Press Release

Beyond Bending: Learning from the Master Builders

A lecture by Philippe Block, Institute of Technology in Architecture at ETH Zurich, on June 1, 2017 at 6:30 pm at the Oskar von Miller Forum

Throughout history, master builders have discovered expressive forms through the constraints of economy, efficiency and elegance. There is much to learn from the architectural and structural principles they developed. Novel structural design tools that extend traditional graphical methods to three dimensions allow designers to discover a vast range of possible forms in compression. By better understanding the flow of compressive forces in three dimensions, excess steel can be eliminated, natural resources can be conserved, and humble materials like earth and stone can be reimagined for the future.

By combining methods from the past with new technologies and fabrication techniques, this lecture advocates for the logic of compression-only forms. It offers possibilities to move beyond the slab, beyond the dome, beyond free-form, and ultimately beyond bending. Drawing from a revival of forgotten principles combined with the latest advances in the design, engineering, fabrication and construction of compression-only shell structures, this lecture reveals the foundations upon which the award-winning "Beyond Bending" exhibition at the Venice Architecture Biennale in 2016 was based.

About

Philippe Block is Associate Professor at the Institute of Technology in Architecture at ETH Zurich where he co-directs the Block Research Group (BRG) together with Dr. Tom Van Mele. He is deputy director of the Swiss National Centre of Competence in Research (NCCR) in Digital Fabrication, and founding partner of Ochsendorf DeJong & Block (ODB Engineering). Block studied architecture and structural engineering at the VUB, Belgium, and at MIT, USA, where he earned his PhD in 2009. Research at the BRG focuses on equilibrium analysis, computational form finding, optimisation and construction of curved surface structures, specialising in unreinforced masonry vaults and concrete shells. Within the NCCR, BRG researchers develop innovative structurally informed bespoke prefabrication strategies and novel construction paradigms employing digital and robotic fabrication. With BRG and ODB Engineering, Block applies his research into practice on the structural assessment of historic monuments and the design and engineering of novel compression structures.