SEALING & BONDING
JOINT SEALANTS FOR BUILDING ENVELOPE WATERPROOFING

BUILDING TRUST

JOINT SEALANTS FOR A WATER-PROOF BUILDING ENVELOPE

Sika is a global player based in more than 100 countries with many years of experience and excellent global references for building envelope solutions from the basement to the roof. With innovative, best-in-class products and a wide portfolio of alternative solutions, Sika can always provide the perfect answer for sealing your building.

Sealants used on a building project, generally only amount to approximately 1% of the total construction costs for large buildings. However, in the event of water leakage through the building envelope, the damage, disruption, and refurbishment costs can be many times higher. In a globalized market with increasing numbers of construction materials and suppliers, tighter budgets, and higher requirements in energy efficiency and also your profitability, it is crucial to have a reliable and competent partner. Consult Sika and let us provide you with the best-in-class sealing solutions for your building.

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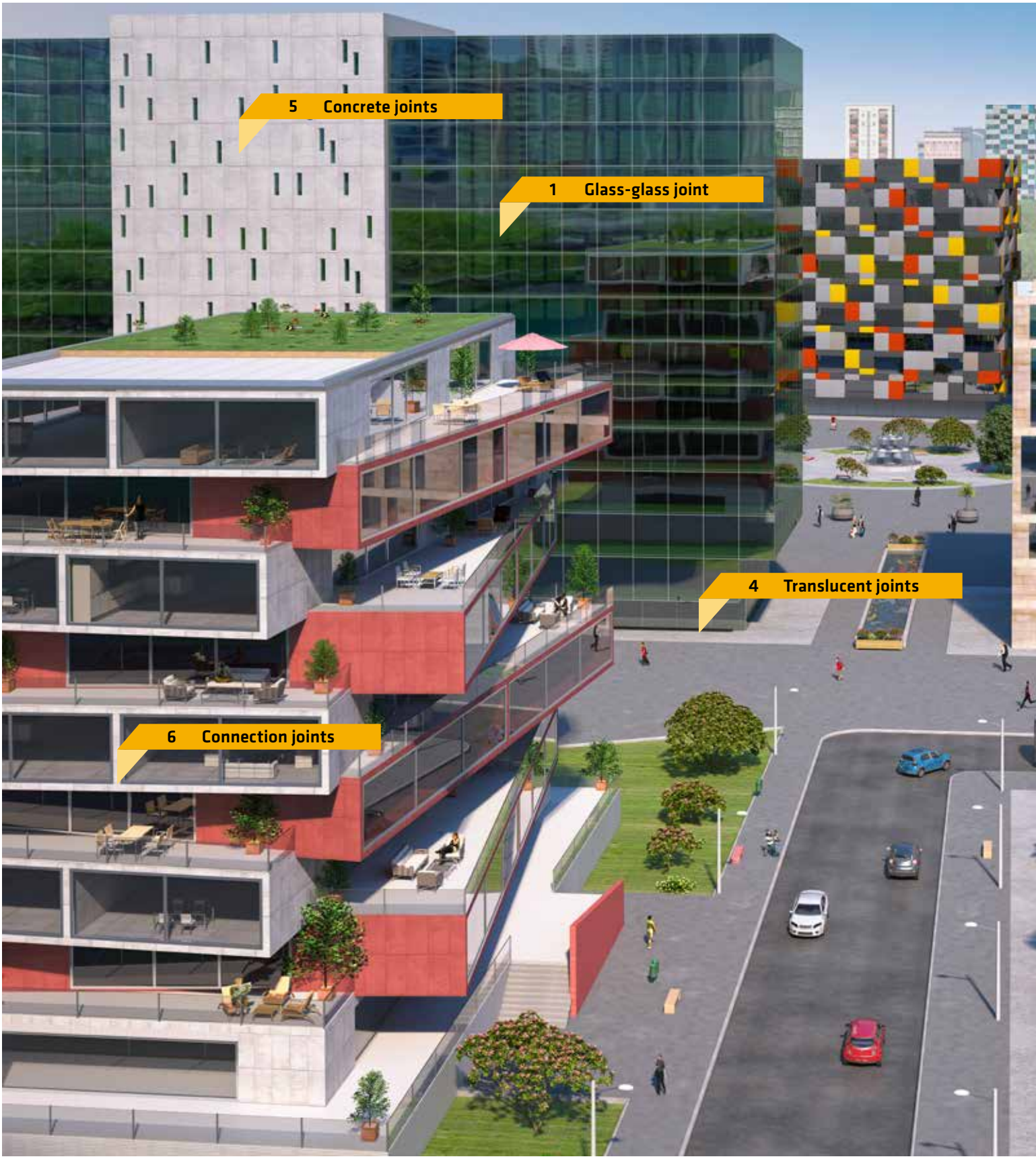
WHERE ARE BUILDINGS MOST VULNERABLE TO WATER INGRESS? AT THE JOINTS!



ALL THE DIFFERENT ELEMENTS, MATERIALS AND TRADES MEET AT THE JOINTS – THINK ABOUT JOINT SEALING SOLUTIONS EARLY FOR A WATERTIGHT BUILDING ENVELOPE!

THE INDIVIDUAL COMPONENTS OF your building envelope, such as the concrete slabs, the precast concrete, natural stone, metal, or glazed facade elements, and the roof waterproofing membranes, etc., do not generally let water into the structure, or the building itself. The joints are always where your building envelope's resistance is weakest to leakage. Only correctly specified, high performance joint sealants and sealing systems, which are professionally detailed and applied, will ensure that your building remains durably and sustainably watertight for its entire lifespan.

1

Glass-glass joint

2

Glass-metal joint

3

Natural stone joints

4

Translucent joints

5

Concrete joints

6

Connection joints

JOINT DESIGN FOR LONG-LASTING & TIGHT BUILDING ENVELOPE JOINTS

THE FACADE IS THE PUBLIC FACE of your building. In contemporary architecture, the building facade is of particular interest, which is expressed through the use of elements with large dimensions, unconventional shapes and a wide variety of materials. Joint design is therefore demanding and so can be prone to error. For facade joint specifications, following some important guidelines will help ensure success and result in a watertight building envelope with a long service-life.

JOINT WIDTH

The joint width is calculated from the dimensions and thermal expansion coefficients of the facade elements with the maximum and minimum temperatures the facade will be exposed to in service. The joint dimensions then define the joint movement capability that the joint sealing solution must withstand to safely accommodate the daily and seasonal cyclic thermal loads. To simplify the selection, joint sealants and sealing solutions are classified according to their movement class by several standards. The most common standards are listed on the next page.

MATERIALS TO BE JOINED

Depending on the design of a facade, it can consist of different elements of different materials including concrete, glass, metal, brick or stone, just to mention the most common. These elements must be sealed to each other and to other waterproofing products like membranes or structural glazing elements. Joint sealants must show enough adhesion to the materials involved in the joint and at the same time must be compatible with all materials to avoid staining, loss of adhesion or any other property changes over time.

ENVIRONMENTAL EXPOSURE

Environmental conditions have an impact on the service life and performance of the sealant. Conditions like the level of UV radiation or the chemical environment the sealant is exposed to must be considered when choosing the product. Additionally, when sealing between the inside and outside of the building the vapor permeability of the sealant must be considered to avoid accumulation of water in the walls. The general rule is to use a sealant with lower vapor permeability on the warm side of the wall, as warm air is generally more humid than cold air.

APPEARANCE

Ugly joints can look like facial scars on a building facade. Therefore, when specifying the joint sealant, the visual appearance of the joints must be considered. In addition to color matching or contrast with the facade elements, and the toolability for uniform finishing of the sealant, there is also the prevention of staining on natural stone or streaking on glass to be considered. Staining and streaking can damage the appearance of the whole facade and be irreversible, requiring stone and glass elements to be replaced at significant cost. Save money by using non-staining and non-streaking products where required.

WHY TO USE SIKA SOLUTIONS?

- Sika provides expertise and experience with a broad range of joint sealing solutions to meet all the waterproofing requirements for your building, from the basement to the roof. The best waterproofing results are achieved when choosing integrated solutions from a single source.
- Building envelope sealants, structural glazing adhesives and advanced waterproofing solutions are Sika's core businesses, with decades of experience, prestige global references and sound local expertise.
- Sika sealants have best-in-class handling. As the long-term partner of specialist joint sealant contractors worldwide, we know what is needed for a perfect joint.
- Making mistakes with the specification of joint sealants will eventually lead to leaks within the building envelope with potentially significant impact on the operation and maintenance costs of your building. Avoid making mistakes where your building is most vulnerable – at the joints!

MOST RELEVANT STANDARDS FOR JOINT SEALANT SPECIFICATION

In a globalized world, standards and regulations become increasingly important. They provide common ground where the building design and specifications are sometimes done far away from the location of the building, and where the building materials are also sourced globally, as well as locally.

There are established construction sealant classifications and test standards. The classification standards specify the types and classes of joint sealants that are used in building and construction works according to their application and materials characteristics. Sealants are characterized according to the performance they achieved in several test standards. In general, these tests simulate the conditions under which the sealants will have to perform in your facade e.g. thermal and mechanical cyclic testing by the Hockman cycle. In the following overview, the classification of construction sealants according to the 3 most widely relevant standards are described.

MOST RELEVANT SEALANT CLASSIFICATION STANDARDS AT A GLANCE

Classification standards	ISO 11600	EN 15651	ASTM C 920
Region of use	Europe, Pacific, Middle East	Europe	United States, Canada, Latin America, Middle East, Asia
Legally	Voluntary	Mandatory in EU for CE marking	Voluntary
Classification	**Glazing sealants: G** Class 25: 25 LM / 25 HM Class 20: 20 LM / 20 HM	**Type** EN15651-1 F = Facade elements EN15651-2 G = Glazing EN15651-3 S = Sanitary joints EN15651-4 P = Pedestrian walkways	**Type** S = Single component M = Multi component **Grade** P = Pourable or self levelling NS = Non-sag or gunnable
	Construction sealants: F Class 25: 25 LM / 25 HM Class 20: 20 LM / 20 HM Class 12.5:12.5 E / 12.5 P Class 7.5 P	**Application** EXT = External INT = Internal CC = Cold climate	**Class** Class 100/50 = 100% elongation & 50% compression Class 50; 35; 25; 12.5 = % elongation & compression
	Use LM = Low modulus HM = High modulus E = Elastic P = Plastic	**Movement capability** Analogue ISO 11600	**Use** NT = Non-traffic areas M = Tested on mortar substrates G = Tested on glass substrates A = Tested on aluminium substrates O = Tested on other substrates
Explanations & examples	**Class 25** means that the joint sealant can be specified for joints with +/-25% movement. To reach this class the joint sealant has passed several ISO testing procedures regarding elongation, compression at different temperatures and environmental conditions. **Low modulus** joint sealants are used for facade joints & in climates with cold weather. **High modulus** sealants are used for floor joints. In warm climates, high modus sealants can also used in the facade.	**EN15651-1 F EXT-INT CC 25 LM** EN15651-1 F = Sealant for facade elements EXT-INT = Exterior & interior application CC = Cold climate application 25 = Movement capability of ± 25% LM = Low modulus	**ASTM C920 class 25 Type S Grade NS Use M. A. NT** ASTM C920 class 25 = ± 25% movement capability Type S = Single component Grade NS = Non-sag, gun applied Use M = Mortar substrate A = Aluminum substrate NT = Not for traffic areas

- The different movement classes for the different standards cannot be directly compared with each other as the testing procedures are different.
- The staining behavior of sealants on natural stone and other porous substrates is evaluated according to ASTM C 1248 and ISO 16938-1.
- Sika joint sealants have all major approvals and can be safely specified and applied globally.
- Sika sealants are produced at several different sites worldwide and these are all internally and externally tested and monitored for consistent quality & logistical support for your projects.

CHOOSING THE RIGHT PRODUCTS FOR YOUR BUILDING ENVELOPE JOINTS

SIKA HAS AN EXTENSIVE portfolio of products to ensure that your building envelope joints are sustainably sealed to be air and watertight. The best performing solution for your application is the key objective, which is why Sika produces high quality systems and products using all major sealing technologies.

AVOID MAKING MISTAKES WHERE YOUR BUILDING IS MOST VULNERABLE TO LEAKS – CHOOSE SIKA.

SIKA RECOMMENDS:

- For non-porous substrates like metal and glass, choose Sika's innovative silicone sealant range.
- For porous substrates like concrete, brick, and masonry, choose Sika's advanced polyurethane joint sealants.
- For applications where a broad spectrum of adhesion range is required, such as for window fitting installations, the unique silane-modified polymer sealants are the most suitable.

Sika has a long history producing joint sealants for the building envelope. All Sika joint sealing systems and products are the fruit of many years' experience from outstanding R&D capabilities, continuous development processes and the implementation of modern construction materials and practices in state-of-the-art production facilities. As we have a global presence, with regional production and local technical support, we can respond to your project requirements wherever around the world that you are realizing your projects. Selecting Sika products is a decision for competence, performance, security, and a reliable business partner.

NON-POROUS SUBSTRATES: GLASS AND METAL SEALANTS

Product	Movement capability		VOC Emission Classification	Non-Staining/ Non-Streaking	Translucent	Approved for direct SG/IG contact
	ASTM C 920 Class	ISO 11600 Class				
SikaHyflex®-905	100/50	25 LM	Solvent free / LEED v4	Yes / Yes	No	Yes
Sikasil®-905	50	25 LM	EC1 R, solvent free, LEED v4	No / Yes	No	Yes
Sikasil®-900	35	25 LM	Solvent free / LEED v4	No / No	No	Yes
SikaHyflex®-105	35	25 LM	Solvent free / LEED V4	No / No	No	No
SikaHyflex®-355	35	25 LM	Solvent free / LEED v4	Yes / Yes	No	No
SikaHyflex®-600	25	25 LM	EC1PLUS R, solvent free, LEED v4	No / No	Yes	Yes
SikaHyflex®-300 EU*	25	25 LM	Solvent free, LEED v4	No / No	Yes	Yes

POROUS SUBSTRATES: CONCRETE AND MASONRY SEALANTS

Product	Movement capability		VOC Emission Classification
	ASTM C 920 Class	ISO 11600 Class	
SikaHyflex®-250 Facade	100/50	25 LM	EC1PLUS R, solvent free, M1, LEED v4
Sikaflex®-1A Plus	50	25 LM	EC1PLUS R, solvent free, M1, LEED v4
Sikaflex® AT-Facade	25*	25 LM	EC1PLUS R, solvent free, LEED v4
SikaHyflex®-160 Construction Sikaflex® Construction+	35	25 HM	EC1PLUS R, solvent free, LEED v4
Sikaflex®-1A	35	25 HM*	
SikaHyflex®-140 Construction	25	25 HM	LEED v4
Sikaflex® Precast	25	25 HM	

* Internally measured

WIDE ADHESION PROFILE: CONNECTION SEALANTS

Product	Movement capability		VOC Emission Classification
	ASTM C 920 Class	ISO 11600 Class	
SikaHyflex®-220 Window	25*	25 LM	EC1PLUS R, solvent free, LEED v4
SikaHyflex®-402 Connection	25*	25 LM	EC1PLUS R, solvent free, LEED v4, phthalate free
Sikaflex® AT-Connection	25*	25 HM	EC1PLUS R, solvent free, LEED v4
Sikasil®-905	35	25 LM	Solvent free, LEED v4,

* Internally measured

For window, door and other related framework installations, the necessary joint sealants must show good adhesion to a wide range of different building materials, mainly concrete, brick and masonry, but also painted wood, coated or galvanized aluminum, steel or PVC. These joint sealants are not only applied to the external facade, but also inside the building where any volatile organic content (VOC) and other potentially harmful sealant product components like phthalates, tin catalysts and isocyanates may be an issue, depending on the local regulations and/or green building requirements. Sika has developed joint sealants and sealing solutions to meet all these requirements! In many areas the Sika sealants are widely used for interior sealing as they have a much higher joint movement capability and better adhesion than acrylics for example, and unlike silicones they can be overpainted. Frequently they are preferred in timber and wooden structures, where typically construction joints are exposed to higher movement in the wood from changes in its moisture content due to seasonal humidity variations.

Sikaflex® AND SikaHyflex® – DESIGNED FOR BUILDING ENVELOPE WATERPROOFING

SEALANTS DEDICATED TO GLASS, METAL, NATURAL STONE FACADE JOINTS

Type	Sikasil®-905	Sikasil®-900
		
Movement capability	ASTM C920 class **50**	ASTM C920 class **50**
	ISO 11600 class **25 LM**	ISO 11600 class **25 LM**
Benefits	Non streaking Approved for structural glazing adhesive contact	Approved for structural glazing adhesive contact
Technical approvals	EN 15651-1 EN 15651-2 ISO 11600 F ISO 11600 G ASTM C 920	EN 15651-1 EN 15651-2 ISO 11600 F ISO 11600 G ASTM C 920
Environment, health & safety approvals	Silicone, alkoxy cure Solvent free	Silicone, alkoxy cure Low emission, low odor Solvent free
	EMICODE EC1 R LEED v4 Attestation	EMICODE EC1 R LEED v4 Attestation

SIKA SEALANTS WILL LET YOUR APPLICATORS DO AN EFFICIENT, RELIABLE AND ATTRACTIVE JOINT SEALING JOB.

ADVANTAGES OF USING SIKA SOLUTIONS:

- Low application force for easy and efficient application
- Non-sag behavior, the product stays where it is applied
- Short cut-off strings, so less mess on the facade elements and no time is lost cleaning
- Good body and tack-free surfaces, easy to tool and achieve a visually attractive surface finish
- Low odor and low VOC's for safe application – Sika sealants are a pleasure to use!

SIKA SEALANTS ARE THE FIRST CHOICE OF APPLICATORS WORLD WIDE!

Sikasil®-104

ASTM C 920 class **25**

ISO 11600 class **20 LM**

Non-staining on natural stones
Sanitary applications
Matt surface

EN 15651-1
EN 15651-2
EN 15651-3
ISO 11600 F
ISO 11600 G
ASTM C 920 25
ISO 16938-1
ASTM C 1248

Silicone, alkoxy cure
Low emission, low odor
Solvent free

EMICODE EC1 R
LEED v4 Attestation

SEALANTS DEDICATED TO CONCRETE AND MASONRY FACADE JOINTS

Type	SikaHyflex®-250 Facade Sikaflex®-1A Plus	Sikaflex® AT-Facade
		
Movement capability	ASTM C920 class **100/50** (Sikaflex®-1A Plus class 50)	
	ISO 11600 class **25 LM**	ISO 11600 class **25 LM**
Benefits	Very good weathering resistance Suitable for EIFS – low stress to substrate	Good weathering resistance Primer free adhesion to many porous and non-porous substrates
Technical approvals	EN 15651-1 ISO 11600 F ASTM C 920 DIN 18540	EN 15651-1 ISO 11600 F
Environment, health & safety approvals	Sika *i*-Cure technology Isocyanates <0.1% Solvent free	Sika SMP technology Isocyanate free Solvent free
	EMICODE EC1PLUS R M1 Certificate LEED v4 Attestation	EMICODE EC1PLUS R LEED v4 Attestation

Sika polyurethane *i*-Cure technology has several advantages compared to MS, silicone and conventional polyurethane sealant technology:

- Better adhesion to porous substrates
- Superior tear propagation resistance
- Suitable for use on damp substrates, for example, shortly after rainfall

Powered by *i*-Cure® Technology

i-Cure is Sika's innovative solution for bubble free curing sealants.

SikaHyflex®-402 Connection	SikaHyflex®-160 Construction Sikaflex® Construction+	Sikaflex®-1A	Sikaflex® Precast
			
ASTM C920 class **25***	ASTM C920 class **35**	ASTM C920 class **35**	ASTM C920 class **25**
ISO 11600 class **25 LM**	ISO 11600 class **25 HM**	ISO 11600 class **25 HM**	ISO 11600 class **25 HM***
Good tooling properties Low stress to substrate Primer free adhesion to many porous and non-porous substrates	Good adhesion to porous substrates Durable and reliable	Good weathering resistance Bonds well to primed Sika PVC membranes	Good adhesion to porous substrates
EN 15651-1 ISO 11600 F	EN 15651-1 ISO 11600 F ASTM C 920	ASTM C 920 Fed Spec TT-S-0023C, Type II, Class A	ASTM C 920
Sika SMP technology Isocyanate free Solvent free Phthalate free	Sika *i*-Cure technology Solvent free	Sika PUR technology	Sika *i*-Cure technology
EMICCODE EC1[PLUS] R LEED v4 Attestation	LEED v4 Attestation	LEED v4 Attestation	

Sika is one of the world's largest producers of polyurethane (PU) based sealants, adhesives, and protective coatings. Sika polyurethanes are omnipresent on many different building and construction projects, as well as in many industrial sealing and bonding applications. These products are widely used in structural and civil engineering works due to their high performance, which is also why this technology is often the first choice for assembly in the marine, transportation and automotive industries. With decades of experience, expertise and continuous innovation, Sika is also the best-in-class for high performance polyurethane sealing products.

JOINT SEALANTS DEDICATED TO CONNECTION JOINTS

Type	Sikaflex® AT-Connection	SikaSeal®-106
		
Movement capability	ASTM C920 class **25***	ASTM C920 class **25**
	ISO 11600 class **25 HM**	ISO 11600 class **12.5 E**
Benefits	Excellent tooling properties Primer free adhesion to many porous and non-porous substrates Overpaintable	Good weathering resistance Easy to smooth Good adhesion to porous substrates
Technical approvals	EN 15651-1 ISO 11600 F	EN 15651-1 EN 15651-2 ISO 11600 ASTM C 920
Environment, health & safety approvals	Sika SMP technology Isocyanate free Solvent free	Water-borne modified acrylic polymer technology
	EMICCODE EC1^{PLUS} R LEED v4 Attestation	EMICCODE EC1^{PLUS} R LEED v4 Attestation

* Internally measured

Sika generally advises the use of surface primers before the joint sealant is applied. These primers stabilize and strengthen the substrate surface and provide the sealant with an ideal bond interface for excellent durable adhesion. Polyurethane and silane-modified-polymer sealants can be overpainted where required, but although paint coatings can have good adhesion to the sealant surface, they can seldom have the same movement capability of the sealant. Therefore, Sika generally advises that facade sealants should not be overpainted, due to the high thermal and other movements that can occur.

Avoid problems, build trust, use Sika! Sika silane-modified-polymer sealants are based on in-house engineered and produced prepolymers. This gives us the possibility to effectively tailor-make the best products for your joint sealing requirements. These high-performance sealants differ from the typical and widely available modified silicone (MS) products, through their better application and tooling properties, superior adhesion and their outstanding elastic recovery behavior.

Sika's modified acrylate polymer dispersion technology was developed to meet the needs of plasterers, painters and interior decorators; a reliable and compatible sealant that can accommodate movement.

ENSURING GOOD ADHESION

Primers for all materials and applications

JOINT PRETREATMENT –
PRIMERS, ACTIVATORS AND CLEANERS

Strong and durable adhesion of the sealant to the substrate is the essence of joint sealing. No adhesion means water ingress sooner or later. Therefore, we recommend pretreating joint surfaces before the sealant application. The effort and cost of this pretreatment before the initial sealant application is small, especially in relation to the significant gain in durability and service life of the sealed joint.

Good adhesion is achieved by several different means on different substrates:

- For **porous** substrates the primer closes the porosity, strengthens the surface, reduces the surface roughness and prevents water penetration / underflow along the substrate-sealant interface. For joints with periodic water immersion, this pretreatment with a primer is mandatory.
- For **non-porous** substrates the surface treatment is chosen according to the material:
  - **Metals and powder coated metals:** Besides cleaning and removing any processing agents, surface 'activators' are used to leave adhesion promotors on the surface that help to ensure good surface wetting and thereby increased adhesion. Surface 'cleaners' contain special solvents to clean the substrate surfaces for optimum adhesion. Surface 'primers' are used on metals to prevent corrosion at the bond interface between the metal and the sealant.
  - **Plastics:** The adhesion of most joint sealants to plastics is relatively poor, independent of the type of sealant technology. Therefore, pretreatment is needed and often with both an activator and a primer. This pretreatment cleans and increases the surface energy for a better and more durable adhesive bond.
  - **Glass:** Generally, glass only needs to be correctly cleaned with a good surface cleaner before the sealant application. Sika silicone weather sealants have excellent adhesion to glass for many glazing applications. If primers or activators are used on or near the glass surfaces, this must be done with great care, as the adhesion promotors in them can also leave a visible film on the glass surface, which is impossible to remove!

The use of a surface primer application does not replace thorough joint surface preparation. Before the primer and sealant application, the joint surfaces must be thoroughly cleaned to remove any processing agents, dirt, and dust.

For concrete surfaces, any cement laitance must be mechanically removed e.g. by grinding or equivalent means. The substrate surface must be sound and strong enough to withstand the elastic forces from future sealant movement. If this rule is disobeyed, the substrate will crack near the surface. Therefore, a serious substrate preparation is essential.

Sika has a wide range of surface primers and activators for all these different substrates, together with the expertise and experience to advise you on the best solutions for your projects. The local Sika Technical services team will be pleased to assist you and advise on the best joint sealing solutions, including the relevant pretreatment recommendations.

CHOOSING THE CORRECT PRIMER

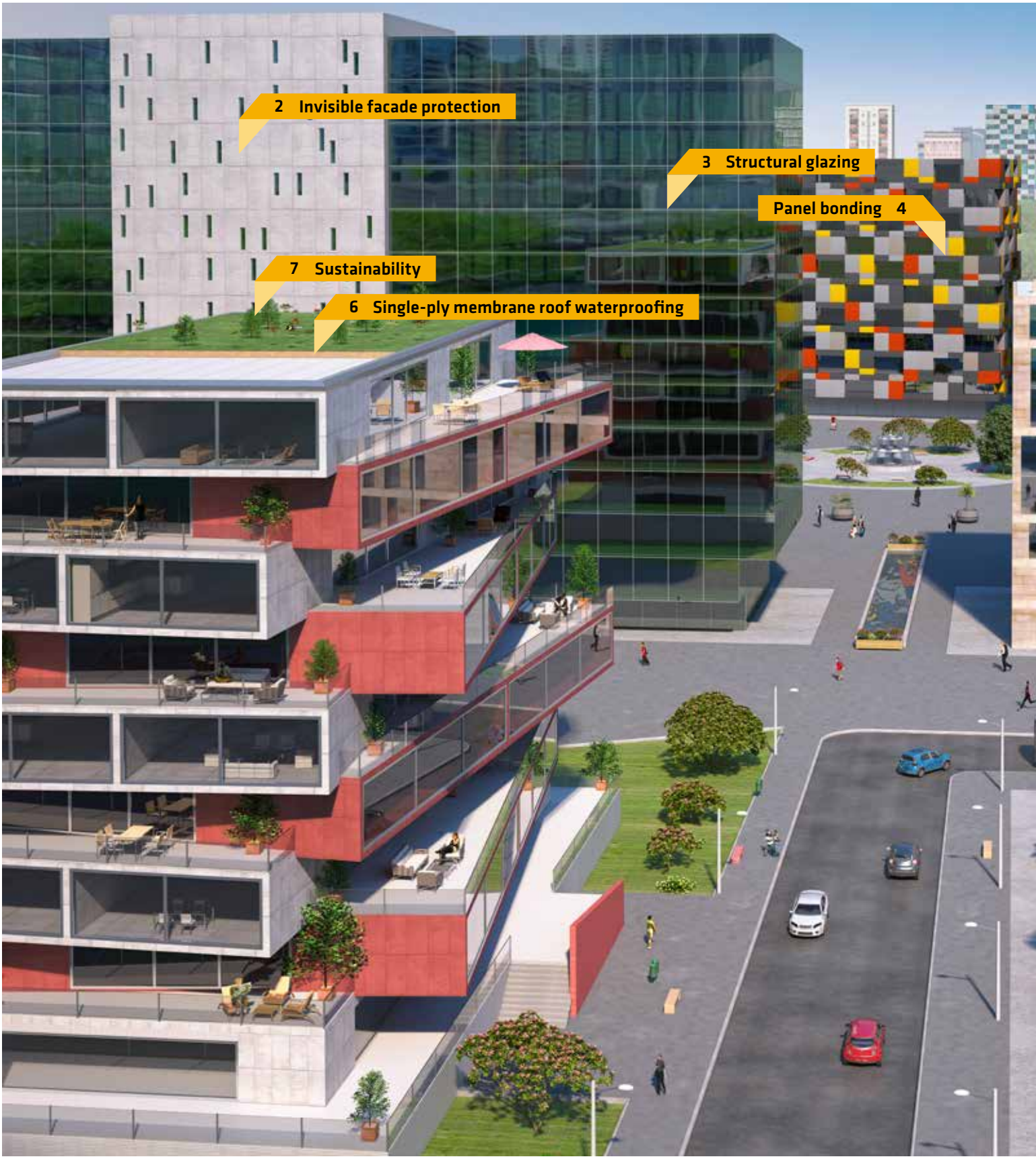
Product	Chemistry	Porous	Non porous		
		Concrete, masonry & raw wood	Metals	Plastics & Coatings	Glass
Sika® Primer-3N	Solvent based Epoxy	X	X	X for coatings	
Sika® Primer-115	Solvent based PU	X	(X)		
Sika® Primer-215	Solvent based PU		X	X	
Sika® Primer-790	Solvent based silane		X for SIL sealants		
Sika® Aktivator-100	Solvent based		X for PVDF		
Sika® Aktivator-205	Solvent based		X		
Sika® Cleaner P	Solvent based		X		X
Sika® Cleaner G&M	Solvent based		X		X

Generally primers and activators and cleaners are related to the substrate and not to the sealant technology. All our sealants are compatible with our primers.

WATERPROOFING SOLUTIONS FROM BASEMENT TO ROOF

Sika is one of the very few companies that provides joint sealing and waterproofing solutions for your building from the basement to the roof. You can specify Sika products and systems in a fully integrated solution from the basement to the roof, meaning you need only one partner, one solution and one guarantee! Any issues with potential incompatibility between different systems is an unnecessary risk that can be avoided with integrated Sika solutions.

WATERPROOFING SOLUTIONS FROM BASEMENT TO ROOF



1

Basement waterproofing

2

Invisible facade protection

3

Structural glazing

4

Panel bonding

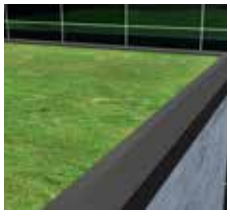
5

Liquid roof water-proofing

6

Single-ply membrane roof waterproofing

7



Sustainability

SIKA SOLUTIONS FOR CONCRETE BASEMENTS

Sustainable and durable waterproofing

UNDERGROUND STRUCTURES NEED TO be protected from ground water and moisture ingress. Effective engineered waterproofing systems to protect basements and other below ground civil engineering structures, have greatly increased the durability and service life of these structures, as well as also widening their possibilities for use and providing increased comfort in these areas as living spaces.

As the global market and technology leader in structural waterproofing solutions, Sika has the most complete and comprehensive range of fully integrated and compatible systems, with a proven record for many decades all over the world. Sika waterproofing systems meet or exceed all leading national and international standards, giving clearly defined performance characteristics and security to specifiers, contractors and project owners.

EXAMPLES OF BELOW GROUND CONSTRUCTION

RESIDENTIAL BUILDINGS

COMMERCIAL OFFICE BUILDINGS

ARCHIVES/LIBRARIES

UNDERGROUND PARKING AREA

METRO STATIONS

SERVICE ROOMS

RETAIL UNITS AND WAREHOUSES

LEISURE FACILITIES

Today, new building owners demand high quality, security, reliability and durability. Any lack of watertightness severely reduces the long-term durability of a building, as any moisture ingress leads to the gradual deterioration of reinforced concrete structures, which can then accelerate with the consequence of expensive structural repair works, as well as the cost of damage to interior finishes and fittings, or operational downtime and closures.

Sika specialists can support you to minimize the total cost of ownership and prevent water ingress and costly repairs, through selection of the most appropriate and fully integrated joint sealing and structural waterproofing system solutions for your projects. This means right from the design office, through specification and CAD detailing to onsite support for successful installation and completion, anywhere in the world.

A watertight joint sealing system typically amounts to less than 1% of the total building cost, yet the selection of a high quality waterproofing solution can easily save this amount in future maintenance and repair costs over the service life of the structure. Basement waterproofing is another important aspect of securing a watertight building envelope, plus there is limited access for repairs and maintenance in the event of damage during the building's service life.

In defining the right integrated waterproofing strategy and systems for a specific basement or other below ground project, the first step is to fully consider the owner's requirements regarding the functionality, use and the expected service life of the overall structure and the basement.

The British standards BS 8102-2009 describe different levels of water tightness as grades used to define the possible utilization of underground structures as follows below:

GRADE OF WATERTIGHTNESS

Grade	Classification	Description	Examples of use	
1	Basic utility	■ Some seepage and damp areas tolerable	■ Underground car parks ■ Plant rooms	■ Workshops
2	Better utility	■ No water penetration ■ Some damp areas tolerable ■ Ventilation may be required	■ Underground car parks ■ Storage areas	■ Workshops
3	Habitable	■ No water penetration acceptable ■ Ventilation and dehumidification required	■ Ventilated residential units and offices	■ Restaurants and commercial areas ■ Leisure facilities
3 Plus	Habitable Plus	■ No water vapour penetration ■ Totally dry environment ■ Protection against chemical and gas attack	■ Residential areas ■ Computer rooms	■ Archives

OVERVIEW OF SIKA BASEMENT WATERPROOFING SOLUTIONS

Sika system	Sika brands		Grade of watertightness	Concrete protection	Advantages
Mortars & coatings	■ SikaTop®, Sika MonoTop® ■ Sika® Igolflex®	■ SikaSwell®, Sika Waterbar® ■ Sikadur-Combiflex® SG, Sika® Dilatec®	1 – 2	Limited	■ Cost effective ■ Simple & fast to apply
Watertight concrete	■ Sika ViscoCrete®, SikaPlast®, Sikament® ■ Sika® WT, SikaControl®	■ SikaSwell®, Sika Waterbar®, SikaFuko® ■ Sikadur-Combiflex® SG	1 – 3	Low	■ Very cost effective ■ Simple & fast construction ■ High durability
Liquid applied membranes	■ Sikalastic® ■ SikaSwell®, Sika Waterbar®, SikaFuko®	■ Sikadur-Combiflex® SG	1 – 3 Plus	Very high	■ High performance & durability ■ Easy detailing solutions
Fully bonded sheet membrane	■ SikaProof® ■ SikaBit®	■ Sika Waterbar®, SikaFuko® ■ Sikadur-Combiflex® SG	1 – 3 Plus	High	■ Highly efficient ■ High performance & durability ■ Easy to apply
Compartmentalized membrane system	■ Sikaplan® ■ Sika Waterbar®, SikaFuko®	■ Sikadur-Combiflex® SG, Sika® Dilatec®	1 – 3 Plus	Very high	■ Highly waterproofing security ■ Integrated system redundancy ■ Very high performance ■ High durability & reliability
Repair & Refurbishment Solutions	■ Sika® Injections ■ Sikadur®	■ Sikamur® Injectocream ■ SikaFuko®, Sikadur-Combiflex® SG	None	High	■ Easy and fast local repair ■ No excavation necessary ■ Durable repair

INVISIBLE FACADE PROTECTION – FOR POROUS FACADE MATERIALS

FACADES MADE OF RAW building materials like concrete, brick or stone are an essential part of minimalist architecture today. These materials are porous and prone to take up and absorb water together with dirt and aggressive chemical ions from the environment, such as chlorides from marine atmospheres or de-icing salts, or sulphates originating from combustion processes.

By applying a hydrophobic impregnation on these porous substrates, the facade can be efficiently protected against such moisture uptake without altering the aesthetics and appearance of the surface or the structure. This treatment creates a barrier to water ingress, which also reduces the thermal conductivity of the walls and can significantly improve the interior air quality with lower humidity and less condensation / damp, with a reduction in mould growth and spores, all of which is positive for human health.

The surface tension of non-treated mineral substrates such as porous concrete and masonry is higher than that of liquid water, which means that water molecules spread easily across and into the surface rather than remaining as, or forming into droplets. The application of the hydrophobic impregnation significantly lowers the surface tension and surface energy, so the water molecules stay together in droplets, and the water is effectively repelled and runs off the surface by gravity, without penetrating into the concrete pores. Dirt build-up is largely prevented, or literally washed off in the next rainfall and any aggressive ions remain in the droplets and run-off. These hydrophobic impregnations are generally based on silanes, siloxanes, siliconates, or blends of these materials.

MAKING YOUR FACADE BEAUTIFUL AGAIN: CLEANER RANGE

Product	Mould removal	Organic cleaner	Mineral cleaner	Surface strengthening	Cement & efflorescence cleaner
Sikagard®-715 W	+++	++	–	–	–
Sikagard®-719 W	–	+++	–	–	–
Acid Cleaner*	–	–	+++	–	+++
Sikagard®-905 W	–	–	–	+++	–

* Consult your local Sika representative for appropriate acid cleaners

+++ Long term effect / very efficient
++ Suitable
+ Short term effect
– Not suitable

INVISIBLE PROTECTION FOR LONG-LASTING BEAUTIFUL FACADES: HYDROPHOBIC RANGE

Product	Consistency	VOC	Concrete	Brick	Natural & artificial stone	Cement renders	Paintable
Sikagard®–740 W	Emulsion	Low	+++	–	–	–	Yes
Sikagard®–703 W	Emulsion	Low	–	++	+	+++	Yes
Sikagard®–71 W	Solution	Low	–	+	++	++	No
Sikagard®–730 Thixo	Cream	Low	+++	+++	+++	+++	Yes
Sikagard®–700 S	Solution	–	–	+++	+++	+++	Yes

Hydrophobic facade surface treatment and facade joint sealing are generally done by different trades. Therefore, it is important to specify the use of Sika® Primer-3N to increase adhesion if the hydrophobic treatment has been done before the joint sealing. If the hydrophobic treatment is done after joint sealing, then do not specify Sikagard®-700 S as the solvent-based product could attack sealant surfaces and reduce performance.

SOLUTIONS FOR RISING DAMP – WHEN INITIAL WATERPROOFING WAS NEGLECTED

IN MANY MARKETS REFURBISHMENT is the largest sector of the Construction industry. From an architectural perspective, renovation is a fascinating balance between honoring and preserving the past and introducing new design elements, plus the conveniences of modern living standards. In such refurbishment works, many sealing and waterproof detailing requirements are only revealed during the works, and so reliable solutions have to be found on a daily basis.

Sika has several complete product ranges dedicated to providing secure and durable answers for all different situations that arise in refurbishment works. In the lower facade, rising damp is a common problem and especially in older buildings that were not designed to modern standards. The ground water rises within the foundations and walls, driven by capillary forces, to the ground floor level, where it evaporates into the environment. However, this process is slowly, but surely and continuously destroying the structure and its facade. There are several ways to address such rising damp issues, but the Sika solution is easily applied and efficient, even in difficult and complex situations, closing and sealing the capillaries and both stopping the process and blocking the pathway for rising water. The Sika approach is a permanent solution.

THE Sikamur® SYSTEM IS A HOLISTIC SOLUTION TO FACADE DAMAGE THROUGH RISING DAMP AND EXTERNAL HUMIDITY.

- **Sikamur® Injectocream-100:** Prevents the capillary rise of water
- **Sikamur® Dry:** Replastering mortar that enhances water evaporation remaining in the walls of the lower facade
- **Sikamur® Finish:** Finishing mortar that allows fast evaporation of water
- **Finishing paint:** Highly vapor permeable, enabling water evaporation
- **Invisible protection:** Any of the Sikagard® hydrophobic impregnations

STRUCTURAL GLAZING – HIGH-TECH SOLUTIONS FOR THE PERFECT FACADE

GLASS FACADES ARE an integral part of modern architecture. With a glass curtain wall construction, an ideal balance is found between aesthetic appeal and energy efficiency.

Glass curtain walls consist of facade elements. The elements are factory produced and mounted to the carrier structure of the building. Eventually, weather sealants seal the respective elements. The glass facade elements are produced by bonding glass panels to the metal adapter profile with silicone adhesives. The elastic joints produced with Sikasil® SG silicone adhesives accommodate movements of the construction elements resulting from temperature changes, moisture, shrinkage of construction materials, sound, wind and vibrations permanently.

4 PRINCIPLE CURTAIN WALL TECHNOLOGIES:

FOUR SIDED STRUCTURAL GLAZING

Optimum transparency and frameless appearance

Four-sided structural glazing is impressive because of its monolithic, frameless appearance. The large-format glass panels are bonded on all 4 sides to an adapter profile and have no visible frame.

TWO SIDED STRUCTURAL GLAZING

Optimum safety by mechanical fixing

Two-sided structural glazing offers transparency and maximum safety. The glass panels are bonded on the vertical sides and are mechanically fixed on bottom and top to an adapter profile.

POINT FIXED GLAZING

The lightness of glazing by point fixed glazing

For maximum transparency of the glass panels on the facade and inside the building, the glasses are either mechanically fixed or high-strength bonded to metal fasteners.

STRUCTURAL WINDOW BONDING

Slim design by structural window bonding

Structurally bonding the insulating glass unit into the sash frame has 4 big advantages: Increased transparency by allowing slim sash design, best thermal and sound insulation, increased service life by minimized peak stress and high window stiffness and minimal maintenance.

DURABLE, SAFE AND ECONOMIC FACADES WITH SIKA.

MAKING YOUR CONCEPT POSSIBLE – SIKA STRUCTURAL GLAZING SILICONES

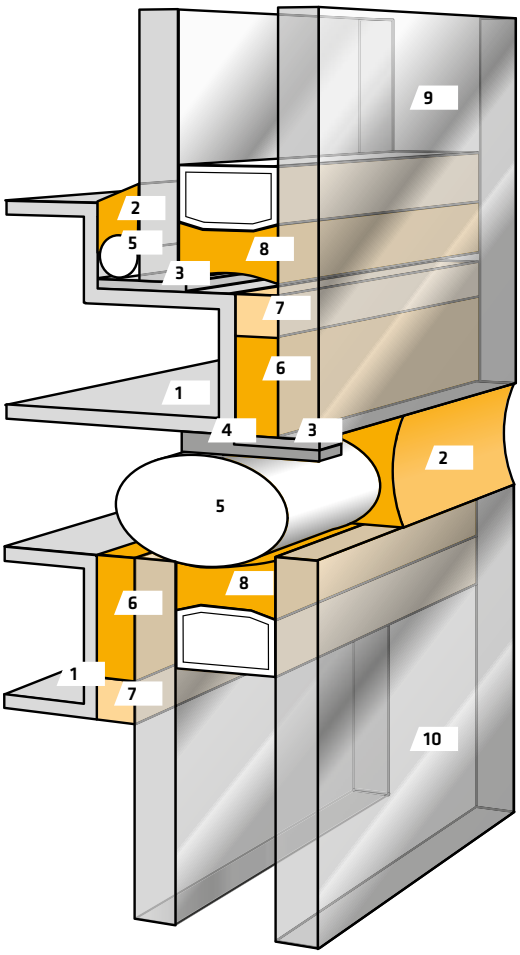
THE SYSTEM PRINCIPLE

Sikasil® SG structural glazing silicones and Sikasil® IG silicone sealants for the secondary edge seals of insulated glazing units, are highly specialized products for structural glazing and insulating glass applications. These combine to provide unique possibilities for your creativity and design, energy efficiency and the durability of your facade.

The Sikasil® SG and IG silicones have outstanding performance from their characteristics and properties:

- Durable and extremely strong
- Outstanding weathering and ageing resistance
- Extremely good UV and oxidation stability
- Good chemical resistance
- Resistant and flexible with extreme temperature fluctuations from -50°C to +150°C
- Low shrinkage in vulcanization
- Long-term resistance to continuous rain

Sika is a market leader in sealants and adhesives for curtain wall production and we supply the leading curtain wall fabricators and installers worldwide. Our Sikasil® SG and IG silicones are present in many prestige facades worldwide – visit our reference brochures.



1 Adapter profile
2 Weatherseal
3 Setting block
4 Mechanical support
5 Backing material
6 Structural glazing joint
7 Spacer tape
8 Secondary edge seal
9 Stepped insulating glass unit
10 Symmetric insulating glass unit

FACADE PANEL CLADDING – SMOOTH AND ELEGANT

THE FACADE IS ONE of the most defining elements of your building. Fortunately, there are so many ways to design the facade nowadays that can range from a concrete finish, to the fixed panels of ventilated facade systems. For these facade panels, mechanical fixings are normally used to fix them to the structural frame, but these fixings can be the source of multiple problems.

This is apart from their often unsightly appearance, as they can cause damage to the structure when holes are drilled, and the fixing points create differential stress points and loadings in the panels and the structure, which can lead to cracking, water ingress and corrosion issues etc. However, Sika has a special discrete, adhesive system for effectively invisible and stress-free, durable fixings. With the SikaTack® Panel System, unsightly fixings are no longer necessary and the panels are easier to produce and their appearance is enhanced, plus even compared to so-called hidden mechanical fixing systems, the SikaTack® Panel System costs up to 40% less installed.

SikaTack® Panel System IS A HOLISTIC CLADDING SOLUTION:

- SikaTack® Panel polyurethane and silicone adhesives show tenacious adhesion to a variety of panel substrate types, with permanent elasticity allowing panels to move with the natural differential movement of the building.
- Efficient, rapid, and safe panel installation due to immediate fixing with SikaTack® Panel Fixing Tape
- Optimum support through design, production, and installation on site from your local Sika Technical Services team

Project name: City Square Mortsel
Architect : Abscis Architecten
Product : EQUITONE [tectiva] TE 80

WHEN LESS IS MORE – INVISIBLE PANEL FIXATION

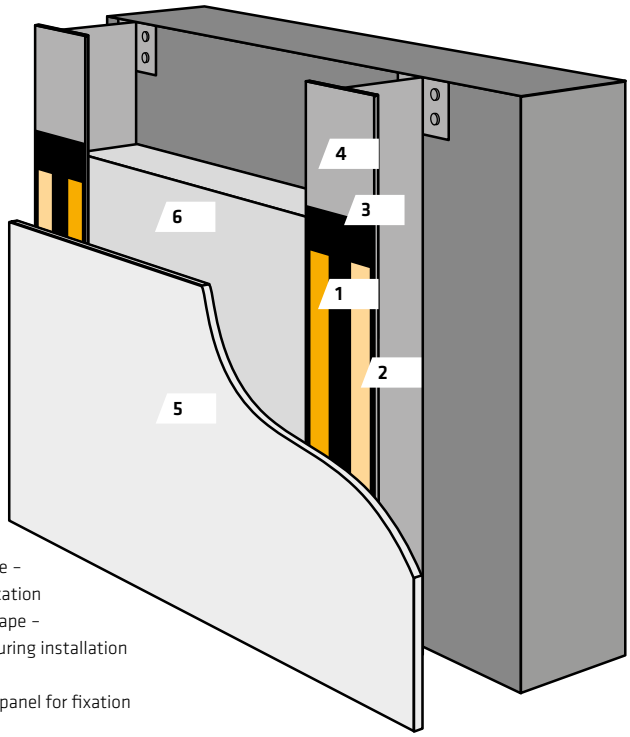
THE SYSTEM PRINCIPLE

FOR INTERIOR AND EXTERIOR WALL CLADDING

With the SikaTack® Panel Adhesive System, cladding finishes can be invisibly fixed to a carrier frame allowing the designer to design without any unsightly fixings. The big advantage over mechanical fixing systems, is the elastic nature of SikaTack® Panel Adhesives that accommodates the natural differential movements of different building materials. The SikaTack® Panel Adhesive System is compatible with many different types of panels, ranging from cement-based cladding to metal and powder coating finished panels. Sika will advise and assist with the possibilities for the specific panels that you intend to use!

FOR VENTILATED RAINSCREEN CLADDING

Rain can be forced through the joints and any other openings in a typical building facade through wind and/or external and internal pressure differences. Ventilated rainscreen cladding overcomes this problem by pressure equalization and thereby ensures weatherproofing of the facade. Rainscreen cladding is a proven concept with many years' experience in the development of relatively easily installed lightweight cladding systems. The facade design and installation using the SikaTack® Panel System is always done with the support of the local Sika Technical Services team. Contact your local Sika company for advice and assistance with your cladding project to ensure a beautiful, safe and durable facade.



1 SikaTack® Panel adhesive – for permanent elastic fixation
2 SikaTack® Panel Fixing Tape – for temporary fixation during installation
3 SikaTack® Panel Primer
4 Rail system – carrier for panel for fixation
5 Facade panel
6 Insulation material

Facade design and installation with SikaTack® Panel System must be done with the support of our technical sales force. Please contact us with your panel cladding project to ensure a beautiful, safe and durable facade.

ROOF WATEPROOFING SYSTEMS – FPO AND PVC BASED SINGLE PLY MEMBRANES

IN MODERN STRUCTURES, ROOFS can have many different functions. The different utilizations require specific system solutions and know-how. Sika is a major supplier of roof waterproofing solutions and our Sarnafil® and Sikaplan® systems allow you to realize your roof concept.

Sika roof waterproofing solutions are based on PVC and FPO. PVC has the longest track record for more than 50 years. Its technology is very well established all over the world.

FPO is known for its outstanding ecological profile and its high chemical resistance is suitable for all different roofing applications. Sika has a proven track record for more than 25 years monitored by an external independent institute.

To resist wind uplift the membranes are either mechanically fastened or fully adhered to the roofing structure. Mechanical fastening offers a fast and cost efficient application whereas an adhered solution meets high aesthetic requirements and freedom to design complex roof shapes.

Utility roofing systems adds value to the building by creating additional room for a car park, restaurant area or any viable purpose or facility. In so called "Green Roofs" soil, or a suitable plant growing medium, is built-up and planted with selected vegetation over the roof water proofing membrane. Green roofs can therefore make a significant contribution and present practical solutions in the quest for sustainability, increased biodiversity and quality life.

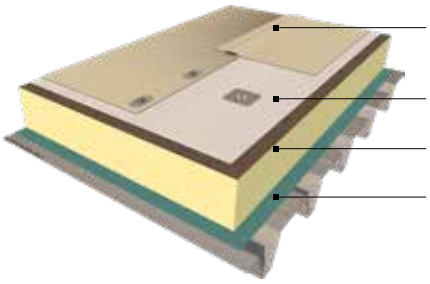
However independent of the technology, design and fastening the water tightness of a roof strongly depends on the correct membrane application. For each application a specific system set up is required. Sika has the products, accessories and know-how for safe and durable waterproofing of the roof.

Please contact us for support in roof design, choice of best solutions, membrane application and guarantee.
Sika – from the basement to the roof.

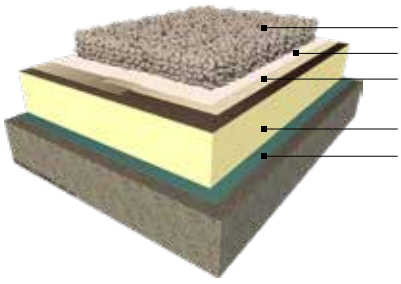
WORK WITH THE LEADER – CHOOSE SIKA ROOF WATERPROOFING SOLUTIONS

SIKA ROOF WATEPROOFING SYSTEM SOLUTIONS

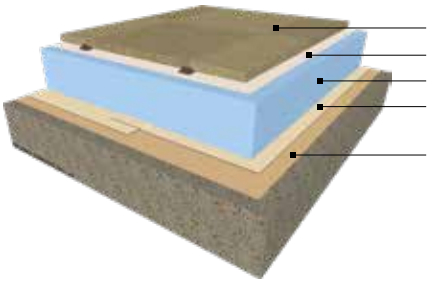
Mechanically Fastened Roof System



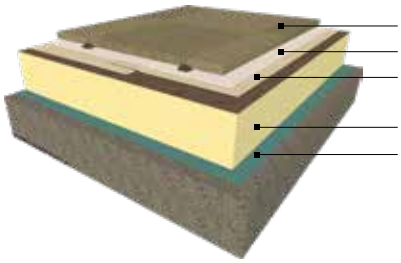
Gravel Ballasted Roof System



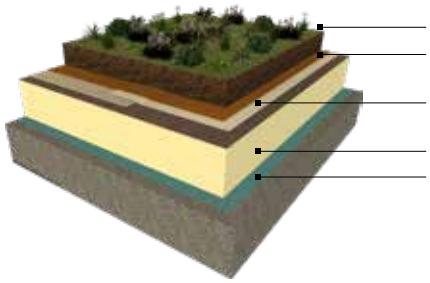
Inverted Roof System



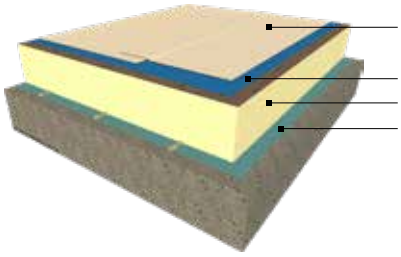
Utility Roof System



Green Roof System



Adhered Roof System



Refurbishment

- Bituminous roofs
- Metal roofs
- Polymeric roofs

Specialties

- Cool roofs
- Solar roofs

SIKA ROOF WATEPROOFING SYSTEM COMPONENTS

Design	Products
Mechanically fastened roof system	■ Sarnafil® AT / TS 77 / S 327
Ballasted / loose laid roof system	■ Sarnafil® AT / TG 66 / G 410
Adhered roof system	■ Sarnafil® TG 76 / G 410 Felt / TG 76 FSA / G 410 FSA / G 410 SA
Thermal Insulation	■ Sikatherm® PIR / EPS / XPS
Vapour-Control Layers / Barriers	■ Sarnavap®
Adhesives, primers and sealants, levelling, protection, separation, slip- and drainage layers	
Prefabricated products, roof drainage, fastening products and ancillary components	

LIQUID APPLIED MEMBRANES – SEAMLESS ROOFING SOLUTIONS

WHERE IS YOUR ROOF MOST vulnerable to leaks? At the joints! Avoiding joints or seams is beneficial where complex structures need to be made waterproof.

Sika liquid applied membrane (LAM) systems can facilitate and allow you to realize your design concepts, including unique or unusual designs. Our liquid applied membrane systems are used in both new construction and refurbishment. This is often the best choice when conventional solutions do not provide sufficient flexibility and security for your specific roof requirements.

THE KEY FEATURES OF SIKA LAM SYSTEMS

- LAM is clearly the best choice for the repair and refurbishment of leaking roofs. It is easily applied at almost any angles, and on many different substrates, including deteriorated bitumen as often found on old roofs.
- LAM is uniquely suitable for waterproofing a roof with multiple penetrations like pipes or mechanical fixings.
- LAM gives high security in application as it is applied cold and without flames.
- Sika provide on-site training, quality control procedures and long-term guarantee!

Sika can reflect on a half-century of producing long-lasting LAM systems. We were the pioneer generation in the '60s and today we are the global leader in a strongly growing global market segment.

AVOIDING JOINTS – REDUCING RISK

TO OFFER THE PERFECT SOLUTION FOR YOUR APPLICATION WE HAVE SEVERAL LAM TECHNOLOGIES

Water based, 1 component	Polyurethane, 1 component	Polyurethane / Polyurea / Hybrids, 2 component
■ Odorless ■ Solvent free ■ Environmentally friendly ■ UV-resistant ■ Spray or roll ■ Economic	■ Ready to use – no mistakes with mixing ■ Early rain resistant ■ Highly durable ■ Low odor ■ Spray or roll	■ Very early rain resistant ■ Very fast application – base and top coat only in one day ■ Low odor ■ Solvent free ■ 100% solids
Products		
■ Sikalastic®-560 ■ Sikalastic®-580	■ Sikalastic®-612 / -614 / -618 ■ SikaRoof® MTC-12 / -15 / -18 / -22 ■ SikaRoof® *i*Cure-12 / -15 / -18 / -22	■ Sikalastic®-851R ■ SikaRoof® PUR-18 ■ Sikalastic®-838R / -833R / -852R

OUR SYSTEMS ARE CLASSIFIED ACCORDING TO THE LIFE EXPECTATION

5 – 10 years	10 – 15 years	20 years	Life expectation
■ SikaRoof® MTC-12 ■ Sikalastic®-580 ■ Sikalastic®-614 / -614 / -618 / SikaRoof® *i*Cure-12	■ SikaRoof® MTC-15 ■ SikaRoof® *i*Cure-15 ■ SikaRoof® PUR-18	■ SikaRoof® MTC-18 /-22 ■ SikaRoof® *i*Cure-18 /-22 ■ Sikalastic®-851R / -833R / -838R / -852R	

The life expectation is based on ETAG 005 certification.

SikaBit® – BITUMINOUS ROOF MEMBRANES

ANOTHER POSSIBILITY FOR YOUR ROOF is to use SikaBit®, a fully-bonded bituminous membrane with excellent mechanical properties and able to maintain its waterproofing capacity without causing cracks, thus providing a long-lasting system.

APPLICATION FIELDS

- Flat and pitched roofs
- Terraces and balconies
- Green roofs
- Parking levels
- Refurbishments

SikaBit® membranes are made of polymer modified bituminous compound with or without a reinforcement and protected by an upper and under layer surface, leading to a wide range of possibilities depending on where and how it is to be used.

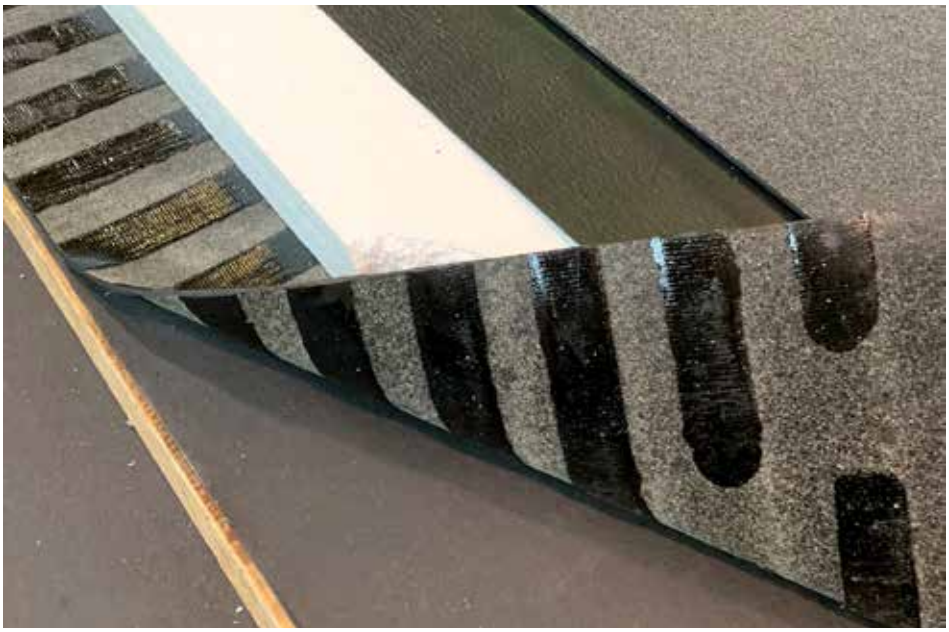
The combination of all these layers can offer the membrane a variety of qualities by changing the heat resistance, flexibility, viscosity, softness and mechanical resistance, allowing different levels of performance to be achieved according to the needs of the various application fields. The aesthetic result is another significant advantage of the bituminous membrane.

The plain and smooth finishing guarantees an optimum adhesion of the subsequent layers, while the mineral granules have the ideal color and/or design for exposed roofs. Even some other materials can be used to decrease the temperature inside of the buildings, such as aluminum foil.

SPECIALITIES

SikaBit® VMS is a bituminous membrane with strips on the under side, to diffuse any water vapor and prevent blistering.

The strips – around 40% of the membrane surface – guarantee better adhesion and consequently higher resistance to wind. The remaining 60% is not glued, creating free space for improved diffusion of water vapor and preventing the formation of bubbles from residual moisture.



The same pattern of strips on the face of the membrane gives excellent bonding – strong and elastic.

SikaBit® BITUMINOUS MEMBRANES ARE NOT ONLY DURABLE AGAINST WIND, RAIN, SNOW, HAIL AND OTHER ENVIRONMENTAL CONDITIONS, BUT THEY ALSO COME WITH DECADES OF EXPERTISE AND SUPPORT.

1 Upper face (granules or fleece)
2 APAO compound
3 3 layer Reinforcement
4 SBS compound
5 Bottom surface (burn off or removable film)

SikaBit® Pro 9 Series bituminous membranes are developed to offer a safe and secure solution for any environment, the SikaBit® Pro Bituminous Membranes range includes detailing materials for completely flame-free **Safe2Torch-compliant** roof installations.

Offer the best of both worlds technologies, combining the flexibility and tensile strength of a Styrene- Butadiene-Styrene (SBS) modified bitumen membrane with the hardwearing properties and UV stability of Amorphous Poly-Alpha-Olefins (APAO). This ensures exceptional waterproofing protection, along with proven ease of application.

SIKA SUSTAINABLE SOLUTIONS FOR ROOF WATERPROOFING SYSTEMS

ENERGY SAVING SOLUTIONS

More Value

- Highly reflective thermoplastic Sarnafil® and liquid-applied Sikalastic® roofing membranes provide significant energy savings during the use phase
- LAM over bituminous membranes are a very effective solution to reduce Energy Demand of existing buildings
- Sikatherm® polyisocyanurate (PIR) insulation materials are one of the most cost-efficient solutions and have the best thermal performance for a given thickness of insulation
- Sika thermoplastic roofing systems have the lowest energy footprint of all competitive roofing technologies compared
- Choose Sika SolaRoof® with Sika® SolarMount-1 (SSM1) photovoltaic solutions for energy generation

Less Impact

- Sika green roofing systems reduce the urban heat island effect and energy consumption during the use phase
- Expanded polystyrene (EPS) insulation materials have the lowest carbon footprint for a given thermal performance

For specific information regarding Sika energy saving solutions, please contact your local sales organization.

SOLAR ROOF SOLUTIONS

More Value

- Sika SolaRoof® with Sika® SolarMount-1 (SSM1) photovoltaic (PV) solution is approved and a perfect match with Sika's roof build-ups.
- Hundreds of installations successfully put in place, with a cumulated nominal power of 100 MW since 2013.
- High energy self-consumption rate and less dependency from utility providers,
- Combinations with lightweight green and highly reflective roofs are possible.
- The proven connection with the membrane leads to less ballast and therefore lower system weight and impact to the roof structure.

Less Impact

- Every kWh of self-produced electricity from renewable sources avoids CO_2 emission and reduces the operational Carbon Footprint of your building.
- No risk of a moving PV system on the roof, thanks to the welded connection with the Sika membrane.
- No risk for leaks due to roof penetrations (SSM1 is a penetration-free mounting system).

For specific information regarding Sika SolaRoof® solutions, please contact your local sales organization.

GREEN BUILDING SOLUTIONS

More Value – Less Impact

Sika roofing systems contribute to achieving multiple credits in most relevant green building certification programs such as LEED, BREEAM and DGNB by:

- Reducing energy consumption and the heat island effect with highly reflective Sika roofing membranes
- Using high-performance Sika thermal insulation
- Enhancing the thermal performance and buildings with Sika green roofs
- Controlling stormwater runoff
- Using Sika roofing membranes that include recycled content
- Sika provides externally verified Environmental Product Declaration (EPD) and Life Cycle Assessment (LCA) tools that can be used as part of the certification process
- Sika provides customized and project specific Life Cycle Assessment (LCA) calculations and reports (available on request)

For specific information regarding Sika green building solutions, please contact your local sales organization.

AIR QUALITY

More Value

- Innovative solvent-free Sika adhesives significantly reduce odor emissions and enable a VOC-free roof buildup. This reduces the summer smog potential and improves the air quality
- Self-adhered membranes are the first choice for roofs that resist high uplift forces by strong winds. The application with a factory applied adhesive is easy and fast, and with the benefit that no VOC or odors are involved
- Sika has published product-specific EPDs for all its major roofing membrane brands and technologies, providing reliable environmental information about its products

Less Impact

- Sika offers low-VOC, low-odor and VOC-free solutions, e.g. Sarnacol® water-based adhesives, Sikalastic® liquid-applied roofing waterproofing membranes and Sarnafil® self-adhered membranes
- Sika thermoplastic roofing systems have the lowest global warming potential compared with competitive roofing technologies, as shown by LCA calculations

For specific information regarding low-impact Sika solutions, please contact your local sales organization.

SIKA – CONTRIBUTION TO SUSTAINABLE CONSTRUCTION

More Value – Less Impact

Providing high-performance solutions – to the benefit of our customers and sustainable developments.
Sika is focussed on sustainable development. We take the responsibility to provide sustainable solutions and improve materials, water and energy efficiency in construction and industry. Sika strives to create value for all stakeholders, with products, systems and solutions along the whole value chain, and throughout the entire service-life of the projects.

MORE VALUE – ENERGY SAVING

Watertight building envelopes save resources and increase quality of life.
At first glance sealing and bonding solutions may seem to contribute little to the environmental impact caused by construction of a building, but these systems are essential for creating air- and watertight building envelopes. The proper selection, use, performance, quality and durability of these sealing solutions are therefore of great importance and a significant contribution to the overall environmental performance of a building during its whole service life. The value created in this way, by far outweighs the impact associated with their production, distribution, and use. Sika is committed to measuring, continual improvement and to communicating sustainable values.

"More value, less impact" refers to Sika's life cycle approach and our commitment to maximize the value of its solutions to all stakeholders, whilst also focusing on reducing resource consumption and our impact on the environment.

MORE VALUE – LESS IMPACT

A professional window installation with high performance sealants and membranes reduces the subsequent energy loss by up to 80%, when compared to a leaking non-airtight window installation. Reducing air leakage and preventing moisture ingress into the thermal insulation, which reduces the energy demand for heating and cooling. This benefit was quantified in a study performed by the University of Applied Science for Architecture, Wood and Construction in Biel, Switzerland.

MORE VALUE – GREEN BUILDING CONTRIBUTION

For specific information regarding Green Building Programs, please contact your local Sika company.
Relevant contributions can be as follows:

Green Building Programs	Contribution		
	Low emissions	Tight Building Envelope	Environment and Resources
LEED ® (Leadership in Energy and Environmental Design)	**LEED v2009:** • IEQc 4.2: Low emitting materials **LEED v4:** • EQc 2: Low emitting materials • MRc 2: Building product disclosure & optimization (EPD) • MRc 5: Building product disclosure & optimization (material ingredients)	**LEED v4:** • LEED® v4: EAc Credit 7 – LEED Homes	**LEED v4:** • MRc 2: Building product disclosure & optimization (EPD) • MRc 5: Building product disclosure & optimization (material ingredients)
BREEAM ® (Building Research Establishment Environmental Assessment Method)	**BREEAM UK:** • Hea 02: Indoor air quality	**BREEAM UK:** • Ene 01 Reduction of energy use and carbon emissions cycle impacts	**BREEAM UK:** • Mat 01: Life cycle impacts
DGNB (Deutsches Gütesiegel für Nachhaltiges Bauen)	**DGNB 2015:** • SOC 1.2: Indoor air quality	**DGNB 2015:** • TEC 1.3: Building Envelope Quality – Protection against Interstitial Condensation	**DGNB 2015:** • ENV 1.2: Low environmental impact

LESS IMPACT – INDOOR AIR QUALITY

Sika Sealing and Bonding products fulfill high standards. People spend more than 80% of their time in indoor environments: home, office, retail, leisure, education, and transportation.

There are various government and industry initiatives around the globe to reduce VOC (Volatile Organic Compounds) emissions from building materials and improve the indoor air quality. VOC's have been identified as having potential long term health impact and an adverse effect on the environment.

This is why Sika provides sealing and bonding products with very low VOC emissions, which help to ensure good indoor air quality. All new Sika sealants and adhesives are developed to comply or exceed increasingly strong national and international requirements in this respect. Sikaflex® and SikaBond® sealants and adhesives comply with the most stringent standards regarding controlling the emission of VOC's including:

SikaHyflex®, Sikaflex® and SikaBond® sealants and adhesives comply with the most stringent standards with regard to controlling the emission of VOCs like:

- Germany: EMICODE EC 1^{PLUS} R
- France: AFFSET A+
- Finland: M1
- USA: SCAQMD Rule #1168

A complete list of Sika sealants and adhesives and their approvals are available from your local Sika Technical Services team.

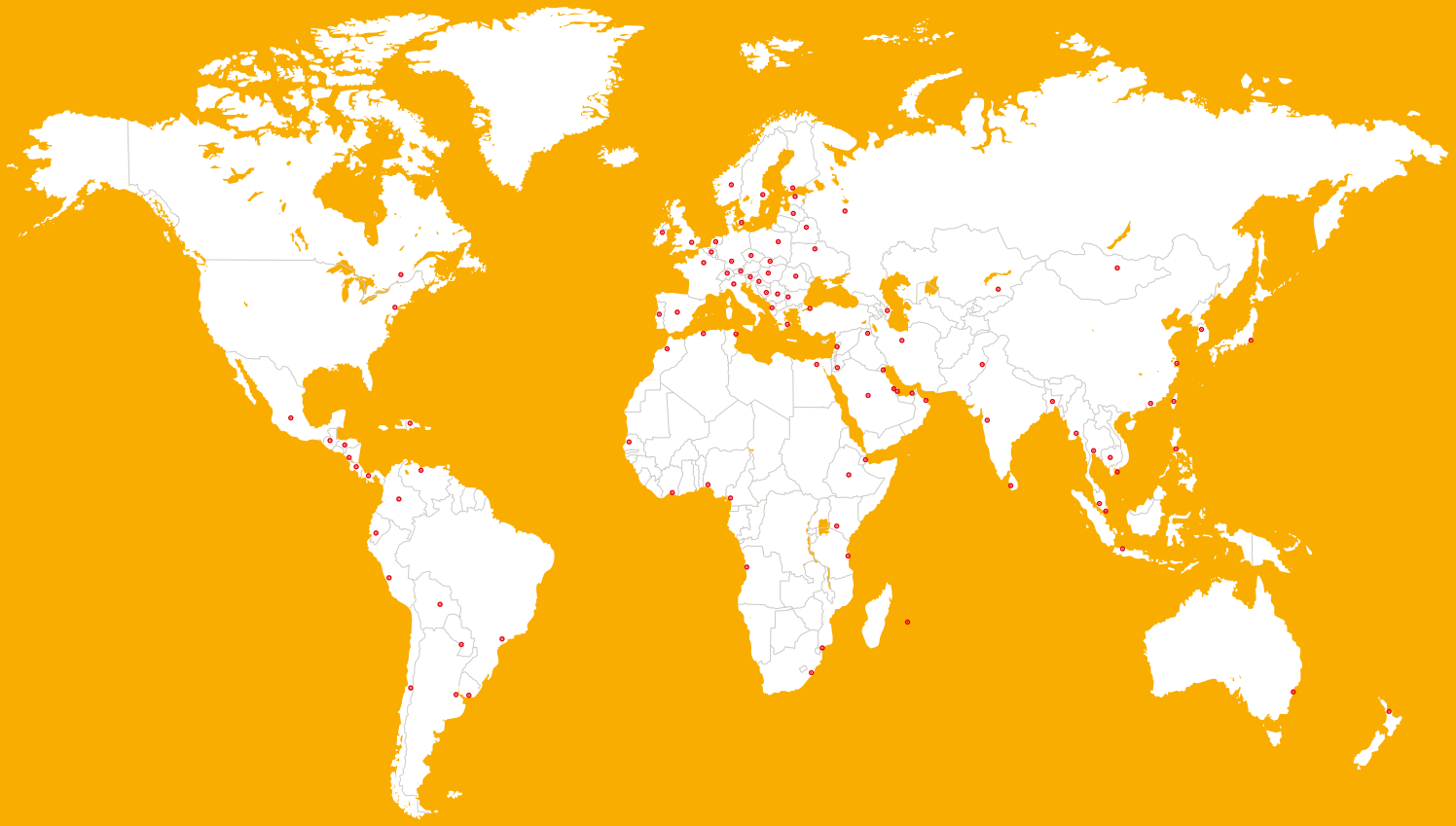
LESS IMPACT – LOW IMPACT PRODUCTS

Sika Sealing and Bonding technologies evaluated with LCAs and EPDs

Sika provides sealing and bonding products based on all major technologies, such as polyurethane (PU), silicones, silane-modified- polymers (SMP) and water-based acrylates. Cradle-to-gate Life Cycle Assessment (LCA) and Environmental Product Declaration (EPD), are powerful tools that are used to measure, rate, improve and disclose environmental performance throughout the product / system value chain. Therefore, Sika systematically carries out comprehensive LCAs for our products using all major technologies in accordance with the ISO 14040 and EN 15804 series of standards. LCAs show no major difference between the three main sealant technologies (Polyurethane, Silicones, SMP), which are generally used for weather-proof joint sealing. The results are similar and according to the quality of the different products.

However, each technology has its "preferred" substrate. Non-reactive water-based sealants, such as acrylics, do have a lower environmental impact, but they are mainly used for indoor applications, due to their significantly lower performance in terms of movement, adhesion and weathering. Hence, no joint sealing technology can be determined to be the most sustainable. The best recommendation from Sika, is therefore to choose the best technology for your specific application requirements to seal your building well. For further information on Sealing and Bonding LCAs and EPDs, please contact your local Sika Technical Services Department.

GLOBAL BUT LOCAL PARTNERSHIP



FOR MORE SEALING & BONDING 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, industrial flooring as well as roofing and waterproofing systems.

SIKA SERVICES AG
Tueffenwies 16
CH-8048 Zurich
Switzerland

Contact
Phone +41 58 436 23 68
www.sika.com
ses.sika.com

BUILDING TRUST