



Singapore's Gardens by the Bay

Sound garden

Singapore's much-anticipated Gardens by the Bay is now open to the public, with audio systems from E&E enhancing the visitor experience. **Caroline Moss** takes a stroll

GARDENS BY THE BAY, THE LATEST

tourist attraction to come up in Singapore's fast-evolving Marina Bay, opened its first phase to the public in June. Built on reclaimed land overlooking Singapore's first sea water barrage which serves as a reservoir – part of the island state's mission to become self sufficient – Gardens by the Bay is the central pillar of a government project to make Singapore the botanical capital of the world. Future plans include hosting an annual garden festival and creating a continuous ring of greenery around Marina Bay, and Gardens by the Bay will play a central role in both. The 101-hectare site will eventually comprise three gardens, Bay Central, Bay East and Bay South, and the latter 54-hectare plot is the first to open its doors to a curious public, wondering what the giant triffid-like structures on the city's horizon are all about.

Beyond Bay South's two energy efficient conservatories lies the Supertree Grove, sprouting 12 tree-like structures ranging in height from 25m to 50m. These steel, concrete and wire trees will act as vertical gardens, supporting a plethora of ferns, vines, orchids and other exotic plants while providing shade for those on the ground. Environmental technologies mimic

the ecological function of trees, with solar panels providing energy, a rainwater collection system used for irrigation and fountain displays, and air intake and exhaust functions contributing to the conservatories' cooling systems. Visitors can walk through the trees along the OCBC Skyway, a 22m high walkway which circles the grove, connecting two of the taller trees and giving views across the gardens. Bay East Garden when fully open will provide two kilometres of waterfront along the Marina Reservoir, divided by water inlets into a series of gardens, while Bay Central will ultimately act as a link between the south and east gardens, with a three kilometre promenade stretching from the city centre to the east of Singapore.

Aside from the environmental and ecological attractions of Gardens by the Bay, the new multimillion Singapore dollar Bay South will also be used for entertainment. The Supertrees house a technology infrastructure needed for nightly sound and light shows and outdoor events, while a function hall in the Cloud Forest (cool-moist) and Flower Dome (cool-dry) conservatories will host corporate events, weddings, launch parties and the like.

Electronics and Engineering Pte Ltd (E&E) supplied and installed



Gardens by the Bay is now open to the public



A partially concealed EAW speaker



E&E's project manager Kari Kalan in the Flower Field outside the concert hall

the entire audio visual system into Bay South in a project which grew as the client, the National Parks Board, explored the entertainment possibilities the gardens could provide.

'The theme and challenge for E&E's design and system team was "bringing life to the garden with sound",' explains E&E managing director Ronald Goh. 'Considering the environmental conditions in the two conservatories, which both have different temperatures and humidity levels, the criteria was the careful design of the cabling infrastructure and speakers, and centralised control with multi-track audio distribution across the entire facility, with every speaker zone providing different tracks to give changing ambiances throughout. We wanted to give the visitors the impression of being immersed in a garden of wonder.

'Our design team worked very

closely with the client and media content designer to create each separate scene of audio, providing more than 40 channels through the multi-track distributed audio system.'

After various live sound demonstrations on the site, the client decided on an EAW system for the trees, two of which stand at 50m. A total of 52 EAW MK8196iWP weather resistant speakers have been installed throughout the trees, with four in each of the 10 smaller trees and six in the larger two, and an EAW SB180ZPWP subwoofer in each tree and two in the larger ones. The system is powered by Powersoft M20D, M30D and M50Q amplifiers. The control room houses a Green Hippo GrassHopper media server and a Tascam X-48 HD multi-track player with Symetrix SymNet Cobra 8x8 DSP to handle and network the variety of audio sources being played in the outdoor area. A Crestron touch panel control system allows operators to

select audio sources throughout the area, while a mobile rack provides outdoor control. Kilometres of Belden cable connect the installation, and LED lighting in the trees provides the visual appeal.

'With the EAW speakers they can do a concert right under the trees,' continues Mr Goh. 'We really were trying to show them how they could best use this space, so we gave them ideas and it evolved into a 48 channel system.'

E&E played a similar role in determining a sound system for the conservatories; the cool-dry Flower Dome and the cool-moist Cloud Forest, emulating cool, dry and cool, moist climates respectively. E&E's project manager Kari Kalan installed around 80 EAW SMS4 speakers throughout both domes, in some cases pushing the Belden cable through conduits from the central control room and digging new trenches in others. The speakers are powered by Ashly NE amplifiers from a central control room and controlled via a Symetrix SymNet 8x8 DSP, while a further Tascam X-48 handles

audio sources, with a Crestron touch screen controller enabling the facility manager to select and manage output for the six separate zones in each dome.

The larger 1.2 hectare Flower Dome also houses the Jubilee Hall, a multifunction space overlooking the Marina Bay waterfront which can house up to 1,000 guests and is available for private hire.



The Gardens being completed prior to the June phase one opening

The hall is installed with 34 EAW CIS400 ceiling speakers, four EAW MK2396 main PA speakers and four EAW SB180z subwoofers driven by Powersoft MD30Ds. A Mackie 1642-VLZ3 mixing console handles FOH for live events, while a Tascam CD-355 five-disc CD changer provides background sources.

Again, audio is routed and processed via a Symetrix SymNet 8x8 DSP. E&E has also provided a Shure wireless handheld microphone system which can also be used in the Waterview Room, a second, 500-capacity space. This can be hired for smaller parties and has been installed with 36 EAW CIS300 ceiling speakers and a Community D10SUB ceiling subwoofer driven by Ashly NE series and Powersoft

q3002 amps. Background music for this space is provided by a Tascam CD-355 CD changer. Both areas open onto the Mediterranean-themed Flower Field and overlook the Marina Bay waterfront.

The first phase of this ambitious project is hugely impressive. Singapore's tropical climate will ensure that the nascent palm grove and other outdoor planting surrounding the Supertrees is very quickly transformed into an oasis of greenery. It will provide the region's rich biodiversity with somewhere to flourish as Singapore's building boom continues, and give visitors the opportunity to see plant species indigenous to other parts of the world, such as the baobabs from Madagascar which stride majestically through the Flower Dome. For those seeking a little nature with their entertainment, it is bound to become a haven in this ever-evolving city.

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Around 80 EAW SMS4 enclosures are installed within the Flower Dome and Cloud Forest



An EAW SB180ZPWP subwoofer in one of the supertrees



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