FibR’s Robotic Elegance in Architectural Design Through the Texoversum Project

FibR GmbH, a pioneering construction company specializing in architectural fiber composite structures, continues to redefine the landscape of architectural design and construction. At the forefront of their innovative approach is the Texoversum project, a textile research and education facility for the University of Reutlingen.

Let’s delve into the intricacies of FibR’s unique services, with a spotlight on the Texoversum project that exemplifies their commitment to resource efficiency and cutting-edge construction techniques.

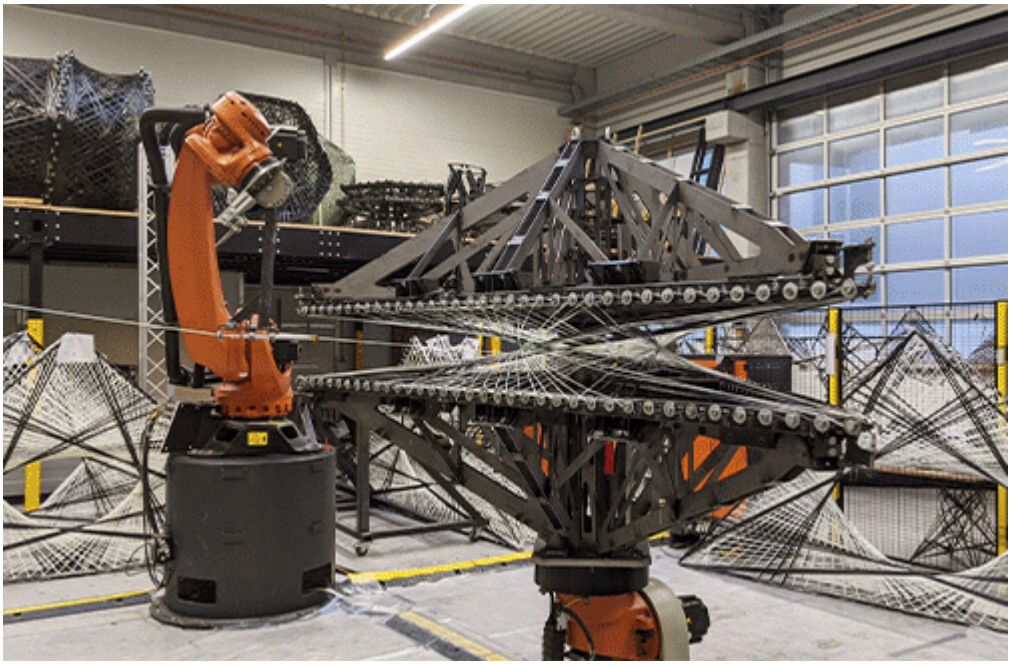
FIBR’S CORE SERVICES & EXPERTISE

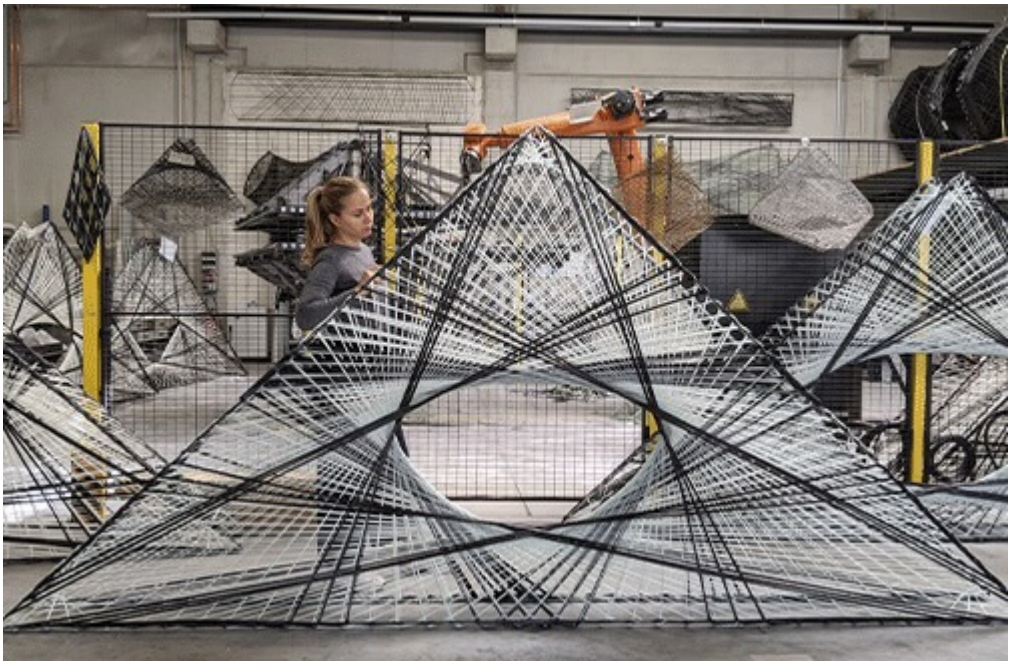
FibR’s core services revolve around robotic fabrication of fibrous lightweight structures for architectural applications. Their expertise spans load-bearing structures, facades, and interiors. What sets FibR apart is their integration of computational design methods and robotic fabrication. This integration helps unlock a novel design and construction repertoire that emphasizes resource efficiency.

ROBOTIC FABRICATION FOR PRECISION & SUSTAINABILITY

FibR’s robotic filament winding processes enable the precise placement of fibers in complex spatial arrangements. This approach not only ensures high-precision architectural components but also contributes to societal-relevant solutions for resource-efficient manufacturing.

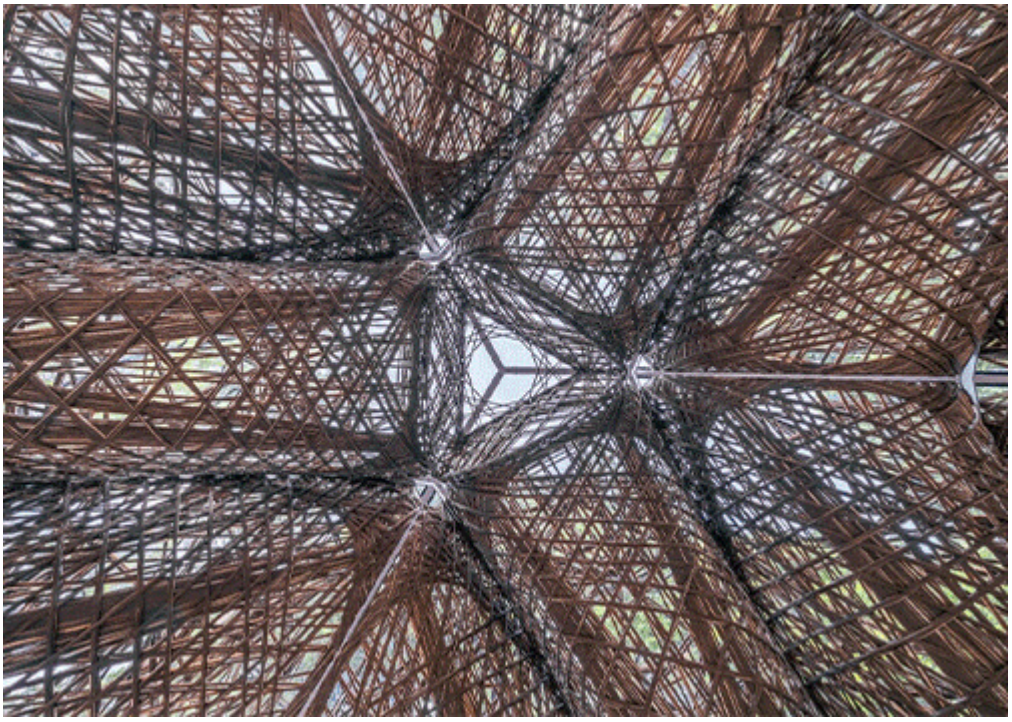
The process is waste-free, placing materials only where needed. It employs lightweight construction principles, aligning fibers to optimize strength and minimize environmental impact.





CUSTOMIZED FIBER COMPOSITE MATERIALS

FibR takes pride in developing its own composite materials tailored to architectural requirements, ensuring weather resistance, robustness, structural performance, and visual appeal. From expressive glass fiber structures to high performance carbon components and sustainable products made of natural fiber, FibR’s materials offer a broad design repertoire.



TEXOVERSUM: A MILESTONE IN DIGITAL LIGHTWEIGHT CONSTRUCTION

The Texoversum project stands out as a testament to FibR’s innovation. This textile research and education facility features a secondary fibrous skin that acts as a balustrade for balconies and provides shading for the fully glazed building. FibR played a crucial role in the early stages of the project, contributing to component geometry,

fabrication strategy, and certification processes.

UNIQUE DESIGN & SUSTAINABILITY

The Texoversum facade is a milestone in digital lightweight construction, showcasing bespoke structural design, shading capabilities, and considerations for weathering and fire protection. Each component optimally utilizes carbon fibers for load-bearing while carefully calibrating glass fiber arrangements for shading. This results in a structure that minimizes resource consumption and enhances sustainability.

INSPIRATION FROM NATURE’S EFFICIENT CONSTRUCTION PRINCIPLES

FibR’s approach draws inspiration from nature’s efficient construction principles, where load-adaptive organization and reinforced composite materials result in resource-efficient and highly performant structures. By employing computational design and robotic fabrication, FibR translates these principles into their technical structures, addressing urgent needs for resource-efficient architectural design and construction.