

G O N C R E T E

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I T E C T U R E

# Jam Factory

## CONCRETE: ART DESIGN ARCHITECTURE

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### Curators:

Margaret Hancock Davis  
and Brian Parkes

### Catalogue Editor:

Margaret Hancock Davis

### Copy Editor:

Lia Weston

### Art Direction and Design:

Stephen Goddard, Project Two

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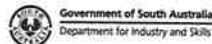
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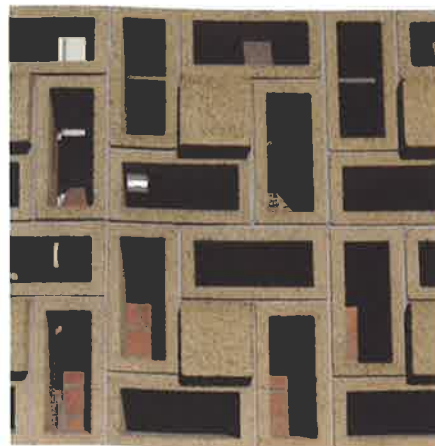
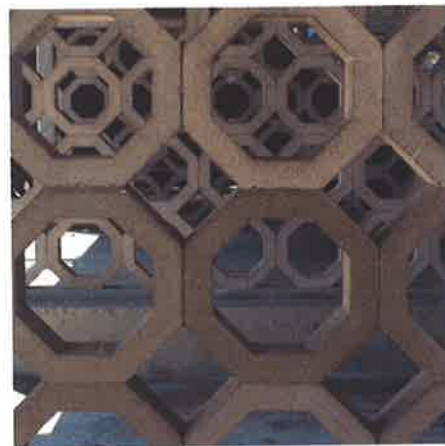
C O N C R E T E • B L O C K S

SAM MARSHALL

Having obsessions can be dangerous; they can take over your whole life. Breeze blocks is one of mine. I cannot get enough of them.

Pinning down exactly where breeze blocks originated is not easy. Their precedents – patterned screens that provide privacy, security, light filtration and air ventilation – mainly occur in hot climates. Mashrabiya, prevalent in Egypt, and the muxarabi of Moorish/Arabic countries were thin hand-made stone or timber screens. In China, ceramics – often glazed – were used to make modular blocks, performing similar functions.

One of the earliest applications of concrete blocks was in 1832 by William Ranger of Brighton, England, who took out a patent for artificial stone less than ten years after the invention of Portland cement. Concrete blocks (solid, rather than perforated like breeze blocks) were introduced from England to the USA in the early 1860s. In 1904 in Alpena, Michigan, Jesse Besser and his father Herman created the first block-making machines of the Besser Manufacturing Company. The Besser machines were modified and refined, but one of their most important innovations was the introduction of hollow cores, paving the way for open breeze blocks. The reduced weight made the blocks easier to transport and lay, and multiple blocks could also be made in one machine. The machines were sold successfully across the USA, eventually making their first international



sale in 1937 to a Venezuelan company. The first Besser machine arrived in Australia in 1954.

The Église Notre-Dame du Raincy near Paris, designed by French architects Auguste Perret and Gustave Perret and built in 1922, used open patterned blocks to let light through coloured glass. In 1923, Frank Lloyd Wright used his innovative prefabricated modular concrete block construction system in the Millard House, Pasadena, California, despite previously describing concrete blocks as 'the cheapest (and ugliest) thing in the building world'. ('It lived mostly in the architectural gutter as an imitation of rock-faced stone. Why not see what could be done with that gutter rat?') In keeping with Wright's desire to integrate his buildings into the landscape – or, as he put it, it 'belonged to the ground on which it stood' – he had the Millard House blocks made from sand and gravel found on the property. Wright experimented with his modular system in an endeavour to create a cheap resource that everyday people could make their houses from. Called textile blocks because of the way they were woven together using steel rods as reinforcement, some blocks were solid, some perforated with glass inserts and others perforated with clear openings.

In Recife, the capital of the Brazilian state of Pernambuco, a multicultural collaboration of Portuguese, German and Brazilian



Photographs of breeze blocks taken during author's travels. photos: Sam Marshall

Frank Lloyd Wright  
Alice Millard House, 1923  
Pasadena, California, USA  
photo: Darren Bradley



▲ Luis Nunes  
Caixa D'Água Alto da Sé  
[interior], 1934  
Olinda, Brazil  
photo: Jan Ribeiro/Pref.Olinda

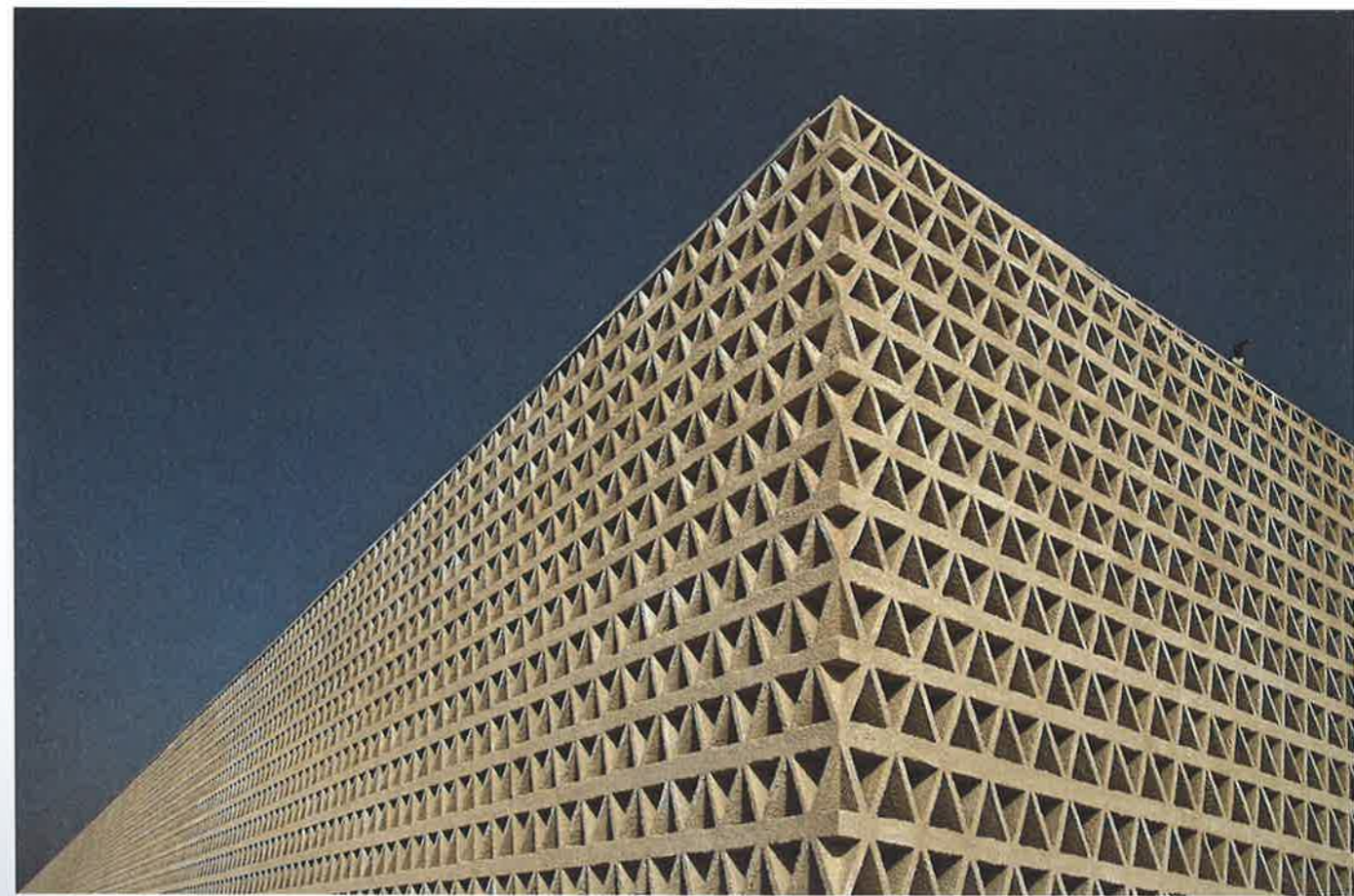
▶ Javier Perez Uribarri  
and Federico Pardos Auber  
with Beatriz San Salvador  
PicoLecture Building at the  
Alioune Diop University /  
IDOM, 2017  
Bambey, Senegal  
Senegal Government, Ministry

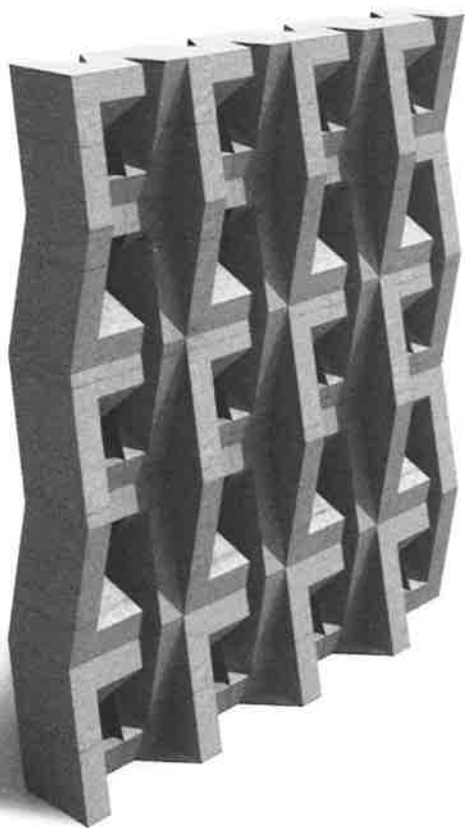
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engineers – Amadeu Oliveira Coimbra, Ernesto August Boeckmann and Antônio de Góis, respectively – were granted a patent in 1929 for 'A system of concrete blocks for construction'. They named the blocks 'Cobogo', from the first two letters of their surnames. The use of Cobogo by architect Lúcio Costa in 1934 in his severe, stripped-back Caixa D'Água Alto da Sé heralded the beginning of Modernism in Brazil.

Of particular interest in Australia is the work of Perth architect Iwan Iwanoff, who used hollow concrete blocks to establish a new aesthetic for such masonry during the 1960s and 1970s. More recently, the Mermaid Beach House by architects Partners Hill with Hogg and Lamb, which uses similar retaining wall blocks to create new forms, indicates that the unique expression of existing blocks has not been exhausted.

What, then, attracts me to breeze blocks? As an architect, the beauty of mathematics – especially geometry – fascinates me. About 20 years ago I started noticing the prevalence of breeze blocks and their multitude of patterns. I also liked the way they were, in their time, a piece of the optimism of Modernism in the post-war world that the everyday person could have. I serendipitously started photographing them with the intent of an exhibition or book, as almost nothing had been written on what had now fallen from popularity. I also recognised their future potential.





◀  
Cubic Manipulations, 2013  
Florian Schätz, Chin Kean  
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Masngut Lilyana, Chong Kai Yi,  
Tan Hui Ling, Carpal Singh  
S/O Jigeet Singh  
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Instagram has provided me with the opportunity to get these images out to an appreciative audience, and, in turn, receive new block images to share. @breezblockhead is a gallery devoted purely to breeze blocks. It has 14,000 followers, including architects, mid-century modernists, academics, building material researchers, manufacturers and lovers of pattern.

The future of breeze blocks will not only be directed by the use of computers. There remain areas of innovation using handmade techniques, especially for those who desire something special rather than a mass-produced product. Countries with cheap labour – such as South-East Asia, India and Africa – can easily produce moulds for new patterns as the blocks are handmade. The Lecture Building by IDOM at Senegal's Alioune Diop University exemplifies this approach; IDOM's use of local labour and materials has not only produced its own unique breeze block but also allowed it to create an exquisite customised corner breeze block.

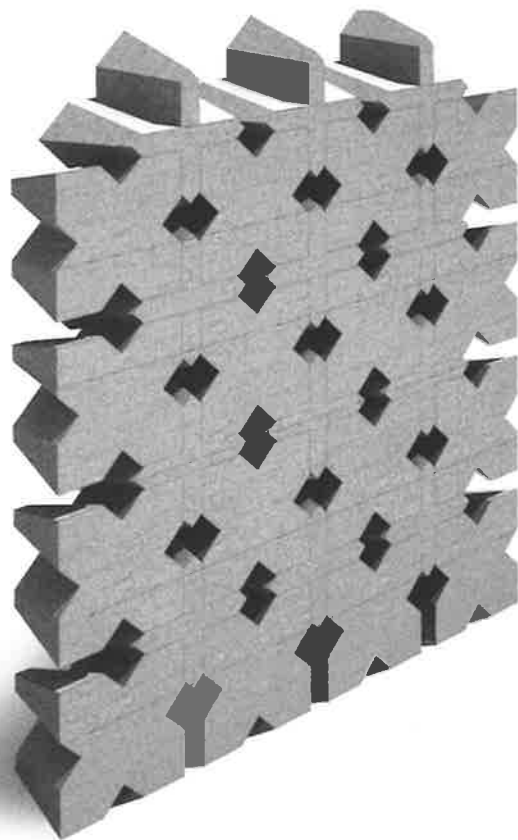
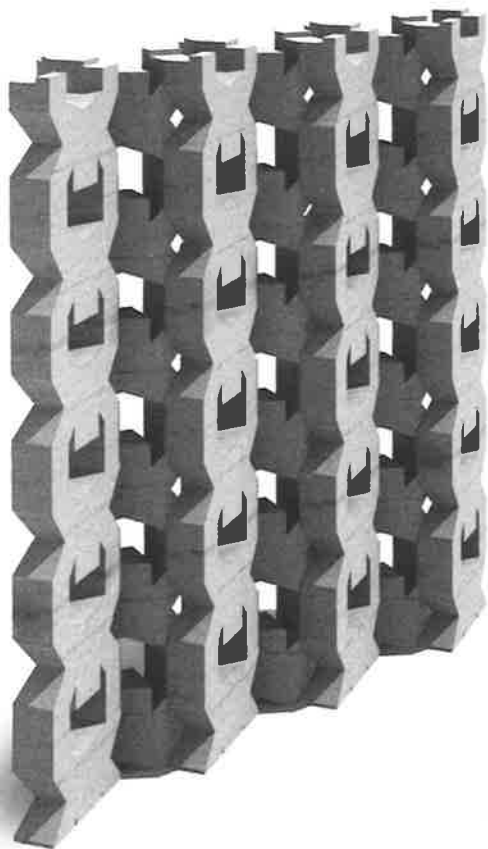
On the other hand, the computer will continue to have a major impact. New 3D patterns are easily modelled up in CAD software such as Maya, Grasshopper, 3DSMax and Rhino to then be printed out as moulds or actual blocks. Parametric data can be utilised so all blocks are unique yet still fit together. The AU Office and Exhibition Space by Archi Union Architects uses dead simple concrete blocks to create astonishing



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