

Suzhou Symphony Orchestra's Jinji Lake Concert Hall Opens

By Motoo Komoda

In eastern China's Jiangsu Province, Suzhou City is located to the west of Shanghai and virtually adjacent to it. The commute from Suzhou City to Shanghai takes just 30 minutes by high-speed rail. Suzhou City has been taking advantage of its convenient location to develop and grow significantly. With its population of more than 10 million people, the city is the main economic hub of Jiangsu Province.

Compared with the world-renowned, older part of Suzhou City that I discussed in my article about Soochow University (in the Nagata Acoustics March, 2014 Newsletter), the new, special investment zones of Suzhou Industrial Park (SIP) and Suzhou New District (SND) are developing at breakneck speed. In these districts, new conference centers, exhibition halls, cultural facilities, shopping malls, hotels and office buildings, as well as high-rise housing are being built one after the other, transforming the landscapes into high-tech cities.



Figure 1: Suzhou City Culture and Arts Centre

Suzhou's Establishment of a Culture and Arts Centre, Ballet Troupe and Orchestra

The development of SIP began more than 20 years ago in 1994 with cooperation from the government of Singapore. SIP's business district, which forms a kind of nucleus at the center of the SIP development area, has Jinji Lake at the business district's center. In 2004, Suzhou International Expo Center completed and opened on the banks of Jinji Lake and, in 2007, Suzhou Culture and Arts Centre completed. The Culture and Arts Centre has a 1,222-seat Large Hall, a Small Hall with movable seating accommodating from 300 to 500 people, a cinema complex that includes an IMAX theatre, an art school, museum and a library, making it a venue with many kinds of spaces and facilities. Since its opening, the Culture and Arts Centre has served as the venue for many events and it is the venue of choice for many international artists on tour from overseas.

In genres related to classical music, Suzhou Ballet Theatre was formed in 2007 at the same time that the Culture and Arts Centre opened. The troupe has performed its productions of Carmen and The Nutcracker Suite and other works to a large number of audiences, both at home in China and around the world.

Last year, on November 18, 2016, Suzhou City and SIP jointly established Suzhou Symphony Orchestra. Some two-thirds of Suzhou Symphony Orchestra's players hark from places outside of China, giving this orchestra a richly international diversity. Suzhou Symphony Orchestra now performs as the resident orchestra of Suzhou

Culture and Arts Centre.

A Rehearsal Room Renovation Becomes a New Hall for Suzhou Symphony Orchestra

With the creation of Suzhou Symphony Orchestra, the orchestra and the ballet troupe became co-residents of the Culture and Arts Centre. From the start of this arrangement, there were concerns whether there would be sufficient space for the activities of the 2 performing arts organizations. As a solution, a plan was devised to give the orchestra the space in the Culture and Arts Centre that had originally been designed as an exhibition hall. The plan was to renovate the exhibition space for the orchestra to use as a rehearsal room and to add support spaces there for other needs of the orchestra's players. A project team was selected to implement the plan.

Tongji University Architectural Design and Research Institute developed the architectural design for the renovation project. Nagata Acoustics participated throughout the project with responsibilities for the room acoustics design, sound isolation design and noise control strategies.

During the project's discussions, Nagata Acoustics proposed revising the original plan. Instead of building just a rehearsal room, we proposed a renovation of the space into a concert hall that could be used for both chamber music and orchestral concerts. We conceived a design that would give the hall the flexibility to be used in a broad range of configurations. Our proposal included the use of a stage that would be large enough for a full orchestra with motorized floor risers that would make it easy to change the stage configuration.

One element of our proposal was an adaptation of the stage for recitals or small chamber music ensemble configurations that need less stage area. For these concerts, the last row of risers at the rear of the stage would be able to be converted to seating by adding movable chairs. For use with this configuration, we envisioned a removable handrail design for the handrail of the seating behind the stage so that the movable and fixed seating would seem to merge into a single seating area. The added row of movable seating on the stage would enhance the entire audience's sense of proximity and connectedness to the musicians. Of course, the motorized risers and the fixed seating behind the stage would also be configurable for use by a choir.

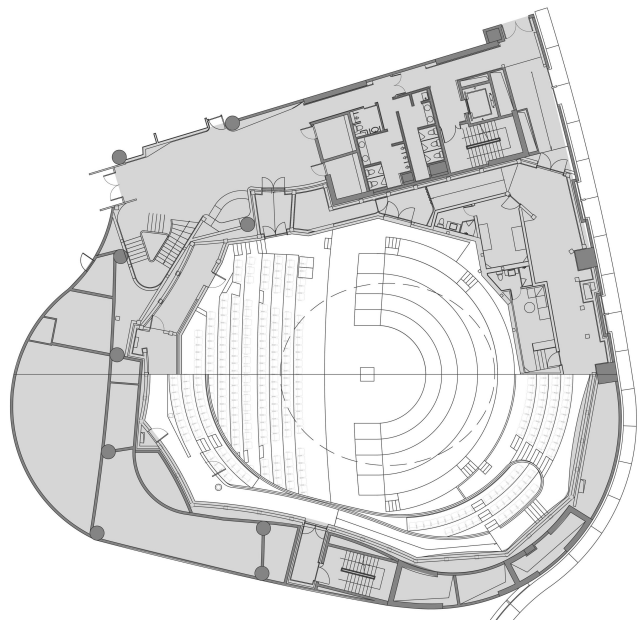


Figure 2: Hall's Main Floor and First Balcony Plan View Drawing

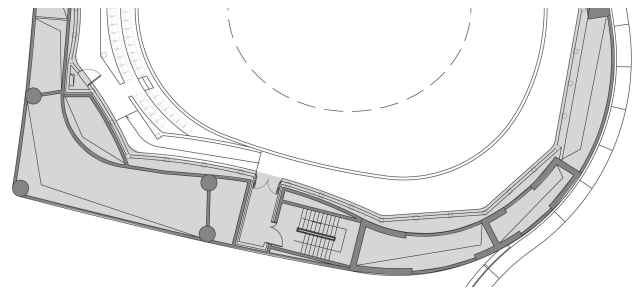


Figure 3: Hall's Second Balcony Plan View Drawing

Highlights of Jinji Lake Concert Hall Acoustic Room Design

Our proposal led to more discussions and the birth of new ideas. In the end, Suzhou Jinji Lake Concert Hall came into existence. Its stage is surrounded by audience seating in an arena configuration and it has both main floor seating and 2 balconies for a total of 509 seats. As part of this project, 16 large and small practice rooms were also built, as well as a lounge for the orchestra's players, an office and other support rooms.

For the ceiling of the hall, we wanted to achieve our goals without any changes to the roof structural supports of the existing building. At the same time, for the hall's room acoustics, we wanted to achieve the maximum possible ceiling height. We obtained a maximum ceiling height of 15 m. (49 ft) above the stage and a 12 m. (39 ft) height at the lowest portion of the sound reflector panel that is suspended from the disk-shaped center portion of the ceiling.

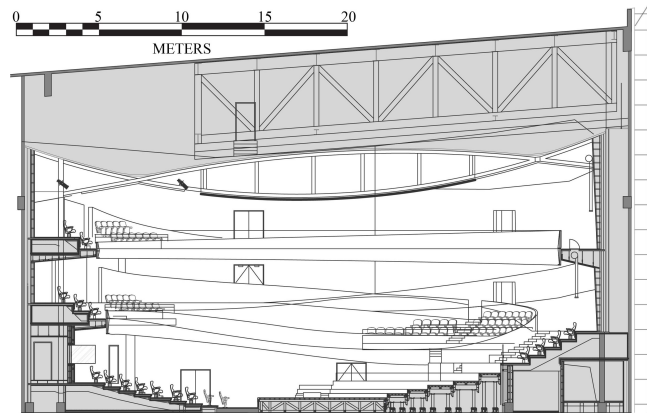


Figure 4: Hall Elevation View Drawing



Figure 5: Concert Hall Interior (Viewed from Audience Seating)



Figure 6: Concert Hall Interior (Viewed from the Stage)

The surface of the sound reflection panel has a gradual convex shape in the horizontal plane, plus pyramid-shaped sound diffusing elements. Because the balcony guardrails form a concave shape, we eliminated the possibility of undesirable sound focusing phenomena by fabricating most of the balcony guardrails using an acoustically transparent metal mesh finish.

The walls behind the audience seating form a continuous series of large, convex sections (easily seen in the accompanying Main Floor Plan View Drawing). A repeating, open-fan motif of finely protruding diffusion elements covers the entire surface of the hall's walls.

The hall's sound reverberation time measures 2.0 seconds with the hall empty and we calculated a reverberation time of 1.9 seconds when the hall's seating is filled to capacity. (Both values are at 500 Hz.)

A Fast-Paced Project Schedule and Timely Opening

The scope of this project was not new construction but rather a renovation that left the existing building's roof and exterior walls untouched. The project schedule we were given allowed 6 months for design and 6 months for construction. When I first reviewed the schedule I was so sure it would be impossible to accomplish that I was at a loss for words. Amazingly, the project completed just 3 months later than the completion date of that original schedule.

On September 30, 2017, just as Suzhou Culture and Arts Centre was celebrating its 10th anniversary, the new Jinji Lake Concert Hall held its opening ceremonies. The program included performances by string, woodwind and brass chamber music ensembles. From November 3 through 12, the hall served as the venue for an international piano competition. I hope the young, talented musicians who perform at competitions in this hall find it an inspiring and nurturing environment from which they will launch wonderful careers.

Information about Jinji Lake Concert Hall can be found on the Suzhou Symphony Orchestra website, here: <http://www.szsorch.com/>