XIQU CENTRE
DAVID SMITH

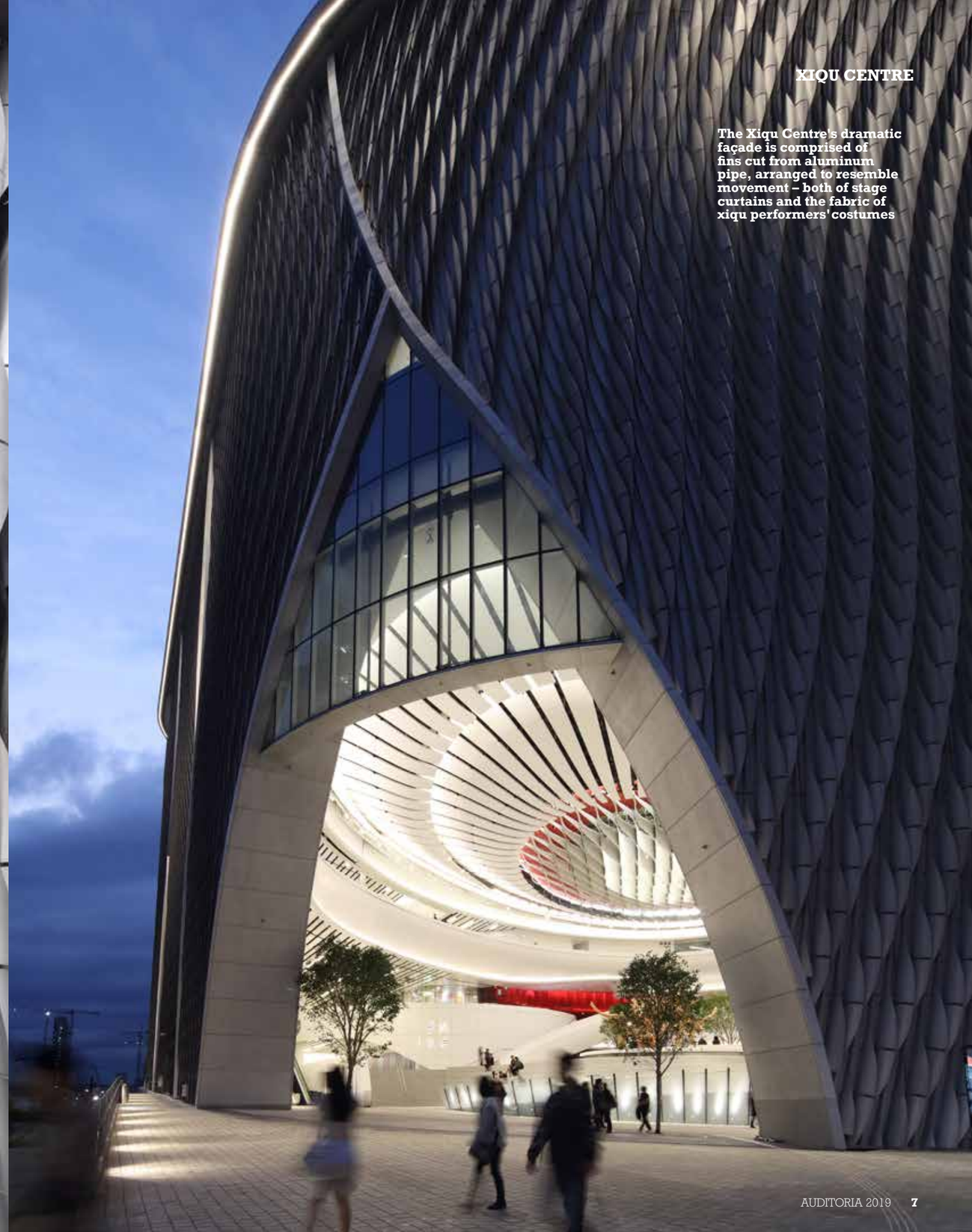
High culture

Chinese opera has a distinctive new home with acoustics tailored to its needs, with a main theater raised away from the bustle of Hong Kong

Venelin Kokalov, design principal at Vancouver's Revery Architecture, was given a lot of freedom when tasked with creating a US$347m Chinese opera (xiqu) house for the West Kowloon Cultural District in Hong Kong. Kokalov and his team – which included architects from local firm Ronald Lu and Partners – were advised that the venue had to be iconic and world-class, a gateway for the new complex of 17 arts and cultural centers, but otherwise they could use their imaginations freely. For inspiration, Kokalov immersed himself in the unfamiliar sound world of xiqu, speaking with scholars and attending performances. What he discovered was that all Chinese culture is infused with the spirit of Qi, or energy flow, and he resolved to introduce this philosophy of Qi into every aspect of the design.

"We used flowing lines for the façade, lobbies, interiors and the main theater, which embraced the whole idea of Qi, and we encouraged the flowing movement of people through the space," says Kokalov. "At the same time, we wanted to translate Qi into a new urban form. It's hard to copy the old masters so we resolved to start from scratch and create something unique that responds to the needs of a new generation."

Photos: Ema Peter



XIQU CENTRE

The Xiqu Centre's dramatic façade is comprised of fins cut from aluminum pipe, arranged to resemble movement – both of stage curtains and the fabric of xiqu performers' costumes

From the exterior, the eight-story Xiqu Centre is reminiscent of a Chinese lantern shimmering behind stage curtains. The dramatic façade is based on a modular system of curved, scaled fins that have been cut from untreated aluminum pipe using a computer numerically controlled (CNC) machine. Arrayed across the building, the wavy slats look like ripples on water, exemplifying the spirit of Qi.

Behind the curtain

The woven metal supporting panels, all of which are about 2.4m (8ft) wide and 6m (20ft) tall, are pulled back at the corners of the building, allowing light to radiate from the interior. "We wanted to create mysterious entrances that provoke the curiosity of people to explore this type of heritage art," says Kokalov. "Having a door-less design represents an open gateway into Chinese culture."

Once inside visitors find themselves in a circular, all-white, multi-height atrium. Hundreds of narrow crevices and gentle folds line the ceiling and walls, and multi-level circulation paths promote the free flow of people. The ceiling reveals the underbelly of the main elevated theater, which accommodates 1,073 seats.

The theater has been lifted off the ground, opening up the lower levels and isolating the auditorium from vibration and the noisy city outside. The space below accommodates the 200-seat Tea House theater, rehearsal studios, education and administrative spaces, lecture rooms and retail areas. There is also a sheltered, naturally ventilated public plaza designed to echoe xiqu's long history of courtyard performances.

"Hong Kong is a very fast and noisy city," explains Kokalov. "By lifting up the theater, we have created a transitional space on the ground floor where visitors can learn about this art, then gradually detach themselves from the noisy city as they move upward, reaching the highest level of performances at the top. We made everywhere white to allow the visitors to adjust their senses and calm down before they arrive in the main hall."

The theater's roof structure was raised in three stages, in a process called strand jacking using heavy steel cable suspended from top of 'super columns'. First, the roof structure was built at grade, then raised on six super columns half way up – this took six hours. The super columns were then reinforced with concrete tie beams (which were later removed) and the roof structure was raised to its final location, 48m (157.5ft) above grade. This stage took five hours. In the final stage, the underside of the theater was constructed, raised and connected to roof hangers. This final lift took five hours.

Acoustic advice

The design of the main theater posed further technical difficulties because Kokalov's sketch of an oval-shaped design was "potentially not very acoustically friendly". He consulted Bob Essert, a leading acoustician with London-based consultancy Sound Space Vision, which acted as advisors on the project. "Venelin came to me with his sketch and my first reaction was 'Wow, I like it', but then he asked me, 'Can this work acoustically?'" recalls Essert. "My first thought

The Xiqu Centre's footprint is 28,164m² (303,155ft²)

The circular atrium sits below the main theater, which was raised to isolate it from the noise of the city

XIQU CENTRE

The spoken dialogue and percussion of Chinese opera justified a drier acoustic than in Western opera houses

XIQU CENTRE

Above and inset right: The main theater, which seats 1,073 people

Above inset: The audience can enjoy dim sum and tea during performances in the Tea House theater

Far right: The Xiqu Centre is part of the West Kowloon Cultural District, sited on reclaimed harbor-side land

was that it could. We've worked enough with different art forms to know at a glance the potential and our modeling confirmed it."

Not like Western opera

Chinese opera differs in many respects from its Western counterpart and Essert had to think carefully about how to create the right sounds in the main theater. Like Kokalov he wanted to get a feel for Chinese opera so he attended performances and spoke with artists.

He discovered that xiqu is a unique blend of drama, acrobatics and vocal performance. There is more focus on costumes than on the staging and far more improvisation than in Western opera. The music itself has evolved in outdoor theaters to be loud and percussive, and the drum beats are highly integrated with stage movements, such as the flick of an actor's fingers, or the wielding of a sword.

"There's enough spoken dialogue in Chinese opera that it makes sense to have a drier acoustic to emphasize the clarity of the voices," says Essert. "Also, the artistic use of percussion punctuation means it sounds best when the sound dies away quickly. You don't want the loud crashing drum sounds rattling around the room. They need to be clear and precise."

Textured surfaces

After trying out several solutions, Essert settled on placing scalloped vertical edges all around the walls. Chinese manufacturers used machines to create the 3D boards that varied in width from several millimeters to a few centimeters. These textured surfaces scattered the sound from the stage in multiple directions, whereas a smoother surface would have bounced it straight back.

"The scalloping creates a natural acoustic that suits the voices in Chinese opera," says Essert. "Without texture, there would be too much of a focused echo coming back to the seats in the audience. It would be late and too loud, divorcing the sounds from the actors' voices. We wanted a range of sounds in a scattered, rather than a specular way, so it's not reflected like a mirror, but arrives with a smooth and short decay."

The ceiling plays an important role in the acoustic patterns, too. The fact that the room is compact and the ceilings are low helps to achieve the dry acoustic. But Essert also made some areas sound-reflecting and others sound-absorbing, which he would not have done for a Western opera house. One reason for this is that the singers' vocal production is not as powerful as in Western opera, because the sounds come from the throat rather than from the gut. Another factor is that the music from the orchestra in the pit is very loud.

"We worked with areas of the room to give a preferential boost to the singers' sound and preferential pulling back to the loudness of the orchestra," says Essert.

Model behavior

Sound Space Vision's acoustic advice for the architects was informed by highly sophisticated models created with artists and computer technicians in both live and studio settings using binaural microphones. "We needed source material that was almost anechoic, or super dry," says Essert. "Normally, we have recorded tracks that we can use, but they wouldn't work for this project, so we created new sound models that fed into our commentary on the direction of the architectural development. The models allowed us to test how the reflection and absorption operated in the thousands of sound paths between every source and every listener."

Subtle arts

In addition to the acoustic concerns, Kokalov had to be careful to create a sense of intimacy between audience and performers. An art form that has developed in public spaces with small casts conveying emotion through subtle gestures does not necessarily translate well to a theater with 1,073 seats. "We made it more intimate by creating a lot of boxes that bring the audience much closer to the stage," he says. "It feels like there are 600 people rather than 1,000. We also placed the seats at the front so the audience has the best view of the gestures and costumes."

The project took six years to complete after the Revery Architecture and Ronald Lu bid was accepted in 2013. The soft opening was on December 30, 2018, but the official opening came on January 20, 2019 with a performance under the direction of the legendary 93-year-old diva Pak Suet-sin. West Kowloon Authority chairman Henry Tang Ying-yen has said he wants the Xiqu Centre to help to re-energize Chinese opera. Only 40 of the recognized canon of 367 pieces are regularly performed, but Ying-yen's goal is to see them all produced at the new venue.

"There are plenty of big theaters all over China focused on this art form, but they're not nearly as sophisticated as the Xiqu Centre, which I believe is unique in its view of the past, present and future," says Essert. ■

ACOUSTIC FLEXIBILITY

The Xiqu Centre's main opera theater had to be adaptable for different productions, ranging from the louder 'rock concerts' of Chinese opera to works demanding more subtle and naturalistic acoustics. To this end, Sound Space Vision provided acoustic curtains that can be used to modify the sound. The company also installed a super audio system that can provide a clearer, less amplified sound if a visiting troupe demands it.

THE WEST KOWLOON CULTURAL DISTRICT

Following the much-anticipated opening of a high-speed train station, the Xiqu Centre is the first major venue to open as part of the West Kowloon Cultural District. The cultural quarter occupies 40 hectares of reclaimed harbor-front land in Hong Kong. The new district has been in development for more than a decade, following a masterplan by Foster and Partners.

Other planned developments include the M+ Museum for 20th and 21st century visual arts; the Lyric Theatre Complex, which will have three theaters seating 1,450, 600 and 270; and Freespace, with performance areas including a black box theater for audiences of 450 seated or 900 standing people.