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No Reinforcement – Compression-Only Structures:

The Striatus Footbridge

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Abstract. This talk presented Striatus, an arched, unreinforced masonry footbridge composed of 3D-printed concrete blocks assembled without mortar. Exhibited at the Giardini della Marinaressa during the Venice Architecture Biennale through November 2021, the 16x12-metre footbridge was the first of its kind, combining traditional techniques of master builders with advanced computational design, engineering and robotic manufacturing technologies. The name “Striatus” reflects its structural logic and fabrication process. Concrete was printed in layers orthogonal to the main structural forces to create a “striated” compression-only funicular structure that required no reinforcement.

Keywords: 3D-Printed Concrete, Structural Design, Computational Design, Compression-Only, Funicular, Unreinforced

Conference presentation video: https://doi.org/10.5446/56106

Data availability statement

For further information, full project credits, project fact sheet, and any potential forthcoming publications, please see: https://www.block.arch.ethz.ch/brg/project/striatus-3d-concrete-printed-masonry-bridge-venice-italy-2021.

Competing interests

The author declares no competing interests.

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