



THE
NEW
PARTNER
FOR
CONCRETE



DISCOVER NEW PATHS.

solidian was launched in the market as a subsidiary company of the Albstadt-based specialists for textile technology, Groz-Beckert, in the autumn of 2013. This was preceded by years of intensive research and development, as well as the discovery of the market-changing potential offered by the use of non-metallic reinforcements. In close collaboration with research institutes and universities, we have broken new ground many times in achieving the marketability of our technologies – which we have implemented at an early stage at the practical level.

Our expertise in the development and manufacturing of carbon and glass fiber reinforcements is second to none in the market. Together with our team, we ensure that our range of products and services is developed on a close-to-market and sustainable basis. We have realized numerous projects with our continuously growing customer base, particularly in the area of prefabricated concrete elements.

Since 2014, we have expanded our manufacturing with a location in Karlovac, Croatia, and supplemented it

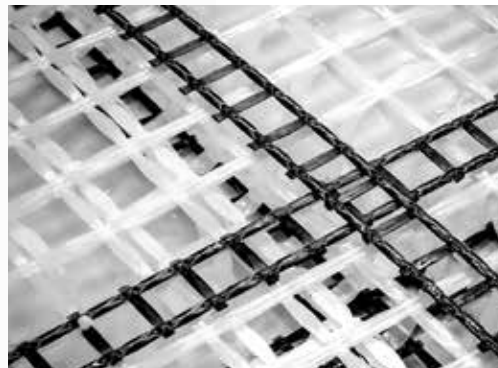
with the product segment of flexible reinforcements with SBR impregnation. solidian therefore covers the full range of carbon and glass fiber reinforcements for structural engineering, civil engineering and renovation projects, and draws on the necessary production capacity for a solid development in our continuously expanding market. In this way, we are consistently tracking the entire process of constructions made using textile-reinforced concrete, and we are actively shaping the future in this highly dynamic environment.

Today, 5 years later, we see ourselves as being a new partner for concrete that offers all of the attributes which account for a successful partnership – and that means a partnership that won't rust away. solidian would like to thank all of its business and development partners, customers and employees who have supported us along our eventful journey. We are looking forward to more successful years in which we will discover, enable and support plenty of new potential during the course of construction projects with textile-reinforced concrete.



AWARD
2018
BEST
PRODUCT
INNOVATION
SHELL

HIGH PERFORMANCE CAST IN CONCRETE



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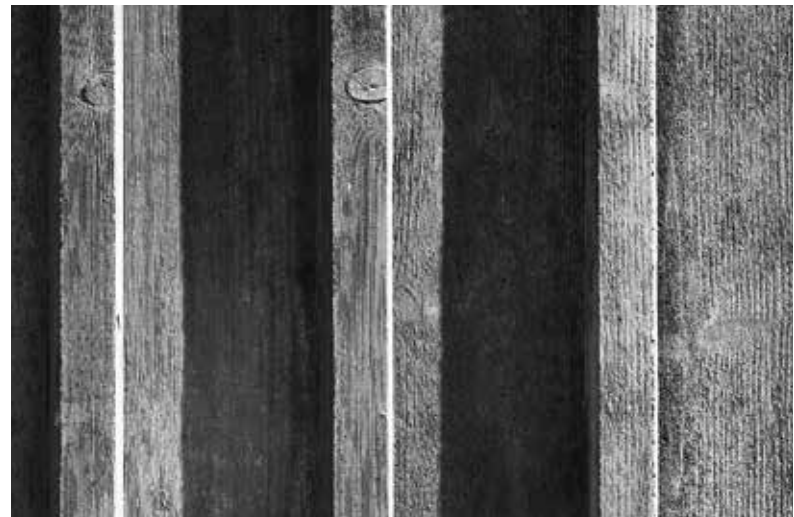
NEW PATHS ARE MADE
BY WALKING.

Friedrich Nietzsche

CONCRETE HAS A NEW PARTNER.



solidian is the leading manufacturer of non-metallic reinforcements made from carbon and glass fiber for innovative concrete constructions. In this respect, solidian combines technical services and advice with product solutions for the concrete industry. The reinforcements are used in constructions with textile-reinforced concrete in architecture, engineering and furniture, and convince due to their corrosion resistance, light weight and sustainability. From the development and manufacturing of the reinforcements, to the application-based consulting, to the component calculations, solidian offers design engineers, prefabricated parts facilities and construction firms everything from one single source. From its locations in Albstadt, Germany, and Karlovac, Croatia, solidian oversees and supplies its products to the construction sector worldwide.



LONG-LASTING AND WELL-STRUCTURED

THE KLINIK GUT IN FLÄSCH - CH

The “Klinik Gut” in Fläsch, Switzerland, is a three-story building which is situated in a rural location in the Swiss Alps. The task of the architects was to ensure that the new building blended in well with its rural setting. It was therefore important for the façade to have the weathered wood character which is typical of Alpine buildings. With a simultaneous requirement for a high durability, long lifespan of the façade and a resource-saving use of materials, the decision was taken to use carbon-reinforced concrete as a construction material: SLIM, LIGHT, ELEGANT and UNIQUE in terms of the structure of its SURFACE and COLOR.

Building contractor	ITW Ingenieurunternehmung, Balzers
Architects	Bearth & Deplazes
Completion	2016
Components from solidian	Curtain wall façade elements made from carbon-reinforced concrete and contoured in wood visuals
Prefabricated parts facility	Sulser AG, CH
Dimensions of elements	3.7 m x 0.2 m
Reinforcement	solidian GRID Q85/85-CCE-21



KNOWING IS NOT ENOUGH,
WE MUST APPLY.
WILLING IS NOT ENOUGH,
WE MUST DO.

Johann Wolfgang von Goethe



ELEGANT AND HIGH QUALITY

NEUER GEHREN OLD PEOPLE'S HOME
IN ERLENBACH - CH

The "Neuer Gehren" old people's home in Erlenbach, Switzerland, is a new building that offers approximately 5,500 m² of useful space for independent and assisted living. It consists of a contemporary, sustainable and energy-optimized building for both residents and visitors.

The architectural highlight is the balustrade elements of the balconies, which were made from elegant exposed concrete at the prefabricated parts facility Sulser AG, and which characterize the entire the building. Due to their elegance and the minimal dimensions of the concrete grating, solidian GRID carbon reinforcement was used. Due to the maximum dimensions of approx. 2.3 m x 3.4 m, the high-performance reinforcement also ensures the load-bearing capacity of the concrete elements.

Building contractor	Municipality of Erlenbach, ZH
Architects	Graber Pulver Architects AG, CH
Completion	2017
Components from solidian	Balustrade elements from architectural concrete
Dimensions of elements	2.30 m x 3.40 m
Quantity	approx. 170
Prefabricated parts facility	Sulser AG, CH
Reinforcement	solidian GRID Q85/85-CCE-21



Building contractor	Zentrum für Immobilien AG, Zug
Architects	Schwarz Architects
Completion	2017
Special attributes	Pilot- and demonstration project for new technologies
Components from solidian	Curved façade elements H x W x D = 2.95 m x 2.13 m x 0.98 m Component thickness: 50-60 mm
Prefabricated parts facility	Sulser AG, Switzerland
Reinforcement	solidian GRID Q95/95-CCE-38



CURVED AND LARGE FORMAT

6 STORY APARTMENT BUILDING
HOHLSTRASSE 100 – ZÜRICH

One of the key topics in modern urban development is the increasingly built up nature of inner city areas. With this situation in mind, the construction of a new 6 story inner city perimeter block-style building at Hohlstrasse 100 in Zürich was the ideal solution for the pilot application of new technologies, systems and materials. The balconies are protected against the light and noise by curved, large format concrete elements. To minimize the levels of weight and use of resources, a curved carbon reinforcement was used with which the durability and light weight nature of the concrete elements was reduced. Due to their special surface finish, the concrete elements feature uniquely curved, natural stone visuals.



LIGHT WEIGHT
AND SUSTAINABLE
PUBLIC HOSPITAL IN SOLOTHURN

The public hospital in Solothurn, Switzerland, is a new building which is due for completion in the year 2020. Balcony-like horizontal and vertical elements which are fitted before every window have a major impact on the configuration of the entire building. The relationship between the space and the external light conditions was a key point during the design of the façade.

The architects attributed considerable importance to providing the patient's accommodation with as much natural light as possible, while keeping out bright sunlight. This is the task of the curtain elements of the façade, which function simultaneously as a filter between the private sphere and the public area. The elements are only accessible to the cleaning staff.

Building contractor	Solothurn Canton, Construction Department
Architects	Silvia Gmür Reto Gmür Architects
Completion	2020
Special attributes	Walk-accessible sight and sunlight protection
Components from solidian	Projecting curtain façade elements
Dimensions of elements	2.30 m x 3.40 m
Quantity	approx. 700
Prefabricated parts facility	Sulser AG, CH
Reinforcement	solidian GRID Q142/142-CCE-38, Q95/95-CCE-38



The horizontal and vertical elements, whose purpose isn't to look elegant but to have a solid visual impact, would not have been possible with reinforced concrete. It would only have been possible to anchor the weight of the elements to the supporting walls at great cost. The architects therefore decided on a hollow cross-section with a shell that was only 30 mm thick. This was possible with the solidian GRID carbon reinforcement, which fulfilled all of the designers' requirements. At the prefabricated parts facility of Sulser AG, more than 700 elements were manufactured and initially fitted as a model. solidian accompanied the project as a supplier of carbon reinforcements and technical consultant for the experimental research to verify the load-bearing capacity of the elements.

CHILD’S PLAY - TEXTILE-REINFORCED
CONCRETE FOR KINDERGARTEN AND
ELEMENTARY SCHOOL

GEBIZ, ALBSTADT

A small-format, back-ventilated curtain
façade was realized for the health and
education center (Gesundheits- und Bil-
dungszentrum / GEBIZ) of Groz-Beckert
KG in Albstadt, which, among others, is
home to a kindergarten and an elemen-
tary school. A solidian AR glass fiber
reinforcement was used. For the cladding
of the entire façade, approximately
370 m² of fabric was cut into 1,660

individual sections of mesh. The result
is an exceptionally thin-walled design
of a façade in high quality architectural
concrete with a thickness of just 20 mm,
which simultaneously has a very high
level of resistance to pressure and ben-
ding as well as tensile strength. The low
weight of the façade allowed for a lighter
weight substructure to be chosen.

Building contractor	Groz-Beckert KG
Architects	Ackermann+Raff Tübingen
Completion	2013
Prefabricated parts facility	Hering Bau GmbH
Slab thickness	20 mm
Slab dimensions	1.20 m x 0.60 m
Surface area of façade	370 m²
Reinforcement	solidian GRID Q121/121-AAE-38



LONG-LASTING
AND ECONOMICAL

Deutsches
Institut
für
Bautechnik

DIBt

EASTSITE VIII, MANNHEIM

In 2015, at the “Eastsite” business district in Mannheim, Germany, an entire office building was constructed using the innovative solidian sandwich system for the first time.

In contrast to the neighboring buildings, the outer shell of the “Eastsite VIII” is just 30 mm thick - making it around 70 mm thinner than conventional outer shells that are made from reinforced concrete. Due to the minimum shell thickness, the use of materials for the façade is substantially reduced: in comparison with conventional systems, some 170 tons less concrete was necessary, with a weight that was 70 % lower. Not only did the building contractor benefit from the resource-conserving construction, they also achieved an increase in useful space of approx. 30 m². Since May 2017, the solidian sandwich system has been subject to general building inspectorate approval, i.e. no more approvals are necessary in individual cases. The approval can be used by every prefabricated parts facility.



Building contractor	B.A.U. GmbH & Co. KG
Architects	Fischer Architekten GmbH
Completion	2015
Special attributes	Since May 2017, the sandwich system has had general building inspectorate approval Z-71.3-39
Prefabricated parts facility	Dresßler Bau GmbH, D
Weight saving across entire façade	170 t
Surface area of façade	1,600 m²
Gain in useful space	30 m²
Reinforcement	solidian GRID Q121/121-AAE-38





CLEAR AND PURIST

TREPKA COMPANY BUILDING 2017, AUSTRIA

The construction of a new company building for the long-established company and precast concrete component plant Alfred Trepka GmbH of Ober-Grafendorf in Austria was necessary for the purpose of moving the old archives out and creating space for the presentation of differing construction materials and construction methods as well as wall mountings.



The primary goal was the construction of a building that was completely free from insulation materials based on crude oil. In addition to this was the aim of gaining experience with textile-reinforced concrete during the manufacturing of precast concrete components and their handling in the prefabricated parts facility.

Two walls on the side of the building were made using 50 cm thick monolithic light weight concrete. For the two exterior walls, Trepka decided to use a sandwich façade system from solidian. The 20 cm thick bearing layer is conventionally reinforced with steel. The thermal insulation is made from 12 cm thick mineral wool and/or mineral foam. The 3 cm thick facing shell with the solidian GRID glass fiber reinforcement consists of high-strength concrete, the surface of which is structu-

red, and which gives the 100 m² building its characteristically purist appearance.

The façade elements have differing dimensions of 8.40 m x 1.2 m and 4.74 m x 3.75 m respectively, which means they have an element area of approx. 18 m² with a thickness of just 3 cm! Georg Wieder of Trepka describes the problem-free application of the reinforcements: “The solidian products have allowed us to find new areas of use for the material of concrete, combined with the high-performance capability of the concrete products.” The crack-free surface achieves its effect due to the particular character of the concrete. The building was completed in the autumn of 2017 and constitutes a very successful application of the innovative sandwich façade system, and is a source of inspiration for bringing concrete façades to the fore in the world of building construction.



Dimensions of the elements	4.74 m x 3.75 m and 8.40 m x 1.20 m
Reinforcement	solidian GRID Q121/121-AAE-38
Prefabricated parts facility	Alfred TREPKA GMBH, A



LARGE-SCALE AND HIGH PERFORMANCE

BOSPORUS BRIDGE, 2016, TURKEY

At 320 m, the pillars of the giant sized bridge over the river Bosphorus in Istanbul are the highest in the world. The Turkish Yaviz-Sultan-Selim Bridge over the Bosphorus, which connects Asia with Europe, was opened in Istanbul in August 2016. For the construction of the pylons, curtain façades with reinforcements from the Albstadt-based specialists for textile-reinforced concrete, solidian were used, which were realized for the Turkish company Fibrobeton. The giant-sized Turkish project, which bristles with superlatives from both an architectural and structural point of

view, was as-if-made for the use of textile-reinforced concrete, because without the innovative material, the façade-configuration of the pylons would not have been possible from a technical perspective.

In addition to the sophisticated design of the combined suspension and cable-stayed bridge due to its height and weight, above all else, it was the extremely high wind load of up to 300 kg/m^2 that made the structure into a challenge in terms of both the statics and the assembly. For the slabs of the façade that were used, and which protect the structure, on the basis of the substructure and to facilitate the handling at considerable height, a maximum slab weight of 110 kg/m^2 was necessary, which cannot be achieved with conventional reinforced concrete. The solidian engineers started by calculating the statics on the basis of the guidelines, and developed the optimum geometry of the slabs, which were given a maximum dimension of $3.0 \times 4.5 \text{ m}$, with a thickness of just 30 mm. It ultimately proved possible to achieve the required parameters with an optimum hybrid reinforcement from sections of glass and carbon mesh.





Number of elements	approx. 700
Max. dimension	3.00 m x 4.50 m
Prefabricated parts facility	Fibrobeton

Solidian also played a supportive and consultative on-site role during the production of the slabs with the use of solidian GRID at the Turkish prefabricated parts facility Fibrobeton, allowing the assembly work to be completed on schedule. The non-corrosion product solution that was realized fulfills the required sustainability of 100 years and provides emphatic confirmation of the potential of textile-reinforced concrete as the material of the future.





IF YOU DO IT RIGHT IT
WILL LAST FOREVER

Massimo Vignelli



PICTURE SOURCES

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