

THE MAGAZINE OF THE CONCRETE SOCIETY

# CONCRETE

Volume 57, Issue 5 June 2023

## ON AN UPWARD TRAJECTORY

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solutions for industry career development



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### CORROSION CONTROL

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## The June 2023 cover

Concrete provides a feature on Training and Education, including contributions from The Concrete Society Northern Ireland Region, ICT, MPQC and the Institute of Quarrying. See page 19.

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**CONCRETE** magazine is produced in-house by The Concrete Society, a not-for-profit, independent membership organisation dedicated to supporting the use of concrete, the most widely used building material in the world.

Established in 1966, and with members from around the world, The Society has built on its technical base to become a leading provider of information, serving the needs of clients, architects, engineers, specifiers, suppliers, contractors and users of concrete.

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# ARTER

Jamie Pearson of Grimshaw Architects and Beni Kohen of Fibrobeton look at the architecture of a new cultural hub in Istanbul, plus its use of a GRC façade.

A subsidiary of Turkey's philanthropic Vehbi Koç Foundation, Arter is a vibrant cultural hub that brings together artists and audiences to celebrate contemporary art in all its forms. Conceived as a dynamic multi-layered, interdisciplinary public building for showcasing artistic works, it offers a rich cultural programme to stimulate and challenge its audience. The design articulates Vehbi Koç's vision for social responsibility and hinges around spaces that promote access for everyone, both within and around the museum. A layered approach to form and detail roots the building firmly in the traditions of Istanbul, exploring and reflecting the city's complex historical narrative.

## CONCEPTS

Derived from concepts of transparency and fluidity, inspiring and adaptive public spaces are at its heart, with carefully positioned large picture windows used as a way of opening the building to the street and connecting the gallery to the city. This connectivity provides continuous links between Istanbul, the museum and its art, while still fulfilling the functional requirements of gallery spaces in protecting the large internal gallery volumes from natural light. A triple-height entrance gallery forges a visual and physical public route through the centre of the museum, connecting Dolapdere Street with the park to the rear, making the building effectively face both ways, accessible and welcoming to all. This internal street negotiates the steep level change across the site and is the main organising element of the building.

Below ground, two performance halls occupy the lower levels accommodating programmes of film and performing arts, as well as conferences and panel discussions. The building's galleries range in scale and volume, with interlocking double-height spaces offering a multitude of flexible configurations

and capacities for its diverse artistic programmes. Views and connectivity between exhibition areas provide natural wayfinding and orientation. Learning spaces overlook each of the main galleries, allowing discovery and interpretation programmes to remain connected to the exhibitions. These spaces straddle the double-height galleries to reach the outer edge of the building and define the punctuated picture windows that give expression to the façade.

The main volume of the building that houses the exhibition galleries is articulated externally through subtle chamfering of the façade, adding plasticity to the blank façades typical of gallery building typology.

The façade design took inspiration from the unique context surrounding Istanbul – both the wider city and also the variety of the buildings in this area. The motif and the treatment of the tiles were a response to the rich history this city has for sculpted 3D-surface forms, tiling and tessellation.

## PLAY ON AN IDEA

The result is a play on an idea of rustication, a classical device for giving surface relief and pattern to a façade. Historically, this technique would be applied to the plinth or ground plane of municipal buildings to outwardly demonstrate strength; the effect is quite impenetrable, protective and literally 'spiky'. By lifting this treatment up and using it to clad the gallery volumes, the response is inverted. In this sense, it becomes a device to protect the artworks of the museum above – spaces that require extensive environmental control and not too much sunlight. The ground plane can therefore be released and be as transparent as possible, forging a route through the building and presenting a welcoming and open entrance.

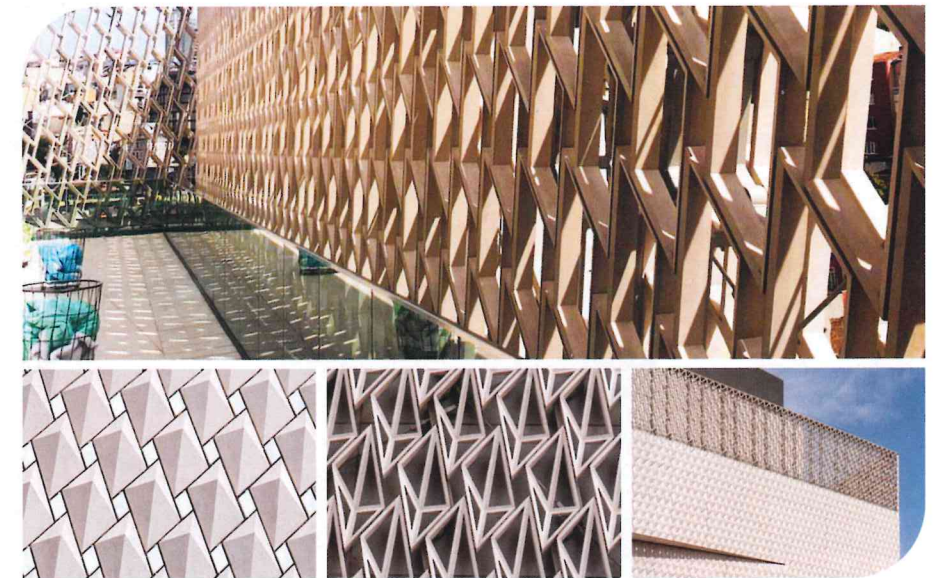
3D convex and concave rhomboid-shaped panels create a dramatic and inviting envelope and reflect

the sun as it moves across the museum throughout the day. The rich palette of changing light and shadow animates the building in an exciting and dynamic way. A smaller pearlescent tile is inlaid into the panels, providing an engaging and contemporary reinterpretation of Istanbul's historic mosaic façade.

## ALLOW NATURAL LIGHT IN

Around certain rooms in the building and up on the rooftop sculpture terrace, the module perforates. This allows natural light in but also shades these quieter spaces. Bahane, the library space, is protected behind this veil, as are some of the education spaces. On the sculpture terrace, the pattern is opened even more to get that feeling of exposure to the city but also the enclosure of an outdoor room, a space for art in the open air. At night it's the reverse, as a glow emanates from the interiors through the veil. A bespoke steel-carrying substructure that follows the pattern was developed with the structural engineer Attec and Fibrobeton to hold the GRC veil panels.

Earlier ideas had pursued an all-ceramic approach to the façade, but constraints on the size of a typical ceramic press led the design team to consider a GRC solution. GRC is a material that suits being cast to these sharp angles and varying panel shapes and can be made in much greater panel size. It took a lot of development with Fibrobeton to get the desired effect. But a strong collaboration and close iterative



## ABOVE:

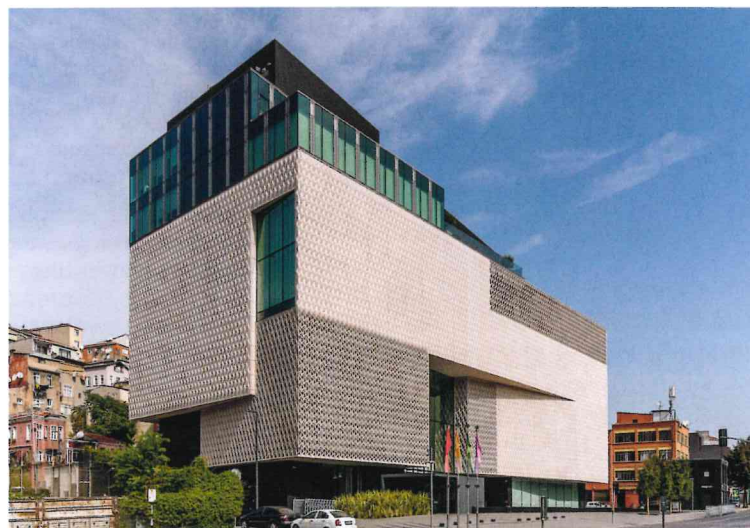
GRC module typologies – solid with pearlescent glazed inlay tile, veil screening element, freestanding sculpture terrace veil enclosure.

## MAIN IMAGE:

North-west corner showing concave and convex tiles.







**TOP:**  
Construction  
on west façade,  
panels being  
mounted on rail  
system


**ABOVE:**  
Arter – south-west  
elevation.

design meant we were able to test, prototype and work through the many details to achieve a great result.

A precise manufacturing process was developed by Fibrobeton to ensure that the quality of form and neatness of geometry could be achieved. Different moulds and modelling techniques were developed to output both the solid 'shell' type panels as well as the perforated veil cladding screens. Bespoke CNC-milled timber moulds were produced as the platform into which the glass-fibre-reinforced concrete was cast. For the veiled screens, additional rubber parts were integrated to generate the perforations.

After casting the units, special surface treatments were applied to the panels to achieve subtle but enhanced effects. Sand-blasting was undertaken to make a homogenous, richer texture across the general surface. Meanwhile, polishing certain faceted triangles generates an accent and sharpness to the geometry – light interacting with this in a different way to the adjacent facets.

For greater durability, a hydrophobic surface treatment was factory-applied. This treatment ensures that the panels maintain their structural integrity and aesthetic appeal over time, despite exposure to the elements. The most challenging areas to achieve good results were around the corners due to the irregular grid. The panels interlock like teeth on these edges, achieving a crisp, angled geometry. There were also some oversized panels, the largest of which were installed as ceiling panels in the main atrium to create a monolithic feeling for the façade with minimal joint lines.

Fibrobeton's work has resulted in an impressive outcome where the architectural vision has been followed through in the execution of the façade and marks Arter as a new cultural cornerstone for Istanbul. 

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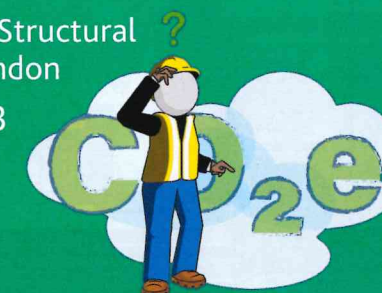


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