

Vault for the Ages

The MLK Jr. Park Stone Vault in Austin, TX, USA

PROJECT OVERVIEW

The MLK Jr. Park Stone Vault in Austin, TX, USA is a unique unreinforced, dry-set, cut-stone masonry shell. It will be located at the heart of the Martin Luther King Jr. Park of the East-Austin urban development and transit-oriented district, Chestnut Plaza, where it will be used as a multi-purpose community gathering space, used for performances, open markets, and educational events. The discrete, unreinforced and dry-set stone vault will cover an area of approximately 600m² with a maximum span of 30 m.

This daring structure is only possible because of the unique combination of structural innovation, inspired by the master builders of the great cathedrals and thin shells of the past, together with advanced developments in the latest CNC technologies for stone cutting. Over the last five years, Ochsendorf, Block and DeJong have been collaborating with Escobedo Construction, bringing together novel, state-of-the-art research from three top universities in the world, MIT in the US, ETH Zurich in Switzerland and University of Cambridge in the UK with the leading experts in the highest quality stoneworks. For this project, a fully integrated and optimized digital design and analysis process has been developed to push architectural, structural, fabrication and constructional innovation not only in unreinforced masonry, through never-before-seen structural geometries, but freeform curved surface design in general, setting new standards in efficiency.

The project will make a scientific, social and symbolic impact. Scientifically, it combines innovation in structural form finding, showing complex geometry that is logical and load bearing; digital fabrication; and stone vaulting technology, to produce the most sophisticated unreinforced masonry vault of all time. Socially, it is a model of sustainable design, bringing a durable, long-lasting construction in local Texas limestone, a new public space for the city of Austin, and a new source of civic pride for future generations. Symbolically, it will be a piece of world class architecture; an example-by-excellence of honesty in construction, like the great cathedrals of Europe, and a convincing example of open technology transfer, bringing research into reality, and taking ideas into practice.

The project was exhibited from August 29 to November 25, 2012, at the 13th International Architecture Exhibition at the Venice Biennale 2012, directed by David Chipperfield and titled "Common Ground". Invited by Patrik Schumacher, partner at Zaha Hadid Architects (ZHA), to their exhibition on "Shell Structures", the project was featured as a reference and inspiration of ZHA alongside the works and structural models by the famous shell builders Heinz Isler, Frei Otto and Felix Candela.

The distinct project will not only be a landmark for the progressive Chestnut Plaza development, but an icon for Austin, Texas. The "Vault for the Ages" will stand as reminder of mankind's inspiring past and promising future.

TEAM

The core development team of the MLK Jr Park Vault in Austin, Texas, USA consists of the following partners:

- Overall concept and design: Philippe Block and Matthias Rippmann with Escobedo Construction, LP
- Client and development partner: Meredith Family Interest
- General contractor: Escobedo Construction, LP
- Stone fabrication and installation: Escobedo Construction, LP and AX5 Resources, LLC
- Structural design: BLOCK Research Group, ETH Zurich, Switzerland
- Structural engineering vault: Ochsendorf, DeJong & Block, LLC
- Structural engineering foundations and engineer of record: Structures, LP
- Formwork engineering: PERI Formwork Systems

FURTHER READING

<http://block.arch.ethz.ch/projects/mlk-jr-park-stone-vault>

http://block.arch.ethz.ch/sites/research_group/files/pdf/publications/2013_ICE-COMA_Rippmann-Block.pdf

http://block.arch.ethz.ch/sites/research_group/files/pdf/publications/2013_IASS_Rippmann-et-al.pdf





