INNOVATING CONCRETE
Learning from the Master Builders

Prof. Dr. Philippe Block
ETH Zürich | Institute of Technology in Architecture | Block Research Group
National Centre of Competence in Research (NCCR) Digital Fabrication

DeJong & Block, LLC | Structural Engineering Consultants
Foreign Engineering GmbH | Structural design - Digital Fabrication - Computation

Kate Rinsema, holykaw.alltop.com, eggshell.jpg
Armadillo Vault
Venice Architecture Biennale, Italy, 2016

Structural Design & Architectural geometry
Block Research Group, ETH Zürich

Structural Engineering
Ochsendorf Engineering & Block (ODE)

Fabrication & Construction
The Escobedo Group

Lighting
Lichtkompetenz Artemide

Sponsors
Cathy and David Escobedo
ETH Zurich - Department of Architecture
MIT - School of Architecture + Planning
NCCR Digital Fabrication

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1/3

5 months
1 month
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Mapungubwe National Park Interpretation Centre
Limpopo, South Africa, 2008

Architect
Peter Rich Architects

Structural design
John Ochsendorf
Michael Ramage

Structural engineering
Henry Fagan

Equilibrium analysis shells
Philippe Block

Construction
James Bellamy

Tile engineering
Anne Fitchet
Matthew Hodge
Hydromorph

© James Bellamy
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NEST HiLo – Research & Innovation Unit
EMPA, Dübendorf, Switzerland, 2013 - 2018

Block Research Group, ETH Zürich

- Prof. Dr. Philippe Block
- Dr. Tom Van Mele
- Dr. Tomás Méndez Echenagucia
- Dr. Andrew Liew
- Diederik Veenendaal

Architect

ROK, superstructure

Project Management

ROK, superstructure

Architecture and Building Systems, ETH Zürich

- Prof. Dr. Arno Schlüter
- Gearóid Lydon
- Anja Willmann
- Dr. Johannes Hofer
- Dr. Zoltan Nagy
- Anja Willmann

Engineer of Record

Bollinger + Grohmann

Partners

NCCR Digital Fabrication
Holcim Schweiz
David López López, Diederik Veenendaal, Masoud Akbarzadeh

-70%

2 cm
NEST HiLo – Roof construction prototype
ETH Zurich, Switzerland, 2016 - 2017

Design and Engineering
Block Research Group, ETH Zurich
Supermanoeuvre
Bürgin Creations
Mathematical and Physical Geodesy, ETH Zurich
Automatic Control laboratory, ETH Zurich

Construction
Meth (general contractor)
Bürgin Creations (precast works)
Sika (scaffolding)

Documentation
Naida Iljazovic
Mike Lyrenmann

Fabrication
Jakob (cables)
Bruno Lehmann (bolts + cable net components)
Blumer Lehmann (timber)
Cabletech (steel supports + plates)
Beri (dining + seating)

Sponsors
ETH Zurich
NCCR Digital Fabrication
Holcim Schweiz

Robotic Fabrication Laboratory @ ETH Zurich
Bridge built in collaboration with Lex Reiter (Physical Chemistry of Building Materials, ETH Zurich)

Taichung Opera House, Toyo Ito and Associates with Arup 2014-2016
“BIM on steroids”

https://compas-dev.github.io/