MARK

ANOTHER ARCHITECTURE

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I AM NOTHING OF A BUILDER
BUT HERE I DREAMT I WAS AN ARCHITECT

– The Decemberists –

PAOLO CASCONE

COMBINES HIGH-TECH DESIGN AND LOW-TECH CONSTRUCTION TECHNIQUES IN AFRICA

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Photos **Atelier Paolo Pascone**

'Digital architecture doesn't exist as a goal in itself'

— Paolo Cascone —

01. STAMPING HAY.

Paolo Cascone first heard of architect Fabrizio Carola when he was 9 or 10 years old. His father was a doctor involved with medical projects in the tropics, where Carola was also active. And now, 25 years later, Cascone is an architect himself and makes frequent use of the experience his by now 79 year-old colleague has acquired in 40 years of building low-tech architecture in the Sahel. But he doesn't copy Carola. Cascone tackles the clay, loam and sand with parametric computer models.

'We do research by construction,' says Cascone. He is Italian by birth, but now leads the Urban Ecologies research programme at the Ecole Spéciale d'Architecture in Paris. The students learn the theory in the French capital but actually build their designs – school pavilions and other small-scale structures – in Burkina Faso and Mali. 'In my studio I combine high-tech design tools with low-tech construction.'

02. FORMING MUD BRICKS IN MOULDS.

03. UNFIRED BRICKS DRYING IN THE SUN.

It goes like this: the students begin their semester, which lasts for six months, by studying the influence of the climate on the practice of building in the Sahel. They subsequently convert the information found in a field such as solar radiation and the incidence of daylight into data, which is used in the parametric design process that follows. In this way there is a direct relationship between the form of the building and the input information. The research phase is completed by building a test model using a rapid prototyping machine, which can be used to check the design.

The Atelier Paolo Cascone then go to Africa, where they can realize their design with the help of the local population. In April this year, they built

04. LAYING BRICKS.

three small pavilions using this method in Sourgoubila, Burkina Faso. 'Before we started designing, they wanted us to build a house,' says Cascone, 'but we said: we'll make a pavilion for the primary school. They didn't have a covered site yet where the children could do their homework.' It became a group of small buildings constructed from arched vaults, connected to each other by slats with a woven sunshade on top. Cascone also involved students in Sevare, Mali, in a building project he realizing together with Carola.

Does this design approach relate well to the African practice of building? After all, you can perfect your design as much as you like on the computer in Paris, but how much of that ends up in Sourgoubila, for instance? Cascone: 'Digital architecture doesn't exist as a goal in itself. It's a means to study and test

06. CELEBRATING THE COMPLETION OF THE PROJECT.

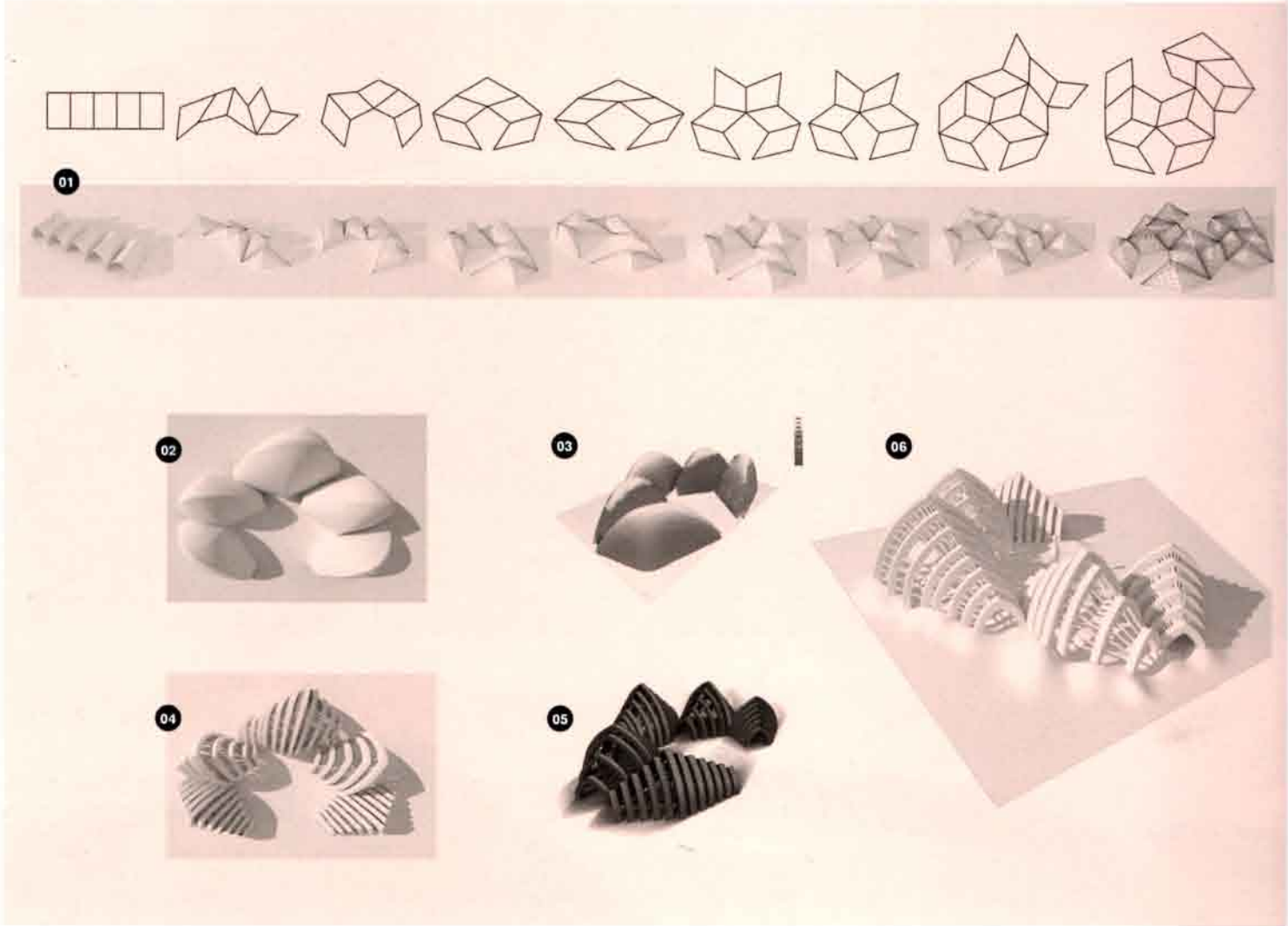
05. THE COMPLETED ARCHES.

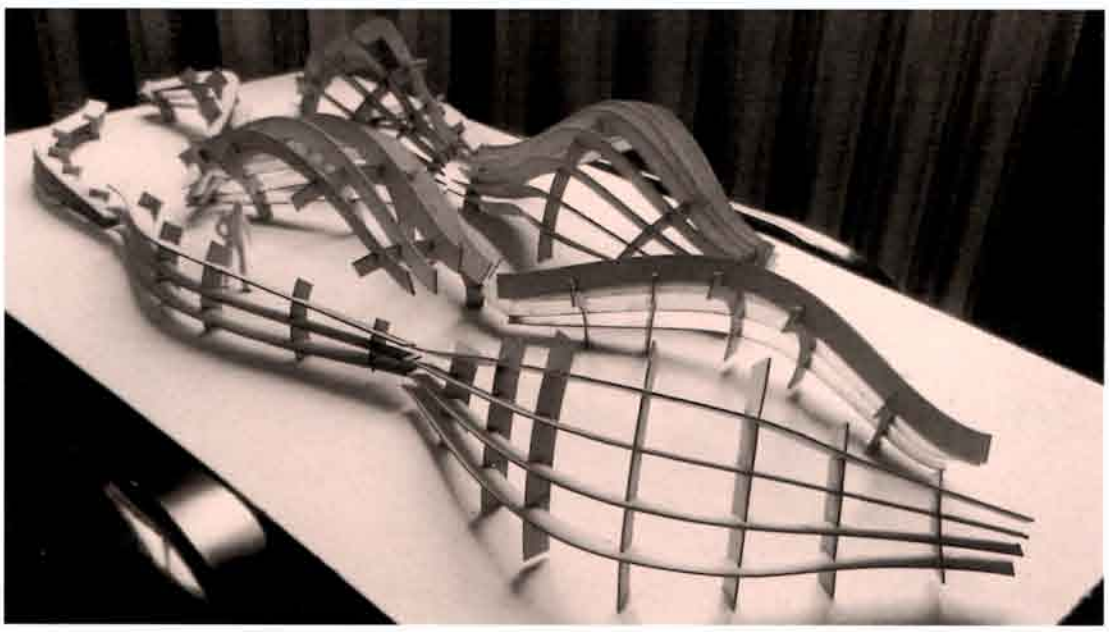
different options, and it only gets real when you start building. Many details of the construction were decided on site, because of local constraints.' Like what? 'Well, timing for example. It takes time to bring earth and water to the site. It's done using donkeys and old-fashioned bicycles. Then you have to prepare the mix, shape hundreds of bricks and let them dry. It's really hard work; more than the students expected.'

'The size and weight of the bricks was another problem. We had to reduce the number of differentiated ogival arches and increase the spacing in between, because we couldn't develop light and flexible scaffolding to keep the arches up the way we had designed them in Paris. The bricks were too heavy. We had to dismount the bricks to reshape the arches many times, resulting in less precision. On top of that, we had one

PROCESS OF MORPHOGENESIS.

01 MODELLING THE ARCHES TO CREATE COURTYARDS AND PROVIDE SHADE.
02 SHELLS FOR THE PAVILION
03 SIMULATION OF SOLAR RADIATION
04 STRUCTURAL ELEMENTS FOR THE PAVILION
05 SIMULATION OF SHADE ON THE WARMEST DAY OF THE YEAR
06 VIEW OF THE FINAL RESULT





day of rain and storm, which destroyed more than 100 bricks we had left to dry. However, all this was very interesting from an educational point of view, as the students continually had to adapt to new circumstances.'

And what has Cascone himself learned from Fabrizio Carola? 'Freedom, patience and curiosity. Carola is one of the last real utopians of our time, who takes the consequences of his ideas and fanatically devotes his life to them. His work demonstrates that we can do more with less.' «

www.co-design-lab.net
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