

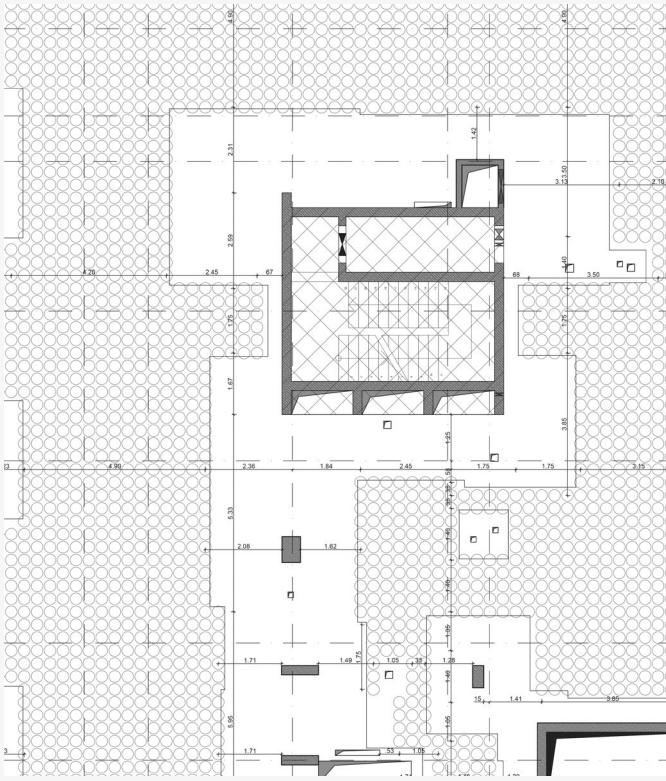
Revitalisation of the Junghof Plaza 08 | 20

Fundamental approach: weight reduction by using void formers means the existing foundations can be integrated.

If existing parts of the building need to be integrated during revitalisation projects, structural engineers also determine whether structures that are being preserved are able to bear the new load or whether they need to be strengthened with additional structural support. This was the case with the revitalisation of the Junghof Plaza in Goetheviertel, Frankfurt am Main, which will be completed towards the end of 2020 under the leadership of FGI Frankfurter Gewerbeimmobilien GmbH. The architects from apd - Ulf Pauli und Partner mbB had to integrate the three existing basement levels as well as the stairwells and two elevator shafts into the design, in keeping with the design development and concept design by Henning Larsen GmbH. As the new building has up to 50 percent heavier column loads than the old one, structural engineers at Werner Sobek Frankfurt GmbH & Co. KG had to strengthen the existing foundations. This was made possible thanks to additional pile foundations and the use of void former modules from Heinze Cobiax Deutschland GmbH in the

nine mezzanine floors. This resulted in a weight reduction of 1,425 t, which is equivalent to around 563 m³ of concrete. In addition, using our sustainable technology is also saving 121 t of CO₂ and so making a significant contribution to the building being awarded the silver DGNB certificate.

Following partial demolition of the existing building, re-designing the Junghof Plaza in Frankfurt am Main involved the implementation of contemporary spatial and urban planning features. The original building complex seemed less accessible from its external appearance, whilst the revitalisation should impress everyone with its flexibility and its modern mixed usage. This was achieved by opening up the building's interior space, building staggered floors with spacious roof terraces, and creating space in the courtyard of the Junghof Plaza, half of which is open to the public. As the three basement floors, the staircases and two elevator shafts from the original building were to be retained, the first



Cobix experts prepare detailed installation plans for each project, taking into account the structural engineering design calculations.
Source: Heinze Cobix Deutschland GmbH

challenge was to review whether and how the load from the new structures could be built onto existing parts of the building and existing foundations.

Reducing the in situ pile foundations by reducing weight

The initial situation when construction began envisaged a large amount of demolition from the ground floor up, whilst preserving the three basement levels. The load reduction on the upper floor parts of the new building architecture had to be based on existing parts of the building in the basement. As the new parts of the building were carrying column loads that were up to 50 per cent heavier, new girder, column and foundation strengthening was required. The measures that were being taken to meet the design requirements involved, amongst other things, reducing the dead load of the structure and the resulting relief on the existing heavily-loaded columns. Cobix void former modules were used on all nine mezzanine floors. Using our Cobix SL-M-140-160 modules allowed the weight of the intermediate floors to be reduced by 1,425 t. The total number of 61,614 void formers reduced

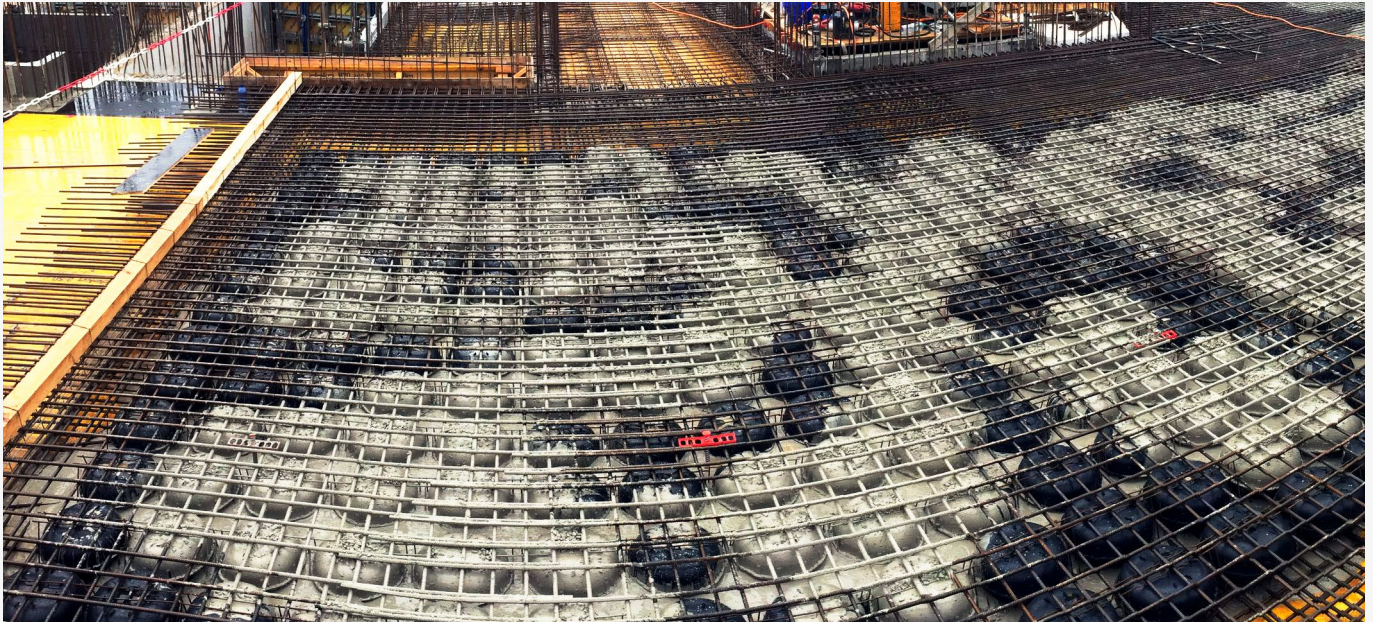
the amount of concrete by 563 m³, which greatly reduced the number of new pile foundations required. „Using our technology does not just mean a huge improvement in terms of building weight,“ explains Volkmar Wanninger, Managing Director of Heinze Cobix Deutschland GmbH. “Reducing the amount of concrete and therefore the amount of cement also produces an environmental benefit that should not be underestimated, as 95 deliveries of concrete were avoided. According to our calculations, the savings in the case of the Junghof Plaza came to 121 t of CO₂.“

Support from the planning stage to construction

The savings potential offered by using void formers played an important role even at the planning stage, as the reduction of dead loads of the nine upper floor slabs could already be calculated before construction started. These values were factored into the structural calculations, so that accurate statements could be made at the planning stage about where and to what extent the existing 1.8 m reinforced



Two-storey galleries and the open and friendly façade design lend the new building an attractive look and an individual personality.



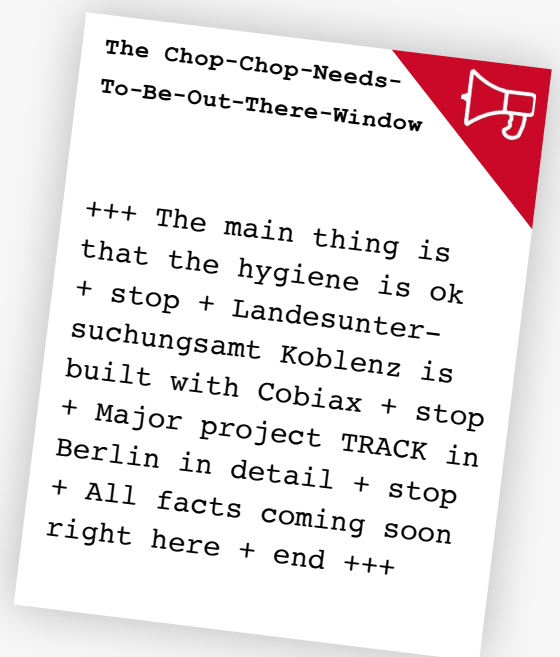
By using 61,614 Cobiax modules, the weight of the intermediate floors was reduced by 1,425 t, so reducing the number of new pile foundations needed.
Source: W. Markgraf GmbH & Co KG

concrete floor had to be strengthened using additional pile foundations. Using the installation plans, the building company knows where the void formers have to be located in the slabs. „During the first delivery, a Cobiax employee is usually on hand to explain both the handling and installation plans to the construction workers,“ says Mr. Wanninger, explaining the procedure. „Even if problems arise during the building work, the next delivery is called off or other questions arise, our project management is always available.“

Completion of the approximately 35 m tall building, which is to have a silver certificate according to DGNB requirements, is planned for the end of 2020. The Junghof Plaza complex will then be handed over for its new role, with mixed use as office space on the eight upper floors, retail and catering businesses on the ground floor, and a boutique hotel with 215 beds in the northern part of the building.



Fully installed Cobiax SL modules.
Source: Heinze Cobiax Deutschland GmbH



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Cobiax and climate protection
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Further information. The Cobiax-Experts like to help.

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