

# Class Act

The National University of Singapore's latest expansion to its impressive Cultural Centre is a state-of-the-art concert hall housing the Yong Siew Toh Conservatory of Music

**R**ated the most business-friendly economy in the world, Singapore is fast becoming the commerce capital of South East Asia. The second most densely populated independent country in the world, Singapore boasts the fourth largest foreign-exchange trading centre after London, New York and Tokyo. Since the 1990s, its government has strived to promote the country as a hub of arts, culture and tourism – a cosmopolitan 'gateway between the East and West'.

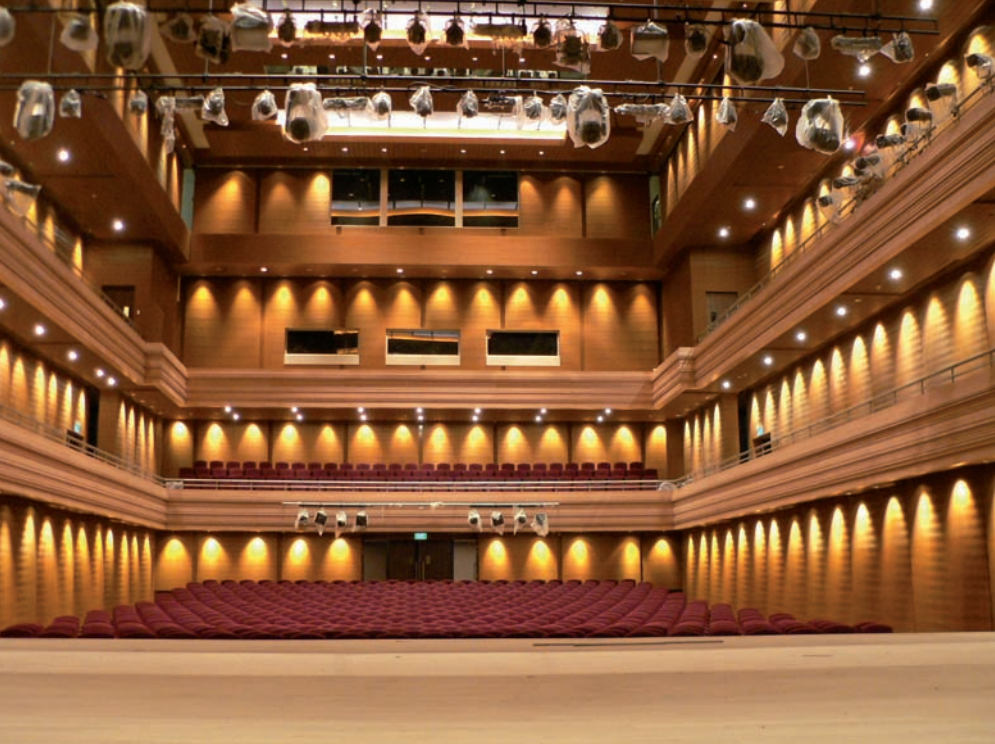
A key milestone in this prosperous economy, and straddling both the arts and the success of the country's future generations, is the National University of Singapore (NUS). The latest expansion to its impressive Cultural Centre, which includes a convocation hall, a theatre and the NUS museums, is a state-of-the-art concert hall and teaching facility, housing the university's Conservatory of Music.

Former Singaporean Arts Council chairman Lui Thai Ker – now director of RSP Architects, Planners and Engineers – and UK-based Theatre Projects Consultants (TPC) in collaboration with Belgian consultant Eckhard Kahle of Kahle Acoustics, designed the US\$40 million building. It houses 44 practice rooms; 31 teaching studios; seven spacious ensemble rooms for rehearsals and performances; a recital studio equipped with video-conferencing facilities; a comprehensive music library; music technology labs and smart classrooms; one of the largest recording studios in Asia; and a 600-seat concert hall, ideal for chamber music and symphony orchestra concerts.

The building marks the completion of the first stage of a journey that began back in 1999 when the Singapore government sought to form a world-class music school. The aim was to provide suitable facilities to train students beyond that of a vocational model, aspiring to an international standard of education. Following a review led by former deputy Prime Minister Dr Tony Tan, a proposal based on the American University model was devised and established in collaboration with the Peabody Institute of the John Hopkins University.

In 2003 the conservatory received a US\$25 million endowment from the Yong Loo Lin trust; the Singapore government matched this, and the Conservatory's new home was commissioned. Construction began in March





2004 and was completed in July 2006. The new building was officially opened on 7 October 2006 and the school was renamed the Yong Siew Toh Conservatory of Music (YSTCM) in respect of dedicated music teacher and daughter of philanthropist Dr Yong Loo Lin – namesake of the trust.

Mark Stroomer, UK director of design for TPC, discusses his involvement: “Ten years ago Liu Thai Ker asked TPC to join his team to design the University Cultural Centre (UCC). This houses an 1,800-seat convocation hall and a 400-seat flexible courtyard theatre. It has proved to be a major attraction on the Singapore arts scene. Its resounding success inspired the NUS to again approach Liu Thai Ker to design the YSTCM.”

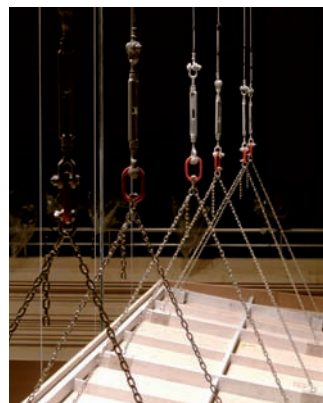
Fronted by a full-height glass facia, supported by paired bowed trusses that resemble a rack of huge violin or cello bows, the airy public atriums blaze with bright tropical light. A glass-roofed central hallway leads into wedge-shaped teaching and rehearsal rooms arranged around further light-filled courtyards. The splendour of the high, bright public areas blends seamlessly with the more intimate learning and meeting spaces, evoking an ideal balance between aspiration and inspiration for all those who inhabit it.

NUS deputy president, Professor Tan Chorh Chuan enthuses: “The new building has provided the infrastructure for music to be taught at a standard benchmarked to the top conservatories in the world.”

Structural design has been driven by both environmental and acoustic needs. The building shape follows a curved contour dictated by the Ayer Rajah Expressway, situated behind the

**The hall features ‘push-button’ lighting to simplify operation**

**Acoustic canopies are suspended on electronically operated winches**



concert hall. The result is that few of the rehearsal or teaching rooms are square; many are wedge shaped, thus avoiding the inherent problems of sound reflection in spaces featuring parallel walls.

Due to the building’s location – just off the Expressway – it was essential to ensure optimum sound isolation in all performance and teaching areas. From the smallest rehearsal room, to the main concert hall, each is built as a box within a box. Floating floors sit on springs embedded into concrete floors, and walls and ceilings are isolated from the main building infrastructure.

Central to this stunning building is a 600-seat shoebox concert hall, used for both student and professional performance alike. TPC provided overall auditorium design and its expertise in theatre engineering services. The company also provided acoustic design, working in close association with acoustics engineer Eckhard Kahle.

A centre of excellence appropriate for both high-level educational purposes and professional performances, the main concert hall demanded large acoustic volume for the bigger orchestral works, yet still needed to provide a degree of intimacy for smaller quartets and soloists. The resulting concept is a shoebox-shaped hall on two levels with a wrap-around balcony. This layout ensures that the orchestra is drawn into the audience, blurring the line between performer and observer. It has been stated that the new room adds to those that TPC created at Singapore’s famous Esplanade, providing a chamber hall to compliment the major concert hall.

Stroomer discusses the basis of the design process: “Our initial discussions with Liu Thai Ker and his architects evolved into a concept for a Singaporean recital hall with European roots. The original concept was based on my previous work for the Guildhall School of Music and Drama (GSMD) in London. In 2000, GSMD had commissioned TPC to design a new 500-600-seat recital hall. YSTCM in some ways echoes that design, being based upon a classic double cube – box within a box – layout, with stalls and balcony seating wrapped around the orchestra.”

Maplewood surface finishes have been chosen not only for their architectural value but for their acoustic properties. The smooth curved

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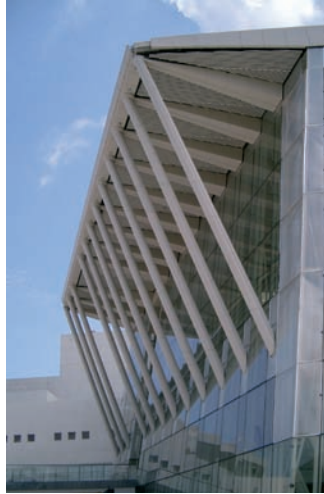
balcony fronts homogenise the hall's acoustic, while curved grooves of various depths, cut into the fascias, diffuse sound into every corner. In addition, wavy wall panels at both levels create an analogous effect.

Because the hall is just one element of an entire teaching school, used as a major teaching space, as well as a public recital hall, this dual need drove the technical brief. On-site technical co-ordinator for TPC, Leonard Greenwood comments: "The technical brief was for a hall of the highest quality, but with simple rigging and lighting equipment, not requiring specialist operation. Simple push-button lighting operation allows staff and students to bring up platform lighting for a number of different orchestral configurations. Acoustic canopies can also be moved to several pre-set positions to best suit the music ensemble performing in the venue."

Several early meetings with the client dictated that TPC reduce the amount of technical equipment intended for the hall, a decision ultimately vindicated in the overall quality of the finished space. Nonetheless, there is still sufficient flexibility in the installation to allow future technical expansion as teaching programmes and performances develop.

As one would expect of an international performance space of this standard, there is a sophisticated and high-quality audio infrastructure. This includes six electrically operated microphone winches, all of which link up with the Conservatory's impressive recording studio. Greenwood continues: "This facilitates the recording of all performances in the hall for evaluation and teaching purposes. The infrastructure will also more than adequately allow for the installation of a PA system in the hall. The budget was satisfactory, but never lavish and unfortunately building costs overran at the latter stages in the construction programme. This meant that all the loose sound equipment had to be cut from the technical budgets. However, equipment can be reinstated at a later date and connect to the existing wiring infrastructure, as funds permit."

There are five circular acoustic canopies with infinitely variable height, although standard height for a concert would be in the region of 10.5m. Each canopy was manufactured locally



**External (top) and internal (bottom) views of the foyer**



to the design of the acoustician, Eckhard Kahle. Suspensions for the acoustic canopies and lighting truss rigging are on electrically operated pile-winding winches mounted on a technical grid in the hall attic. Manufactured by the UK's Centre Stage Ltd of Thetford, winches are of fixed speed with a one-tonne capacity.

The tender for all the technical equipment and wiring infrastructure was won by Desisti (Asia) pte, a long-established and highly respected Singapore company. Desisti was also the specialist equipment contractor for the adjacent University Cultural Centre's Hall and Theatre. Greenwood continues: "The company's excellent work in the hall was rewarded by a further contract to provide acoustic panelling elsewhere in the Conservatory."

The stage lighting system, designed by TPC, incorporates a lighting control desk – ETC Expression 3, 148X10A and 32X20A dimmed channels with 42X10A and 10X20A non-dim channels. All luminaries are ETC and, in the main, comprise a mixture of motorised fixtures, fixed and variable beam profiles, Fresnels and Pars. They presently form a fixed focus rig, which can provide a variety of states for the assorted potential orchestral and musical configurations.

On 7 October 2006 the Yong Siew Toh Conservatory of Music officially opened to the public with a performance by the Conservatory orchestra, as well as celebrated faculty and guest artists. Guests of honour included Ms Yong Siew Yoon, sister to the hall's namesake, and former Deputy Prime Minister Dr Tony Tan Keng Yam.

The anticipation is that the Conservatory will ultimately benefit the wider community beyond the NUS. Chairman of the Conservatory's governing body, Mr Goh Yew Lin says: "We hope that creative ideas and energy generated from the conservatory will contribute to bringing classical music closer to Singaporeans. In particular, we envisage that the concert hall will be a focal point for music and other arts and cultural events in western Singapore, and will feature public performances by our students' celebrated faculty, as well as guest artists and orchestras." ■

### Author

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