

Poster



PERSONAL

AU \$11.95 (inc GST)
NZ \$13.95 (inc GST)
US \$16.00
EU €12

ISSN 1447-3313



9 771447 331149

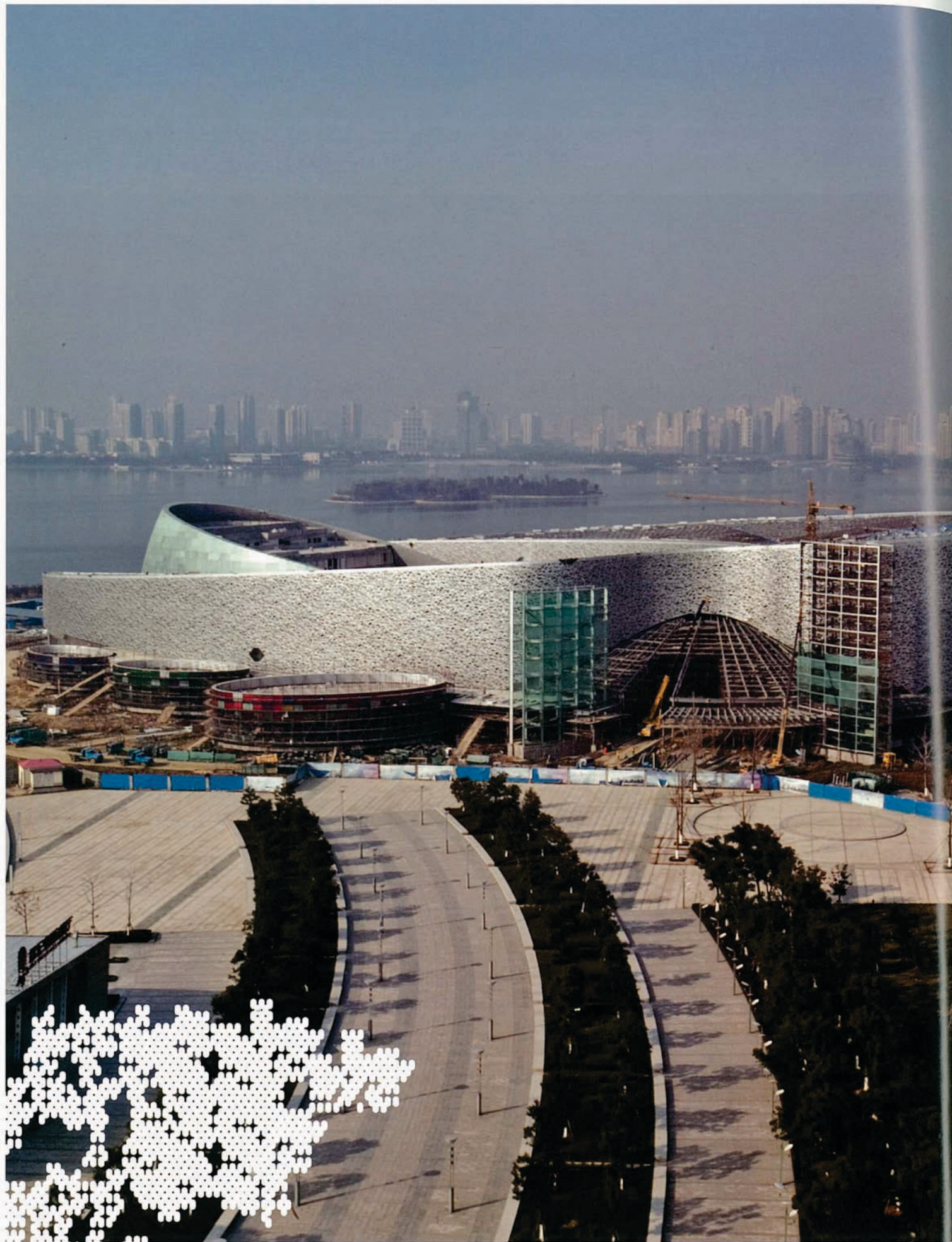
RAPID PROTOTYPE

The Suzhou Science and Cultural
Arts Centre façade by studio 505

Text: Ewan McEoin



Photography: Dashiell Gantner



Photography: Blain Crellin

Looking across China's Jinji Lake, the new Suzhou Science and Cultural Arts Centre (SSCAC) rises from the bare earth, wrapped in a cloak of tangled metallic screens. Shimmering on an overcast day, the building is huge - a crescent-shaped agglomeration of volumes wrapped in a 1.5 kilometre long signature aluminium skin.

The SSCAC is planned and designed as an iconic future landmark resting at the heart of Suzhou's Industrial Park. The development of the Park is a commercial joint venture between the governments of China and Singapore. The monolithic SSCAC will house state-of-the-art facilities including a 1200-seat theatre, a 500-seat performance theatre, a cineplex with an IMAX theatre and seven standard cinemas, a thematic science centre and upmarket commercial tenancies.

Despite the enduring presence on the site of several pivoting cranes, the Centre has rapidly taken shape. With the main external façade now essentially complete it is already obvious that the ever-changing urban landscape of China has a new landmark worth writing about.

Early concepts for the design planned for the creation of several semi-independently built structures. Public spaces were designed to take advantage of the long vista across Jinji Lake, or to look onto a crescent-shaped garden - described as an 'oasis of culture' - enfolded within the vast arcing façade.

The randomly patterned, refined geometric façade was conceived of as a unifying element; it was described as a 'lace veil' resting a metre off the weatherproof façade of the building. This 'veil' would wrap around the outsides of the independent spaces to provide shade to glazed façades where required and maintain a sense of connection between the many components of the project.

As the signature element of the project, the continuous curved metallic matrix of the façade appears in early concepts as a skin of randomly patterned metal. In practice the process of articulating this notion onto a built form generated some complex design challenges. What was the correct scale for the metal

pattern? Would the façade be of rectangular tiles? Would it be fluid? Would it be rigid? How would the design avoid repetition where the tiles joined? Would large rectangular tiles not reduce the appearance of fluidity within the screen, instead leaving it faceted as lots of large flat panels trying to take the shape of curved walls, making the façade bumpy where it should be smooth?

It was these design challenges that provided the opportunity for Australian-based architects studio 505 to join the project team and resolve the façade.

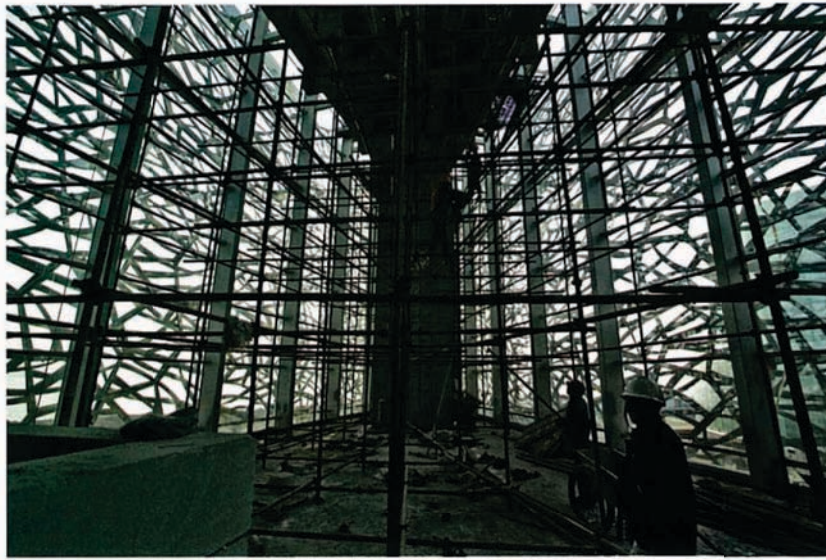
studio 505, which has offices in both Sydney and Melbourne, is a relatively small practice. It was their experience working on projects such as Melbourne's Federation Square, the Australian Pavilion façade at the 2005 World Exposition in Japan and Singapore's Esplanade - Theatres on the Bay that provided the context for the invitation.

On previous projects working for practices such as lab and atelier one, some of studio 505's partners had gained specific experience in resolving the architectural design of complex façades. A member of the project management team had remembered this and tracked down studio 505 partner Dirk Zimmermann, asking him to organise for the studio to present a design solution for the Suzhou project.

Seven trips to China later, and after presenting seven concepts, the project went ahead and nears completion. studio 505 has competed at Chinese speeds, documenting and implementing full scale models of the façade system in the same time it would take to get comments made on a set of drawings in Australia.



Photography: Blain Crellin



Photography: Blain Crellin

The architects are candid about the opportunity a project of this scale has offered them, and are astonished about the speed with which the project progressed through design and documentation to conclusion. This is a testament to the ability of Chinese manufacturers to rapidly achieve the level of fabrication necessary for the façade tiles, and a direct result of studio 505's ability to create a coded construction process that enabled the builders to hang the façade from many fronts at the same time.

In essence, studio 505's architects set themselves the task of establishing a design process that would allow the efficient manufacturing and installation of a façade system that could respond to the many different bends and twists of the façade's curvaceous form. They were also driven by a desire to detail the façade tiles so that they would be equally attractive from both sides, presenting a smooth, minimal face to those inside looking out and those outside looking in. This required them to detail the façade system as two separate interlocking panels that would conceal all fixings between the component parts. In addition they wanted to generate a façade that would read at an appropriate scale.

Speaking with studio 505's Dylan Brady and Dirk Zimmermann, it becomes apparent that the architects have put a huge amount of time and energy into the simplification and standardisation of the manufacturing and construction process of the façade while maintaining the creative complexity of the architecture itself.

Their tile system works on a continuous hexagonal grid comprising 46 types of twin skin panels compiled from a palette of only 16 tiles, each panel type being coded for application where required by a certain curve of the façade or pattern requirement.

This meant that each of the 2500 panels required for the project could be water jet cut off site in a factory, assembled and delivered as a finished kit ready to clip onto the building. Each panel comprises four interlocking elements, each made from one 3.7 x 2.2 metre sheet of marine aluminium, the largest sheet size available. The 11 square metre panels were hung directly in front of the weatherproof façade, allowing the installer to work from a relatively simple set of coded drawings.

The aluminium façade panels overlay two distinct patterns within the front and rear surfaces. The primary organisation grid is a formal triple hexagonal matrix that draws inspiration from the enduring structure of traditional Suzhou screens. This hexagonal pattern with its straight lines draws reference to the scientific content of the Suzhou Centre itself, representing the mathematic, calculable, rational identity of science.

The second integrated pattern that is woven through the matrix is a complex of lines that allude to the Suzhou centre's cultural brief, to calligraphy and the artists' various inspirations.

The combination of patterns, tile types and the double layer skin creates an ongoing visual dialogue between science and art, the twin anchor points of the project.

studio 505 has been meticulously attentive to embedded detail, and has created a seamless, ethereal ribbon of metal to wrap up the rest of the building's architecture. The studio has travelled at full speed into a steeply educational process of designing and implementing architecture under tight time constraints. The architects feel that they have helped connect the project to the deep history of the Suzhou district, whose finely crafted laceworks of timber carry the region's name.