

Combining efficiency and aesthetics: paradigm shift with carbon concrete composite

Construction processes are set to become more efficient and sustainable, something made possible by the use of new building materials such as carbon instead of steel. This is the goal of the "C3 – Carbon Concrete Composite" project. Researchers from the Leipzig Fraunhofer Center are investigating the extent to which carbon concrete composite can be used as an alternative to steel reinforced concrete.

Carbon concrete composite is a new, multifunctional material that is highly durable yet can also be formed into any shape. As a result, it makes projects particularly resource efficient in terms of raw material use, can be used to build flexible structures with a long lifespan, and can also be employed as a construction material in integrated heating systems. Carbon concrete composite is set to revolutionize the construction industry and make new-builds and maintenance processes for existing buildings more cost-effective, efficient and environmentally friendly. To this end, Fraunhofer Center Leipzig researchers from the Unit "Business Models: Engineering and Innovation" are conducting studies as part of a nationwide alliance of 130 partners from the fields business, academia and industry associations. Under the umbrella of the "C³ - Carbon Concrete Composite" project, they began by producing a study of the construction market and neighboring sectors in 2014. Based on expert interviews, workshops and desk research, this study contains a detailed analysis of the German market and competition landscape and identifies relevant markets and market segments for C³.

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C³: This carbon composite can be used instead of steel as a reinforcing material, allowing the construction of much thinner and more streamlined structures that save on resources. Because the material can be formed into any shape, it also makes it easier to use non-rectangular shapes, enabling the construction of more aesthetically sophisticated structures.



Strategy workshop of C3 consortium at the Fraunhofer Center Leipzig.

Model of carbon concrete composite bridge.



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