

Moving experience

Foster and Partners' Singapore's Expo station is a dramatic addition to the island's architecture and to Foster's significant portfolio of transport schemes – from Hong Kong's Chek Lap Kok airport to Canary Wharf station in London. **Li-Lian Chee reports.**
Photographs by Richard Bryant/Arcaid.

Singapore is still celebrating the opening earlier this year of its latest 'architectural wonder' – Foster and Partners' Expo station, on the new Changi Airport Mass Rapid Transit Line (MRT). This is the first of two stations to open, and there is much to shout about. When overseas visitors pour into Singapore, for conventions and exhibitions in Philip Cox's new Expo complex, they will arrive via a station that clearly demonstrates 21st century Singaporean aspirations. Station and Expo complex alike embody the new design-conscious architectural image of today's Singapore – at least until visitors venture into the densely packed city centre, where

indifferent architecture still holds sway.

The station – which, like so much of Singapore's new construction, sits on reclaimed land – works efficiently as well as dazzling the senses. This comes as little surprise, given that Foster and Partners has perfected transport design with Hong Kong's Chek Lap Kok airport and London's Canary Wharf underground station.

A dramatic structure, reminiscent of the hard shell of a beetle, is one of the many elements to titillate a visual appetite. This spectacular 200m-long titanium-clad roof hovering over the a study of rigorous geometry and structural ingenuity. Generated from the



1

1 The dramatic roof structures: a 38m-diameter stainless-steel disc over the ticket hall and a 200m-long titanium-clad torus over the platform and concourse below

2 The mirrored stainless-steel ceiling is animated with reflections of passengers and trains

2





section of a torus, its unique shape comes from the geometric double curvature (in both the long and short cross-sections) of the shell. To add further intrigue to this unusual geometry, the whole roof is nimbly supported by just two pairs of 'V' twin columns separated by an impressive 70m clear span. Visually emphasising the sweeping curvature of the roof and the great expanse of open space, the massive span is enabled by the efficiency of 'diagrid' steel member construction in the roof.

The architect pulled out all the stops to arrest the restless eye of the transitory passengers. The concourse's ceiling is covered with geometric shards of mirrored stainless steel plates, which augment the extravaganza (or confusion) of light and movement in this people-filled area. Their main purpose is to scoop daylight on to the platforms and reduce the need for additional artificial illumination, but they also amplify movement through incessant reflection and repetition – transforming an otherwise utilitarian platform.

The use of light in the station, so photogenic in print, is even more stunning in reality. It models and animates the shell in what seems like a slow rotation, creating an illusion that distracts from the complicated mathematics that went into its making. This tactic could be seen to be an analogy for the island city: it is a simulacrum, an impossible construction not unlike a mirage.

Anticipating a peak of 17,000 passengers per hour, the design provides clear movement patterns. No stranger to complex circulation planning with similar experiences at Chek Lap Kok airport and at Canary Wharf underground station, Foster and Partners created a legible network for passengers. An elegant long section cut into the upper platform, crossed at three points by escalators and stairs, links it to the concourse and ticketing area. The bold cut makes a discreet directional device, allowing intermittent visual connections between the two programmatic divisions of the station.

The Expo station benefits from a soft boundary on one side, where a lush tropical garden opens out on to the station concourse, appropriately enough for Asia's 'garden city'. Services are housed within furniture units or pod-type cabin units and restricted to a basement network, ensuring the flexibility of modification, maintenance and replacement.

Foster's Canary Wharf station in London, also on reclaimed land, seems more confident in its sweeping spaces and grand roofs than its Singapore counterpart. The articulation of space and light are at Canary Wharf self-conscious and uplifting in an otherwise grey dockland site. While there can be no doubt about the Expo station's success as an architectural object, its challenge – as with all of the island's new stations – is to engage with civic life. At the Expo site, the immediate need is to combat the insularity of the battery-hen-style gated cuboidal warehouses that surround the site. It is not enough for Singapore's gate to admit visitors. The Expo station is a unique space of boundaries between nation and city, inside and outside, private and public, emptiness and history, past and future. **wa**

Li-Lian Chee, a Singaporean architect and writer, is pursuing a masters in architectural history at the Bartlett in London.



2

1 The concourse level is filled with natural light

2 Where the two roof structures overlap

Architect

Foster and Partners, London

Associate architects

Public Works Department, Singapore

Land Transport Authority, Singapore

Civil engineer

Land Transport Authority, Singapore

Mechanical and electrical engineer

Land Transport Authority, Singapore

Structural engineer

Ove Arup

Quantity surveyor

Davis Langdon and Seah

Lighting

Claude Engle

Landscape architect

Cicada Singapore

Long section

