

A Delight FOR Eyes AND Ears

DEPAUL UNIVERSITY'S
NEW PERFORMANCE CENTER
FEATURES VENEERED BOXES, 'WAVE WALL'

A once-in-a-lifetime music center project featuring state-of-the-art acoustical engineering is also gaining accolades for the elegance of its interior paneling. Like a fine violin or cello, the resonant new spaces at Chicago's DePaul University are a delight for both eyes and ears.

The centerpiece, 505-seat Gannon Concert Hall, is enveloped in boxes veneered in quarter-sawn makore, including a mainstage backdrop of stunningly designed panels.

Founded more than a century ago, DePaul's School of Music has become an international center for artistic and technical training in the musical arts. With 375 students and more than 3,800 alumni, the school is renowned for its programs in performance, composition, jazz, music education, arts management and sound recording technology.

Campuses in Chicago are plentiful, with the University of Chicago, Northwestern, the School of the Arts Institute and Loyola laying claim to sizeable tracts. But only DePaul has seen its name adopted as the designation for an entire section of the city. Yet its campus remained discreetly tucked away, somewhat below the radar, in a warren of buildings.

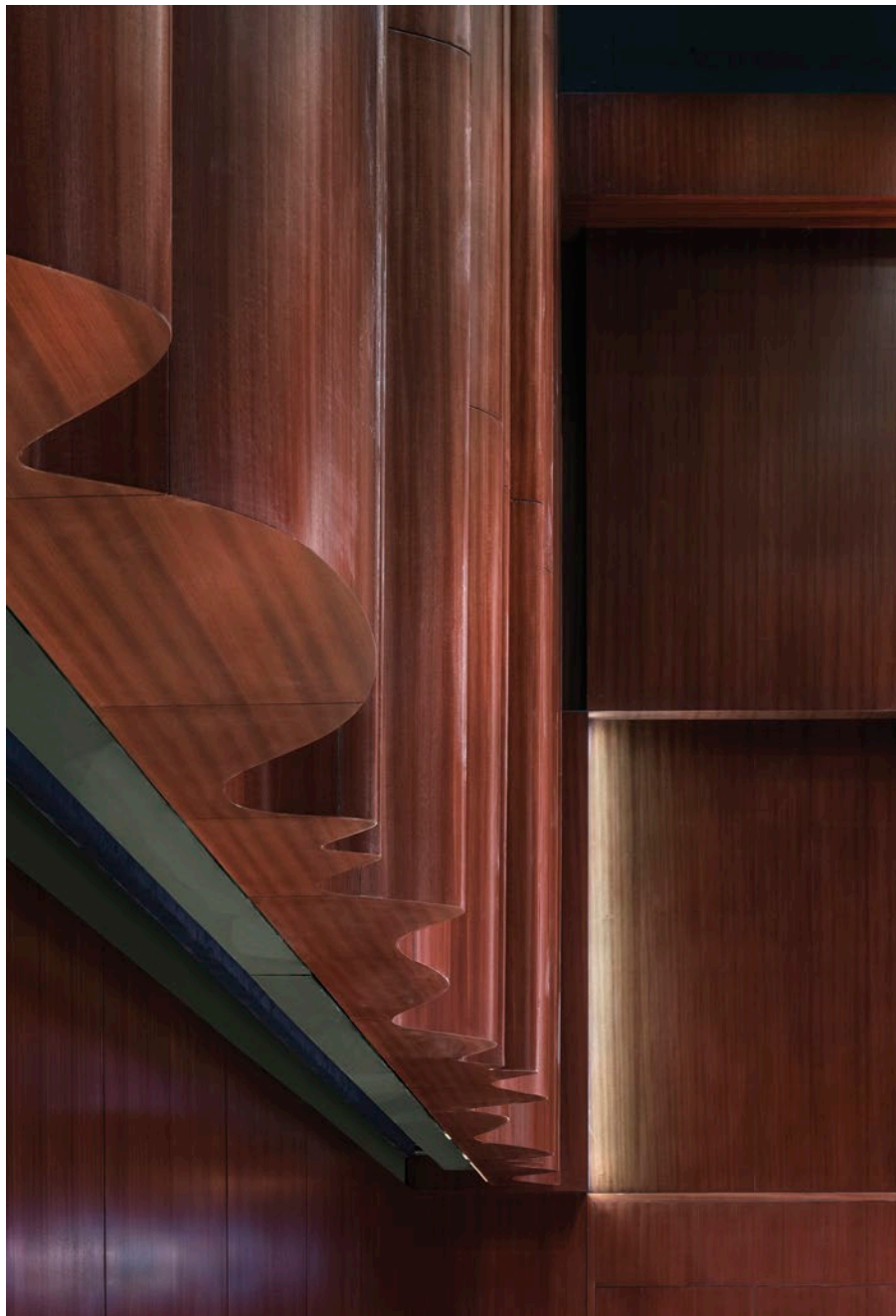
Seeking to more deeply engage with its home city while raising its architectural profile, university trustees adopted a long-term plan to establish a gateway to the campus. What better way to welcome the world than by erecting a center for the School of Music befitting its global stature.

Construction on the new music building started in late 2015. The 185,000-square-foot Holtschneider Performance Center, built at a cost of \$98 million, features a concert hall, two recital halls and a jazz hall, as well as teaching studios and rehearsal spaces. The performance center was dedicated with a 10-day music celebration in November 2018 featuring Itzhak Perlman and other world-beater names in music.

Perlman played standing before that arresting makore "Wave Wall," as it is informally known, which was erected in four tiers on metal supports. Individual components for each tier were hand-cranked carefully into position and attached to the supports to form the undulating-surfaced wall.

Also lining the Gannon space are facing walls of shallow rectangular boxes, each made of six layers of fire-rated MDF, as well as a noteworthy pair of balcony boxes covered in "clouds" of seemingly impossible

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geometric complexity, all veneered in the same makore.

For the Wave Wall, individual components were veneered and then spliced together to form a near seamless whole. Also known as the Aalto Wall (a nod to Finnish architect Alvar Aalto), it is a signal engineering and woodworking accomplishment, one that also delivers optimal sound qualities while providing endless visual intrigue as the backdrop to the main stage.

DePaul University's new center differs in purpose from a conventional public opera house or symphony center. It is designed for

teaching and performing all manner of musical modalities, and its educational activities run non-stop when school is in session.

Consequently, the arching red brick structure on DePaul's main Chicago campus contains four performance halls—an intimate club-size jazz space, a baroque music theater, a smaller concert hall and the soaring, 65-foot tall Gannon Concert Hall that can accommodate a full symphony and chorus. There are also dozens of practice rooms, along with teaching and recording spaces.

The likelihood that the DePaul School of Music's 375 students would put any number of these many spaces to use at the same time brought structural and engineering challenges—especially how to keep the sound from one space from leaking into adjoining rooms. (Imagine a coloratura soprano on one stage competing with overtones from a wailing jazz saxophone in the hall above.) The Gannon Concert Hall is essentially a free-standing concrete box suspended above the building's ground floor and isolated with sound-dampening supports.

Because recital and performance are key to music education, acoustic considerations were paramount in the project. The university drew from Chicago's best and brightest, with Bob Janis, vice president for facility operations at DePaul, overseeing the effort. General contractor Bulley & Andrews led the work, which was designed by architects Antunovich Associates, with acoustic design by Joseph Myers of Kirkegaard Associates.

The acoustics are also in great measure a product of the execution of interior design elements by one of the nation's most revered millwork firms, Bernhard Woodwork in Northbrook, Illinois. The

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company had reconfigured its manufacturing floor before the DePaul project began, adding SCM computer-controlled machining systems that allowed the numerous irregularly shaped surfaces to be calculated and cut with precision. The balconies and Wave Wall were particularly demanding, with irregular semi-cylindrical and hollow surfaces curving in multiple directions.

“The real challenge was, ‘How do you veneer in three dimensions,’” said Mark Bernhard, president of Bernhard Woodwork. “We had never veneered anything that radical in shape,” he added, referring particularly to the balcony designs.

Indeed, before they were veneered in makore, the balcony cloud wraps were built out in plywood, then dry-fitted in the Bernhard workshop and test-installed onsite at DePaul. After adjustments, the fit was proved, and the components were returned to the woodshop to be veneered and finished.

Bernhard Woodwork has long mastered veneering, operating a longitudinal splicer and OTT veneer press for this work. Bernhard is Architectural Woodwork Institute Quality Certified for wood veneer paneling and casework projects.

This allows them to control and balance the grain, texture and color of each panel to bring out the characteristic beauty of the makore. Also known as African cherry mahogany, makore has striped figuring that shows consistently throughout the veneer faces at DePaul. The smaller concert areas were done in oak veneer, with “a lot of cool work in controlling that veneer pulling sequence,” Bernhard noted.

To design the interiors of a performance structure, the project followed a classic trajectory, with close collaboration from the vision by Antunovich principal Stephen Long, in collaboration with Myers of Kirkegaard. Myers set the requirements for sound performance—absorption, reflectance, reverberation, etc. Long then translated that into his designs.

From the outset, Meyers charted acoustic expectations. “DePaul chose to do it right. The university was committed to an excellent outcome,” Meyers said.

“The nature of a project like this is that we describe what we are trying to achieve on the various surfaces of the room,” he said. “As you look around the room, we wanted surfaces around the performers that reflected sound – flat surfaces.

“We are also concerned with how the surfaces sustain sound,” Meyers said, and this was aided by “those balcony wraps that curve from top to bottom and from side to side. Square panels in the room do double duty here, too.”

From the undulating Aalto Wall, “we wanted a mid- and high-frequency tone, and it behaves very much like a pipe organ project. When you deal with good designers, they will make it their own,” said Meyers, who charted those and other requirements—for sound to be scattered side to side, or sections of the space where the sound needed to be “tighter and a little more random”—and then handed them off to architect Long, who brought the acoustic requirements into practical designs.

“Projects like this don’t come along that often,”

Long said. “For DePaul, the most important thing was that we were dealing with art and artists—people who care about aesthetics. The students have to be talented to get into the school.”

In designing the interiors, “the musical milieu sets up the character of the room,” he said. “We set different levels of formality. The least formal are the smaller performance spaces with large oak panels. The Gannon Concert Hall is the most formal, in terms of appearance and acoustics.”

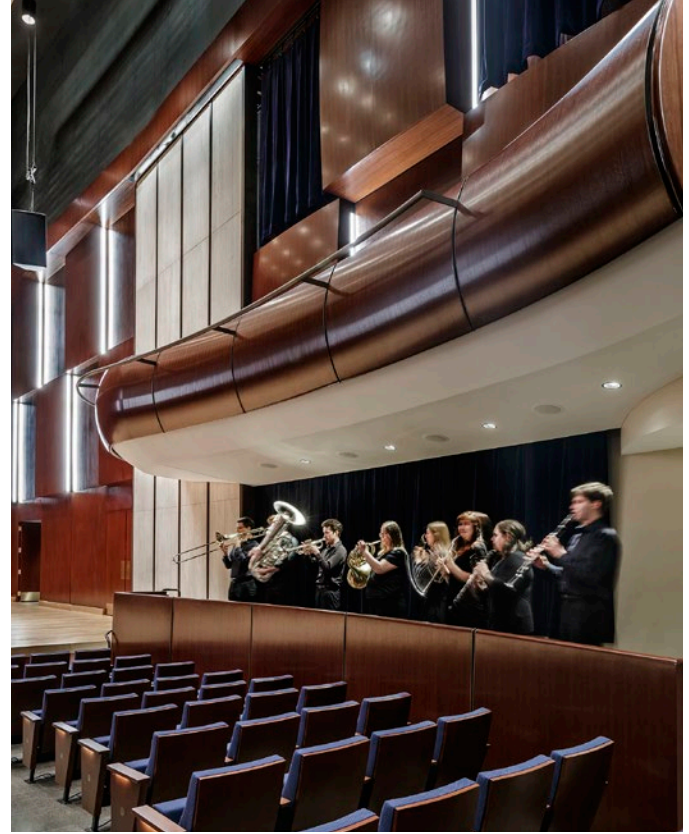
Gannon Hall is 65 feet tall, so the sound in the Gannon Hall needs to be focused on the listeners in the seats. A plaster ceiling “cloud” and retractable felt curtains help to adjust the focal point, as does the Wave Wall.

“In designing it, I was talking with Joseph (Meyers), figuring out how to link the visual with the acoustic,” Long said. “We needed something that strongly reflected sound. The wall also gives a character to the room.”

Originally, “I conceived it as oak,” he said. “By making it cherry mahogany [makore] and going darker, it made it more visually pleasing.”

The design was complicated to execute. “That was even technically more complex, doing the assembly on site and putting it up. There is a lot of millwork in that job,” Long said. “There were a lot of things that had to be figured out.”

From these designs, the millwork and carpentry crews of Bernhard Woodwork distilled workable solutions that are at once functional and exceptionally beautiful throughout the building, including public spaces. Meyers noted that Bernhard Woodwork “did a beautiful job.” **s&p**



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