



More space for retail

06 | 21

Weight savings of over 3,000 tonnes thanks to sustainable Cobiax void former technology mean a shopping centre can expand without needing additional reinforcement work.

The Dreiländergalerie in Weil am Rhein is a new shopping and service centre currently being built in a central inner-city location. As well as a tight schedule, a series of construction-related planning changes posed the greatest challenge. One of the buildings was to have an extra floor added, to create more space for retail. Increasing the total weight of the building as a result of this was not an option, as otherwise the earthquake resilience verification would have been compromised, and extensive reinforcement work would have been needed. Structural engineers ASSMANN BERATEN + PLANEN GmbH advised the building management company CEMAGG Weil am Rhein GmbH & Co. KG to use void former modules from Heinze Cobiax Germany GmbH right from the second basement floor. This saved a total of 3,365 tonnes in weight. Furthermore, 227 concrete mixer trips were dispensed with, meaning 286 tonnes lower CO₂ emissions. Cobiax is doing their bit towards the concept of green building, for which LEED Gold certification is being sought.

In future, passengers on the S8 tram line in Weil am Rhein will be able to enjoy some unique views: in a central location on Europaplatz, a service and retail centre is being built under the project name “Dreiländergalerie”, which will incorporate the building housing the tram’s terminus. The complex, which is being project managed by CEMAGG Weil am Rhein GmbH & Co. KG, with a main building and standalone tower, connected on the upper floor, is traversed by the tram at ground level. Upon completion, the building, designed by the Düsseldorf office of Chapman Taylor following plans by architect Yvonne von Salm, will have 26,500 m² of retail space, enough for 550 parking spaces, 60-70 shops and restaurants, and other services besides.

“The biggest structural challenges were the geographical location, being in a seismic zone 3, and the subsequent expansion of the building,” claims Christof Hülsmann, structural planner in charge at ASSMANN BERATEN + PLANEN GmbH.



Void former modules from Cobiax are used to keep the weight of the building constant despite its getting taller.
Source: CEMAGG Weil am Rhein GmbH & Co. KG

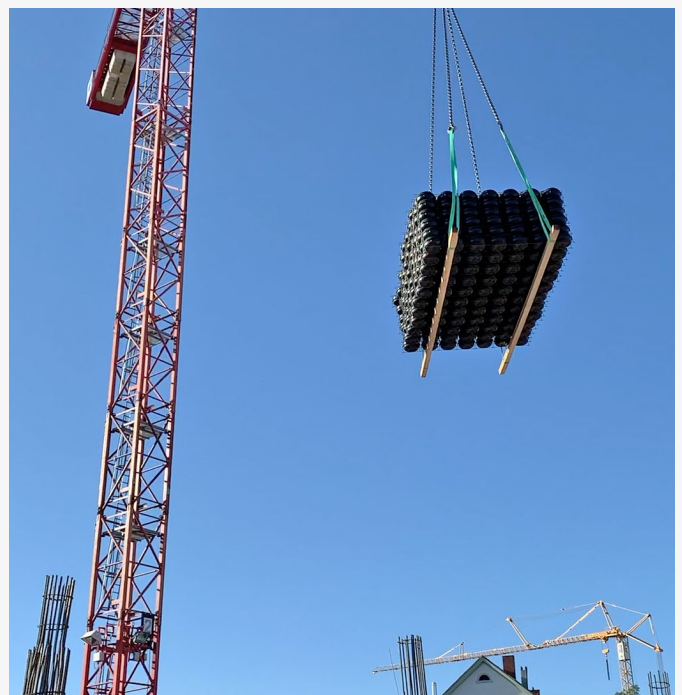
“When the client asked about potentially adding a third floor, the foundations and two lower floors had already been constructed. The extra weight would jeopardise the earthquake resilience verification and in the event of earth tremors, greater loading would be placed on the strengthening stair cores and their foundations. In conventional design, complex reinforcement measures would have been necessary on the walls and foundation slabs which have already been produced. So the structural engineer recommended using void former modules from Heinze Cobiax Deutschland GmbH, which are made from 100 per cent recycled plastic.

Using void former technology saves 3,365 tonnes in weight.

Installing them starting from the second basement floor keeps the weight of the extended building constant. “So we were able to prepare the building for the addition of another floor without disrupting or even interrupting the construction process which had already started,” claims Jana Knoppe, project manager at Drees & Sommer as client representative for CEMAGG.

Using these starting from the slab above the second basement floor reduced the dead weight of the floor slabs, significantly reducing the loading on the load-bearing and strengthening building elements. To this end, around 108,000 void formers are used in precisely predefined, structurally non-critical areas (a total void former slab area of around 35,000 m²). Due to different slab thicknesses, various versions of the Cobiax SL and EL systems are used (including SL-100-120.7, SL-M-140-160.7 and EL-M-360). Seismic activity means particular design requirements have to be met in any areas holding up the point-supported slabs. This included, for example, the installation of structural shear force reinforcement, which means that the distances between the void formers and the supports are greater.

The void formers reduce the total weight of the extended building by around 3,365 tonnes. „Using our technology means a huge reduction in the weight of the building,“ explains Barbara Staab, project manager at Heinze Cobiax Germany. “There is also an environmental benefit, as 227 fewer concrete deliveries are now needed. So savings ran to 286 tonnes of CO₂.” The reduction in construction site traffic and the resource-saving construction method fit in very well with the green energy concept behind the Dreiländergalerie.



Due to different slab thicknesses, various versions of the Cobiax SL and EL systems are used, some being pre-assembled and others delivered as parts for assembly at the construction site.

Source: Heinze Cobiax Deutschland GmbH



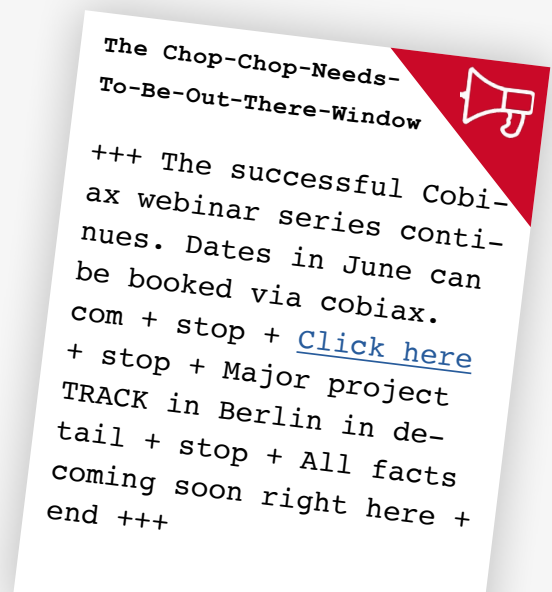
Around 108,000 void formers are used in precisely predefined, structurally non-critical areas, resulting in a total void former slab area of around 35,000 m².
Source: CEMAGG Weil am Rhein GmbH & Co. KG

Support during planning and on site

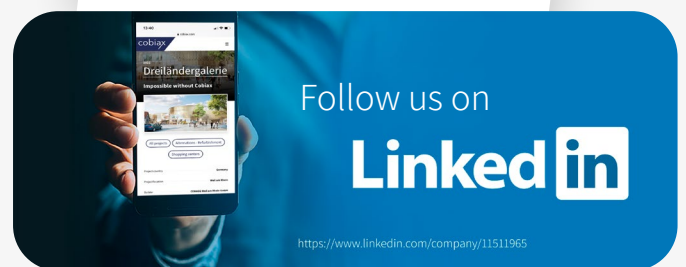
Cobix in fact assisted with project planning, to ensure the best possible configuration of void formers. „Cobix has been actively involved in the planning process and has teamed up automatically and smoothly with everyone involved in the construction process,“ confirms Hülsmann. The building complex, which is to be certified in accordance with LEED Gold, is marked for completion at the end of 2021. The Dreiländergalerie will then be handed over for its new life as a service and retail centre. In fact, the complex has already welcomed one distinguished visitor: the German children’s tv programme „Die Sendung mit der Maus“ was enthusiastic about the void formers, reporting in one episode on the benefits of this design.

More information on the web at: www.cobix.com

Link to „Sendung mit der Maus“ episode: <https://www.wdrmaus.de/filme/sachgeschichten/bauhohlkoerper.php5>



In order to reveal the secret behind the void formers, the mouse reporter had everything explained to her in detail - and she even got stuck in herself.
Source: Heinze Cobix Deutschland GmbH



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Further information. The Cobiax-Experts like to help.

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