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A fully printed house: Putzmeister and ZÜBLIN present the first solid construction with supporting concrete walls from a 3D printer

- **World first: Putzmeister and STRABAG subsidiary ZÜBLIN produce complete and supporting concrete walls from the 3D concrete printer for the first time**
- **Further development of 3D concrete printing provides outlook for scalability of the technology**
- **Advantages through reduced emissions and increased efficiency**

Aichtal 06.05.2024: Layer by layer, the new STRABAG BMTI (STRABAG Baumaschinentechnik International) warehouse in Stuttgart's Weilimdorf district is growing upwards. Together with Putzmeister and its KARLOS mobile concrete printer, ZÜBLIN has developed an innovative construction method that is unique in the world. As part of their long-standing collaboration, the two companies are pooling their innovative strength to take 3D concrete printing to a new level. The aim of their research is to be able to offer customers an even more flexible and sustainable printing process in the future.

New technology takes 3D concrete printing to the next level

The new technology is based on a truck-mounted concrete pump. An automatically controlled boom with a reach of 26 metres applies concrete in several layers using a special pressure head based on a predefined digital construction plan. In this way, storey-high, supporting concrete walls are produced that are room-sealing, i.e. prevent the spread of flames and smoke in the event of a fire.

The main challenge of 3D concrete printing to date has been the lack of scalability of the technology for large-scale projects. Until now, printing has primarily been carried out using so-called gantry printers, which are limited to the production of smaller buildings. Compared to other concrete printing processes, KARLOS has greater flexibility and range as a mobile construction machine and therefore also offers the potential for scalability for large-scale projects.'

CO2-reduced concretes in use

The economic and ecological advantages of the method include the complete elimination of formwork, the production of solid wall cross-sections in a single operation and the use of CO2-reduced concretes. By using only green electricity for the all-electric machine and CO2-reduced concretes, ZÜBLIN and Putzmeister are making an important contribution to making building construction more sustainable in the long term.

'On our way to realising resource-saving and climate-neutral planning and construction, we are proud to have developed a highly innovative 3D printing process together with Putzmeister. As a construction group, we are contributing our expertise in the digital planning of building structures and concrete technology in particular to this pioneering innovation,' explains ZÜBLIN board member Stephan Keinath.

Putzmeister CEO Christoph Kaml sees KARLOS as a central element of the company's strategy: 'A high degree of electrification and automation is required along the entire work process. The reduction of manual labour is a decisive factor in dealing with the increasing shortage of skilled workers. As a digital technology of the future, KARLOS is a central building block on the road to the construction of tomorrow,' says Christoph Kaml.

3D printing as a driver of productivity

Additive manufacturing methods, in particular 3D printing, have become an integral part of industries such as mechanical engineering, automotive and aerospace. Now they are also increasingly conquering construction sites. The combination of production steps from the digital planning of the BIM model (Building Information Modelling) through to realisation using 3D printers is revolutionising construction processes. Work processes are significantly streamlined and accelerated through automation. As ground-breaking as the technology of 3D printing is, the human factor remains crucial for the successful realisation of construction projects. We are therefore also countering the massive shortage of skilled labour with the use of modern technologies. This not only increases productivity, but above all also enthusiasm for an exciting and promising construction profession with a bright future.

About the Putzmeister Group

The Putzmeister Group develops and produces machinery of high technological quality in the fields of concrete conveying, truck-mounted concrete pumps, stationary concrete pumps, placing booms and accessories, plant technology, conveying viscous industrial materials through pipes, concrete spraying and transport in tunnels and underground, mortar machines, plastering machines, screed conveying, injection and specialist applications. Market segments include the construction industry, mining and tunneling, large industrial projects, power plants and sewage treatment plants, as well as waste incineration plants, all over the world.

The company is based in Aichtal. With more than 3,000 employees, the company achieved a turnover of EUR 905 million in the year 2022.

About Ed. Züblin AG

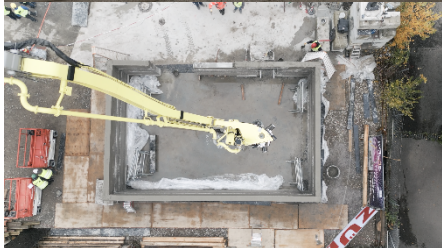
Ed. Züblin AG, Stuttgart, employs around 15,000 people and is one of Germany's largest construction companies with an annual output of around € 4.5 billion. ZÜBLIN has been successfully realising challenging construction projects in Germany and abroad since 1898 and is the leading brand for building construction and civil engineering within the STRABAG Group. The range of services covers all construction-related tasks - from complex turnkey construction, civil engineering and tunnelling to construction logistics, building maintenance, special civil engineering, timber and steel construction. Drawing on the expertise of its Central Technology Centre, ZÜBLIN also offers integrated planning and construction from a single source. We take a holistic view of buildings over their entire life cycle, focus on partnership-based construction with

TEAMCONCEPT® and constantly drive digitalisation, sustainability and innovation. Together, within the STRABAG Group and with external partners, we are working consistently to make planning and construction resource-saving and climate-neutral. Current ZÜBLIN construction projects include the EDGE East Side Berlin high-rise project, the US hospital in Weilerbach and the approximately 2 km long airport tunnel in Stuttgart. Further information can be found at www.zueblin.de



Bildbeschreibung: Karlos applies concrete precisely in several layers using a special print head based on a predefined digital construction plan.

Bildnachweis: ZÜBLIN



Bildbeschreibung: Putzmeister and STRABAG subsidiary ZÜBLIN produce finished and supporting concrete walls from the 3D concrete printer for the first time

Bildnachweis: ZÜBLIN



Bildbeschreibung: The further development of 3D concrete printing provides perspectives for the scalability of the technology

Bildnachweis: Putzmeister Holding GmbH