





Irrespective of the country you're working in, understanding the culture is fundamental to achieving the best design outcome. Marg Hearn reports on Studio505's façade for the Suzhou Science and Cultural Arts Centre in China.

While working with English structural engineering firm, Atelier One, Dirk Zimmermann's credits included the design schematic of the façade for the Esplanade Theatres on the Bay in Singapore. He also headed the company's work on the complex façade design of Melbourne's Federation Square. Here, he collaborated with Dylan Brady, who was Lab Architecture Studio's project architect on the Square's triangular pinwheel façades, arcades and glazed foyers. So, when Lye Kuan Loy of PM Link, project managers of the Suzhou Science and Cultural Arts Centre (SSCAC), felt there was a need for another opinion on the landmark's façade design, the innovative work of Zimmermann and Brady surfaced.

Renowned French architect, Paul Andreu, was responsible for the SSCAC's schematic design – defined by a crescent-shaped building accommodating arts, science and entertainment facilities. It is also enveloped by a substantial screen wall measuring 1.5km in length and 40m high at its peak, sloping down towards the lake to a height of 18m. A Suzhou-inspired garden is the centrepiece and a pearl-shaped building sits separately on the edge of Lake Jinji.

Studio505 were asked to review the incumbent façade proposal prepared by the Chinese documentation architect and to present an alternative. This process involved seven presentations in China, the manufacture of two full-scale mock-up façade sections, the scrutiny of international façade experts and an enormous time and intellectual property investment – all before the job was won. Studio505, a boutique Australian practice, was pitching against China's largest architectural firm, ECADI.

To understand the project, the significance of the traditionally walled, historic Suzhou gardens needed to be comprehended. "The screen unifies the outer wall into one element, while the functions behind it are multiple. It's this concept of approaching something that looks unrevealing and mysterious from the outside and doesn't tell you yet about the treasures hidden behind. It's a very Suzhou motive," explains Zimmermann.

A fundamentally different screen design was presented by Studio505 at their initial presentation. They relied on body language for feedback amid the vocal Mandarin discussions, assuming their solution was doomed. Instead, the client's emotions had been touched and they were invited to return the following week. Five new designs later, the clients remained intrigued, but indecisive. A full-scale 14 x 10 metre mock-up was requested as the importance of the façade mounted.

Zimmermann and Brady were astonished at the pace at which the prototypes could be manufactured in China. "It was an eye-opener to the design and construct speeds we had come to expect as standard in Australia," says Brady. "The Chinese have a very different structure to their labour force and their working culture."

The sheer magnitude of labour and the lower costs impacts the scale of Chinese projects. "It lets you design and build detailed solutions that in Australia you'd only be able to do on a boutique project," says Zimmermann. "You need to be very precise," he cautions.

To ensure precision and quality were the best possible, Studio505 designed the screen to maximise pre-fabrication in Chinese factory environments, rather than offering a design solution that could be manufactured locally on site. An exploration of any cultural significance in the original screen design revealed a sense of arbitrariness. In developing their own pattern, Studio505 looked to the triangular grids and geometries of the traditional Suzhou window and the more organic, non-linear graphics found in local Suzhou ceramics.

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They combined the dynamic, free-flowing line design with a hexagonal matrix. "We realised we had two patterns that worked in tandem and suddenly this came together as an idea," says Brady. "This emotional connection between calligraphy and geometry, culture and science, art and mathematics, historical tradition and the dynamic China of today, also gave the politicians a dialogue that they could expound on to others." The originality of the design and its seamlessness, seemingly void of construction joints and importantly depicting an identical appearance both front and back, appealed.

Comprehending the scale of the façade was critical, especially as the walls curve away on approaching the entry. "Our desire was to highlight that you cannot see the building's ends," explains Zimmermann.



Upon review of the mock-up, each contender was asked to submit another, with Studios505's first prototype eventually getting the nod. Working within structural supports already in place, Studio505 increased the scale of the pattern for the final design, which is made from water jet cut, marine aluminium. The 23,000m² façade consists of 2500 panels and is created from 16 different tiles. These could form 64 different panel arrangements but this was narrowed down to 47 pattern combinations. "They were arranged so there was continuity in the pattern but never repetition," says Brady.

Zimmermann attributed any differences with the client to the difficulty of understanding and imagining the scale and visual complexity of the design. These were overcome once the end-product was visible – the visual essentially transcended language barriers. "It's really this understanding of a different culture and how they do things – what's beautiful about architecture is that it's universal." The final design for the façade evolved via the process, rather than being pre-conceived from the outset, success ultimately underpinned by a preparedness to learn and to stay open-minded.

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Construction time 9 months

