

Drees & Sommer and Würth cooperate on development of innovative building module



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Factors such as poor weather still cause unnecessary delays on many construction sites in Germany. But many building modules could be prefabricated in series in factory halls. Opting for so-called modular prefabricated construction can not only bring considerable cost and time savings in planning, production and assembly, but may also result in better working conditions for skilled workers and offer a more environmentally friendly approach. But modular solutions are still rare in the area of building services equipment (BSE). Drees & Sommer SE and Adolf Würth GmbH & Co. KG, based in Künzelsau, want to change that: The two companies have collaborated to design a new, innovative BSE module. It will be used for the first time in this field in a new Drees & Sommer's office building at its company headquarters in 'Obere Waldplätze' in Stuttgart.

Video on Drees & Sommer/Würth joint venture:

[Construction of the new OWP12 office building – Prefabrication of building modules](#)

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For digital workflows to set the pace not only in planning, but also on the construction site, it is important to promote processes like digital Lean Construction Management, just-in-time delivery processes, and the factory production of pre-assembled modules. In the same way as in industrial production, repetitive workflows in the construction industry can be digitally standardized, allowing subunits of a building to be prefabricated.

“Today 80 percent of components are processed on-site, and only 20 percent are prefabricated. This ratio will have to be reversed in future. Many components can be manufactured in a factory regardless of weather, and then delivered just-in-time to the construction site,” explains Thomas Berner. He is an Associate Partner at Drees & Sommer SE, a planning and consulting company specializing in the construction and real estate sector. As project manager, Thomas Berner is responsible for the Obere Waldplätze 12 office building (OWP12), which is currently under construction at the company headquarters in Stuttgart-Vaihingen. Industrially prefabricated, modularized components are to be used in the new building to the greatest possible extent.

Trades will merge in the future

Drees & Sommer and Würth – the world market leader in assembly and fastening materials – have developed two prototypes of the BSE module. They include elements of building services equipment, such as heating, air conditioning and electrical systems. The modules will be prefabricated in the production hall and then delivered and installed on the OWP12 construction site before the end of this year. Director and building services equipment expert Johannes Wiesinger is managing design on behalf of Drees & Sommer: “We should no longer treat the individual trades as separate during construction projects, as they will increasingly merge with each other in future.”

Vision of the future: BIM model sends production data directly to 3D printer

A digital planning method such as Building Information Modeling (BIM) is essential for prefabricated modules such as building services equipment that have a high component density. “Our BSE modules with all associated data and information on dimensions, material and technical properties can easily be incorporated into BIM models. In future, this data will be transmitted directly from the model to machine tools or 3D printers for the series production of standardized components,” explains Johannes Wiesinger.

For Holger Schade, Technical Sales Manager for of Construction Site Project Management at Adolf Würth GmbH & Co. KG, the BSE modules also offer distinct advantages for installation on site: “Our modules can be easily and quickly transported and assembled on the construction site. Installation on site, including positioning of the module, takes less than 30 minutes. The conventional approach requires about twelve hours.” According to the experts at Würth and Drees & Sommer, great importance was also attached to developing an attractive design to take into account the trend toward visible technology.

Reduced workload for skilled construction workers

Drees & Sommer engineer Wiesinger believes that the relocation of the majority of modules into the factory hall would also simplify the search for skilled workers – a further advantage of this approach. Until now, workers have had to assemble the many small parts of complex individual BSE elements on site in all weathers. But the more assembly steps that are carried out in advance in the factory, the easier work becomes for the fitters on the construction sites. Prefabrication also increases the quality of the modules, as they can be manufactured accurate to the millimeter. Wiesinger also points out that this all makes life a lot easier for construction workers, whose future job profile will change from itinerant employees to skilled fitters.

Raw material and component store

The experts from Würth and Drees & Sommer have also thought about environmentally friendly dismantling. “The BIM model tells us exactly which modules with which materials are installed in which areas of buildings. This digital record is also a prerequisite for ensuring greater sustainability. Leasing business models are also conceivable. At the end of the contract period or service life of a building, the modules can be removed. They can then either be installed directly in the next office building, or serve as a kind of ‘raw material warehouse’ of individual parts. One thing is certain: Nothing goes to waste,” explains Wiesinger.

OWP 12 as a demonstration building for principals

The new building features photovoltaic systems on the roof and on the south facade, a newly developed, highly insulating facade design, geothermal energy via boreholes, and a green northern façade. So when Drees & Sommer moves into its new offices in Stuttgart-Vaihingen in autumn 2021, the employees will be working in a building that meets the Energy Plus standard, generates more energy than it consumes in operation, and implements the Cradle to Cradle circular economy approach to the greatest possible extent. It thus meets all expected future sustainability requirements. And this also applies to modularization and digitization.

Costing some €22 million, the four-storey building has a gross floor area of about 7,000 square meters and features a large conference area, facilities for employees such as a terrace, a cafeteria, as well as a canteen with seating for up to 1,000. Some 200 employees will work there. As well as functioning as an administrative building, the new facility – designed in collaboration with SCD Architekten und Ingenieure – is intended to serve as a model building for potential principals.

About Drees & Sommer SE

Drees & Sommer SE was founded in Stuttgart in 1970 in Stuttgart with just a handful of staff. It has since grown to some 4,000 employees at 46 offices worldwide. Sales in 2019 totaled some €500 million. The company's architects, engineers, business managers, designers, chemists, ecologists and other experts are currently working on more than 4,250 projects. The Partner system launched in 1988 is still in operation today. It currently comprises 40 Partners with equal rights who, as active shareholders, share the view of the Executive Board and Supervisory Board that sustainability and innovation leadership are the most important elements of the company's strategy.

About Adolf Würth GmbH & Co. KG

Adolf Würth GmbH & Co. KG is a leading specialist for fasteners and assembly technology. Its range of more than 125,000 products – including screws, screw accessories, chemical-technical products, furniture and building fittings, tools, storage and removal systems, and personal protective equipment – all meet the highest quality levels. The company's goal is to make customers' work easier through customized services, practical system solutions and a wide range of products.

Würth supports more than 540,000 customers in the trades, the construction sector, and industry. Specially tailored solutions and product ranges mean that customers – whether a self-employed tradesperson or a global industrial company – can focus on their core business.

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With its multichannel approach, Würth maintains close ties to its customers and operates with over 3,200 permanent sales representatives, more than 500 sales offices, and an e-procurement service.

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Drees & Sommer Innovative Partner for Consulting, Planning, Construction and Operation.

As a leading European consulting, planning and project management company, Drees & Sommer has been supporting private and public sector clients and investors in all aspects of real estate and infrastructure – both analog and digital – for 50 years. Through pioneering consulting, the company offers solutions that deliver successful buildings, high-yield portfolios, efficient infrastructure, and livable cities. Divided into interdisciplinary teams, the company’s 4,000-odd employees at 46 regional offices worldwide support clients from a wide range of industries. The Partner-managed company delivers all services on the understanding that economy and ecology must be combined. At Drees & Sommer, this sustainable approach is called ‘the blue way’.

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