

CONCRETE 3D PRINTING TECHNOLOGY

BUILDING TRUST



3D PRINTING INNOVATION

ARCHITECTS HAVE COMPLETELY NEW POSSIBILITIES

in designing geometries and surfaces with a cost effective method. Architectural concrete, like aesthetic concrete or colored concrete have high requirements for the concrete surface. Now, with 3D printing of concrete materials; shapes, textures, and colors can be generated in a fast, easy and economical way. These new design opportunities lead to high requirements in precision, repeatability, and consistency of the printed material.

Sika is spearheading the digitalization and industrialization of concrete construction, which is the driver for innovation and productivity in the construction industry. 3D printing of construction materials, processes can now be digitalized from start to finish, raise standards, and as a result increase the entire construction speed and efficiency.

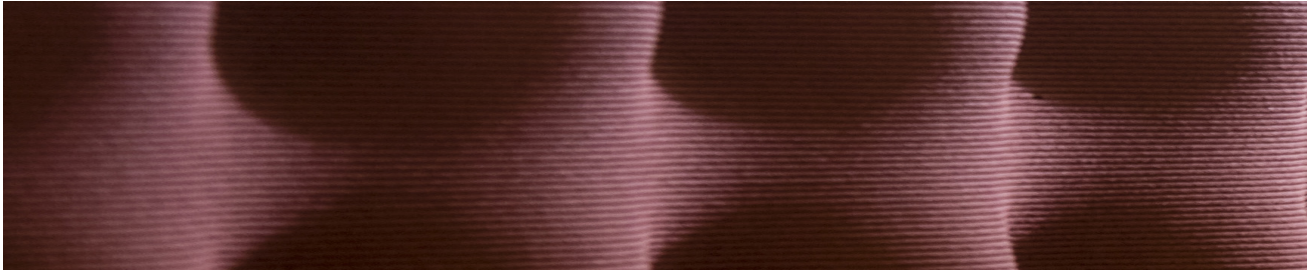
With Sika's continuous efforts and growing knowledge over the last years with 3D printing of cementitious and other materials; Sika is now able to develop materials that meet these requirements and lead to outstanding 3D prints with a precise and sleek surface appearance.

With its experience and expertise Sika is the right partner to develop customer specific solutions with Sika's awarded 3D printing technology.

WE ARE THE 3D CONCRETE LEADERS WITH 7 PATENTS ON PRINTING PROCESSES, INNOVATIVE MATERIALS AND ADMIXTURES FOR 3D PRINTING.



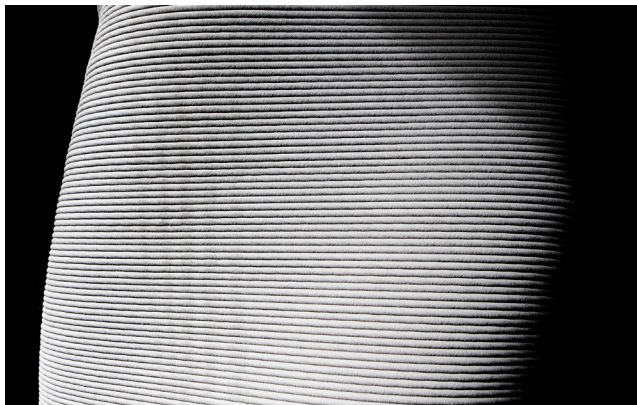
SIKA SOLUTION



MATERIAL AND PRINTER

The result of a 3D cementitious print depends not only on the precision of the printing system, which is an important success factor, it also depends on the material which has to fit to the printer and to the application. For example, the material requirements are different for an element printed inside under constant climate conditions than for an element printed outside. Also, the printing system needs to be defined before choosing the right material for printing. For example, a printer using a batch mixer has different requirements on the material than a fast continuous mixing process with large material throughput.

As the material is printed it is important to ensure a good bonding between the layers so that the structure is a homogeneous material. Depending on the geometry of the printed element the requirement on the setting time can be different. For example, a slow setting of the material can result in a very slow printing process because with increasing layers the pressure on the bottom layer increases over time.



BENEFITS OF 3D PRINTING

- Ultimate “form follows function” efficiency
- New customized, complex designs and structures possible
- Lower construction costs
- Reduce material waste
- Improve production of higher quality elements
- No formwork and immediate setting 3D ink

BUILDING A 3D WORLD WITH CONCRETE

Sika has developed a multi-component system for 3D concrete printing including material supply, mixing technology, print head, gantry system, and software control. Furthermore, Sika develops one-component materials for customers already using a 3D printing system. This needs a close collaboration between the customer and Sika in order to supply the right material for the printing solution. With this system approach a material can be developed which leads to prints with the highest possible quality and accurate set times.

SIKA FULL RANGE SOLUTIONS FOR CONSTRUCTION:



WATERPROOFING



CONCRETE



REFURBISHMENT



SEALING AND BONDING



FLOORING



ROOFING

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SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor.

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