B.T. Innovation GmbH, 39116 Magdeburg, Germany

Sophisticated construction with new technologies

The B.T. innovation company has been internationally active for many years as a developer of innovative products for the building and precast concrete industries. Architects and designers are also increasingly interested in these intelligent products. Because they enable new planning and construction solutions and may simultaneously save time and costs.

The company's headquarters, a sophisticated building conceived by architect Ralf Niebergall, shows how it works. CEO and builder Felix von Limburg is totally confident about his own products and wants to show how well and effectively they function, with the new building as an example.

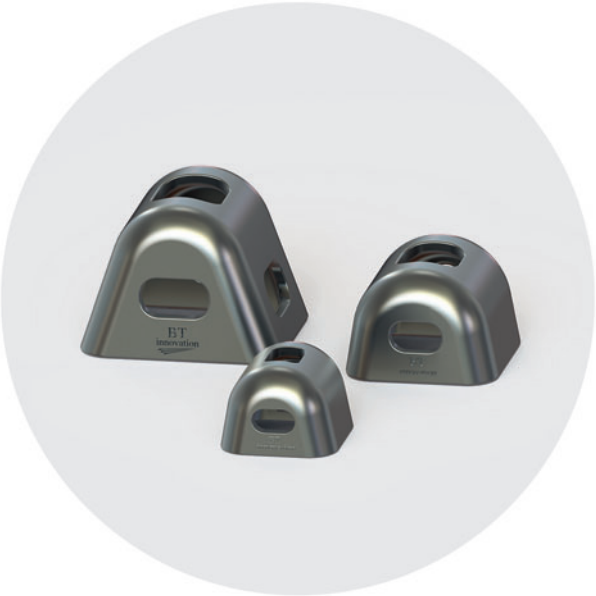
The exterior facade of the building already offers surprises. What appears to be a high-quality sandstone façade is a solution conceived in precast concrete elements. "We wanted to show what is possible with concrete", says von Limburg. To achieve this impression, the coloured concrete was manufactured with special aggregates in a way that recreates the structure of sandstone. It was also acidified and treated with hydrophobizing agent.

The multi-layered precast concrete elements were joined together using the company's patented turnbuckles. This effective and novel connection technology enabled a reduction of 2 full working days per storey in the time of construction, to name only one example of the diverse savings opportunities. Architect Ralf Niebergall succeeded in creating a place where people feel comfortable. New technical possibilities and inherent basic needs for contemporary living comfort converge here.
Niebergall describes the building's philosophy as follows: "It should be a compact, U-shaped structure in precast concrete elements, naturally, to make use of the B.T. products. The timeless elegance of old mansions, their expansiveness, should be translated into the modern era. There should absolutely be bay windows that provide a view to the side. The interior and exterior should communicate productively. We wanted to set the classical, strictly symmetrical order that results from the internal organisation in motion. Because everyone who works here needs agility of mind.
Dozens of variants were drawn for the façades until the objective was achieved. There is no point where they are really symmetrical. A really rigid rhythm is not repeated anywhere, yet the building radiates a confident calm. The asymmetrical bay windows convey dynamism, but most of all, they should encourage sitting there from time to time, changing body posture and allowing the mind to wander.

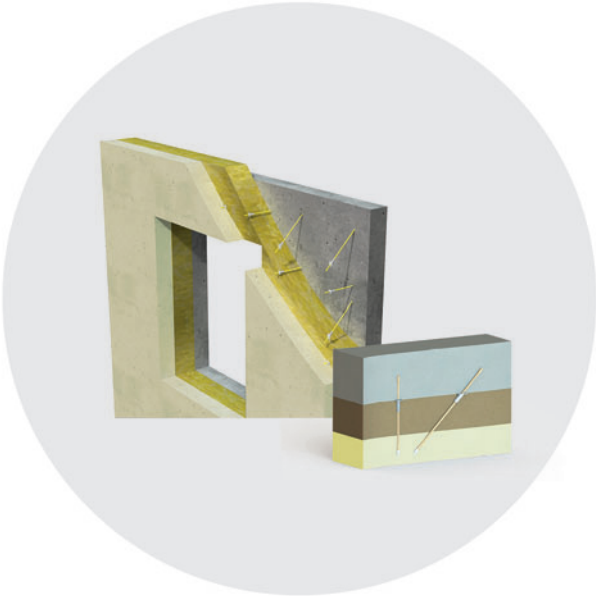
There should be the greatest possible freedom in subdividing the office floor plans on the inside. The issue was a balanced relationship between openings that let sufficient daylight in for the office work and closed surfaces that protect from

B.T. innovation headquarters. The building can be visited by appointment.

The asymmetrical bay windows convey dynamism



All of the building's precast elements were connected using the BT-Spannschloss® turnbuckle.



Exterior wall elements were connected to each other by ThermoPins

110accumulated summer heat, while providing good thermal insulation. The building has two concrete cores. The remaining floor areas can be flexibly subdivided. The innovations in this building are almost invisible."

Patented products

B.T. innovation's patented products can meet high expectations for quality and cost savings.
The detailed functioning and savings potentials, according to manufacturer's data:

- All of the building's precast elements – both exterior and interior walls – were connected with the BT-Spannschloss® turnbuckle. Use of BT Turnbuckles saved approx. two working days per floor.
- working Joints in the concrete foundations were sealed with SynkoElast®. This enabled replacement of formerly customary joint tapes and metallic waterstops. The result: very high assurance of watertightness accompanied by savings of approx. 30 %, due to faster and simpler assembly.
- The facing and load bearing shells of multi-layered exterior wall elements were connected to each other using ThermoPins. These approved GRP anchors significantly reduce heat loss in the insulating layer. Because the ThermoPin® prevents thermal bridges. What's more, the material cost savings are approx. 25 % in comparison to stainless steel anchors.
- RubberElast® was used for joints between precast wall elements in the basement. The result is an approx. 20 % savings in material costs in comparison to an externally visible sealing membrane and a shorter assembly time.
- All exterior wall joints between precast elements were sealed with a InnoElast® C sealing in a colour modified especially for this construction project. InnoElast C can be used without a primer and completely replaces sealants and sealing tapes with cost savings of approx. 30 %.
- Vertical joints in areas in contact with the soil were sealed with ProElast® strips and InnoElast® Type 1. This system is especially durable and can withstand high mechanical loads.
- Floor coating in utility rooms used FlächenElast® Type P. The main benefit: instead of the multi-layer applications of other coatings, only one operation was necessary. Furthermore, FlächenElast Type P is highly hard-wearing. The material costs savings were over 15 % with significantly reduced work time.
- The formwork construction could also be executed more quickly, due to flexible use of Syflex® in the execution of the large circular sliding doors for the entrance area of the building. In addition, the formwork is reusable. The result: approx. 50 % cost savings in comparison to wooden formwork.

FURTHER INFORMATION

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