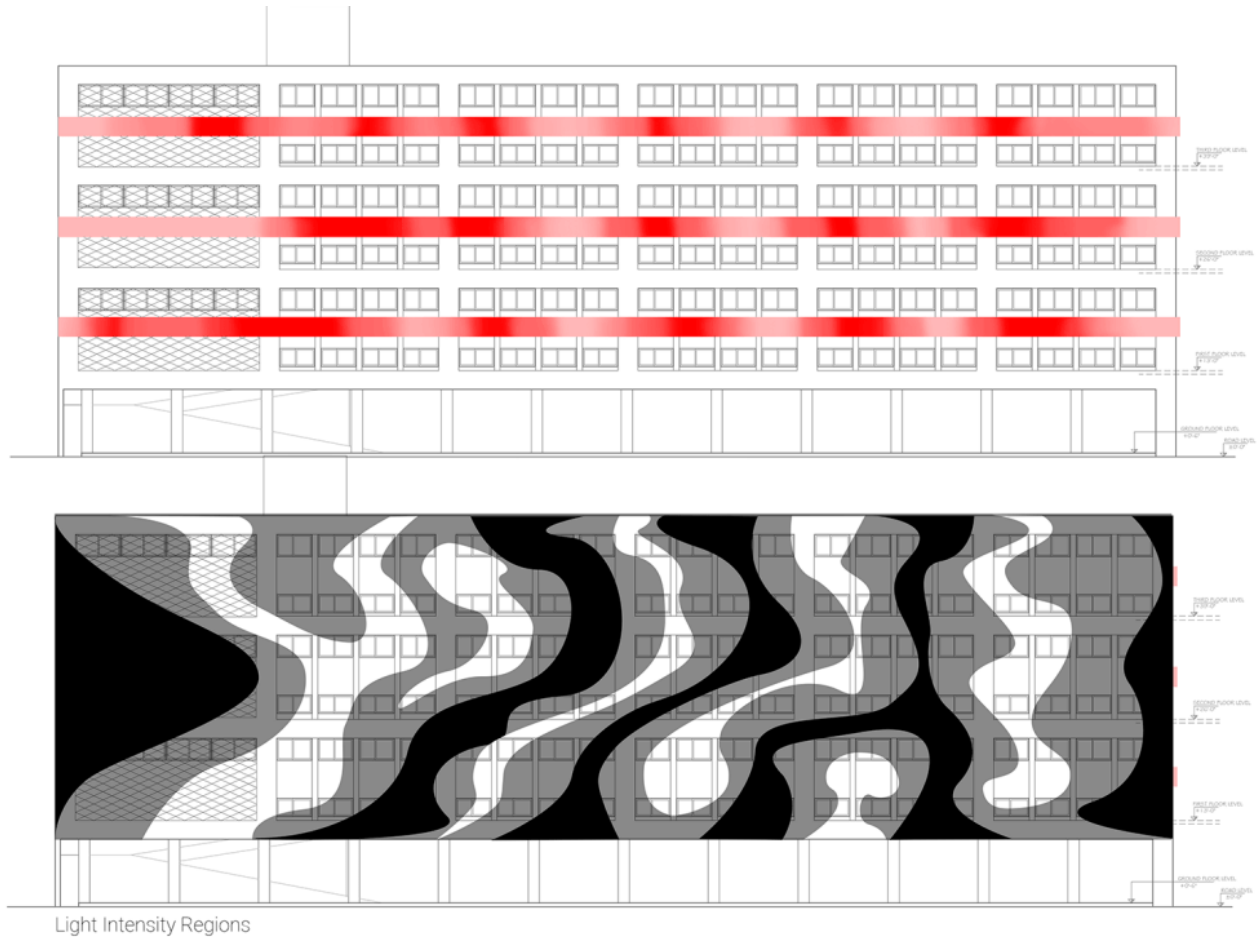


The Brick Screen: A Parametric Reinterpretation of the Traditional Jali

At the heart of Karachi's Arts Council of Pakistan, a new architectural landmark has emerged: The Brick Screen, a large-scale parametric brick façade designed by Muhammad Talha Muftee and Shaikh Abdul Basit. Conceived as a renovation for the Academic Block, this project bridges centuries-old craftsmanship with contemporary computational design, setting a precedent for digital architecture in Pakistan.

Rooted in the concept of the traditional jali, a perforated screen used for ventilation, light control, and privacy, the Brick Screen reinterprets this cultural motif through a parametric lens. Using [Grasshopper](#), the architects generated complex brick patterns driven by environmental data, digital painting inputs, and performative requirements. The result is a façade that is both functionally responsive and deeply expressive of local identity.

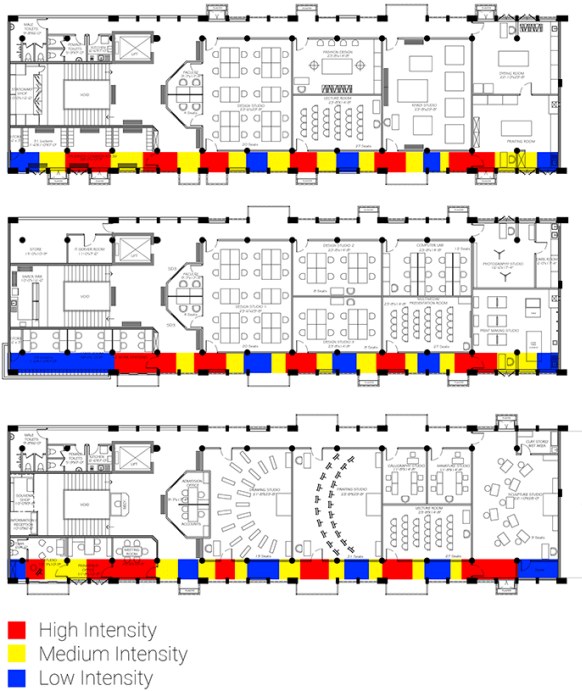


Initial studies to identify regions for higher or lesser permeability of air and light.

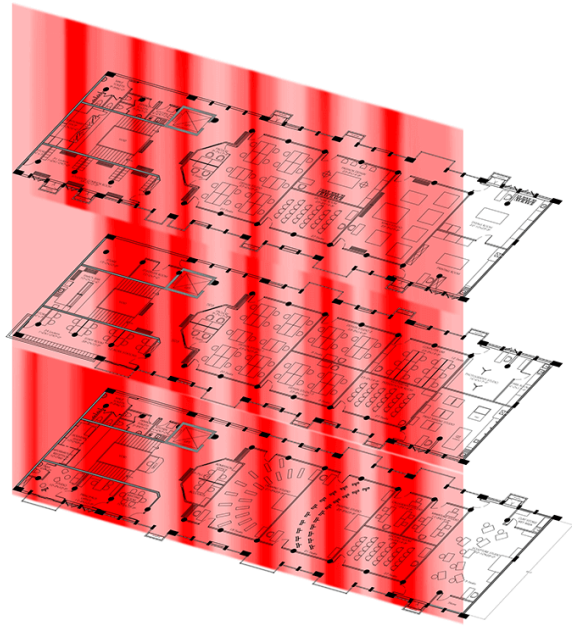
DESIGNING ACROSS THE DIGITAL DIVIDE

In a region where technological access and industry adoption can be uneven, Muftee and Basit's work stands out for its hybrid methodology. Their approach acknowledges the digital divide by fusing advanced computational workflows with manual brick masonry, leveraging familiar techniques while introducing new efficiencies.

The project's 144-foot northern and 94-foot southern façades were constructed using standard bricks and steel reinforcement, translated from digital design to hand-built precision without relying on industrial fabrication systems.



Lighting Gradient Mapping



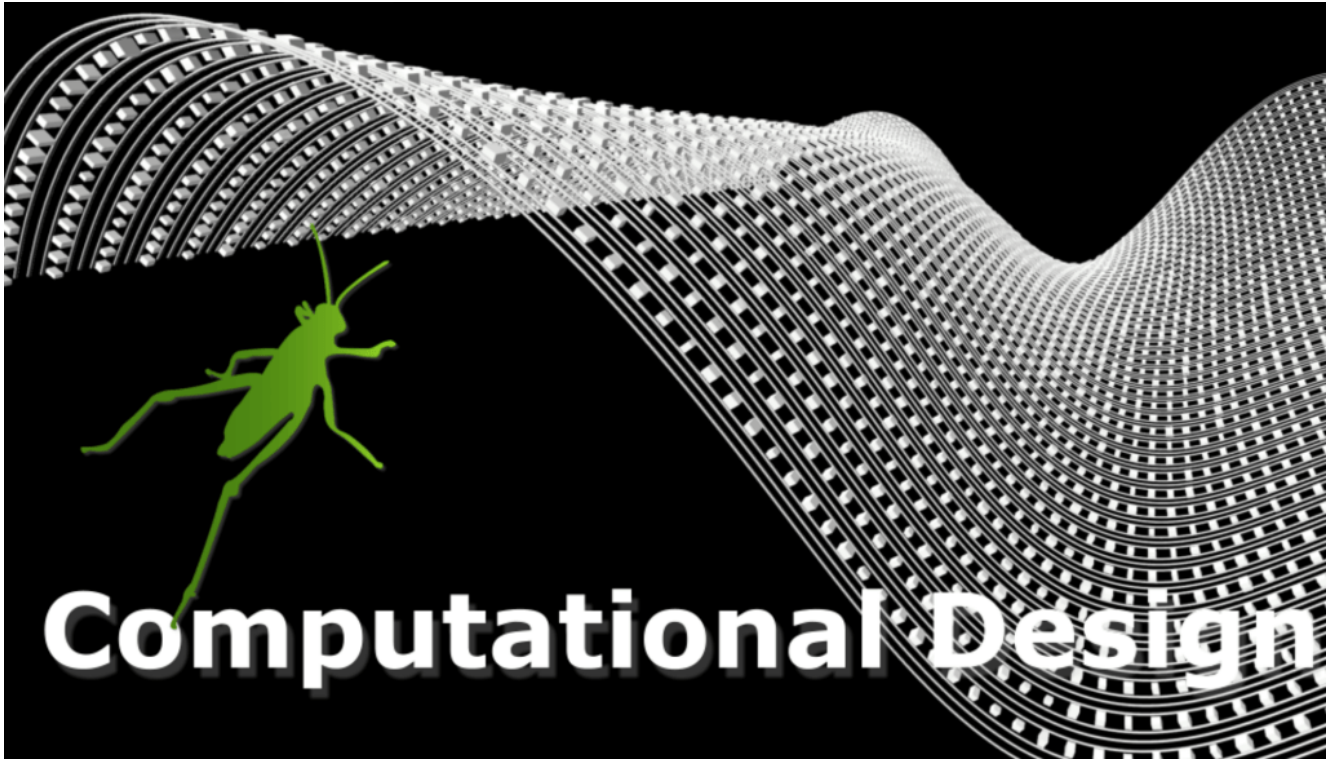
Required intensities of daylight based on user activity, functions and circulation design.

3D model

“Working at the intersection of digital tools and analogue construction meant rethinking what technology can do within our material and cultural context,” explains Muftee. “Our goal was to demonstrate that computational design can empower, rather than replace, traditional craftsmanship.”

FROM IMAGE SAMPLING TO BRICK TECTONICS

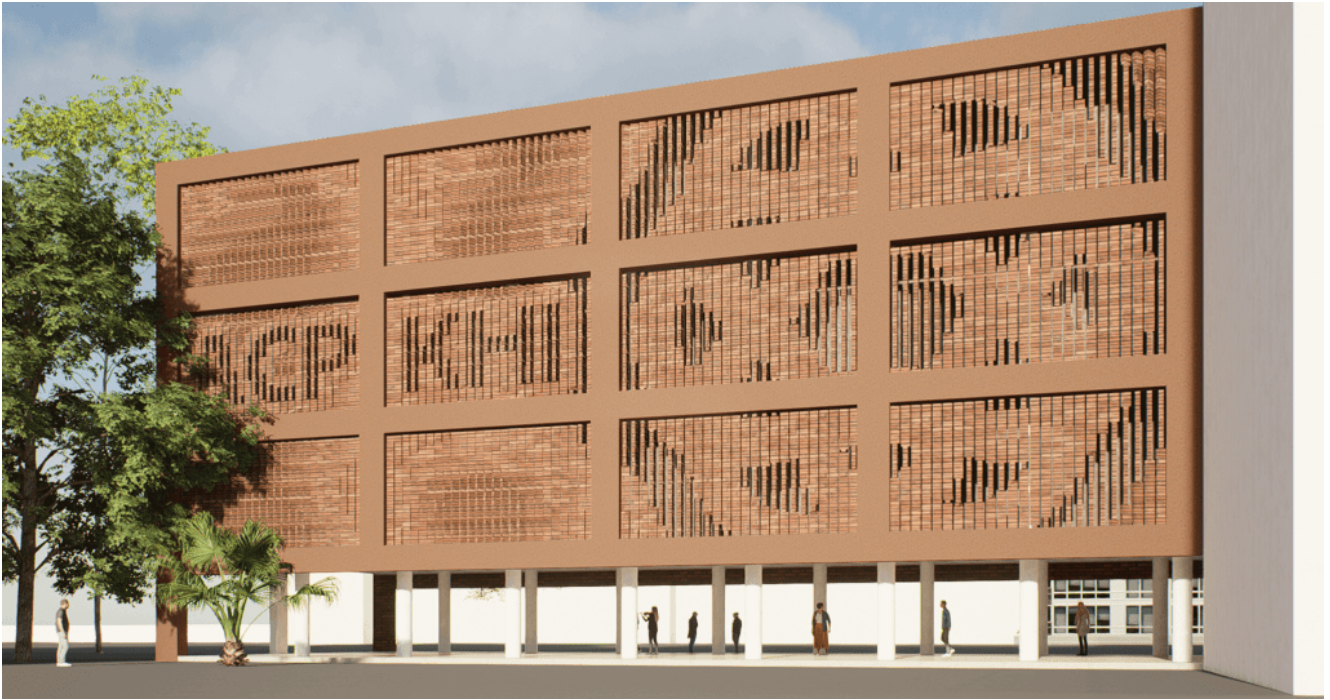
The design process began by mapping natural lighting and ventilation requirements across the façade. These parameters were processed through several stages of digital painting, producing fluid gradients that informed the brick rotations. Using Grasshopper’s Image Sampler component, grayscale values were converted into rotational angles between 0° and 90° , determining how each brick modulated light and air.



[See Also](#)

[COMPUTATIONAL DESIGN WITH GRASSHOPPER](#)

Beyond performance, the façade also carries symbolic imagery. Embedded within its parametric pattern are the logo of the Arts Council and a portrait of Sadequain, one of Pakistan's most celebrated modern painters. Through careful control of resolution and contrast, these visual layers were integrated into the façade without compromising daylight performance – merging art, architecture, and algorithmic design into a cohesive narrative.



Render side A

OPTIMIZED FOR LOCAL CONSTRUCTION

A key challenge was translating the digital complexity into a form that local masons could build efficiently. To achieve this, the architects developed a secondary Grasshopper script to generate annotated, color-coded construction drawings in DWG format, fully compatible with standard AutoCAD workflows used on-site.



Render side B

Optimization also took cultural cues from local terminology: each vertical sequence of bricks was defined as a “**chal**”, a term used by Pakistani masons to describe continuous courses. Simplifying each *chal* into sequences of repeated brick angles (e.g., 10 bricks at 30°, followed by 27 at 60°) allowed for smooth on-site communication and minimal error.

The team also standardized rotations at 15° intervals, allowing masons to use custom wooden jigs for quick alignment. This process resulted in a construction workflow that was both digitally precise and materially grounded, executed without the need for CNC molds or prefabrication.



Construction phase

A PRECEDENT FOR REGIONAL

COMPUTATIONAL DESIGN

Completed during the COVID-19 period, The Brick Screen achieved remarkable accuracy despite relying entirely on manual labor. Its success has since earned recognition as Project of the Year – International Refurbishment at the 2024 SFE Façade Design and Engineering Awards, positioning it as a model for regionally grounded computational design.



Embedded within the brick is the logo of the Arts Council

By merging Grasshopper-driven analysis with traditional brick tectonics, Muftee and Basit have created a façade that is at once performative, cultural, and accessible. The project illustrates how parametric tools can adapt to local contexts – not by importing foreign technologies, but by expanding the expressive and functional possibilities of what already exists.

As Muftee concludes, “The Brick Screen is not about digital supremacy – it’s about digital empathy. It’s about understanding how technology can speak the same language as the craftspeople who build our cities.”

CREDITS

Design: Muhammad Talha Muftee (Ghent University / COMSATS University Lahore), Shaikh Abdul Basit (Fun-e-Tameer)

Client: Arts Council of Pakistan Karachi

Location: Academic Block, Arts Council of Pakistan Karachi

Construction: Fun-e-Tameer

Tools Used: Rhino, Grasshopper, AutoCAD

Award: Project of the Year – International Refurbishment, CBISE SFE Façade Design and Engineering Awards 2024

Illustrations: Talha Muftee and Shaikh Abdul Basit

Photographs: Syed Hasan Haider.