DS+R

THE TIANJIN JUILLIARD SCHOOL

ARCHITECTURAL FACT SHEET

FOR MORE INFORMATION,
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The Tianjin Juilliard School with view of Hai River. Photo by Zhang Chao, courtesy of Diller Scofidio + Renfro.

Project Description

The Tianjin Juilliard School (TJS) is a center for performance, practice, research, and interactive exhibitions, with communal spaces that are designed to welcome the public into the creative process and performance of music. TJS is the first performing arts institution in China to confer a U.S.-accredited Master of Music (MM) degree. The new school also comprises a Saturday Pre-College program for students ages 8- 18; continuing education programs for professionals and adult learners; public education programs for music learners of all ages; and public performances. Located in the Yujiapu Financial District, the 32,500 m^2 (350,000 square-foot) building was designed by Diller Scofidio + Renfro, the same firm responsible for the 2009 expansion of Juilliard's iconic New York home.

The building is composed of four faceted pavilions housing a 690-seat concert hall, a 299-seat recital hall, a 225-seat black box theater, and administrative, faculty, and rehearsal programs. Five glass bridges span an expansive public space that extends the surrounding park into the building, inviting students, visitors and concert goers to mingle, relax and experience the students practicing and giving informal performances. The glass bridges contain classrooms, teaching studios, and practice rooms, encouraging visual and auditory access to the study of music, inviting exchange between students, faculty and visitors.

The school utilizes leading edge telecommunication and video conferencing technologies to ensure a high degree of connectivity and collaboration between students and faculty at Tianjin Julliard School and The Juilliard School in New York. The Juilliard Imagination space, for example, is a digitally connected exhibition space, capable of hosting livestreamed concerts between both Juilliard facilities.

Lead Architect

Diller Scofidio + Renfro

Owner

The Tianjin Juilliard School is a joint venture partnership among The Juilliard School, the Tianjin Conservatory of Music (TJCM), Tianjin Economic-Technological Development Area Administrative Commission, and the Tianjin Innovative Financial Investment Co. (TIFI). The Juilliard School oversees the hiring of senior administration as well as the directing of the academic and artistic curriculum.

Location

Tianjin, China—Yujiapu (Binhai); Adjacent to Hai River and steps from the high-speed rail station, positioning the school 45 minutes away from downtown Beijing by high-speed train. (Google map link)

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Milestones

1969: The Juilliard Center arrives at its new home at Lincoln Center, designed by Pietro Belluschi.
2003: DS+R is commissioned to renovate and expand the Juilliard School.
2009: DS+R completes the renovation and expansion of Lincoln Center in New York.
2014: DS+R is commissioned for the Tianjin Juilliard School.
2017: Construction begins on site in Tianjin.
2018: The building's steel structure is completed.
2020: Construction is completed and the Tianjin Juilliard School opens to students on October 26.

Major Features

Four pavilions serve as cornerstones for the campus, with glass bridges spanning a generous, column free space that extends the surrounding park into the building.

North Plaza: The grain of the larger pedestrian systems intersecting on the site – visitors from the high speed railway station to the north, the park to the east, the town square to the west, and riverfront to the south – is recognized in a series of gardens in the north plaza designed in collaboration with Hargreaves Jones.

South Plaza: Programmed as a performance and event venue amenity for Juilliard, as well as a community space, the plaza features stepped piano-key like seating and planting. The shallow reflecting pools form a dialogue with the nearby Hai River and create unique moments of reflection of the building and sky, adding an element of surprise where visitors can seemingly walk over water.

Lobby: This 2,260 m^2 (24,000 square-foot) generous, column-free space at ground level features four sky-lit atriums that draw light down to lower levels programmed by a café, grove seating and tilt-up grandstand seating, a features also found at Juilliard New York. With six entrances accessible from every direction, the lobby provides interior access to all three concert venues as well as a public space usable all-year-round by citizens of and visitors to Yujiapu.

Bridges: Five windowed bridges span the pavilions, housing two levels of instructional spaces including 12 classrooms, 23 teaching studios, and 86 practice rooms of diverse sizes that can be viewed from the lobby below. Where the bridges intersect, students can gather in intimate, double height lounges with panoramic views of the city or the Hai River.

Pavilions

Level (-1) Concert Hall: The 810 m^2 (8,700 square-foot) Concert Hall is the institution's primary performance facility with a seating capacity of 690, including 80 balcony seats. Surround-configuration allows for a more intimate relationship between the audience and performers. The hall features mechanized wood stage risers that can transform the stage into various configurations. The hall is clad in eucalyptus wood, creating a warm, reverberant environment. A glass façade equipped with motorized blackout shades offers a view to the Hai River as a dramatic backdrop for performances. Overhead mechanized lighting positions allow for optimal illumination of the concert stage and the musicians.

Level (-1) Recital Hall: The 440 m^2 (4,700 square-foot) Recital Hall is the acoustic workhorse of the school with nearly continuous use for student and faculty recitals. Clad in eucalyptus wood, the Recital Hall also features a surround configuration – rare in intimate recital halls- with a seating capacity of 299, and a 14 meter x 6 meter stage with a glass façade overlooking the nearby park and reflecting pool.

Level (-1) Black Box Theater: The 400 m^2 (4,300 square-foot) Black Box Theater has been designed for multi-media performances as well as recitals, small ensembles and chamber opera, and dance events. The theater has a seating capacity of 225, including telescopic seating and an overhead wire rope grid that allows for flexible audience and lighting configurations.

Level (-1) Large Rehearsal Rooms: Three 110 m^2 (1,180 square-foot) rehearsal rooms function both as education and performance spaces, equipped for real time audio recording. The rehearsal rooms are located in the same B1 level as the Concert Hall and Recital Hall stage to allow easy movement of large instruments from one space to the other.

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Level (-1) Juilliard Imagination: Juilliard Imagination is a multi-faceted, digital learning environment for exploring a rich tapestry of music, dance, and drama, providing a unique opportunity for the public to learn about Juilliard. This dedicated 810 m^2 (8,800 square-foot) space has curated interactive displays with exciting audio and visual experiences incorporating virtual reality and other cutting-edge technologies powered by Sony.

Level (2, 3, and 4) Offices: Three of the four pavilions house administrative offices in their upper levels. These levels feature open office plans with large atria to draw in daylight.

Level (4) Orchestral Rehearsal: A 270 m^2 (2,900 square-foot) rehearsal space above the main concert hall opens up to a roof terrace with views of the Hai River. In addition to housing the full orchestra for rehearsals, the space can be used as a multi-purpose, pre-function room and event space to host events, including a 120-person seated dinner. Direct access from the ground level is provided by an external stair clad in faceted wood panels.

Level (4, 5) Library: The 560 m^2 (6,000 square-foot) library offers reading rooms, reference sections, as well as computer and multimedia stations for faculty and staff. The open stacks on Level 5 can be seen through a glass floor from the reading room below.

Rooftop Terrace: A publicly accessible rooftop terrace outside the orchestral hall with planting, paving, and bench seating provides views of the nearby Hai River.

Acoustic Performance

Designed in collaboration with Jaffe Holden, the same acoustician for Juilliard's New York campus, TJS was built to meet the high demands for world- class acoustics and sound isolation, without compromising the building's openness and transparency. TJS achieves the highest level of acoustic performance in all measurable acoustic criteria, including NC-15 background noise levels which is near the threshold of human hearing. Many of the same strategic material, surface and space configuration proven successful in Juilliard New York were also implemented in Tianjin. The common strategies used in both campuses include box-in-box isolation and adjustable acoustic banners, as well as the same specifications for seating in the performance halls and the same custom steel acoustic doors in the practice and teaching areas. The concert hall is acoustically isolated on giant springs and an acoustic resonant chamber under the stage enhances the sound of cello and bass. Distinctive diffusion cones identical to those found on the upstage wall and side walls of Alice Tully Hall were also used in the TJS concert hall to disperse sound and reduce the harshness of tone. In the Orchestral Rehearsal space, flipping wood wall panels also utilized in Juilliard New York allow the room to be fine-tuned for any performance or rehearsal.

In order to foster both a visual and aural connection between visitors in the lobby and students in the practice rooms, the glazing of the bridges was engineered to let moderate sound from the practice rooms pass into the lobby, while lobby sound is hushed when penetrating the sound-absorptive practice spaces. The lobby acoustics are tempered with slatted-wood acoustic soffits under all the bridges, micro-perforated wood wall panels at each performance hall entrance, and upper wall acoustic plaster panels.

Building Materials

The exterior materials and cladding for the building include high-performance glass assemblies, bead blasted stainless steel, glass fiber reinforced concrete (GFRC), and Parklex wood panels. The pavilion walls in the lobby are clad in the GFRC of the exterior walls. The bridges utilize triple glazed IGU enclosures that broadcast their activities from the building's lobby and public spaces. A continuous surface of stone paving connects the main lobby with the exterior plaza to emphasize the extension from indoor to outdoor.

Sustainability

Large skylights flood the public lobby with direct sunlight, providing sufficient lighting for plants that are normally grown outdoors. Exterior shades provide solar control. Solar heat gain is reduced by a radiant floor cooled by water circulated through tubing embedded in the structural foundation piles. This simple, low-tech solution maintains the architectural design intent for the lobby and bridge. Dedicated outdoor air systems with energy recovery, coupled with radiant heating and cooling panels condition all but the larger performance spaces. The Concert and Recital halls utilize underfloor displacement ventilation for enhanced air quality, comfort, and energy performance.

Structural Features

Arup engineers sought to integrate the distinct main spaces and their connecting bridges into a single structure, free of movement joints. From a structural perspective, the result was essentially a single building, as opposed to a more conventional solution of a series of smaller buildings and bridges in close proximity. Eliminating movement joints enabled an uncompromised expression of exterior finish materials as well as improved weather protection of the exterior envelope. In addition, leveraging the full extent of the project as a single structure offered maximum efficiency against wind and seismic action. Since local codes strongly promoted the conventional approach, ECADI undertook extensive analysis to demonstrate that the integral structure would perform more effectively. Bridges trusses spanning 50-60 meters (165-200 feet) floating above the column-free lobby are supported by columns and braced frames located in the pavilions. The bridges rely on interconnectivity between the pavilions for support, as well as 10 meter (32 foot) trusses. Each of the pavilions also feature cantilevers to reveal the activity within, supported by the bridge trusses which act as back spans to resist overturning. To provide optimal acoustic performance, the recital hall and the concert hall were constructed as independent buildings within the main structure, connected only by large sound isolation springs at their bases.

Design Team

Design Architect: Diller Scofidio + Renfro
Executive Architect: East China Architectural Design & Research Institute (ECADI)
Landscape: Hargreaves Jones
Structure/MEP: ECADI with Arup
Acoustics: Jaffe Holden Acoustics
Theater: Fisher Dachs Associates
Curtain Wall: Front
Lighting: Tillotson Design Associates
Climate: Transsolar
AV/IT: Shen Milsom Wilke
General Contractor: MCC Tiangong Group Co., Ltd.
Facade Glazing: Luoyang North Glass Technology Co., Ltd
Facade Wood Cladding: Parklex International S.L.
Performance Hall Wood Veneer: SanFoot

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