



## **FACT SHEET**

### **Design and Architecture at Jewel Changi Airport**

#### **The Design and Architecture Vision**

Jewel Changi Airport (Jewel) is an iconic landmark on the Singapore skyline, designed as an extension of Singapore's reputation of being a City in a Garden.

Mr Moshe Safdie, Principal, Safdie Architects, said, "Jewel Changi Airport juxtaposes the centre of being in nature and enjoying a vibrant marketplace, dramatically extending the concept of airport to serve as an urban centre, engaging travellers, visitors, and residents; echoing Singapore's reputation as 'The City in the Garden'.

"Jewel demonstrates the potential for urban centres that offer the vitality of the traditional city square or galleria within a park setting. The Jewel toroidal inverse dome creates a new kind of spatial experience, a daylit vast landscaped garden, combined with seven levels of shopping and airport facilities. Light penetrates everywhere, while the roof drains through the dome to create a dramatic waterfall, dropping seven storeys to the lowest building level. As an integrated whole it creates a new typology – transforming the airport's principal function as a transit hub into that of an interactive civic and urban centre."

#### **The Design and Architecture Team**

Mr Ashith Alva, Head of Projects, Jewel Changi Airport Devt, said, "Our goal in designing Jewel was to house a myriad of experiences all under one roof and provide a seamless travel experience for the millions of people that pass through Changi Airport each year. To achieve this ambitious project, we brought together a collective of visionaries and experts."

A consortium led by Safdie Architects, helmed by world-renowned architect Moshe Safdie, developed the design of Jewel. The team at Safdie Architects is known for its research-oriented practice that has generated innovative designs of contemporary commercial, residential and civic spaces around the globe. Consortium partners RSP Architects Planners & Engineers, BuroHappold Engineering, Lighting Planner Architects and Benoy lent expertise on other aspects of Jewel's design, including the façade, lighting and interior design.

### Highlights of Jewel's Design and Architecture

Construction broke ground in December 2014, and all structural works were completed in 2017. The following are some key features of this architectural marvel.

- **Façade:** The dome-shaped roof façade is a contiguous grid shell supported by a ring of 14 tree-like columns and a ring beam at the edge of the roof. The special high-performance architectural glass material used in the façade has the dual ability of transmitting light and reducing heat gain, thus enabling plant growth in the indoor gardens while providing sustainable cooling. Each glass panel also has a 16 mm air gap to insulate against noise emitted from aircraft and ensure that noise levels within the building are kept to a minimum. Likewise, a series of tests and research were conducted to ensure that the glare emitted off the glass surface will not interfere with the daily operations of air traffic controllers as well as aircraft that are approaching the two runways at Changi Airport.
- **Connector:** Based on the geometry of a torus, Jewel is designed as a central connector between the airport terminals at Changi Airport. Jewel is directly accessible from the Terminal 1 Arrival Hall and linked to Terminal 2 and 3 via link bridges.
- **HSBC Rain Vortex:** At the apex of the glass roof is an oculus that showers water down to the centre of the building, creating the HSBC Rain Vortex, the world's tallest indoor waterfall. Rainwater is funnelled into the waterfall and harvested for landscape irrigation systems.
- **Shiseido Forest Valley:** The Shiseido Forest Valley is a terraced garden attraction that offers many spatial and interactive experiences for visitors, including walking trails, cascading waterfalls, and quiet seating areas. Surrounding the gardens is a retail marketplace across five levels, which is accessible to and from the Shiseido Forest Valley through a series of vertical canyons. Two nature trails meander through the gardens, climbing 30 vertical metres from bottom to top.
- **Canopy Park:** On the fifth level of Jewel is the Canopy Park, which includes 14,000 sqm of attractions integrated within the garden spaces. On the northern side of the park is the Cloud9 Piazza, an event plaza space large enough to serve 1,000 people.

### Awards and Accolades

For its innovative and iconic design, Jewel has been accorded multiple local and international awards including the *MAPIC Award for Best Futura Shopping Centre*, *MIPIM Asia Award for*

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Best Future Project, the BCA Green Mark Award - Gold<sup>PLUS</sup> award, the BCA Universal Design (UD) Mark Design Gold<sup>PLUS</sup> award and the International Architecture Award.

**Table 1:** Project Data

Project Name	Jewel Changi Airport
Location	Singapore Changi Airport, Singapore
Developer	Jewel Changi Airport Development (a joint venture between Changi Airport Group and CapitaLand).
Principal Architect	Safdie Architects
Project Category	Mixed-use Development
Local Architect	RSP Architects Planners & Engineers Pte Ltd
Foreign Architect	Safdie Architects
Façade Consultant	BuroHappold Engineering
Lighting Consultant	Lighting Planner Architects Pte Ltd
Landscape Architect	<ul style="list-style-type: none"><li>• PWP Landscape Architecture</li><li>• ICN Design</li></ul>
Interior Designer	Benoy
Civil & Structure Engineer	RSP Architects Planners & Engineers (Pte) Ltd
Mechanical & Electrical Engineer	Mott Macdonald Singapore Pte Ltd
Quality Surveyor	Arcadis Singapore
Site Area	38,500 sqm (3.5 hectares)
Building Height	5 storeys above ground and 5 basement storeys
Floor Area	135,700 sqm
Construction Commence Date	2014
Construction Completion Date	2019

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