applied below the roofing membrane on top of the thermal insulation.



1 Vapour control layer
2 Sarnafil® T Control Pipe
3 Thermal insulation
4 SikaRoof® Glass – Graphite Fleece
5 SikaRoof® Control Contact Plate
6 Sarnafil® AT membrane
7 Prefabricated Sarnafil® T flashing
8 Cap with integrated insulation plug

CONTROL PIPE – WITH INTEGRATED 24/7 MONITORING AND LEAK DETECTION POSSIBILITY

Permanent electronic roof monitoring in the control pipe with SikaRoof® Sensor Active R and precise leak detection possibility.

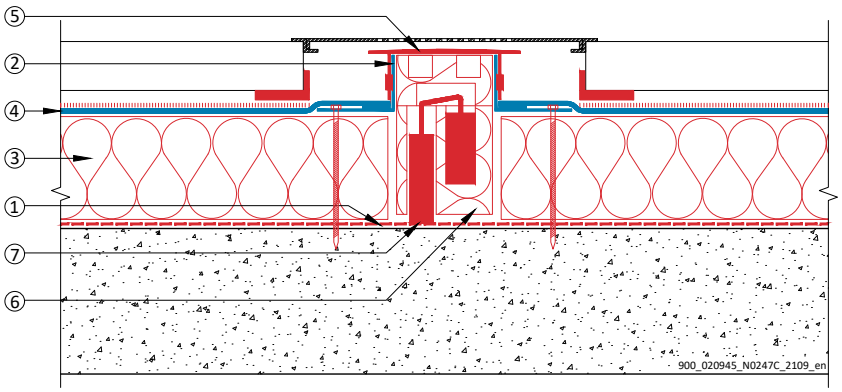


1 Vapour control layer
2 Sarnafil® T Control Pipe
3 Thermal insulation
4 SikaRoof® Glass – Graphite Fleece
5 SikaRoof® Control Contact Plate
6 Sarnafil® AT membrane
7 Prefabricated Sarnafil® T flashing
8 Cap with integrated insulation plug
9 SikaRoof® Sensor Active R

SikaRoof®
TERRACE MONITORING / CONTROL

ROOF TERRACE – WITH INTEGRATED 24/7 MONITORING

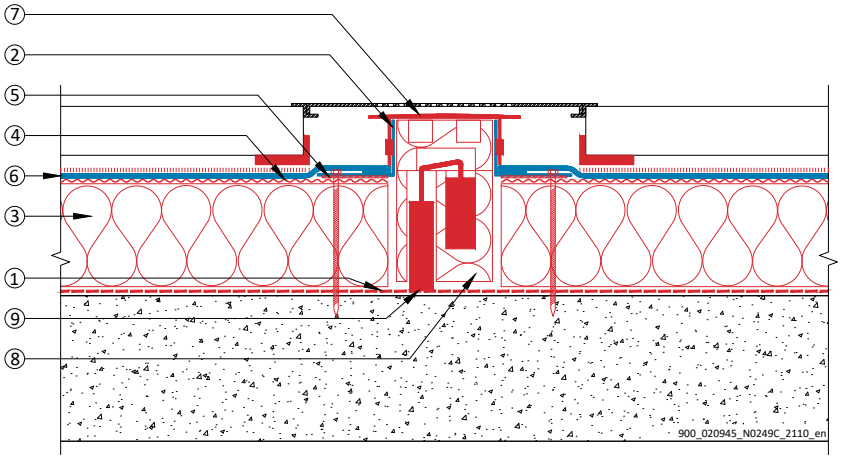
Permanent electronic roof monitoring in the XPS insulation core and lid with SikaRoof® Sensor Active T. The roof area is usually divided into compartments.



1 Vapour control layer
2 Sarnafil® T Drain
3 Thermal insulation
4 Sarnafil® AT membrane
5 Cap
6 XPS insulation core
7 SikaRoof® Sensor Active R

ROOF TERRACE – WITH INTEGRATED 24/7 MONITORING AND LEAK DETECTION POSSIBILITY

Permanent electronic roof monitoring in the XPS insulation core and lid with SikaRoof® Sensor Active T and precise leak detection possibility.



1 Vapour control layer
2 Sarnafil® T Drain
3 Thermal insulation
4 SikaRoof® Glass – Graphite Fleece
5 SikaRoof® Control Contact Plate
6 Sarnafil® AT membrane
7 Cap
8 XPS insulation core
9 SikaRoof® Sensor Active R

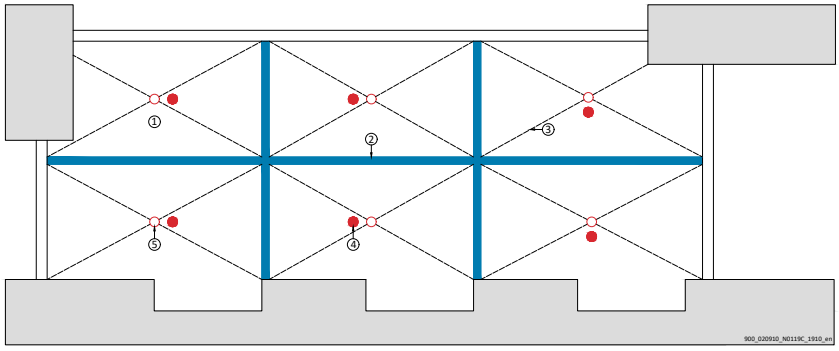
COMPARTMENTS / WATERSTOP SYSTEM

ROOF COMPARTMENTS WITH WATERSTOP SYSTEM

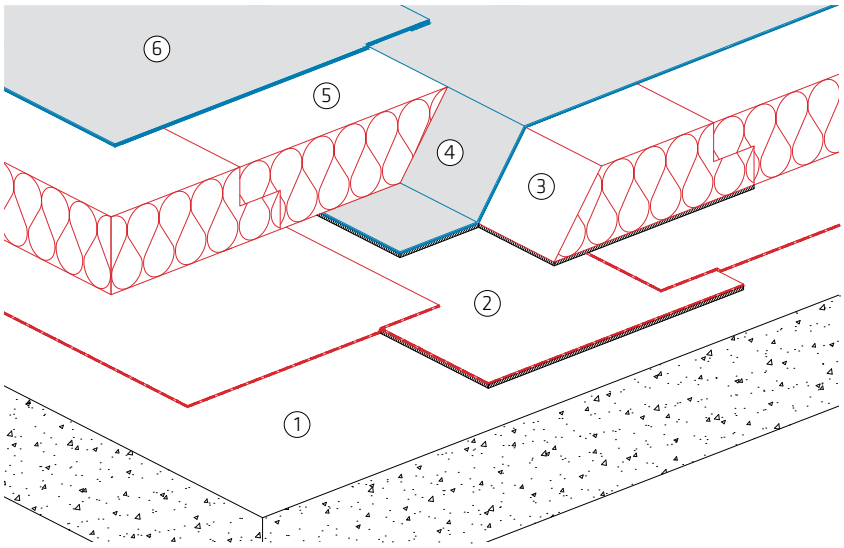
To achieve a compartment system, the roof area shall be divided into smaller areas of 100 m^2 up to 600 m^2, in order to limit the leaking area when the roof ever becomes damaged.
The compartment is executed with the waterstop system.

Compartment size:
- 100 to 300 m^2 (if the protective layer is difficult to remove)
- 300 to 600 m^2 (If the protective layer is easy to remove)

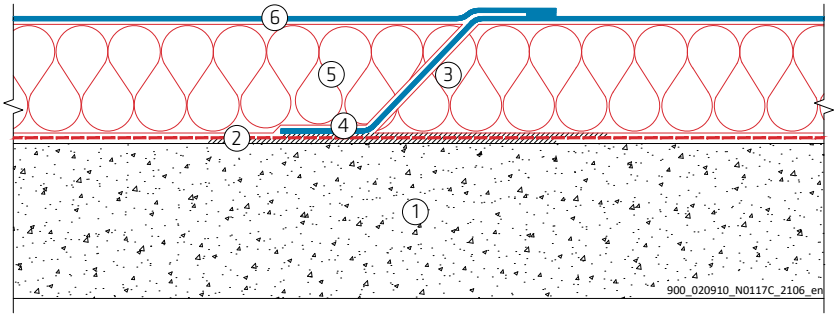
The design and layout of the compartment system should be co-ordinated with roof valleys and the drainage system. Waterstops are typically positioned at high points and the control pipe at the low point of the roof. Each compartment needs to be provided with a control pipe.
Waterstops form a watertight seal between the roofing membrane and the vapour control layer in order to minimize water damage in case of a leak.
Waterstops are important safety components. Besides subdividing roofs into smaller areas, they separate special zones from the rest of the roof. Waterstops are installed to divide the roof into compartments.



1 Compartment
2 Waterstop
3 Valley
4 Control pipe
5 Roof drain



1 Roof deck
2 Bituminous vapour control layer, fully adhered at least in the area of partition
3 Thermal insulation layer – edge cut at 45° – adhered to serve as a stopper for the partition
4 Sarnafil® AT membrane adhered with hot bitumen to the vapour control layer
5 Loose laid thermal insulation layer – edge cut 45°
6 Sarnafil® AT membrane welded to the already installed membrane



SikaRoof® CONTROL - LEAK DETECTION

SYSTEM FOR PRECISE LEAK DETECTION

The System is suitable for new construction and refurbishment projects. In the construction phase of the roof, the electrically conductive special glass / graphite fleece is installed below the roofing membrane on top of the thermal insulation. In order to carry out leak detection, two control pipes together with the stainless steel contact plate are installed every 1500 m^2. This gives an easy access point to the technician to connect the leak detection device.

Main advantages of the System:
- Possibility of simple leak-tests from the beginning
- Leak detection / tests can be conducted with the low and high voltage method
- Significant reduced costs due to target determination of the error sources

Low voltage leak detection

Low voltage leak detection requires only a thin film of water on the tested surface. The negative output of the generator is applied to the trace wire which borders the test area, whilst the positive output is connected to a suitable building substrate. If water has penetrated the roofing membrane within the test area, a current will flow from this source point, via the water on the roof towards the trace wire. The detector is used to identify the direction of electrical current and detect the point of origin (where water is penetrating the roofing membrane).

Note: The roof layers above the Roofing Membrane must be water-permeable. An electrically conductive layer is required below the roofing membrane.

High voltage leak detection

The earth lead from the high voltage test device is connected to a convinient earth point on the structure. A high voltage DC current is applied to the dry surface of the roofing membrane. When there are no faults present, the roofing membrane acts as an electrical insulator by stopping the flow of current out of the device. When the electrode passes a fault or hole, the high voltage jumps the gap between the electrode and the conductive layer below the roofing membrane, causing a current to flow. The audible and visual alarm of the testing device will alert the operator.

Note: The surface / roof membrane needs to be completely dry. An electrically conductive layer is required below the roofing membrane.

SikaRoof® CONTROL / MONITORING PRODUCTS

Sarnafil® T Sensor Control Pipe Set

DESCRIPTION
The Sarnafil® T Sensor Control Pipe Set comprises of 3 parts. A rigid high quality polypropylene (PP) pipe, an expanded polyethylene (EPE) insulation plug with cap and a prefabricated Sarnafil® T (FPO) flashing.

USES
Sarnafil® T Sensor Control Pipe Set may only be used by experienced professionals.
- The Sarnafil® T Sensor Control Pipe Set enables to house the SikaRoof® Sensor active R and provides an inspection point on the flat-rooftop to check / monitor the watertightness.

CHARACTERISTICS / ADVANTAGES
- Easily installed
- Suitable for new projects and retrofitting existing flat roofs

PACKAGING
The Sarnafil® T Sensor Control Pipe Set consists of:
- Pipe with base plate (one piece)
- Cap with integrated insulation plug
- Prefabricated Sarnafil® T flashing

SikaRoof® Sensor Active R / T

Active R – Roof / Active T – Terrace

DESCRIPTION
The SikaRoof® Sensor Active R / T is a battery powered, wireless sensor for water detection and monitoring the humidity in flat roof build-up.

USES
SikaRoof® Sensor Active R / T may only be used by experienced professionals.
- SikaRoof® Sensor Active R / T is used to detect water ingress and to monitor the humidity in flat roof build-up

CHARACTERISTICS / ADVANTAGES
- Radio based sensor system based on latest IoT-Net-work technology
- Easily installed, no electrician required on job-site
- Easily to start-up due to plug-and-play system
- Self-sufficient electric power supply with batteries
- Suitable for new construction, refurbishment and retrofitting

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Sarnafil® T Drain

Please refer to ROOF DRAINAGE – page 50

XPS insulation core and Lid

DESCRIPTION
XPS insulation core and Lid made of PP including rubber seal.

USES
Enables to monitor the terrace build-up in combination with the SikaRoof® Sensor Active T.

Sarnafil® T Control Pipe Set

DESCRIPTION
The Sarnafil® T Control Pipe Set is made of rigid high quality polypropylene (PP) pipe and cap, expanded polyethylene (EPE) insulation plug and prefabricated Sarnafil® T (FPO) flashing.

USES
The Sarnafil® T Control Pipe Set enables to check the watertightness of a flatroof from the rooftop.

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Ease of application

PACKAGING
The Sarnafil® T Control Pipe Set consists of:
- Pipe with base plate (one piece)
- Cap with integrated insulation plug
- Prefabricated Sarnafil® T flashing

SikaRoof® Glass – Graphite Fleece

DESCRIPTION
SikaRoof® Glass – Graphite Fleece is a conductive and fire protection layer made of non-woven glass fibre.

USES
SikaRoof® Glass – Graphite Fleece may only be used by experienced professionals.
- SikaRoof® Glass – Graphite Fleece is used as a conductive layer to facilitate leak detection below Sarnafil® AT roofing membranes.

CHARACTERISTICS / ADVANTAGES
- Easily applied
- Suitable for mechanically fastened and ballasted roof systems

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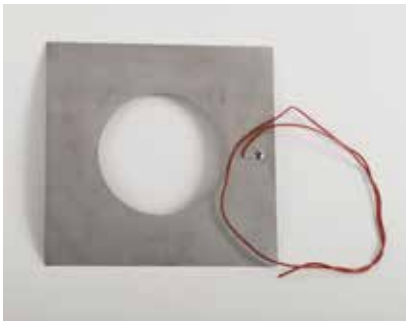
SikaRoof® Control Contact Plate



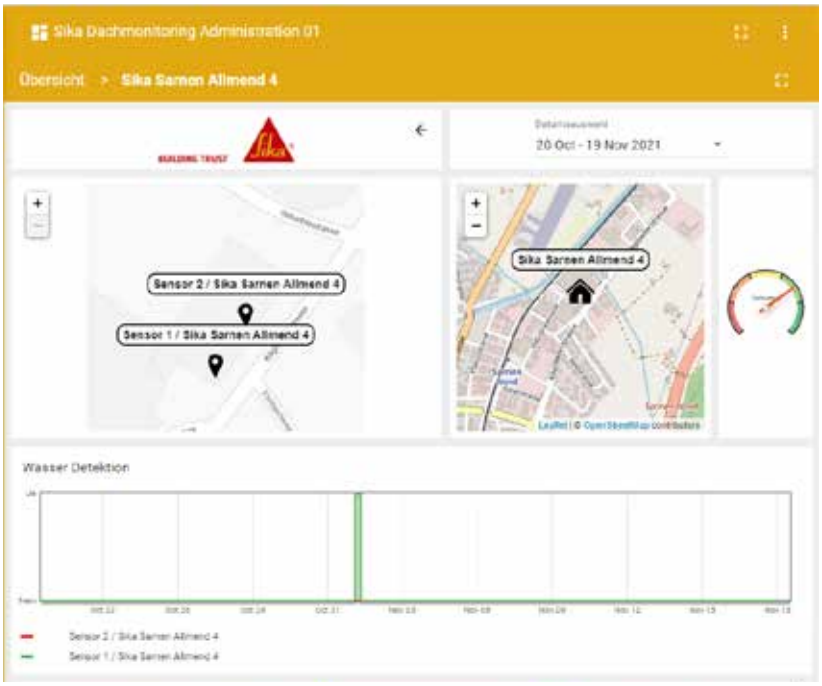
DESCRIPTION
The SikaRoof® Control Contact Plate is a stainless steel plate to connect the applied conductive glass felt wth the read-out device.

USES
SikaRoof® Control Contact Plate may only be used by experienced professionals.
- Contact plate between the applied conductive glass felt and the read-out device.

CHARACTERISTICS / ADVANTAGES
- Easy application without the use of fasteners
- Plate includes the the 800 mm long connection wire

SikaRoof® CONTROL / MONITORING SYSTEMS

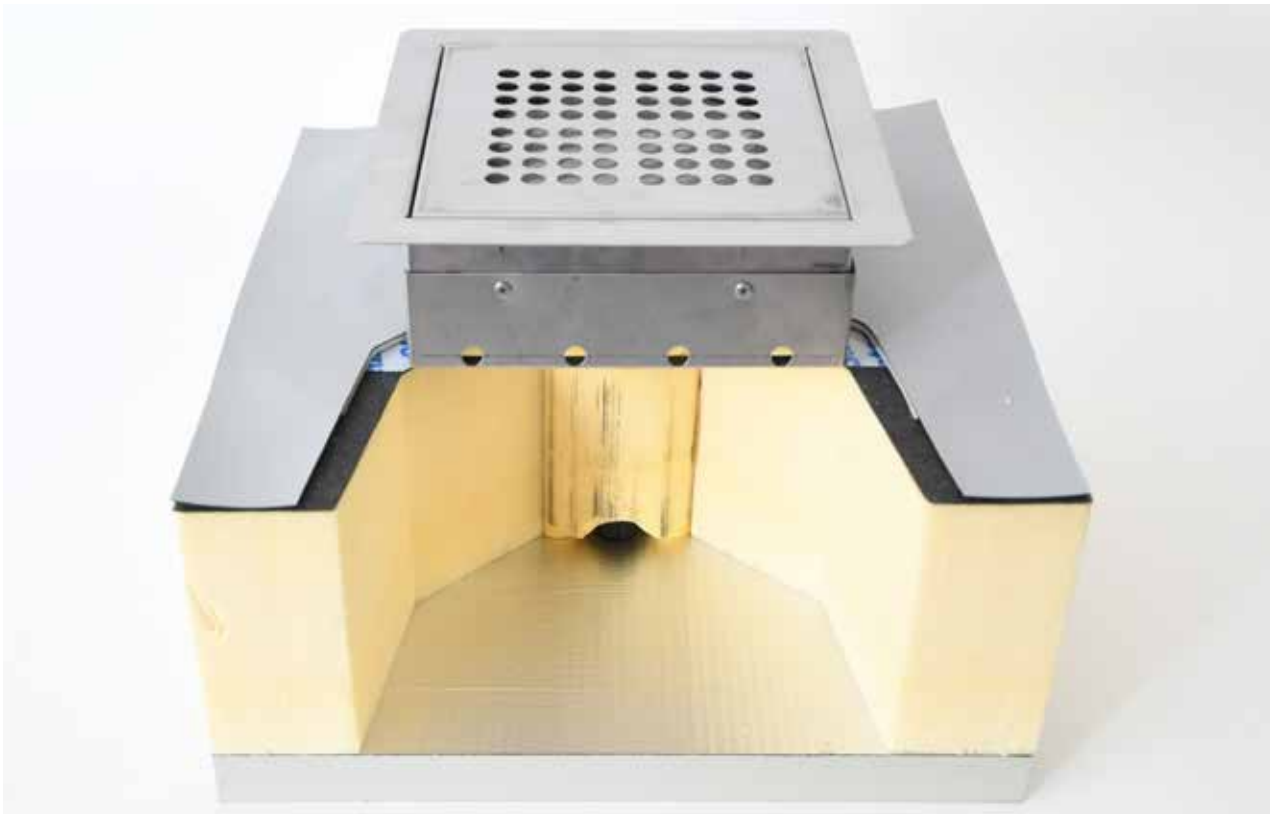
SikaRoof® Sensor Data Transmission



DESCRIPTION
Transmission from SikaRoof® Sensor monitored data to the Sika platform.

USES
In combination with SikaRoof® Sensor Active R / T.

TERRACE CONTROL / MONITORING SYSTEM



STANDARD CONTROL / MONITORING SYSTEM

TECHNOLOGY OVERVIEW THERMAL INSULATIONS

INTRODUCTION

Thermal insulation is one of the key construction elements, creating comfortable environment inside the building by protecting it from the heat and the cold.

The importance of thermal insulation has increased recently a lot due to continuously changing insulation standards worldwide, which put higher and higher demands to thermal resistance of building structures to reduce energy losses for heating or cooling. The main coefficient used for evaluation of such thermal characteristics is U-Value, which represents the energy transmission (loss) per 1 m^2 K of the building structure.

Insulation types used in flat roofing systems should have not only high thermal characteristics but sufficient mechanical properties as well to be able to withstand loads, which occur in various roof systems (like snow loads, limited pedestrian traffic for maintenance reasons, ballast, moisture in inverted roof build up, etc.) and to match specific fire requirements.

This section presents most common insulation types for this application and their suitability to Sika flat roof waterproofing systems. Properties of specific insulation products on the market may vary from listed general characteristics.

Product portfolio of Sika incorporates some of these insulation product types. For specific product information please refer to respective product brochures and data sheets.

PRODUCT TECHNOLOGIE – MAIN TECHNOLOGIES

PIR / PUR

PIR / PUR is a rigid polyisocianurate foam produced in a chemical process (exothermic chemical reaction) made by mixing MDI, polyols, blowing agents (usually pentan gas) and other additives. The products are known for one of the lowest thermal conductivities.
Majority of PIR / PUR boards for flat roofing applications have facers. It can be aluminium or glass tissue or paper. Facers prevent outgassing effect.

CHARACTERISTICS / ADVANTAGES
- Excellent thermal characteristics
- Low weight
- Ideal for adhered applications
- High compression strength

EPS

EPS (Expanded Polystyrene) is a plastic styrol foam made in physical process when polystyrene granules are expanded with vapour and then pressed together at high temperature to form blocks.
This is one of the most cost efficient insulations, which gained through that popularity on various local markets. In some countries it has a limited use on exposed roofs due to fire regulations, but majority of standard ballasted applications are done with this insulation.

CHARACTERISTICS / ADVANTAGES
- Cost efficient
- Low weight
- Ideal for gravel ballasted applications
- High compression strength

Mineralwool

Mineral (stone) wool is a traditional building insulant known for it's incombustible properties.
The mineralwool products are generally produced out of basalt in an physical process – basalt is heated up to 1500 °C till it gets into liquid state, then fibres are formatted with air pressure and organic binders are added to better hold these fibers together.
Mineralwool products for standard flat roofing applications are single or dual density rigid boards with mechanical and compression strength roperties sufficient for intended application.

CHARACTERISTICS / ADVANTAGES
- Non combustible
- Excellent acoustical properties
- Dimensionally stable

XPS

XPS (Extruded Polystyrene) is a plastic styrol foam produced with extrusion process. The polystyrene granules are mixed with the blowing agent (CO_2 or Freon) and then extruded.
XPS has very high compression strength and very low water absorption and these unique advantages determine it's most common applications – utility decks with high loads and inverted roofs (when thermal insulation is placed above waterproofing layer).

CHARACTERISTICS / ADVANTAGES
- Very high compression strength
- No or very low water absorption
- Low weight
- Ideal for inverted applications and utility decks with high loads (car traffic)

TECHNOLOGY OVERVIEW THERMAL INSULATIONS

PRODUCT TECHNOLOGIE – SPECIALITIES

Coverboard

Coverboards for roofing applications are usually non-structural, glass-mat faced, moisture-resistant, treated gypsum or cementitious core panels. This treated gypsum or cementitious core is an integral part of the inorganic glass mat surfacing on both sides. Such boards are installed to create rigid roofing surface and to bring additional thermal resistance to the roofing structure as well.

CHARACTERISTICS / ADVANTAGES
- Very high compression strength
- Excellent fire ratings

High Density Board

The high density board is a flat roof overlay board for use in combination with PIR / PUR boards. It provides added protection to the insulation below in areas of excessive traffic and high loadings.
In addition to its compressive performance, high density board exhibits excellent dimensional stability, ideal in flat roofs which experience intense thermal cycling between cold winter temperatures and extremely hot summers.

CHARACTERISTICS / ADVANTAGES
- High compressive strength
- Excellent dimensional stability

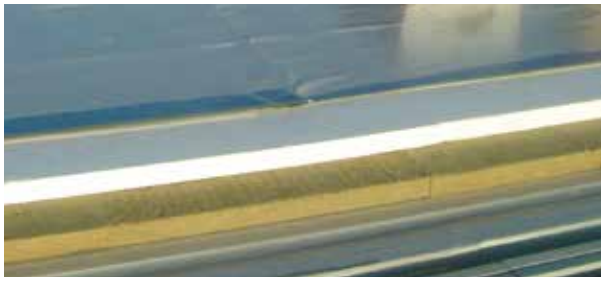
Cellular Glass

Cellular glass is manufactured primarily from sand, limestone, and soda ash. (recycled glass could also be used). These ingredients are melted into molten glass, which is cooled and crushed into a fine powder. The powdered glass is poured into molds and heated that causes the particles to adhere to one another. Next, a small amount of finely ground carbon-black is added, and the material is heated in a “cellulation” process. Here, the carbon reacts with oxygen, creating carbon dioxide, which forms the insulating bubbles in the foamglas.

CHARACTERISTICS / ADVANTAGES
- No water absorption
- High resistance to fire, non combustible
- High compression strength

PRODUCT TECHNOLOGIE – COMBINATIONS

EPS combined with Mineralwool



As an example EPS can be combined with Mineralwool, which can on one hand improve fire characteristics (compared to pure EPS build-up), provide higher compression strength and one other hand bring some additional cost efficiency.

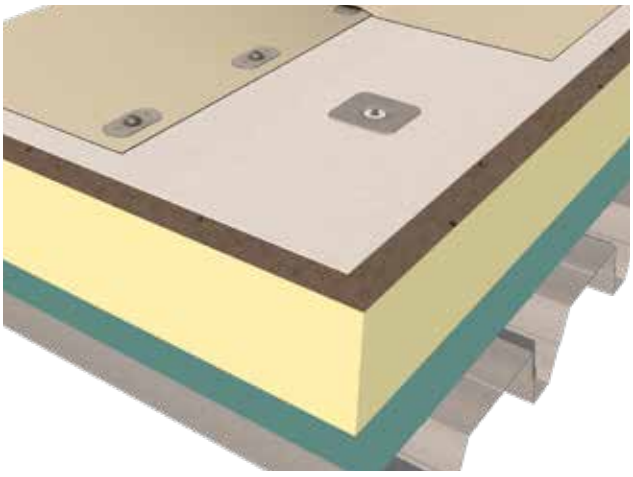
Numerous combinations of several insulation types can be Installed together in a single roof build-up to reach:

- Desired thermal values
- Higher compression strengths
- Extended fire characteristics
- Economical properties, etc.

CHARACTERISTICS / ADVANTAGES

- Combining strengths of various insulation types
- Improving acoustics
- Customized thermal insulation build up to special customer needs in case desired technical values or cost efficiency can not be reached with one product group

U-VALUES FOR ROOF BUILD-UP ON STEEL DECK (W/m²·K)



- Sarnafil® AT roof waterproofing membrane
- Thermal insulation
- Sarnavap® vapour control layer
- Steel deck 1.00 mm

	80 mm	100 mm	120 mm	140 mm	160 mm	180 mm	200 mm	220 mm	240 mm	260 mm
PIR / PUR Aluminium 0.023 W/(m·K)	0.28	0.22	0.19	0.16	0.14	0.13	0.11	0.10	0.09	0.09
PIR / PUR Glass Tissue 0.028 W/(m·K)	0.33	0.27	0.23	0.19	0.17	0.15	0.14	0.12	0.11	0.11
EPS Graphite 0.029 W/(m·K)	0.34	0.28	0.23	0.20	0.18	0.16	0.14	0.13	0.12	0.11
EPS Standard 0.037 W/(m·K)	0.43	0.35	0.29	0.25	0.22	0.20	0.18	0.16	0.15	0.14
XPS HCFC Blown 0.029 W/(m·K)	0.34	0.28	0.23	0.20	0.18	0.16	0.14	0.13	0.12	0.11
XPS CO_2 Blown 0.037 W/(m·K)	0.43	0.35	0.29	0.25	0.22	0.20	0.18	0.16	0.15	0.14
Mineral Wool 0.040 W/(m·K)	0.47	0.38	0.32	0.27	0.24	0.22	0.19	0.18	0.16	0.15

TECHNOLOGY OVERVIEW THERMAL INSULATIONS

COMPATIBILITY OF MAIN THERMAL INSULATION TYPES TO SIKA ROOFING SYSTEMS

Material types	Mechanically fastened	Adhered	Gravel ballasted	Green and Utility	Inverted	Metal roof refurbishment
PIR / PUR	**Compatible**	**Compatible**	**Compatible**	**Limited compatibility**	**Not compatible**	**Compatible**
		Glass tissue, paper or aluminium faced boards shall be used.		Due to higher compression loads affecting thermal insulation.		Additional flute filler may be required depending on the metal profile.
Mineralwool	**Compatible**	**Compatible**	**Limited compatibility**	**Very limited compatibility**	**Not compatible**	**Compatible**
		Only special mineralwool boards with facings shall be used in order to provide good bond without extreme adhesive consumption.	Due to higher compression loads on thermal insulation. Every project needs an evaluation.	Due to higher compression loads on thermal insulation. Every project needs an evaluation.		Additional flute filler may be required depending on the metal profile.
EPS	**Compatible**	**Compatible**	**Compatible**	**Limited compatibility**	**Not compatible**	**Compatible**
	A separation layer shall be applied in case of special fire requirements.			Due to higher compression loads affecting thermal insulation. Every project needs an evaluation.		Additional flute filler may be required depending on the metal profile. A separation layer shall be applied in case of special fire requirements.
XPS	**Compatible**	**Compatible**	**Compatible**	**Compatible**	**Compatible**	**Compatible**
	A separation layer shall be applied in case of special fire requirements.					Additional flute filler may be required depending on the metal profile. A separation layer shall be applied in case of special fire requirements.
Coverboard	**Compatible**	**Compatible**	**Compatible**	**Compatible**	**Compatible**	**Compatible**

Note: Every project needs an evaluation.

MAIN VALUES THERMAL INSULATION

	PIR / PUR	Mineralwool	EPS	XPS
Thermal conductivity	Aluminium faced boards λ_d 0.022 – 0.025 W/(m·K) Glass tissue faced boards λ_d 0.024 – 0.030 W/(m·K)	λ_d 0.038 – 0.040 W/(m·K)	EPS with graphite λ_d 0.029 – 0.031 W/(m·K) Standard EPS λ_d 0.034 – 0.038 W/(m·K)	Standard boards, HCFC blown λ_d 0.029 – 0.034 W/(m·K) CO_2 blown XPS boards λ_d 0.035 – 0.037 W/(m·K)
Compression strenght	**100 – 150 kPa** It is sufficient for flat exposed applications and ballasted applications without heavy loads.	**40 – 60 kPa** It is sufficient for flat exposed applications without heavy pedestrian load.	**100 – 250 kPa** It is sufficient for flat exposed applications and most of ballasted applications.	**200 – 700 kPa** It is sufficient for utility decks with car traffic.
Resistance to water absorption	Boards have high resistance to moisture absorbtion, but they still can not be used in inverted roofs.	Boards have limited resistance to moisture absorbtion.	Boards have high resistance to moisture absorbtion, but they still can not be used in inverted roofs.	Zero water absorption, can be used in inverted roofing applications.
Weight	**30 to 40 kg/m³**	**110 to 200 kg/m³** Most common density of the boards for flat roofing applications is around 150 kg/m³.	**20 to 30 kg/m³**	**25 to 40 kg/m³**
Dimensional stability / average shrinking rates	Up to 1 % in average	0%	up to 2% in average	up to 2% in average
Availability of tapered Insulation	**Available** Can be either cut out of the block in production or can also be produced as a ready board with a pitch.	**Available** Can be either cut on site or in production process. Cutting mineral wool on site releases fibers which may irritate.	**Available** Is usually cut out of insulation block by heated wire in production or on the site.	**Available** Harder to cut than expanded polystyrene boards. Usually prefabricated in production.

TECHNOLOGY OVERVIEW THERMAL INSULATIONS

BEHAVIOUR IN FIRE

EUROPEAN FIRE CLASSIFICATION		
Product Classification	**System Classification**	
Reaction to Fire according to EN 13501-1 Single product is tested to its behaviour in fire, smoke production, heat emissions, etc.	**External Fire Exposure according to EN 13501-5** External fire exposure tests behaviour of roofing system with various slopes and various wind speeds to external fire influence (fire in on top of the roofing surface).	**Fire Resistance of Structures according to EN 13501-2** Fire Resistance test represents how long the structure can resist fire without loosing ist structural abilities, entegrity and insulation characteristics. Fire is applied from underneath the roofing structure.

PRODUCT CLASSIFICATION – REACTION TO FIRE ACCORDING TO EN 13501-1			
Class	**Description**	**Main characteristics**	**Related testing procedures**
A1	Non combustible, Do not contribute to fire growth in any phase of fire including fully developed fire.	Increase of temperature ≤ 30°C, and weight loss ≤ 50%, and no sustained flaming	EN ISO 1182 and
		Combustion heat ≤ 2.0 MJ/kg	EN ISO 1716
A2	Gives no significant contribution to fire growth and fire load in a fully developed fire.	Increase of temperature ≤ 5 0 °C, and Weight Loss ≤ 50%, and Sustained flaming ≤ 20 s	EN ISO 1182 or
		Combustion Heat ≤ 3.0 MJ/kg	EN ISO 1716 and
		Heat release rate ≤ 120 W/s, lateral flame spread < specimen edges Total heat release within 600 s ≤ 7.5 MJ	EN 13823
B	Do not lead to flashover situation, however they will contribute to a fully developed fire.	Heat release rate ≤ 120 W/s, lateral flame spread < specimen edges Total heat release within 600 s ≤ 7.5 MJ	EN 13823 and
		Spread of flame ≤ 150 mm within 60 sec	EN ISO 11925-2 Exposure to fire 30 s
C	Shows limited fire spread during exposure to fire of single burning item, may lead to flashover situation, but only in the second part of the reference test, i.e. after more than 10 minutes.	Heat release rate ≤ 250 W/s, lateral flame spread < specimen edges Total heat release within 600 s ≤ 15 MJ	EN 13823 and
		Spread of flame ≤ 150 mm within 60 sec	EN ISO 11925-2 Exposure to fire 30 s
D	Can withstand small flame for certain time without significant fire spread, may lead to flashover situation in the first part of the reference test, i.e. within 10 minutes, but not before 2 minutes.	Heat release rate ≤ 750 W/s	EN 13823 and
		Spread of flame ≤ 150 mm within 60 sec	EN ISO 11925-2 Exposure to fire 30 s
E	Are able to withstand small fire for a short time without significant spread of flame, may lead to flashover within 2 minutes.	Spread of flame ≤ 150 mm within 20 sec	EN ISO 11925-2 Exposure to fire 15 s
F	Products which can not be classified under A-E classes.	No performance determined	

MATERIALS OF CLASSES A2 TO D ARE TESTED FOR SMOKE EMISSIONS		
s1	**s2**	**s3**
Smoke development rate ≤ 30 m^2/s2 Total smoke propagation in 600s ≤ 50 m^2	Smoke development rate ≤180 m^2/s2 Total smoke propagation in 600s ≤ 200 m^2	Products which does not fulfil s1 and s2

MATERIALS OF CLASSES A2 TO D ARE ALSO TESTED FOR BURNING DROPLETS		
d0	**d1**	**d2**
No droplets within 600 secs	Droplets burn for less than 10 secs within 600 secs	Products which does not fulfil d0 and d1

PIR / PUR	Mineralwool	EPS	XPS
Class E according to EN 13501-1	Class A1 according to EN 13501-1	Class E according to EN 13501-1	Class E according to EN 13501-1
The boards are classified as combustible, but they do not spread the flame, do not melt in fire and are self-extinguishing. The short temperature resistance is 250 °C and long temperature resistance 90 °C.	The boards are classified as incombustible.	The boards are classified as combustible, they melt during fire, but products are self-extinguishing. The short temperature resistance is 80 – 90 °C.	The boards are classified as combustible, they melt during fire, but products are self-extinguishing. The short temperature resistance is 70 – 90 °C.

SYSTEM CLASSIFICATION – EXTERNAL FIRE EXPOSURE EN 13501-5				
Four basic tests can be done to evaluate exernal fire behaviour of the roof				
	Test 1	**Test 2**	**Test 3**	**Test 4**
Testing pitch	15 °/ 45 °	30 °	5 °/ 30 °	0 °/ 45 °
Apply to following roof pitches	< 20 °/ ≥ 20 °	All pitches	< 10 °/ ≥ 10 ° and < 70 °	< 10 °/ ≥ 10 °
Fire	●	●	●	●
Wind		●	●	●
Radiant heat			●	●
2 stage test				●

● Approved

THERMAL INSULATION PRODUCTS

Sikatherm® PIR GT

DESCRIPTION
Sikatherm® PIR GT is an insulation board for flat roofing. It is faced on both sides with a coated glass tissue bonded to the insulation core and produces a tough, durable, light weight insulation board.

USES
Thermal insulation underneath Sarnafil® AT roof waterproofing membranes.

CHARACTERISTICS / ADVANTAGES
- Produced with a blowing agent with zero Ozone Depletion Potential (ODP)
- Low thermal conductivity
- Ideal for new construction and refurbishment
- High compressive strength
- Light weight and low load on the roofing structure

Sikatherm® PIR AL

DESCRIPTION
Sikatherm® PIR AL is an insulation board for flat roofing. It is faced on both sides with an aluminium composite foil bonded to the insulation core and produces a tough, durable, light weight insulation board.

USES
Thermal insulation underneath Sarnafil® AT roof waterproofing membranes.

CHARACTERISTICS / ADVANTAGES
- Produced with a blowing agent with zero Ozone Depletion Potential (ODP)
- Ideal for new construction and refurbishment
- High compressive strength
- Light weight and low load on the roofing structure

Sikatherm® EPS

DESCRIPTION
Sikatherm® EPS are boards of expanded polystyrene with high thermal insulating properties, which remain unaffected in time.

USES
Thermal insulation underneath Sarnafil® AT roof waterproofing membranes.

CHARACTERISTICS / ADVANTAGES
- Homogeneity of the physical and mechanical characteristics of the product and therefore isotopical behaviour
- Stability against tension, distortion, break, degradation and ageing.
- Ideal for new constructions and refurbishment projects
- Lightweight, applying thus low load on the roofing structure
- 100% recyclable

Sikatherm® XPS

DESCRIPTION
Sikatherm® XPS is a rigid extruded polystyrene insulation board with self-extinguishing properties that can be used as part of Sika roof waterproofing systems.

USES
Thermal insulation underneath and above Sarnafil® AT roof waterproofing membranes.

CHARACTERISTICS / ADVANTAGES
- Very low thermal conductivity
- Ideal for new constructions and refurbishment projects
- High compression strength
- Lightweight and low load on the roofing structure
- Withstands freeze / thaw cycles
- Closed cell structure, which minimizes water absorption

PRODUCT OVERVIEW VAPOUR-CONTROL LAYERS / BARRIERS

BASICS

Moisture in today's buildings can be a source of continuous problems if not tackled professionally. This applies equally, to both new and existing buildings, particularly those that house high-tech- electronics, machinery and computer equipment, or which have moisture sensitive finishes or contents that need to be protected against condensation and its consequences.

FUNCTION OF A VAPOUR- CONTROL LAYER / BARRIER

The function of a vapour- control layer / barrier is firstly to avoid moisture build up in the fabric or structure of a building, where it could find its way into the insulation and reduce its thermal efficiency, or cause damage to other building elements. In addition to this, the vapour-control layer / barrier also serves to help secure the air tightness of the building.

	Sarnavap® -1000 E	**Sarnavap® -2000 E**	**Sarnavap® -3000 M**	**S-Vap® -4000 E SA FR**	**Sarnavap® -5000 E SA FR**	**Sarnavap® -5000 E SA**
FM	●	●			●	
Properties						
Base material	Polyethylene (PE-LD)	Polyethylene (PE-LD / HD)	Polyethylene (PE-LD)	Polyethylene (PE-Aluminium)	Aluminium / Polymer Bitumen	Aluminium / Polymer Bitumen
Color	Light blue	Green	Black / White Polyethylene foam	Off White / Grey Aluminium	Aluminium / PET film	Aluminium / PET film
Roll size (m)	5 × 25	4 × 25	1.50 × 50	1.20 × 70	1.08 / 1.38 × 40	1.08 × 30
Weight (g/m²)	195	230	400	210	400	650
Reaction to fire	Class E	Class E	Class E	Class E	Class E	Class E
Diffusion resistance factor μ	> 900'000	> 1'300'000	> 600'000	> 2'500'000	> 3'000'000	> 3'000'000
Diffusion equivalent air layer Sd (m)	≥ 200	≥ 300	≥ 200	≥ 1'500	≥ 1'800	≥ 1'800
Moisture vapour transmission (g/m²/24 h)	< 0.8	< 0.3	< 1.5	< 0.06	< 0.04	< 0.04
Vapour resistance (M Ns/g)	> 900	> 1'450	> 450	> 7'500	> 9'000	> 9'000
Application						
High humidity		●		●	●	●
Moderate humidity	●	●	●	●	●	●
Low humidity	●	●	●	●	●	●
Vapour control layer	●	●	●			
Vapour barrier				●	●	●
Accessories						
Sarnavap® Tape F	●	●	●			
Sarnatape® 20	●	●	●			
Primer-130	●	●	●			
Primer-600				●	●	●

● Achived / Used with products according to CE Marking EN 13984
Sarnavap 5000 E according to EN 13970

VAPOUR CONTROL LAYERS

Sarnavap®-1000 E

DESCRIPTION

Sarnavap®-1000 E is an unsupported vapour control layer based on Polyethylen (PE).

USES

- Vapour control layer (VCL) is applied over most common substrates. Substrates should be smooth, dry and strong enough to support foot traffic.
- If the substrate surfaces is rough (e.g. raw concrete or sloped topping), install a levelling layer beneath Sarnavap®-1000 E or use foam-backed Sarnavap® 3000M.
- Sarnavap®-1000 E vapour control layer is used for flat and pitched roofs

CHARACTERISTICS / ADVANTAGES

- Ease and speed of installation
- Stays flexible at low temperatures
- Non-decaying
- Constant vapour diffusion resistance
- Recyclable

APPEARANCE / COLOR

Surface:
- Smooth, PE-LD foil

Color:
- Light blue

Sarnavap®-2000 E

DESCRIPTION

Sarnavap®-2000 E is an unsupported vapour control layer based on Polyethylene (PE).

USES

Vapour control layer for flat roofs.

CHARACTERISTICS / ADVANTAGES

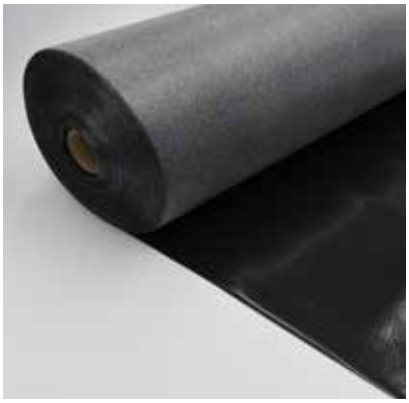
- Ease and speed of installation
- Stays flexible at low temperatures
- Constant vapour diffusion resistance

APPEARANCE / COLOR

Surface:
- Smooth, PE-LD / HD foil

Color:
- Green

Sarnavap®-3000 M



DESCRIPTION

Sarnavap®-3000 M is an unsupported vapour control layer based on Polyethylene (PE). The rear side is covered with a polyethylene foam and provided with a butyl-seam adhesive tape at one longitudinal edge.

USES

- Vapour control layer (VCL) is applied over most common substrates. Substrates should be dry and strong enough to support foot traffic.
- Sarnavap®-3000 M vapour control layer is used for flat roofs. It's designed specially for slight roughly roof decks.

CHARACTERISTICS / ADVANTAGES

- Ease and speed of installation
- Stays flexible at low temperatures
- Non-decaying
- Constant vapour diffusion resistance
- Recyclable

APPEARANCE / COLOR

Surface:
- Smooth, PE-LD foil

Color:

Top surface:
- Black

Bottom surface:
- White polyethylene foam

VAPOUR BARRIERS

S-Vap-4000 E SA FR

DESCRIPTION

S-Vap-4000 E SA FR is a polyethylene, self-adhesive, multi-layered, fire reduced, vapour barrier manufactured from cross laminated PE-film with an aluminium inlay and a hot melt adhesive on the underside.

USES

As a vapour barrier over most common roof deck types in combination with mechanically fastened roof assembly:

- Metal Plywood panels, timber boards, oriented strand board (OSB)
- Temporary waterproofing layer for up to 4 weeks. Minimum roof slope of 2 % (~1,1°)

CHARACTERISTICS / ADVANTAGES

- Ease and speed of installation from self-adhesive properties
- Long roll lengths reduce T-joints
- Good tear resistance under foot traffic makes it ideal for use on profiled metal decks
- Slip resistance due to textured surface

APPEARANCE / COLOR

Color:
Top surface:

- Off white

Bottom surface:

- Grey Aluminium with release liner

Sarnavap®-5000 E SA FR

DESCRIPTION

Sarnavap®-5000 E SA FR is a self-adhesive, multilayered, fire reduced, vapour barrier manufactured from polymer modified bitumen with a glass-fibre matt reinforcement and an aluminium foil top layer.

USES

Sarnavap®-5000 E SA FR may only be used by experienced professionals:

- As a vapour barrier over metal decks in combination with mechanically fastened roof assembly.
- Temporary waterproofing layer for up to 4 weeks

CHARACTERISTICS / ADVANTAGES

- Ease and speed of installation from self-adhesive properties
- Temporary waterproof top layer for up to 4 weeks, without the requirement for additional weight/ballast nd/or mechanical fastenings
- Good adhesion / bonding strength leading to an air tight roof construction
- Good tear resistance to foot traffic during roof build up activities
- High water vapour resistance makes it suitable in
- combination with all types of membranes
- Can be bonded onto inclined or vertical surfaces
- Complies with the requirements of DIN 18234

APPEARANCE / COLOR

Surface:

- Aluminium foil with PET film

Sarnavap®-5000 E SA

DESCRIPTION

Sarnavap®-5000 E SA is a multi-layered, self-adhesive vapour barrier manufactured from polymer modified bitumen with a glass-fibre matt reinforcement and an aluminium foil top layer.

USES

Sarnavap®-5000 E SA may only be used by experienced professionals:

- As a vapour barrier over most common roof deck types:
- Concrete / cementitious
- Metal
- Plywood panels, timber boards, oriented strand board (OSB)
- Temporary waterproofing layer for up to 4 weeks

CHARACTERISTICS / ADVANTAGES

- Ease and speed of installation from self-adhesive properties
- Can be used in a fully adhered roof build-up. No additional fasteners required for securing the thermal insulation boards to the structural deck
- Temporary waterproof top layer for up to 4 weeks, without the requirement for additional weight/ballast and/or mechanical fastenings
- High self adhesion strength allows high wind design loads from 2,4 kN/m^2 to 2,8 kN/m^2
- Provides an air tight layer
- High tear resistance to foot traffic during roof build up activities
- High water vapour resistance makes it suitable in combination with all types of membranes
- Accommodates a wide range of roof system, deck types and substrate combinations
- Can be bonded onto flashings, inclined or vertical Surfaces

APPEARANCE / COLOR

Surface:

- Aluminium foil with PET film

VAPOUR- CONTROL LAYERS / BARRIERS ACCESSORIES

Sarnavap® Tape F

DESCRIPTION
Sarnavap® Tape F is a butyl rubber, double-sided adhesion sealing tape with a controlled stretch range.

USES
This product may only be used by experienced professionals:
- Taping lap splices in Sarnavap® vapour control layers (polyethylene) based material and for attaching Sarnavap® vapour control layers to smooth surfaces.

CHARACTERISTICS / ADVANTAGES
- Finger-lift release liner
- Controlled adhesive stretch range
- High durability
- Used only at airtight level

APPEARANCE / COLOR
Appearance:
- Smooth flat profile

Color:
- Black

TECHNICAL INFORMATION
Length: 40.00 m
Width: 15 mm
Thickness: 1.00 mm

Sarnatape®-20

DESCRIPTION
Sarnatape®-20 is a butyl rubber, double-sided adhesion sealing tape with a controlled stretch range.

USES
Sarnatape®-20 may only be used by experienced professionals:
- Applied at airtight level for taping of seams, connections, terminations and detailing of Sarnafil® roof membranes (FPO) and Sarnavap® vapour control layers (polyethylene).

CHARACTERISTICS / ADVANTAGES
- Finger-lift release liner
- Controlled adhesive stretch range
- High durability
- Good adhesion

APPEARANCE / COLOR
Appearance:
- Smooth flat profile

Adhesive:
- Anthracite

TECHNICAL INFORMATION
Length: 20.00 m
Width: 20 mm
Thickness: 1.50 mm

Sarnatape®-60

DESCRIPTION
Sarnatape®-60 is a polyethylene reinforced fabric waterproof tape which is elastic and pliable. One side is coated in an acrylic resin adhesive which provides high durable adhesion.

USES
Sarnatape®-60 may only be used by experienced professionals:
- Taping of seams, connections, terminations and detailing of Sarnafil® roof membranes (FPO) and Sarnavap® vapour control layers (polyethylene).

CHARACTERISTICS / ADVANTAGES
- High tack and long-term adhesion
- Contains no halogen or heavy-metal compounds
- Good durability

APPEARANCE / COLOR
- White

TECHNICAL INFORMATION
Length: 25.00 m
Width: 60 mm
Thickness: Overall 0.34 mm

Primer-130

DESCRIPTION

Primer-130 is a 1-part, ready to use, solvent-based primer for improving the adhesion properties of porous substrates before applying Sarnatape.

USES

Primer-130 may only be used by experienced professionals:

- Substrate primer for Sarnatape® butyl rubber adhesive tape

CHARACTERISTICS / ADVANTAGES

- 1-part ready to use
- Easily applied by brush
- Good adhesion to different structural decks and substrates

Primer-600

DESCRIPTION

Primer-600 is a synthetic rubber and resin based 1- part ready to use primer for improving the adhesion properties of specific Sika® roof membranes.

USES

A primer for applying self-adhesive technologies onto various substrates:

- Sarnavap®-5000 E SA

CHARACTERISTICS / ADVANTAGES

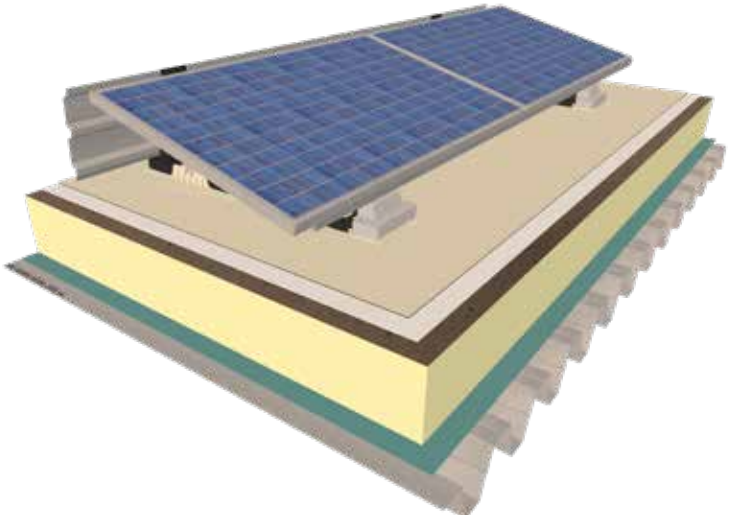
- Proven performance over decades
- Easily applied
- Flame free application
- High adhesion to different structural deck types and substrates
- 1-part ready to use
- Increased adhesion for the specific membrane types
- Applied by brush or roller

Sika SolaRoof® SYSTEM

The Sika SolaRoof® system is a lightweight, non-penetrating, integrated solar solution for thermoplastic roofs that outperforms conventional mounting systems. It combines the proven performance of a Sika roofing system with Sika® SolarMount-1 (SSM1) – an innovative, engineered solution for long-term securement of rooftop photovoltaic modules.

ROOFTOP PV –
THE PERFECT USE OF EMPTY ROOF SPACE

Rooftop solar installations are becoming increasingly popular worldwide. An empty flat roof is a wasted space resource and most are not shaded. That's why more and more building owners are realizing the opportunity to make effective use of their roof space and to improve their environmental footprint through sustainable electricity production. Such installations are sound investments, designed to provide a return over the long-term. In addition, they reduce dependency on utility providers thanks to on-site power generation for in-house consumption.



The roofing system, with a service life expectancy of 20+ years, is a critical component of the installed PV plant. The correct roof build-up is key when it comes to durability. Sika has 50+ years of experience in the manufacture of single-ply membranes that not only meet the demands for performance and life expectancy as stand-alone waterproofing systems but also form an ideal substrate for the Sika® SolarMount-1 system.

ARCHITECTURAL AND STRUCTURAL REQUIREMENTS

Building height	■ Max. 20 meters. Higher roofs must be individually assessed
Roof slope	■ Up to 5° (1:12 or 8 %) as standard ■ Up to 10° with additional measures*)
Roof loadbearing capacity	■ Sufficient for SSM1 loads. This can be determined by a structural engineer once the PV system has been planned
Sika roofing membrane	■ New membrane provides optimal roof warranty coverage. → The life expectancy of the Sika roof build-up and the PV system match perfectly ■ Sarnafil® AT roof waterproofing membrane, min. thickness 1.5 mm (2.0 mm for max. warranty coverage)
REQUIREMENTS FOR THE ROOF BUILD-UP*)	
Membrane fastening	■ Mechanically fastened
Thermal insulation	■ PIR, EPS, XPS board (depending on local availability and temperature conditions) ■ Mineral fiber board with compressive strength ≥ 70 kPa at 10 % deformation (as per EN 826) ■ Roof cover boards as an option for optimum load distribution
Vapor control layer	■ According to specific building physics requirements
Roof structure	■ Metal deck (trapezoidal), concrete, wood (PIR metal sandwich panels and standing seam metal roofs are not suitable for Sika SolaRoof®) ■ The life expectancy of an existing roof structure with a new Sika build-up (reroofing) should be at least as long as that of the PV system

*)depends on local product range, standards and approvals

Please consult Sika or Centroplan to assess whether your specific roof is suitable for installation of a Sika SolaRoof®.

Sika® SolarMount-1 is the aerodynamic mounting system for Sika SolaRoof®. It is used for the installation of rigid photovoltaic (PV) modules on flat or low-slope roofs. SSM1 can easily be installed on mechanically fastened or fully adhered Sika single-ply TPO and PVC membranes, depending on the local product range, standards and approvals.

SSM1 SYSTEM COMPONENTS

Sika® SolarClick

The Sika® SolarClick welding flange is injection molded from compounds compatible with the roofing membrane and is hot-air welded to the membrane to provide permanent and secure attachment. The flanges are mechanically fastened to the mount and transfer horizontal wind loads to the roof structure.

SSM1 mount

Injection-molded **SSM1 mount** (recycled PP) with an angle of inclination of 15° (angle is not adjustable). Fixed mounting rails hold the PV modules in place.

SSM1 mount with two Sika® SolarClick flanges

Accessories
Wind deflectors (for south orientation), module mounting rails, screws and clamps.

SSM1 KEY FEATURES

Module inclination angle	■ 15° to the roof plane
PV module orientation	■ PV modules on SSM1 mounts can be installed with either south or east-west orientation. The same components are used for both variants
PV module types	■ Framed crystalline PV panels with a width of up to 1058 mm
Average weight	■ Ca. 10 – 18 kg/m² (including PV modules, depending on south or east-west orientation) ■ Green roof system < 40 kg/m² (including PV modules; vegetation mat saturated)
Load transfer	■ Slip sheets, separation layers, or friction enhancers are not required. Fixation of the SSM1 system requires no penetration of the roof build-up.

SSM1 ON LIGHTWEIGHT GREEN ROOFS

Sika® SolarMount-1 can also be used in combination with a lightweight green roof system. The advantages include low roof loads and lower maintenance than roofs with a "standard" green roof substrate. The system provides a water runoff coefficient of < 0.5 according to the Institute for Landscape Architecture, Leibnitz University Hannover, Germany.

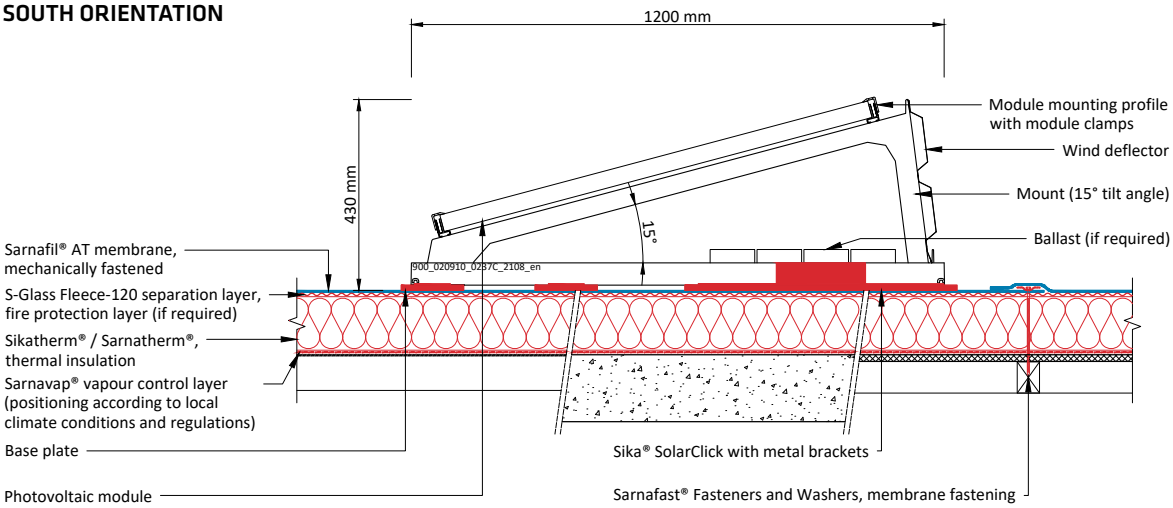
Sika SolaRoof® SYSTEM

SOUTH ORIENTATION

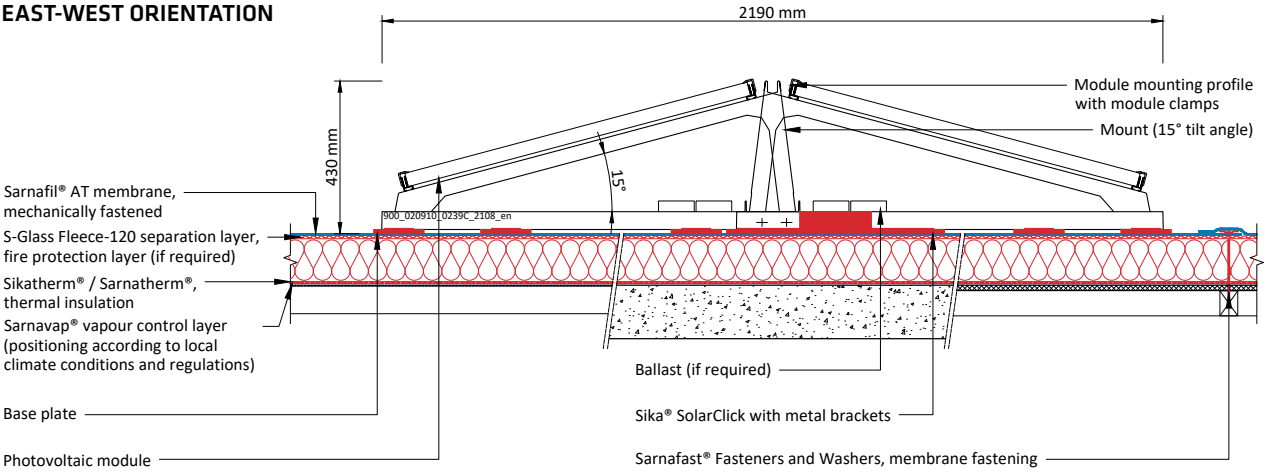
EAST-WEST ORIENTATION

LIGHTWEIGHT GREEN ROOFS

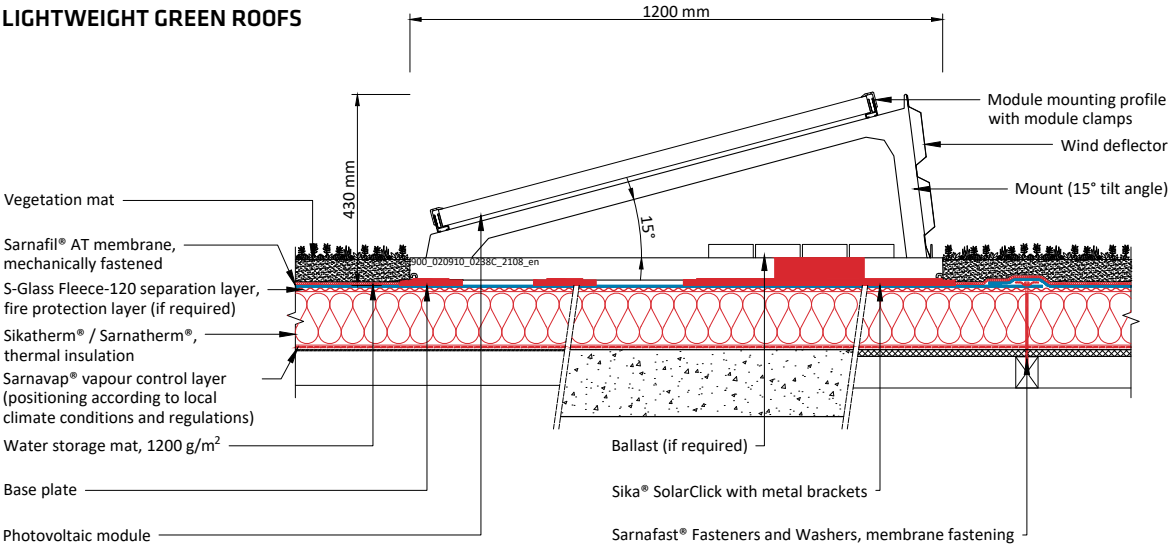
SOUTH ORIENTATION



EAST-WEST ORIENTATION



LIGHTWEIGHT GREEN ROOFS



Lightweight green roof build-up*: The green roof build-up is installed between the PV module rows only. The roof surface beneath the PV modules remains uncovered in order to avoid uncontrolled plant growth and the associated high maintenance costs.

* Local regulations for green roofs and fire protection must be observed.

Sika SolaRoof® SYSTEM

Thorough full-system testing of SSM1 on single-ply membrane roofs has been conducted in several international labs since 2012. The results confirm superior performance in south and east-west configurations – even under extreme conditions. Certificates and approvals are available.

Mechanical testing of all components and connections on original Sika roof build-ups (roof structure, thermal insulation, membrane including fastening system) has been conducted at different temperatures in close coordination with various regulating bodies and construction institutes:

- Static testing
- Dynamic testing (load cycles at increasing load levels up to failure)
- Temperatures: -20 °C, +23 °C, +80 °C
- Fire testing as per UL 2703, Section 15, Fire Performance

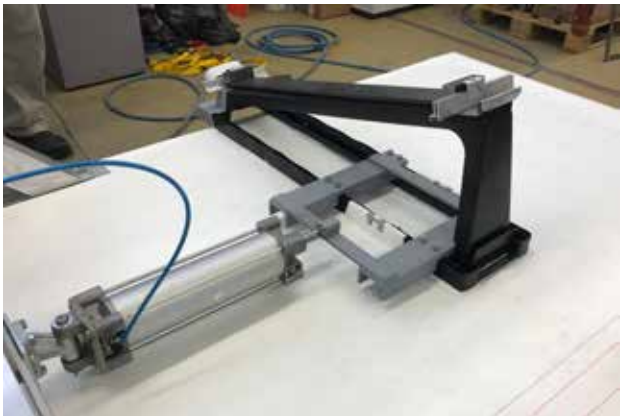
The following loading conditions were tested:
- Horizontal loading (parallel to the frame axis)
- Lateral loading (perpendicular to the frame axis)
- Load distribution tests of multiple SSM1 frames

All test series showed sufficient factors of safety for the SSM1 system as well as for the membrane and its fastening system performing under the following loading and conditions:

- Wind loads
- Seismic loads
- Low and high temperatures
- Material aging throughout the product service life
- Broad general environmental exposure

Stable positioning of SSM1 does not rely on friction between the membrane and the mounting structure. SSM1 will not shift its position on the roof due to changing material characteristics as a result of weathering and aging or due to material expansion and contraction.

Horizontal load testing of an SSM1 frame in a climate chamber



Lateral load testing of an SSM1 frame

The engineering phase is one of the most crucial steps of the project. Special focus is placed on site-specific conditions and influences such as wind and snow loads, roof build-up, solar exposure, objects above the roof (e.g. chimneys, trees), and energy yield. The engineered solution must take all these factors into account as well as meet the client's expectations regarding budget, return on investment, and intended on-site energy consumption or storage, etc.

The design and structural calculations for the SSM1 system are handled by the specialized PV solution provider Centroplan GmbH, a competence center for efficient and economical rooftop and solar solutions, with subsidiaries in the USA, China, and other countries. Their experienced engineers use custom software for SSM1 design.

centroplan
roof solar engineering

The SSM1 design concept is as follows:

- Horizontal wind loads (parallel to the roof) are transferred via Sika® SolarClick fasteners to the membrane and the roof structure. No slip sheets or ballast is required.
- Vertical wind loads (uplift) are countered by the dead weight of the SSM1 elements and the PV modules. This makes the SSM1 system ideal for lightweight roofs. In rare cases of extreme uplift, ballast units can be placed in the recess of the mounts.

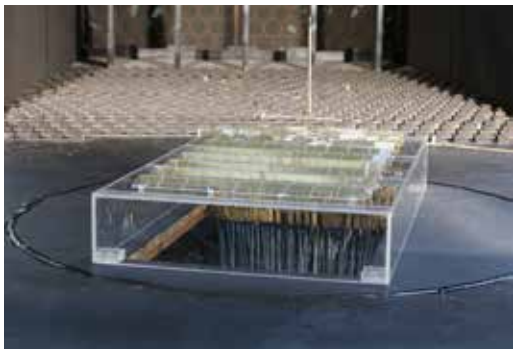
Boundary-layer wind-tunnel testing in specialized labs is conducted in order to determine the actual loads that the SSM1 installation will be exposed to. The custom software is used calculate the required number of SolarClick elements and the spacing of the mounts for each sub-array. The output includes a project-specific PV module layout, a ballast plan, and construction documents.

In south-oriented configurations, the typical row spacing is 1.5 to 2.5 m. The proposed aisle width for east-west installations is roughly 0.5 m in order to allow easy access for maintenance. Roof perimeter setback is typically 1.0 – 1.5 meters.

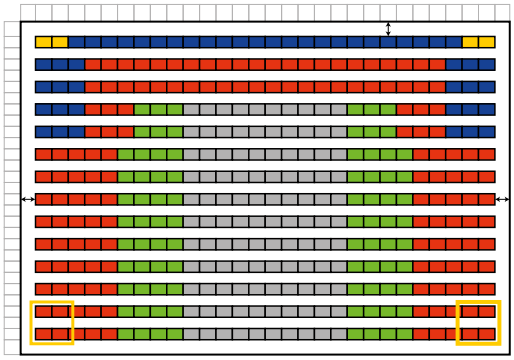
In any case, an SSM1 installation adds a moderate additional roof load of 10 – 18 kg/m² (incl.PV modules). The roof structure must be strong enough to carry this additional load.

Wind load calculations for the roof build-up are prepared by the local Sika company. Gravel ballasted membranes must be mechanically fastened as well as exposed roofs in order to resist horizontal wind loads.

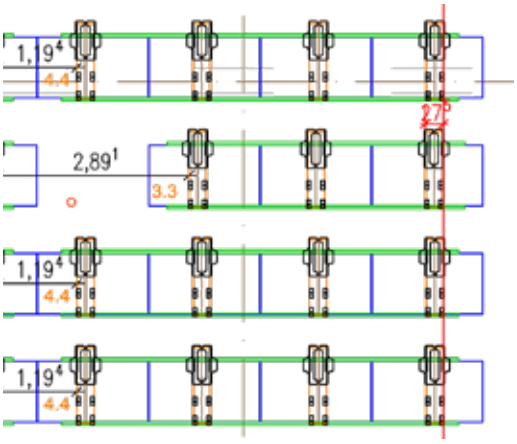
Sika conducts a monitoring program for the most exposed SSM1 installations. Periodic examinations are conducted in order to check for material changes of components or other irregularities of membranes and fasteners.



Building model with SSM1 system in wind tunnel



Various wind load zones of a general SSM1 installation



Computer generated roof specific PV module installation plan

Sika SolaRoof® SYSTEM

A unique feature of Sika® SolarMount-1 is that the installation cannot move on the roof surface over the long term. The Sika SolarClick fasteners are attached to the roofing membrane by hot-air welding and transfer the loads to the roof structure. Strong emphasis is placed on the training of contractors authorized to weld Sika roofing components.

SSM1 PV MODULE ORIENTATION AND VARIANTS
A big advantage of the Sika® SolarMount-1 system is the modular design, which makes it easy to accommodate specific conditions on the roof. SSM1 variants from 1 to 4 PV modules mounted on 2 to 7 mounts are so-called "standard" south-oriented configurations (e.g. Sika® SolarMount-1 3.4: 3 modules on 4 supports).

SSM1 COMPONENTS DELIVERY TO SITE
All Sika® SolarMount-1 components are delivered exclusively and directly to the job site from the Centroplan distribution center. They are packed on pallets and in box pallets for simplified logistics. These pallets are placed on the roof, which must be capable of carrying the concentrated loads.

SSM1 components may be delivered only to projects that have been calculated and designed by Centroplan and for which layout and ballast plans are available.

ROOF AND MATERIAL PREPARATION
It must be ensured that the roof surface is clean before the SSM1 system is installed.

For larger installations it is recommended to preassemble the SSM1 mounts on assembly tables. This speeds the installation and allows working at a more comfortable height.

SSM1 INSTALLATION
In order to achieve the greatest flexibility in installation, the roofing contractor that installed the roof build-up can also install the Sika® SolarMount-1 system, after having completed the corresponding training program.

Installation of the SSM1 system requires only a limited number of components to be assembled on site. This allows fast and easy setup of the PV plant. Installation manuals with step-by-step illustrations are provided by Sika.

Welding the Sika® SolarClick fasteners is the most demanding work step. The Sika registered or certified contractor that installed the roof system may also weld the Sika® SolarClick elements to the roof membrane. This allows the warranty to be provided by a single company, which is an additional benefit for the roof owner.

Sika® SolarClick fasteners are welded to the membrane with standard equipment and welding parameters, the same as for the respective Sika® roofing membrane. Welding can be done manually or with a semi-automatic welder. The installation of the Sika® SolarMount-1 system does not require any roof membrane penetrations or the use of slip sheets.

Preparation of system components on a workbench

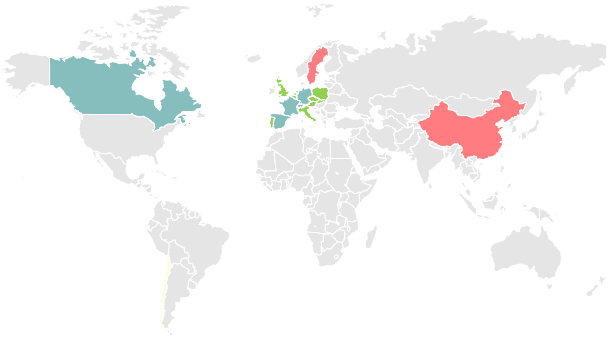
Hot-air welding of a Sika® SolarClick flange

Installation in progress

The SSM1 installation track record is impressive: In international collaboration with the PV company Centroplan GmbH, over 800 Sika® SolarMount-1 plants*) have been installed over Sika roofing membranes since 2013.

*) as of early 2021

SSM1 PLANTS HAVE BEEN INSTALLED ON 3 CONTINENTS:



SIKA SSM1 DEMO INSTALLATIONS

Sika has installed some small SSM1 plants on its own buildings. Guided tours can be requested from the local sales teams.

EXAMPLES ILLUSTRATING THE VERSATILITY OF SSM1 IN TERMS OF MEMBRANES AND SUBSTRATES

Vilar do Paraíso, Portugal

Nauset, MA, USA

Montabaur, Germany

Dormagen, Germany

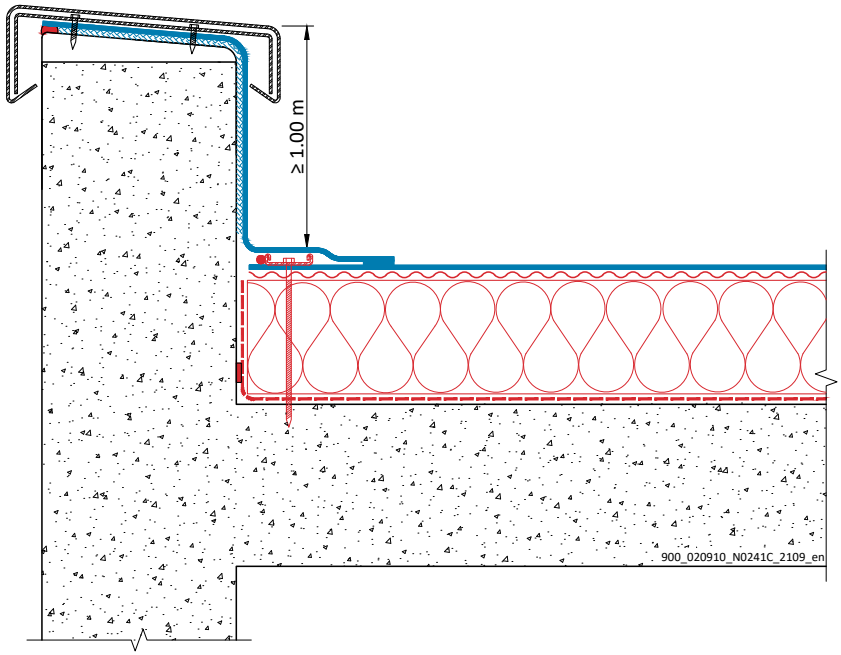
SYSTEM OVERVIEW
FALL ARREST SYSTEMS

INTRODUCTION

Working on roof areas is considered to be one of the most dangerous activities on a construction site for both new and refurbishment projects. It can also be necessary to carry out essential maintenance or repair works on flat roofs during bad weather conditions, including for example: the removal of drain blockages, repairing dome lights and removing snow accumulation.
All flat roof working activities are situations with a high risk of roof falls, where the danger can be either, falling at the flat roof edge or actually falling through openings or the roof itself. These potential hazard combinations should already be respected and considered during the design and planning phase of a project.

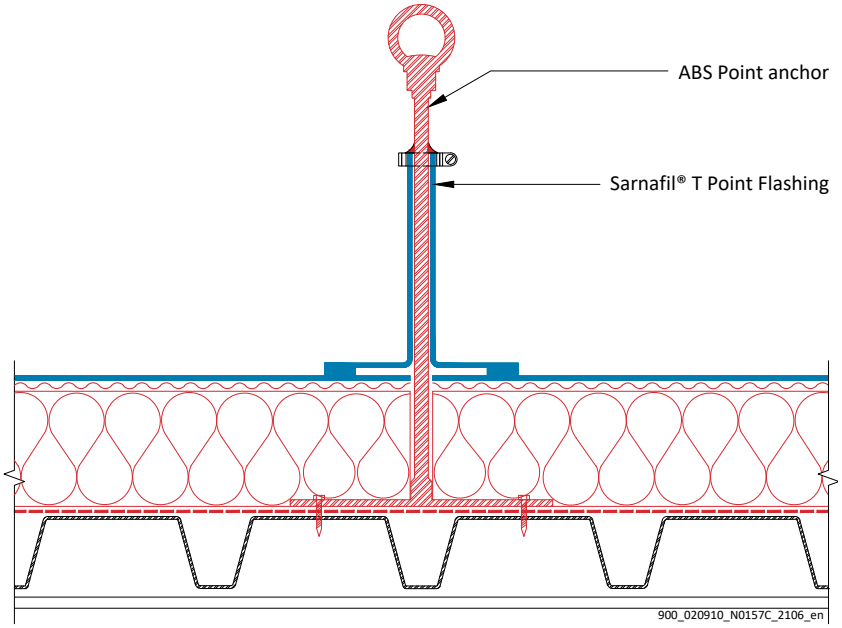
Where the building structrue or situation (e.g. with parapets, handrails etc.) cannot prevent a roof fall – a fall back system needs to be designed according to the following basic principles:

If the parapet height is < 1.00 m – the flat roof area needs to be equipped with a fall arrest system.



SINGLE POINT FALL ARREST ANCHOR

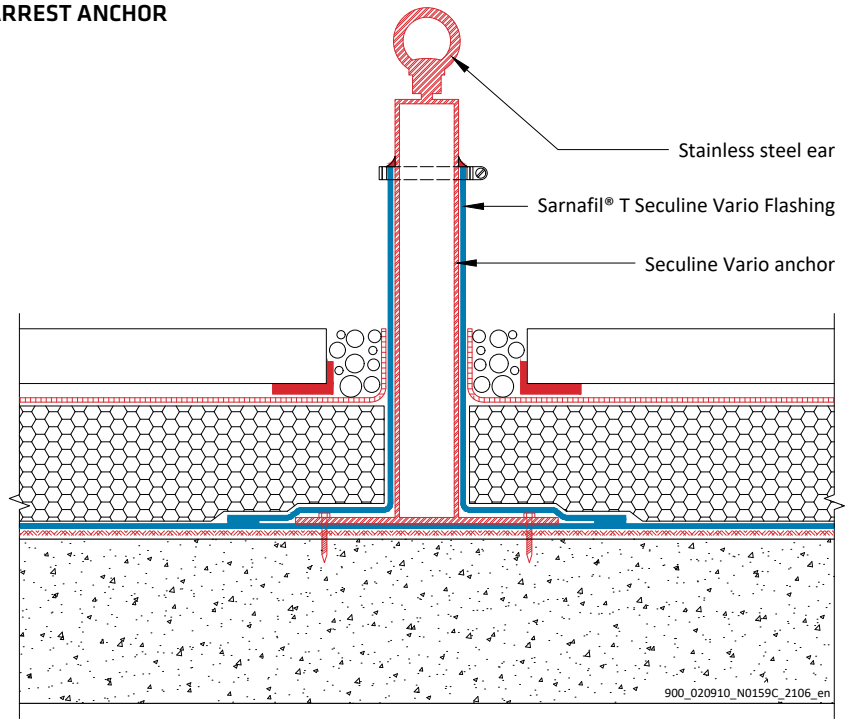
ABS Point is used to provide permanent single point fall arrest anchor point.



CABLE SYSTEM OR SINGLE POINT FALL ARREST ANCHOR

Non thermal insulated

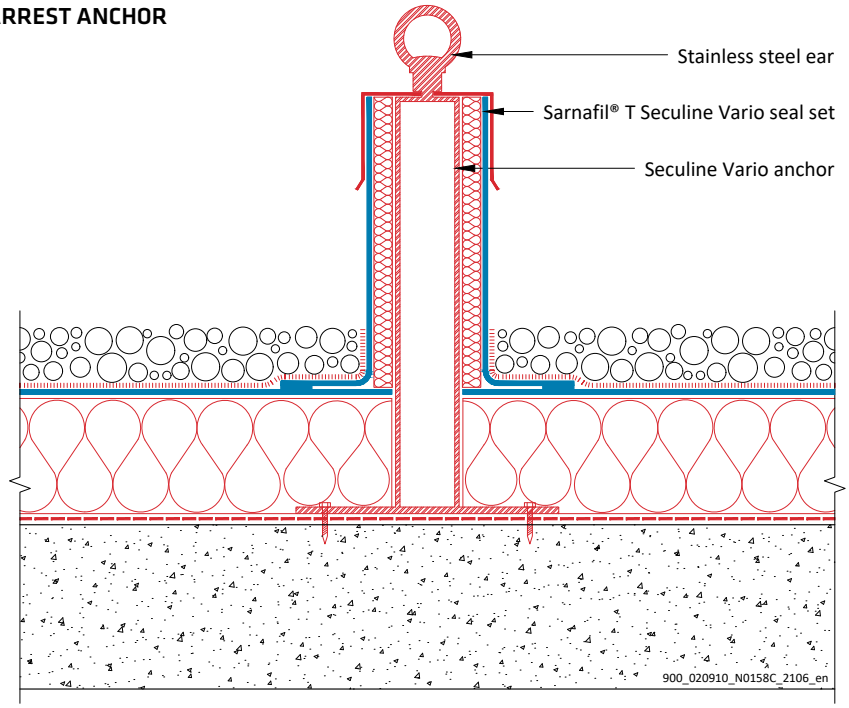
Seculine® Vario anchor with Sarnafil® T Seculine Vario Flashing and stainless steel ear is used to provide permanent single point fall arrest anchor point. Furthermore it can be used for permanent stainless steel cable system.



CABLE SYSTEM OR SINGLE POINT FALL ARREST ANCHOR

Thermal insulated

Seculine® Vario anchor with Sarnafil® T Seculine Vario seal set and stainless steel ear is used to provide permanent single point fall arrest anchor point. Furthermore it can be used for permanent stainless steel cable system.



FALL ARREST SYSTEM PRODUCTS

ABS Point

DESCRIPTION
The ABS Point is made of stainless steel. ABS Points are used as single attachment points in flat roofs.

USES
All ABS Point components are used as permanent fall protection systems in the Sarnafil® flat roof system. There are different combinations and possibilities in the application. The ABS Point is used as a single attachment point for a maximum of three persons.

CHARACTERISTICS / ADVANTAGES
- Simple assembly for new buildings and refurbishments
- All components are made of stainless steel
- High-quality fall protection system
- Extensive accessories

APPEARANCE / COLOR
Top surface:
- Silver

Sarnafil® T Point Flashing

DESCRIPTION
Sarnafil® T Point Flashing is a prefabricated injection moulded roof point flashing based on a flexible polyolefin (FPO) with fitted integrated heat shrink sleeve.

USES
Post flashing on Sarnafil® AT flat roof systems.

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Easy and safe application
- Heat weldable
- Fitted integrated heat shrink sleeve

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Beige
- Window grey (RAL 7040)
- Other colors on request

TECHNICAL INFORMATION
Inside pipe conical diameter:
17 mm, 20 mm, 21 mm, 24 mm
Diameter base plate: 180 mm
Height: 250 mm
Thickness: 2.00 mm

Sarnafil® T Seculine Vario Flashing

DESCRIPTION
Sarnafil® T Seculine Vario Flashing is a prefabricated roof post flashing based on an FPO waterproofing membrane which is fitted integrated heat shrink sleeve.

USES
Post flashing for Seculine Vario fall arrest system on Sarnafil® AT flat roof systems.

CHARACTERISTICS / ADVANTAGES
- Resistant to UV exposure
- Easy and safe application
- Heat weldable
- Fitted integrated heat shrink sleeve

APPEARANCE / COLOR
Surface:
- Smooth

Top surface:
- Beige
- Window Grey (RAL 7040)
- Other colors on request

TECHNICAL INFORMATION
Inside diameter: 51 mm
Height: 250 mm
Base plate diameter: 180 mm
Length heat shrink sleeve: 80 mm
Thickness: 1.50 mm

Seculine® Vario Anchor

DESCRIPTION
The Seculine® Vario Anchor is made of stainless steel.

USES
Permanent single point fall arrest anchor point. Furthermore it can be used for permanent stainless steel cable system.

CHARACTERISTICS / ADVANTAGES
- Simple assembly for new buildings and refurbishments
- All components are made of stainless steel
- High-quality fall protection system
- Extensive accessories

APPEARANCE / COLOR
Top surface:
- Silver

Seculine® Vario Seal Set

DESCRIPTION
The Seculine® Vario Seal Set consists of:
- Seculine® Vario Flashing
- Two-piece insulation core
- Red cap

USES
The Seculine® Vario Seal Set is used for:
- The professional execution of detail connections with Sarnafil® AT roof waterproofing membranes

CHARACTERISTICS / ADVANTAGES
- Fast application
- Visually challenging detail training
- Thermal bridge-reducing
- Higher safety

TECHNICAL INFORMATION
Diameter tray:	300 × 300 mm
Diameter tube inside:	110 mm
Nozzle length:	400 mm

FALL ARREST SYSTEM PRODUCTS

SECULINE® VARIO ANCILLARY PRODUCTS

Stainless Steel Ear

USES
To screw on the Seculine® Vario Fall Arrest Post.

Seculine® Vario Type Plate

USES
To screw on the Seculine® Vario Fall Arrest Post. Special hood with integrated type plate for permanent Seculine® Vario Stainless Steel Cable System.

Intermediate Holder

USES
To screw on the Seculine® Vario Fall Arrest Post. Traversable Intermediate Holder for permanent Stainless Steel Cable System.

End Holder

USES
To screw on the Seculine® Vario fall arrest post. End Holder with one cable clip for permanent Stainless Steel Cable System.

End Holder Straight

USES
To screw on the Seculine® Vario Fall Arrest Post. End Holder straight with two cable clip for permanent Stainless Steel Cable System.

Corner Diverter Universal

USES
To screw on the Seculine® Vario Fall Arrest Post. Traversable Corner Diverter for permanent Stainless Steel Cable System.

End Lock 90°

USES
To screw on the Seculine® Vario Fall Arrest Post. End Holder 90° with two cable clip for permanent Stainless Steel Cable System.

Stainless Steel Cable

USES
For permanent Seculine® Vario Cable System.

Runner Element

USES
Enables traversable gliding over the Intermediate Holder and Corner Diverter in the permanent Stainless Steel Cable System.

APPLICATION TOOLS

Sarnamatic®-681

DESCRIPTION

The Sarnamatic®-681 must only be used for the hot air welding of synthetic polymer based sheet waterproofing membrane seams. The Sarnamatic®-681 is equipped with a microcontroller that controls the welding parameters.
All of the necessary instructions and technical details are also included in the operating manual which is supplied and delivered in every Sarnamatic®-681 package. Since we pursue a policy of continuous product improvement, we reserve the right to modify the Sarnamatic®-681 without prior notification.

USES

The Sarnamatic®-681 is suitable for the welding of all Sika Sarnafil® synthetic waterproofing membranes.
When used on a sloping roof the machine must be secured and guided at all times. The maximum inclination of slopes suitable for its use are:

- Max. 25° when welding in the direction of the roofing slope
- Max. 15° when welding perpendicular to the roofing slope
- The Sarnamatic®-681 can be operated with a singlephase power supply of 230 VAC, or a 3-phase 400 VAC supply. By using the 'Conversion Kit', which is available on request, the Sarnamatic®-681 can be converted from 230 VAC to 400 VAC, or from 400 VAC to 230 VAC.

CHARACTERISTICS / ADVANTAGES

The Sarnamatic®-681 welding machine is suitable for use on horizontal and sloped roofs with a suitably supported, solid and even surface substrates.

Sika Membrane slitter

DESCRIPTION

The Sika Membrane slitter is generally made of galvanized steel and aluminium.

USES

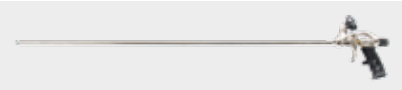
The Sika Membrane slitter is a tool to cut membrane strips on job site.

CHARACTERISTICS / ADVANTAGES

- Easy and safe to use
- Enables to cut membranes strips custom-fit on job site
- Enables to cut the strip to the desired width around the parapet perimeter
- Can even be used on already applied membranes without damage due to a special protector device
- Tool can be used in upright ergonomic position

APPLICATION TOOLS

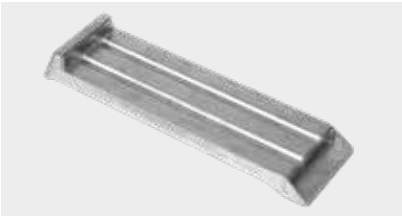
Spray Application Gun



USES
Spray gun to be used for the application of SikaRoof® Board Adhesive, polyurethane 1- part, foam adhesive.

SYSTEM PRODUCT
SikaRoof® Board Adhesive

Fitting Tool for Sarnabar



DESCRIPTION
Aluminum board with striking surface and tread area.

USES
This tool facilitates the installation of the Sarnabar® edge rail for throat fixation. Both hands remain free for drilling and screwing, as the edge rail is held with the foot by the mounting tool.

Leister Triac AT / ST

DESCRIPTION
Hand welding tool for welding membranes.

USES
For the hand welding of Sarnafil® roof waterproofing in the overlapping of details and straight welds.

SPARE PARTS FOR LEISTER HAND WELDING TOOL

	Product	Uses
	Wide slot nozzle – 20 mm, 15° angled	Standard welding nozzle for details
	Wide slot nozzle – 20 mm, 60° angled - horizontal	Welding nozzle for difficult accessible detail parts
	Wide slot nozzle – 20 mm, 75° angled - vertical	Welding nozzle for difficult accessible detail parts
	Wide slot nozzle – 40 mm, 15° angled	Standard welding nozzle for straight welds
	Tubular nozzle – 5 mm diameter, 15° angled	Suitable for speed welding nozzle
	Speed welding nozzle – 8 mm diameter	For the installation of Sarnafil® T Welding Cord
	Pressure roller with ball bearings – 28 mm / PTFE	Pressure roller in the hot welding process
	Pressure roller with ball bearings – 28 mm / PTFE	Pressure roller in the hot welding process
	Pressure roller with ball bearings – 6 mm (brass)	Pressure roller in the hot welding process
	Chamfer tool	Chamfering tool along transverse joints of hot welded membranes
	Chamfer tool sharpener	For the sharpening of chamfer tool

APPLICATION INSTRUCTIONS

BASICS

BASICS	The basis for the application of Sarnafil® AT roof waterproofing membranes beside the Roof Handbook Sarnafil® AT are the application manual for Sarnafil® AT and the latest versions of product data sheets. In addition to that the product information, the standard details and the inputs regarding mechanically fastened and ballasted roof systems.
DELIVERY / PACKAGING / STORAGE	Sarnafil® AT roof waterproofing membranes will be delivered in rolls – individually wrapped and palletized. Building site storage of membranes horizontally, on palettes and protected against humidity, dirt, dust and exposure.
MEMBRANE CUTTING	Cut Sarnafil® AT roof waterproofing membrane with a scissor, knife or Sika® Membrane slitter. Please take also notice of the range of available strips in our delivery program.
SUBSTRUCTURE / FIRE PROTECTION	Depending on the roof system adjustment with the subconstruction need to take place. Your Sika roofing specialist can support you perfectly. Sarnafil® AT roof waterproofing systems are resistant and therefore approved against spreading of fire on roofs without protective or covering layers. Fire protection requirements of specific country need to be considered.
ROOF SLOPE	Generally a roof slope of 1.5% is required - periodically ponding water does not harm the membrane.
SUPPORT LAYER	A support layer need to be installed above trapezoidal metal deck constructions. This can either be thermal insulation with sufficient compression strength or plain metal sheet.
VAPOUR CONTROL / BARRIER LAYER	The type of vapour control / barrier layer to be chosen depends on the roof build-up and boundary conditions (indoor and outdoor clima). In case of not airtight sub – constructions (wood planking, trapezoidal metal sheets, prefabricated elements etc.), vapour control / barrier layer need also take over the function of airtight layer.
THERMAL INSULATION LAYER	Depending on the roof system to be chosen, thermal insulation layer will be loosely laid, mechanically fastened or adhered. Guidelines of thermal insulation producer need to be followed. Thermal insulation plates applied in staggered bond pattern.
SEPARATION- / LEVELLING LAYER	If needed separation- / levelling layer installed based on the chosen roof build-up.
REFURBISHMENTS	Existing roof must be assessed carefully before a suitable refurbishment proposal can be prepared. Visual inspection of the buried roof layers should be made by opening the roof or taking core samples. The design should consider the following: ■ Condition of the roofing membrane and all flashing details ■ Building regulations ■ Whether the thermal insulation is dry ■ Whether the vapour control layer functions adequately ■ Whether the roof structure can support the design loads ■ Whether roof drainage is sufficient ■ Whether adjacent construction is sound or requires work Sika Roofing guidelines and application instructions for new roofs also apply to refurbishment work. If only certain parts of the roof are to be refurbished, it is advisable to consider separating the new areas from the old areas by installing area dividers or waterstops. This will prevent any leaks in the old roof from affecting the performance of the new roof.

GENERAL Sarnafil® MEMBRANE WELDING

Sarnafil® AT membranes will be homogenous joined by thermal welding process. Sarnafil® AT membranes must be prepared for welding. During installation and in case of repair, different cleaning and seam preparation procedures may apply. Sarnafil® membranes must be overlapped by 80 mm for the loose laid roof system whilst 120 mm for the mechanically fastened system. Regarding detailing we refer to application manual Sarnafil® AT and the width range of prefarbricated parts to be offered.

Welding tools

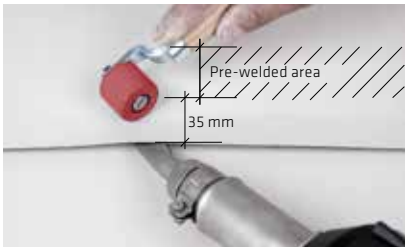
Only Sika recommended welding tools should be used. Sarnafil® AT roof waterproofing membranes will be hot welded, either with hand welder or automatic welding machine.

Test welding

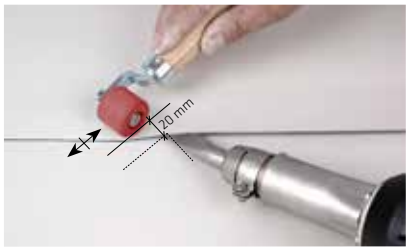
Before welding the actual roof membrane, a test weld must be carried out to check the settings of the hand welder and / or the automatic welding machine. The test weld must be also carried out to check local site conditions during a working day.

Hand welding carried out in three steps

1. Spot weld overlap area must be clean and dry.

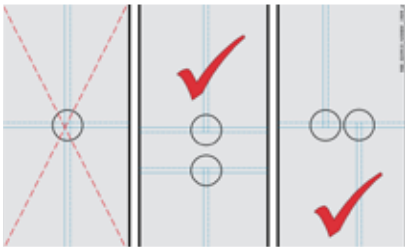


2. Pre-weld the rear overlap area that a 35 mm opening remains.



3. Final weld the 35 mm opening area. Roll the pressure roller fully across the seam.

T- and cross joints



Welds at transverse joints. By proper arrangement of Sarnafil® AT, all seams can be reduced to straight welded seams and transverse joint (T-joint). Cross joints are to be avoided.

To achieve proper welding, all transverse joints of all Sarnafil® AT thickness, for manual and automatic welding have to be chamfered.

Weld the membrane over the chamfered area.

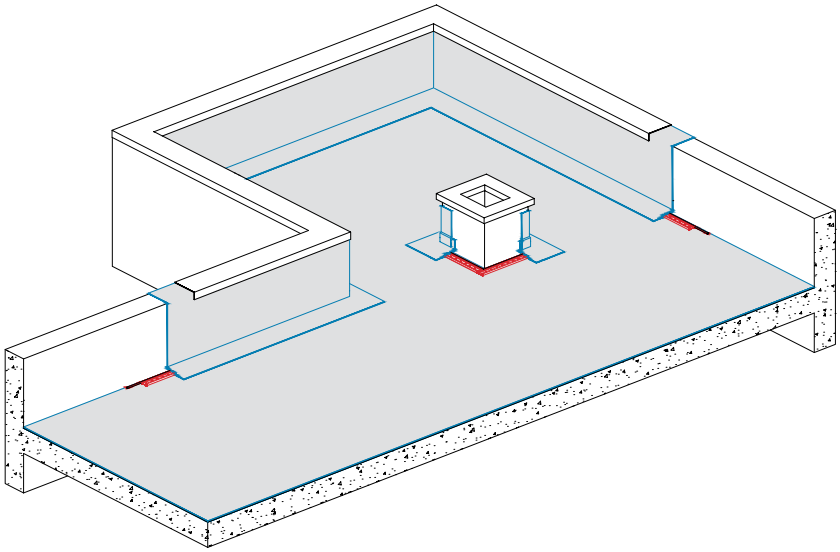
Seam check after welding

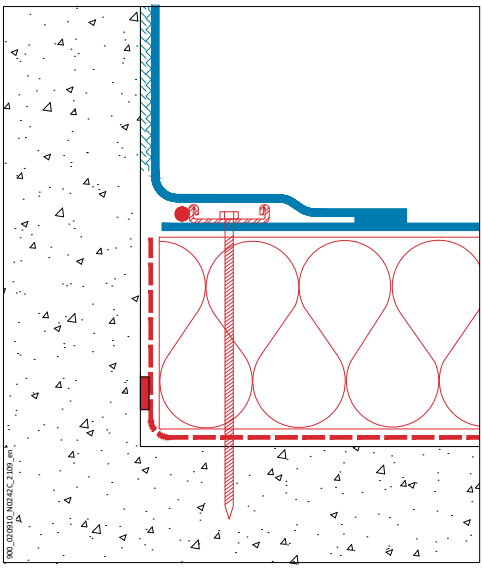
All seams must be checked after they have completely cooled by contractor according to Sarnafil® AT application manual.

BASICS

PERIMETER SECUREMENT

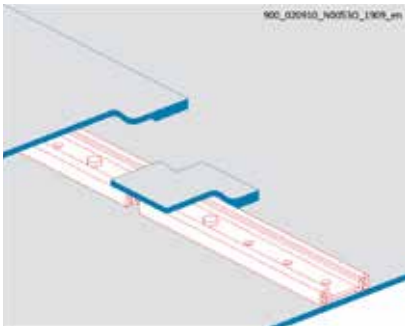
At all upstands and penetrations wider than 50 cm Sarnafil® AT membrane must be secured with Sarnabar® either to the horizontal or vertical surface. The number and type of fasteners per linear meter depend on the substrate and the windload (mechanically fastened system). At least four fasteners per meter must be used. The Sarnafil® T Welding Cord secures Sarnafil® AT membrane against tearing and peeling due to wind uplift.



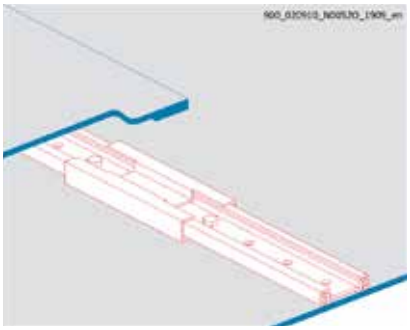


Mechanically fastened and ballasted roof systems

SARNABAR CONNECTION



Version 1 – leave a 10 mm clearance between bar ends. Do not fasten in hole nearest bar end. Cover the bar ends with a piece of Sarnafil® AT membrane and weld in in place.

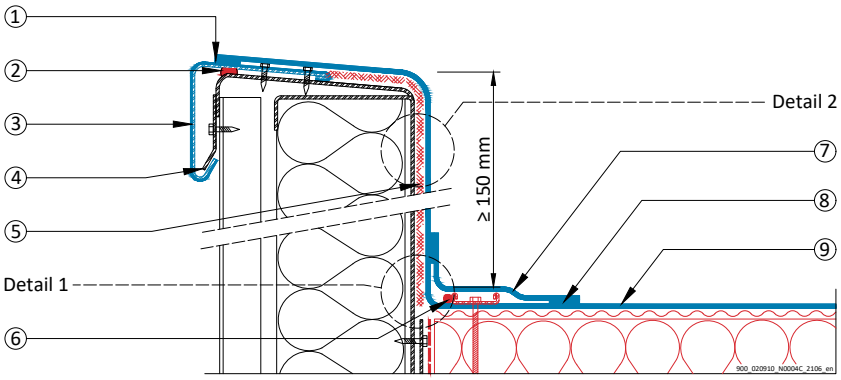


Version 2 – cover the bar with the Sarnabar® Connection Clip.

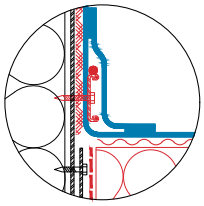
PERIMETER FLASHING

Mechanically fastened

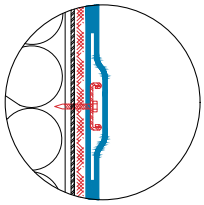
A levelling layer must be installed between Sarnafil® AT membrane and rough or uneven sub-strates. Screw the Sarnabar® perimeter securement over the Sarnafil® AT membrane at the base of the upstand, either to the vertical or horizontal surface. The number of fasteners per linear meter depend on the substrate and the windload.



Detail 1
Sarnabar® Perimeter
Securement Vertical (Alternative)



Detail 2
Additional Fastening for
Parapet Height > 800 mm



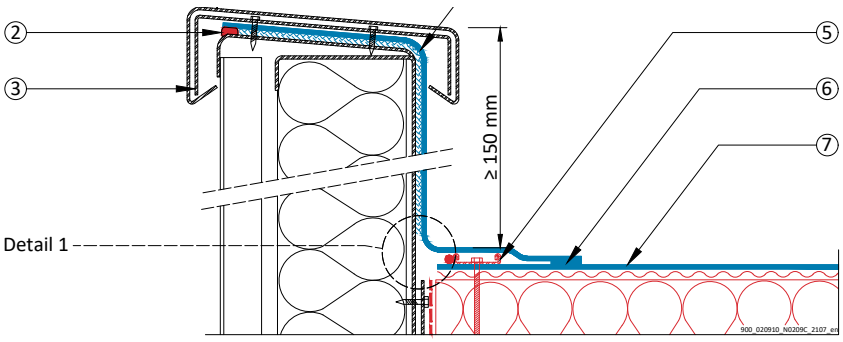
1 Hot-air weld
2 Sarnafil® S-Sealing Tape 10/10 (if required)
3 Sarnafil® T Metal Sheet
4 Metal clip
5 Appropriate S-Felt levelling layer (if required)
6 Sarnabar® with Sarnafast® Fasteners and Sarnafil® T Welding Cord
7 Sarnafil® T/AT membrane cover strip
8 Hot-air weld
9 Sarnafil® AT membrane

BASICS

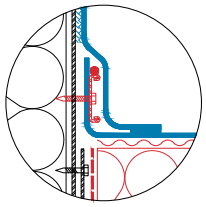
PERIMETER FLASHING

Fully adhered with self adhered membrane

Perimeter flashings are formed using strips of Sarnafil®AT FSA P membrane. The flashing strips are to be fully adhered by the self-adhesive film to the substrate and welded to the field sheet. The substrate must be dry, stable, clean and free of dust and grease.



Detail 1
Sarnabar® Perimeter
Securement Vertical (Alternative)

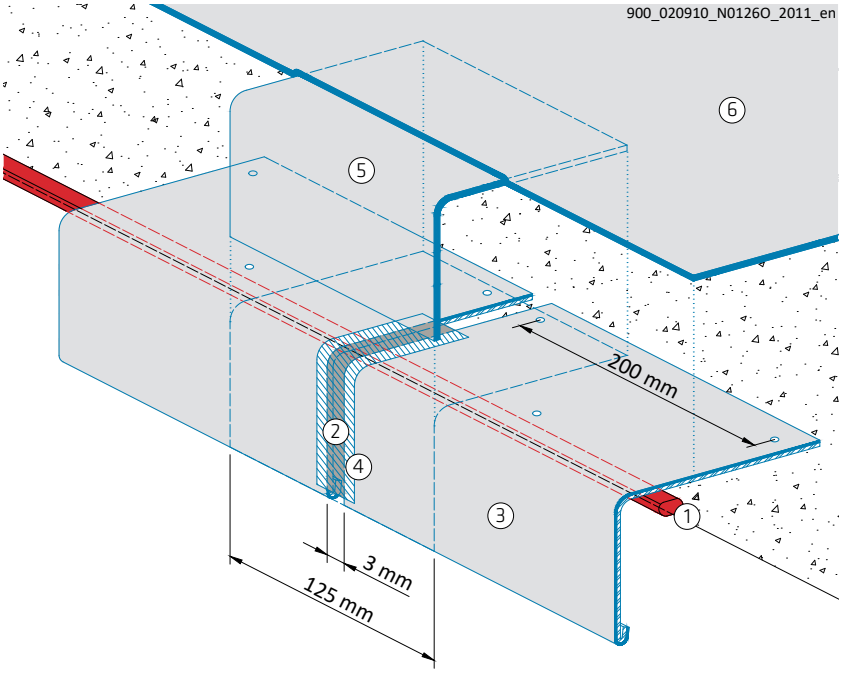


1 Metal capping
2 Sarnafil® S-Sealing Tape 10/10 (if required)
3 Metal clip
4 Sarnafil® AT FSA P membrane self adhered
5 Sarnabar® with Sarnafast® Fasteners and Sarnafil® T Welding Cord
6 Hot-air weld
7 Sarnafil® AT membrane

PERIMETER FLASHING

Roof Trim

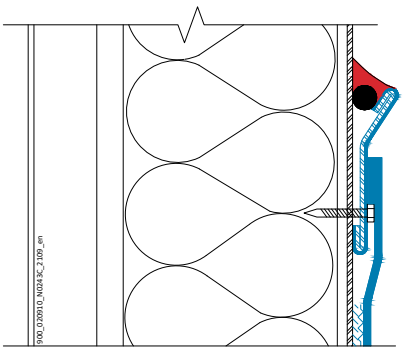
Sarnafil® S-Sealing Tape 10/10 should be placed between the Sarnafil® T Metal Sheet flashing and the substrate to prevent penetration of wind-driven water.



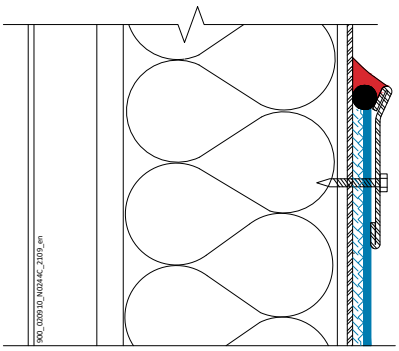
1 Sarnafil® S-Sealing Tape 10/10
2 Connection plate
3 Sarnafil® T Metal Sheet
4 Tape to avoid full weld
5 Sarnafil AT – 125 mm strip
6 Sarnafil AT membrane

UPSTAND FLASHING

To achieve good adhesion, apply primer to both surfaces (metal counter flashing or sheet, and masonry or plaster). At the top metal counter flashing or sheet, always install closed-cell material as backing rod before applying the Sarnaplast®-2235 or Sikaflex®-11 FC sealant.



Sarnafil® T Metal Sheet



Counter flashing

DETAILING WITH Sikalastic®-625 N

REFURBISHMENT

Detailing utilizing Sikalastic® systems is an exceptionally efficient method of protecting difficult details in combination with Sarnafil® AT and AT FSA P membrane by using Sikalastic®-625 N first layer (base coat) in combination with Sika® Reemat Premium embedded and Sikalastic®-625 N second layer (top coat).

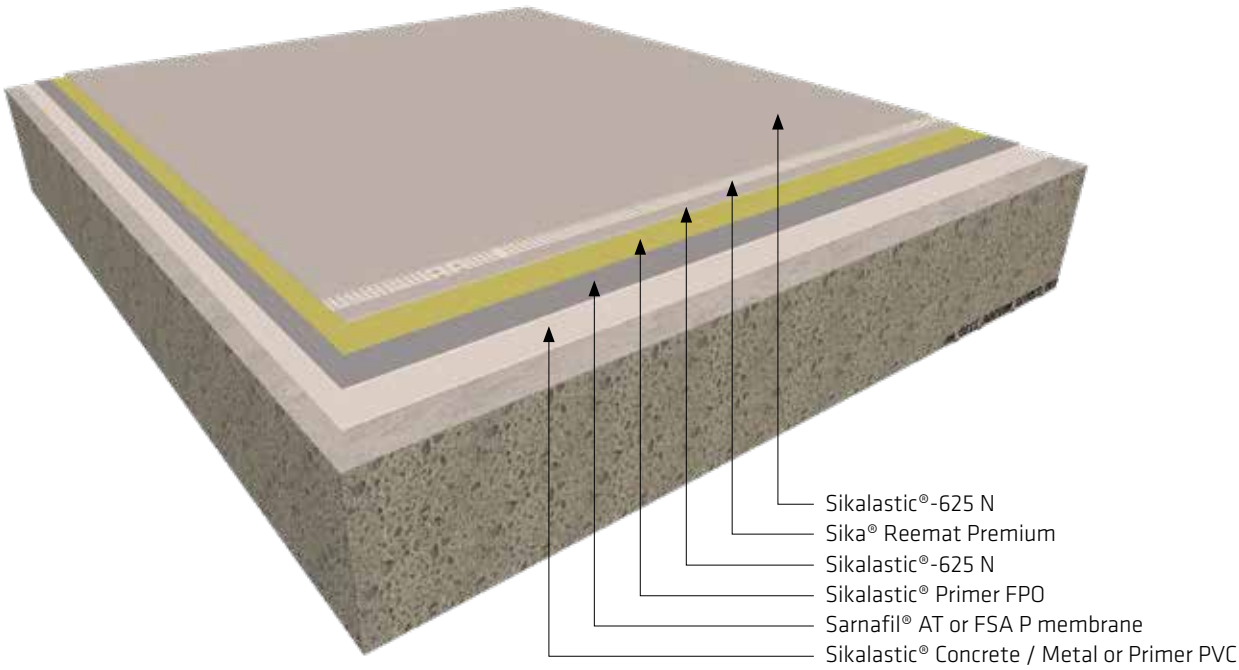
Sikalastic®systems, composed of Sikalastic®-625 N base coat and Sikalastic®-625 N top coat and, is the next generation of Sikalastic® LAM Systems for roofing and balcony / terraces applications, with reduced VOC content, using the Sika patented i-Cure® hardener for lower odor development during, as well as after, the curing process.
One of the main issues facing the use of liquids in various refurbishment situations still relates to the odor emitted during and for a short period after application.

Sikalastic ® systems is using unique products made of the Sika patented i-Cure hardener technology, which has been developed specifically for use in highly sensitive site areas, such as hospitals, schools, food and pharma industry, etc.
Sikalastic®-625 N is a membrane from the Sikalastic® range that cures to provide completely seamless waterproof protection which is followed by the application of the Sikalastic®-625 N to complete the joint-less, low odor, liquid applied roofing system. Its liquid application means it can be easily applied to all complex detail areas, and because it is completely cold applied there is no requirement for any heat or naked flame on the roof.

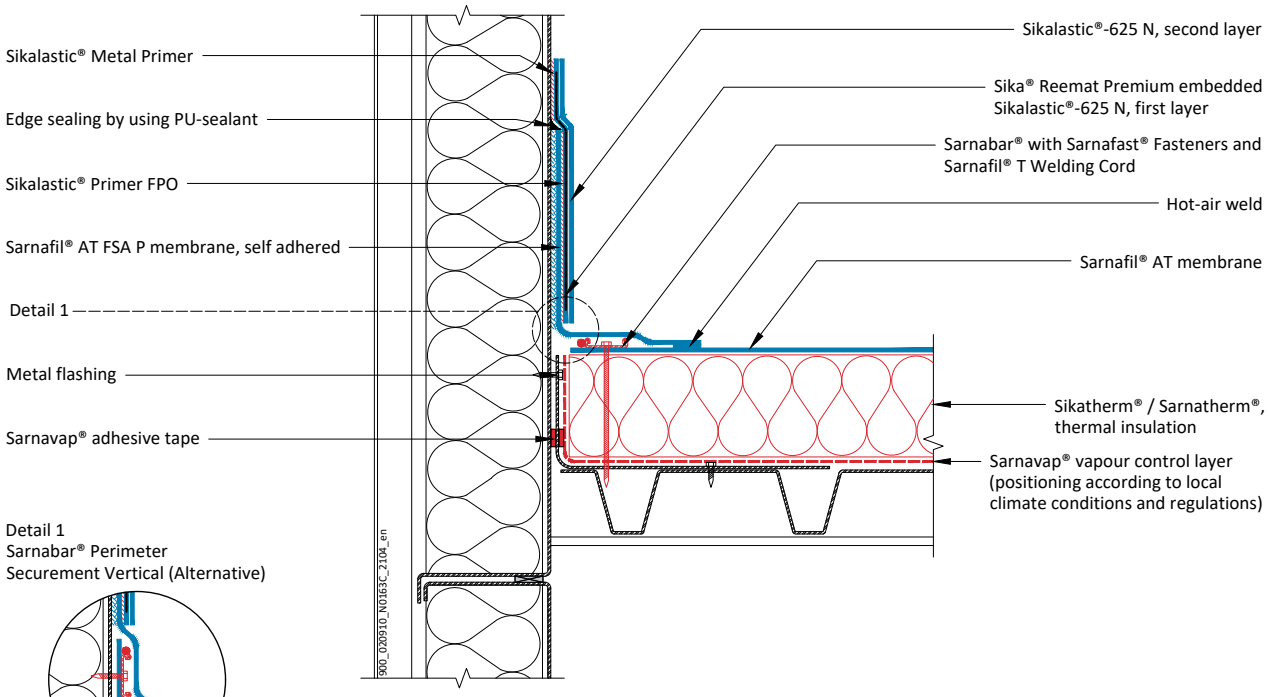
- Sika patented i-Cure technology
- One component products – no mixing, easy and ready to use
- UV resistant – Highly reflective (RAL 9016) and resistant to yellowing
- Cold applied base coat and top coat – requires no heat or flame
- Seamless roof waterproofing membrane
- Base coat compatible with Sika® Reemat Premium – easy to detail
- Fast curing products – free from resin damage almost immediately on application
- High elastic and crack-bridging – retains flexibility even at low temperatures
- Easily re-coated when needed – no stripping required
- Good adhesion to most substrates with the suitable primer
- Vapour permeable – allows substrate to breathe
- Strong resistance to common atmospheric chemicals

Powered by i-Cure® Technology

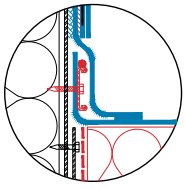
SYSTEM DESCRIPTION - BUILD-UP ON Sarnafil® AT AND Sarnafil® AT FSA P MEMBRANE



UPSTAND – METAL WALL ELEMENT

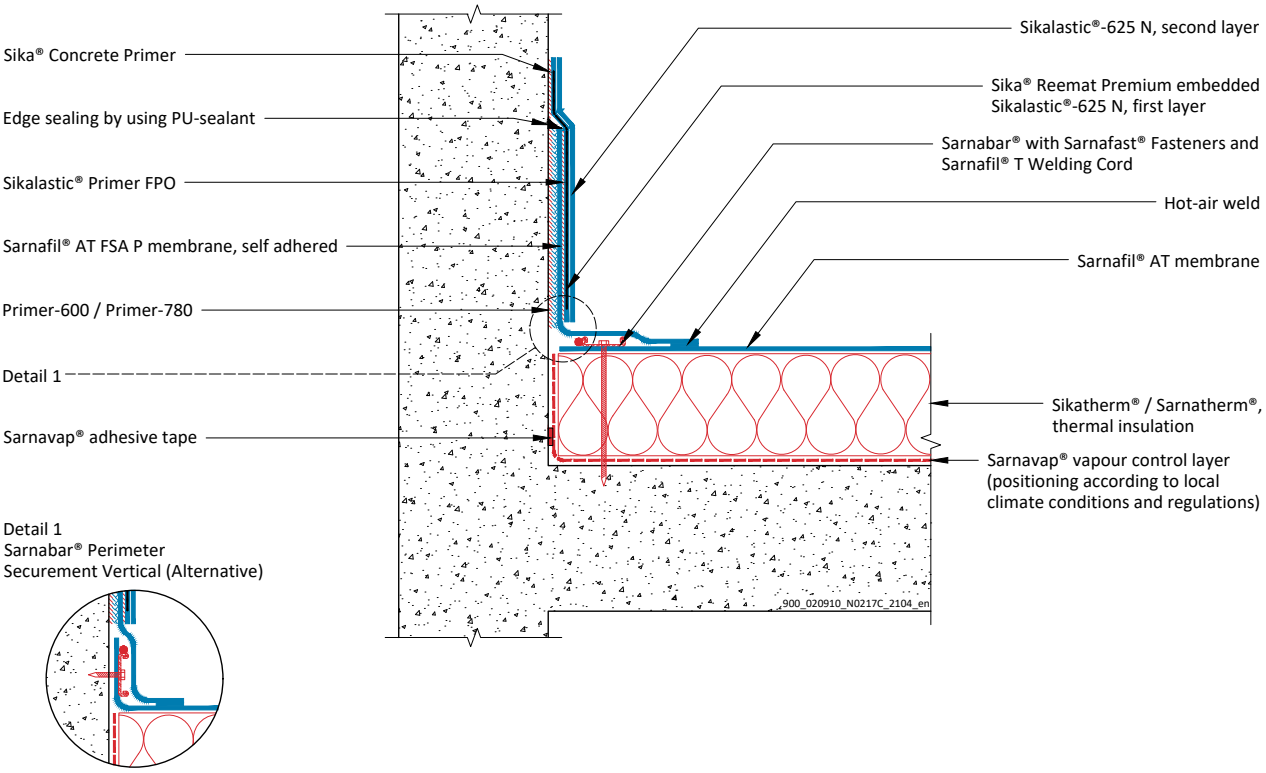


Detail 1
Sarnabar® Perimeter
Securement Vertical (Alternative)



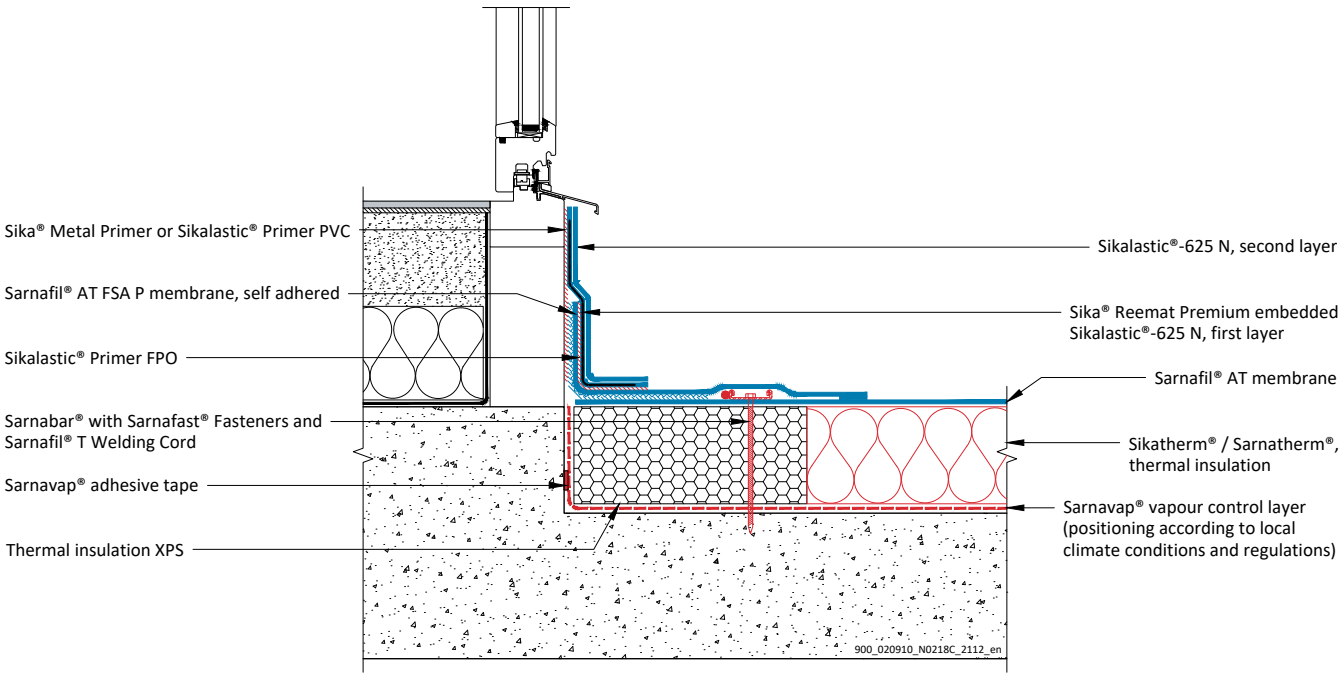
DETAILING WITH Sikalastic®-625 N

UPSTAND – CONCRETE WALL



Detail 1
Sarnabar® Perimeter
Securement Vertical (Alternative)

UPSTAND – WINDOW DOOR FRAME



Sikalastic®-625 N PRODUCTS

Sika® Reemat Premium

DESCRIPTION
Sika® Reemat Premium is a glass fibre reinforcement mat for use with Sikalastic® Liquid Applied Membrane (LAM) roofing systems.

USES
Reinforcement for Sikalastic® Liquid Applied Membrane (LAM) roofing systems.

CHARACTERISTICS / ADVANTAGES
- Easy and quick application
- Easy to adjust to complicated details
- Ensures the correct thickness of the base coat
- Improves crack-bridging properties of the system
- Improves mechanical properties of the system

TECHNICAL INFORMATION
Length: 90.00 m
Width: 0.30 and 1.25 m
Weight: 225 g/m²

APPEARANCE / COLOR
Composition random glass fibre strand matting in white

Sikalastic® Metal Primer

DESCRIPTION
Sikalastic® Metal Primer is a two-component, anticorrosive primer for exposed metal substrates and blocking primer over bituminous felts and coatings.

USES
Versatile and anti-corrosive primer on metal substrates for use with:
- Sikalastic® Liquid Applied Membrane (LAM) roofing systems. Barrier against migration of volatile bitumen or plasticizer migration

CHARACTERISTICS / ADVANTAGES
- Fast curing, overcoat possible after 6 hours
- Corrosion protection in industrial and marine environments
- Easy application by brush or roller
- Enhances adhesion to a broad range of metallic substrates
- Protects against migration of volatile bitumen or plasticizers

Sika® Concrete Primer

DESCRIPTION
Sika® Concrete Primer is a 2-part, polyurea / polyurethane-hybrid primer for cementitious substrates. The rapid curing performance allows overcoating of Sikalastic® Liquid Applied Membrane (LAM) roofing systems after 30 minutes.

USES
Primer on cementitious substrates for use with exterior applications of:
- Sikalastic® Liquid Applied Membrane (LAM) roofing systems

CHARACTERISTICS / ADVANTAGES
- Very good bond strength to substrate
- Reduces the likelihood of outgassing from susceptible substrates
- Helps to stabilise substrates
- Easy to apply
- Can be filled with quartz sand and used as a scratchcoat

Sikalastic®-625 N PRODUCTS

Sikalastic® Primer PVC

DESCRIPTION

Sikalastic® Primer PVC is a one-component, clear red polyurethane primer for consistent and durable adhesion between Sikalastic® Liquid Applied Membrane (LAM) roofing systems and hard PVC substrates.

USES

Sikalastic® Primer PVC may only be used by experienced professionals. Primer for detailing works with Sikalastic® Liquid Applied Membrane. Suitable substrates, new installations (less than 3 years old).

CHARACTERISTICS / ADVANTAGES

- One-component – easy and ready to use
- Enhance adhesion to hard PVC substrates
- Fast curing – overcoating possible after max 2 hours

Sikalastic® Primer FPO

DESCRIPTION

Sikalastic® Primer FPO is an one-component, transparent, slightly yellowing, solvent-based synthetic polymer primer, specifically formulated to Sikalastic® Liquid Applied Membrane (LAM) roofing systems onto FPO membranes.

USES

Sikalastic® Primer FPO may only be used by experienced professionals. Primer for detailing works with Sikalastic® Liquid Applied Membrane (LAM) roofing systems on Sarnafil® AT or Sarnafil AT FSA P membranes.

CHARACTERISTICS / ADVANTAGES

- One-component - easy and ready to use
- Enhance adhesion to Sarnafil® FPO Membranes
- Fast curing-overcoating possible after max 1 hour

Sika®Joint Tape SA

DESCRIPTION
Self-adhering polymeric rubberized tape with plastic release liner on underside and woven polyester faceron top side. Enhances the strength and durability of Sikalastic® roofing and waterproofing membranes at joints and angle changes.

USES
- Reinforcement of joints between cover boards on insulation
- Reinforcement of joints between plywood deck panels
- Reinforcement of joints and seams in metal roofing
- Stripping of metal flanges to structural deck

CHARACTERISTICS / ADVANTAGES
- Self-adhering, no primer required for most applications
- Fleece facer allows positive resin / coating bond
- Stretches with membrane to accomodate thermal and structural movement
- Imparts additional strength and durability
- Conforms to substrate contours and flashing conditions

TECHNICAL INFORMATION
Length: 15.40 m
Width: 76.2 and 152.4 mm
Thickness: 0.77 mm

APPEARANCE / COLOR
Off-white fleece top surface, black bottom surface

Sika® Flexitape Heavy

DESCRIPTION
Sika® Flexitape Heavy is a flexible knitted polyamide used as localised reinforcement with Sikalastic® Liquid Applied Membrane systems. Unlike conventional scrims, it is readily capable of stretching within the membrane to accommodate a high degree of thermal and structural movement.

USES
- Localised reinforcement for Sikalastic® systems used over joints or cracks liable to movement and for bridging gaps between substrates
- Localised reinforcement used in the construction of expansion joints
- For new construction and refurbishment projects

CHARACTERISTICS / ADVANTAGES
- Easy and quick application
- Follows surface contours and is easy to adjust to complicated details
- Enhance the crack-bridging properties of the system
- Enhance mechanical properties of the system

TECHNICAL INFORMATION
Length: 50.00 m
Width: 75 and 150 mm

APPEARANCE / COLOR
White

Sikalastic® Flexistrip

DESCRIPTION
Sikalastic® Flexistrip is a preformed strip sealant réel on a paper release liner for use with Sikalastic® membrane systems.

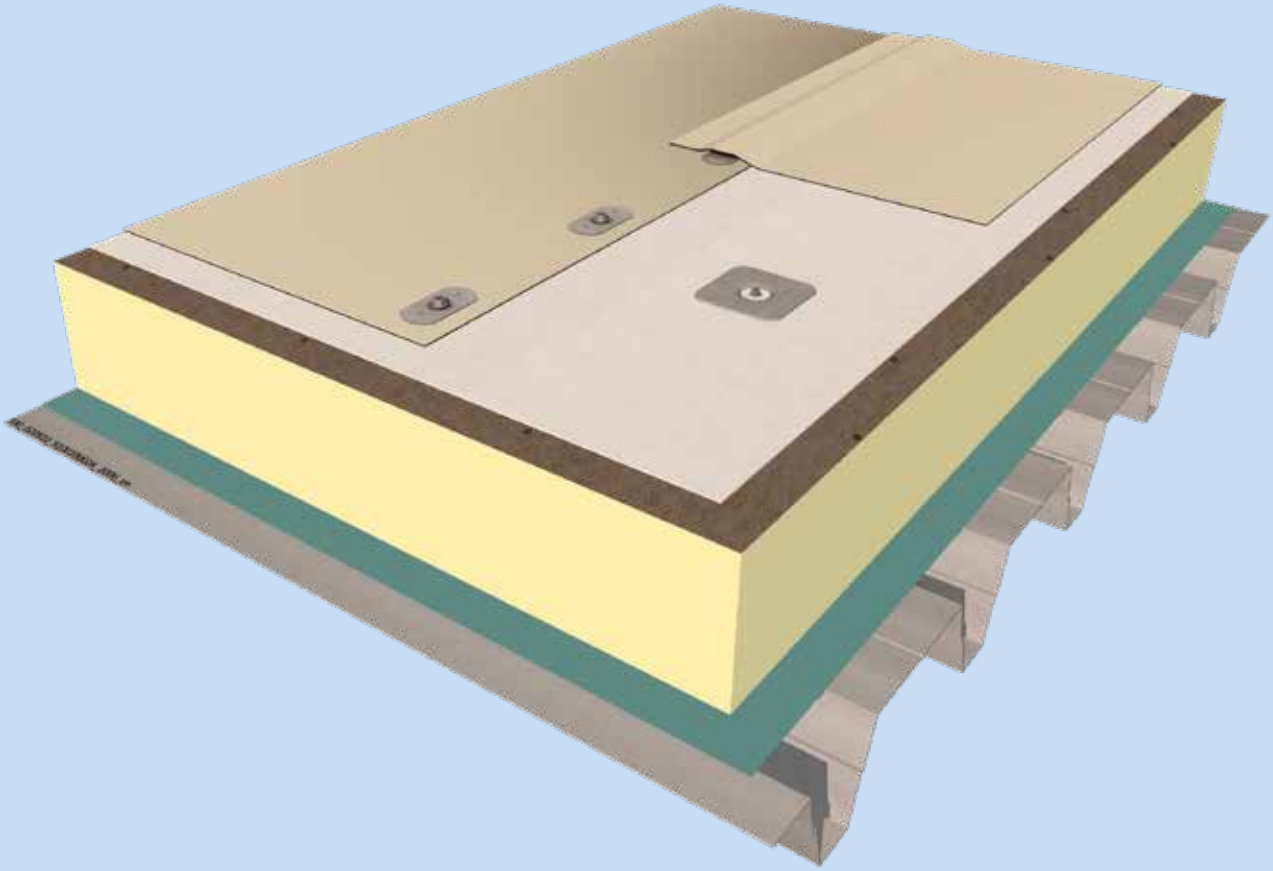
USES
Localised bond breaker for Sikalastic® systems used over bolt heads or butt joints of metal sheets liable to movement. For new construction and refurbishment projects.

CHARACTERISTICS / ADVANTAGES
- Easy and quick application
- Self-adhearing

TECHNICAL INFORMATION
Length: 15.00 m
Width: 50 mm

APPEARANCE / COLOR
Off-white

MECHANICALLY FASTENED ROOF SYSTEM – SPOT FASTENING

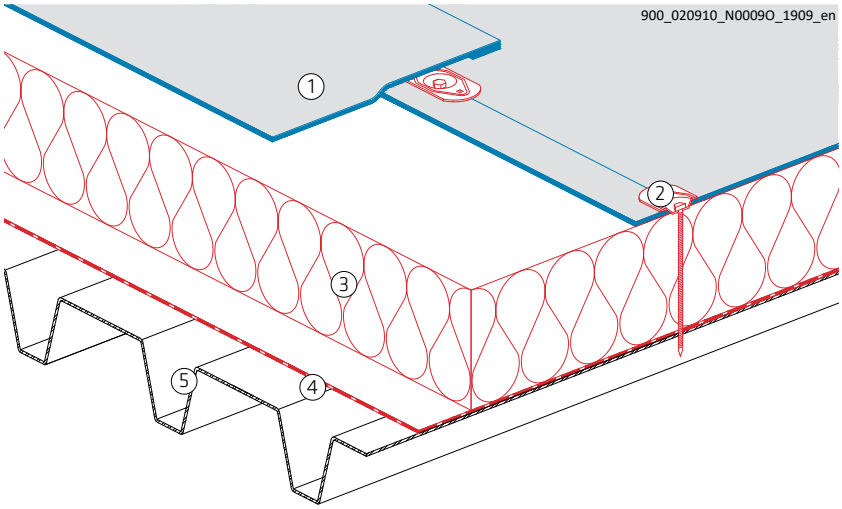


SYSTEM DESCRIPTION

Exposed roofs with Sarnafil® AT roof waterproofing membranes can be mechanically fastened using the Sarnafast® Spot Fastening System. These lightweight system meets all the requirements for modern flat roofing.

CHARACTERISTICS / ADVANTAGES

- Mechanically fastened roofs are the most cost efficient for exposed roofing applications
- The fastest installation speed is achieved with mechanically fastening
- Sarnafil® AT roof waterproofing membrane has special polyester reinforcement, enabling high wind load resistance
- Installation is almost not weather dependent



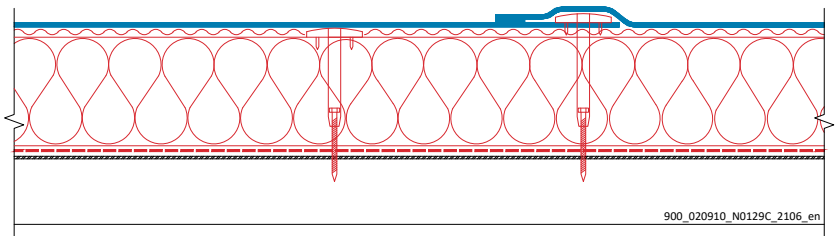
1 Sarnafil® AT membrane
2 Sarnafast® spot fastening system
3 Thermal insulation
4 Vapour control layer
5 Roof deck

SYSTEM DESCRIPTION

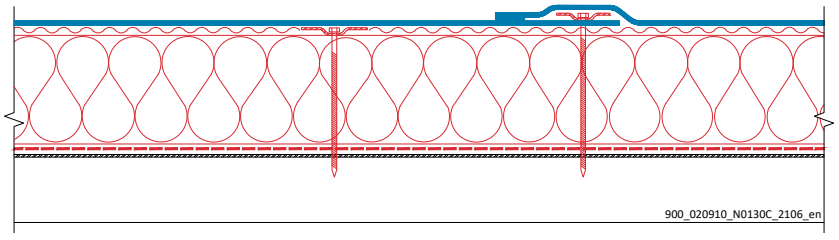
Fire separation- / Protection layer
A separation- / fire protection layer S-Glass Fleece 120 g/m² to be installed above thermal insulation where it is required by fire regulation!

Thermal insulation fastening
Before the Sarnafil® AT roof waterproofing membrane is installed, the insulation boards must be secured to the roof deck using appropriate Sarnafast® fasteners and insulation washers. The number of fasteners must meet local regulations and building codes. The minimum is one fastener per insulation board or one fastener per m².

Types of spot fastening systems
Sarnafast®
Tube Spot Fastening System
using polyamide tubes

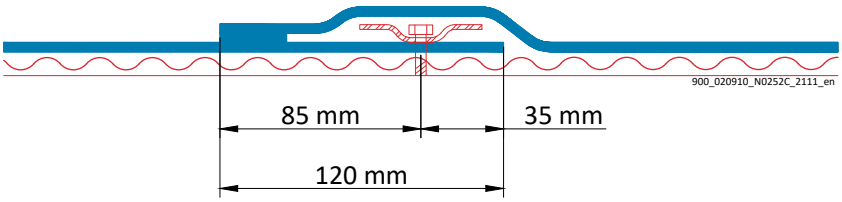


Sarnafast®
Spot Fastening System
using metal washers

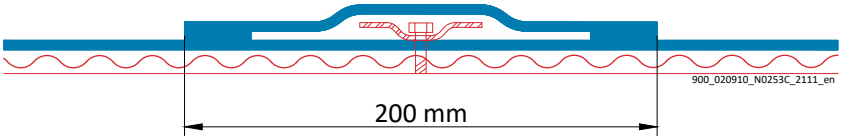


MECHANICALLY FASTENED ROOF SYSTEM – SPOT FASTENING

Application of spot fastening systems
Sarnafil® AT is fastened using Sarnafast® fasteners and washers / tubes along the marked line 35 mm from the edge of the membrane.



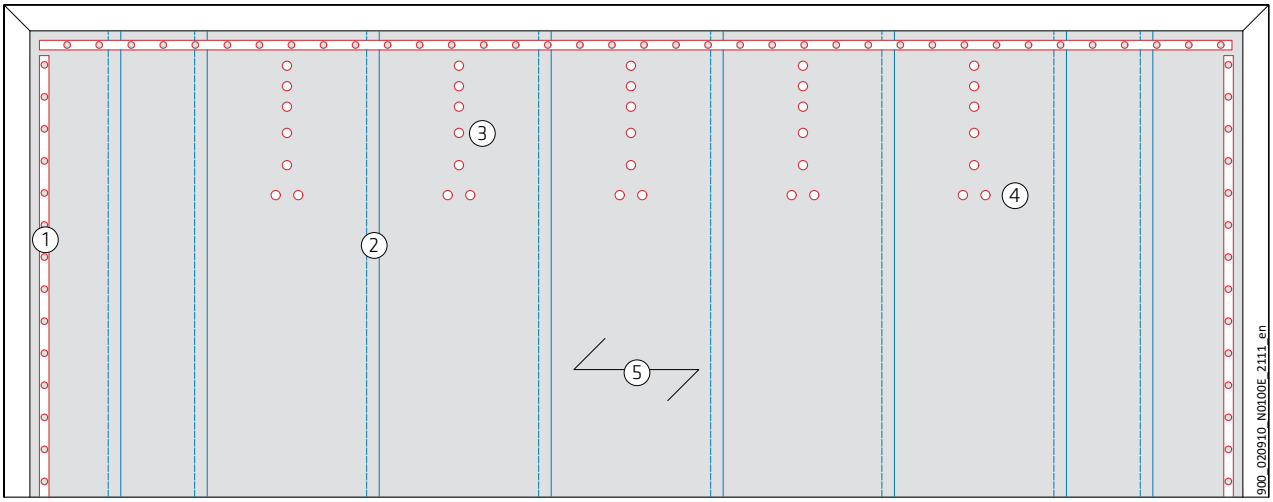
Where additional fastening is required, Sarnafast® fasteners and washers / tubes are installed through the roof waterproofing membrane (intermediate fastening). Cover the rows of Sarnafast® fastening system with a 200 mm wide membrane cover strip and weld both sides.



Planning and layout
The spacing and numbers of fasteners and washers depend on the following:

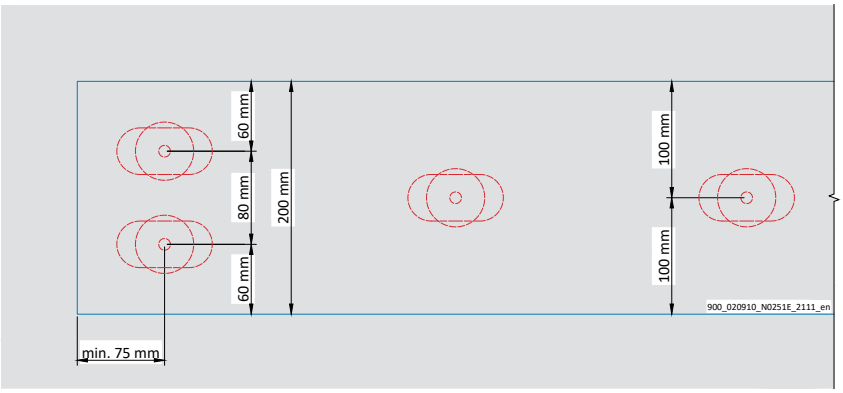
- Building regulations and standards
- Wind uplift forces
- Elongation limit of the roof waterproofing membrane
- Pullout strength of the fasteners
- Available points of attachments to the deck
- Type and quality of roof deck

Sika determines the fastening pattern and calculates the fastener spacing depending on the substrate and the design load of the relevant fastener for the local situation of project (Wind Load Calculation page).

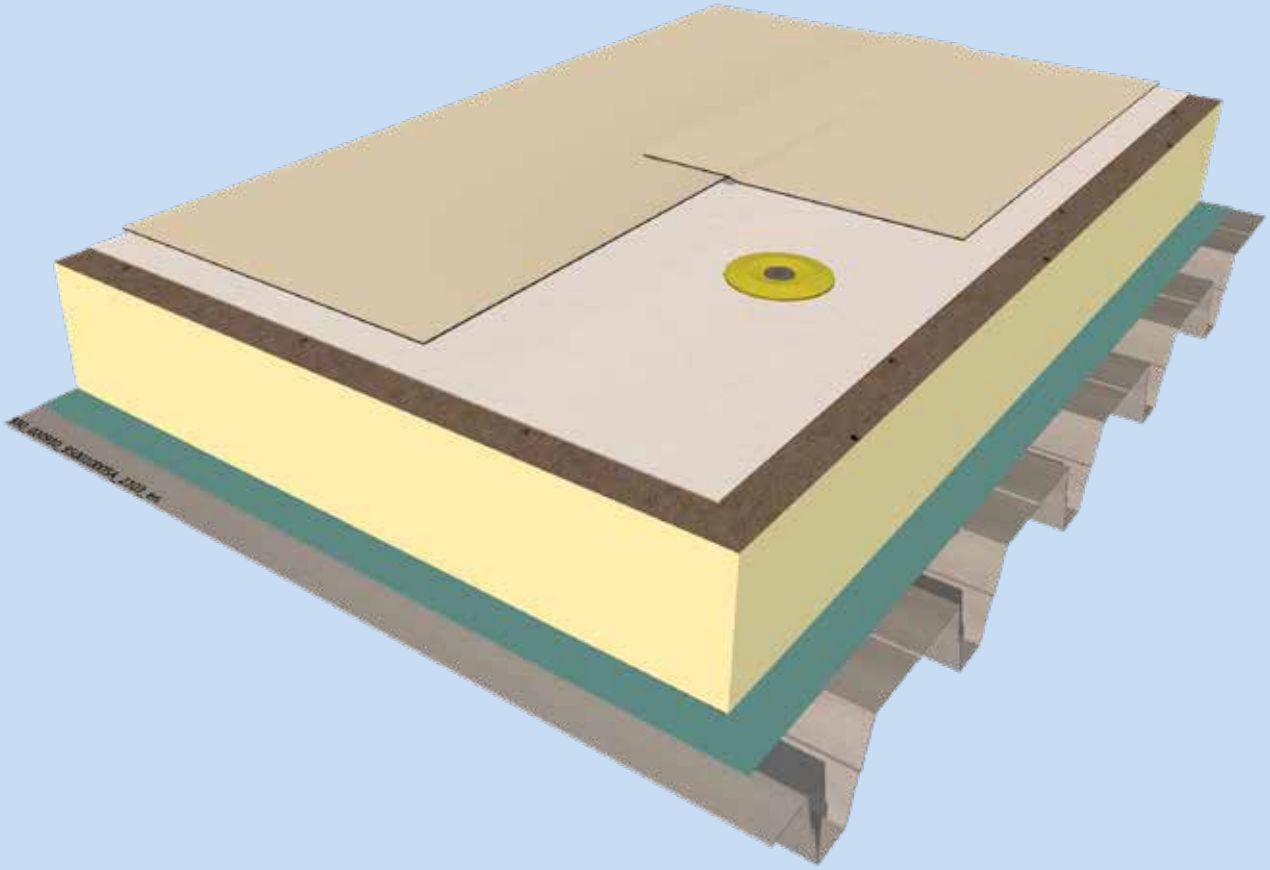


1 Perimeter Sarnabar® with Sarnafil® T Welding Cord
2 Sarnafast® spot fastening system along the edge of roof waterproofing membrane
3 Sarnafast® spot fastening system with cover strip
4 Row termination with two Sarnafast® fasteners and washers / tubes
5 Direction of metal deck ribs

Row termination of intermediate fastening with two Sarnafast® fasteners and washers / tubes and 200 mm wide cover strip.



MECHANICALLY FASTENED ROOF SYSTEM – INDUCTION WELDING



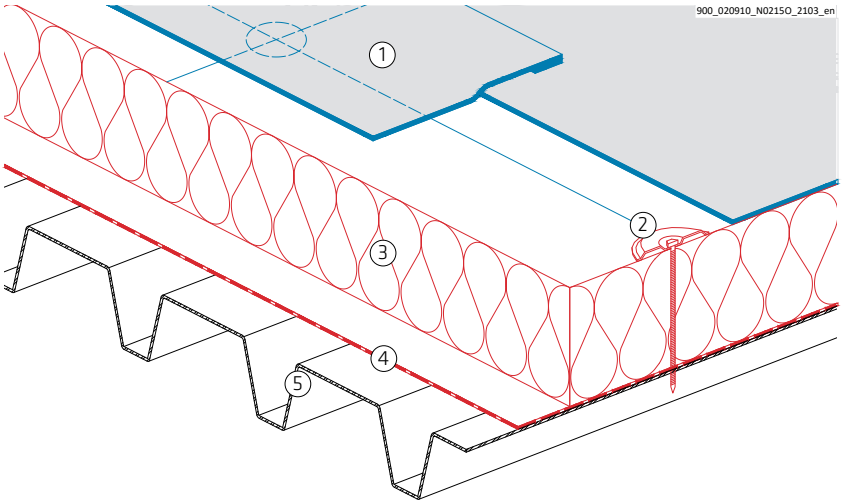
SYSTEM DESCRIPTION

Exposed roofs with Sarnafil® AT roof waterproofing membranes can be mechanically fastened using the Sarnaweld® Induction Welding System. These field fastening system uses induction technology and offers a non-penetrating solution.

CHARACTERISTICS / ADVANTAGES

(In addition to the classic spot fastening system)

- No thermal insulation fastener required
- Fastening independent of membrane joints
- Only one membrane width required



1 Sarnafil® AT membrane
2 Sarnaweld® induction welding system
3 Thermal insulation
4 Vapour control layer
5 Roof deck

SYSTEM DESCRIPTION

Thermal insulation or deck fastening

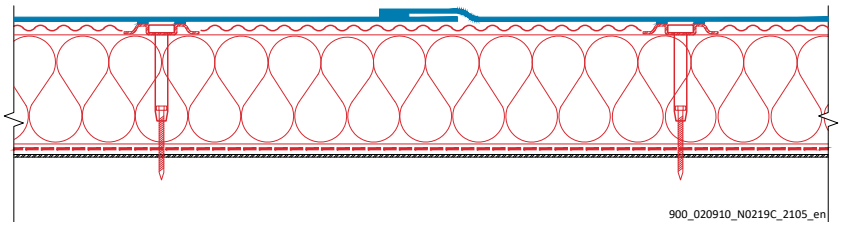
Before the Sarnafil® AT roof waterproofing membrane is installed, the Sarnaweld®induction welding system will be fixed into the insulation boards or directly to the roof deck according to the fasting layout.

Fire separation- / Protection layer

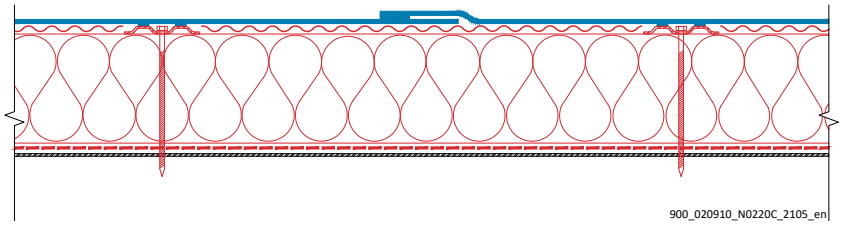
A separation- / fire protection layer S-Glass Fleece 120 g/m² to be installed above thermal insulation where it is required by fire regulation.

Types of induction welding systems

Sarnaweld®
Tube Induction Welding System
using polyamide tubes in combinaton
with metal discs

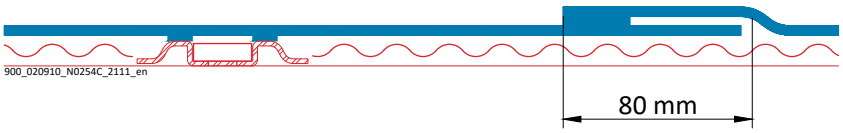


Sarnaweld®
Induction Welding System
using metal discs



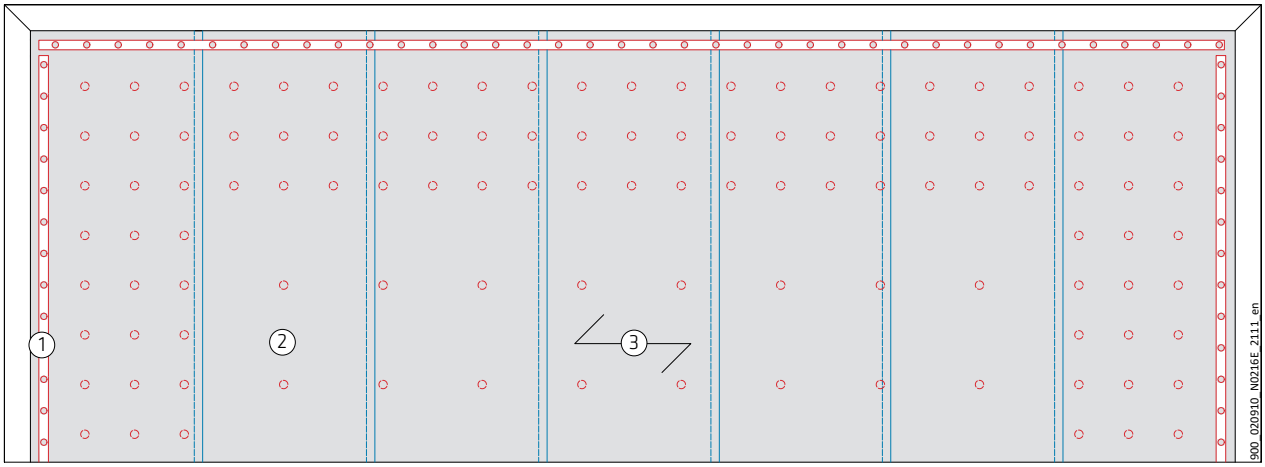
MECHANICALLY FASTENED ROOF SYSTEM – INDUCTION WELDING

Application of induction welding system
Sarnafil®AT is fastened using Sarnafast® fastener and Sarnaweld® discs with or without Sarnabar® tubes. Membrane must be overlapped by 80 mm and hot welded.



Planning and layout
The spacing and numbers of fasteners and washers depend on the following:
- Building regulations and standards
- Wind uplift forces
- Elongation limit oft he roof waterproofing membrane
- Pullout strength oft he fasteners
- Available points of attachments to the deck
- Type and quality of roof deck

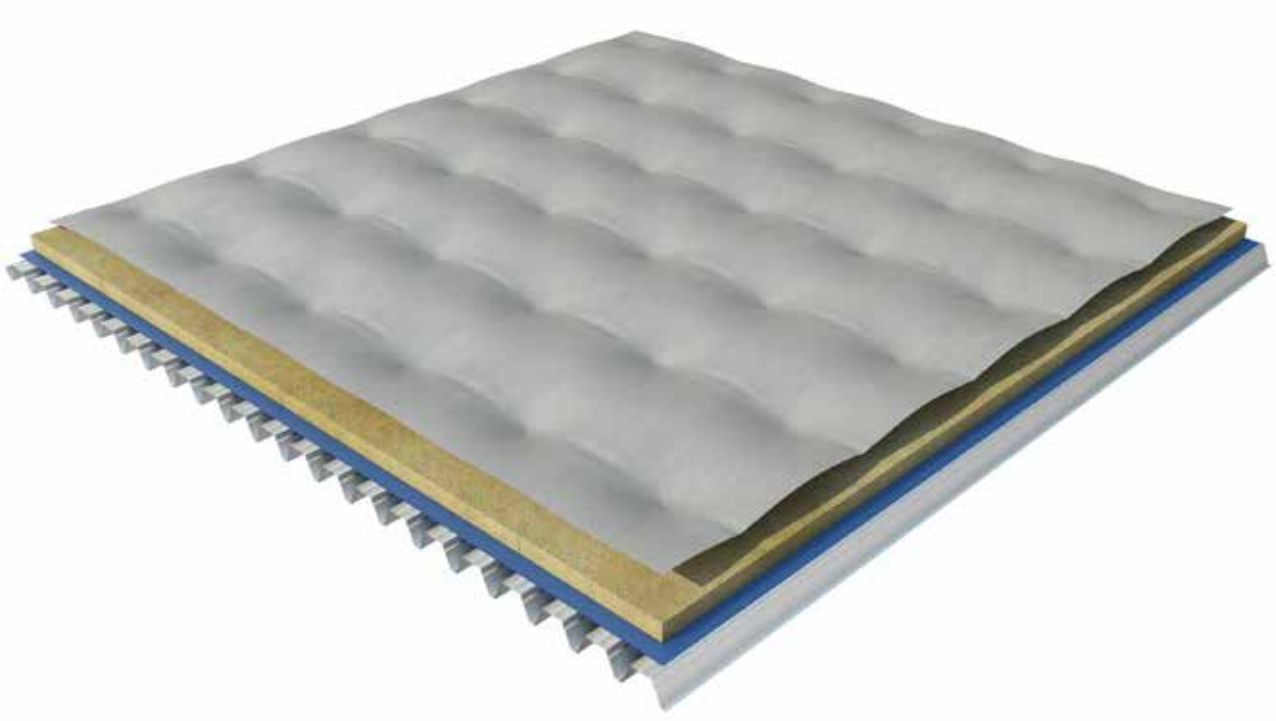
Sika determines the fastening pattern and calculates the fastener spacing depending on the substrate and the design load of the relevant fastener for the local situation of project (Wind Load Calculation page).



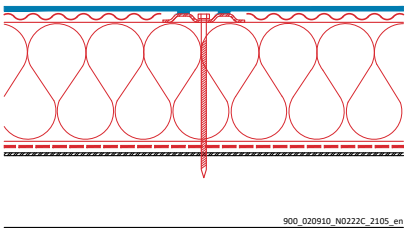
1 Perimeter Sarnabar® with Sarnafil® T Welding Cord
2 Sarnaweld®induction welding system
3 Direction of metal deck ribs

MECHANICALLY FASTENED ROOF SYSTEMS – GENERAL

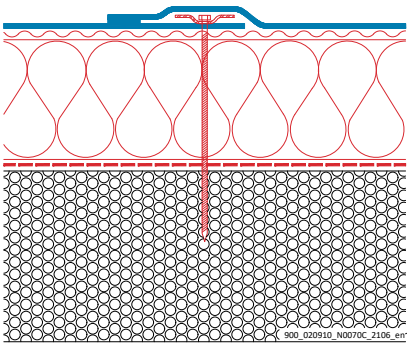
Sarnafast® Spot Fastening System



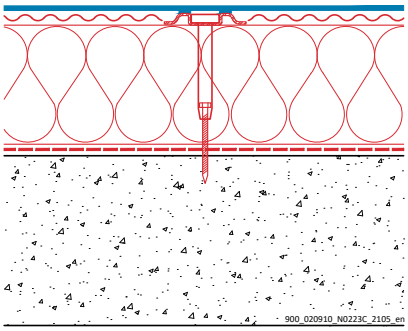
Sarnweld® Induction Welding System



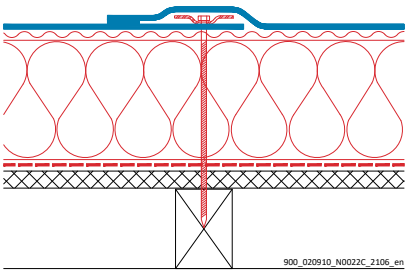
Steel decks
The deck must be galvanized steel with a minimum thickness of 0.63 mm, yield strength of minimum S280 according EN 10147 or equal. The suitability of the deck must be verified by an architect, structural engineer or other qualified specialist. Orient rows of bars and fasteners perpendicular to the direction of the deck ribbing. The fasteners are self-tapping in decks up to 1.25 mm thick. Thicker decks might require pilot holes. All fasteners must penetrate the top flange of the deck. All fasteners used must be approved by Sika Roofing.



Aerated concrete decks (Cellular, Gas or Lightweight)
All roofing applications over concrete decks require an on-site pullout test. Conduct the test immediately after setting the fastener in order to confirm fastener performance.
Heed the following:
- All fasteners used must be approved by Sika Roofing
- Do not alter the perforation of the bars
- Install fasteners using an electric dynamometric screw driver



Reinforced, precast or pre-stressed concrete decks
Concrete quality must be at least C20/25.



Wood decks
Approved fasteners must be used for fastening roofing to wood decks.

The selection of fastener depends on these factors:
- Quality and thickness of the wood
- Embedment depth and pullout strength
- Type of wood preservative used

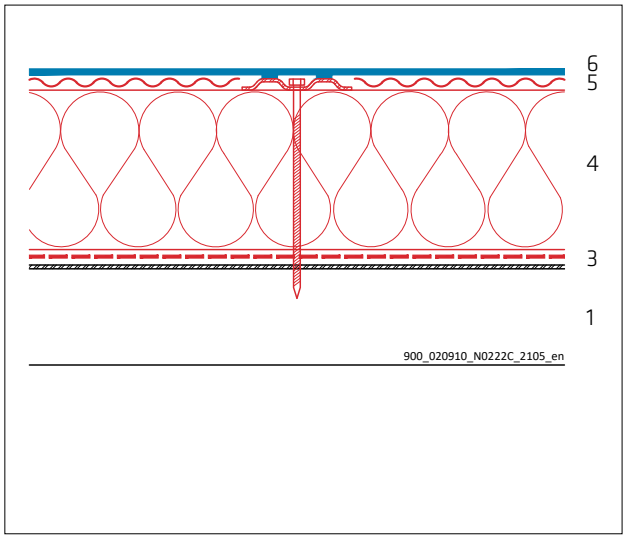
Mechanical fastening on wood decks
Material mechanical minimum attachment thickness:
- Plywood / OSB ≥ 22 mm
- Wood planking ≥ 24 mm
- Chipboard not allowed

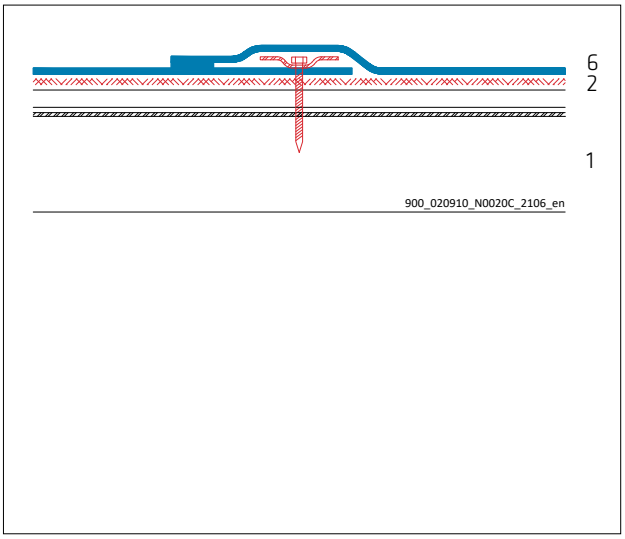
Plywood decks
Observe local codes and standards regarding application, fastening and fire protection.

Board decks
- Boards should be tongue and grooved
- Only wood treated with aqueous, salt-based preservative may be used
- Sika Roofing accepts no liability for damage to the roof waterproofing membrane caused by insect infestation

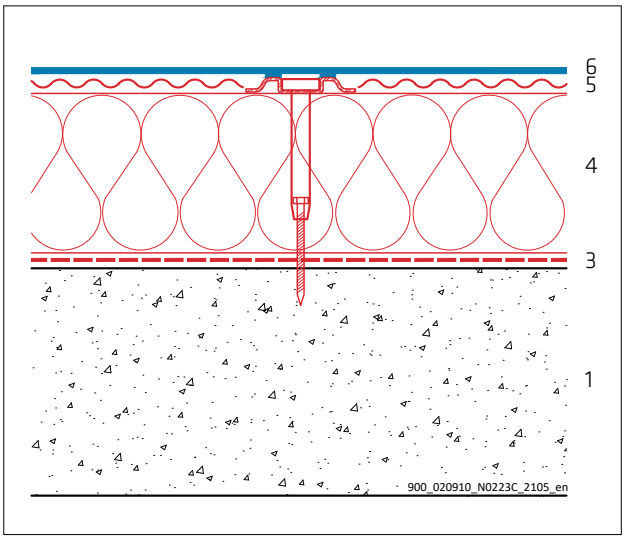
MECHANICALLY FASTENED ROOF SYSTEMS – GENERAL

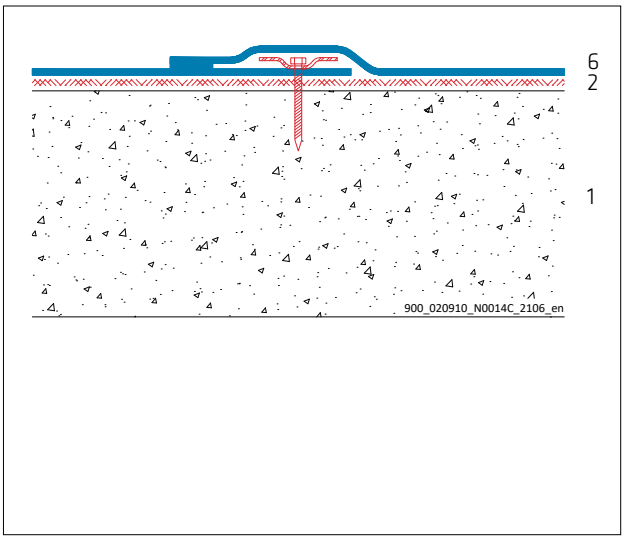
Steel



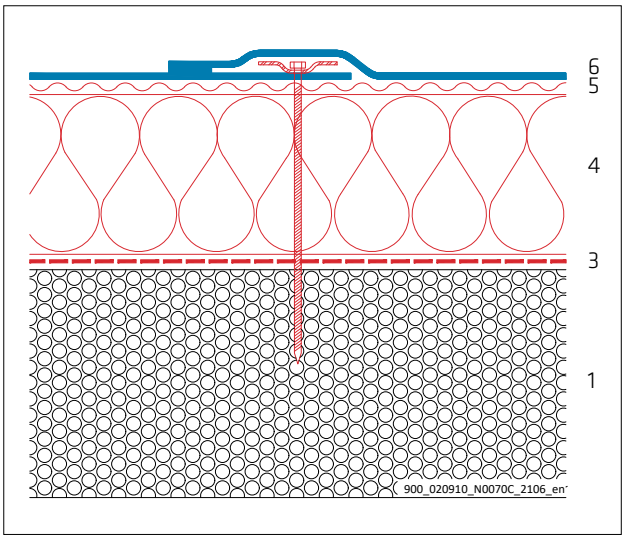


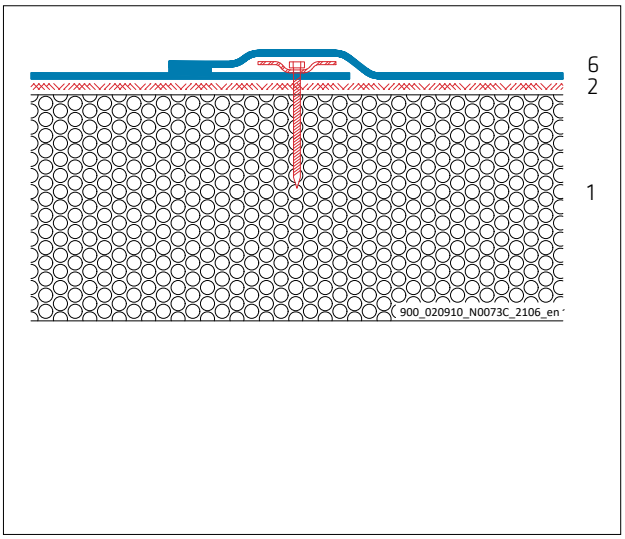
Reinforced concrete



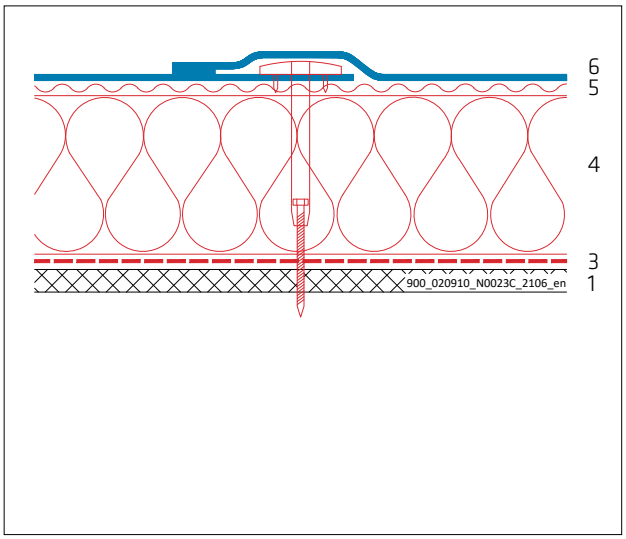


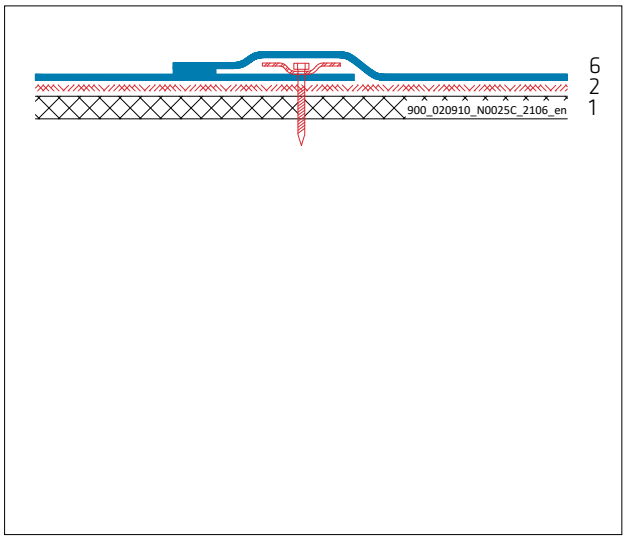
Aerated concrete





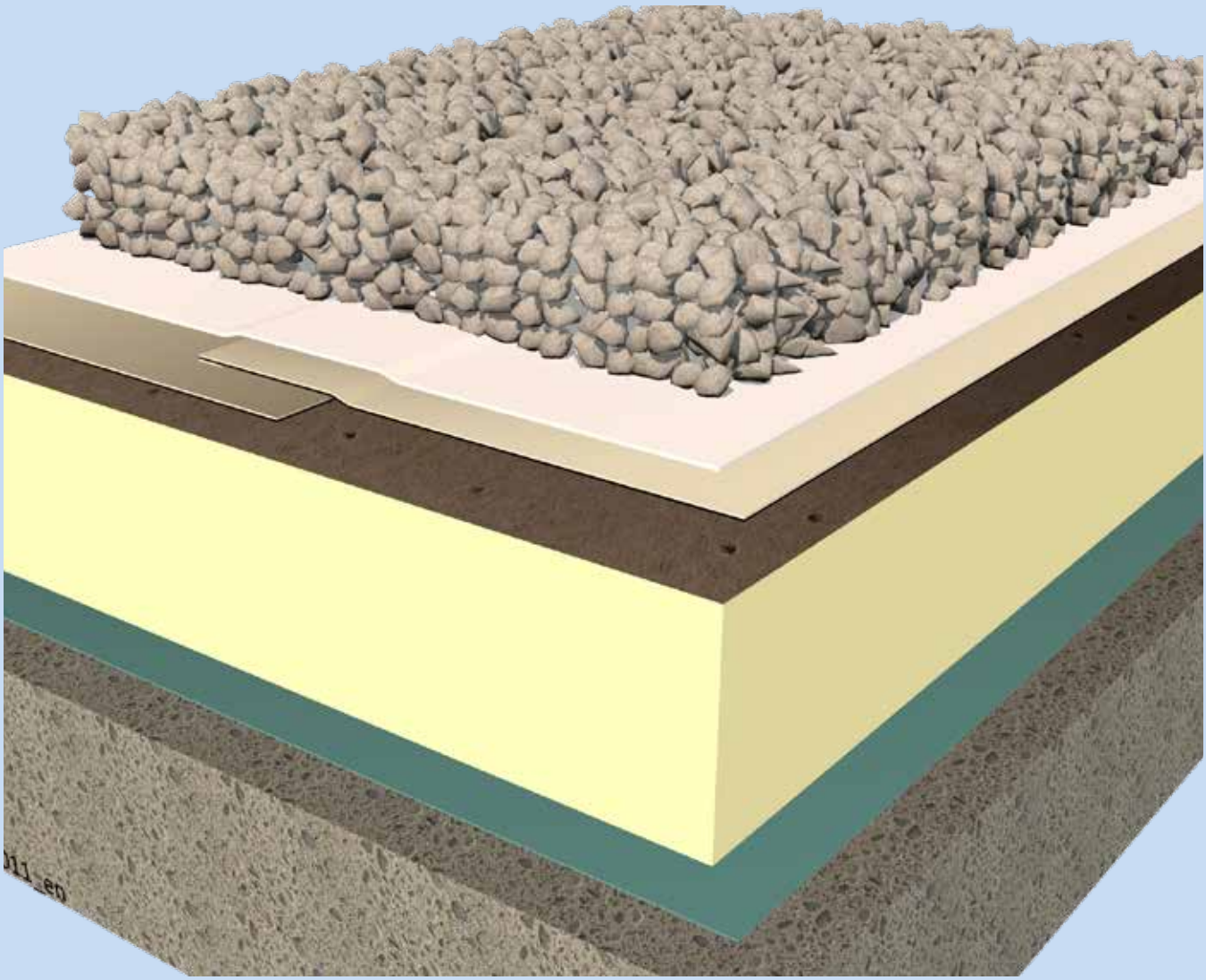
Wood





Layer No.	Function	Material	Attachment
1	Roof deck	Steel Reinforced concrete Aerated concrete Wood	
2	Levelling- and protection layer (if required)	S-Felt A-300 Sikaplan® W Felt 500 PP S-Felt S-800	Loose laid Loose laid Loose laid
3	Vapour control layer	Sarnavap®-1000 E Sarnavap®-2000 E Sarnavap®-3000 M S-Vap-4000 E SA FR Sarnavap®-5000 E SA FR Sarnavap®-5000 E SA	Loose laid Loose laid Loose laid Self adhered Self adhered Self adhered
4	Thermal insulation		Mechanically fastened
5	Separation- and fire protection layer (if required)	S-Glass Fleece 120	Loose laid
6	Roof waterproofing membrane	Sarnafil® AT	Mechanically fastened

GRAVEL BALLASTED ROOF SYSTEM

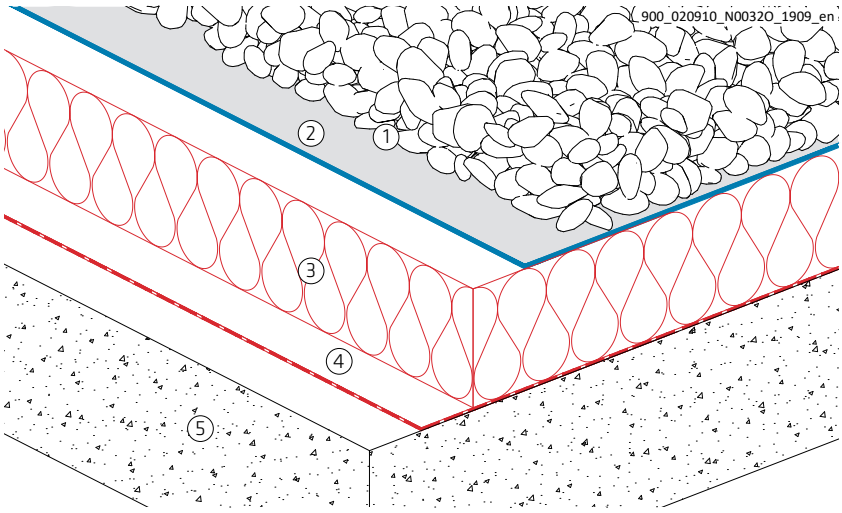


SYSTEM DESCRIPTION

In gravel ballasted roof systems, the Sarnafil® AT roof waterproofing membrane is covered and ballasted against wind uplift and other exposures with a layer of gravel. Conventional gravel ballasted roofs have been established in most markets for many years and are suitable on most flat roofs and bearing structures.

CHARACTERISTICS / ADVANTAGES

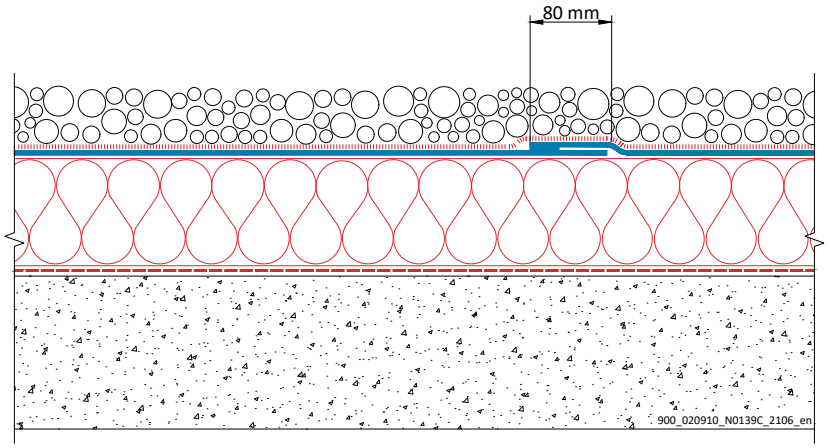
- Fast and easy installation
- No penetration of the roof deck
- Easy to maintain, low maintenance costs
- Protection of the roof waterproofing membrane against environmental exposure and mechanical damage
- The noncombustible properties of the gravel contribute significant to the fire resistance of the whole roof. The gravel also prevents flames from spreading across the roof surface



1 Gravel ballast
2 Sarnafil® AT membrane
3 Thermal insulation
4 Vapour control layer
5 Roof deck

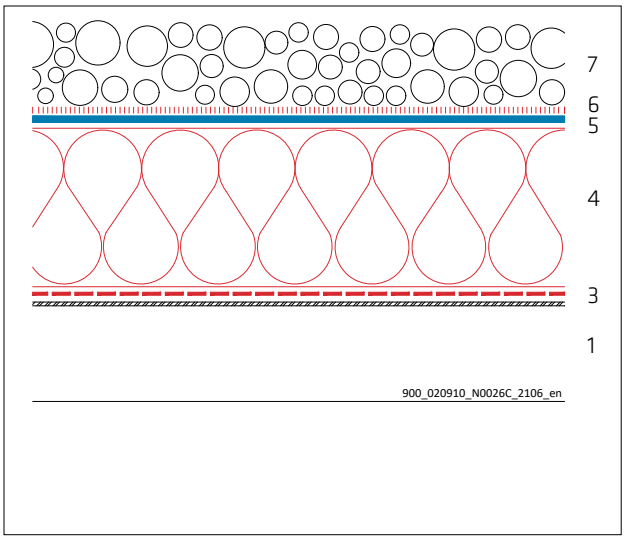
SYSTEM DESCRIPTION

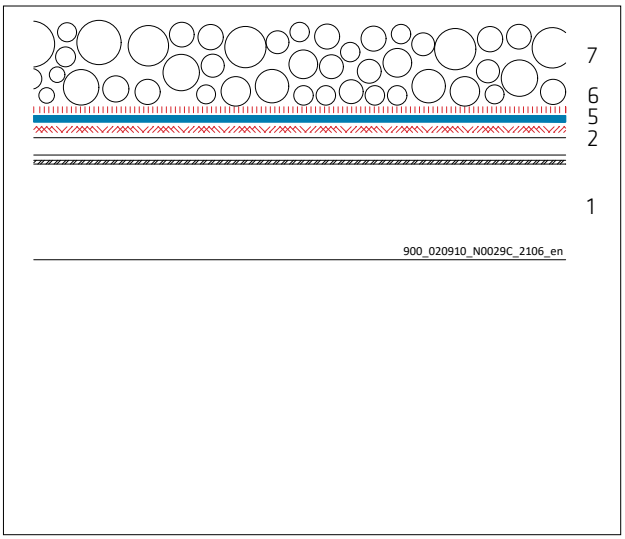
- The build-up is ballasted with well-rounded and washed gravel 16/32 mm of at least 50 mm and 80 kg/m², securing the roof waterproofing membrane against wind uplift
- If crushed gravel is used, a protection layer is required on top of the roof waterproofing membrane
- Sarnafil® AT roof waterproofing membrane and other roof components, including thermal insulation, are loosely laid



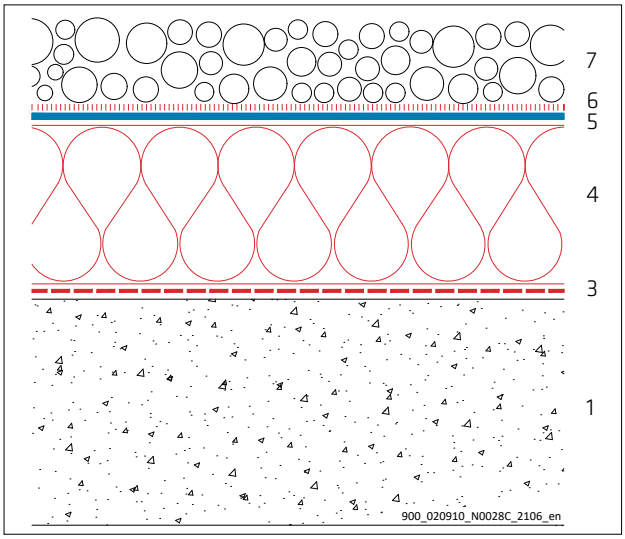
GRAVEL BALLASTED ROOF SYSTEM

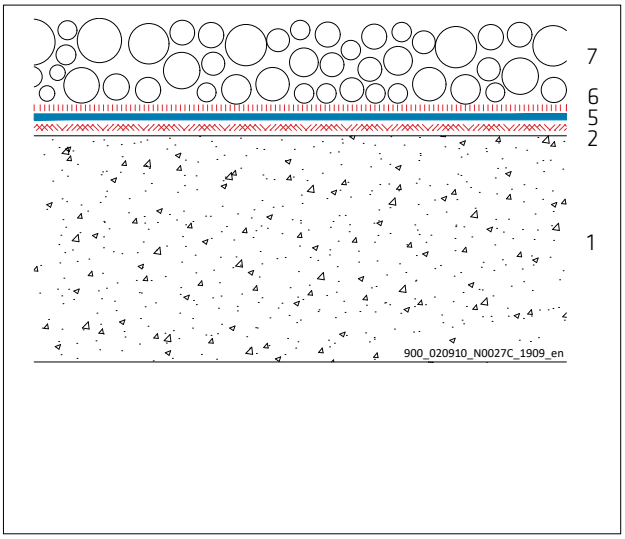
Steel



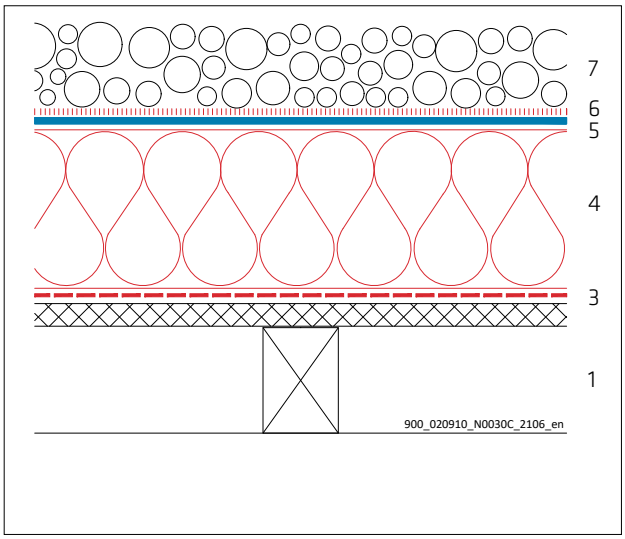


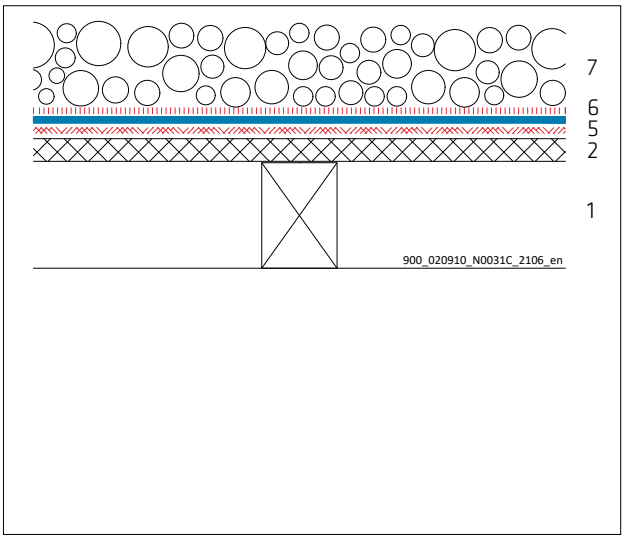
Reinforced concrete





Wood

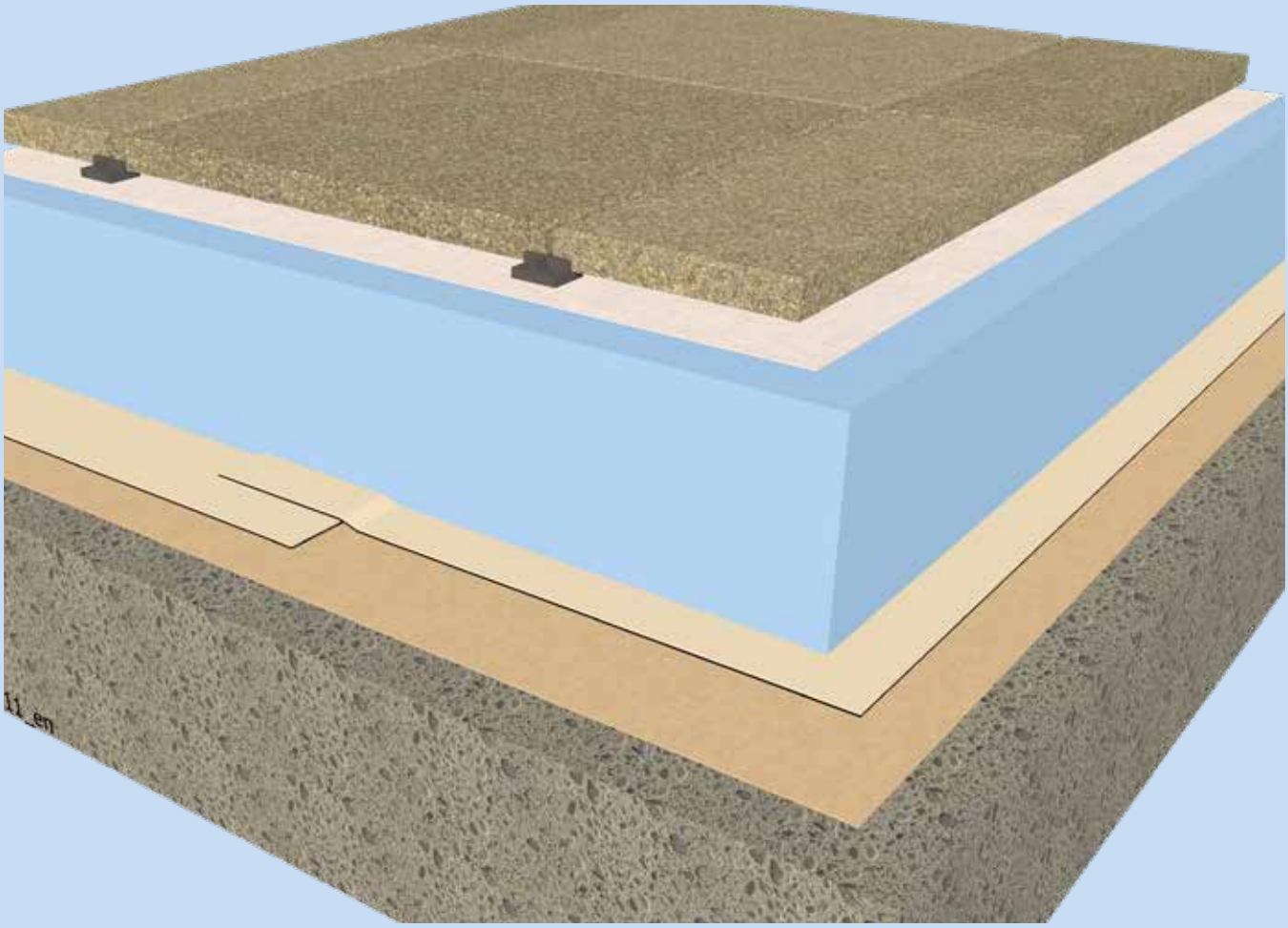




Layer No.	Function	Material	Attachment
1	Roof deck	Steel Reinforced concrete Wood	
2	Levelling- and protection layer (if required)	S-Felt A-300 Sikaplan® W Felt 500 PP S-Felt S-800	Loose laid Loose laid Loose laid
3	Vapour control layer	Sarnavap®-1000 E Sarnavap®-2000 E Sarnavap®-3000 M S-Vap-4000 E SA FR Sarnavap®-5000 E SA FR Sarnavap®-5000 E SA	Loose laid Loose laid Loose laid Self adhered Self adhered Self adhered
4	Thermal insulation		Loose laid
5	Roof waterproofing membrane	Sarnafil® AT	Loose laid
6	Separation-, levelling- and protection layer (if required)	S-Felt A-300 Sikaplan® W Felt 500 PP S-Felt S-800 S-Felt T-300	Loose laid Loose laid Loose laid Loose laid
7	Ballast	Gravel	Loose laid

APPLICATION INSTRUCTIONS

INVERTED ROOF SYSTEM

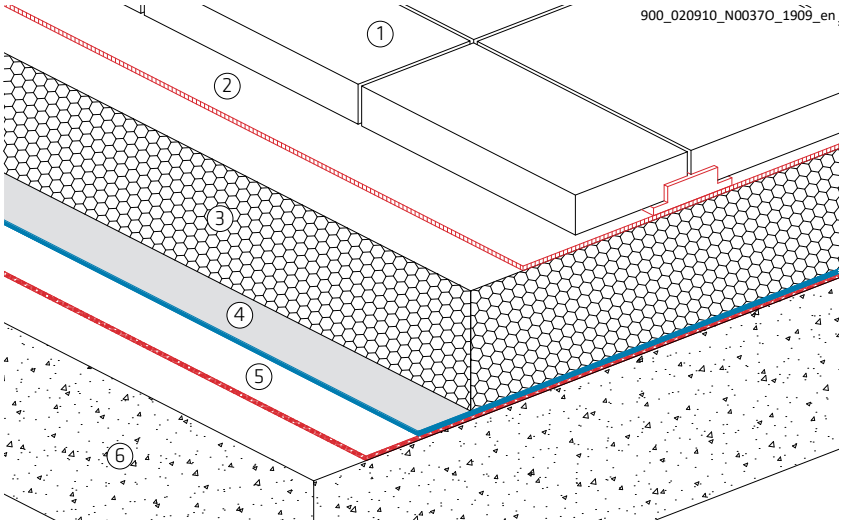


SYSTEM DESCRIPTION

In this type of construction the principal thermal insulation material is applied on top of the Sarnafil® AT roof waterproofing membrane so that the complete roof construction including roof covering is kept at warm temperatures during the winter months and at moderate temperatures during the summer months; the system is also referred to as a “protected membrane”, or “upside down” roof.

CHARACTERISTICS / ADVANTAGES

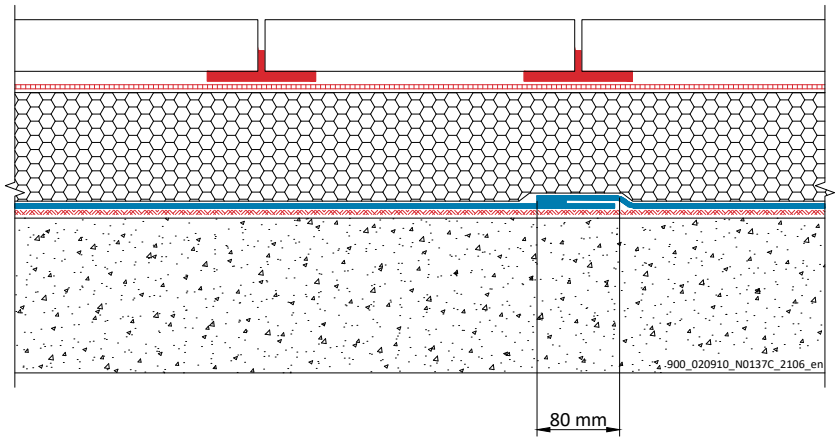
- Fast and easy installation
- No penetration of the roof deck
- Additional protection of the roof waterproofing membrane
- High fire resistance



1 Ballast
2 Filter layer
3 Thermal insulation XPS
4 Sarnafil® AT membrane
5 Levelling- and protection layer
6 Roof deck

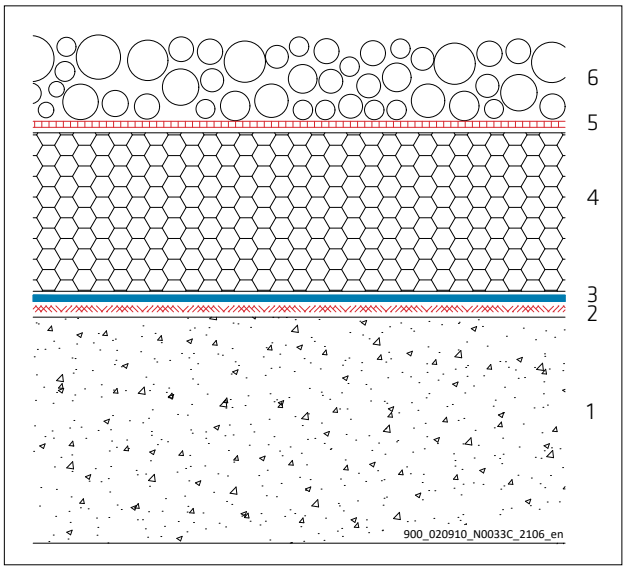
SYSTEM DESCRIPTION

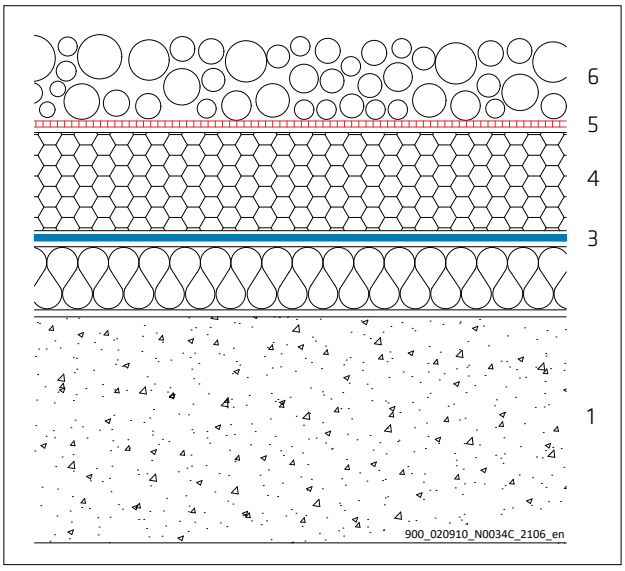
- The build-up is ballasted with gravel, pavings or green roof securing the thermal insulation against wind uplift
- The filter layer prevents small particles from penetrating gaps and voids into thermal insulation
- Sarnafil® AT roof waterproofing membrane and other roof components, including thermal insulation, are loosely laid

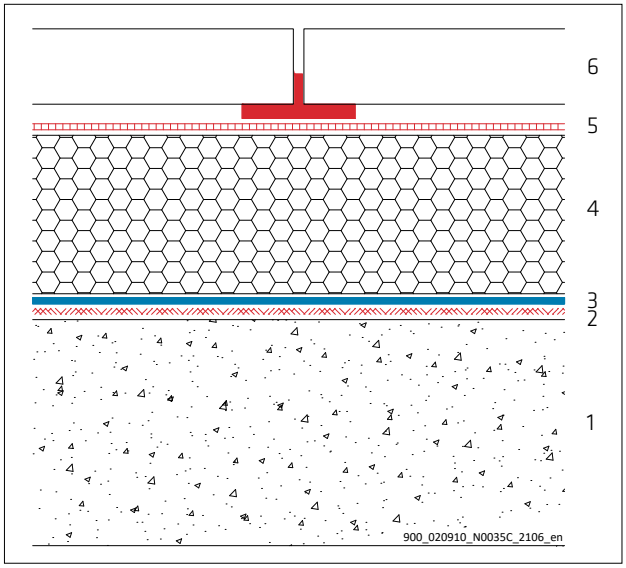


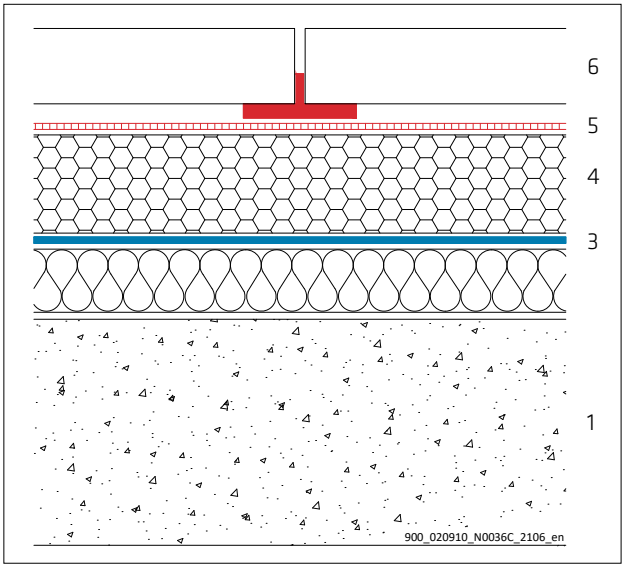
INVERTED ROOF SYSTEM

Reinforced concrete





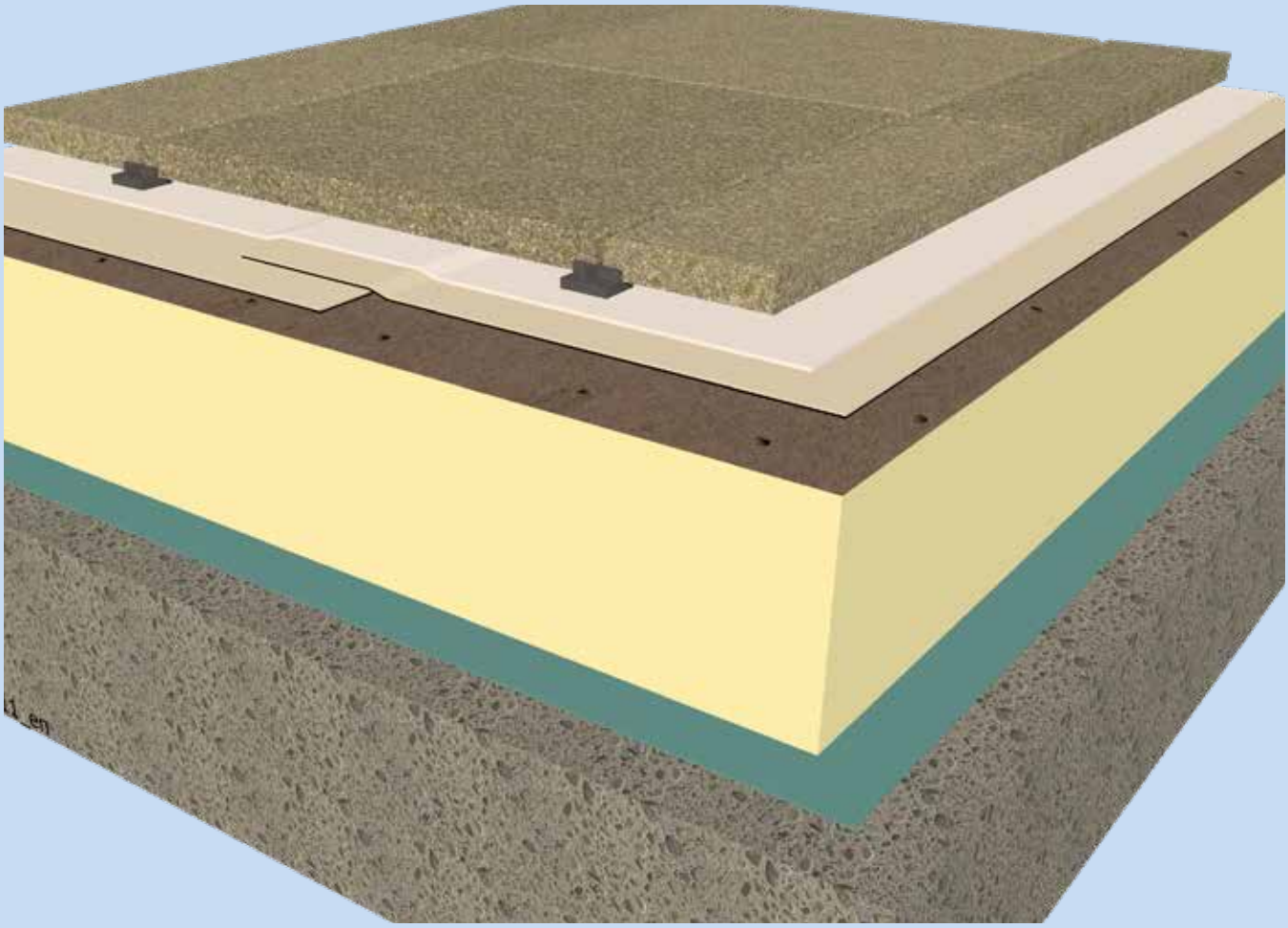




Layer No.	Function	Material	Attachment
1	Roof deck	Reinforced concrete	
2	Levelling- and protection layer (if required)	S-Felt A-300 Sikaplan® W Felt 500 PP S-Felt S-800	Loose laid Loose laid Loose laid
3	Roof waterproofing membrane	Sarnafil® AT	Loose laid
4	Thermal insulation	XPS	Loose laid
5	Filter layer	S-Felt VS-140	Loose laid
6	Ballast	Gravel Paving slabs	Loose laid Loose laid

APPLICATION INSTRUCTIONS

UTILITY ROOF SYSTEM

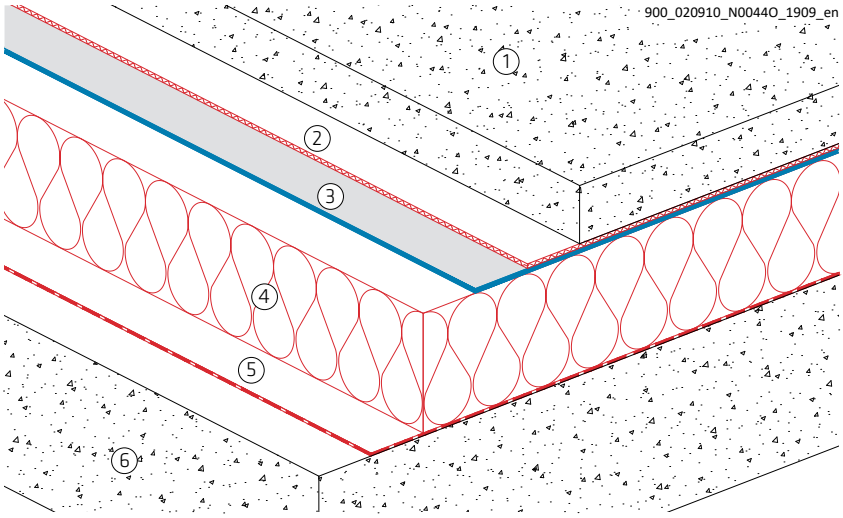


SYSTEM DESCRIPTION

Create more utilized space and bring additional value to the building. Further on that they generate an increased return on investment by using the roof for a car park, restaurant area or any other viable purpose or facility.

CHARACTERISTICS / ADVANTAGES

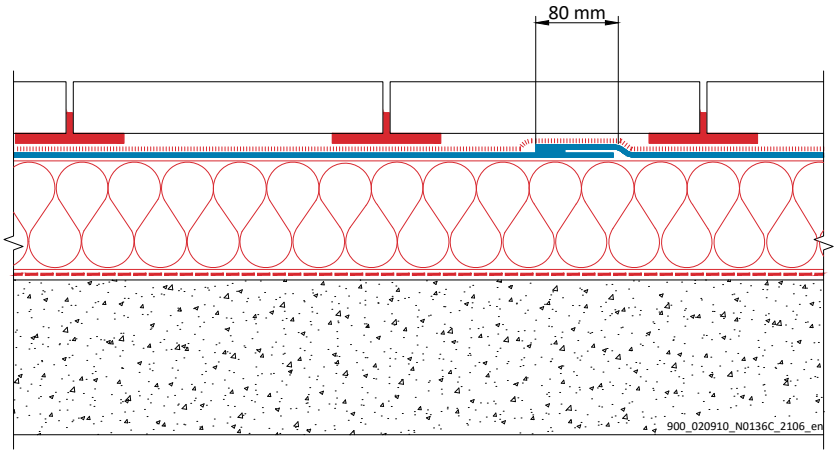
- The roof waterproofing membrane is protected against any aggressive environmental exposure and mechanical damage
- The natural non – combustible properties of the paved wearing surface contribute significantly to the fire resistance of the whole roof



1 Paving slabs / concrete
2 Protection- and slip layer
3 Sarnafil® AT membrane
4 Thermal insulation
5 Vapour control layer
6 Roof deck

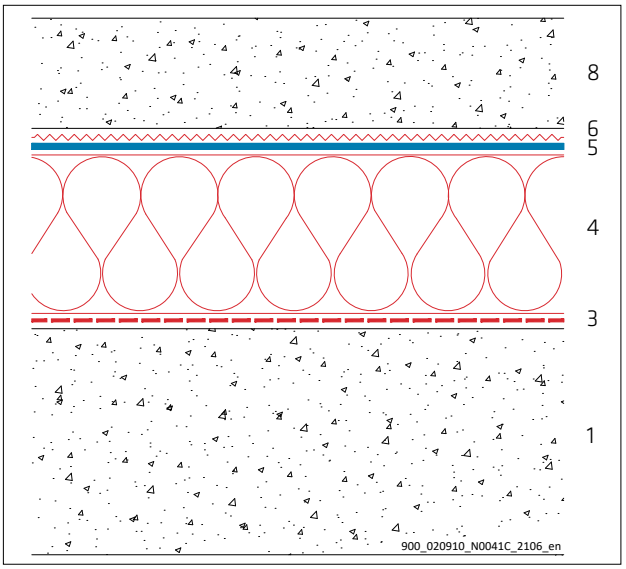
SYSTEM DESCRIPTION

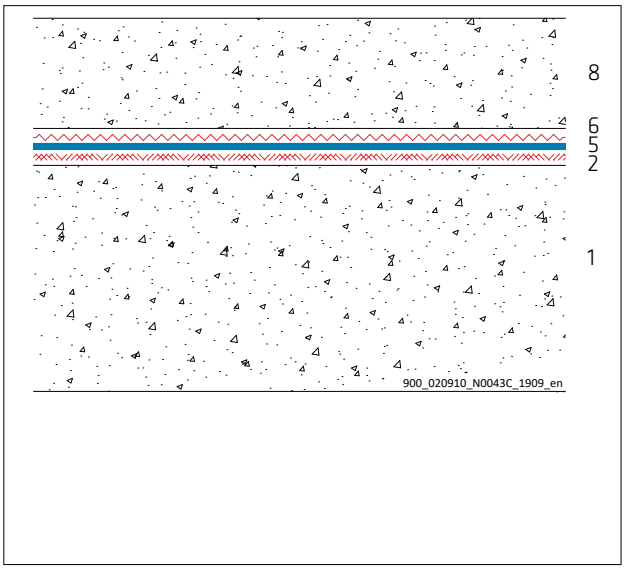
- The build-up is ballasted with pavings or concrete slab securing the thermal insulation against wind uplift
- Slip- and protection layer to be laid above roof waterproofing membrane in case of concrete slab on top
- Sarnafil® AT roof waterproofing membrane and other roof components, including thermal insulation, are loosely laid

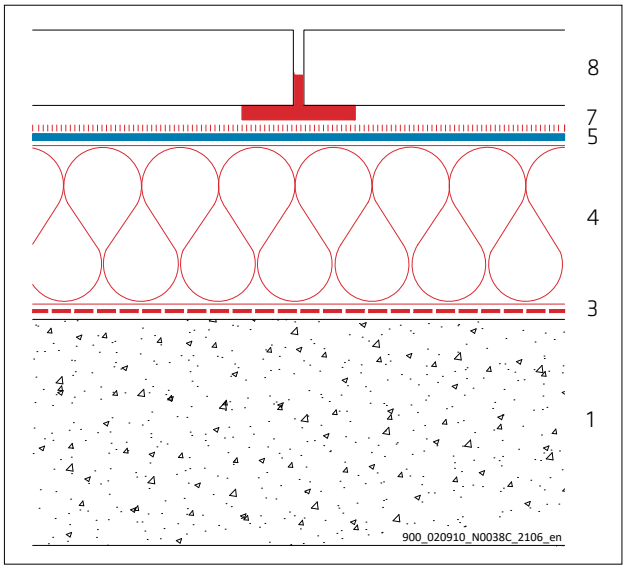


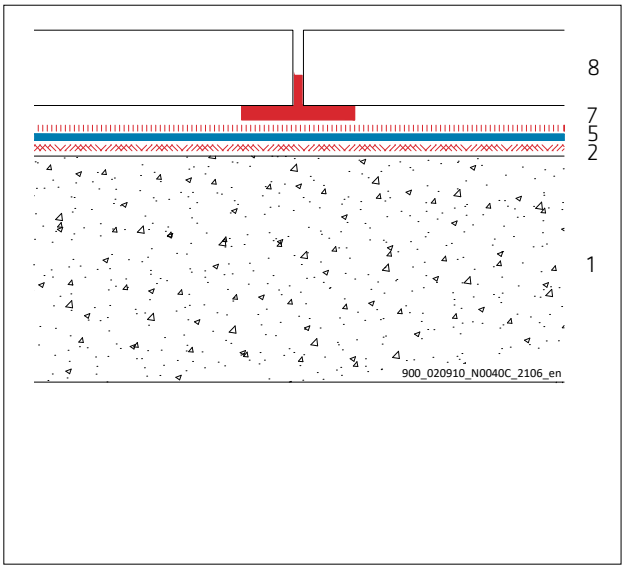
UTILITY ROOF SYSTEM

Reinforced concrete



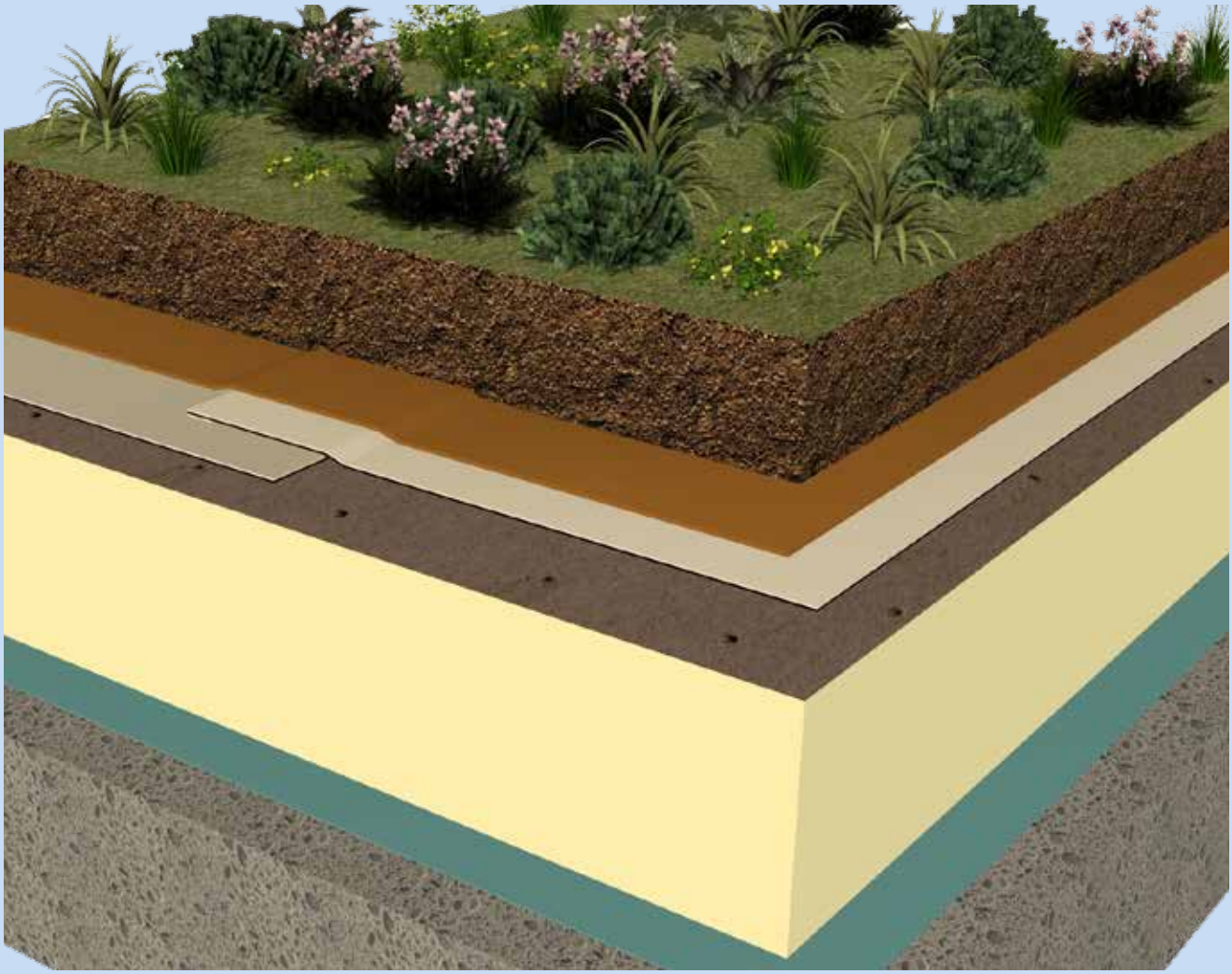






Layer No.	Function	Material	Attachment
1	Roof deck	Reinforced concrete	
2	Levelling- and protection layer (if required)	S-Felt A-300 Sikaplan® W Felt 500 PP S-Felt S-800	Loose laid Loose laid Loose laid
3	Vapour control layer	Sarnavap®-1000 E Sarnavap®-2000 E Sarnavap®-3000 M S-Vap-4000 E SA FR Sarnavap®-5000 E SA FR Sarnavap®-5000 E SA	Loose laid Loose laid Loose laid Self adhered Self adhered Self adhered
4	Thermal insulation		Loose laid
5	Roof waterproofing membrane	Sarnafil® AT	Loose laid
6	Protection- and slip layer (if concrete deck above)	S-Felt GK-400	Loose laid
7	Separation-, levelling- and protection layer (if required)	S-Felt A-300 Sikaplan® W Felt 500 PP S-Felt S-800 S-Felt T-300	Loose laid Loose laid Loose laid Loose laid
8	Ballast	Concrete Paving slabs	Loose laid

GREEN ROOF SYSTEM

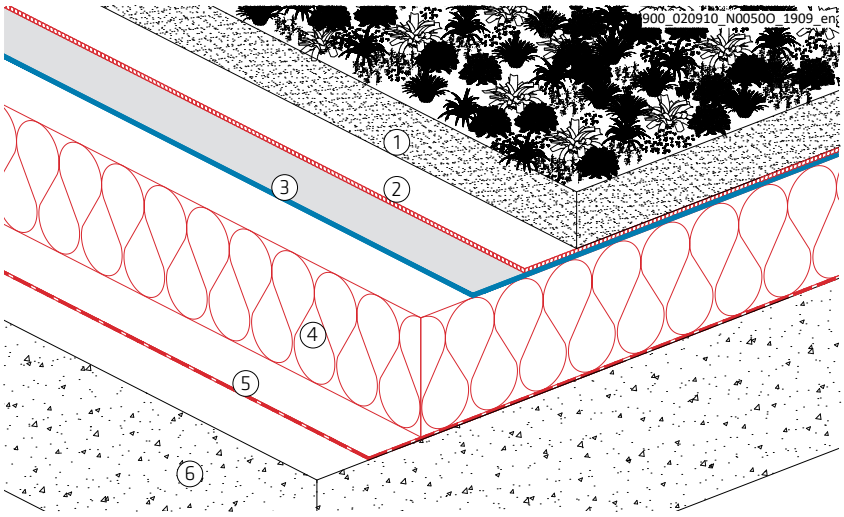


SYSTEM DESCRIPTION

In so called “Green Roofs” soil, or a suitable plant growing medium, is built-up and planted with selected vegetation over the roof waterproofing membrane. Green roofs can therefore make a significant contribution and present practical solutions in the quest for sustainability, increased biodiversity and quality of life.

CHARACTERISTICS / ADVANTAGES

- Reducing heat island effect in cities
- Enhancing the aesthetics of the building
- Improved thermal performance of the building
- A natural environment on the roof with natural Co_2 absorption



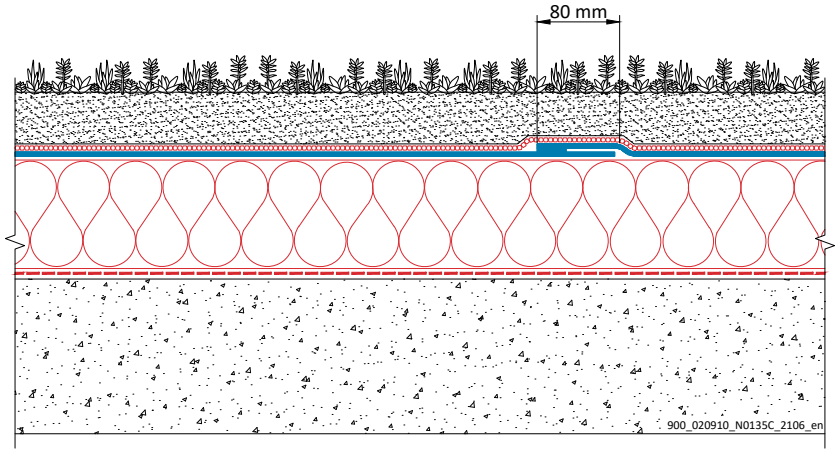
1 Green roof
2 Drainage-, filter- and protection layer
3 Sarnafil® AT membrane
4 Thermal insulation
5 Vapour control layer
6 Roof deck

SYSTEM DESCRIPTION

Green roof systems are classified as:

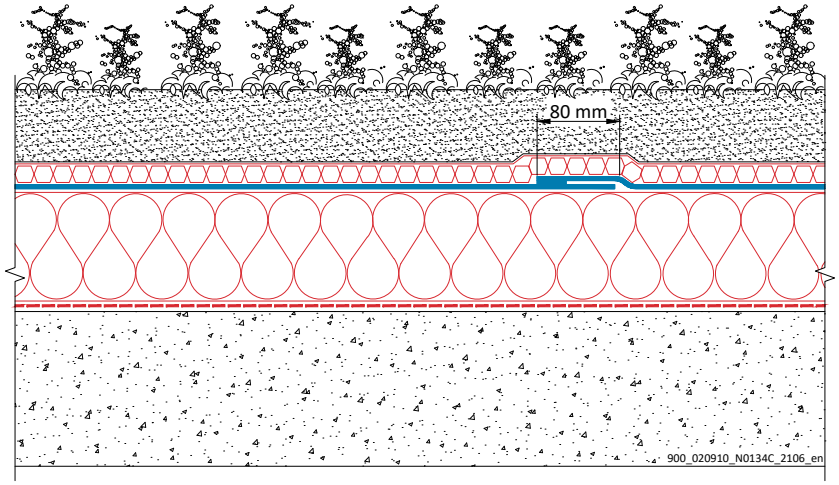
Extensive

Have a shallow growing medium with small plants and require low maintenance. Soil with plants 50 – 150 mm thick and 50 – 170 kg/m^2. Minimum slope of 1.50%.



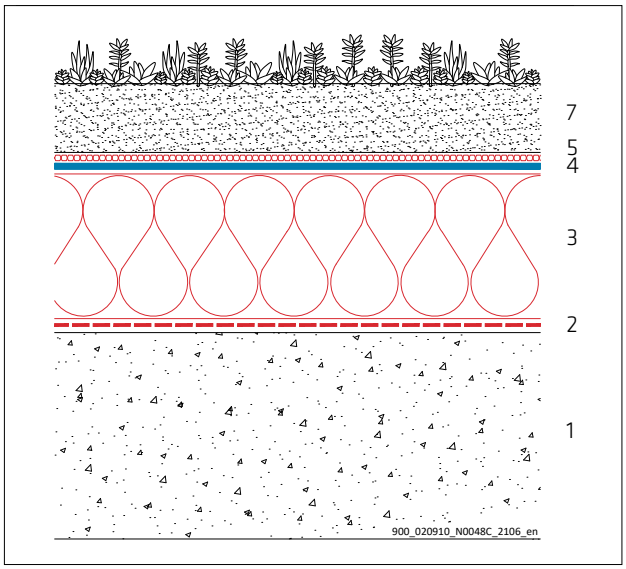
Intensive

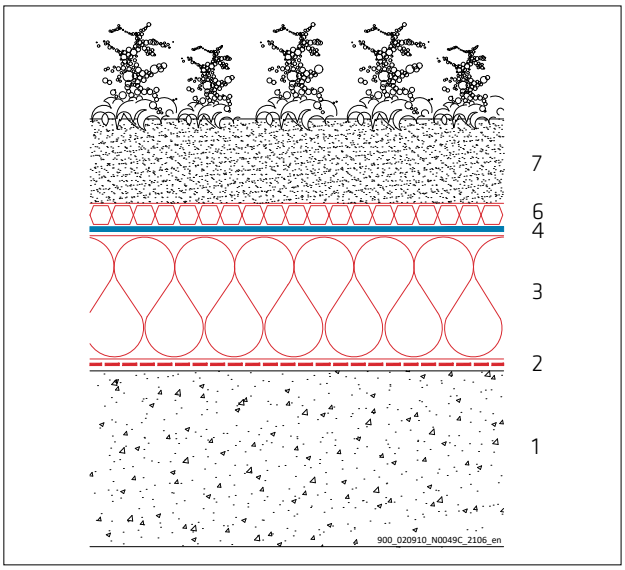
Have a thicker soil layer with additional drainage for planting larger plants, bushes and small trees, thus creating roof gardens. Soil with plants minimum 150 mm thick and 170 kg/m^2. Suitable for roof systems without slope.



GREEN ROOF SYSTEM

Reinforced concrete

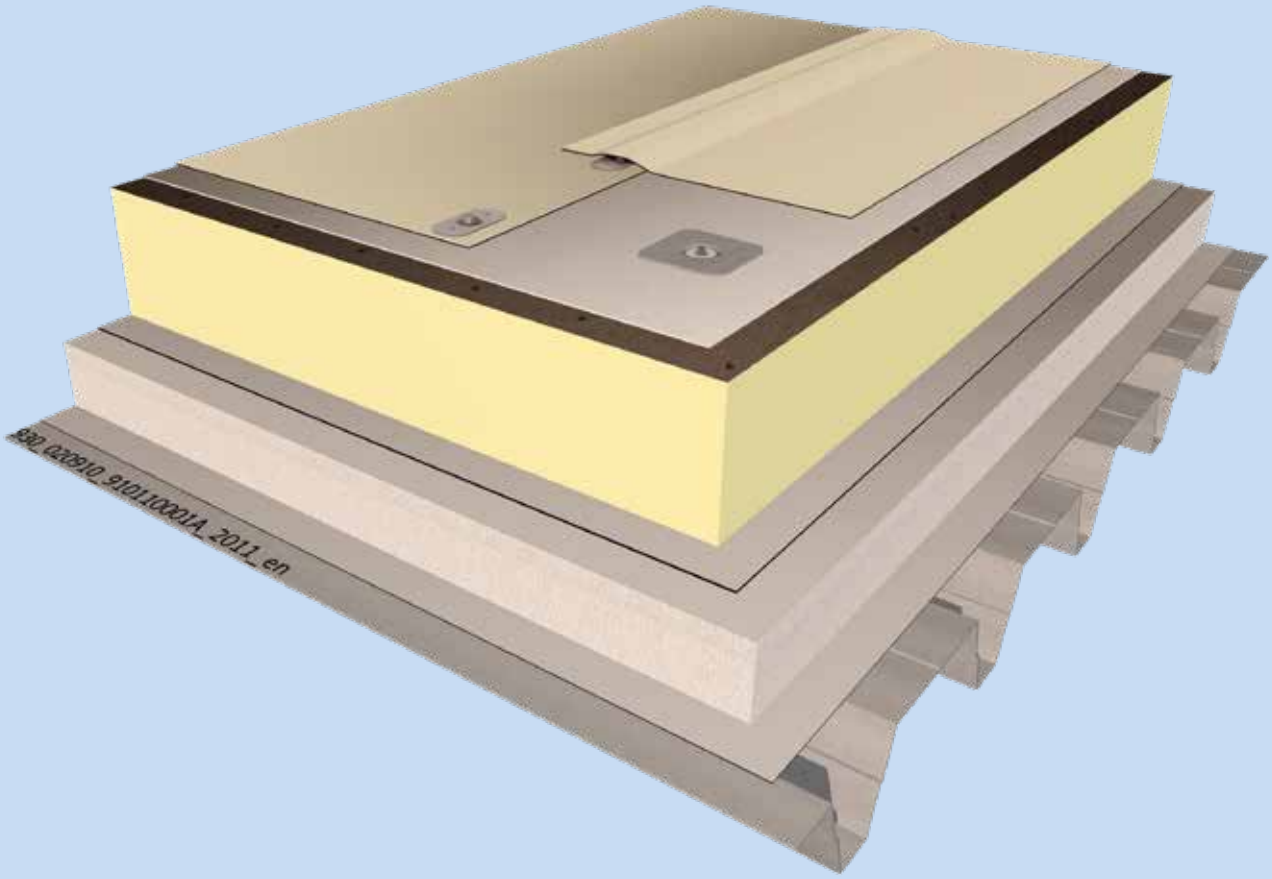




Layer No.	Function	Material	Attachment
1	Roof deck	Reinforced concrete	
2	Vapour control layer	Sarnavap®-1000 E Sarnavap®-2000 E Sarnavap®-3000 M S-Vap-4000 E SA FR Sarnavap®-5000 E SA FR Sarnavap®-5000 E SA	Loose laid Loose laid Loose laid Self adhered Self adhered Self adhered
3	Thermal insulation		Loose laid
4	Roof waterproofing membrane	Sarnafil® AT	Loose laid
5	Protection-, drainage- and filter layer extensive green roof	Aquadrain 550	Loose laid
6	Protection-, drainage- and filter layer intensive green roof	SikaRoof® Drainage Layer 20L2F	Loose laid
7	Ballast	Green roof	Loose laid

APPLICATION INSTRUCTIONS

ROOF REFURBISHMENT



SYSTEM DESCRIPTION

Roofs have limited lifespan. Old or inadequate roofs should be refurbished before the building suffers deterioration or damage.

Sika Roofing Systems are ideally suited for refurbishment work.

Your local sales organisation can provide all the necessary technical support.

GEORA
Sarnafil

APPLICATION INSTRUCTIONS

ROOF REFURBISHMENT

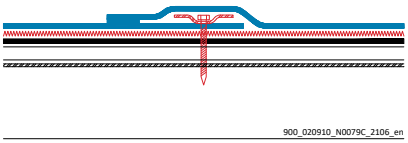
Refurbishment of existing roof constructions becoming more and more common and Sika has various systems for all kind of substrates.

- Bitumen Roofs
- Metal Roofs
- Singly-ply Synthetic Roofs EPDM, PVC, FPO

For the selection of the right refurbishment system, a specific project survey and assessment has to be undertaken.
Please contact the Technical Services Department of your local Sika company for assistance.
All roof build-up's shall be reviewed by a building physic specialist / engineer.

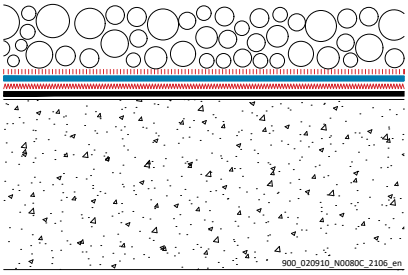
OVERLAYING OR REPLACING EXISTING SYNTHETIC OR BITUMINOUS ROOFING WITHOUT THERMAL INSULATION UPGRADE

MECHANICALLY FASTENED ROOF SYSTEM



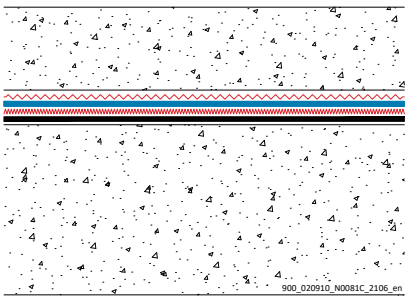
- Sarnafil® AT membrane, mechanically fastened
- S-Felt T-300, separation layer
- Existing synthetic or bituminous roofing

GRAVEL BALLASTED ROOF SYSTEM



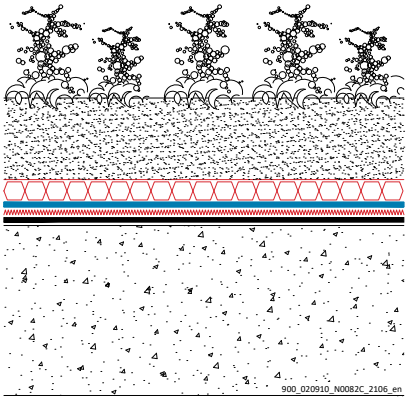
- Gravel ballast
- Protection layer, if required
- Sarnafil® AT membrane, loose laid
- S-Felt T-300, separation layer
- Existing synthetic or bituminous roofing

UTILITY ROOF SYSTEM



- Concrete slab
- S-Felt GK-400, slip- and protection layer
- Sarnafil® AT membrane, loose laid
- S-Felt T-300, separation layer
- Existing synthetic or bituminous roofing

GREEN ROOF SYSTEM



- Green roof (extensive or intensive)
- Aquadrain-550 (extensive) or Sika-Roof® Drainage Layer 20L2F (intensive), drainage, filter- and protection layer
- Sarnafil® AT membrane, loose laid
- S-Felt T-300, separation layer
- Existing synthetic or bituminous roofing

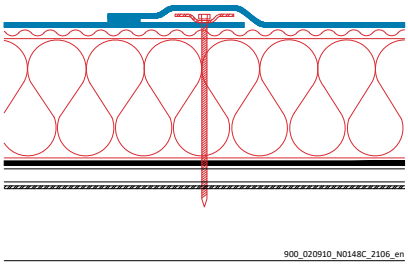
Above synthetic roofing membrane specific project approval by Sika Technical Department needed.

Note: In general, it is recommended to remove the existing synthetic or bituminous roofing before installing a new membrane.

ROOF REFURBISHMENT

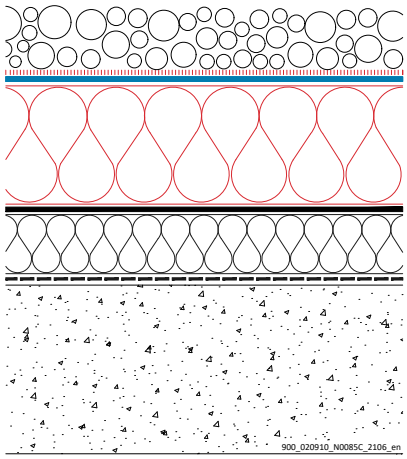
OVERLAYING OR REPLACING EXISTING SYNTHETIC OR BITUMINOUS ROOFING WITH THERMAL INSULATION UPGRADE

MECHANICALLY FASTENED ROOF SYSTEM



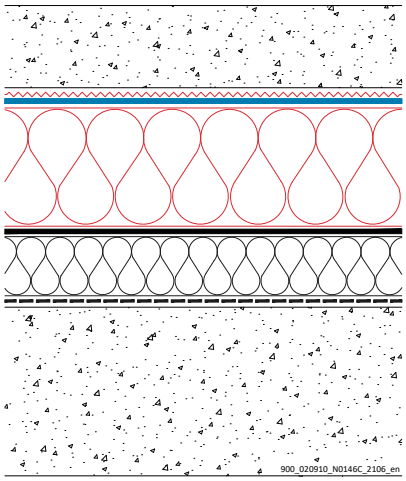
- Sarnafil® AT membrane, mechanically fastened
- S-Glass Fleece-120, separation layer, if required
- New thermal Insulation, mechanically fastened
- Existing synthetic or bituminous roofing

GRAVEL BALLASTED ROOF SYSTEM



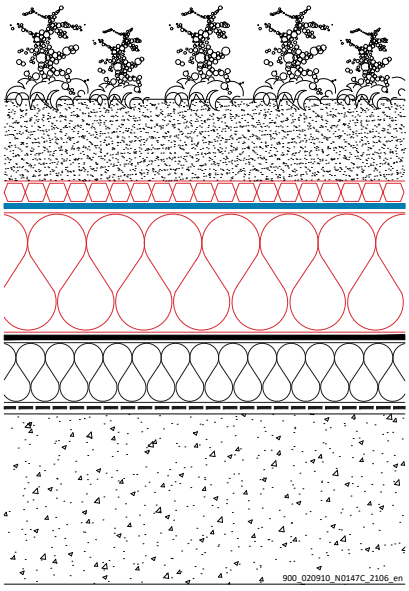
- Gravel ballast
- Protection layer, if required
- Sarnafil® AT membrane, loose laid
- New / additional thermal Insulation, loose laid
- Existing synthetic or bituminous roofing

UTILITY ROOF SYSTEM



- Concrete Slab
- S-Felt GK 400, slip- and protection layer
- Sarnafil® AT membrane, loose laid
- New / additional thermal Insulation, loose laid
- Existing synthetic or bituminous roofing

GREEN ROOF SYSTEM



- Green Roof (extensive or intensive)
- Aquadrain-550 (extensive) or Sika-Roof® Drainage Layer 20L2F (intensive), drainage, filter- and protection layer
- Sarnafil® AT membrane, loose laid
- New / additional thermal Insulation, loose laid
- Existing synthetic or bituminous roofing

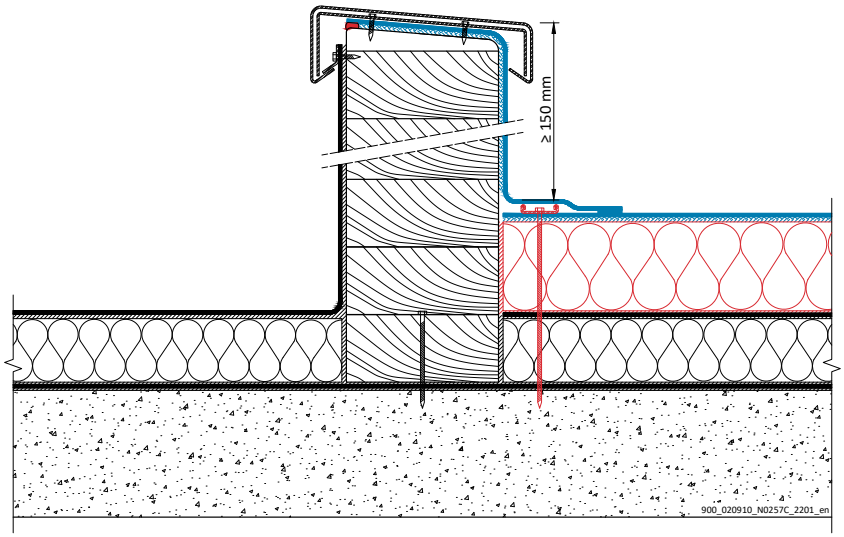
Note: In general, it is recommended to remove the existing synthetic or bituminous roofing before installing a new membrane.

ROOF REFURBISHMENT

SYNTHETIC / BITUMINOUS ROOFING SYSTEMS

Direct contact between Sarnafil® AT roof waterproofing membranes and other roofing systems must be avoided.

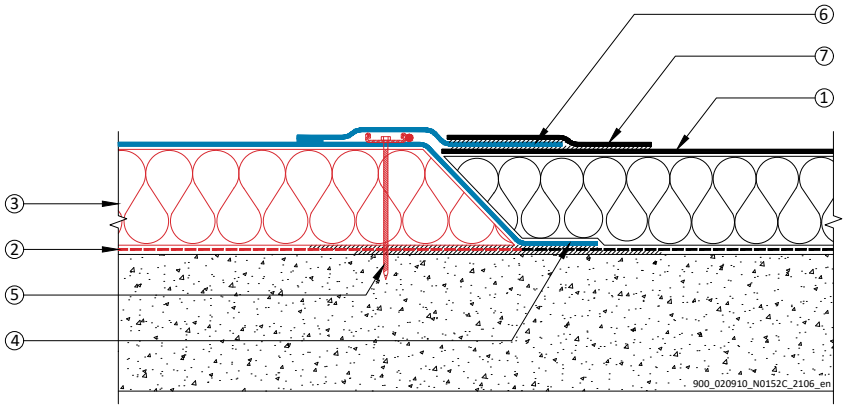
Area dividers



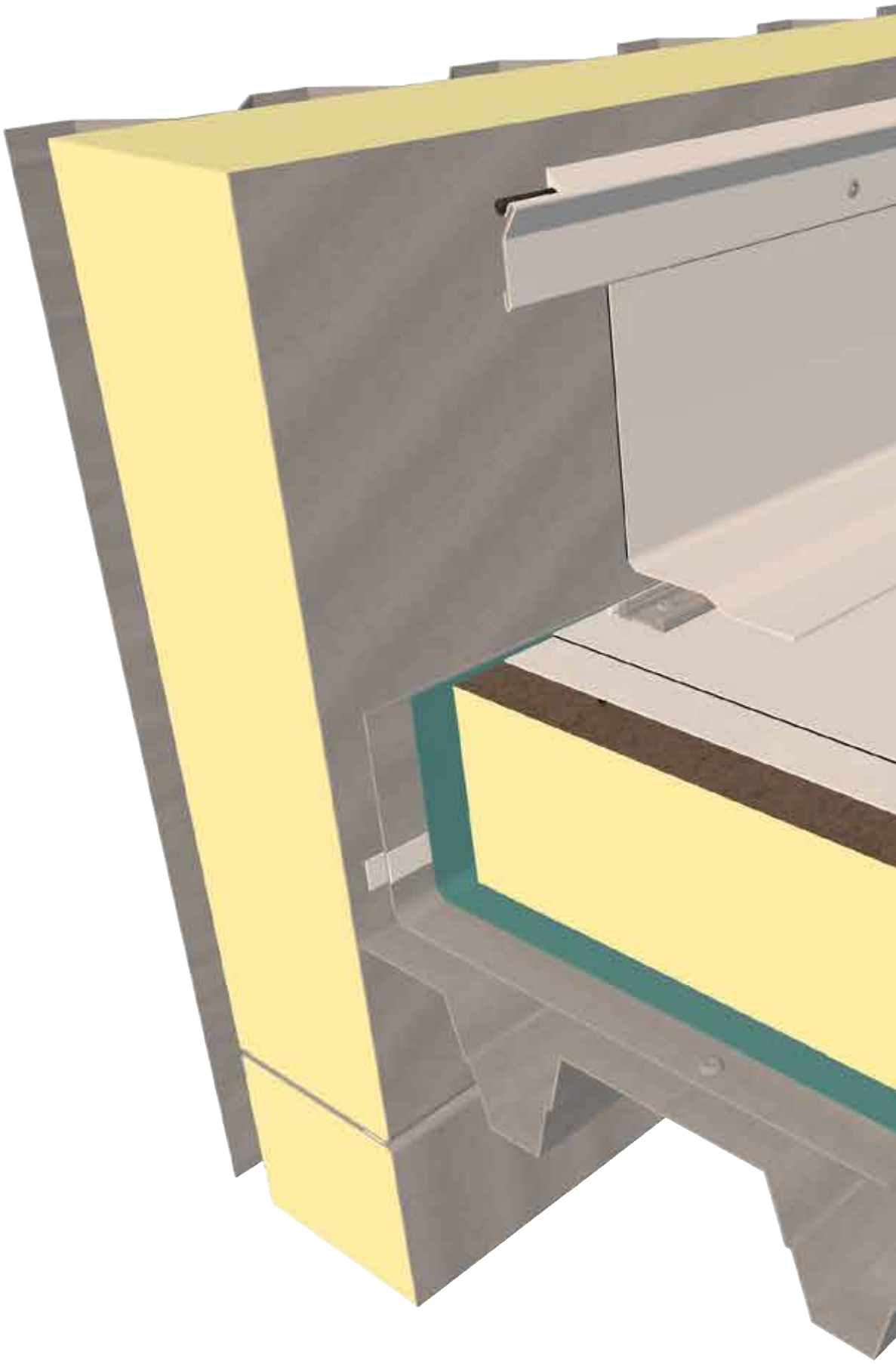
BITUMINOUS ROOFING SYSTEM

Transition to bituminous roofs should be achieved using construction such as raised kerbs or area dividers.
If such details are not possible, a Sarnafil® AT strip can be used for the transition between Sarnafil® roof waterproofing membranes and the bituminous roof. Roof waterproofing membranes in the transition area must be mechanically fastened. This will prevent any damage or water infiltration that might occur in the old roof area from affecting the new area.

Transition to bituminous roofing system



1 Old bituminous roof
2 New vapour control layer (bituminous membrane), adhered in the transition area
3 New thermal insulation
4 Sarnafil® AT fully adhered to the bituminous vapour control layer
5 Sarnabar® with Sarnafast® fasteners and Sarnafil® T Welding Cord
6 Sarnafil® AT strip adhered with hot bitumen to old bituminous roof and hot-air welded to new Sarnafil® AT membrane
7 Bituminous cover strip adhered to the Sarnafil® AT and the old bituminous layer

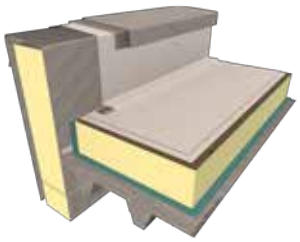


STANDARD DETAILS

DIFFERENT SOLUTIONS AND VARIANTS

OVERVIEW

PARAPET

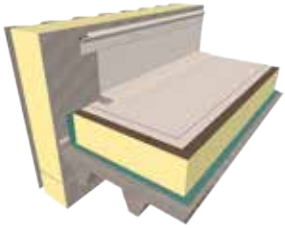


Mechanically Fastened Roof System
Gravel Ballasted Roof System
Inverted Roof System
Utility Roof System
Green Roof System (Extenisve / Intensive)

ROOF EDGE TERMINATION WITH GUTTER

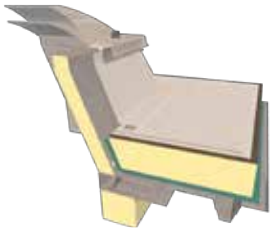
Mechanically Fastened Roof System
Gravel Ballasted Roof System
Inverted Roof System
Utility Roof System
Green Roof System (Extenisve / Intensive)

UPSTAND



Mechanically Fastened Roof System
Gravel Ballasted Roof System
Inverted Roof System
Utility Roof System
Green Roof System (Extenisve / Intensive)

SKYLIGHT

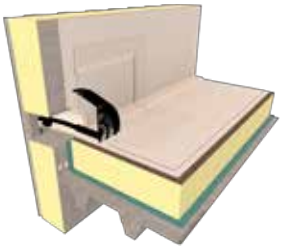


Mechanically Fastened Roof System
Gravel Ballasted Roof System
Inverted Roof System
Utility Roof System
Green Roof System (Extenisve / Intensive)

ROOF DRAIN (OUTLET)

Mechanically Fastened Roof System
Gravel Ballasted Roof System
Inverted Roof System
Utility Roof System
Green Roof System (Extenisve / Intensive)

SCUPPER

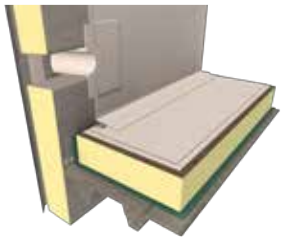


Mechanically Fastened Roof System
Gravel Ballasted Roof System
Inverted Roof System
Utility Roof System
Green Roof System (Extenisve / Intensive)

Legend
Color of products

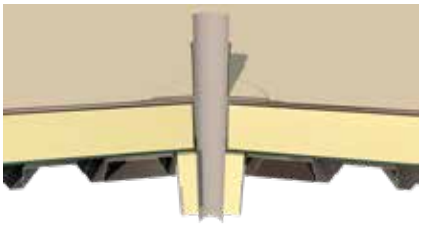
Roof waterproofing products	Sika delivery program
Accessory products	Sika delivery program
Other construction products	Different suppliers

OVERFLOW



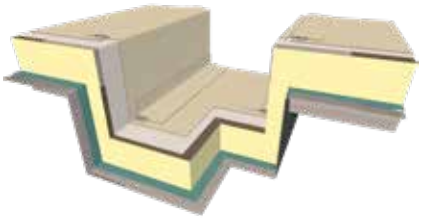
Mechanically Fastened Roof System
Gravel Ballasted Roof System
Inverted Roof System
Utility Roof System
Green Roof System (Extenisve / Intensive)

VENT PIPE / POST



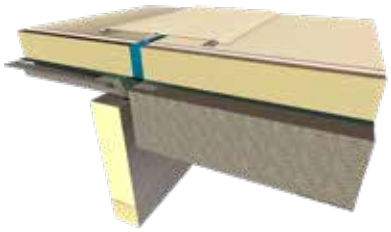
Mechanically Fastened Roof System
Gravel Ballasted Roof System
Inverted Roof System
Utility Roof System
Green Roof System (Extenisve / Intensive)

GUTTER



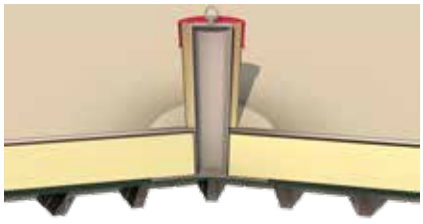
Mechanically Fastened Roof System

MOVEMENT JOINT



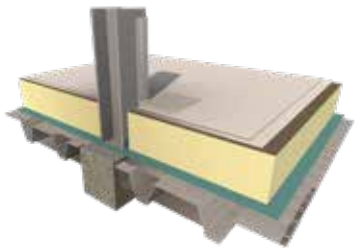
Mechanically Fastened Roof System
Gravel Ballasted Roof System

FALL ARREST ANCHOR



Mechanically Fastened Roof System
Gravel Ballasted Roof System
Inverted Roof System
Utility Roof System
Green Roof System (Extenisve / Intensive)

**PENETRATION –
DOUBLE T STEEL BEAM**

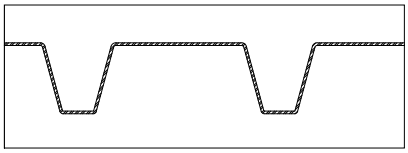


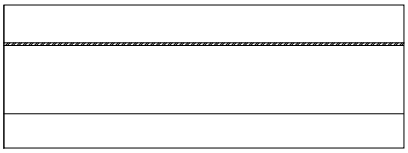
Mechanically Fastened Roof System
Gravel Ballasted Roof System
Inverted Roof System
Utility Roof System
Green Roof System (Extenisve / Intensive)

LAYER DESCRIPTION

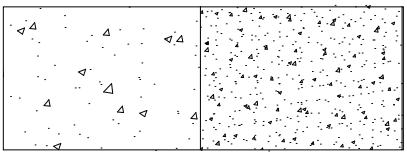
SUBSTRATES

Steel Deck

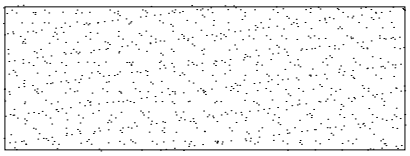




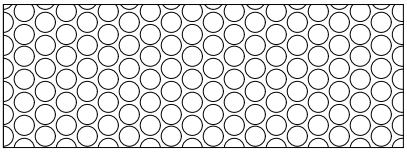
Concrete / Prefabricated



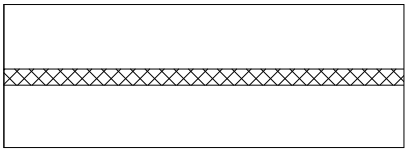
Cementitious Mortar



Aerated Concrete

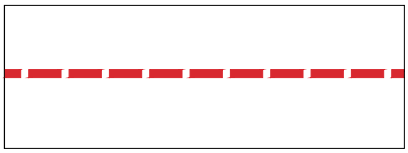


Wood Deck



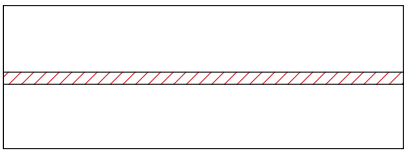
VAPOUR CONTROL LAYER / BARRIER

Vapour Control Layer / Barrier



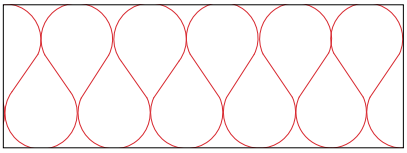
ADHESIVE

Adhesive

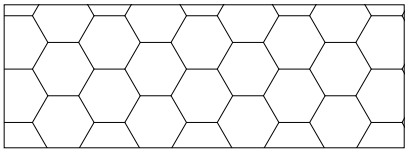


THERMAL INSULATION

Thermal Insulation

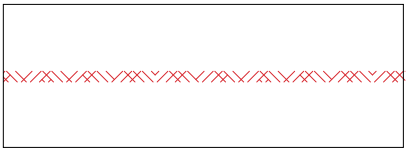


Extrudet Polystyrene (XPS)

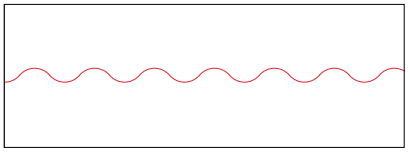


INTERMEDIATE LAYERS

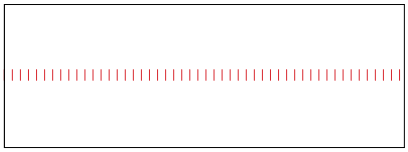
Levelling- and Protection Layer



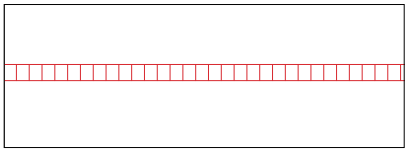
Separation- and Fire Protection Layer



Protection Layer

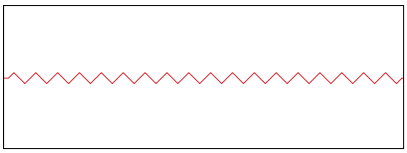


Filter Layer

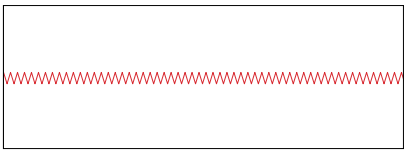


INTERMEDIATE LAYERS

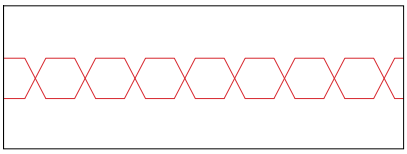
Slip- and Protection Layer



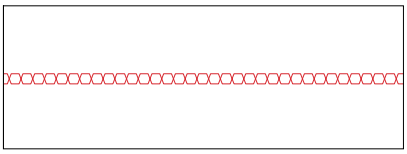
Separation-, Levelling- and Protection Layer



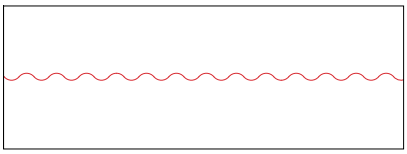
Protection-, Drainage and Filter Layer



Protection-, Drainage and Filter Layer



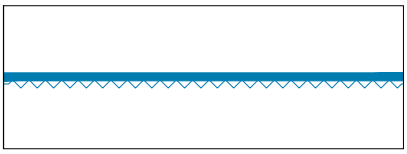
Roof Control System Layer



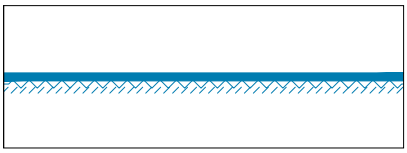
ROOF WATERPROOFING

Membrane

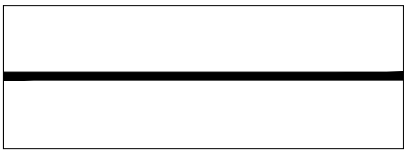
Membrane with Felt Backing



Membrane with Felt Backing and Self Adhesive

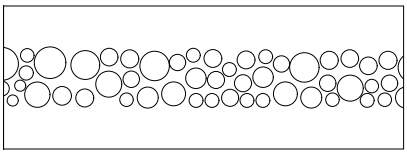


Existing Membrane

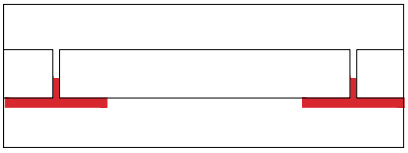


BALLAST

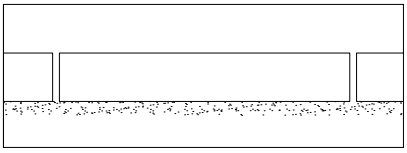
Gravel



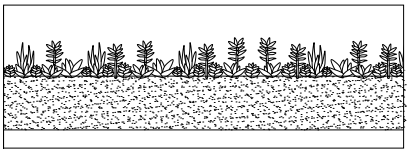
Paving with Support Pads



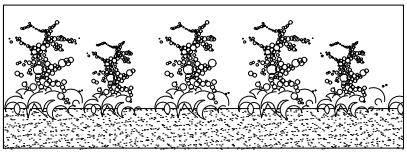
Paving on Screed



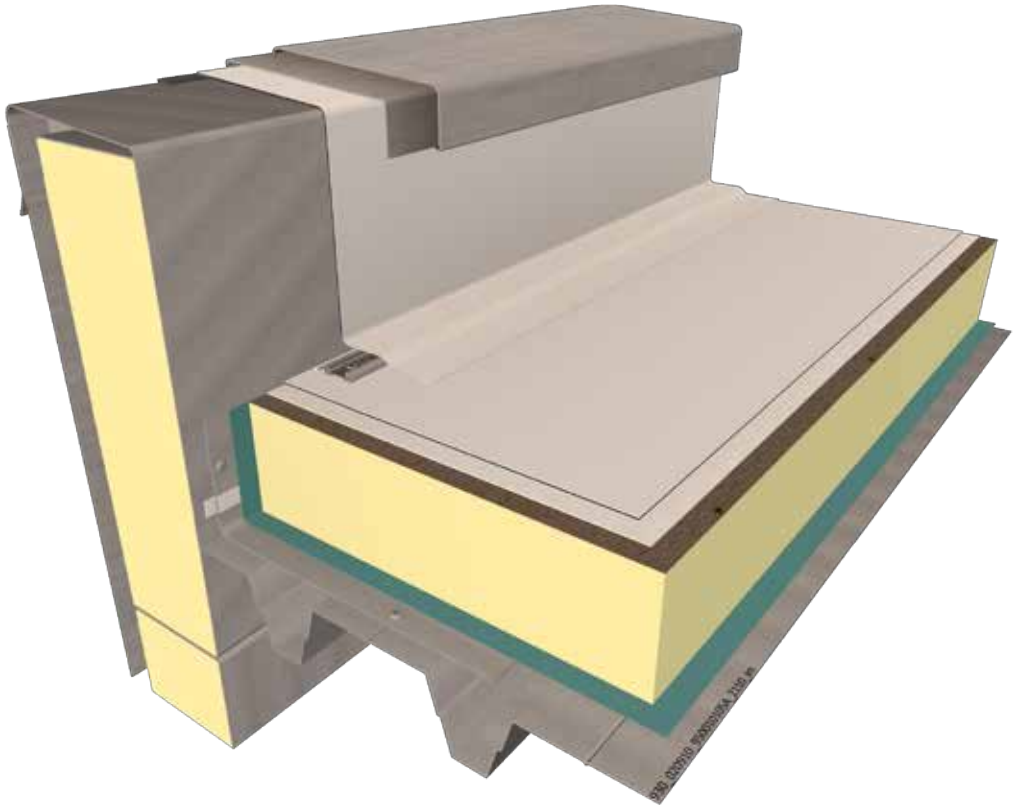
Green Roof Extensive



Green Roof Intensive



PARAPET



PLANNING INFORMATION

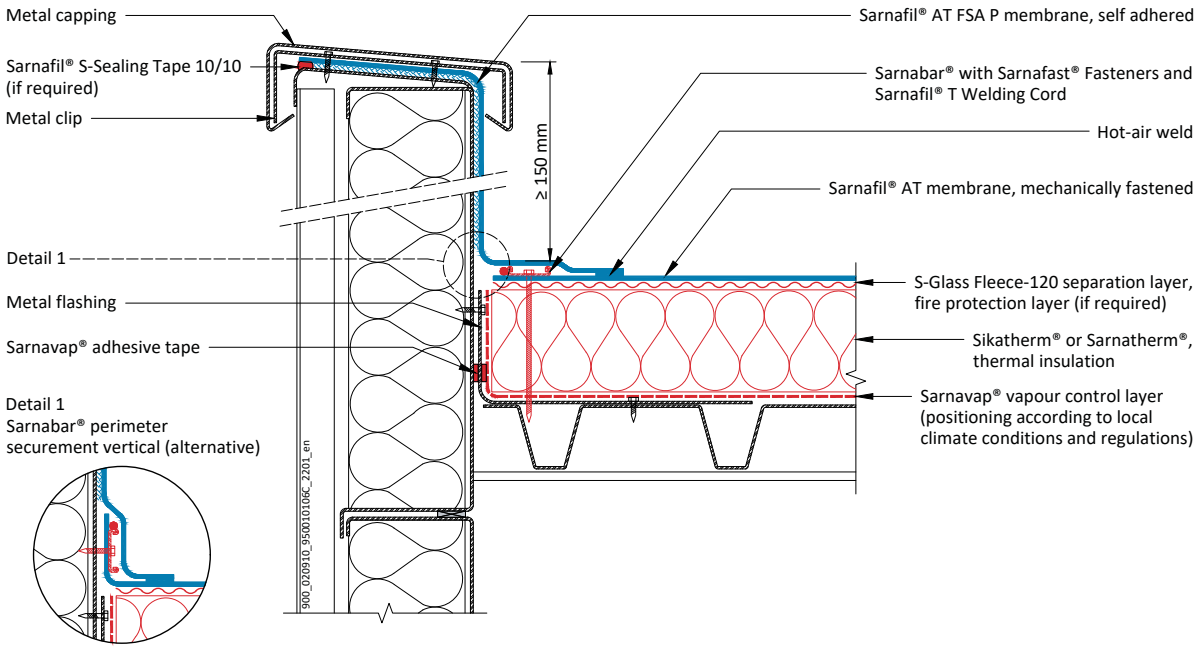
Perimeter flashings are formed using strips. The flashing strips are to be fully adhered with Sarnafil AT FSA P self adhered membrane to the substrate and welded to the field sheet. The substrate must be free of ridges.

A counter flashing should be installed on utility roof systems to protect the membrane.

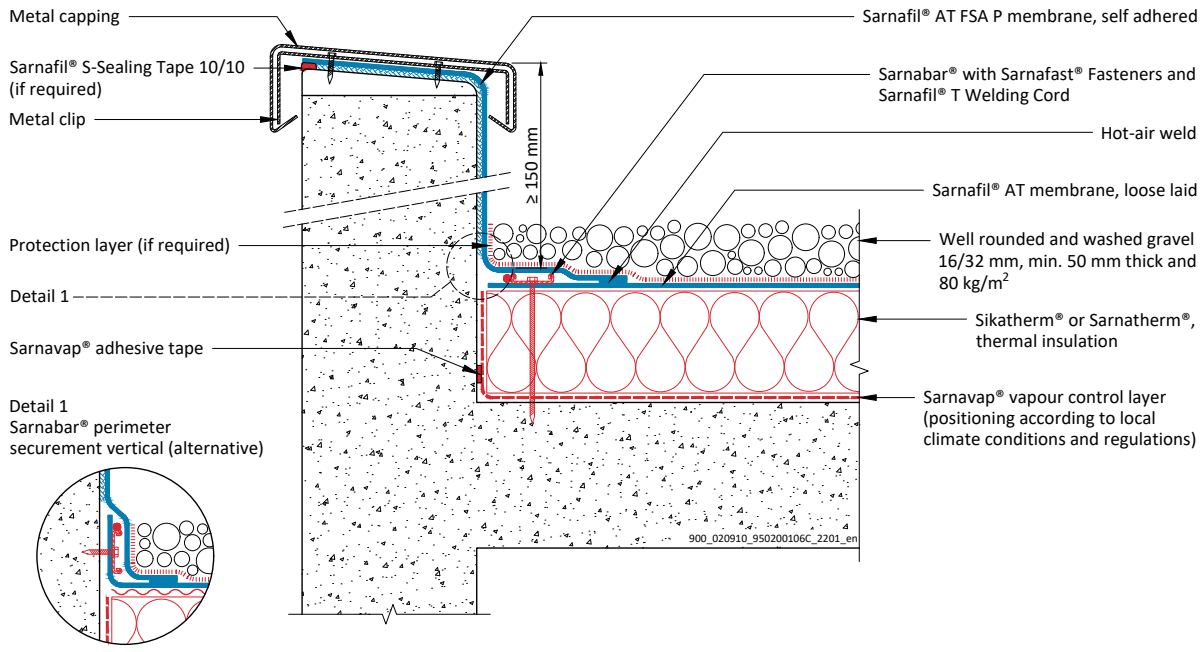
The fully adhered flashing strips will be covered with mechanically fastened metal clip and metal capping.

At all upstands and penetrations wider than 50 cm Sarnafil® AT membrane must be secured with Sarnabar® either to the horizontal or vertical surface.

001.01.06 - Metal Capping - Adhered on Metal Parapet Element - Mechanically Fastened Roof System

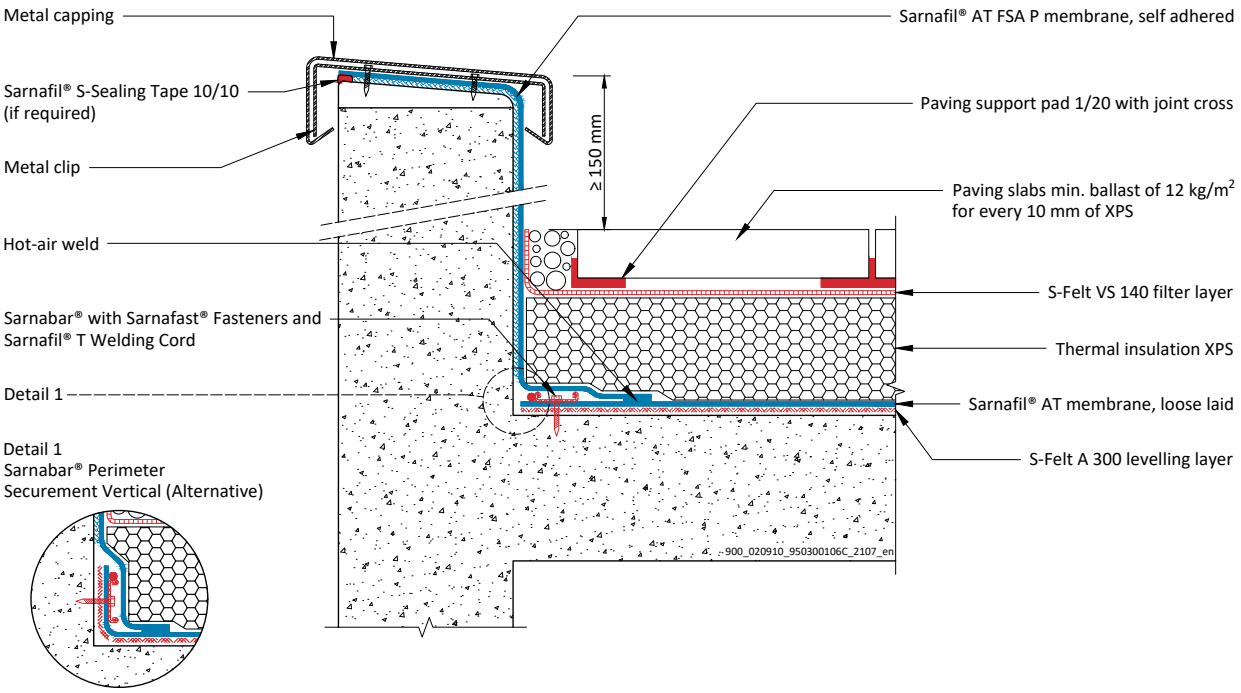


020.01.06 – Sarnafil® T Metal Sheet – Adhered on Concrete Parapet – Gravel Ballasted Roof System

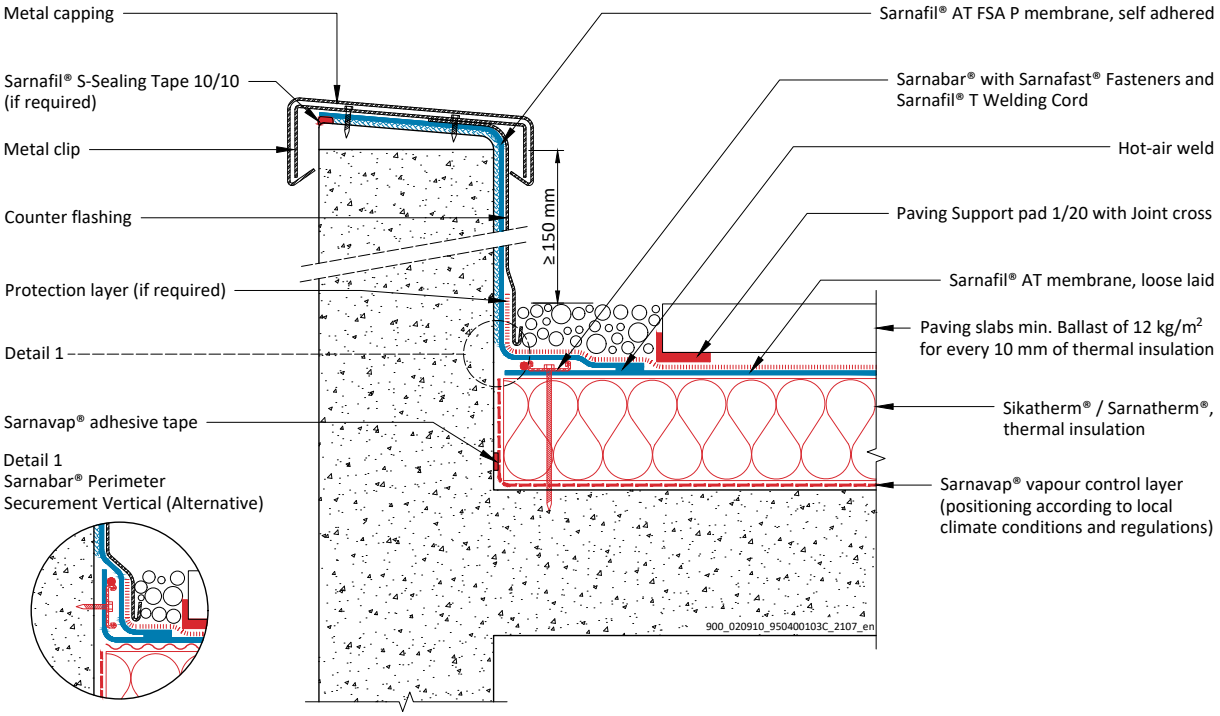


PARAPET

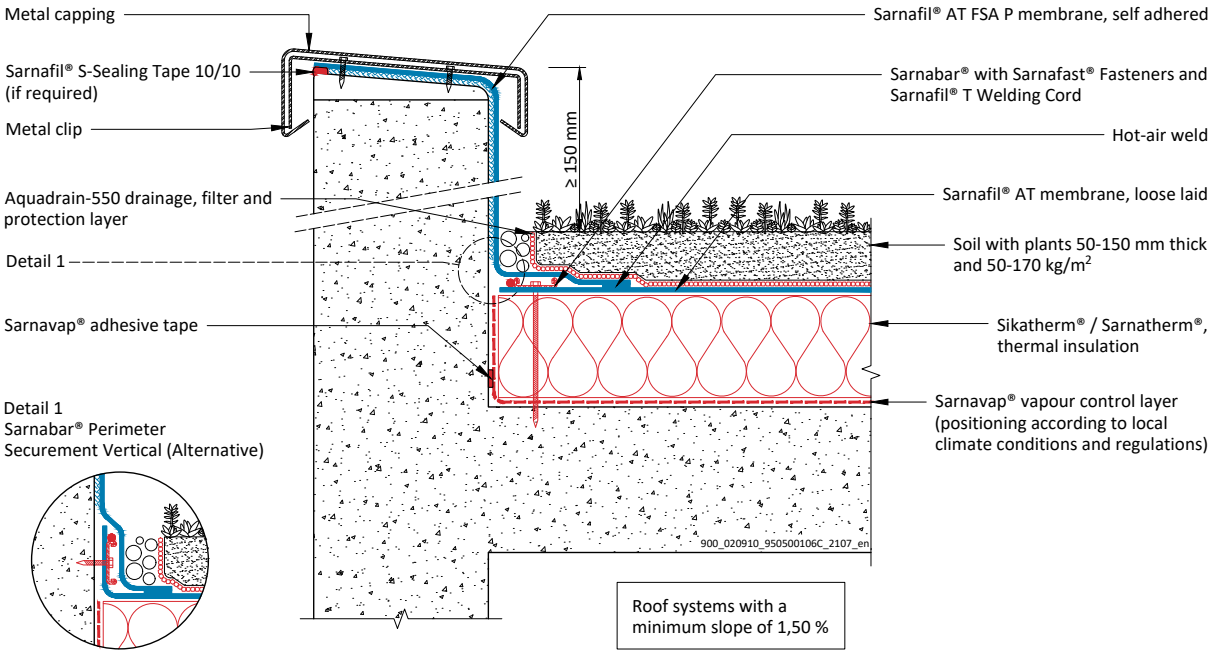
030.01.04 – Metal Capping – Adhered on Concrete Parapet – Inverted Roof System



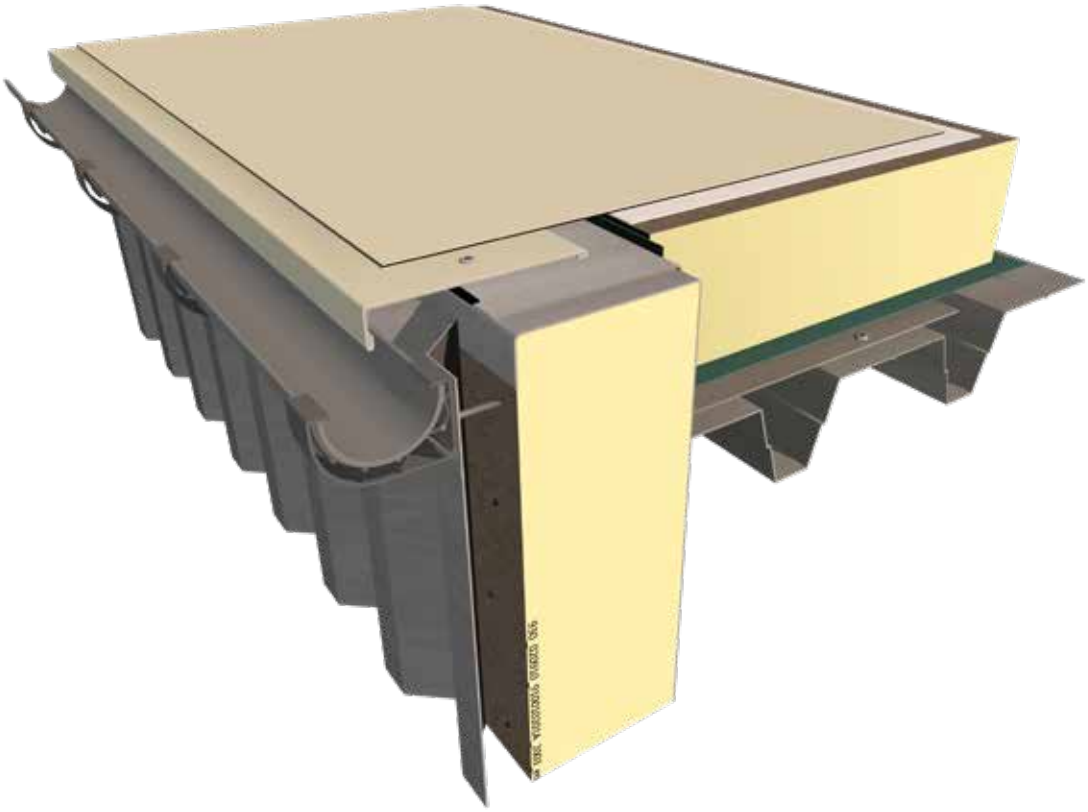
040.01.02 – Metal Capping – Adhered on Concrete Parapet – Utility Roof System



050.01.04 – Metal Capping – Adhered on Concrete Parapet – Green Roof System (Extensive / Intensive)



ROOF EDGE TERMINATION WITH GUTTER

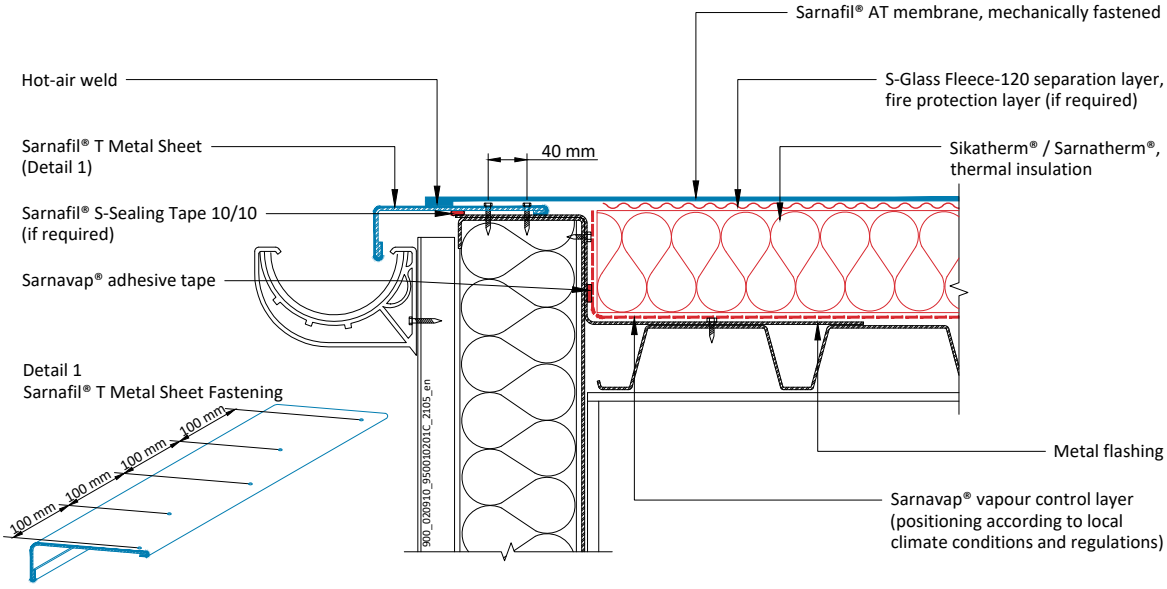


PLANNING INFORMATION

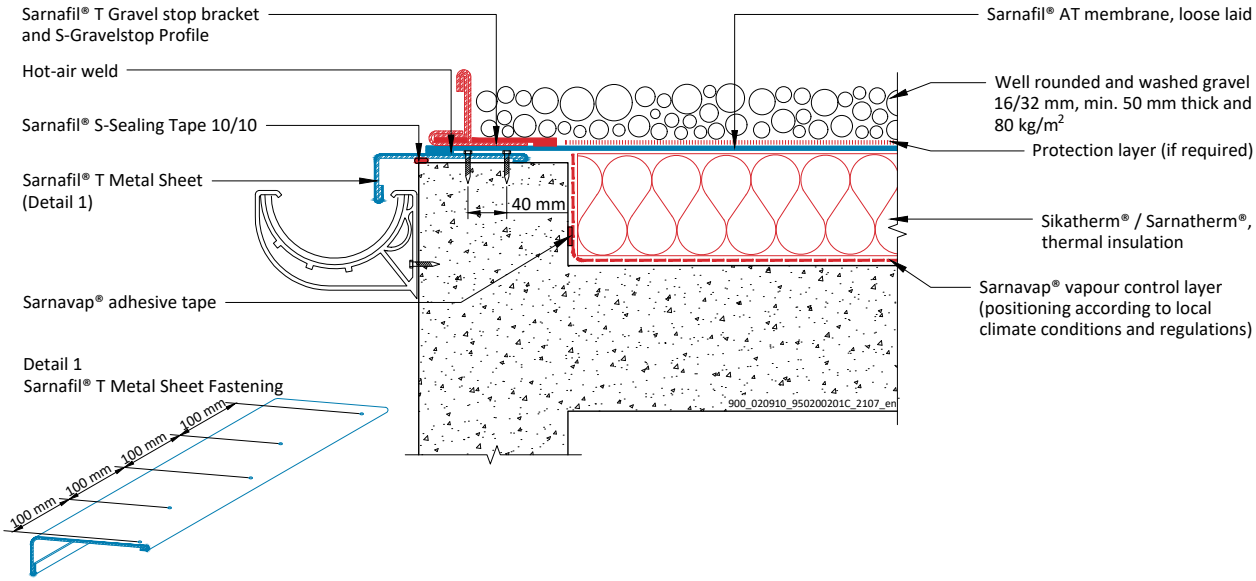
Mechanically fastened, or loosely laid Sarnafil® AT roof waterproofing membrane hot welded to mechanically fastened Sarnafil® T Metal Sheet.

Sarnafil® T Gravel stop bracket and S-Gravelstop Profile to be installed in combination with ballasted roof systems.

001.02.02 – Mechanically Fastened Roof System

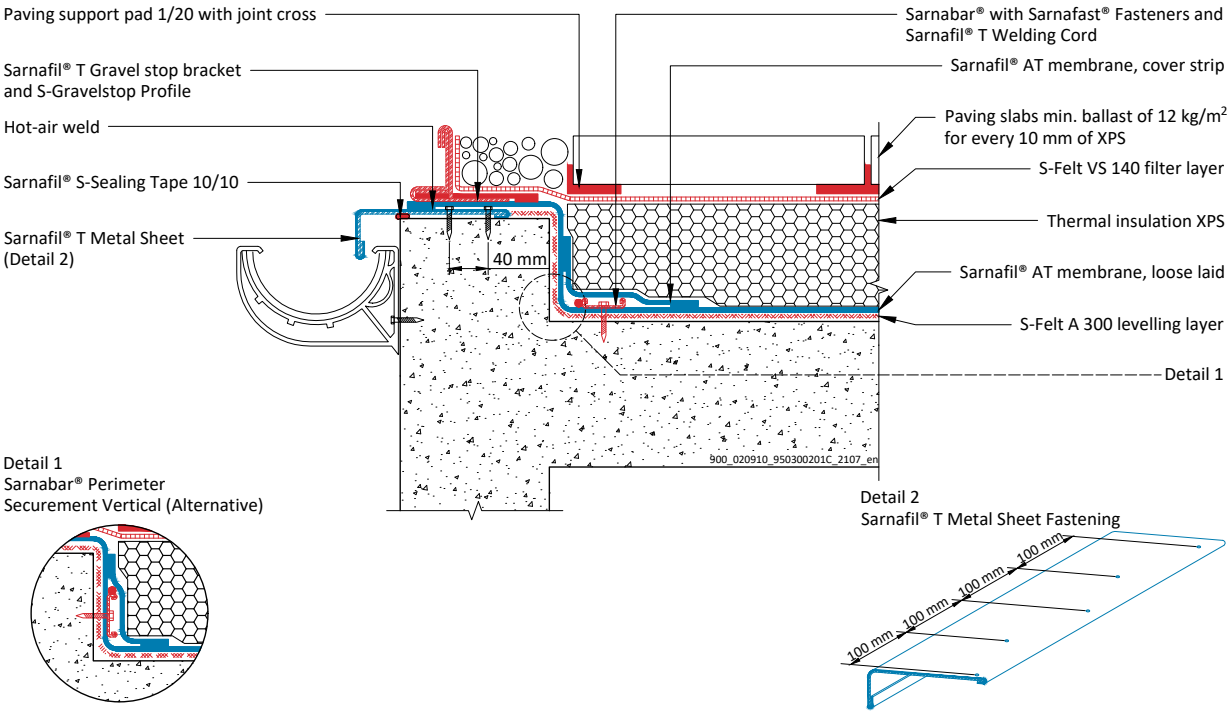


020.02.01 – Gravel Ballasted Roof System



ROOF EDGE TERMINATION WITH GUTTER

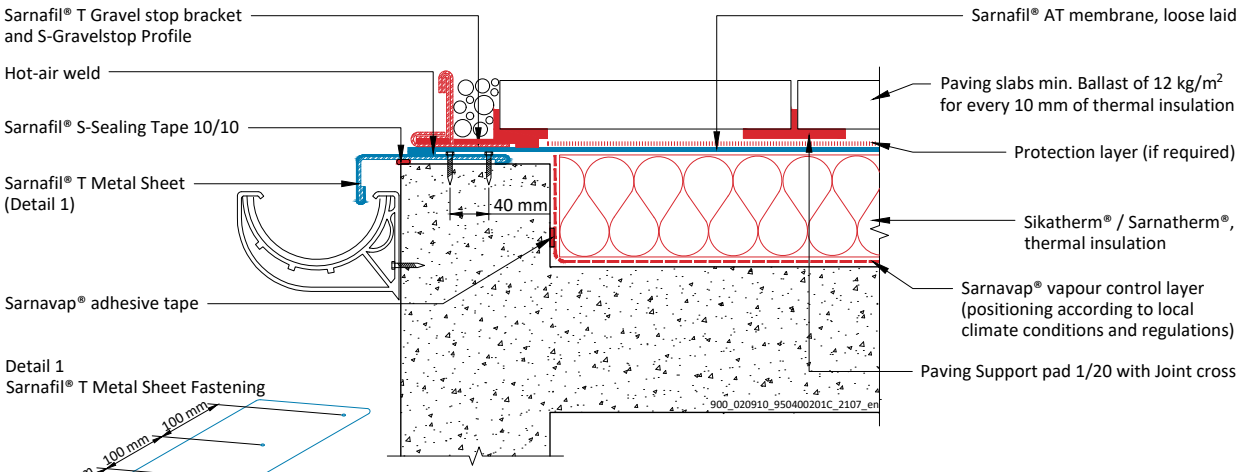
030.02.01 – Inverted Roof System



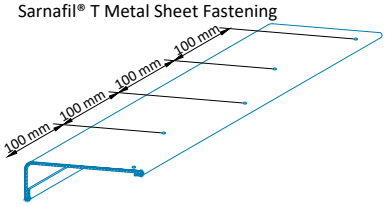
Detail 1
Sarnabar® Perimeter Securement Vertical (Alternative)

Detail 2
Sarnafil® T Metal Sheet Fastening

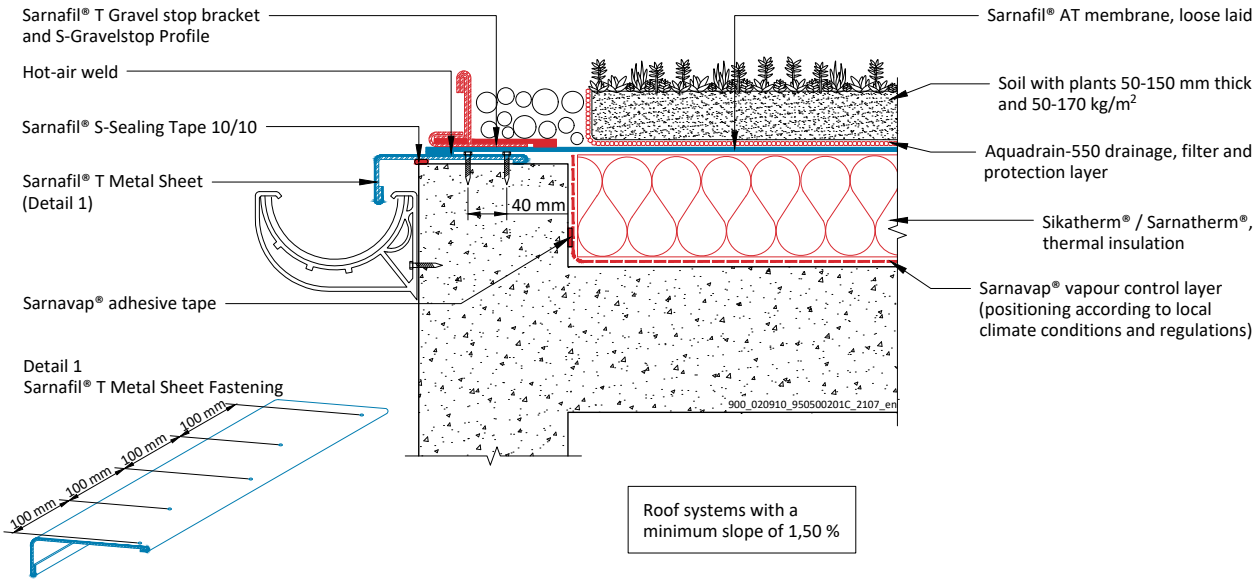
040.02.01 – Utility Roof System



Detail 1
Sarnafil® T Metal Sheet Fastening



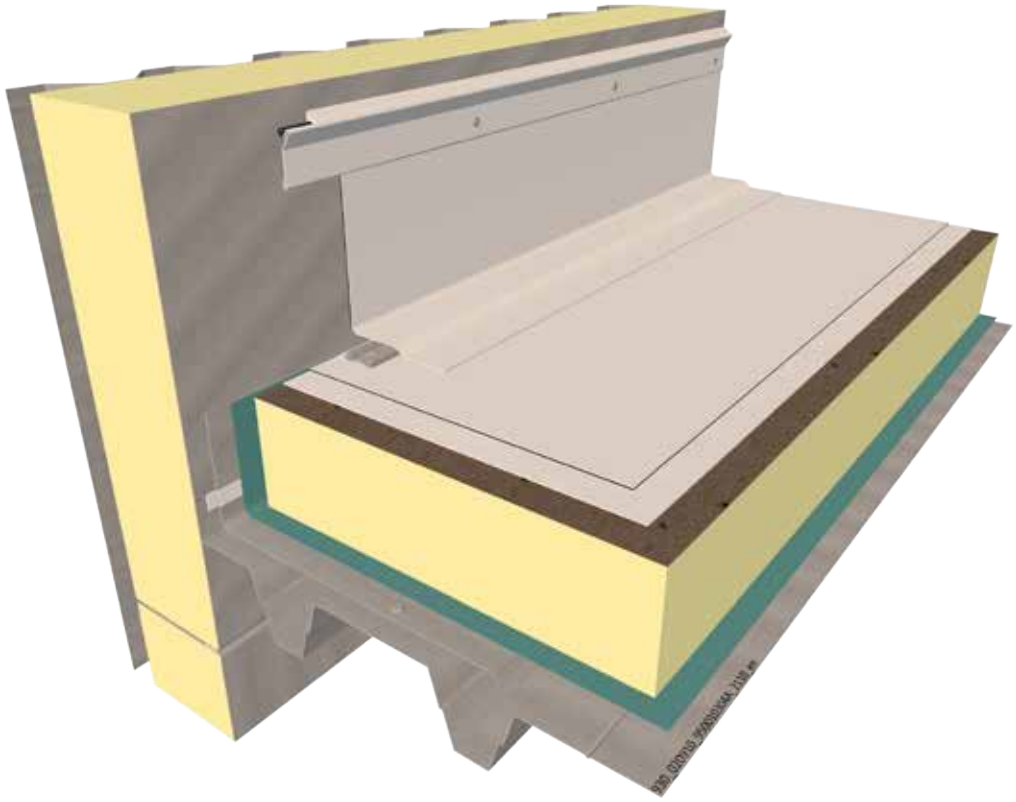
050.02.01 – Green Roof System (Extensive / Intensive)



Detail 1
Sarnafil® T Metal Sheet Fastening

Roof systems with a minimum slope of 1,50 %

UPSTAND



PLANNING INFORMATION

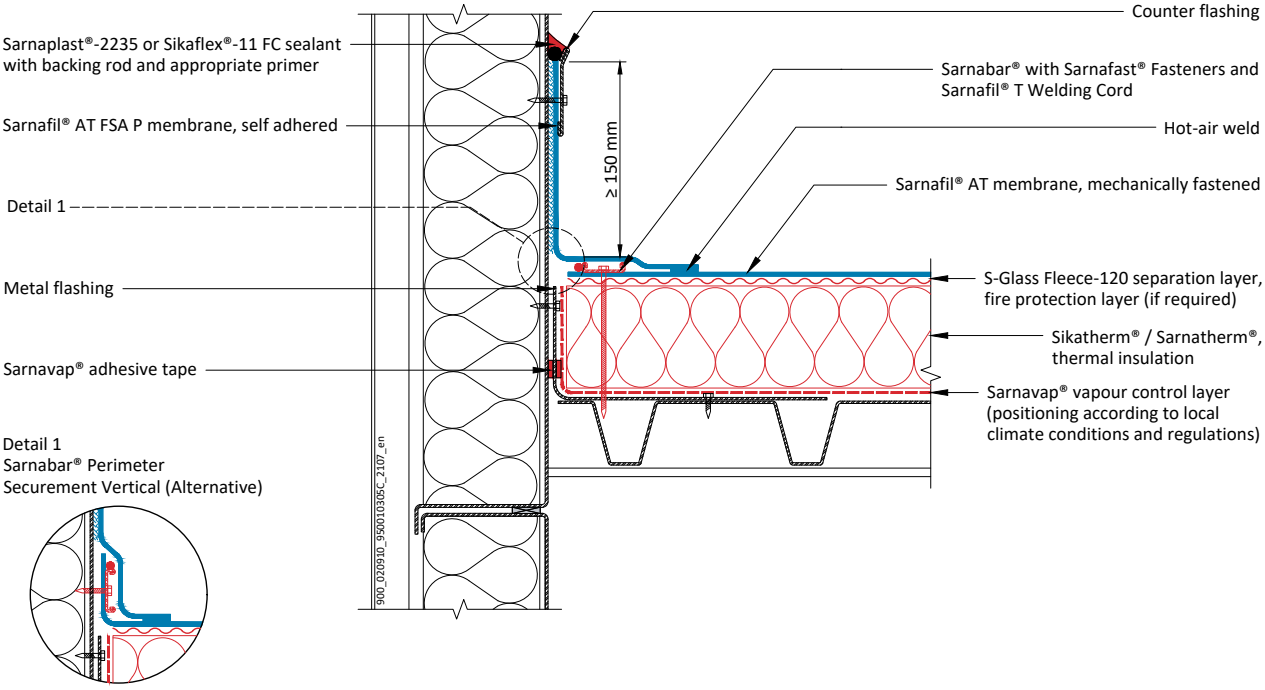
Perimeter flashings are formed using strips of Sarnafil® AT FSA P membrane. The flashing strips are to be fully adhered with Sarnafil® AT FSA P self adhered membrane to the substrate and welded to the field sheet. The substrate must be free of ridges.

A counter flashing should be installed on utility roof systems to protect the membrane.

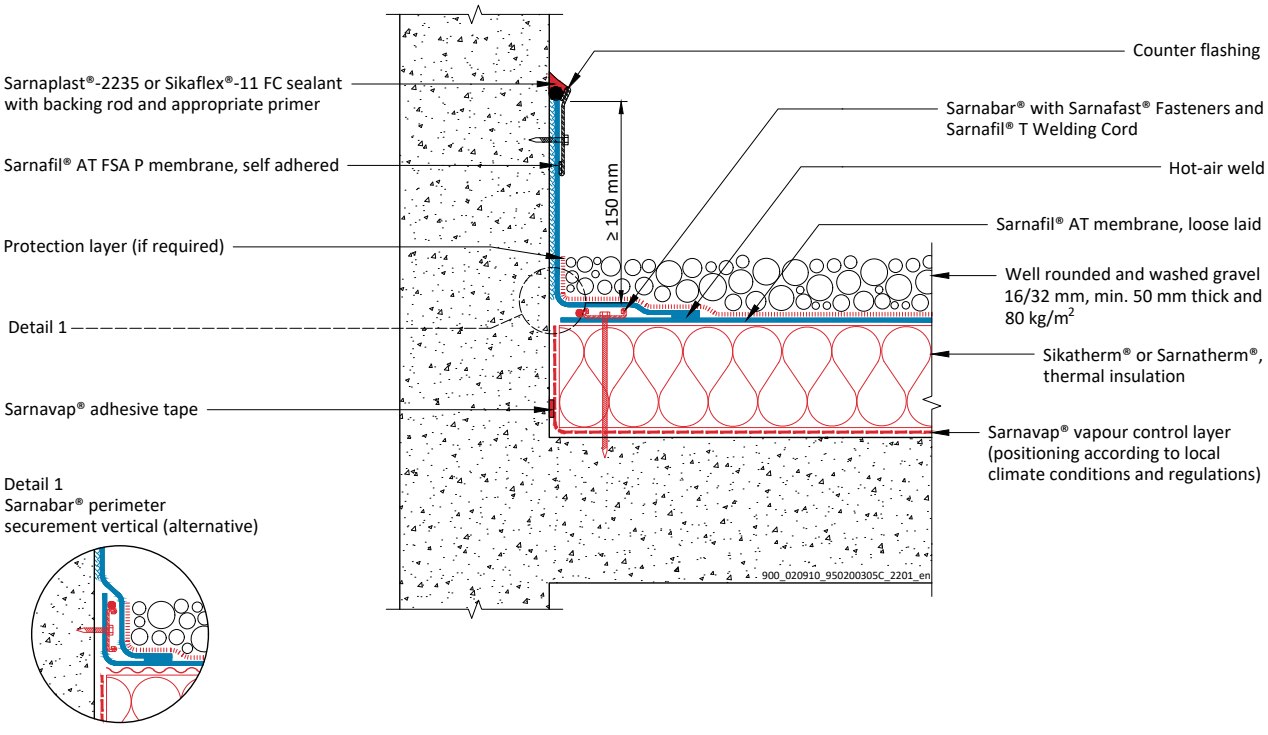
The fully adhered flashing strips will be covered with mechanically fastened counter flashing. Top end of Sarnafil® T Metal Sheet or counter flashing to be sealed, using Sarnaplast®-2235 or Sikaflex®-11 FC.

At all upstands and penetrations wider than 50 cm Sarnafil® AT membrane must be secured with Sarnabar® either to the horizontal or vertical surface.

001.03.05 – Counter Flashing – Adhered on Metal Wall Element – Mechanically Fastened Roof System

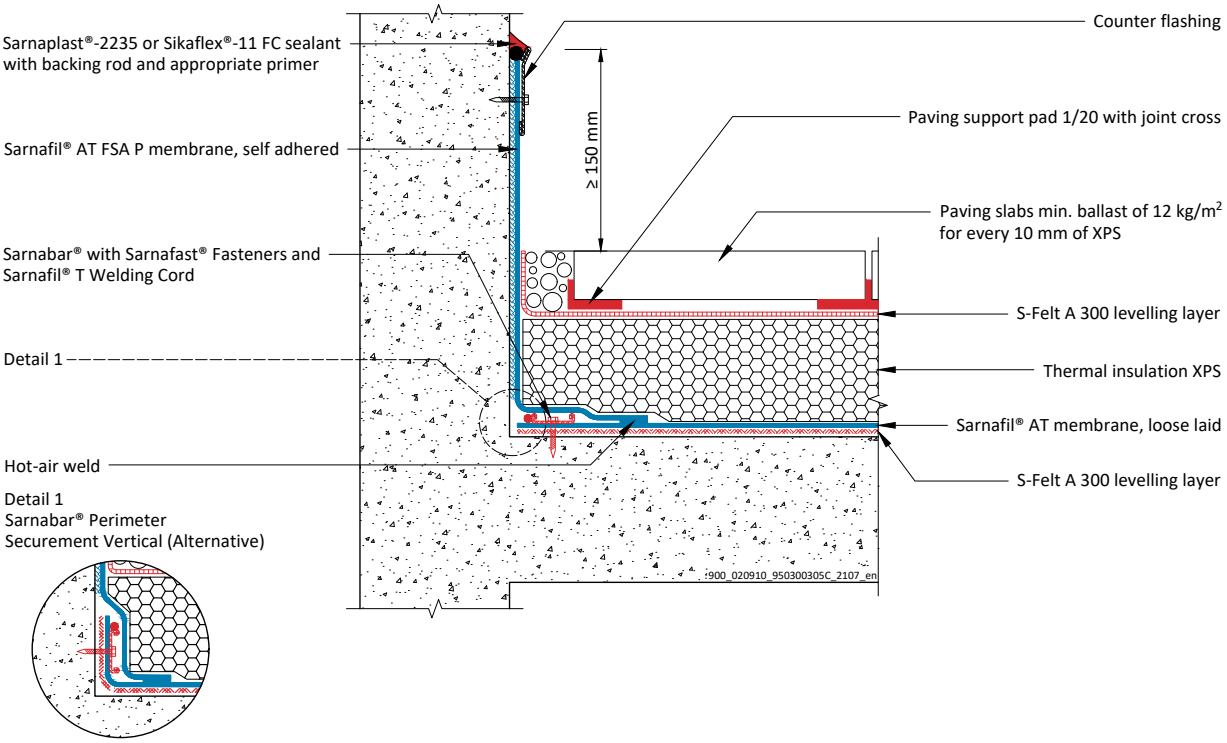


020.03.05 – Counter Flashing - Adhered on Concrete Wall - Gravel Ballasted Roof System

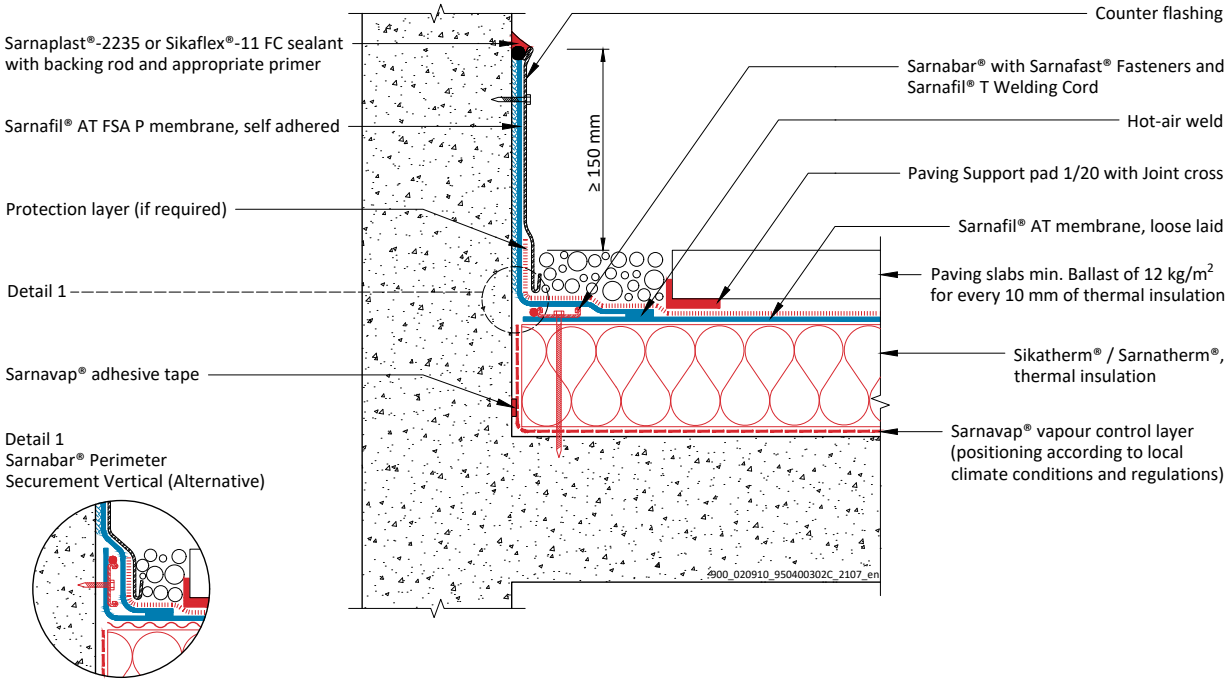


UPSTAND

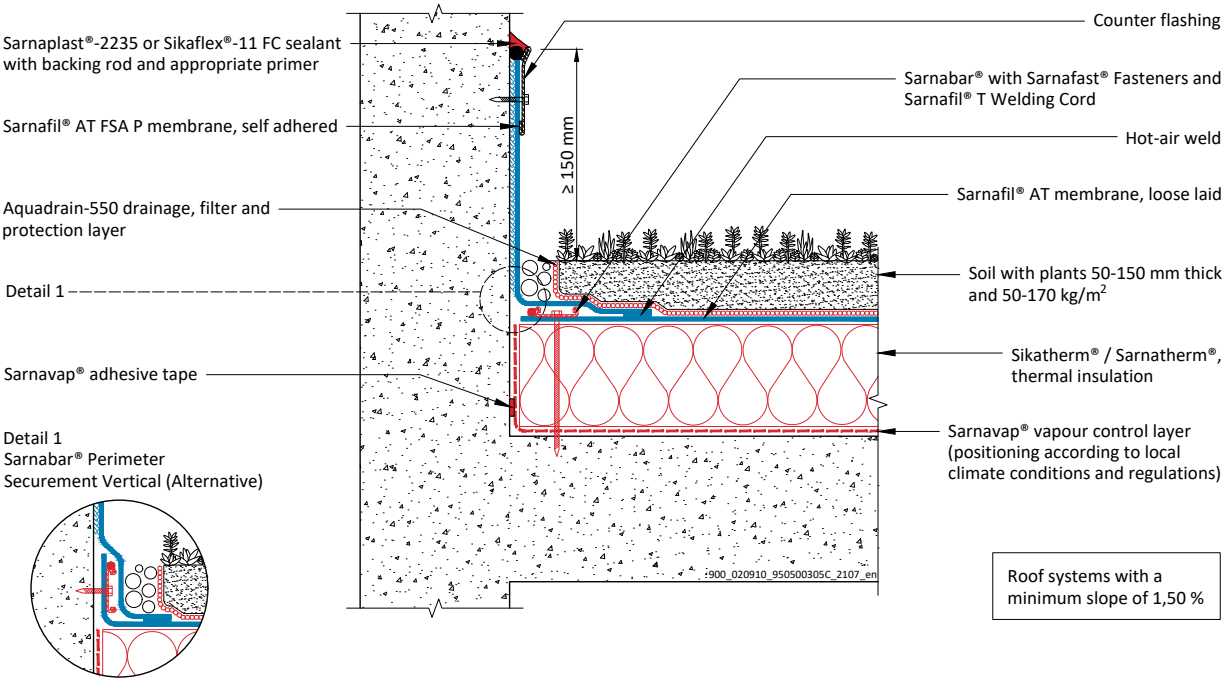
030.03.03 – Counter Flashing – Adhered on Concrete Wall – Inverted Roof System



040.03.01 – Counter Flashing – Adhered on Concrete Wall – Utility Roof System



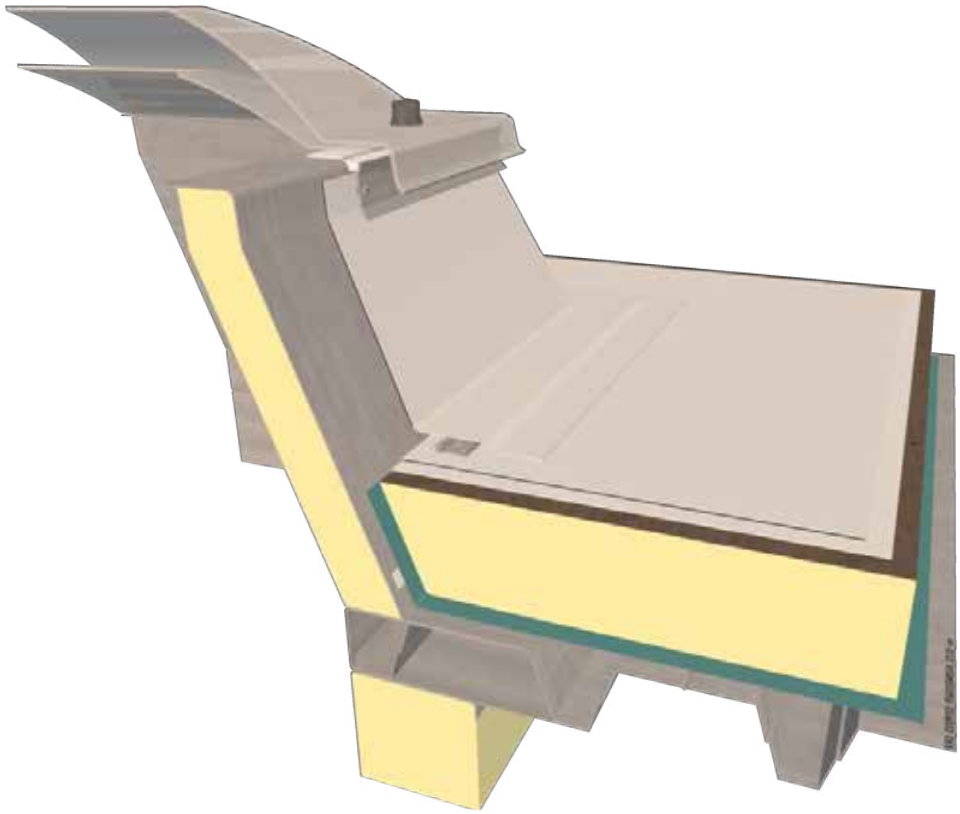
050.03.03 – Counter Flashing – Adhered on Concrete Wall – Green Roof System (Extensive / Intensive)



Detail 1
Sarnabar® Perimeter Securement Vertical (Alternative)

Roof systems with a minimum slope of 1,50 %

SKYLIGHT



PLANNING INFORMATION

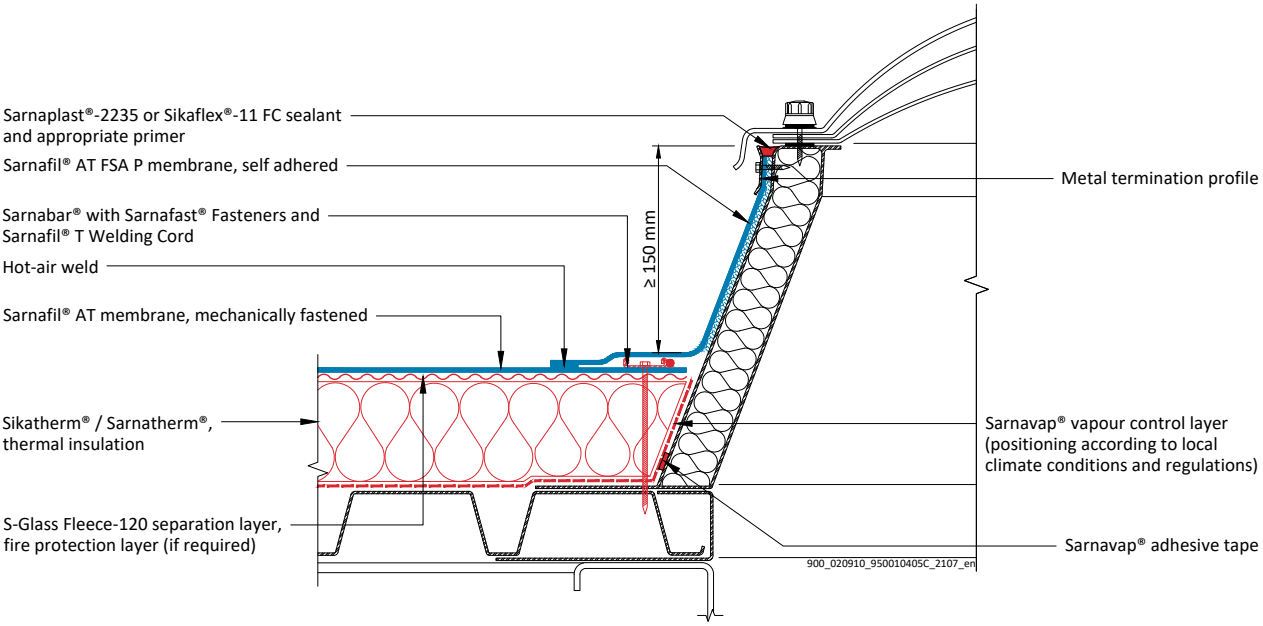
Skylight flashings are formed using strips of Sarnafil® AT FSA P membrane. The flashing strips are to be fully adhered with Sarnafil® AT FSA P self adhered membrane to the substrate and welded to the field sheet. The substrate must be free of ridges.

A counter flashing should be installed on utility roof systems to protect the membrane.

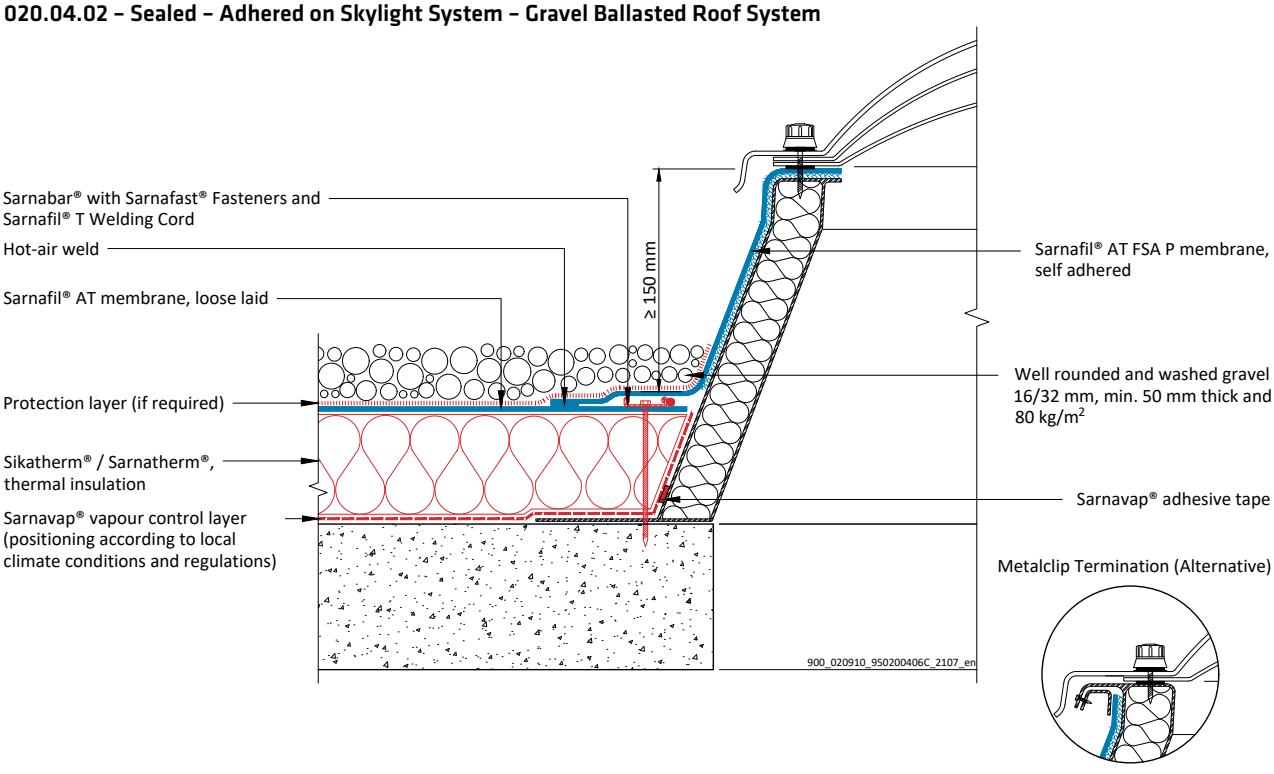
The fully adhered flashing strips to be covered with mechanically fastened metal termination profile. Top end of profile to be sealed, using Sarnaplast®-2235 or Sikaflex®-11 FC.

At all upstands and penetrations wider than 50 cm Sarnafil® AT membrane must be secured with Sarnabar® either to the horizontal or vertical surface.

001.04.02 – Sealed – Adhered on Skylight System – Mechanically Fastened Roof System

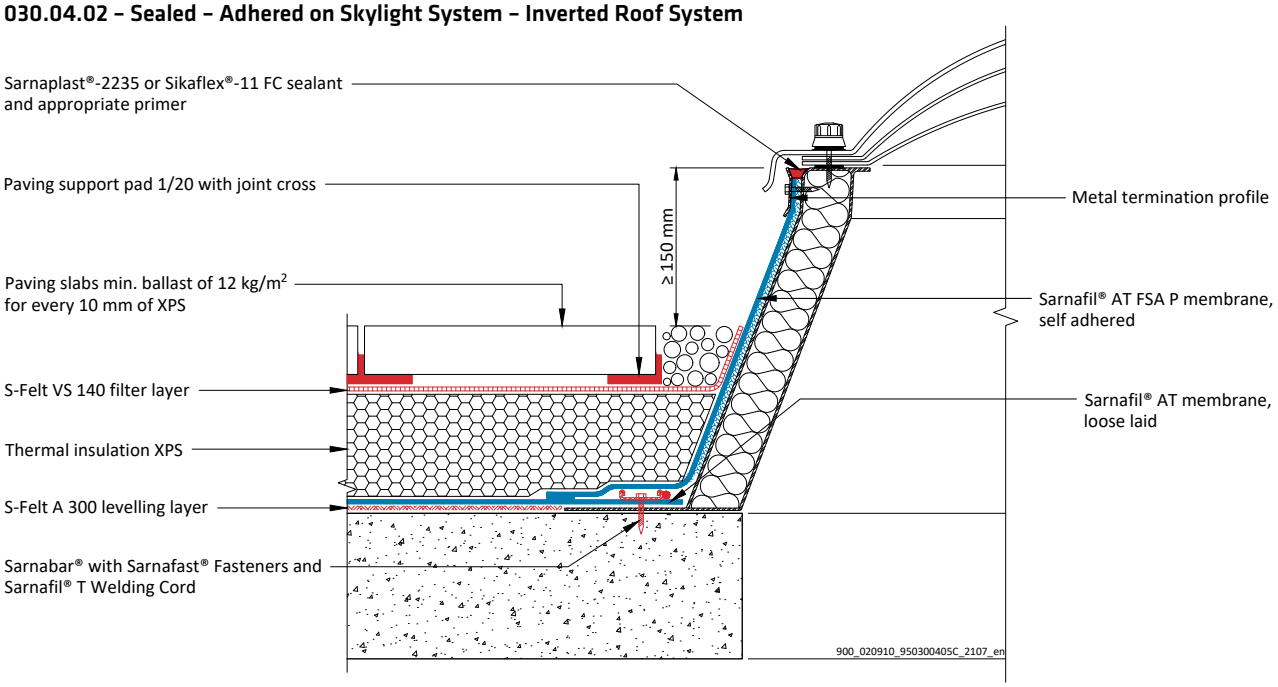


020.04.02 – Sealed – Adhered on Skylight System – Gravel Ballasted Roof System

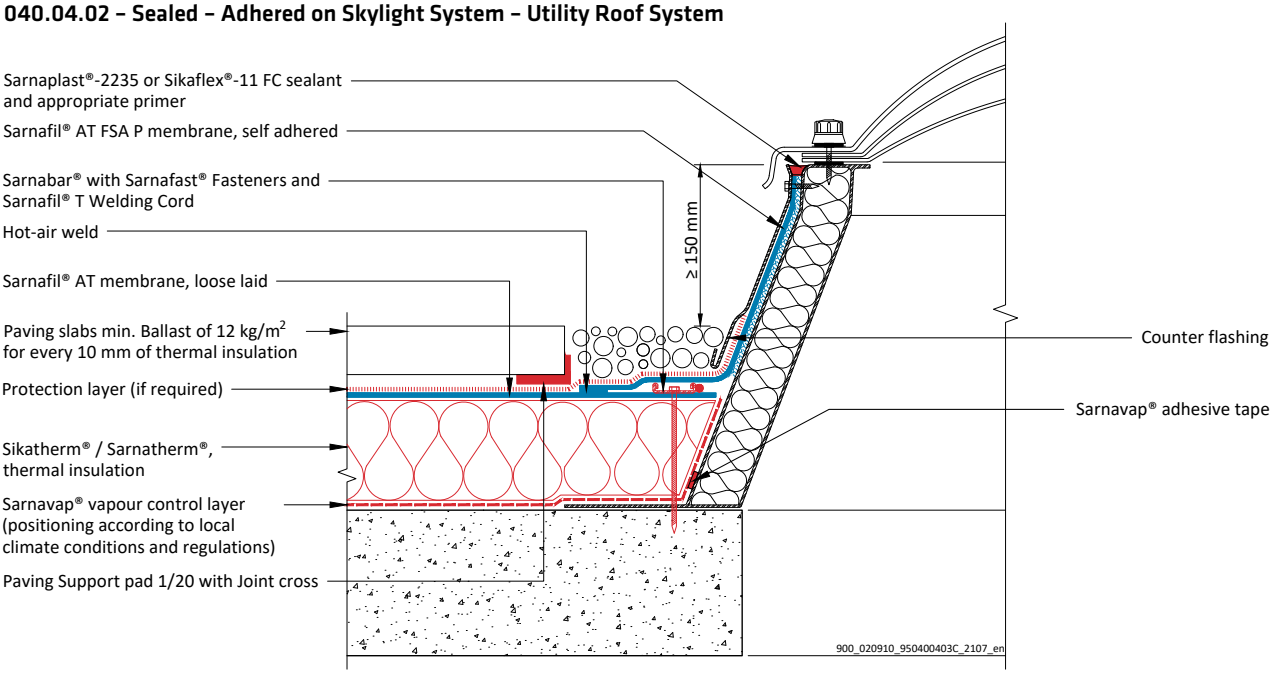


SKYLIGHT

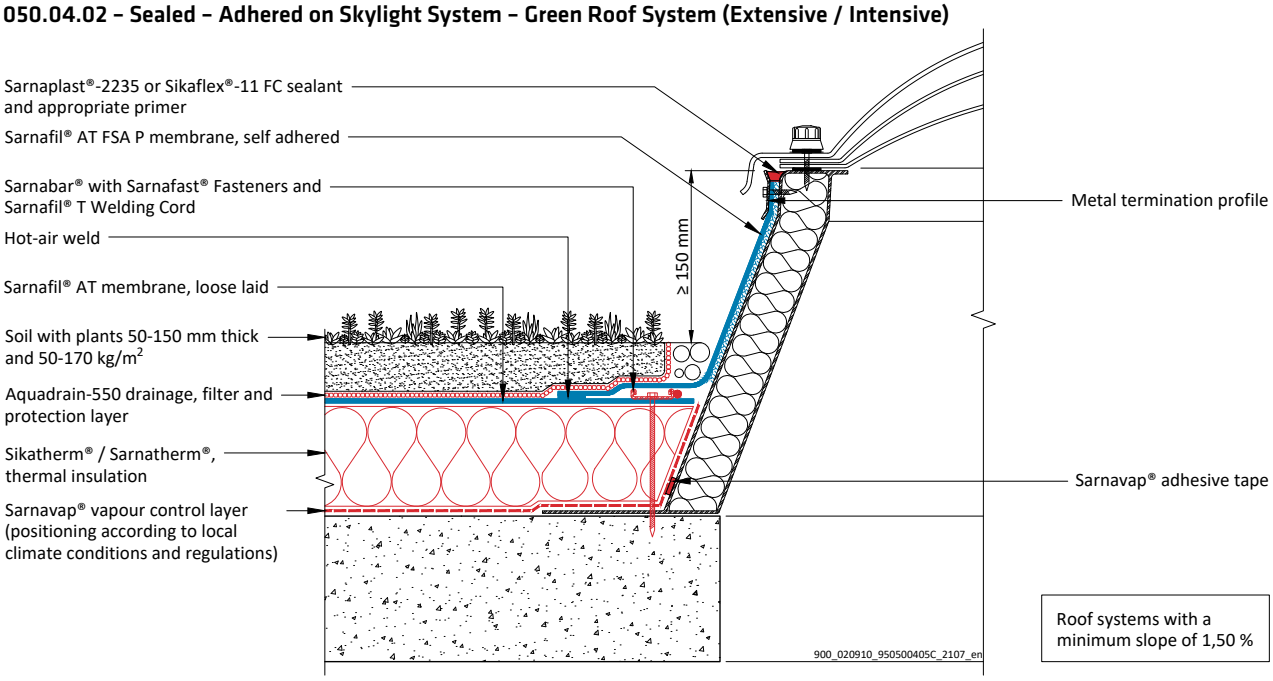
030.04.02 – Sealed – Adhered on Skylight System – Inverted Roof System



040.04.02 – Sealed – Adhered on Skylight System – Utility Roof System

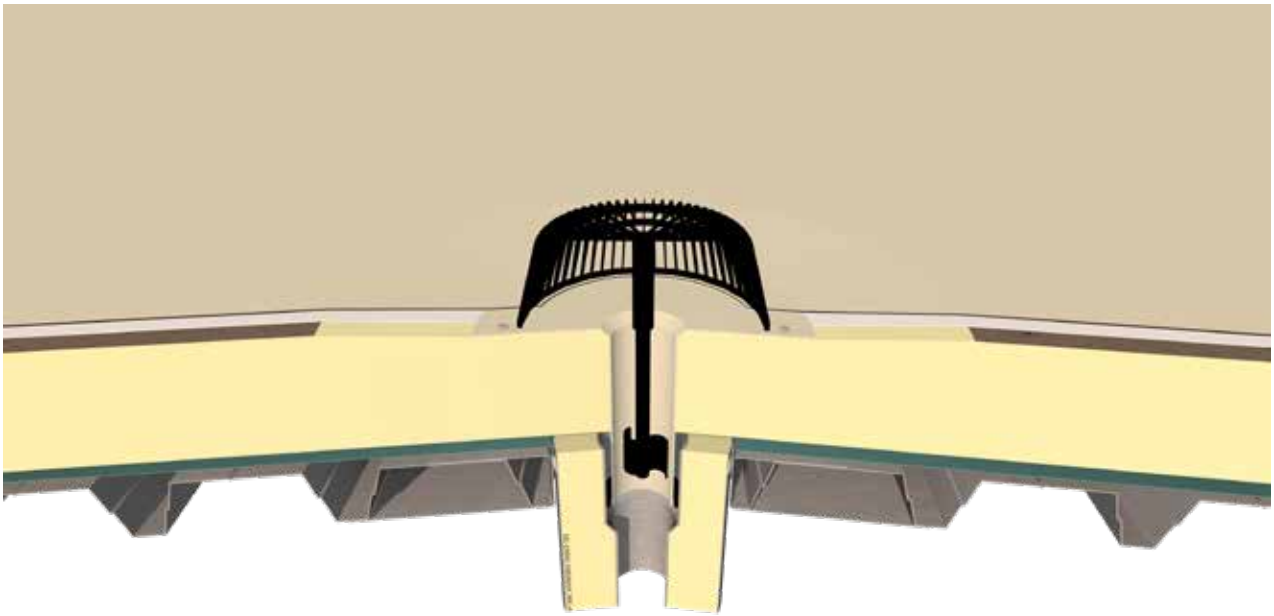


050.04.02 – Sealed – Adhered on Skylight System – Green Roof System (Extensive / Intensive)



Roof systems with a minimum slope of 1,50 %

ROOF DRAIN (OUTLET)

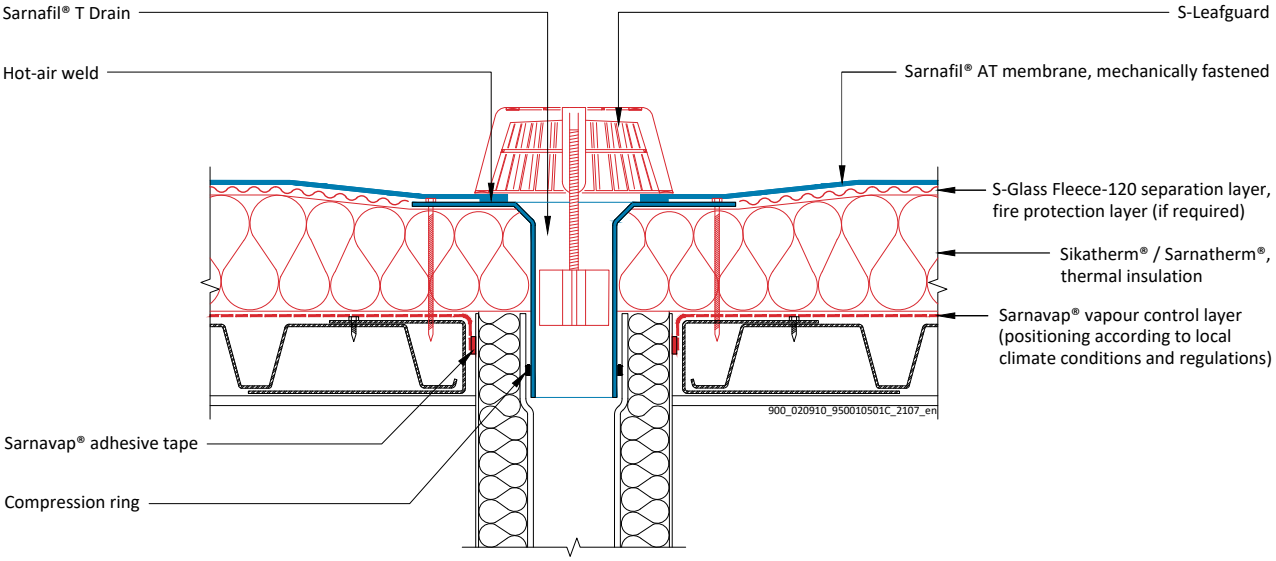


PLANNING INFORMATION

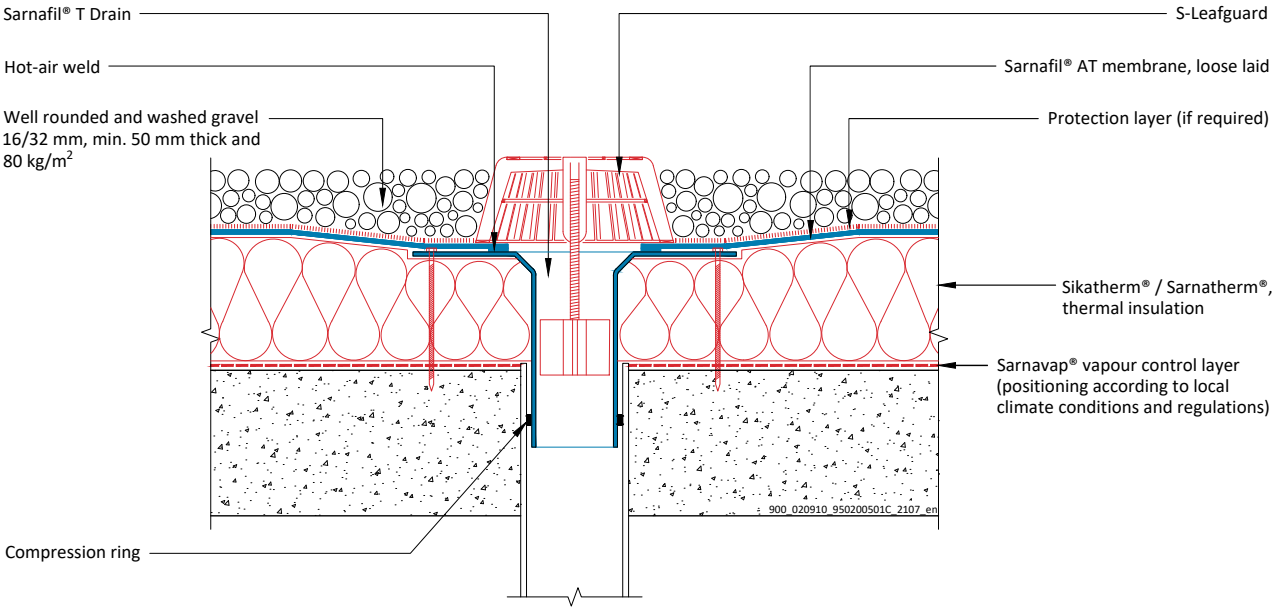
Prefabricated Sarnafil® T Drain to be mechanically fastened to surface.
Mechanically fastened, or loosely laid Sarnafil® AT roof waterproofing membrane hot welded to Sarnafil® T Drain.

The S-Leafguard and S-Gravel Frame with S-Grid Square serves as protection against infiltration of gravel and leaves into the Sarnafil® T Drain.

001.05.01 – Mechanically Fastened Roof System

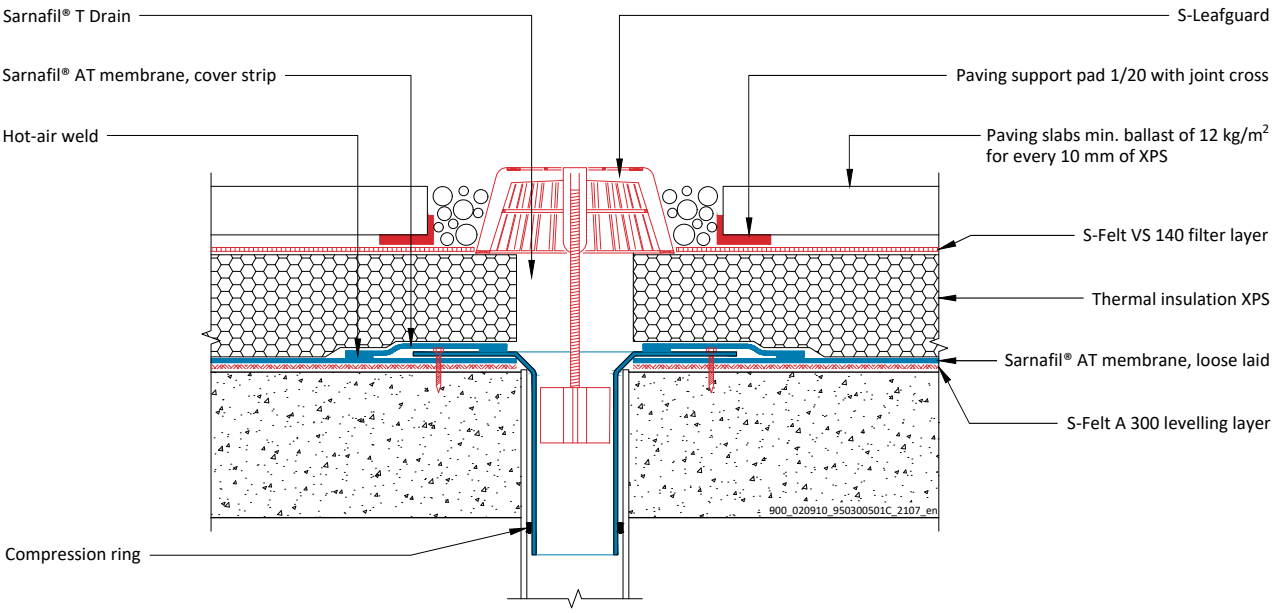


020.05.01 – Gravel Ballasted Roof System

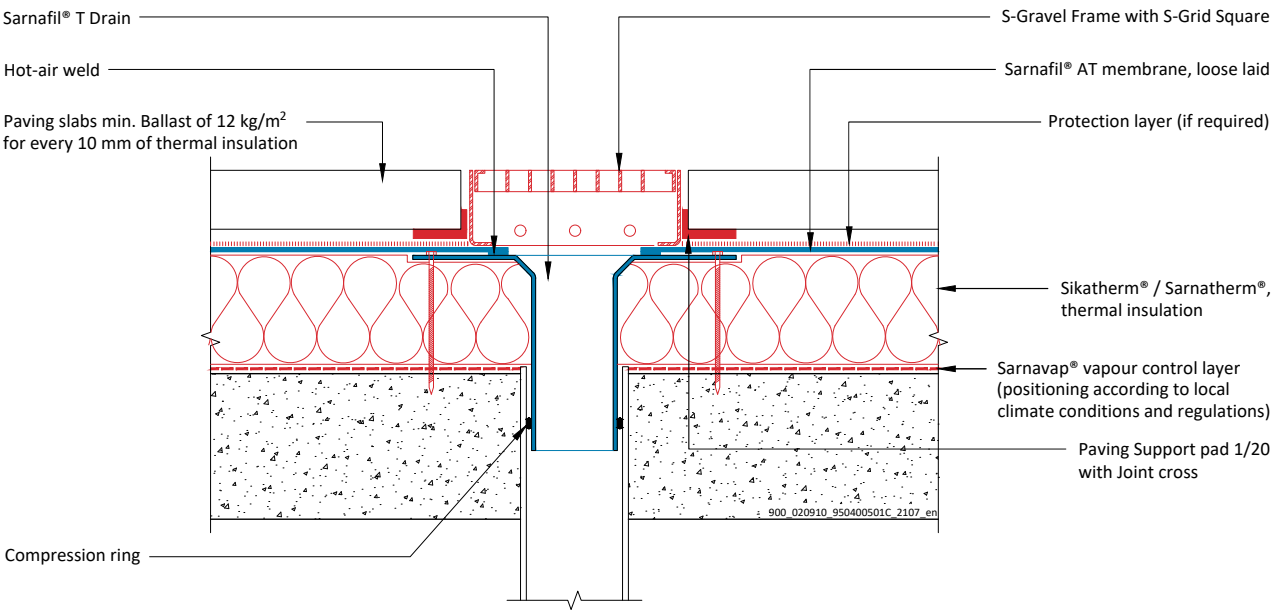


ROOF DRAIN (OUTLET)

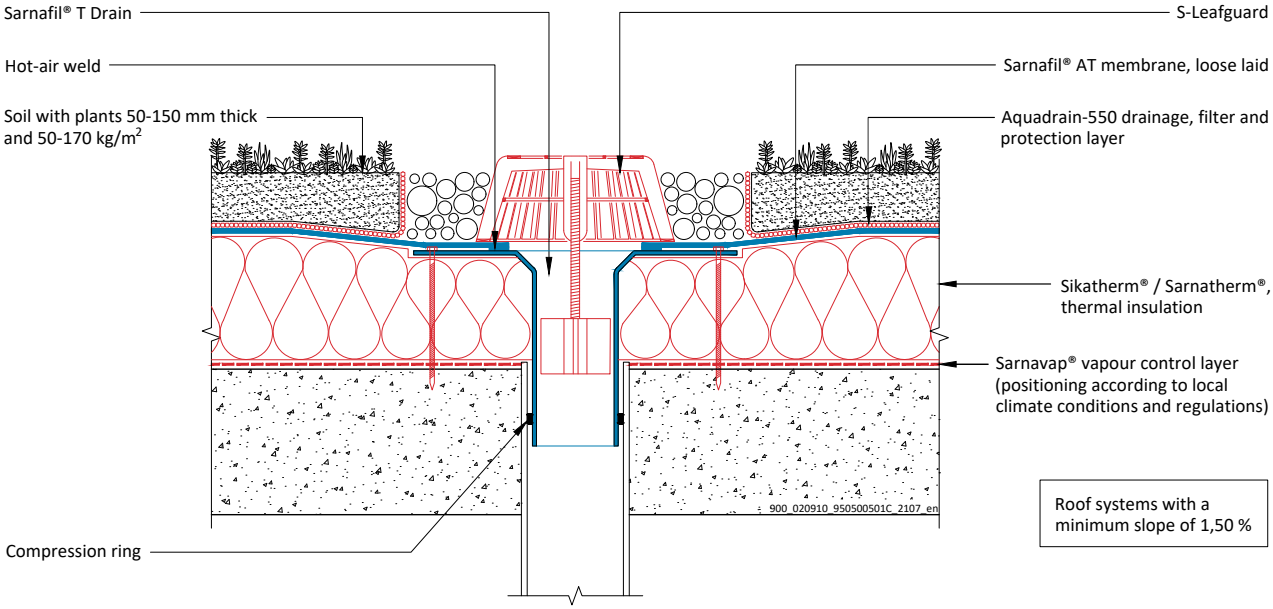
030.05.01 – Inverted Roof System



040.05.01 – Utility Roof System

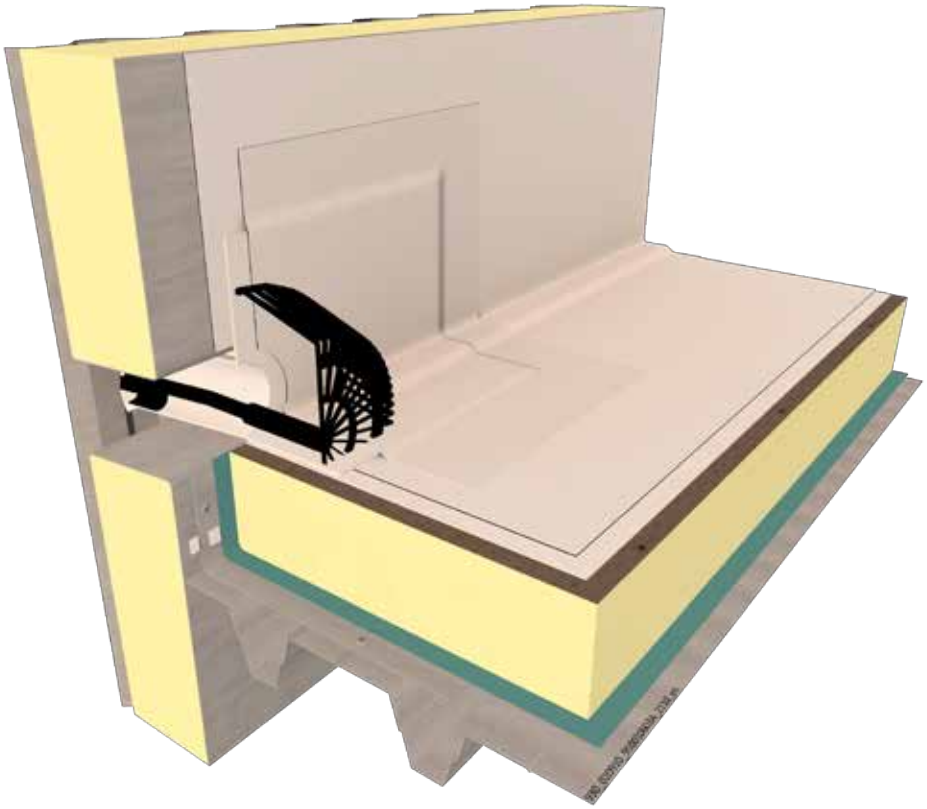


050.05.01 – Green Roof System (Extensive / Intensive)



Roof systems with a minimum slope of 1,50 %

SCUPPER

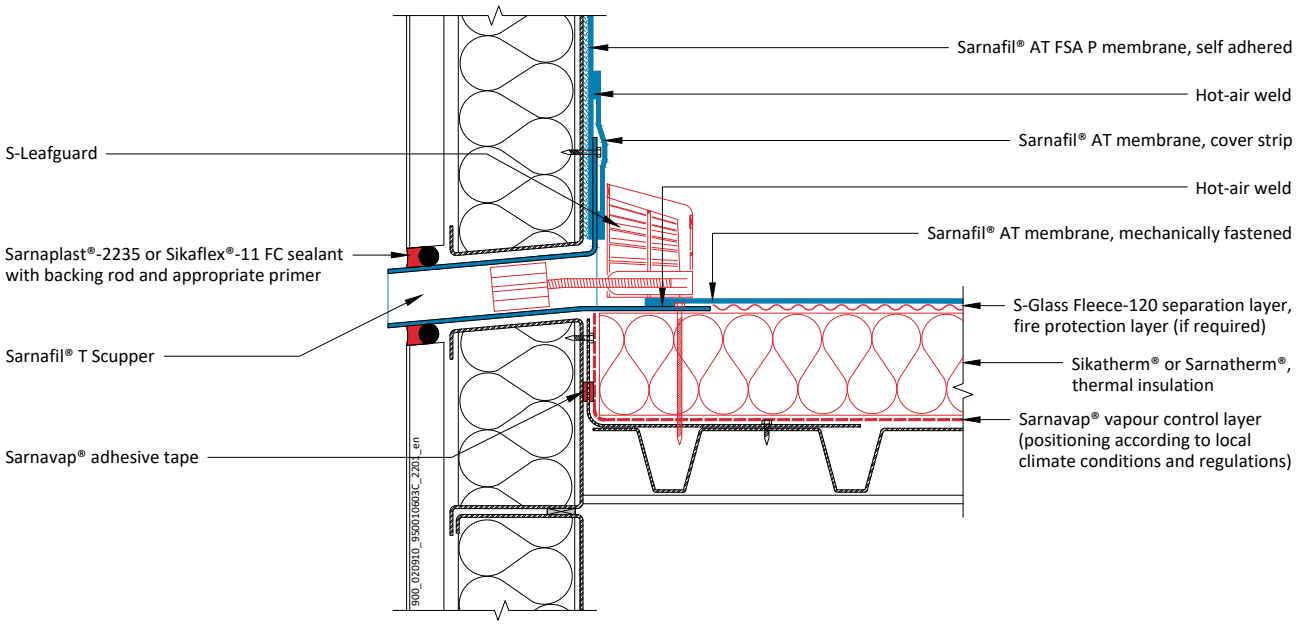


PLANNING INFORMATION

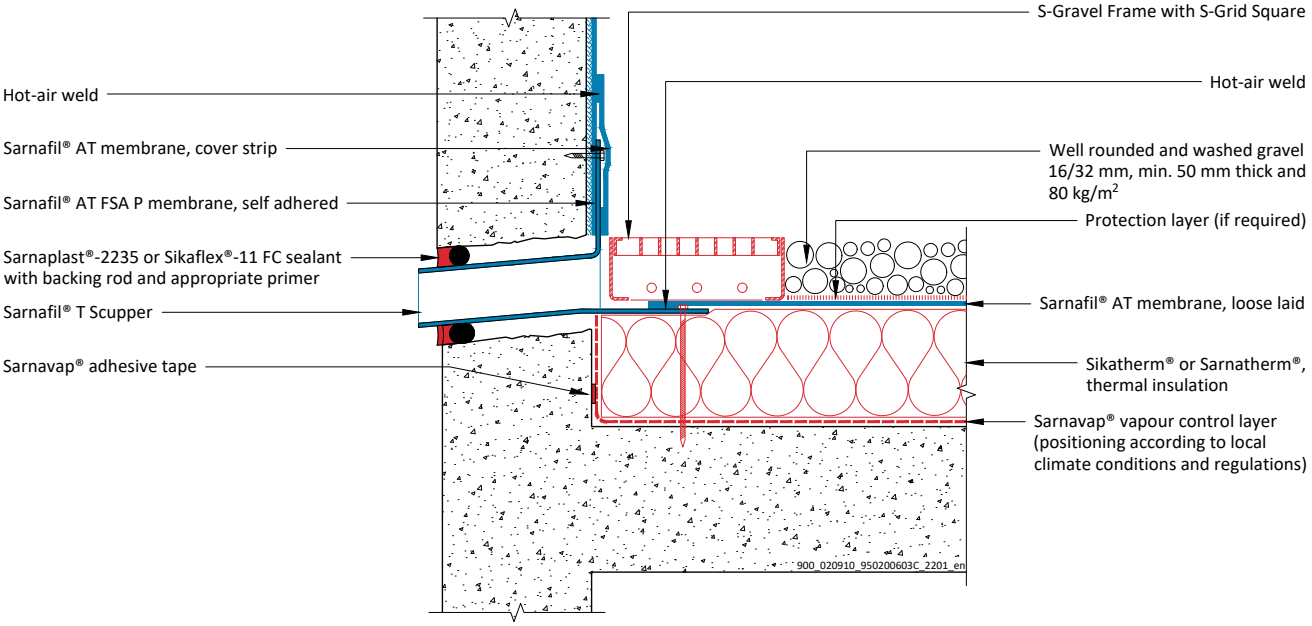
Sarnafil® AT FSA P self adhered membrane to be installed along vertical areas. Prefabricated Sarnafil® T Scupper to be mechanically fastened above Sarnafil® AT FSA P. Sarnafil® AT coverstrip to be hot welded along the edges of Sarnafil® T Scupper and Sarnafil® AT FSA P.

The S-Leafguard and S-Gravel Frame with S-Grid Square serves as protection against infiltration of gravel and leaves into the Sarnafil® T Scupper.

001.06.03 – Adhered on Metal Element – Mechanically Fastened Roof System

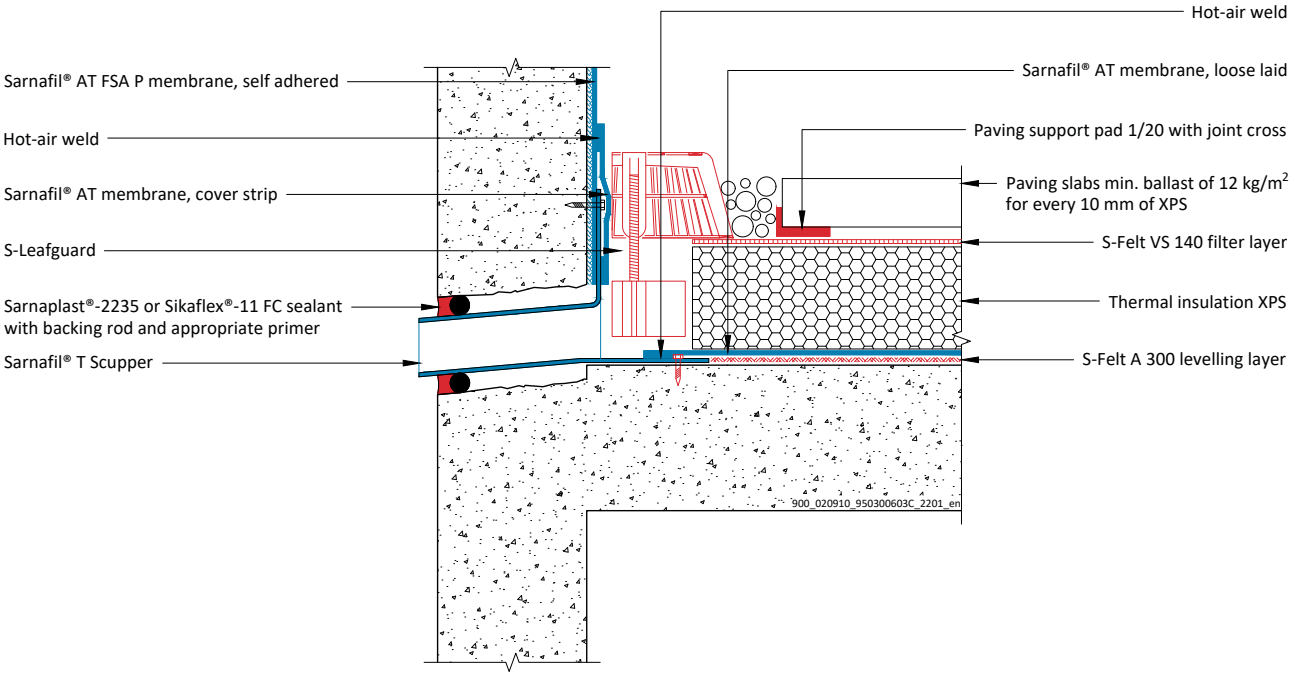


020.06.03 – Adhered on Concrete Wall – Gravel Ballasted Roof System

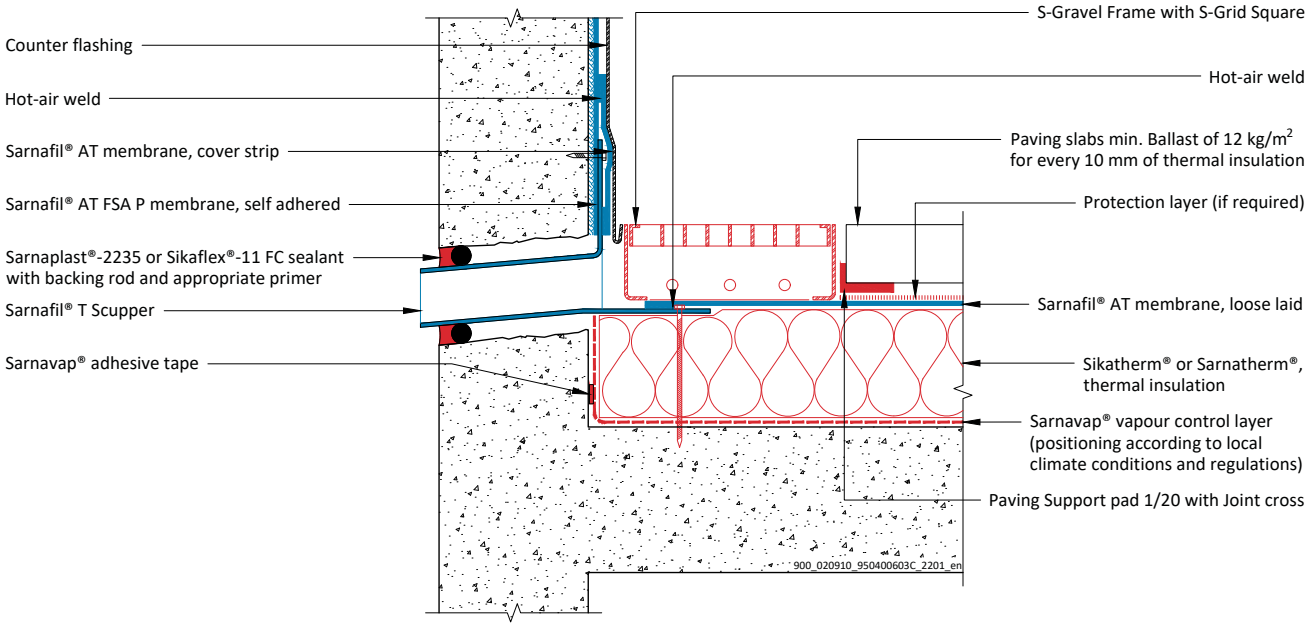


SCUPPER

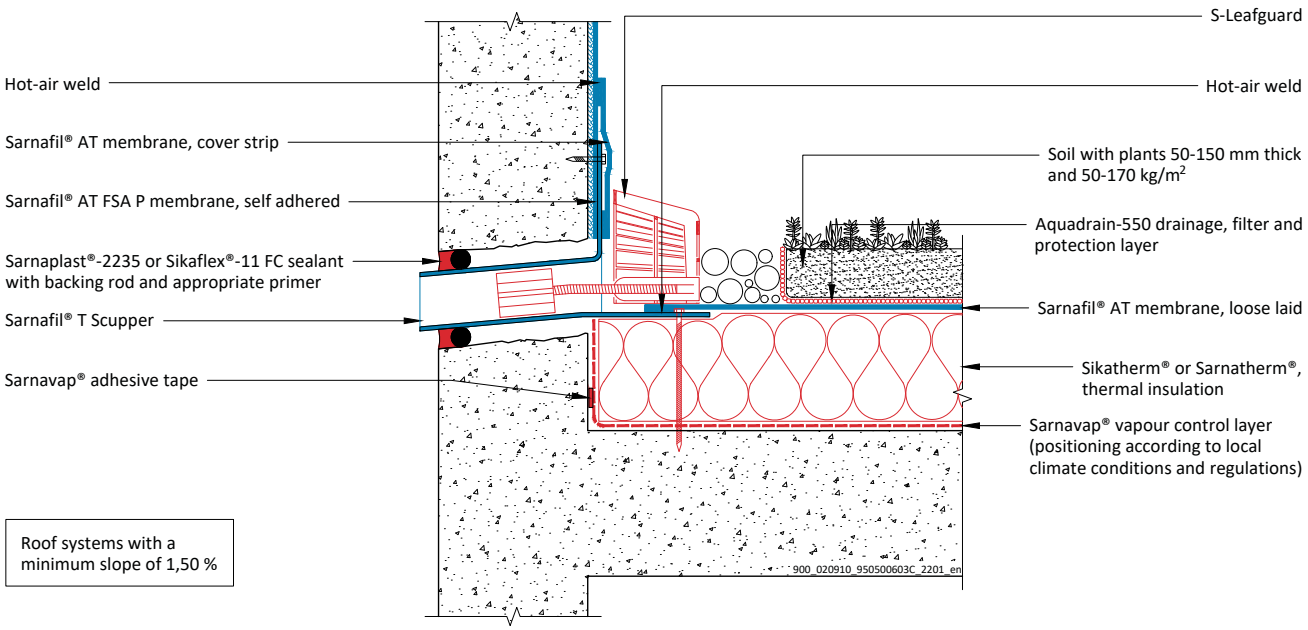
030.06.03 – Adhered on Concrete Wall – Inverted Roof System



040.06.03 – Adhered on Concrete Wall – Utility Roof System

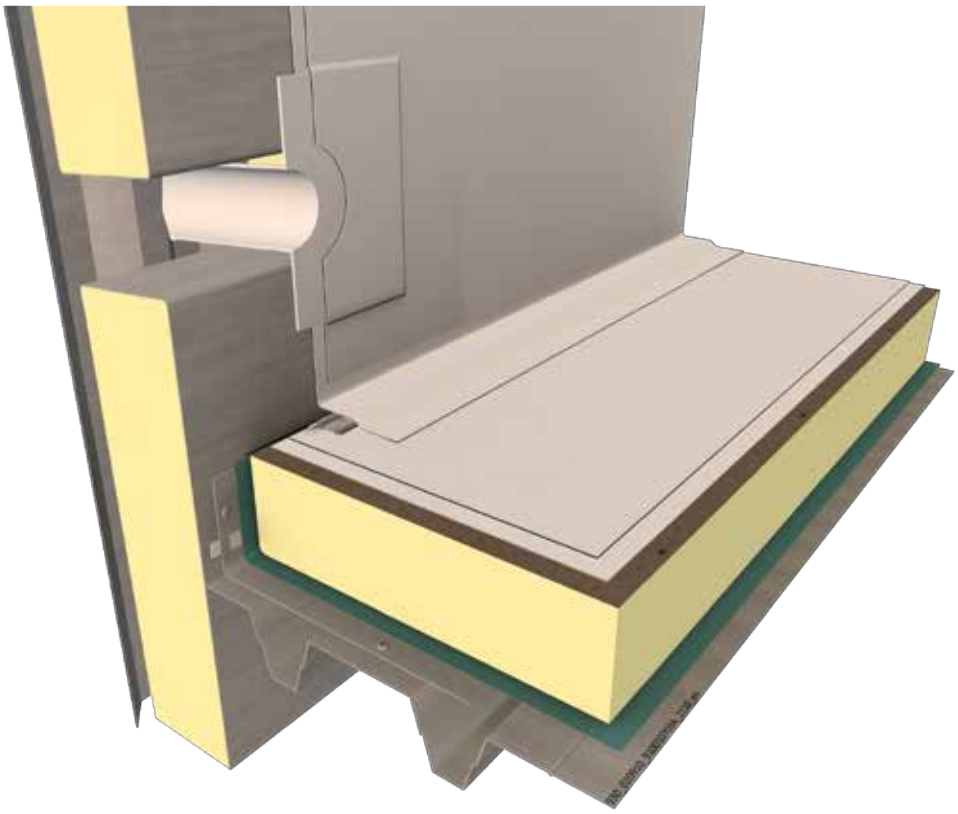


050.06.03 – Adhered on Concrete Wall – Green Roof System (Extensive / Intensive)



Roof systems with a minimum slope of 1,50 %

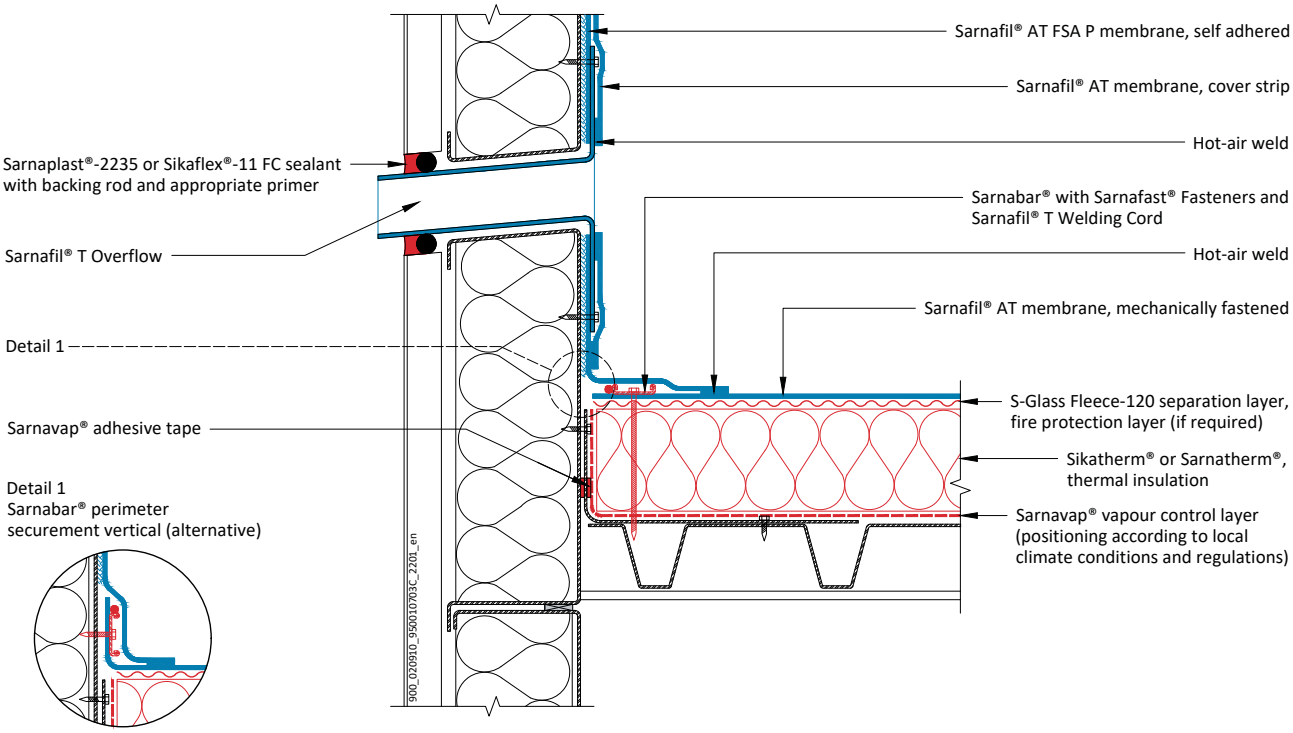
OVERFLOW



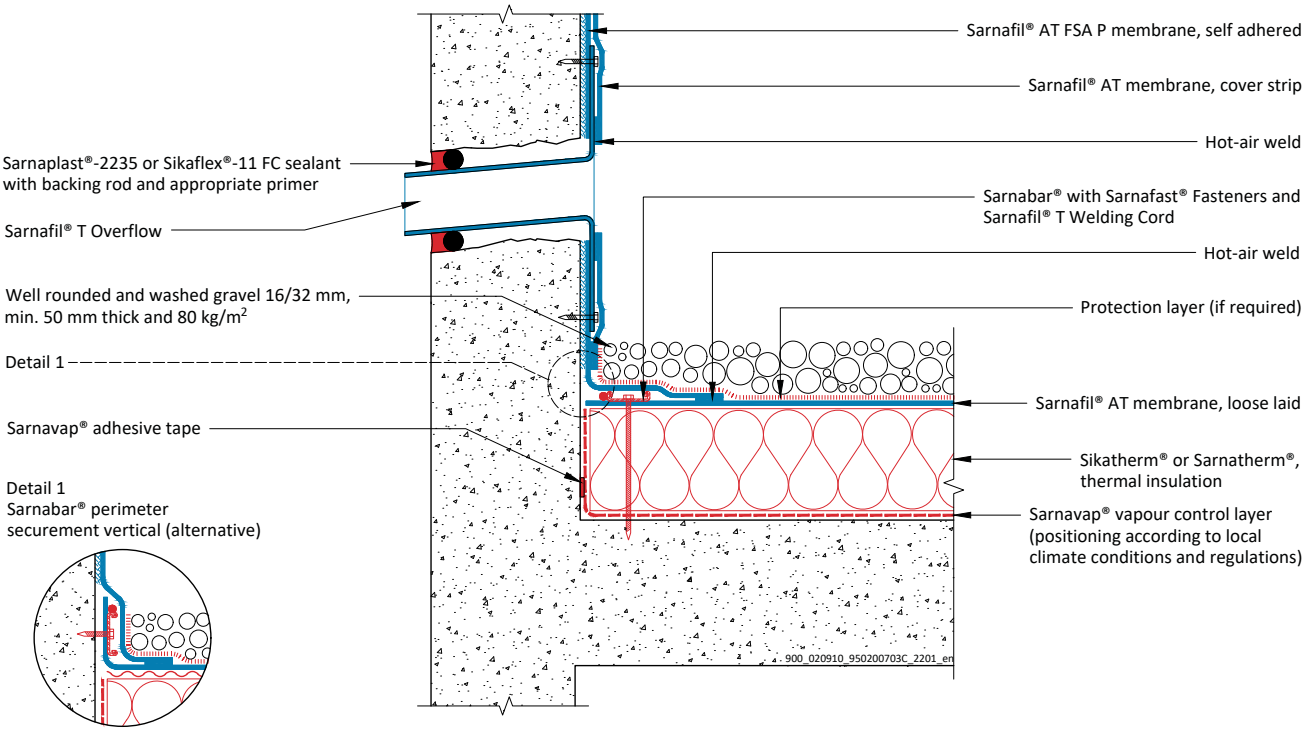
PLANNING INFORMATION

Sarnafil® AT FSA P self adhered membrane to be installed along vertical areas.
Prefabricated Sarnafil® T Overflow to be mechanically fastened above Sarnafil® AT FSA P.
Sarnafil® AT coverstrip to be hot welded along the edges of Sarnafil® T Overflow and Sarnafil® AT FSA P.

001.07.03 – Adhered on Metal Element – Mechanically Fastened Roof System

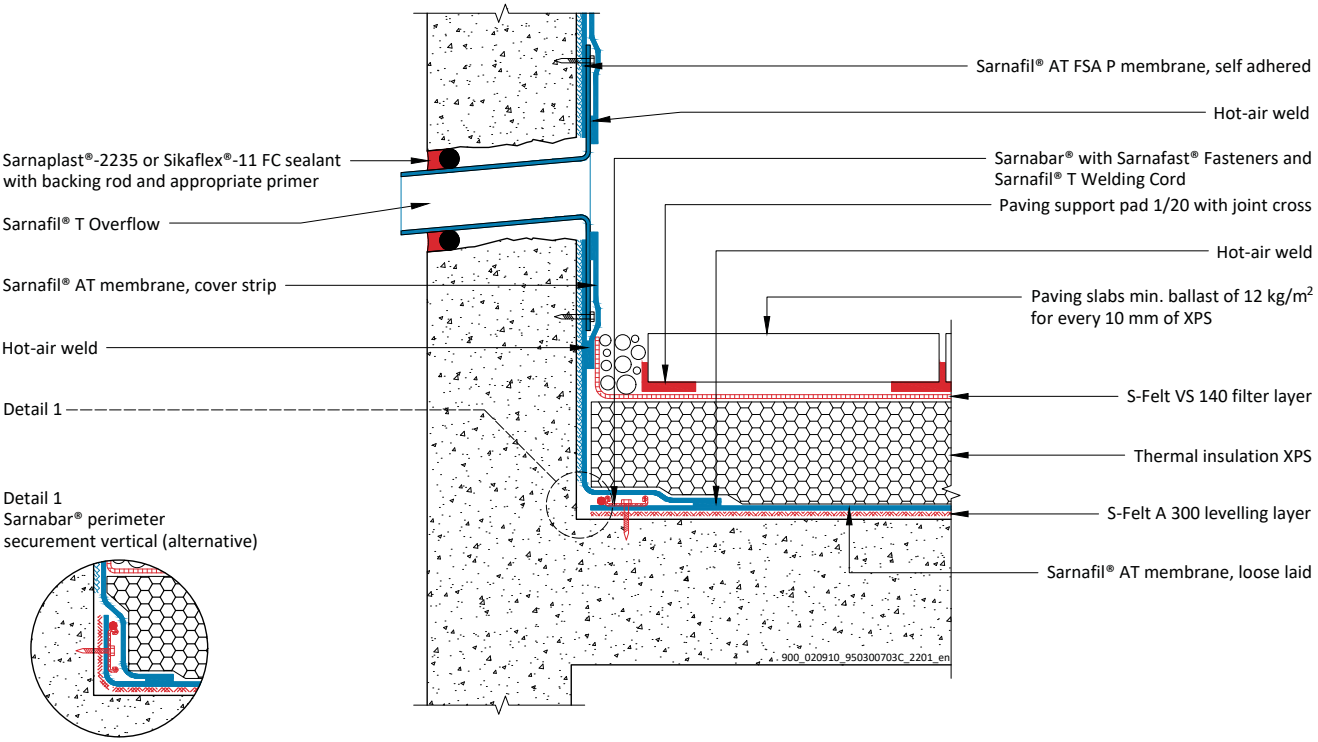


020.07.03 – Adhered on Concrete Wall – Gravel Ballasted Roof System

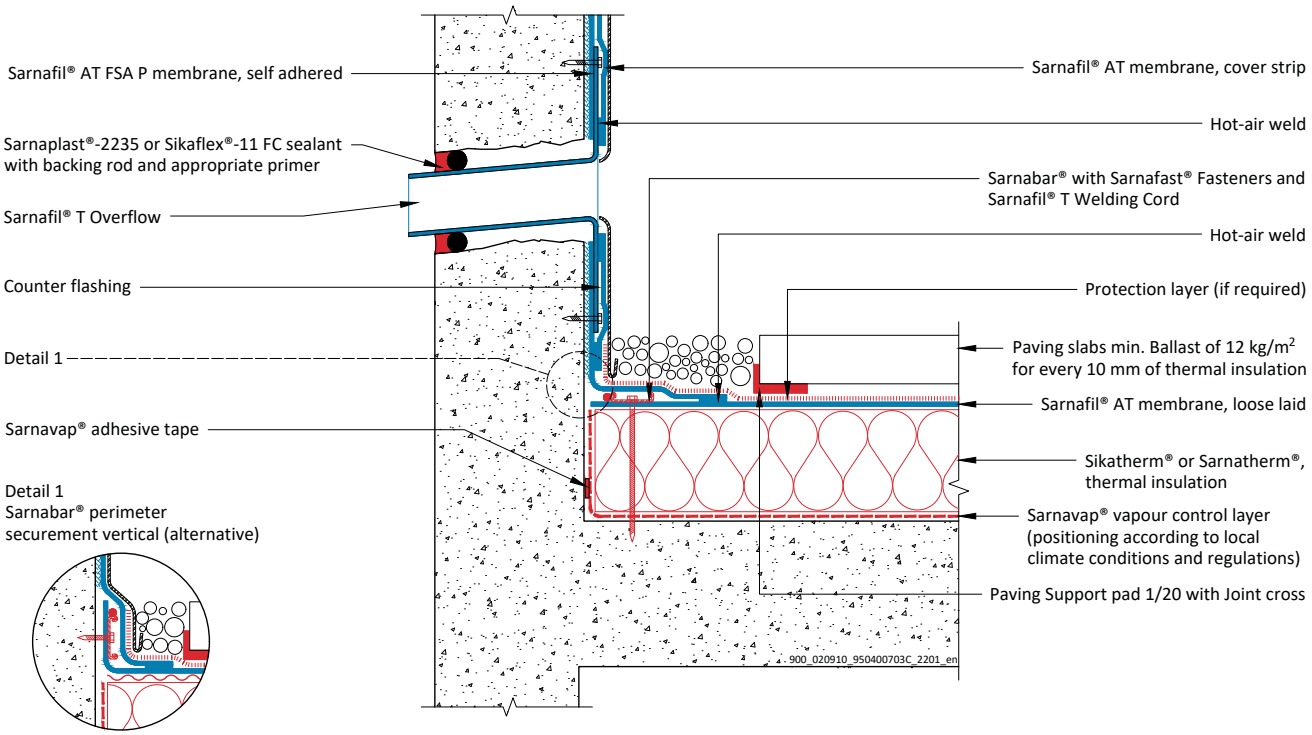


OVERFLOW

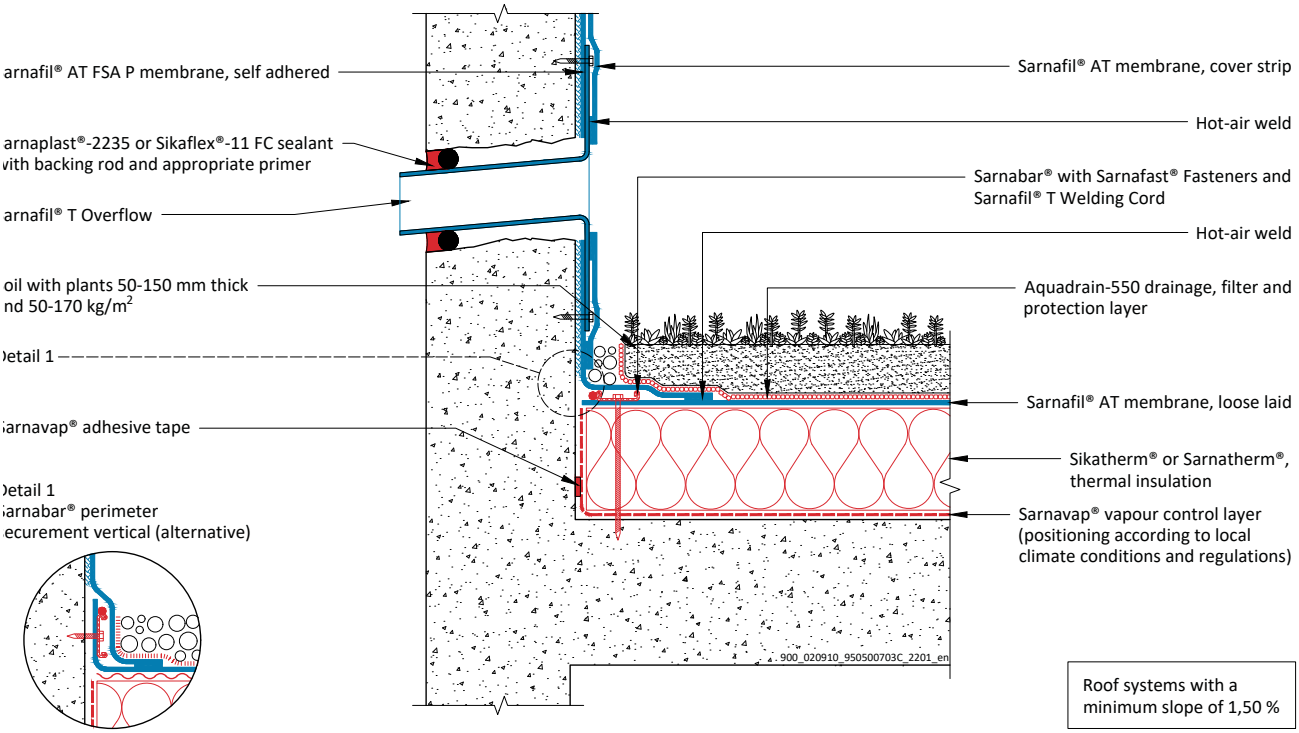
030.07.03 – Adhered on Concrete Wall – Inverted Roof System



040.07.03 – Adhered on Concrete Wall – Utility Roof System

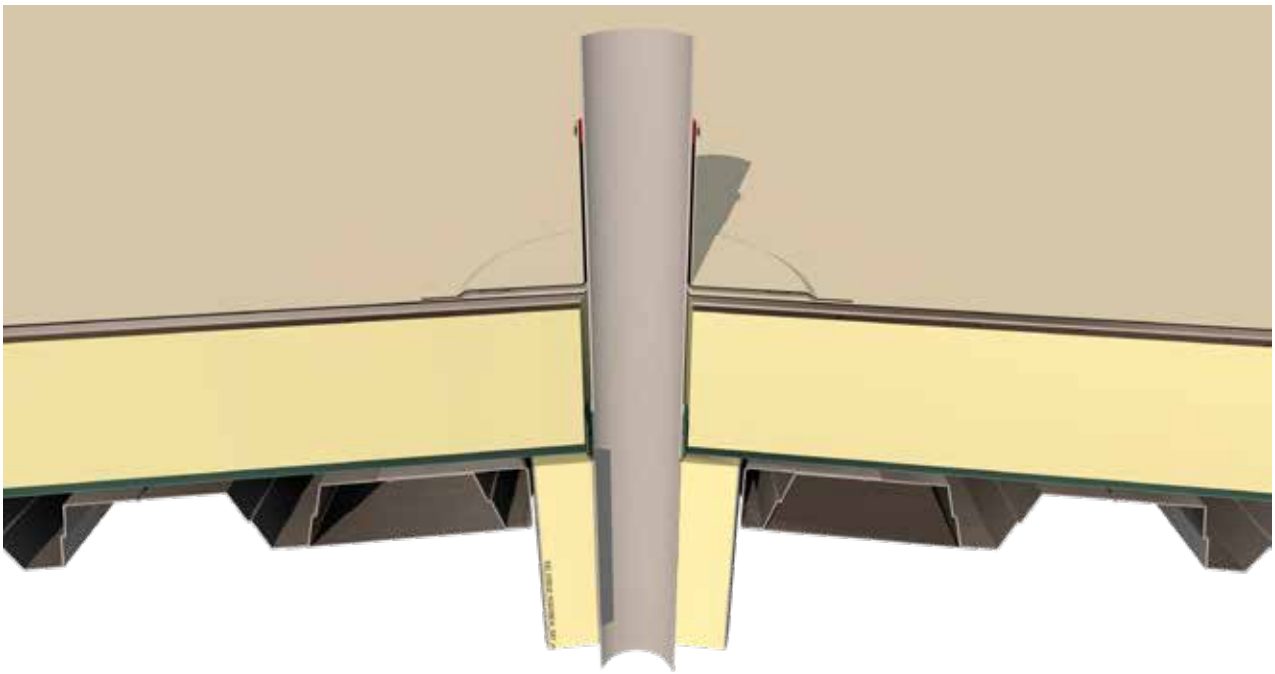


050.07.03 – Adhered on Concrete Wall – Green Roof System (Extensive / Intensive)



Roof systems with a minimum slope of 1,50 %

VENT PIPE / POST



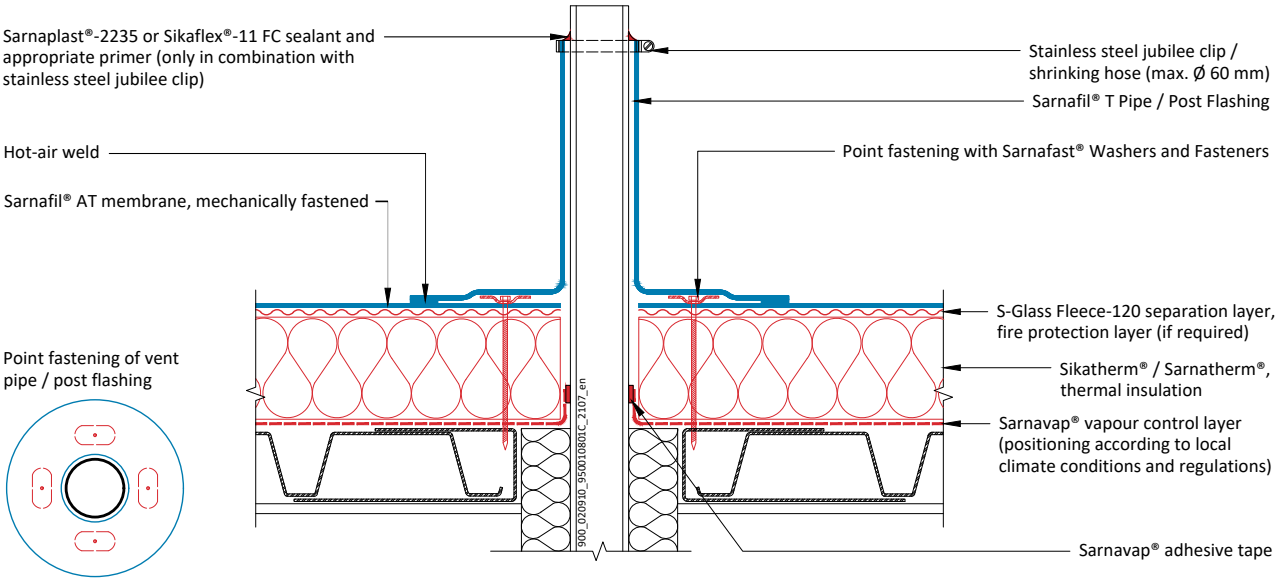
PLANNING INFORMATION

On vent pipe / post flashing Sarnafil® AT roof waterproofing for mechanically fastened roof systems to be point fastened using four Sarnafast® Washers and Fasteners. In all other ballasted roof systems, no additional fastening to be needed.

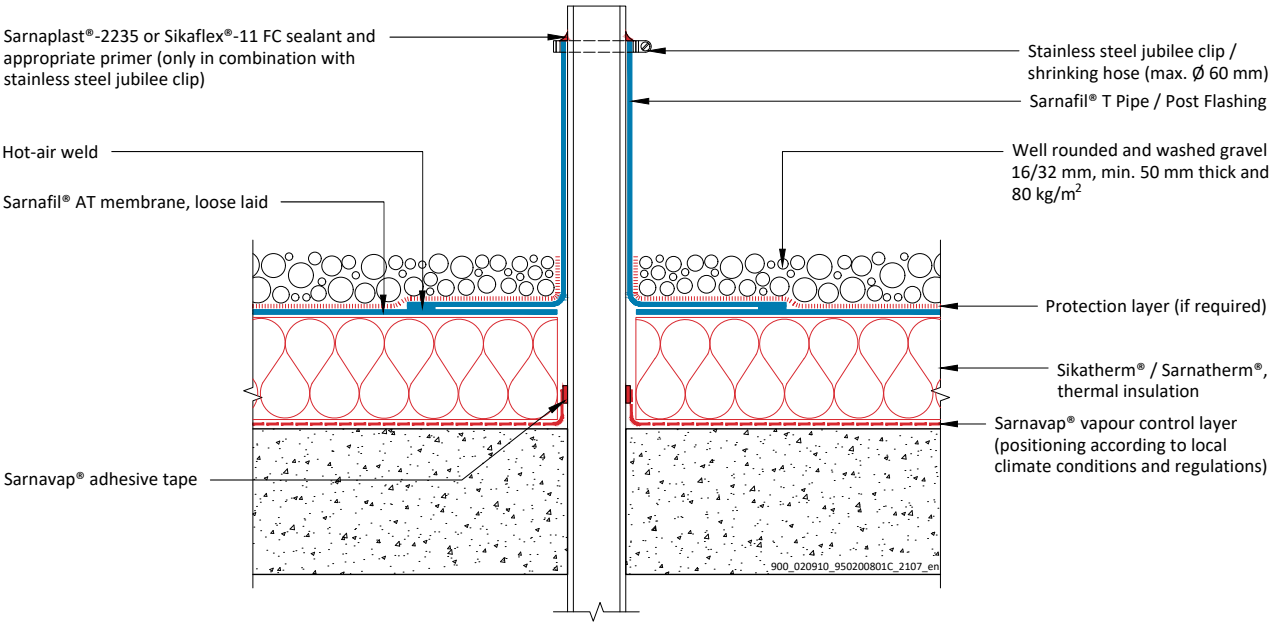
Sarnafil® T Pipe / Post Flashing to be hot welded to Sarnafil® AT roof waterproofing membrane.

Top end of Sarnafil® T Pipe / Post Flashing to be waterproofed using shrinking hose or stainless steel jubilee clip in combination with Sarnaplast®-2235 or Sikaflex®-11 FC sealant.

001.08.01 – Mechanically Fastened Roof System

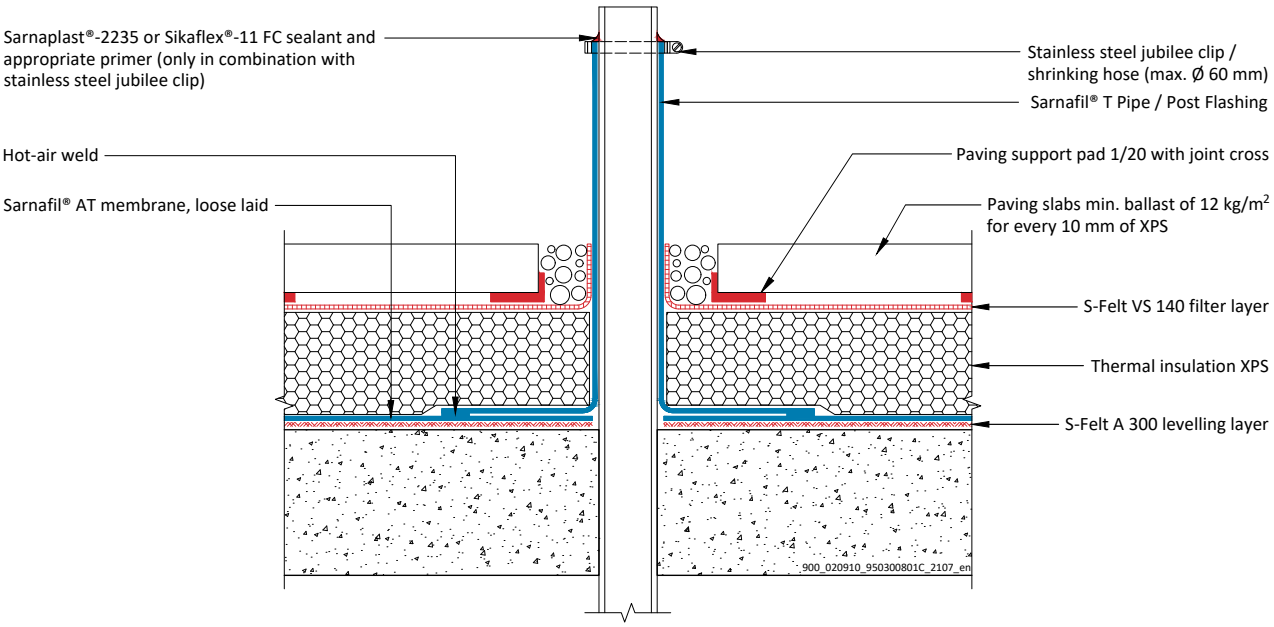


020.08.01 – Gravel Ballasted Roof System

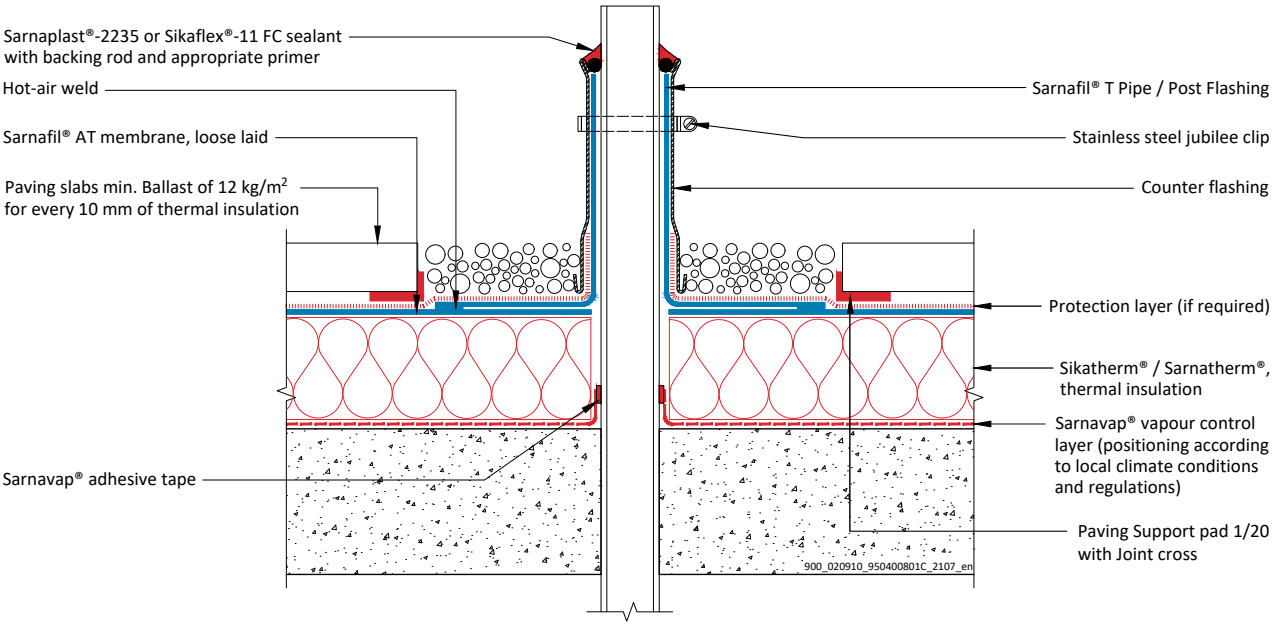


VENT PIPE / POST

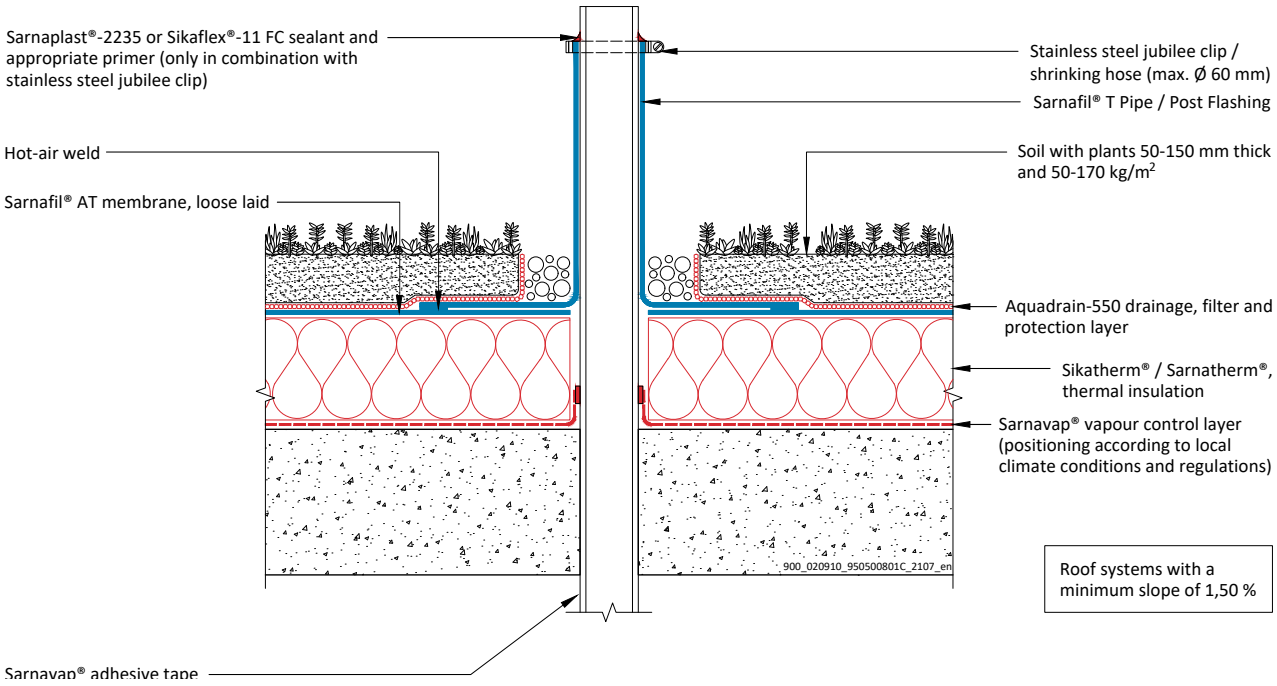
030.08.01 – Inverted Roof System



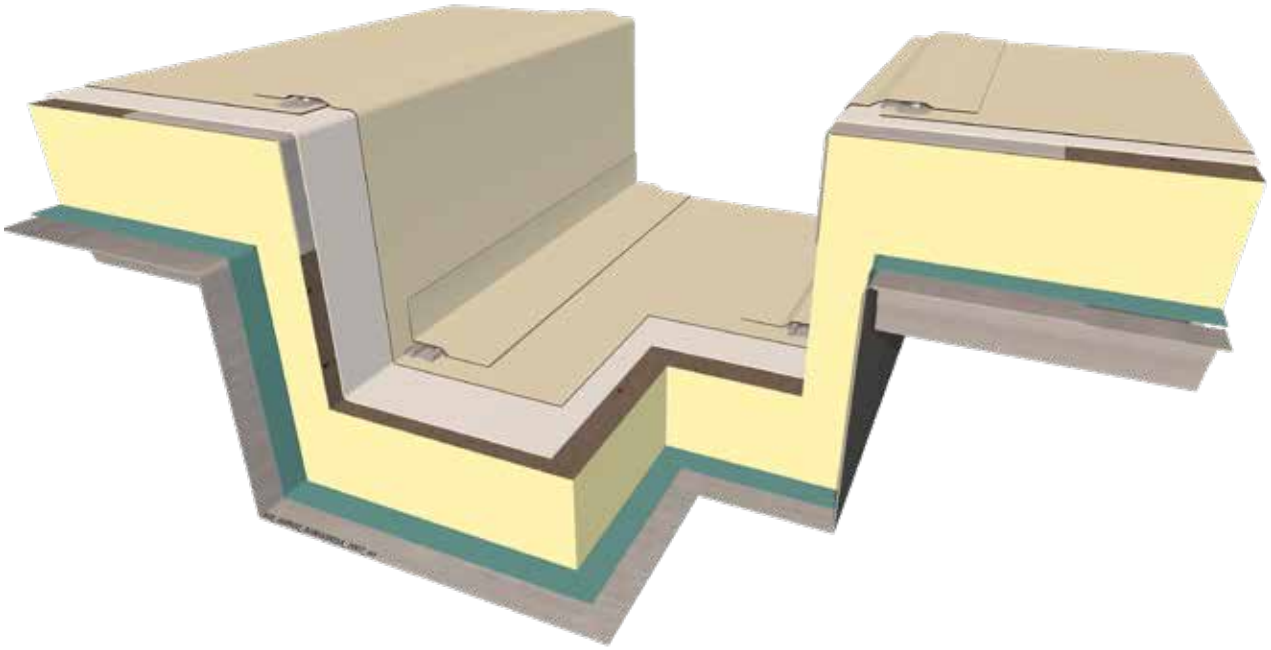
040.08.01 – Utility Roof System



050.08.01 – Green Roof System (Extensive / Intensive)



GUTTER



PLANNING INFORMATION

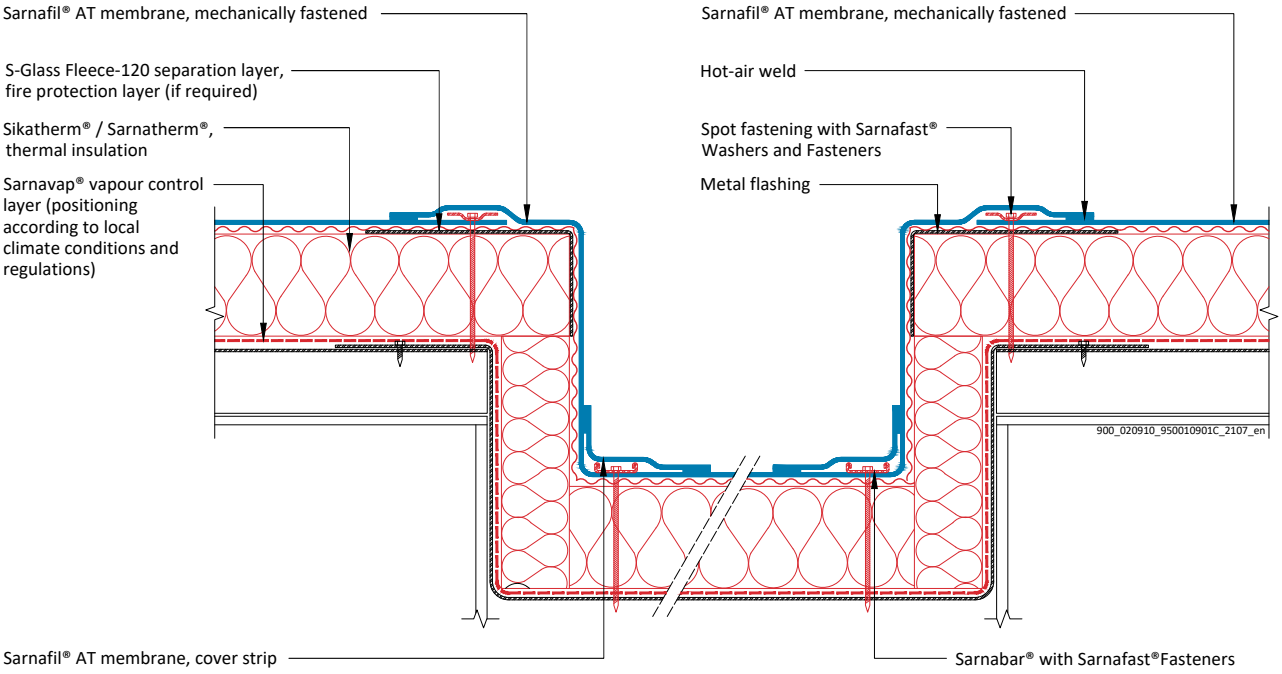
Gutter edges on top of thermal insulation should be protected with metal flashing.

Sarnafil® AT roof waterproofing membrane must be secured with either Sarnabar® or Sarnafast® Washers and Fasteners.

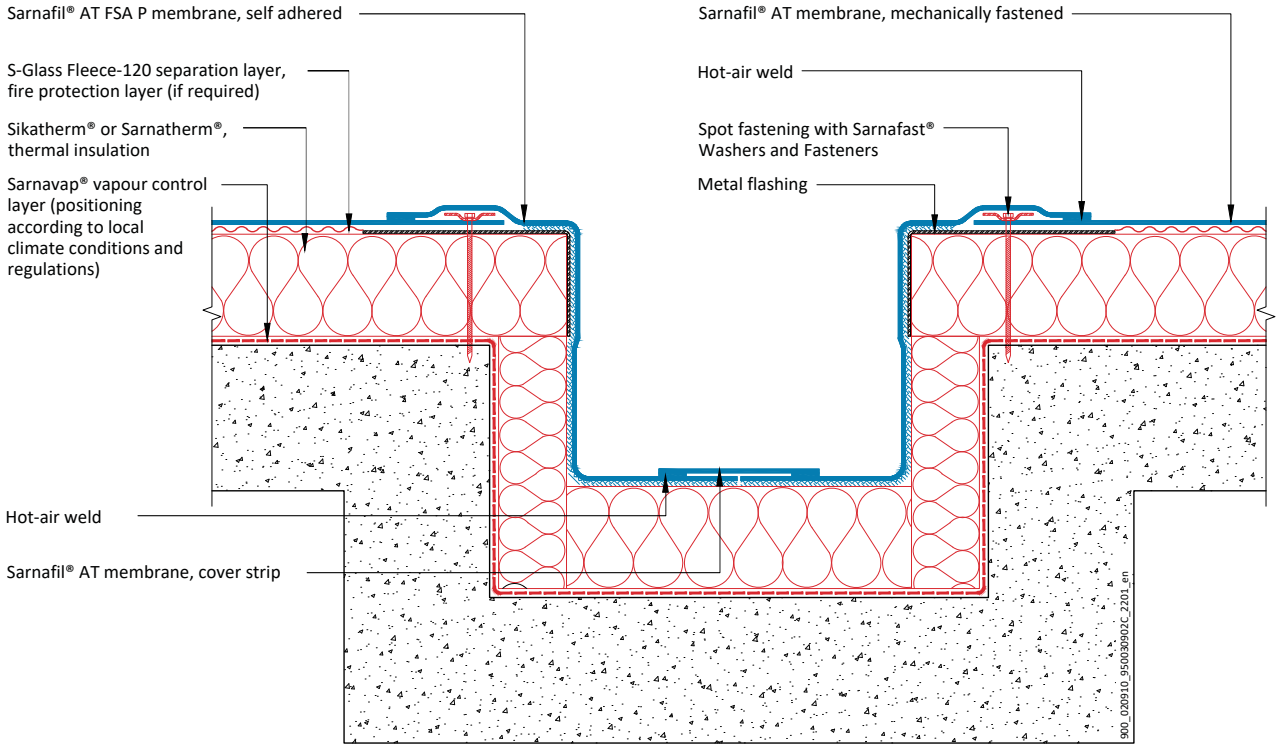
Mechanically fastened gutter flashing, using Sarnafil® AT membrane and Sarnabar® with Sarnafast® Fasteners securement along vertical areas.

Adhered gutter flashing, using Sarnafil® AT FSA P self adhered membrane to roof waterproof the gutter completely.

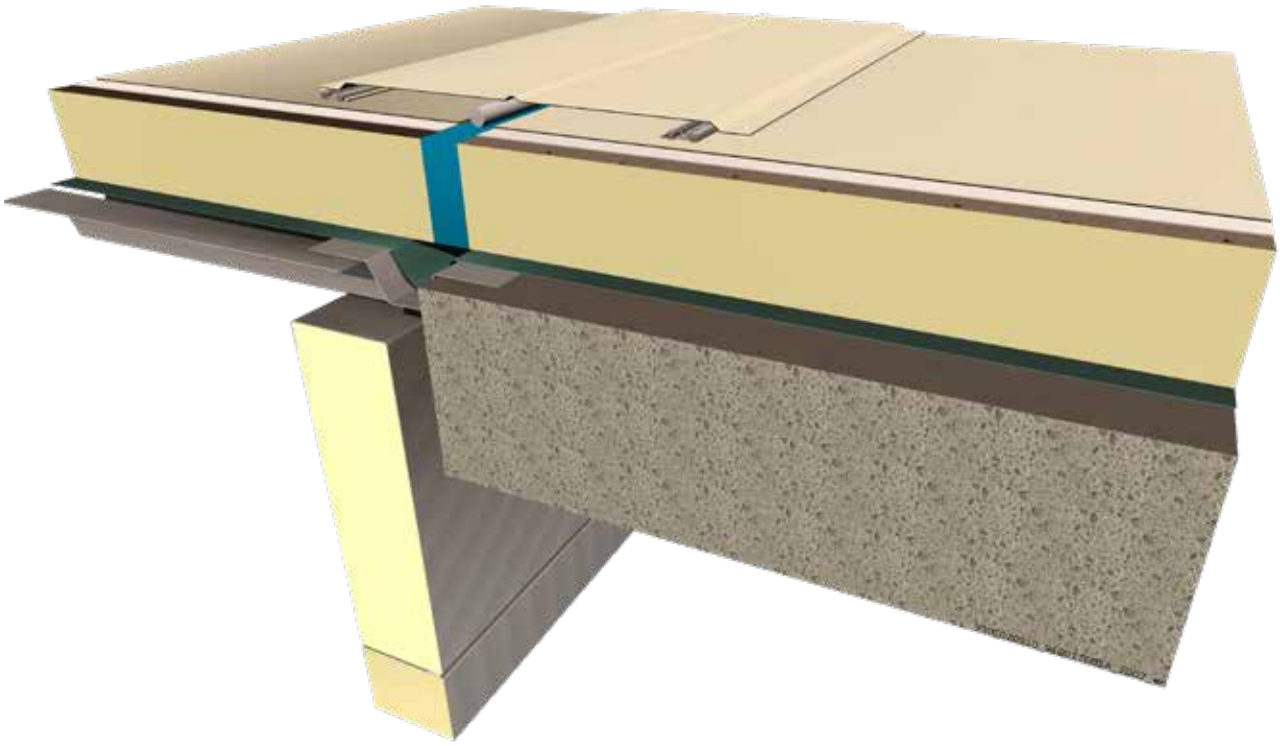
001.09.01 – Mechanically Fastened Roof System



003.09.02 – Mechanically Fastened Roof System with self adhered membrane



MOVEMENT JOINT



PLANNING INFORMATION

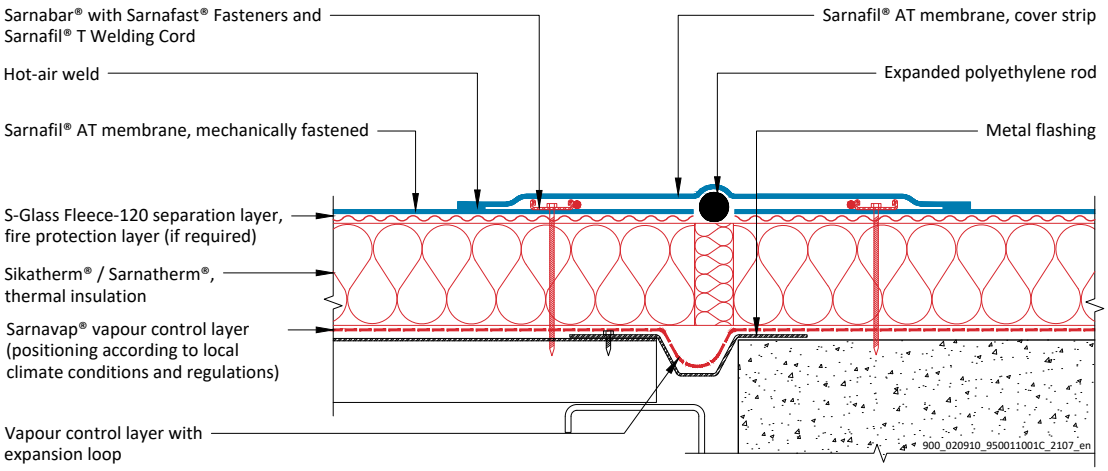
Sarnavap® vapour control layer to be installed with an expansion loop above metal flashing.

Sarnafil® AT membrane must be secured with Sarnabar® and Sarnafast® Fastener on both sides of movement joints.

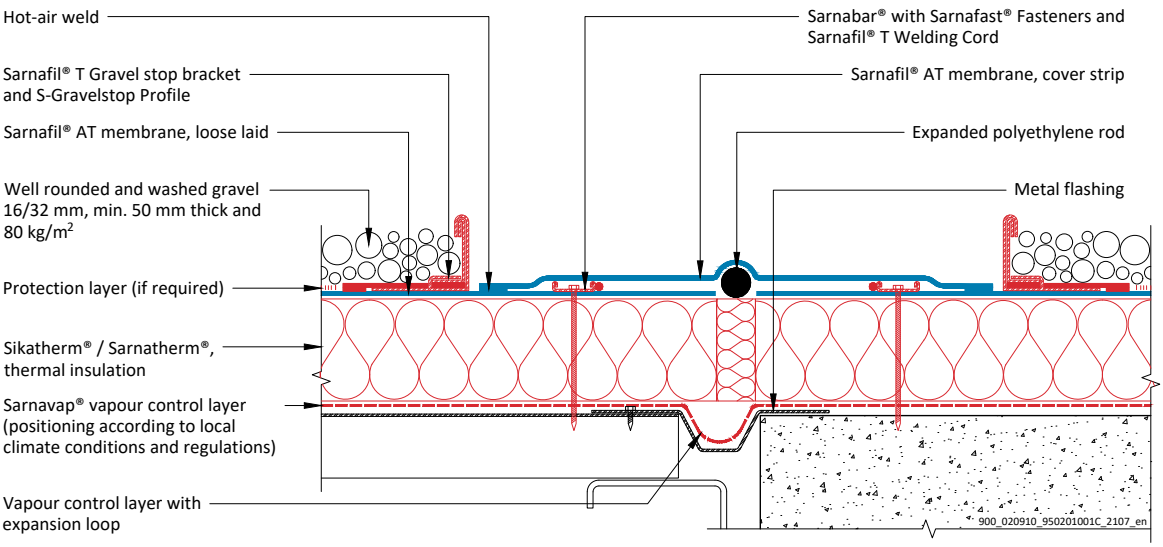
Sarnafil® T Gravel stop bracket and S-Gravelstop Profile to be installed in combination with ballasted roof systems.

Installation of expanded polyethylene rod and waterproof with Sarnafil® AT cover-strip, hot welded on both sides of movement joints to Sarnafil® AT roof waterproofing membrane.

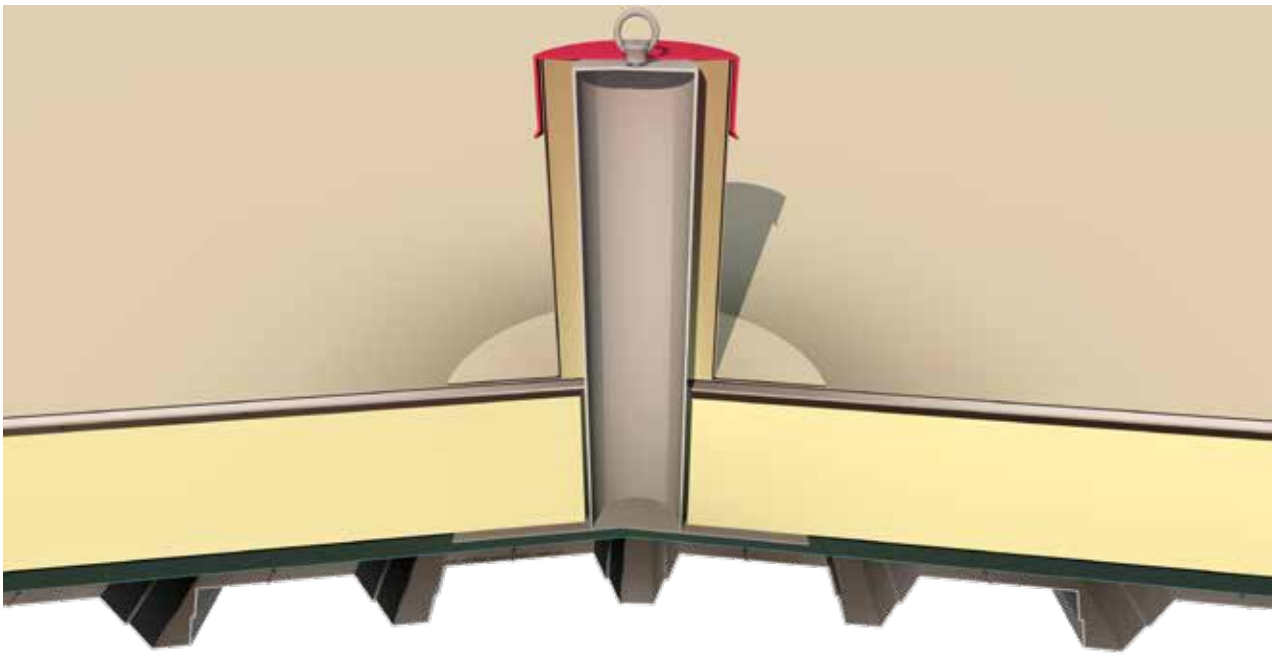
001.10.01 – Mechanically Fastened Roof System



020.10.01 – Gravel Ballasted Roof System



FALL ARREST ANCHOR



PLANNING INFORMATION

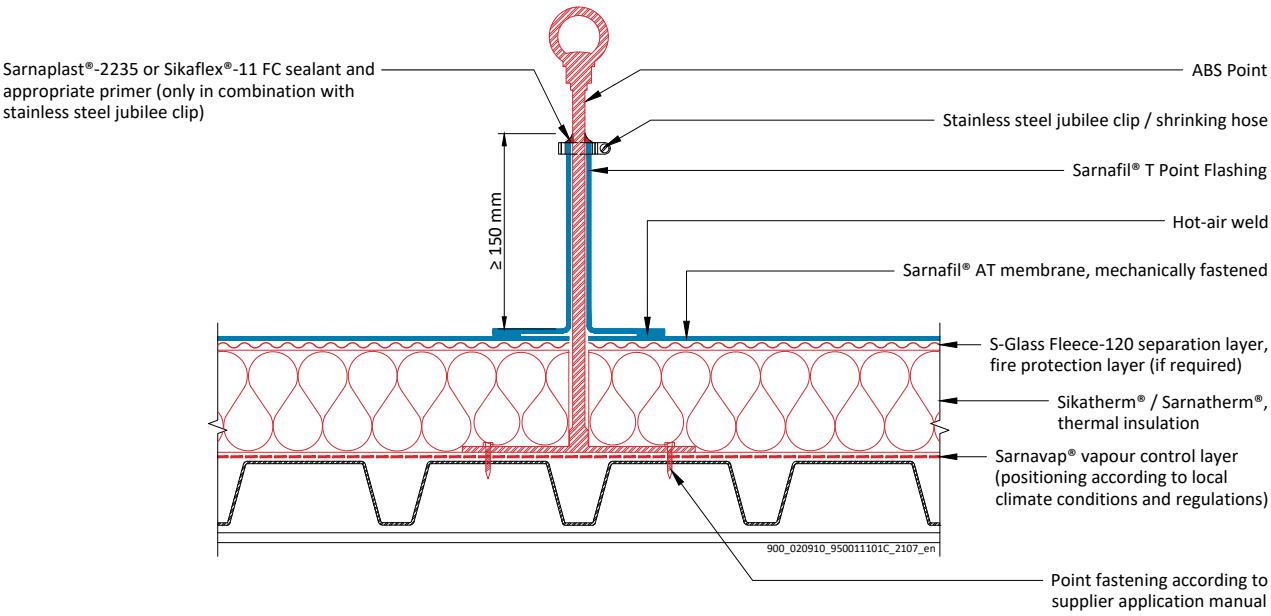
Depending on the use ABS Point or Seculine Vario anchor to be installed according to supplier application manual.

Uninsulated Sarnafil® AT Point or Seculine Vario Flashing to be hot welded to Sarnafil® AT roof waterproofing membrane.

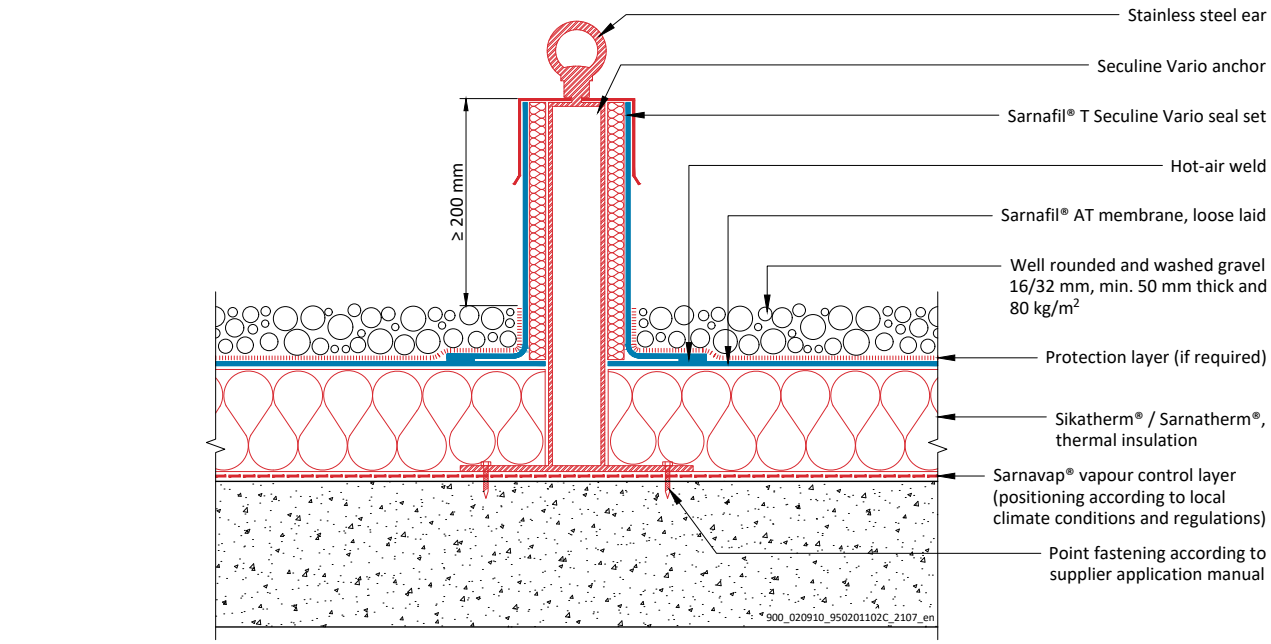
Top end of Sarnafil® T Point to be waterproofed using shrinking hose or stainless steel jubilee clip in combination with Sarnaplast®-2235 or Sikaflex®-11 FC sealant.

Insulated Seculine Vario Post to be waterproofed using Sarnafil® T Seculine Vario seal set.

001.11.01 – ABS Point – Uninsulated – Mechanically Fastened Roof System

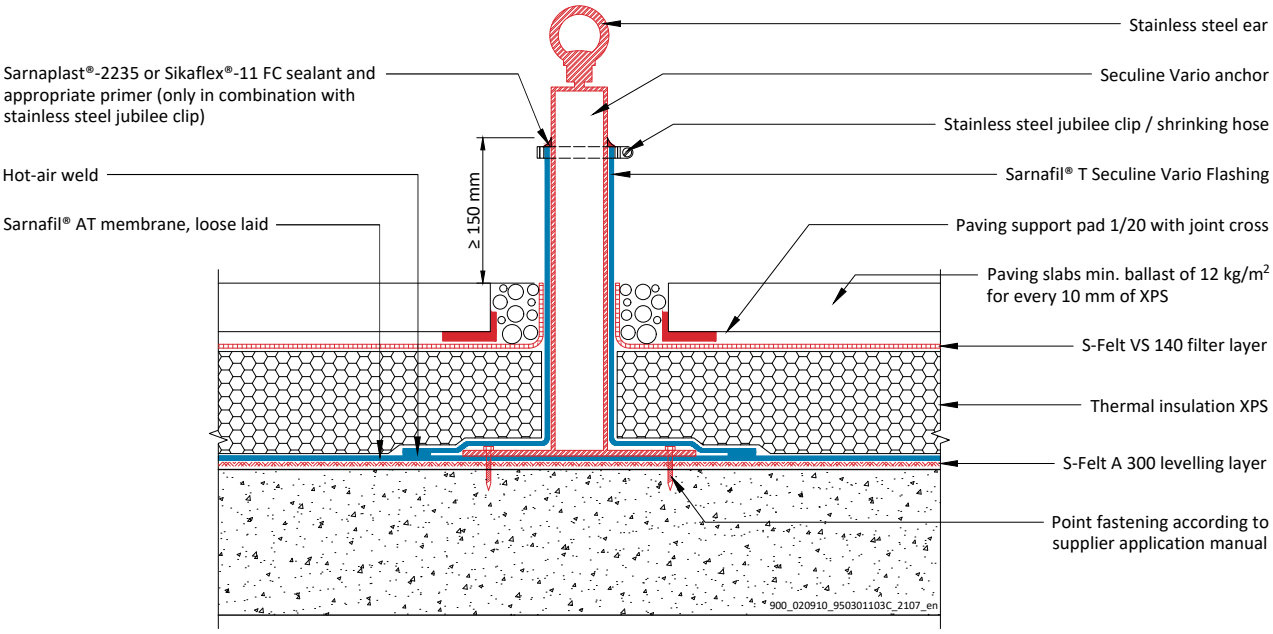


020.11.02 – Seculine Vario – Insulated – Gravel Ballasted Roof System

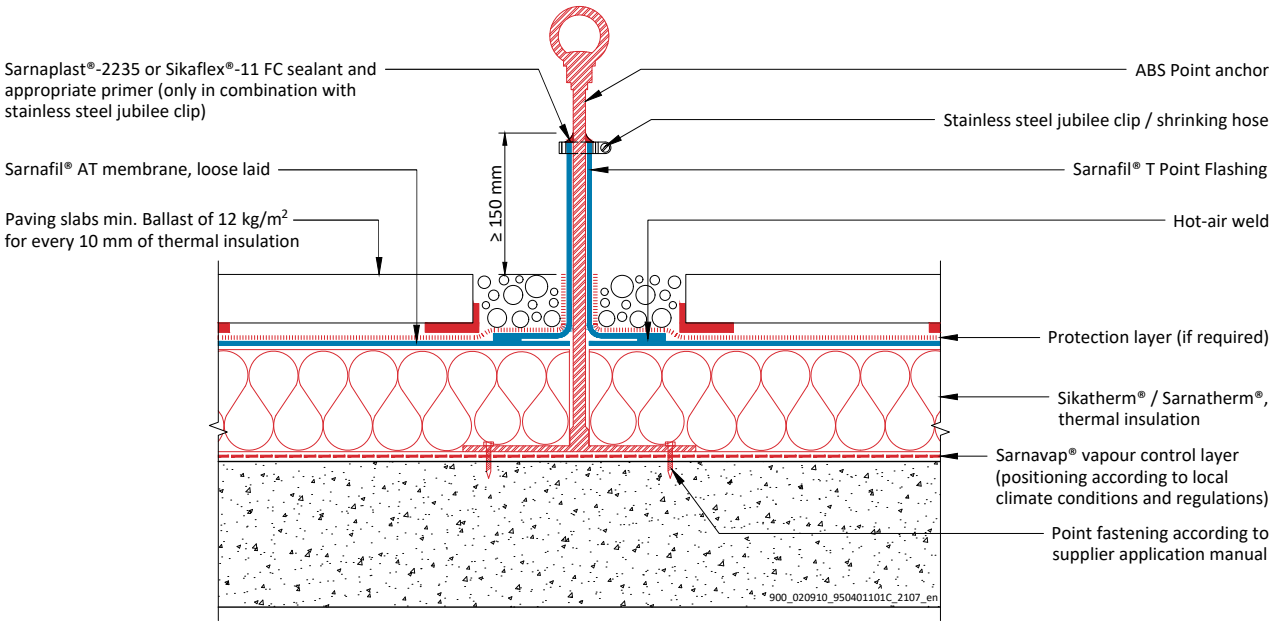


FALL ARREST ANCHOR

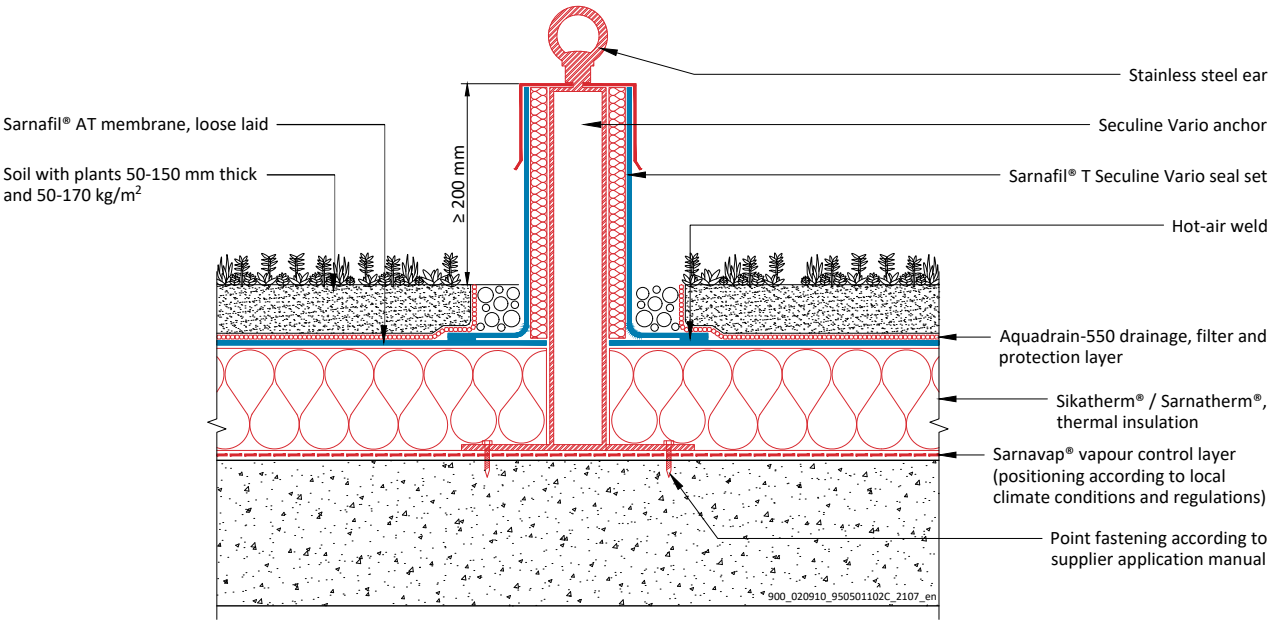
030.11.03 – Seculine Vario – Uninsulated – Inverted Roof System



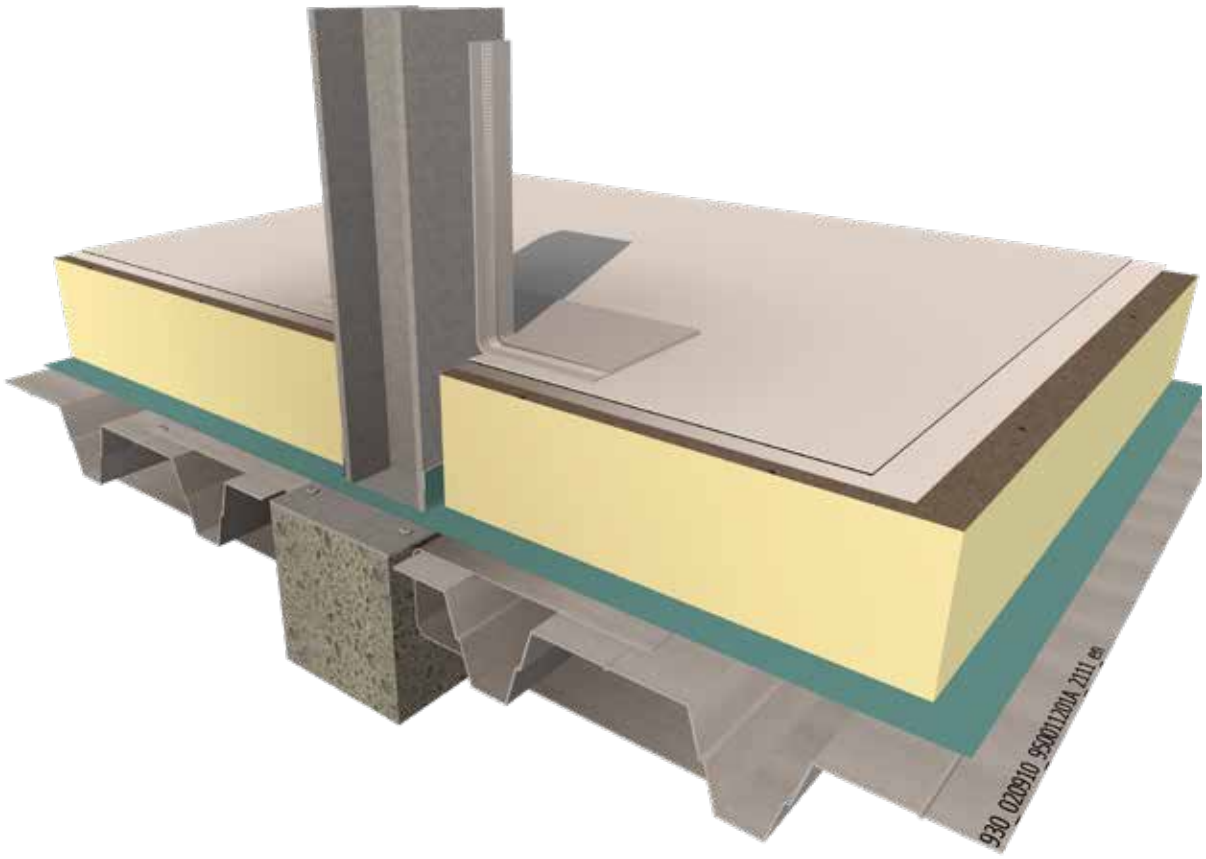
040.11.01 – ABS Point – Uninsulated – Utility Roof System



050.11.02 – Seculine Vario – Insulated – Green Roof System (Extensive / Intensive)



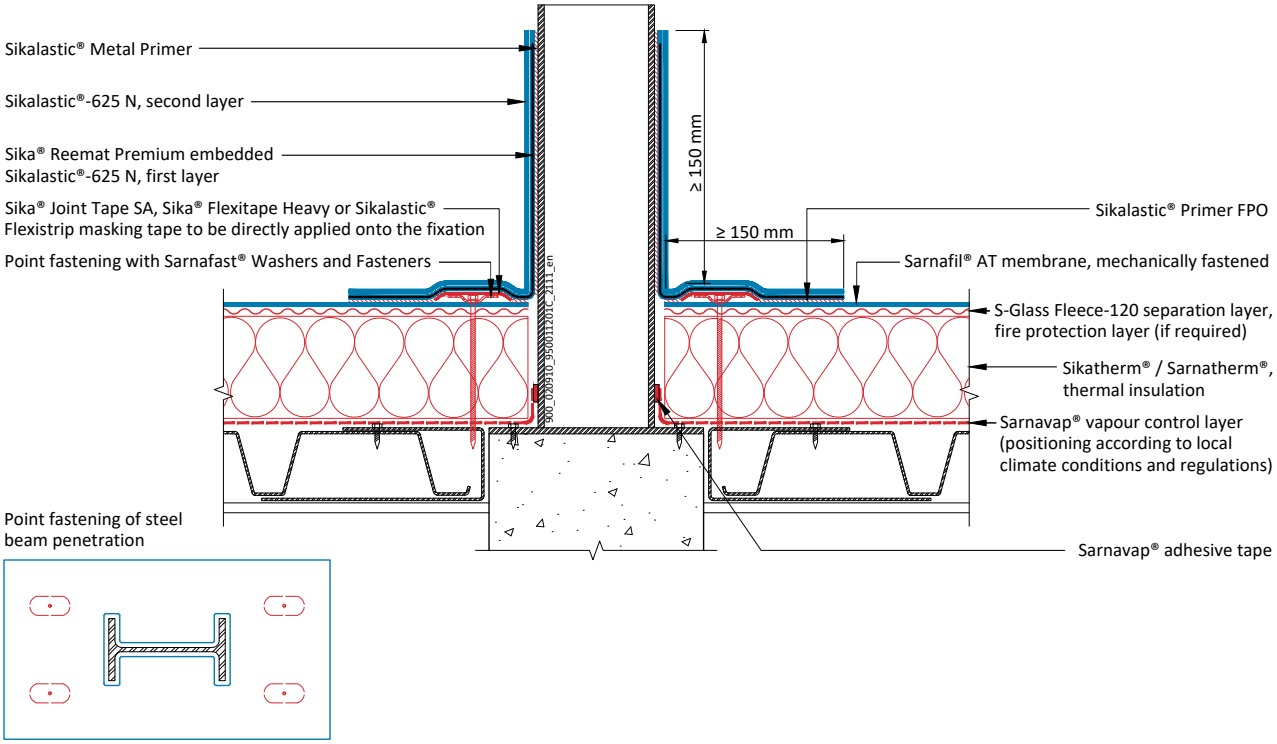
PENETRATION – DOUBLE T STEEL BEAM



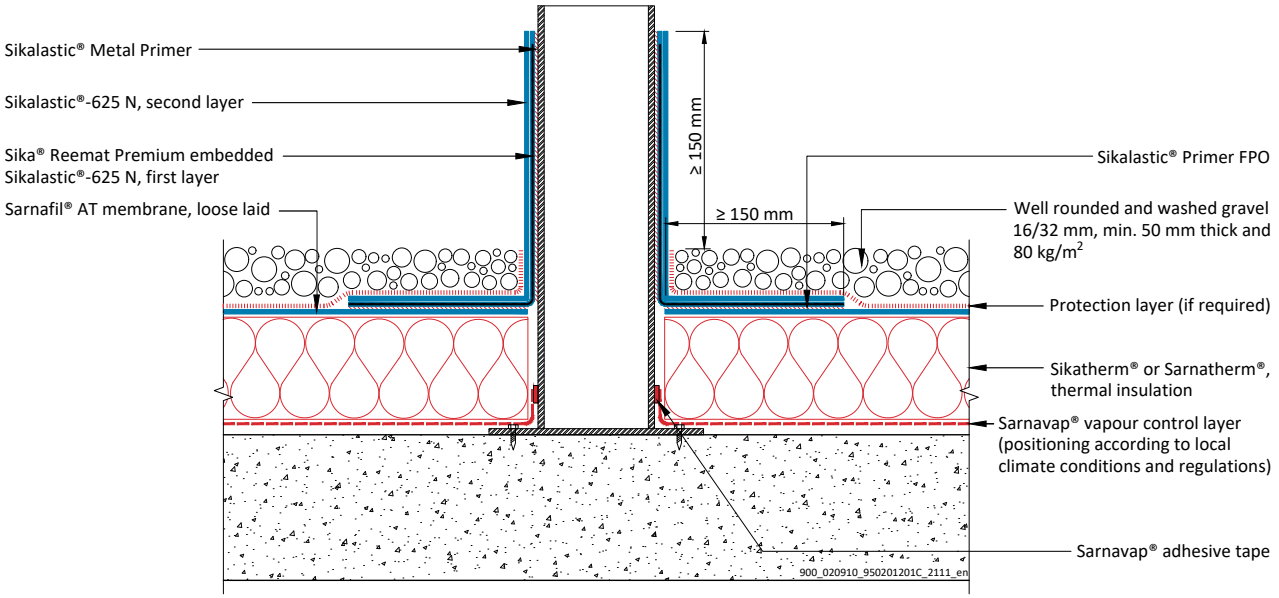
PLANNING INFORMATION

Detailing utilizing Sikalastic®-625 N first layer (base coat) in combination with Sika® Reemat Premium embedded and Sikalastic®-625 N second layer (top coat) for the application to Sarnafil® AT and AT FSA P membrane is an exceptionally efficient method of protecting difficult details.

001.12.01 – Mechanically Fastened Roof System

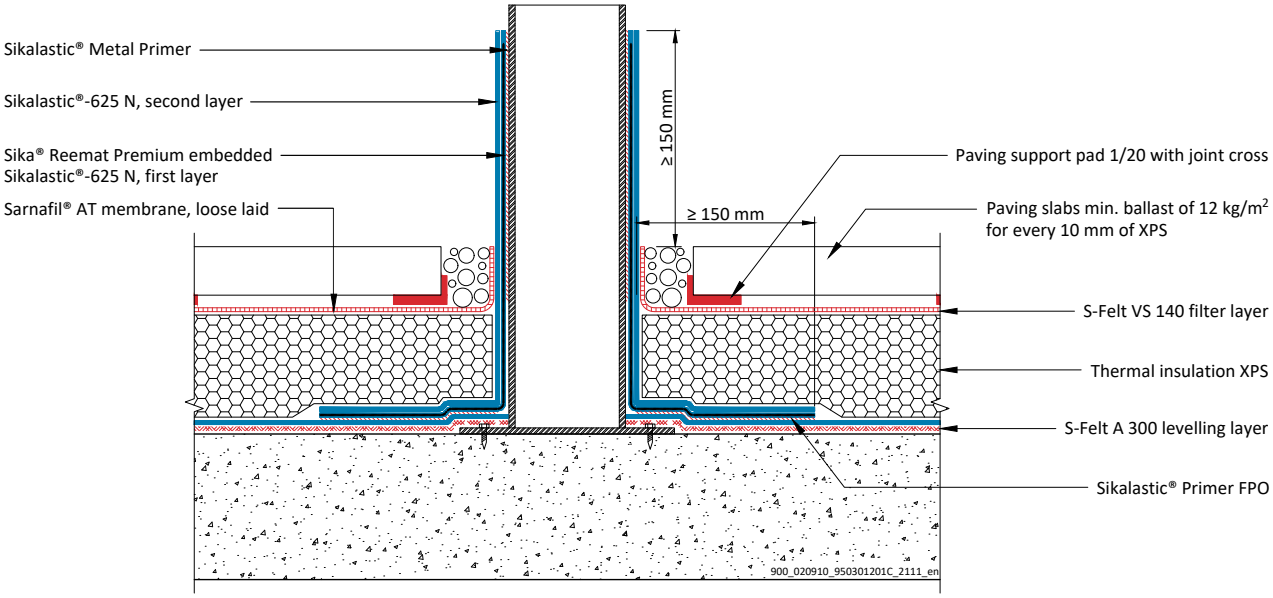


020.12.01 – Gravel Ballasted Roof System

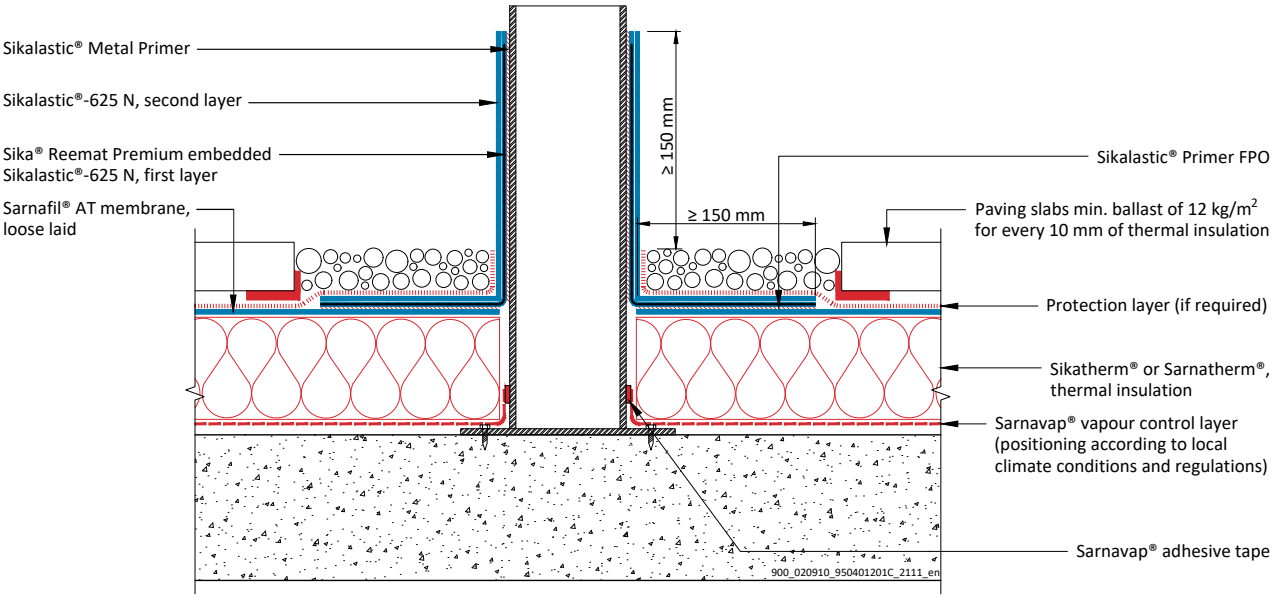


PENETRATION – DOUBLE T STEEL BEAM

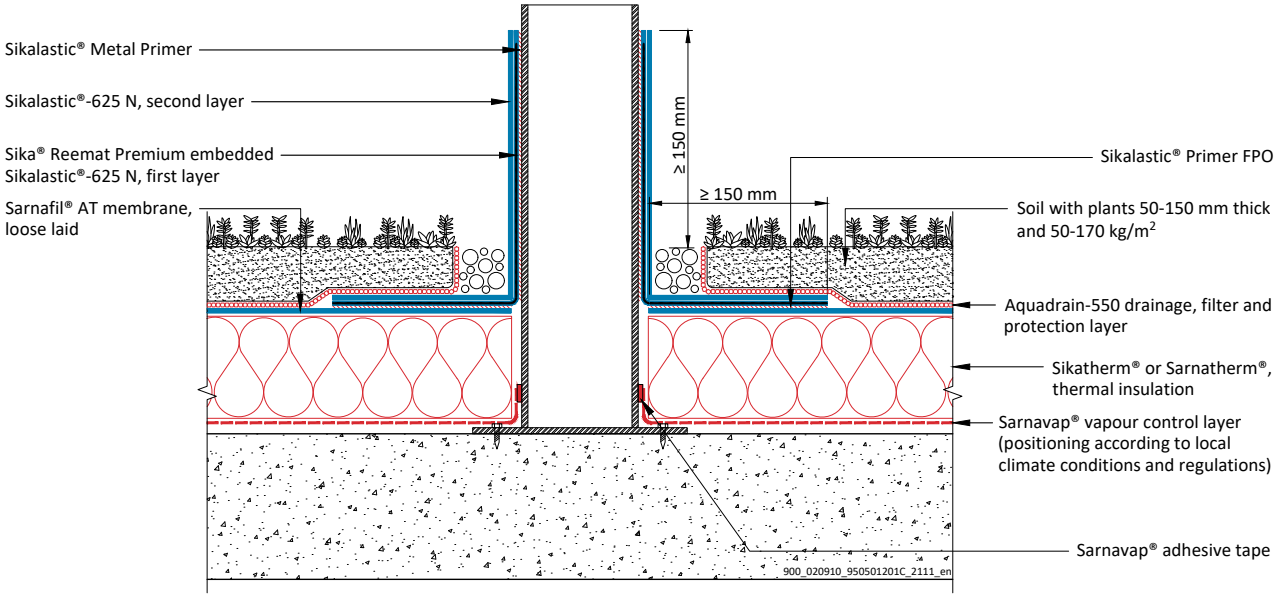
030.12.01 – Inverted Roof System



040.12.01 – Utility Roof System



050.12.01 – Green Roof System (Extensive / Intensive)



Roof systems with a minimum slope of 1,50 %

SUSTAINABLE SOLUTIONS

SUSTAINABLE SOLUTIONS

RESPONSIBLE FOR THE FUTURE – SIKA ROOFING SOLUTIONS

Climate change and a growing population require cleaner energy and better-functioning cities. These forces are driving the demand for intelligent construction materials and smart mobility systems to ease congestion and reduce CO_2 emissions.

Sustainability is an important component of Sika's growth strategy and a clear focus in product development. The ambition of Sika product engineers: to extend the service life of buildings and industrial applications in order to reduce maintenance effort, to improve energy and material efficiency, and to further enhance user-friendliness and health and safety profiles.

Sika strives to create more value for all its stakeholders with its products, systems and solutions along the entire value chain and throughout the life span of its products. Performance is the foundation of sustainability.

Sika roofing solutions take less from the environment and offer more in durability and longevity, which results in a smaller overall environmental footprint.

ENERGY STAR PARTNER

RESPONSIBLE CARE® OUR COMMITMENT TO SUSTAINABILITY

THE GLOBAL COMPACT WE SUPPORT

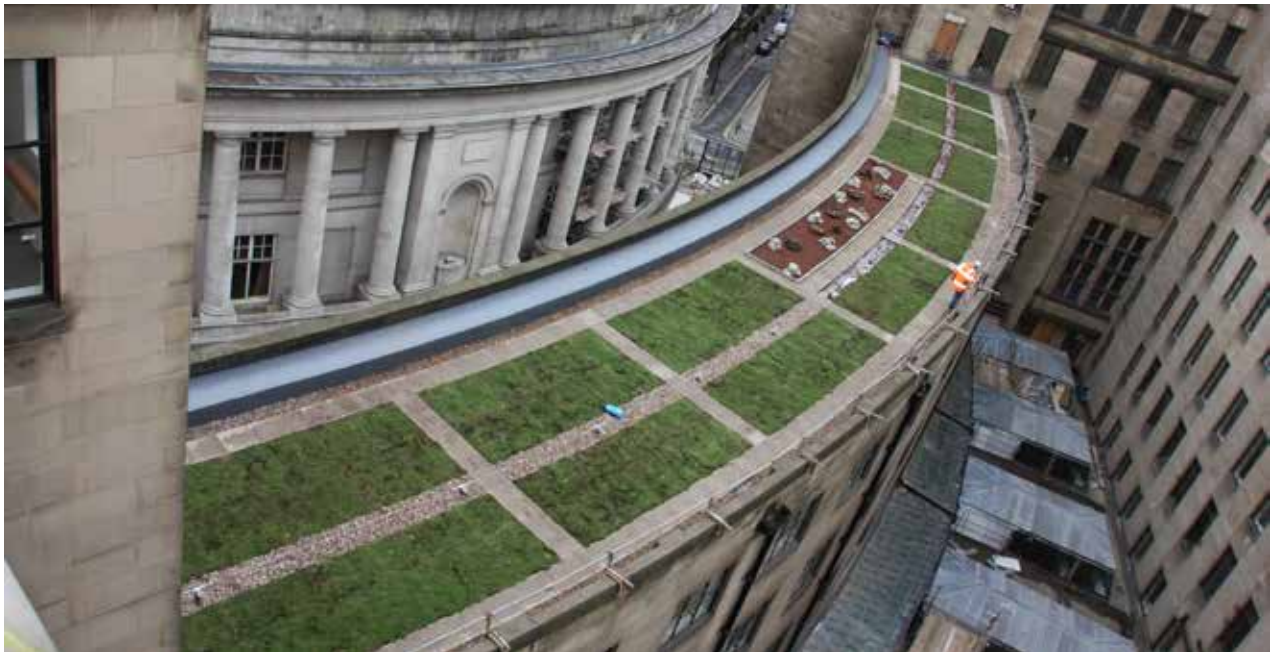
UNEP

wbcsd

CRRC COOL ROOF RATING COUNCIL MEMBER

ECRC EUROPEAN COOL ROOFS COUNCIL

MORE VALUE LESS IMPACT



HOW CAN SIKA ROOFING SYSTEMS CONTRIBUTE TO SUSTAINABLE CONSTRUCTION?
Long-lasting, high-performance roofing systems can make a major contribution to sustainable construction. Raw materials, production, application, the use phase and maintenance have significant influence on the overall sustainability performance of roofing applications. The contribution of roofing systems to sustainable construction is evaluated from a life-cycle perspective and evidenced through the various reference projects presented in this brochure.

RAW MATERIALS AND PRODUCTION
Energy and resource efficiency: Sika provides roofing systems that use less energy and resources in comparison with competitive technologies.

Climate protection: Sika provides roofing systems with low global warming potential. This means a reduced carbon footprint.

APPLICATION
Air quality: Sika provides low-VOC and VOC-free roofing solutions that help reduce summer smog and improve health and safety conditions during the roof installation process. The low-odor performance of Sika products has been externally tested and certified.

DURABILITY
The durability of building materials is a key to sustainable building construction. Internal and external studies document the outstanding service life of Sarnafil® roofing systems.
A flat roof, using the proper materials and installed by professionals, is tight for the lifetime. However, if unpredictable mechanical influence occurs, for example subsequent application of ballast such as green roof, it can lead to unintended leaks in the waterproofing layer. As a solution SikaRoof® Control System provides security for investors and building owners.

USE AND MAINTENANCE
Saving energy: Sika solar reflective membranes help save energy by increasing the reflectivity and as a consequence reducing the cooling energy demand of buildings.

Saving energy: Sika roofing systems can save energy by incorporating high-performance thermal insulation.

Generating energy: Sika SolaRoof® systems allow the production of energy, while Sika solar reflective membranes improve photovoltaic panel efficiency.

Improving the microclimate: Sika green roofing systems help improve the microclimate and mitigate the development of urban heat islands as well as help manage water runoff from roofs.

Extending service life: Sika roof refurbishment solutions allow extending the service life of existing roofs by using the existing buildup as a base for the new system.

THE SIKA LIFE CYCLE APPROACH

What is Life Cycle Assessment (LCA) and why is it relevant?
Life Cycle Assessment (LCA) is a standardized method to assess and compare the inputs, outputs and potential environmental impacts of products and services over their life cycle. LCAs are increasingly recognized as the best way to evaluate the sustainability performance of construction products and systems.

What impact categories and resources indicators are included in an LCA?
There are several impact categories and resource indicators which can be assessed according to Standard EN 15804 "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products." For roofing the most relevant impact categories and resource indicators are the following:

Global Warming Potential
Global warming potential (GWP) [kg CO_2-eq.] ("carbon footprint") is the potential contribution to climate change due to greenhouse gas emissions.

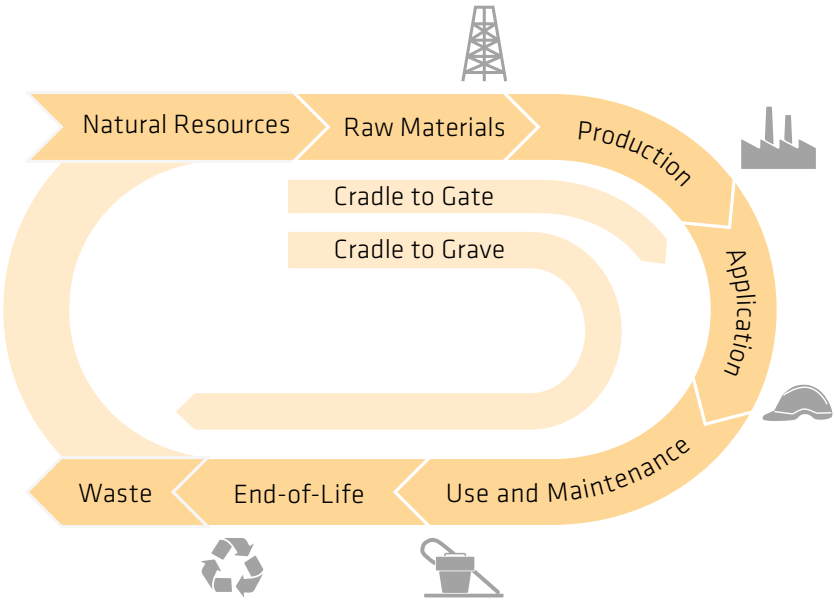
Cumulative Energy Demand
Cumulative energy demand (CED) [MJ] ("energy footprint") is the total amount of primary energy from renewable and non-renewable resources.

Photochemical Ozone Creation Potential
Photochemical ozone creation potential (POCP) [kg C_2H_4-eq.] ("summer smog") is the formation of reactive chemical compounds, e.g., ozone, from direct sunlight on certain primary air pollutants, which may be harmful to human health, ecosystems and crops.

On what standards are Sika LCAs based?
Sika carries out LCAs according to the ISO 14040 series and the Standard EN 15804. The impact assessment methodology used is CML 2001.

Where does the Sika LCA data come from?
The data for Sika LCAs is based on public databases, such as those from ecoinvent, the European Reference Life Cycle Database (ELCD) and thinkstep-GaBi, plus specific data from Sika plants and products.

Which life cycle phases are included in the sika LCAs?



"Cradle to gate"
In the "cradle to gate" approach, the LCA investigates the potential environmental impact of a product from raw material extraction to finished production.

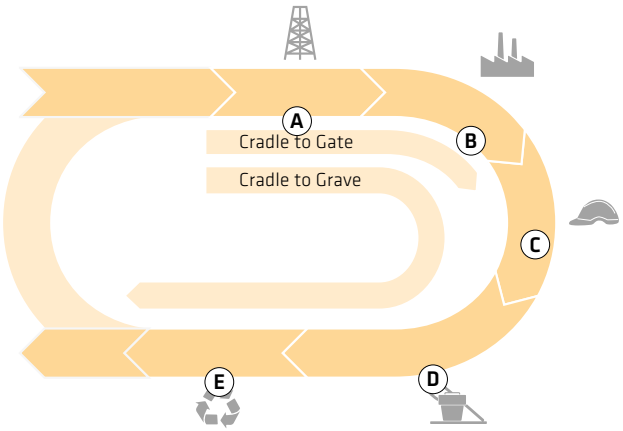
"Cradle to grave"
In the "cradle to grave" approach, the LCA investigates the potential environmental impact of a product from raw material extraction, production, application and use to final disposal at the end of life.

THE SIKA LIFE CYCLE APPROACH FOR ROOFING SYSTEMS

What is included in Sika roofing LCAs?
The LCA results given in this brochure refer to 1 m^2 of the roofing system and are based on either the cradle to gate or the cradle to grave approach[1].

Which life cycle phases are most relevant for roofing?
From a **cradle to gate** perspective, the majority of the potential impacts are related to the raw materials **(A)** used to produce **(B)** the roof waterproofing layer and the other roofing system components.

From a **cradle to grave** perspective, the use phase **(D)** and the end-of-life phase **(E)** have the most significant influence on the overall sustainability performance of roofing applications, due to their contributions to save and / or create energy, to avoid carbon emissions and to save resources at the end of life. The leverage of all of these potential benefits is long-lasting functionality and durability.



Who prepares and reviews Sika roofing LCAs?
Sika roofing LCAs are created by the Sika Global Product Sustainability Group, using state of the art software from Sphera. The LCA model used has been reviewed by the leading independent research institute Swiss Federal Laboratories for Materials Science and Technology (EMPA).

What are the Sika sustainable roofing solutions?
Sika evaluates its roofing products and systems systematically with regard to environmental impact and contributions to sustainable construction based on regular and fully comprehensive Life Cycle Assessments.

Air quality and emissions
Roofing products that promote good air quality and minimize emissions.

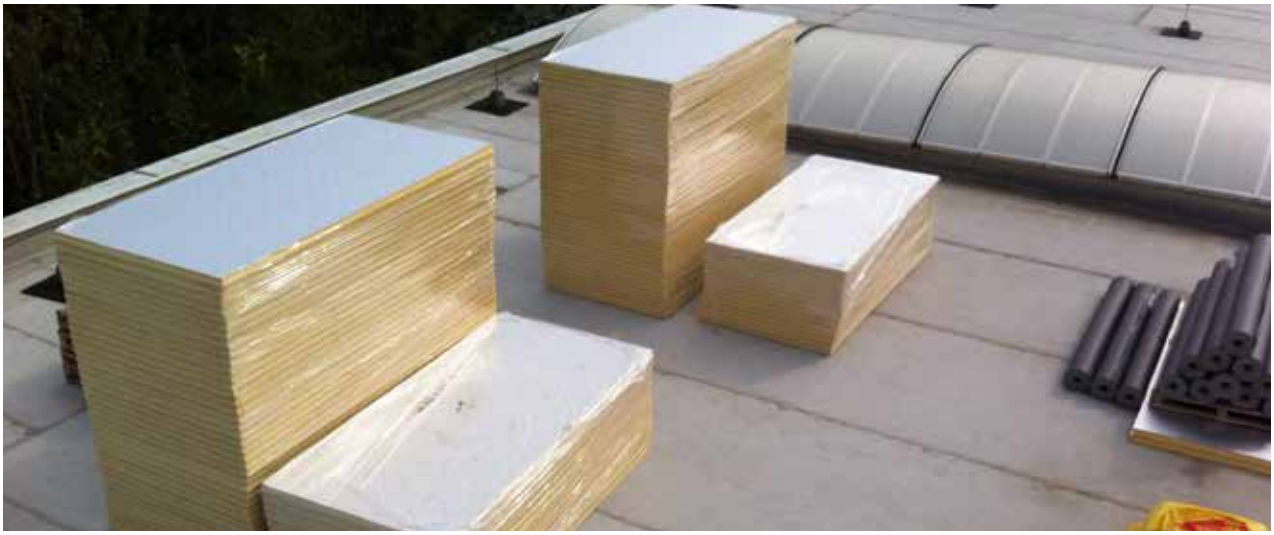
Energy
Roofing products that promote energy efficiency principles.

Climate
Roofing products that minimize the impact on the climate.

Resources
Efficient use of precious resources.

1) In the LCAs, neither the roof construction (steel deck, concrete deck, soil, plants, etc.) nor capital goods (e.g. machinery) are considered.

SIKA INITIATIVES



SIKA HIGH-PERFORMANCE THERMAL INSULATION

Thermal insulation is a key to creating a comfortable environment inside a building and it is also a key to saving energy. The importance of insulation has increased along with continuously evolving insulation standards worldwide, which place higher and higher demands on the thermal resistance of buildings in order to reduce energy demand for heating and cooling. Sika provides a wide range of thermal insulation materials specially designed and manufactured for optimal performance as part of Sika roofing systems. For example, Sikatherm® PIR thermal insulation board is known for low thermal conductivity, low density and good compressive strength. Most boards are coated with an aluminium, glass tissue or paper facer, which prevents outgassing effects.

SIKA TAKES SOLAR REFLECTIVITY TO A NEW LEVEL

The benefits of solar-reflective materials and colors are well known and understood, especially in warm climates around the world. With urban density increasing, the heat-island effect impacts cities at an ever increasing rate. White highly reflective thermoplastic increase reflectance and reduce both the heat-island effect and the cooling energy consumption of buildings. Sika roofing systems support LEED Green Building certification by providing a very high initial Solar Reflectance Index (SRI) and high 3-year SRI values according to CRRC (Cool Roof Rating Council) and ECRC (European Cool Roof Council) standard procedures.

Sika SolaRoof® SYSTEMS FOR SOLAR ROOFTOP APPLICATIONS
The great opportunity, of using flat rooftops for solar applications was recognized early by Sika. The first photovoltaic (PV) installations on Sarnafil® membranes date back to 2004. Several development steps led to the current Sika® SolarMount-1 (SSM1) system. SSM1 requires no roof penetrations but is hot-air welded to the Sika membrane, which prevents lateral movement of the PV plant on the roof over time. The PV panels on SSM1 can be oriented south or east-west with same SSM1 components.

Sika maintains its own solar parks in several locations to:
- Monitor the energy yield of different PV technologies
- Collect first-hand experience with long-term performance
- Showcase the flexibility of Sika roofing solutions for PV applications

A NATURAL HABITAT ON YOUR ROOF
The addition of a green roof to an otherwise unused area of a building is beneficial for the surrounding environment and can also contribute to your green building certification rating. Green roofs are great insulators and can significantly lower a building's cooling energy consumption and costs. Furthermore, green roofs filter air by absorbing and converting carbon dioxide to oxygen.
Sika green roofing systems help improve the microclimate, mitigate the development of urban heat islands and help mange water runoff from roofs.

SIKA INITIATIVES

SIKA'S ROOFING SYSTEMS ARE DESIGNED TO LAST

Proven performance over time is perhaps the signature attribute of Sika roofing systems, which are also known for effective watertightness, energy efficiency and minimal environmental impact. This longevity under real-world conditions is proven around the world, for all construction types and in all types of climates.

The roof of the First United Methodist Church in Gilford, NH (USA) has two unique features. The first is obvious – it has a very distinctive, sweeping shape known as the hyperbolic paraboloid. The second characteristic is not so apparent – installed in 1976, this roof was one of the very first Sika single-ply membrane installations in North America. It replaced a failing roof buildup that was only a few years old. The roof is still in place today, periodically maintained and in good condition.

MINIMIZING SITE WASTE IN ROOF REFURBISHMENT

Upgrading the thermal performance of existing buildings is an ideal way to save energy and comply with UK building regulations. A thermal upgrade can be easily achieved by installing additional insulation over the existing substrate and covering it with a Sika roofing system. By using the existing buildup as a base for the new system, the client benefits from:

- Reduced carbon costs of the roofing system
- Reduced waste because the existing system remains in situ and need not be removed (stripped out)
- Minimal disruption to the operation of the building during installation
- A cost-effective method of increasing the design life of the building's roofing system

THE SIKA RESPONSIBILITY FOR HEALTH & ENVIRONMENT

Sika is a responsible company that takes health & safety seriously

The application method is very important for roof areas requiring torch-free membranes such as timber roof decks or timber upstands, timber fillets, hanging tiles, thatched roofs, roof light kerbs and upstands, cladding, lantern roof lights, confined spaces and window sills. Particular attention should be given to concealed flammable materials where there is the potential for flames to travel and ignite particles in inaccessible areas. For all these cases, Sika Roofing systems specially engineered for "no flame" applications are available and completely free of such risks.

Health & safety during application

Sika roofing systems are all designed for outdoor application and comply with the latest health & safety regulations[1]. Independent studies confirm that the exposure to solvents during application remains well below allowed workplace exposure levels. The use of Sika solutions containing VOCs (volatile organic compounds) is therefore safe when carried out in accordance with the materials application guidelines and the product data sheets[2].

Low-VOC and VOC-free roofing solutions

Sika provides intelligent solutions, using the most advanced technologies. Sika has developed low-VOC and VOC-free roofing systems (e.g. Sarnacol® for adhered roofing systems)for markets and customers who want to avoid products containing such solvents.

1) Exceptions may apply. Please contact your local Sika organization.

2) Local health and safety regulations must be followed. For further information please contact your local Sika organization.

SUSTAINABILITY PERFORMANCE CONFIRMED BY EPD AND LCA

Interest in Environmental Product Declarations (EPD)s has grown dramatically since recent versions of the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) program and the UK's British Research Establishment Environmental Assessment Method (BREEAM) award credits for buildings incorporating products with EPD, which provide added value and comprehensive information for assessing buildings and other structures.
Sika provides custom Life Cycle Assessment (LCA) calculations, Environmental Product Declarations (EPD) and project specific reports developed with internal tools.
The EPDs are a standardized way to communicate relevant environmental information of products by quantifying the environmental aspects and potential environmental impacts throughout the product's life cycle based on quantitative data from LCA.

Sika has published a product-specific EPD for Sarnafil® AT with the Institut Bauen und Umwelt (IBU). The EPD can be accessed in the IBU webpage -https://ibu-epd.com/veroeffentlichte-epds/

THIRD-PARTY VERIFIED
EPD
ISO 14025 and EN 15804
Institut Bauen und Umwelt e.V.

CONTRIBUTING TO GREEN BUILDING CERTIFICATION PROGRAMS

Over the recent years, several countries and organizations have developed environmental certification programs for buildings. The criteria of the programs are similar, whereas the evaluation may differ substantially. Green building certification programs focus on assessing whole buildings or building products.
Sika is actively involved in all major green building programs around the world. Most relevant from the global perspective are LEED, BREEAM and DGNB.

LEED (Leadership in Energy and Environmental Design)
LEED is the world's best known and largest "green building" certification system. It was developed in 2000 by the U.S. Green Building Council (USGBC) and is most relevant for North America but is also heavily used in many other regions around the world, such as South America, Europe and Asia. It is based on a set of rating categories in which specific topics are assessed. The products environmental impact is determined by using LCAs and EPDs.

BREEAM (BRE Environmental Assessment Method)
BREEAM is an environmental assessment method and rating system for buildings launched in 1990 by the BRE (UK). Local adaptations are also used in other countries such as the Netherlands, Sweden and Spain. BREEAM assesses the overall performance of buildings using factors such as energy and water use, the internal environment (health and wellbeing), pollution, transport, materials etc., awarding credits in each area according to defined performance criteria. The products environmental impact is determined using LCAs and EPDs.

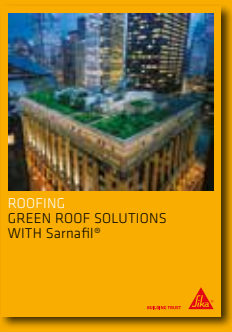
DGNB (Deutsches Gütesiegel für Nachhaltiges Bauen)
The DGNB certification system was developed by the German Sustainable Building Council and the German government in 2009. The system is used in Germany and internationally. DGNB is based on up to 50 criteria in six quality sections, including Environmental Quality, Economic Quality and Technical Quality. For the Environmental Quality section, LCA data and EPDs are used.

MORE VALUE – GREEN BUILDING CONTRIBUTION
Relevant Sika contributions are as follows:

LEED®	BREEAM®	DGNB
LEED® v4 **SSc 5:** Heat island reduction **MRc 2:** Building disclosure – EPD **MRc 3:** Building disclosure – sourcing of raw materials **MRc 4:** Building disclosure – material ingredients **MRc 5:** Construction and demolition waste management	**BREEAM® UK-NC 2018** **Mat01:** Life cycle impacts **Mat03:** Responsible sourcing of materials **Mat04:** Insulation **Wst01:** Construction waste management	**DGNB 2018** **ENV1.1:** Building Life Cycle Assessment **ENV1.2:** Local environmental impact **SOC1.6:** Indoor and Outdoor quality **TEC1.6:** Ease of recovery and recycling

Disclaimer
The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

ALSO AVAILABLE FROM SIKA



FOR MORE SIKA ROOFING INFORMATION

WE ARE SIKA
Sika is a specialty chemicals company with a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing and protecting in the building sector and the motor vehicle industry. Sika's product lines feature concrete admixtures, mortars, sealants and adhesives, structural strengthening systems, flooring as well as roofing and waterproofing systems.

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