MODULAR ROOFING

ROOFING SOLUTIONS FOR OFFSITE CONSTRUCTION

BUILDING TRUST

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 103 countries, Sika offers local presence worldwide
- Sika operates over 400 production sites and sales locations
- Sika employs approx. 33'000 people worldwide
- The Sika umbrella brand covers some 980 Sika product trademarks
- In fiscal year 2022 the Sika Group achieved sales of approximately CHF 10.49 billion

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MODULAR BUILDING PRINCIPLES

USE OF BUILDING

MODULAR BUILDINGS OR ELEMENTS ARE USED IN DIFFERENT BUILDING TYPES: Residential, Commercial, Industrial. Each building type has its specific requirements. e.g. 3D modular units are mostly used in residential or commercial situations, because of the possibility of using the same shape and form repetitively. In industry the individualization of the customer is mostly higher, and the ceiling height is too high for units, therefore the Modular Builders are working more with modular elements, mostly 2-dimensional.

Residential
Building where people live.

Commercial
Building related to business and their activities.

Industrial
Building for company whose main business is producing goods.

MODULAR BUILDING PRINCIPLES

CONSTRUCTION MATERIALS

A modular building is a prefabricated building that consists of repeated sections called modules. Modularity involves constructing sections away from the building site, then delivering them to the intended site. Installation of the prefabricated sections is completed on site. Modular building units / elements are mostly made out of three materials: wood, metal, concrete or a mix of those materials.

Wood
Modern modular wood construction is the ideal choice for lifestyles and social structures that require fresh thinking. It can offer optimal solutions when the key priorities are responsible use of available space, affordable housing and maximum flexibility.

Metal
Modular units made of metal form complete rooms, parts of rooms, or separate highly serviced units such as toilets or lifts. The collection of discrete modular units usually forms a self-supporting structure in its own right or, for tall buildings, may rely on an independent structural framework.

Concrete
Modular construction with concrete typically consists of buildings such as restrooms, concession buildings, shower facilities, shelters, utility buildings, etc. in which the walls are fabricated with high strength precast concrete or concrete masonry units.

MODULAR BUILDING PRINCIPLES

PRODUCTION

DEGREE OF AUTOMATION

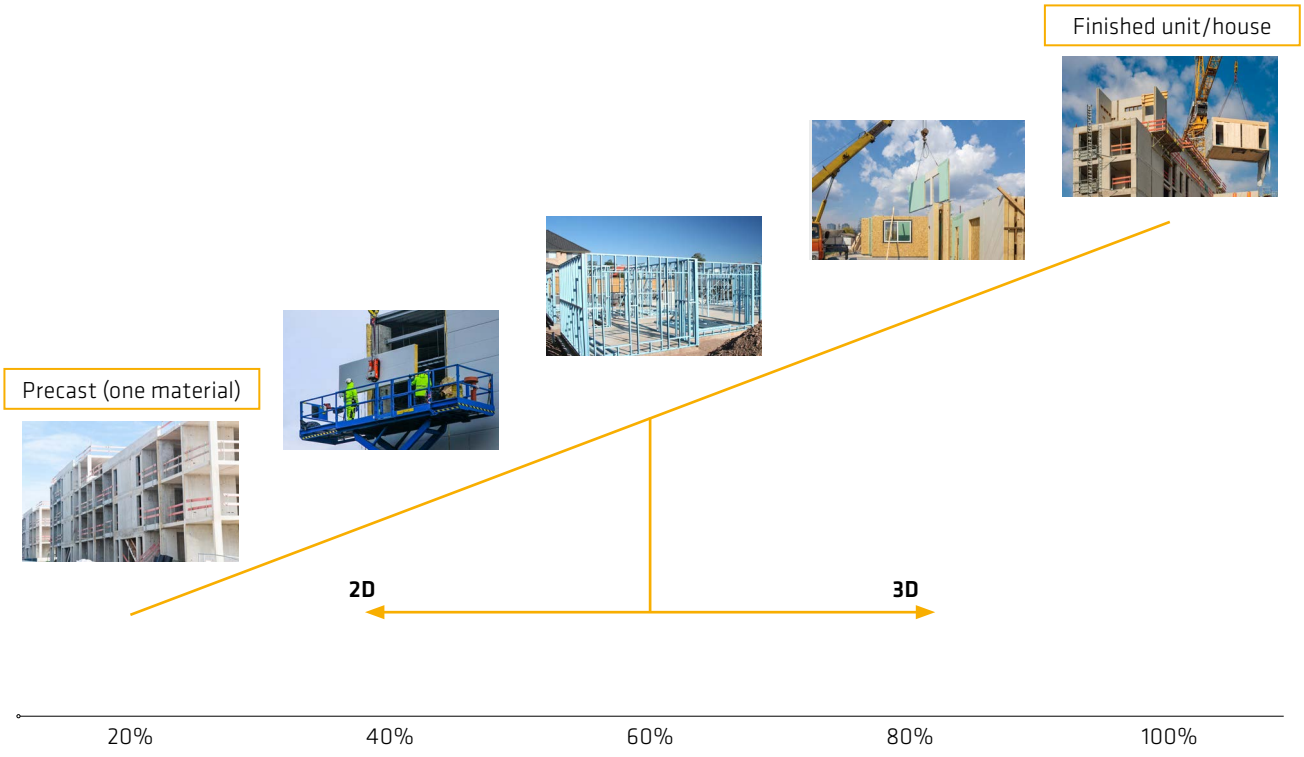
The degree of automation describes how much manual work is in the production process. Influences like labor shortage and a higher output leads to a higher automation rate.

Level	Who is making?	Who is checking?	Who is managing?
100% manual			
Attended RPA*			
RPA with no exception handling			
Unattended RPA			
Smart Automation			
Full Automation			

*RPA: Robot Process Automation

DEGREE OF COMPLETION

Modular Buildings are produced with different degrees of completion. The higher the degree of completion, the more of the value creation process is done in a factory. Higher degrees of completion lead to faster assembly times, better quality checks and less dependency on the weather. A degree of 100% is not achievable, because the transport of the unit to the site and the assembly on site is also a part of the value creation process.



ROOFING PRINCIPLES

BUILD-UP

A complete roof build-up consists of four layers in general:

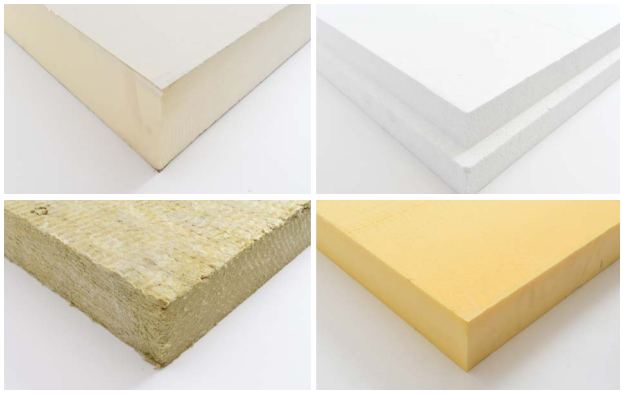
Possible Build-Up

Roof Deck Substrate
Supporting roof structure

Typical roof decks are made of:
- Steel
- Gypsum boards
- Sandwich panels
- Wood

Vapour- Control Layer / Barrier
Avoiding moisture build-up in the fabric or structure of a building, where it could find its way into the thermal 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 building.

Based on:
- Polyethylene (PE)
- Aluminium / polymer bitumen or hot melt
- SBS or APP modified bitumen



Thermal Insulation
Key construction element, creating comfortable environment inside the building by protecting it from the heat and the cold.

Main technologies::
- PIR / PUR
- EPS
- Mineralwool
- XPS

Roof Waterproofing Membrane Technologies
Please refer to next page

ROOFING PRINCIPLES

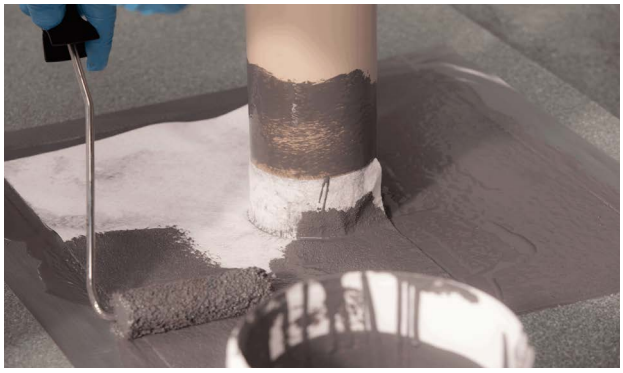
ROOF WATERPROOFING MEMBRANE TECHNOLOGIES

Single Ply Membranes

Single ply membrane is a polymeric membrane based in thickness of 1.20 mm till 2.50 mm.

They are produced on rolls in our factory, in controlled environment by an extrusion or calendaring production process from 1.00 m up to 3.00 m width.

Polymeric membranes are reinforced with glass fleece inlay and / or polyester reinforcement depending on its application. Sika offers two key technologies - polyvinyl chloride (PVC) membranes and or flexible polyolefin (FPO) membranes.



Liquid Applied Membranes

Liquid-applied membrane (LAM) is a monolithic, fully-bonded, liquid-based coating suitable for many roofing applications. The coating cures to form a rubber-like elastomeric waterproof membrane and may be applied over many substrates.

Sika offers:

- Water-based liquid applied membranes
- One-component polyurethane based
- Two-component polyurethane / polyurea based

Bituminous Membranes

Bituminous membranes are a versatile technology. The correct combination of raw materials and layers can offer a variety of performance and durability aspects, therefore allowing it to be used in a wide range of applications.

Sika Roof Accessories

Sika provides a wide range of roof waterproofing systems including single ply PVC and FPO membranes, liquid applied membranes, bituminous membranes as well as thermal insulation and accessories dedicated to all available technologies.

ROOFING PRINCIPLES

FIXATION

Mechanically Fastened Roof Systems

Exposed roof roof waterproofing membranes can be mechanically fastened against wind uplift using fastening system. These lightweight systems meet all the requirements for modern flat roofing.

Type of fastening:
- Spot fastening
- Induction welding

Adhered Roof Systems

This system is designed to fulfil the highest aesthetic requirements! The roof waterproofing membranes can be adhered to flat, curved or sloped roof of practically any shape and configuration.

Type of adhesion:
- Polyurethane Adhesive with membrane
- Self adhered membrane
- Torch applied membrane
- Liquid applied membrane

Ballasted Roof Systems

In ballasted roof systems, roof waterproofing membrane is covered and ballasted against wind uplift and other exposures. with a layer of gravel, green roof, pavings or concrete slab.

Type of ballast:
- Gravel
- Green roof
- Concrete or paving slabs
- Solar installation combined with ballasted roof systems

ROOFING SOLUTIONS FOR MODULAR BUILDINGS

Sika is able to provide a wide range of possible build-up for the roof of a modular building company. Here we present a variety of Systems/Solutions which we can offer.

SELF HEALING MEMBRANE WITH ORIGAMI APPLICATION METHOD

Traditional single ply applications involve a lot of hot air welding. This method reduces the amount of meterage you need to weld and therefore reduces the time needed for application and the risk of failure. The self-healing membrane feature preserves the waterproofing functionality over the life cycle of the membrane by repairing mechanical damage of limited sizes sustained after successful installation.

Brochure:
Sarnafil® AT FSH

Video:
Origami Application

Video:
Sarnafil® AT FSH

ROOF MONITORING SYSTEM

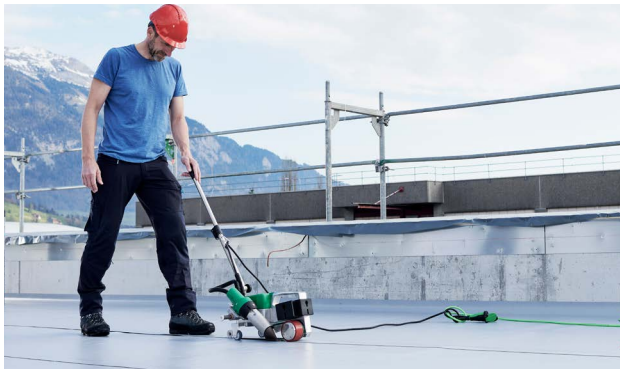
With this sensor-driven technology you can monitor your roof for water leakages and you can react fast when something goes wrong.

Brochure:
SikaRoof® Control - Monitoring / Leak Detection Systems

Video:
The Smart Flat Roof - SikaRoof® Monitoring System

SEAM WELDING ON SITE

The traditional way of sealing joints is still hot air welding. We have different tools to make the life of the welder easier and help to reduce the risk of failure.



Video:
Sarnamatic®
for long, straight overlaps

Video:
Leister Varimat V2
for long, straight overlaps

Video:
Leister Unidrive 500
for short and difficult overlaps

Video:
Leister Triac
for details

ROOFING SOLUTIONS FOR MODULAR BUILDINGS

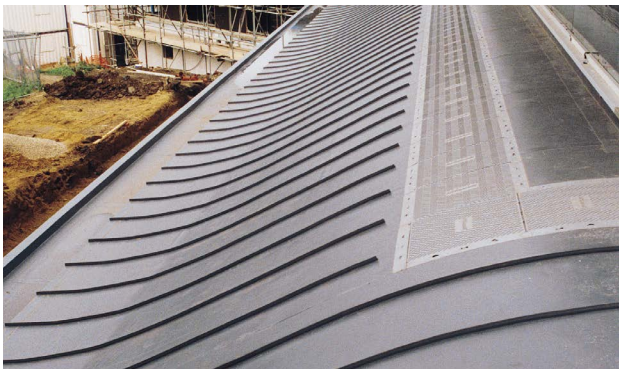
INDUCTION WELDING SYSTEM

The induction welding is an alternative to mechanical fixation with screws or bonded buildups. With this system you have the ability to remove the membrane after its lifetime and give it back to us for recycling.

Video:
SikaRoof® Induction Welding System

DECOR PROFILES

You are interested in a roof that looks like a metal pitched roof, but is easier to apply than metal and can be introduced into a panel production? The Sarnafil Décor Profile System is your choice then.



Video:
Sarnafil® Decor Roof System

ROOFING SERVICES

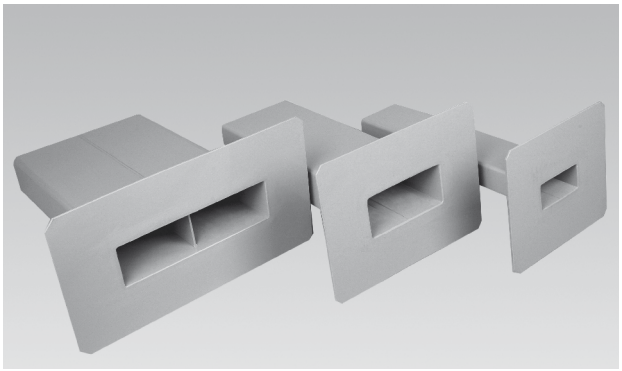
ACCESSORIES AND CUSTOMIZED PRODUCTS

Sika is known as a reliable and innovative system provider which supplies not only roof waterproofing membrane technologies, but also accessories.

We fully understand the membrane materials and the various available roofing systems in the market. Our teams have a lot of experience on the construction sites. We also know how to solve problems at detailing and how to improve the quality and efficiency of the roofing application.

Based on this knowledge, we have a big range of roofing accessories with reliable quality and reasonable design. According to your needs, we will recommend to you the most suitable and economical products.

Our single ply roof waterproofing membranes can also be produced to specific lengths and widths according to production and project needs.



Based on defined minimum order quantities we are able to produce customized:

- Scupper outlets
- Overflow outlets
- Drainage outlets
- Pipe- and post flashings

ROOFING SERVICES

SUPPORT SERVICES

SECURITY THROUGH THE SYSTEM APPROACH
- Service life expectancy of several decades
- Guarantee up to 20 years
- Comprehensive range of coordinated system accessories
- Field-tested installation systems
- Sustainable roofing systems
- 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 installation training

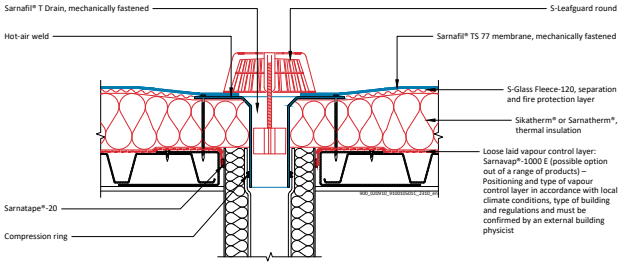
SUPPORT FROM SIKA TECHNICAL ROOFING EXPERTS
- Object-related consulting for architects / planners, building owners and applicators
- Preparation of refurbishment concepts
- Preparation of building physics calculations
- Clarification of normative and constructive framework conditions
- Support in detailing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

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.

ROOFING SERVICES

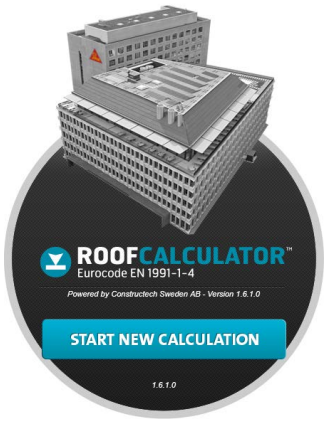
DIGITAL AND CALCULATION SUPPORT



COMPUTER AIDED DESIGN (CAD) DETAIL DRAWINGS
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.

BUILDING INFORMATION MODELING (BIM) OBJECTS
BIM is a virtual design process, a construction process based on predefined products, these being full of information and includes all the different areas of execution of the work and subsequent maintenance improving collaboration between companies throughout the supply chain.

BIM files are generated based on the existing product and system data sheets. In addition to this, specific data concerning the aspect of the materials and other thermal and physical properties may be included.
BIM equips architecture, engineering, and construction professionals with the insight and tools to more efficiently plan, design, construct, and manage buildings and infrastructure.



WIND LOAD CALCULATIONS
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.

ROOFING SERVICES

TESTING ACCORDING TO LATEST STANDARDS

We carry out various material tests according to international and national norms to meet standard requirements.

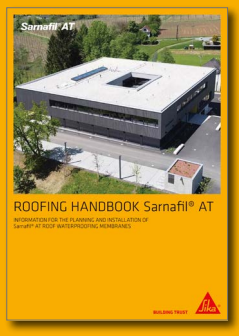
Wind-uplift test facility

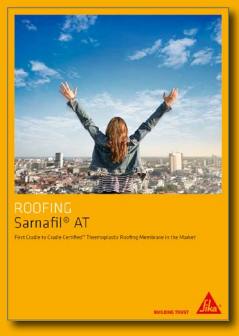
Mechanial property tests

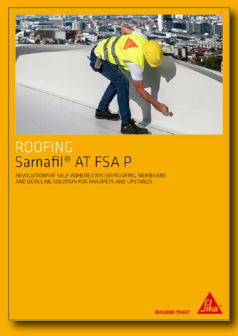
Durability tests

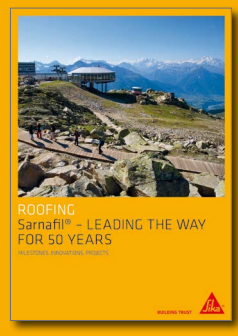
Artificial weathering tests

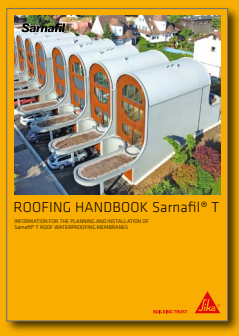
FURTHER ROOFING PUBLICATIONS AVAILABLE FROM SIKA

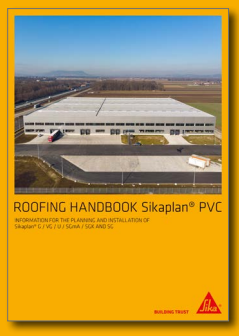


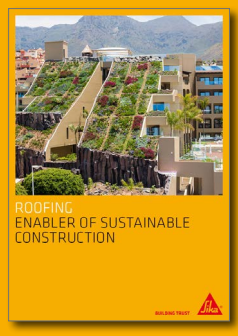


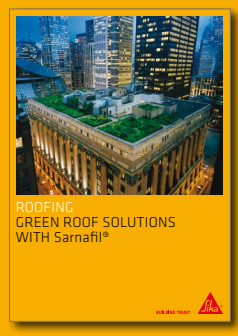


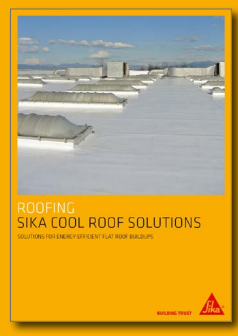


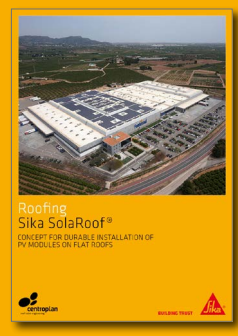


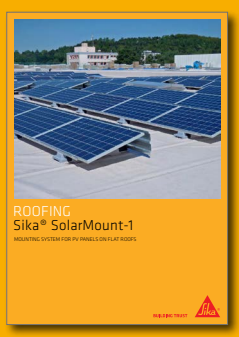


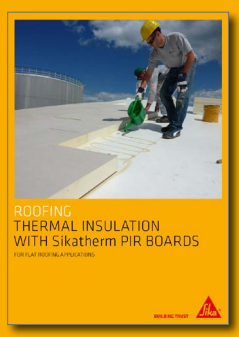












WE ARE SIKA

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.

Certified Quality System ISO 9001/EN 29001 since 1986

Certified Management System ISO 14001 since 1997

USGBC MEMBER

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BUILDING TRUST