

PRESS RELEASE

Intelligent execution of Mannheim projects for stationary traffic using Cobias slab technology

The application of the patented Cobias slab technology has optimised two notable projects for stationary traffic in Mannheim: the expansion of the underground garage at the Universitätsklinikum (University Clinic) and the multi-storey car park in the Glücksteinquartier (Glückstein quarter).

On both of these projects by the same client and operator, the municipal Mannheimer Parkhausbetriebe GmbH (MPB), the slab technology by Cobias was used to optimise both constructional measures and utilisation parameters.

Regarding the construction, amongst other things the depth of the foundations was reduced in the **underground garage extension at the Universitätsklinikum**, and the parking level plane was aligned with the existing underground garage.

In the current construction work on the **multi-storey car park in the Glücksteinquartier**, the span widths, the specified clear headroom and column-free parking spaces simply demand use of the Cobias slab system. At the same time, supplementary operator specifications for continuously level slab undersides without girders and offsets in ceiling heights are thus fulfilled.

170 underground garage parking spaces on 2 levels

The Universitätsklinikum in Mannheim has improved the parking space situation for patients, visitors and employees on the Theodor-Kutzer-Ufer (riverbank) through the extension of the existing underground garage.

Across a base area of approximately 3,000 m², a 2-storey underground garage with 170 vehicle parking spaces has been created. The extension construction has been connected with the existing underground garage via ramps. Through the use of the two Cobias void former Types E270 and E360 across 4,400 m² slab areas, the parking bays could be realised with a comfortable width of 2.50 m and a continuous clear headroom height of 2.25 m.

For underground garage users and the operators, the reduction of the column constructions pays off in multiple ways. It is more convenient to park in and drive out of the parking spaces, because no intermediate columns obstruct the view or restrict the width and depth of the parking spaces. Furthermore, the multi-storey car park operator has recorded less impact damage and accidents.

At the same time, the slender ceiling constructions facilitate a reduction in the depth of the foundations, in spite of a slab span width of 14.50 m.

Both the reduced depth of the foundations and the reduced number of columns thus lower the required concrete quantity by 700 t and many tonnes of reinforcement steel, which in turn reduced the overall construction costs.

Photos, graphics, image captions:



Cobiax void former modules installed prior to the concreting of the roof slab during construction of the underground garage for the Mannheimer Klinikum, which was subsequently turned into a green roof

File name: Cobiax TG Mannheim
Source: Heinze Cobiax



Interior view of one of the two parking levels in the underground garage at the Mannheimer Klinikum. This photo clearly shows that the individual parking spaces are free of columns, and that the underside of the slabs form a continuous level which is extremely installation-friendly for all building technology systems.

Based on positive experiences with the intelligent Cobias slab technology for the underground garage extension at the Universitätsklinikum, instead of the planned ribbed slab, the municipal Mannheimer Parkhausbetriebe GmbH (MPB) has also requested the use of the Cobias slab technology for the optimisation of the multi-storey car park in the Mannheimer Glücksteinquartier.

From 2018 onwards, 600 extra vehicle parking spaces will be made available in the multi-storey car park for the new Quarter.

The 9-storey "Mobilitätshaus" (Mobility house)

The 8-floor multi-storey car park with one extra basement floor is to rise to a height of around 23 m as a reinforced concrete construction. The converted space is stated as having an area of 53,000 m³, and the construction costs are EUR 16 million.

The multi-storey car park with 600 vehicle parking spaces is to be constructed in accordance with the plans by the Weinmiller Architekten office, based in Berlin, who won the prior architectural competition.

"Noise protection and green spaces were also important to us during the planning, and a photovoltaics system is to be installed on the roof", explains Dr. Ballreich, Managing Director of the municipal Mannheimer Parkhausbetriebe GmbH (MPB).

In order to fulfil the attributes promised in the name "Mobilitätshaus", the MPB is to set up further offers such as car-sharing spaces, charging stations for electric vehicles and parking spaces for Park & Ride customers who take the train. At the moment, 50 bicycle parking spaces have been planned, which, according to the operator, can be increased on demand to up to 400 bicycle parking spaces.

The multi-storey car park access takes place via the Glücksteinallee. The pedestrian connection to Mannheim main railway station has also been taken into account in the planning.

Column-reduced reinforced concrete construction

The reinforced concrete slabs designed using Cobias void formers extend across 16.50 m in a continuous component thickness of 47 cm, over the central longitudinal wall onto the reinforced concrete columns of the exterior façades or on the supporting precast façade.



2.50 m parking space widths and span widths of 16.50 m

As in the underground garage at the Universitätsklinikum, the soffits should run continuously, without irritating girders. Due to these utilisation and design specifications, conventional construction slab systems would not have been possible, as they would have been excessively thick and too heavy.

The overall building weight had to be reduced as much as possible in order to minimise the expenses for the foundations. The structural engineers succeeded in this through the application of Cobias slab technology. In this way, they were able to fulfil all the required specifications, as is also the case in the future showcase project by the municipal Mannheimer Parkhausbetriebe GmbH (MPB).

Due to the large span width of 16.50 m, the individual parking levels are brightly lit and clear in layout, and the individual parking bays are wide and free of columns.

For this purpose, Cobias void formers of the Type E315 are used for the "Mobilitätshaus" across a slab area of approximately 16,000 m².

The principle: void formers replace concrete

The Cobias technology is based on the creation of closed voids inside a reinforced concrete surface or slab. By using these enclosed Cobias plastic void formers made from recycling material, concrete is replaced wherever it is not constructionally essential.

Building owner
Mannheimer Parkhausbetriebe GmbH, Mannheim

Architect
Weinmiller Architekten BDA, Berlin

Construction design
ARGE: Bauunternehmen Streib GmbH & Co. KG,
Mannheim und Heberger Hoch-, Tief- und Ingenieur-
bau GmbH, Schifferstadt

Structural engineer
Gerd Paul Koch GmbH, Mannheim

90,000 m² Cobias slabs

According to our current research, 90,000 m² Cobias slabs have been used in projects in Germany, Austria and Switzerland for stationary traffic over the past years:

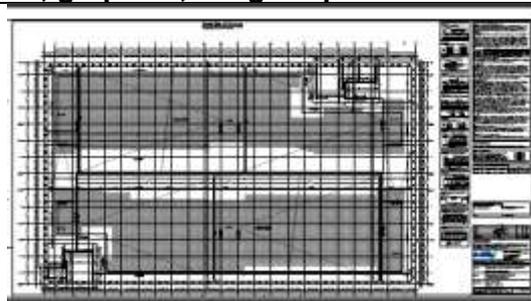
["www.cobias.com/projekte"](http://www.cobias.com/projekte)

The Cobiax reinforced concrete slab system – less is more

In comparison to a conventionally-designed and manufactured reinforced concrete slab, the use of the plastic void formers, made from recycled plastic, can verifiably reduce the use of materials, in particular concrete, and therefore the emissions of environmentally-toxic pollutants by up to 20%, with the effect of the dead weight reduction on the complete structure right down into the foundations, and the related further material savings not yet being taken into account.

This high reduction in the use of construction materials – triggered through the void formers – has a substantial effect on the sustainability certifications common today for modern construction projects.

Photos, graphics, image captions:



Installation plan by Heinze Cobiax for the slab over the second floor, axis 1 - 24 / A - O for the Mannheimer "Mobilitätshaus" construction.

*File name: Cobiax Parken Glücksteinquartier-A0
Source: Heinze Cobiax*



The visualisation of the multi-storey car park in the Glücksteinquartier in Mannheim, which is currently under construction.

*File name: Rendering bloomimagesParkhaus Mannheim_Streetview
Source: bloomimages, berlin*

Keywords

Heinze Cobiax, Mannheimer projects, Universitätsklini-



kum (University Clinic), underground garage extension, multi-storey car park, Glücksteinquartier (Glückstein quarter), Mannheimer Parkhausbetriebe GmbH, Mobilitätshaus, Cobiax slab technology, column-reduced reinforced concrete construction, architect, Weinmiller Architekten BDA, Berlin, construction, Streib GmbH & Co. KG, Mannheim, Heberger Hoch-, Tief- und Ingenieurbau GmbH, Schifferstadt, structural engineer, Gerd Paul Koch GmbH

All motifs available in print quality.
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