

Shining star

The newly renovated Starr Theater in New York's Alice Tully Hall features above-stage reflectors designed to improve the acoustics while harmonising with the project's aesthetic aims

Right: The Starr Theater features four above-stage acoustic reflectors

For audience members in an auditorium – and even for performers – little thought is usually given to the above-stage reflectors that enhance acoustics while complementing aesthetics. But the recently renovated auditorium in Alice Tully Hall demonstrates how crucial these can be.

Since opening in 1969, Alice Tully Hall evolved into one of the most heavily used and flexible venues in New York City's Lincoln Center. Its main auditorium featured ample seating capacity (1,096) and lacked any major constituent occupying its schedule. But the auditorium wasn't designed to do all the things for which it was being adapted.

When a major renovation of Alice Tully Hall was planned, a primary concern was the amount of time spent by stagehands setting up and taking down the various stage hardware systems in the catwalks above the fixed auditorium ceiling. The catwalks provided above-stage access for lighting, microphones and 'strong points' that allowed rigging of film screens and other stage hardware.

Larry King, senior consultant with JaffeHolden Acoustics, says the project's evolution included preparing a wish list of functions and operating systems for the renovated auditorium, to be called the Starr Theater. "The design team recommended mechanised rigging equipment above the stage, so that settings could be done quickly with minimal stagehand time," he recalls.

A logical solution was employing tip-and-fly acoustic reflectors, which could adjust between

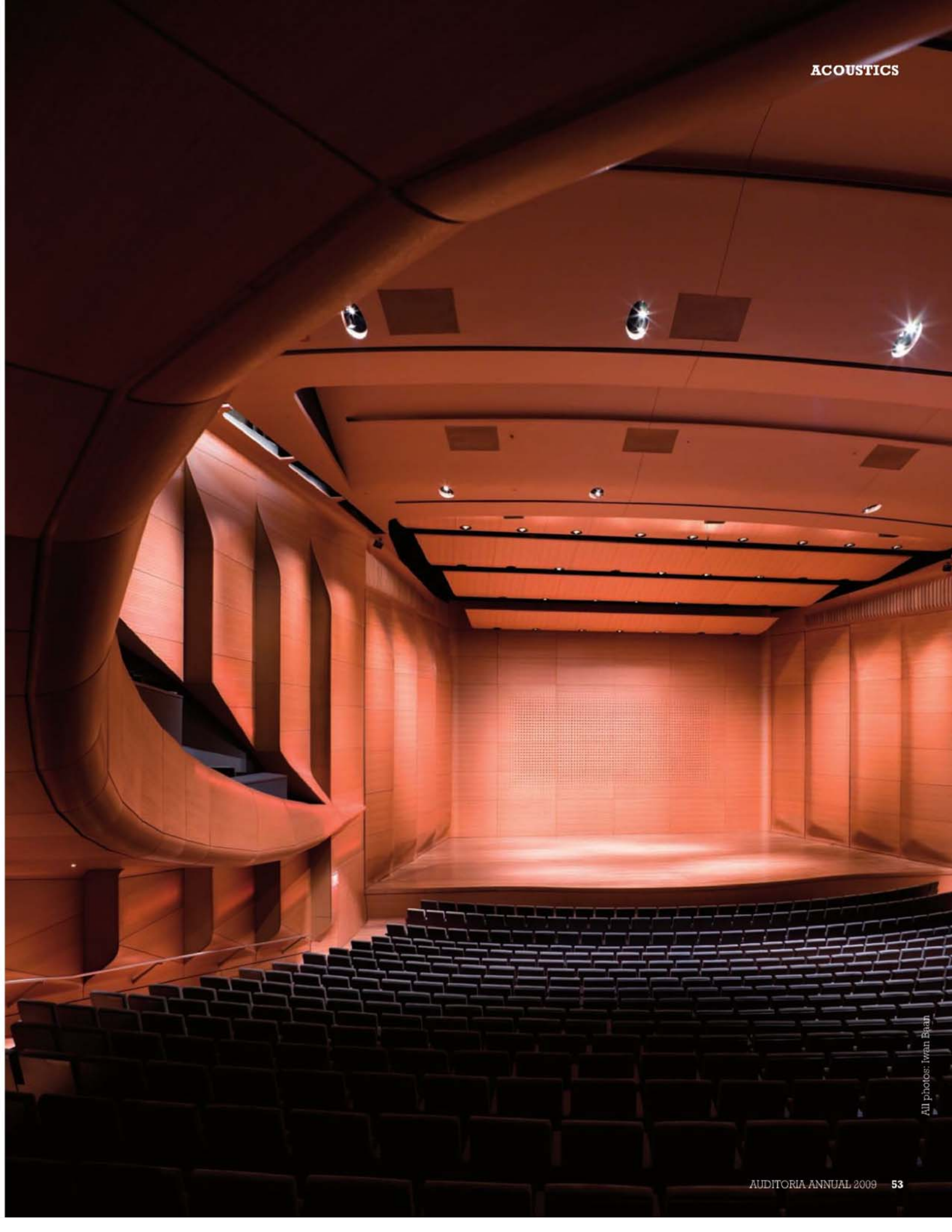
a fixed and open ceiling. The thinking was that this would save time compared to storing reflectors offstage – where space was scarce – and moving them into position. "The decision to use tip-and-fly reflectors pointed right to Wenger," notes King. Along with reflectors, Wenger has a distinguished history of crafting acoustic shells and related products.

Space constraints

Creating a renovated theatre within the original building's shell meant that one of the greatest challenges for the reflectors was the limited space available. As the project progressed, the clearances got even smaller when the deconstruction work revealed existing concrete in locations that varied from original drawings.

"The space constraints overall were extreme," explains Barbara Pook, partner with Pook Diemont & Ohl (PDO), the project's stage equipment contractor. This specifically impacted the fourth reflector. PDO reengineered the motorised rigging and Wenger redesigned the reflector to collapse into even less space than originally allowed. "Wenger was instrumental in solving problems and they readily accommodated the changes the design team requested," says Pook.

Replacing the original catwalks over the stage is a complex system of motorised stage-rigging equipment that includes the tip-and-fly reflectors, electrics/scenic battens, house curtain, speaker clusters, and film screen/masking system. There are 25 motorised axes over the stage. "It's an incredibly dense configuration in a



All photos: Iwan Ebran



The reflectors had to complement the look of the theatre's walls, which feature African Moabi tree veneer

rather small space," says Peter Rosenbaum, senior associate with Fisher Dachs Associates (FDA), the project's theatre consultant. "We all pushed each other to find an approach that would fit the fourth reflector into the available space."

Because of tight space constraints, the design team also needed to be very aware of the clearance around each reflector as it rotates through its entire rotational envelope. "We had especially tight clearances between the first reflector and the mounted concert lighting fixtures," says Rosenbaum. 3D modelling and mock-ups were used to ensure this reflector would never clip or bang into any light fixtures.

Along with space constraints, other design features were driven by fire code requirements. In case of fire, all four reflectors had to rotate into the vertical position so that the water from overhead sprinklers could reach the stage. At a signal from the fire panel, the reflectors rotate under motor control. But if power is lost, the reflectors will rotate vertically purely by gravity when a manual release cord is pulled, or a fusible link opens due to heat. "It's a very sophisticated, yet very simple arrangement of both motorised and mechanical devices," says Rosenbaum. "It's the first time we've ever done anything like this."

The design architect was Diller Scofidio + Renfro (DSR), and project leader Anthony Saby agrees that the acoustic reflectors posed some unique challenges. "We ran the gamut with Wenger from an engineering, fabrication and finishing perspective," says Saby. "A good percentage of the reflector project was a hybrid or customised standard."

DSR also worked closely with FDA and Wenger on the lighting arrangement in the reflectors. Lights were not placed in the centre, but arranged to strike a balance between theatrical and architectural requirements. "We wanted lighting coverage for the stage and also to create a perspective in how this lighting relates to the rest of the theatre," says Saby.

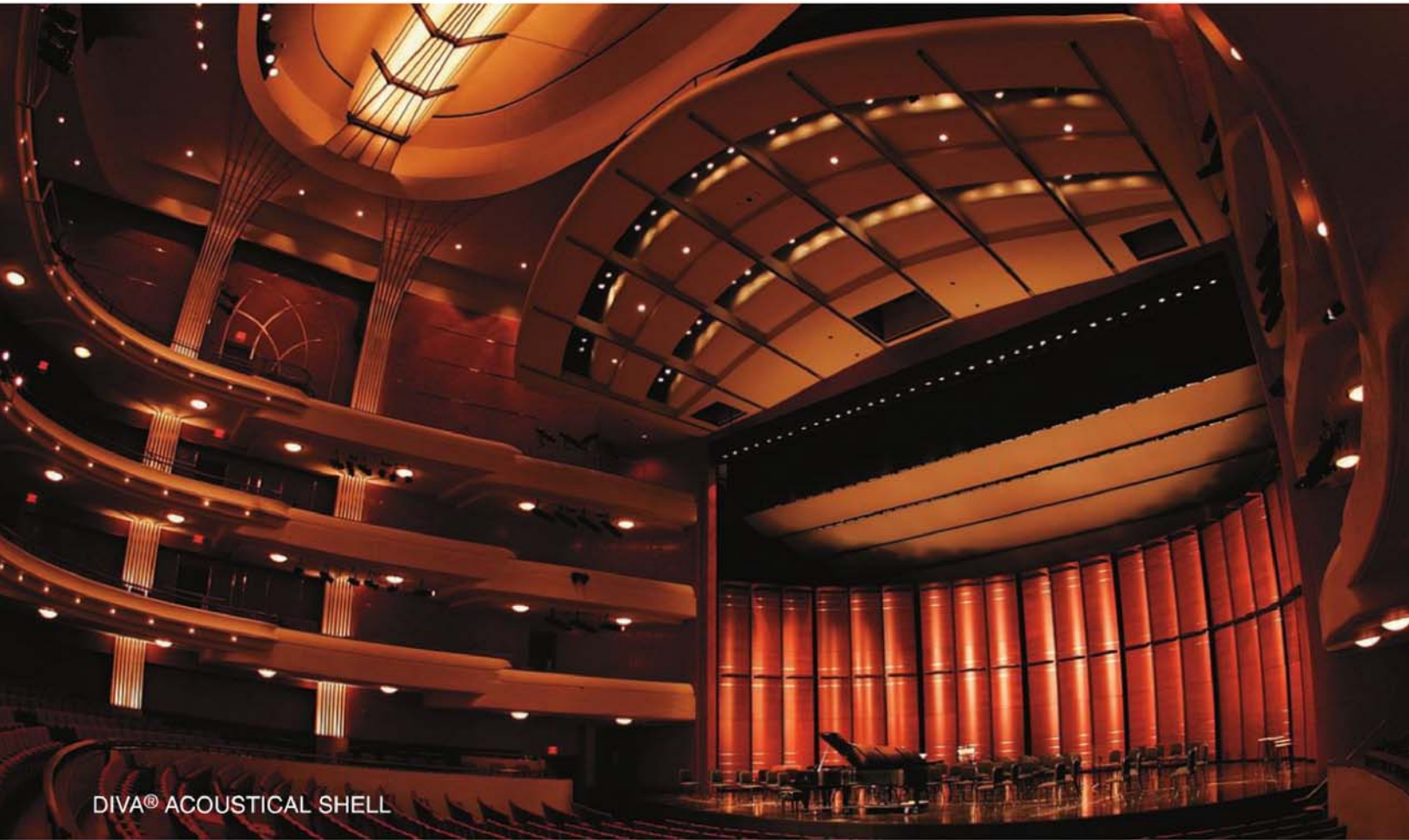
The Starr Theater's interior walls consist of resin panels sheathed in veneer created from a single African Moabi tree. LED lights embedded in the wall panels help illuminate the theatre with rosy hues. The reflector furthest downstage features a compound curve hardwood edge or nosing, created by precision computer-controlled machinery. Wenger worked to ensure the finish and stain on this nosing – and all four reflectors – was consistent with the theatre's other veneered surfaces.

From a visual perspective, Saby believes that having all these elements come together was one of the greatest architectural challenges. "It was a collaborative effort between Wenger, us, the primary millworker, the veneer supplier and Wenger's own millworker," he says. "There was a lot of direct interaction between the different trades and the end result turned out fantastic."

Wenger reports that audience members, performers and critics alike share Saby's enthusiasm for the finished space, and have praised the Starr Theater's improved acoustic clarity and warmth, and more intimate visual experience. ■

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