

CUSTOMER SUCCESS STORY

JEWEL CHANGI AIRPORT PROTECTS CANOPY DOME WITH **VESDA-E VEU**

About End User (Jewel)

Jewel Changi Airport is a mixed-use development at Singapore Changi Airport, that opened in April 2019. With its iconic architecture, lush indoor gardens, one-of-a-kind attractions, and unique shopping and dining options, Jewel Changi Airport is a multi-dimensional lifestyle destination for Singapore residents and international travelers to enjoy. The complex covers a total gross floor area of 135,700 m² (1,460,663 sq ft) spanning 10 stories – five stories above-ground and five basement stories. Attractions include the 40-metre high HSBC Rain Vortex, the world's largest indoor waterfall; the Shiseido Forest Valley, an indoor garden spanning four stories; and Canopy Park at the topmost level, featuring gardens and attractions. There are also over 280 retail and dining options, a hotel and facilities for airport facilities in Jewel.

The Challenge

Jewel's distinctive glass-and-steel dome-shaped façade is designed by a consortium of architects and designers specializing in architecture, master-planning and interiors. It has been announced that the construction of Jewel cost \$1.7 billion.

Jewel is designed to combine a marketplace and an urban park. "The component of the traditional mall is combined with the experience of nature, culture, education and recreation, aiming to provide an uplifting experience. By drawing both visitors and local residents alike, we aim to create a place where the people of Singapore interact with the people of the world," said Moshe Safdie, the lead architect. It's imperative that the hotel, aviation and retail facilities encompassed by the dome are protected along with the large number of visitors.



PROJECT:

Jewel Changi Airport

END USER/LOCATION:

Changi, Singapore

INDUSTRY:

Transportation / Airports

PARTNERS:

Hart Engineering /
BES Tech Solutions Pte Ltd

SOLUTION:

VESDA-E VEU

“The VEU has provided us with superior detection performance with faster response time and accomplished our goals to maintain pleasing aesthetics. The simplicity and flexibility of the system far exceeded our expectations.”

Jewel’s iconic structure with its glass and steel façade is designed by world-renowned architect, Moshe Safdie. The glass panels of the dome are framed in steel which rests on a complex latticework, evoking the appearance of traditional glass conservatories. As such, aesthetics is a major concern faced by the team. Running of exposed sampling pipes on the Dome was rejected by the Architect.



The Solution

Smoke Detection for the Dome is required under the Performance Based Design. ASD was the preferred solution due to its proven track records and aesthetics reasons.

For aesthetics, security and safety reasons, the detectors and pipeworks cannot be installed in places open to the public. Thus the pipework has to be routed to the nearest Plant Rooms/ AHU Rooms which are mostly located at level 4/5. Due to the extensive pipe runs with the maximum of more than 140mtrs (per pipe), the VESDA-E VEU was chosen for its strong performance, ease of maintenance and number of detectors required.

With the stringent aesthetics requirements for this project, ways and means of hiding our ASD Pipes and sampling points become

obvious. After numerous rounds of meetings/discussions/sample submission, it was finally approved that ASD Pipe will be concealed in the aluminium Extrusion Frame.



HFT is a flame-retardant halogen-free polymer conduit introduced to the safety industry, which are designed to offer fire-retardant properties without degrading their functional performance including impact resistance. Most importantly, its characteristics of being able to bend easy within the extrusion and high temperature rating.

The Outcome

The facility utilized (22) VESDA-E VEU-A10 detectors to activate the Engineered Smoke Control System protecting the dome, helping the project achieve their business goals by using fewer detectors in terms of fewer Power Supply Units (PSU) and interfacing requirements to Smoke Control Systems. The VEU afforded more allowance and flexibility when determining where the detectors have to be housed not only for ease of installation but ongoing maintenance accessibility.

Actual Hot Smoke Tests have been carried out from Level 1 of the Forest Valley area and the VEU system responded to the fire test as per design intent.



About Installer

Established in 2010, BES Tech Solutions started out providing engineering support to OEM distributors.



Today, our fire safety solutions have expanded to support End Users, EPC contractors, M&E contractors and fire contractors. With our expertise in multiple brands of Fire Alarm Systems, migration of systems and installation is assured with minimal downtime. BES has helped many clients upgrade their old or obsolete fire alarm systems with improved addressability and early warning detection. Their fire safety solutions protect high value assets and lives across a wide range of industries, improving live safety for the Data Centers, oil & gas, Semi-conductors, pharmaceutical and commercial sectors.

To learn more, visit BES Tech Solutions at www.bes-tech.com.sg.