

## UPFRONT

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DINOSAURS, mummies and aquariums. These were some of the ideas that popped up when Canadian-Israeli architect Moshe Safdie and property developer Capitaland were brainstorming for a thematic attraction to go along with the retail space for Jewel Changi Airport, some years back.

Speaking to a group of media representatives on April 12, Mr Safdie, founder of Safdie Architects pointed out that such attractions would likely be appealing only for a period of time. "Why would passengers want to come back again after seeing it once?" he said. Not to mention, he felt such attractions would only appeal to a certain age group of visitors.

Instead, he felt that the attraction should be timeless, appeal to all ages and income groups, something that is more universal. "I came up with the idea of the mystical, paradise garden. That would be appropriate for an airport and that is a place of serenity and repose," he said.

He also recognised the need for the retail spaces to be kept separate from the garden, otherwise they would compromise one another. With that in mind, he planned for the commercial spaces – four levels above ground and two below – to loop around the rectangular garden, and that formed the elliptical shape of the building.

Above the shopping is what he calls the plateau. The fifth level comprises garden spaces, with landscaping coming down into the valley.

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Mr Safdie

The result is the Shiseido Forest Valley, a terraced garden attraction that offers spatial and interactive experiences, including walking trails, cascading waterfalls and quiet seating areas.

Based on the geometry of a torus (a large convex moulding, semicircular in cross section, forming the lowest part of the base of a column) the building is designed as a new central connector between the airport terminals. Jewel is directly connected to Terminal 1, and linked to Terminal 2 and 3 via linkage bridges.

The gardens are not the only attraction at Jewel.

Judging from the countless pic-

tures that have been posted by visitors on social media, during the few days of Jewel's preview, many have been awed by the 40 metre high HSBC Rain Vortex, the world's tallest indoor waterfall, designed to handle up to 10,000 gallons of water per minute.

Mr Safdie, 80, explained that the Vortex serves to not only funnel rainwater, which is then harvested for the landscape irrigation system, but that it is his way of bringing in daylight into the basement levels. The funnel was constructed from 14 pieces of acrylic, each 80mm thick, that were joined together. Down at basement two, visitors can touch the funnel.

Then there is the facade which itself is a conversation piece, especially when visitors see the glistening Jewel from the air. The dome-shaped roof facade is a contiguous grid shell supported by a ring of 14 tree-like columns. Made up of 9,000 glass panels, each piece is unique in shape and size to provide the necessary structural support. The glass weighs more than 6,000 tonnes, the equivalent of the weight of 10 A380 planes. They are made of triple low-emission glass, which helps transmit light but at the same time reduces heat. Each panel has a 16mm air gap to reduce the levels of noise.

For such a complex project, it is not surprising that it came with its set of challenges.

One of which was, "getting the building balanced for the plants and people, within sustainable standards," says Mr Safdie.

By that, he meant that there had to be enough sunlight to keep the trees growing, while still keeping Jewel cool at

a comfortable 24 deg C. To do this, fogging devices have been installed at the oculus to chill the air, as well as to add to a misty ambience to the fifth level gardens, otherwise known as Canopy Park. Air-conditioning has also been installed, and cleverly hidden below benches, while there are also chilled pipes on the floors.

On a private tour of Jewel, he points to retractable shades mounted on the roof, which help provide shade to the Canopy Park, especially at noon.

Another issue that he fought hard for, was to keep the shopping and the garden separate. This explains why visitors will not see any retail sign boards when they are in the Forest Valley. Mr Safdie says he wants visitors to be truly surrounded by greenery, especially because they are in an indoor garden. Jewel houses over 2,000 trees and palms, and over 100,000 shrubs. There are about 120 species of plants and they originate from countries such as Australia, China, Spain and the United States.

For its innovative and iconic design, Jewel has been ac-



## Architect Moshe Safdie on the paradise garden theme for Changi Airport's Jewel

The multi-award-winning designer of Marina Bay Sands, among other Singapore landmarks, says he wanted Jewel to entice visitors to come back – again and again



On a private tour of Jewel, Mr Safdie points to retractable shades mounted on the roof, which help provide shade to the Canopy Park, especially at noon. BT PHOTOS: LIM YAO HUI

corded multiple local and international awards including the MAPIC Award for Best Futura Shopping Centre, MIPIM Asia Award for Best Future Project, the Building and Construction Authority (BCA) Green Mark Award – GoldPLUS award, the BCA Universal Design (UD) Mark Design GoldPLUS award and the International Architecture Award.

Mr Safdie is no stranger to Singapore, having designed Marina Bay Sands (MBS), and Sky Habitat condominium at Bishan. His current projects include Orchard Boulevard, a residential and hotel development, and the Surbana Jurong Headquarters, a campus built around an interconnected indoor and outdoor landscaped courtyard and public amenities. Along with global architecture firms Aedas and Gensler, he is planning to be part of the team responsible for the design elements of the new tower at MBS.

He said that when he designed MBS, he did not predict that it would be such an icon for Singapore. "Now I predict that Jewel will be an icon too, no less than MBS." While taking the media on a tour, he was amazed by the number of people who were out admiring his masterpiece. What pleased him was the variety of people who have come, from children, to the working crowd and senior citizens. "It is good to see everyone exploring, because they are curious," he said.

Pointing to a group of children, who were playing and posing for pictures next to the immense volume of water at basement two, he said: "That's more telling than anything."

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