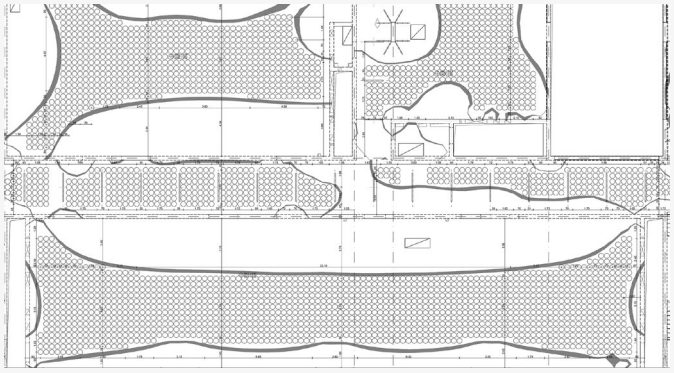
"State-of-the-art" university new build

03 | 20

Sustainable education: The new replacement building at the Ulm University of Applied Sciences meets the Efficient Building Plus standard

Work started in August 2018 on a new building for the production engineering, information technology and electrical engineering faculties at the Ulm University of Applied Sciences. This is being built on the Oberer Eselsberg, on behalf of the Ulm office of the Baden-Württemberg state agency for property and construction. Once it is complete at the end of 2020, the 38.4 million euro building will provide 5,800 m^2 of floor space, which is enough room for around 1,000 students, and be equipped with the latest laboratory technology. The design, by the Ulm office of Baden-Württemberg Property and Construction, is currently being brought to life using plans from the Munich offices of Spreen Architects. The new complex will be rated silver under the Sustainable Building Assessment System (BNB), and will also be built to meet the requirements of the Efficient Building Plus standard. To meet the relevant requirements, as well as our Cobiax SL-M-220-240 elements, concrete core activation has also been used in the building's ceilings and in other locations. A significant improvement in the concrete core activation response time is anticipated, because the amount of concrete has been reduced by 1,210 tonnes.

The Federal Ministry for the Environment, Nature Conservation, Construction and Reactor Safety is currently supporting educational buildings through a funding programme, if they are designed to meet the requirements of the Efficient Building Plus standard. The Ulm office of Baden-Württemberg Property and Construction has set itself the goal of meeting this standard for the new building at the Ulm University of Applied Sciences on the Upper Eselsberg. Things like the combination of a system of solar panels with a heat pump along with highly-reactive concrete core activation should make this possible. In addition, the aim is to get a silver certification under the Sustainable Building Assessment System (BNB). To achieve this, consideration must be given to an approach that saves resources right from the



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

start, such as when setting up the construction site, using sustainable building materials or with regard to the building‘s energy supply.

The lack of homogenous subsoil means that the weight of the building needs to be kept low

The subsoil survey showed that it was not homogenous and so not able to carry much weight, which presented a particular challenge for the structural engineers at ProfessorPfeiferandPartner BUILDING CONSULTANCY PartGmbB. A foundation plan was therefore developed in partnership with the Building Land Institute at Kling Consult GmbH from Krumbach/Swabia. It was decided that a heavily reinforced slab foundation was needed to bridge weak spots in those locations in the subsoil where there was low load-bearing ability and stiffness. The soil conditions also made it necessary to keep the dead weight of the building as low as possible. This is where our void former elements came into their own. The planning office was already familiar with these from previous projects. The calculations showed that this could save 484 m^3 of concrete, which equates to a weight of about 1,210 tonnes.

Advance planning coordination makes it easier to carry out all of the work

To meet the requirements of the BNB and the Efficient Building Plus Standard, a system of solar panels and slab construction with concrete core activation were planned, amongst other things, as part of the energy plan. Our Cobiax elements are also making a contribution to this, as they are made from recycled materials. The reduction of the amount of concrete is also reducing the amount of cement, which requires a lot of energy to manufacture. This leads to a reduction of over 100 tonnes of CO_2 and 80 fewer deliveries. The measures to optimise energy and save concrete, i.e. installing our Cobiax elements, the heating and utility connections, as well as additional empty pipes and built-in components, could be brought together as a whole without any problems. Coordinating all of the companies involved in the structural work was the job of the building contractor Leonhard Weiss GmbH & Co. KG, which had also already had positive experiences with our products in the past.

Structural work completed on schedule

The design by the Ulm office of Property and Construction also called for the slabs to be made of class 3 architectural concrete, using a specific formwork design, which required high-quality construction. In addition, the structural designs had to take account of the different uses of the rooms as lecture theatres, labs or offices. In particular, the spans of the slabs in the lecture theatres and the atrium are well over 9 metres, whereas high demands on deflection limitation and large payloads had to be taken into account in the other

By using 34,398 Cobiax void formers, 1,210 tonnes of concrete have been saved in the new replacement building at the Ulm University of Applied Sciences. Source: Heinze Cobiax Deutschland GmbH

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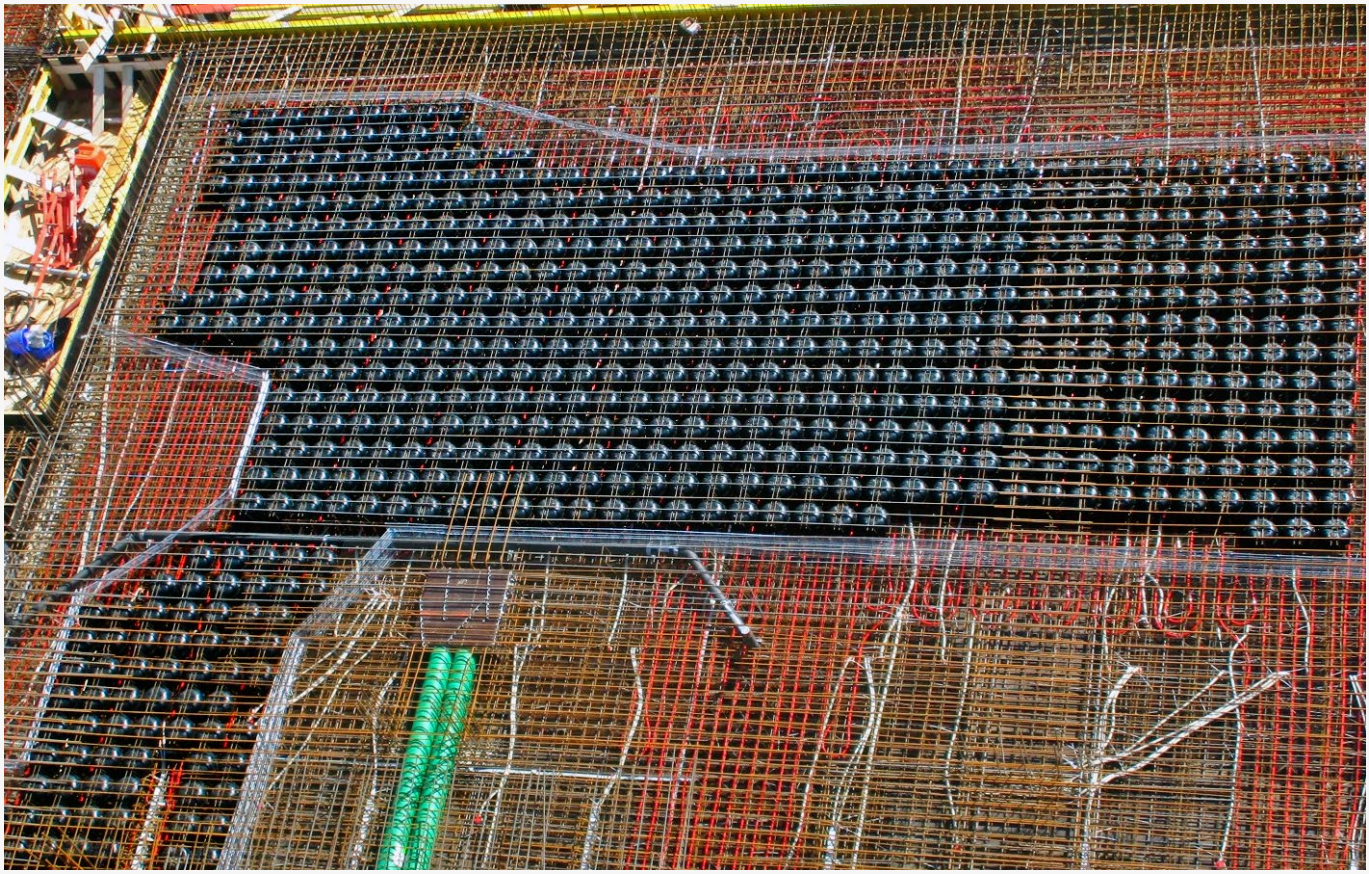
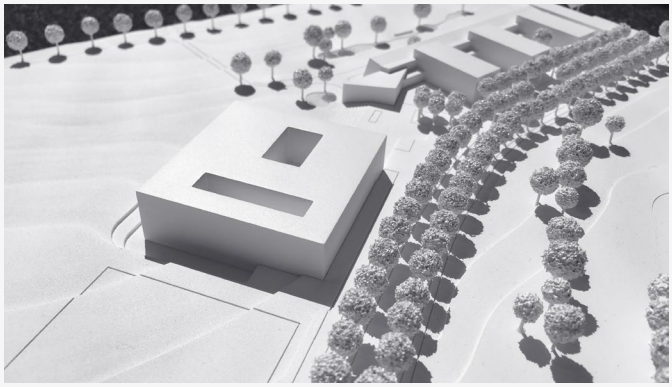


The most important thing was arranging seamless planning with everyone involved, to coordinate things like the positioning of the Cobiax modules and the piping for the concrete core activation well in advance. Source: Leonhard Weiss GmbH & Co.KG

rooms. This is where the planners particularly benefit from the weight savings that could be achieved by using our Cobiax SL-M-220-240. The 34,398 void formers were delivered in half parts, which were assembled on site by the Leonhard Weiss team and fitted into the steel reinforcement beams. Thanks to the good teamwork of all those involved and the extremely good planning, the structural work was completed on schedule in November 2019. The new university building should be complete and ready for use by the end of 2020. „We are pleased that we were also able to make a contribution to this project by successfully meeting the requirements for BNB and the Efficient Building Plus standard," is the summary of our Project Manager Grad.-Eng. Barbara Staab.



Once it is complete at the end of 2020, the 38.4 million euro building will provide 5,800 m² of floor space, which is enough room for around 1,000 students, and be equipped with the latest laboratory technology.
Quelle: Vermögen und Bau Baden-Württemberg, Amt Ulm

The Chop-Chop-Needs-To-Be-Out-There-Window

+++ Our big topic: Building with Cobiax is sustainable building + stop + New property report: Junghof Plaza in Frankfurt + stop + All facts coming soon right here + end +++

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Further information. The Cobiax-Experts like to help.

ALBANIA, KOSOVO, N. MACEDONIA

Heinze Consulting Sh.P.K.
Rr. Garibaldi Nr. 7/3
10000 Priština
Kosovo
Phone +383 44 743 174
mbinakaj@heinze-consulting-shpk.com

AUSTRIA

Cobiax-AT GmbH
Ufergasse 56
3500 Krems
Austria
Phone +43 676 731 22 05
christian.ramel@cobiax.com

BENELUX

LBC Benelux
Prins Bisschopssingel 36 B7
3500 Hasselt
Belgium
Phone +32 11 37 48 00
info@lbc-benelux.be

BULGARIA

CBX
„Pobeda“ street 31
4003 Plovdiv
Bulgaria
Phone +359 898 620984
v.petkov@cbx.bg

CYPRUS

EKA Group Ltd.
109, Eleftherias Street
3042 Limassol
Cyprus
Phone +357 25 854 444
charakis@ekagroup.com

GERMANY

Heinze Cobiax Deutschland GmbH
Otto-von-Guericke-Ring 10
65205 Wiesbaden
Germany
Phone +49 6122 918 45 00
info.de@cobiax.com

GREECE

ENKA Technologies
Leof. Dekeleias 1 & Chalkidos, Nea Filadelfia
14343 Athens
Greece
Phone +30 210 258 3120
mkarantzikis@enka.com.gr

INDIA

VH PT System
702-704, Rajhans Bonista , Behind Ram Chowk Temple,
Ghod Dod Road
Surat, Gujarat 395007
India
Phone +91 99247 33111
vhpt.cobiax@gmail.com

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Further information. The Cobiax-Experts like to help.

IRAN

Tasturk
3rd floor of Refah Bank No. 75
Valiasr District, Moallem Street, Daneshjou Square, Tabriz
Iran
Phone +98 41 35252013
tasturk.cobiax@gmail.com

KUWAIT

Jassim Mohammed Abdul Rahman Al-Bahar W.L.L.
Subhan Industrial Area-South, Block 8, Street 82, Plot 167
Kuwait
Kuwait
Phone +965 2471 701040
a.abuyasin@albahar-industries.com

LATVIA, LITHUANIA, ESTONIA

JPMK Ekobetons SIA
Madonas iela, 27
Jēkabpils, LV-5202
Latvia
Phone +371 23009730
cobiax@ekobetons.lv

SLOVAKIA, CZECH REPUBLIC

Stav Contact plus s.r.o.
Lesná 8
81104 Bratislava
Slovakia
Phone +421 903 781188
karol.hochschorner@stavcontact.sk

SPAIN

Ferros la Pobla S.A.
Ctra. Valencia Ademuz, Km 20.8
46185 La Pobla de Vallbona, Valencia
Spain
Phone +34 61 693 2070
alexandra@ferroslapobla.es

SWITZERLAND

Heinze Cobiax Schweiz GmbH
Schwertstrasse 4
8200 Schaffhausen
Switzerland
Phone +41 52 260 09 00
info.ch@cobiax.com

THAILAND

General Engineering Public Company Limited
44/2 Moo2 Tivanont Road
Bangkadi, Muang Pathumthani, Pathumthani, 12000
Thailand
Phone +662 501 2020
veerapat@gel.co.th

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