

# Flurry of sound

Acoustical shells play an important role in shaping the sound quality in a music hall, with inspired aesthetic design further enhancing the audience experience

**A**coustical shells strive for harmony, both musically and aesthetically – supporting the on-stage performance while complementing the hall's architecture. A new performing arts center in Texas, USA, beautifully illustrates such an achievement.

Opened in September 2014, the Tobin Center for the Performing Arts in San Antonio incorporates portions of the city's historic Municipal Auditorium, while dovetailing a new 1,768-seat auditorium and stage house into the existing footprint. Other elements include a 250-seat studio theater and an outdoor performance plaza connected to the city's famous River Walk.

"Excellent auditorium acoustics were essential for the various resident companies," says Vicki Dickerson, owner's representative with The Projects Group. "The right acoustical shell plays a huge role in this."

#### **Standard, but custom**

"We wanted a semi-standard shell we knew and trusted – Wenger's Diva model – with enough customization to make it look special," says Adam Huggard, senior associate with theater consultant Fisher Dachs Associates. "Custom-built shells can be a little fussy sometimes."

Huggard believes the Diva system offers technical advantages including user-friendly operation, along with readily available parts and strong warranty. "We're not reinventing the wheel," he states.

Wenger has manufactured hundreds of acoustical shells for performing arts facilities worldwide. This is the first shell that incorporates a digitally printed overlay pattern along with the traditional woodworking craftsmanship and fabrication. The overlay was inspired by the arabesque ornamentation of the original auditorium's Spanish Colonial Revival architecture, but the resulting design

also evokes other images, such as clouds, ocean waves and wind currents.

"Any of these multiple interpretations – or others – are encouraged," says Miles Mazzie, associate with Sussman/Prejza graphic design studio. "Some visitors will attend numerous concerts and see the shell many times." The shell's graphics were intended to feel comfortable in the space, according to Mazzie, and in scale with the overall architecture. The graphics also appear in other interior design elements, such as on the auditorium balcony fronts where they are enhanced with color-changing LED illumination.

Mazzie says today's digital technology can seamlessly integrate such images into architecture on almost any material, including wood, metal, glass and vinyl. Printing on the wood veneer was performed at Image Mill, where John van Rensburg states that the challenge was creating an image that didn't look too overt, yet appeared very intentional from a distance.

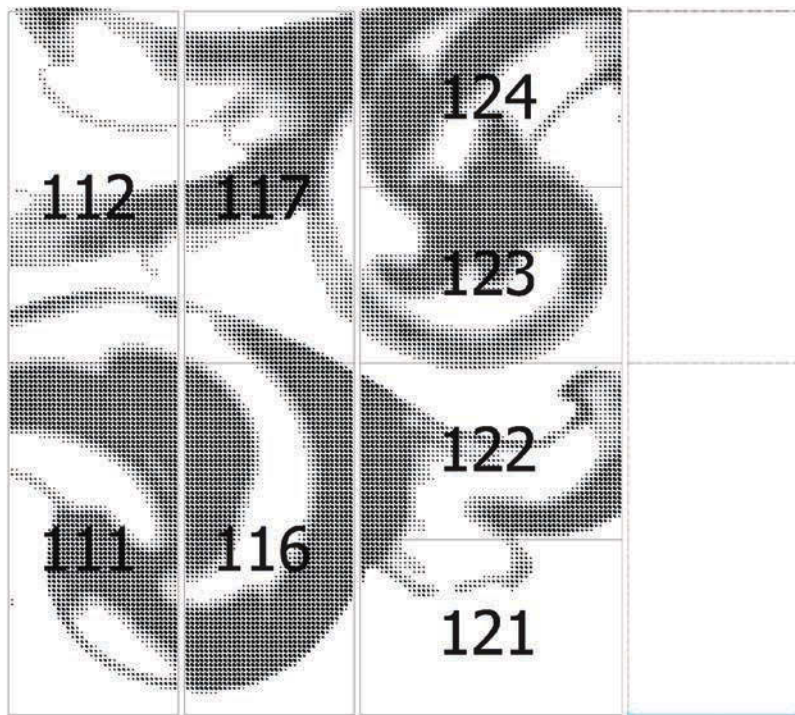
#### **Beauty shows through**

"Printing with translucent ink allowed the veneer's wood grain to show through the dot pattern," notes van Rensburg. He adds that the Anegre wood's natural coloring creates interesting variations depending on the viewer's perspective, while transforming the ink's nut-brown color into more of a plum hue.

To ensure visual consistency, Wenger obtained the shell veneer on 0.25in plywood from Fetzer Architectural Woodwork, fabricator of the Tobin Center's interior millwork. Wenger incorporated this veneer into the Diva's honeycomb-core composite panels, attaching all the necessary framework and hardware. For the three ceiling rows and 10 x 38ft-tall wall towers, more than 7,400ft<sup>3</sup> of veneer was required. This tropical African hardwood is noted for its natural luster and straight-to-interlocking grain pattern.

**The new wood veneer acoustical shell incorporates images that evoke clouds, ocean waves and wind currents into the design**





REAR WALL ELEVATION

1/4"=1'

FOR PRODUCTION

Above: A production detail shot from Sussman/Prejza showing how the wall surfaces were panelized, numbered and essentially fit together to form the larger pattern

Top right: The audience sees the shell image formed by the collective printed dots as a backdrop for the musicians

Below: Printing with translucent ink allowed the veneer's wood grain to show through the dot pattern



"The project team reviewed numerous veneer samples to ensure proper matching," explains Brent Gilbert, engineering manager with Linbeck/Zachry Joint Venture, the construction management firm. He praises Wenger's attention to detail throughout the project in execution, coordination and communication. Akustiks was the acoustical consulting firm.

As prime architect, LMN Architects took part in the design development of the shell. Rich Johnson, AIA, who coordinated architectural design intent during the construction phase, visited Wenger's Minnesota facility to view the shell mock-up.

"Everyone was very knowledgeable and accommodating," recalls Johnson of this visit. "And the quality of the mock-up was excellent." He claims Wenger met all the design criteria and accommodated any changes they could.

In the project's final stages, Wenger made engineering modifications to the approved tower specifications, meeting the owner's request for a standard manual wheeled mover rather than an air caster system.

The shell will be reconfigured often: the Tobin Center is already booked solid for its first six



months. When stored, the towers nest backstage. If necessary they can all fit in a footprint measuring only 16.7 x 9.3ft.

**Double vision**

During the design process, Huggard asked Wenger if they had ever done a printed shell. "They said, 'No, but let's figure it out together.'" He adds, "It's really nice that Wenger will spend the time with you up front – even if they're not guaranteed the project – to work through issues and understand what's possible."

Huggard believes the shell blends two looks – organic, natural wood and high-tech printing – to create a dualistic visual effect analogous to painted scenery on stage. "With a scenic painting, every brush stroke is visible; up close it is hard to make out the pattern," he explains. "But from the audience's vantage point, everything makes sense and looks perfect."

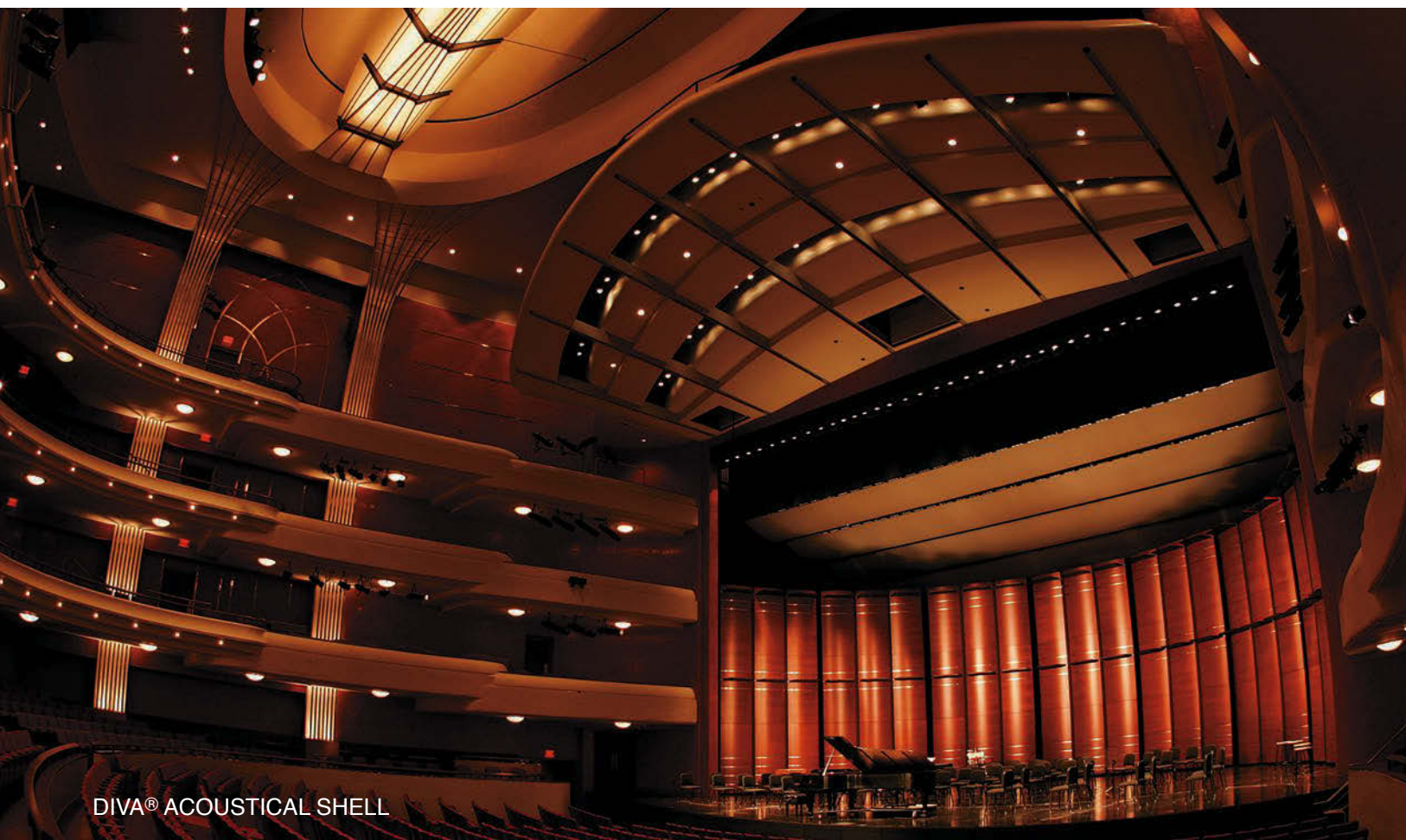
The audience sees the shell image formed by the collective printed dots as a backdrop for the musicians, a gestalt greater than the sum of its parts. Meanwhile, the musicians on stage do not perceive the overall pattern, they only bask in the warmth of the stained wood veneer, suggesting the richness of a finely crafted musical instrument.

"Although the shell's visual element does not directly influence the musician's craft, there are a number of psychoacoustic benefits," states Huggard. "A comfortable, natural-wood surrounding helps relax the musicians, enabling them to play to their best."

In a way, the shell's dualistic visual effect also mirrors its twofold acoustical impact. On stage, performers benefit from enhanced early reflections and improved communication. In the auditorium, audience members hear a blended, focused and fuller sound. ■

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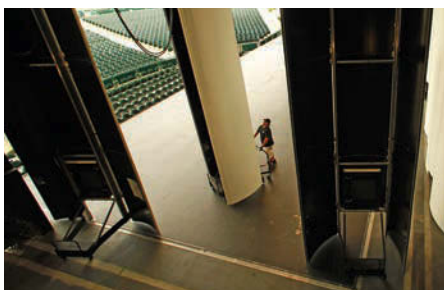
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