

# ALICE TULLY HALL

## NEW YORK, NY

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PROJECT PROFILE

Wenger



DIVA<sup>®</sup> ACOUSTICAL CEILING REFLECTOR PANELS

***“Wenger put in a lot of time and an honest, earnest effort to help us achieve what we wanted – and we got it. The quality of the work executed by Wenger was great, guided by an unwavering commitment to our satisfaction.”***

– Anthony Saby  
Project Leader, Diller Scofidio + Renfro Architects

### CHALLENGE

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Furnish acoustical solution for multi-use facility that beautifully accommodates limited space.

### WENGER SOLUTION

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Designing and manufacturing ceiling panels to satisfy acoustical, architectural, theatrical and operational requirements.

# ALICE TULLY HALL NEW YORK, NEW YORK

## BENEFITS

- Enhances acoustics for performers and audience alike
- Accomplishes design team's intent
- Improves functionality of multi-purpose venue
- Complements hall architecture and aesthetics
- Meets aggressive timetable and budget requirements

## HIGHLIGHTS

"Wenger's strengths include their long track record of producing excellent products, their willingness to work with consultants and clients and their 'can-do' attitude," says Larry King, senior consultant, acoustics, with JaffeHolden of Norwalk, Conn. "We've partnered with them for years on stage enclosures – we have a very good relationship with them."

An attitude of partnership between Wenger and other members of the design team helped make this project at Alice Tully Hall in New York City a success. Opened in 1969, it had evolved into one of the most heavily used and flexible venues in Lincoln Center because the 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.

In 2004, plans were unveiled for a major renovation. A key goal was making an even more flexible venue for all types of performances, including dance, film, music and theatrical events.

## SPEEDING TRANSITIONS

In the original hall, 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 when required.

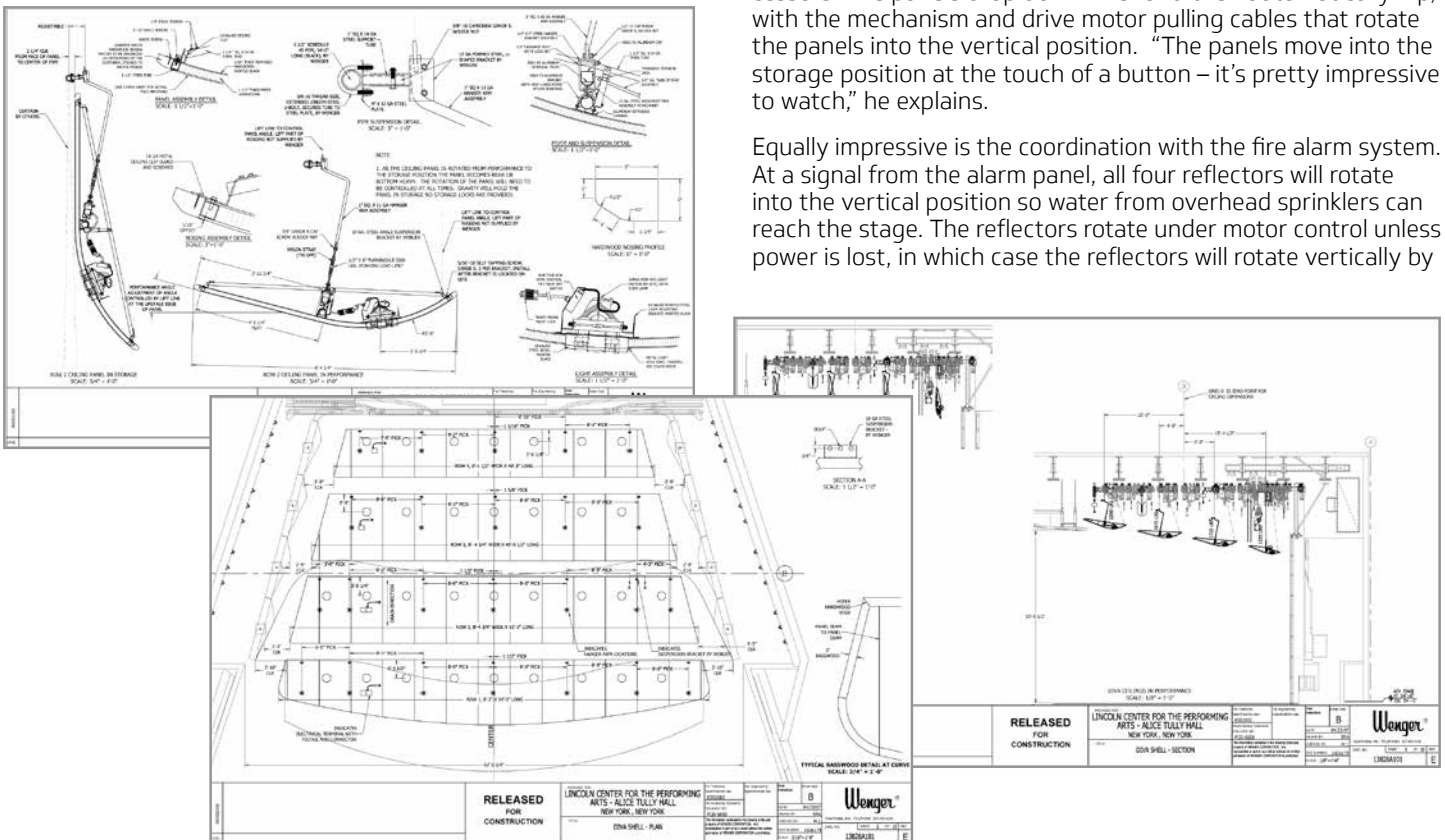
During the evolution of the renovation project, the design team prepared a wish list of functions and operating systems for the renovated auditorium, to be called the Starr Theater.

"The design team recommended mechanized rigging equipment above the stage, so that settings could be done quickly with minimal stagehand time," King recalls.

A logical solution was employing tip-and-fly acoustical reflectors, which could adjust between a fixed and open ceiling. This would save time compared to storing reflectors off-stage – where space was scarce – and moving them into position. "The decision to use tip-and-fly reflectors pointed right to Wenger," explains King.

To save time, the process of dropping the reflector panels down and rotating them is now motorized and controlled by microprocessors. The panels drop down 4'-5' and then automatically flip, with the mechanism and drive motor pulling cables that rotate the panels into the vertical position. "The panels move into the storage position at the touch of a button – it's pretty impressive to watch," he explains.

Equally impressive is the coordination with the fire alarm system. At a signal from the alarm panel, all four reflectors will rotate into the vertical position so water from overhead sprinklers can reach the stage. The reflectors rotate under motor control unless power is lost, in which case the reflectors will rotate vertically by



gravity when a manual release cord is pulled or a fusible link opens due to heat.

“An aero-mechanical/hydraulic governor releases the clutch on the motor brake, enabling the reflectors to rotate into the vertical position and controlling their speed,” says Peter Rosenbaum, senior associate with Fisher Dachs Associates (FDA) of New York City, the project’s theater consultant. “It’s the first time we’ve ever done anything like this.”

## FITTING LIMITED SPACE

Creating a renovated theater 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 based in New York City. “We had to go through quite a few drawing sets to make the reflectors work with the incredibly compromised space available.”

Wenger built a reflector mock-up and shipped it to New York City for a design team review that included evaluating the finish, light fixture placement, seams and wood trim. Pook also flew out to Minnesota to view another mock-up.

Wenger redesigned the fourth, upstage-most reflector to collapse into even less space than originally allowed and PDO re-engineered the motorized rigging. “Wenger was instrumental in solving problems and they readily accommodated the changes the design team requested,” explains Pook.

This was the first sizable project PDO had done with Wenger as a supplier; Pook says Wenger was a pleasure to work with. “We’re currently doing several other jobs with them – I have only good things to say about Wenger.”

Rosenbaum echoes her praise, based on his 15-year working relationship with Wenger. “We appreciate how Wenger’s engineering department is willing and able to tackle some tough problems, the design obstacles we come across as we get deeper and deeper into a project,” he states.

Replacing the original catwalks over the Alice Tully Hall stage is a complex system of 25 motorized axes for stage rigging equipment that includes the tip-and-fly reflectors, electrics/scenic battens, house curtain, speaker clusters, and film screen/masking system.

“It’s an incredibly dense configuration in a rather small space,” explains Rosenbaum. Because of these space constraints, the design team also needed to be very aware of the clearance around each reflector as it rotates throughout its entire rotational envelope. Each reflector is operated by twin motors – for tipping and flying – which means that the reflector’s center of gravity moves slightly upstage or downstage as it rotates.





“We had especially tight clearances between the first reflector and the mounted concert lighting fixtures,” states Rosenbaum, adding that 3-D modeling and evaluating mock-ups ensured this reflector would never clip or bang into any light fixtures. Praising the successful team effort, Rosenbaum states, “We all pushed each other to find an acceptable solution that would fit the available space.”

Stagehand Frank Ferrante has found the ceiling panels easy to work with. “They get moved all the time, whether up into storage, into concert position or over the stage for theatrical events,” he says.

## BALANCING REQUIREMENTS

The design architect was Diller Scofidio + Renfro (DSR) and project leader Anthony Saby agrees that the reflectors posed unique challenges. “We ran the gamut with Wenger from an engineering, fabrication and finishing perspective,” explains Saby. “A good percentage of the reflector project was a hybrid or customized standard.” Despite the challenges, he says Wenger helped the project stay within budget and the aggressive schedule.

DSR also worked closely with FDA and Wenger on the lighting arrangement in the reflectors. Lights were not placed in the center, 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 theater,” 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 theater with rosy hues.

The first reflector features a compound curve hardwood edge or nosing that wraps around, created by precision computer-controlled machinery. Wenger worked to ensure the finish and stain on this nosing – and all four reflectors – were consistent with the theater’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,” Saby says. “There was a lot of direct interaction between the different trades and the end result turned out fantastic.

“Wenger put in a lot of time and an honest, earnest effort to help us achieve what we wanted – and we got it,” comments Saby. “The quality of the work executed by Wenger was great, guided by an unwavering commitment to our satisfaction.”

## FINE-TUNING ACOUSTICS

Before the official re-opening, three tuning events were held with a wide range of performers on stage. The motorized system adjusted the tilt and height of all four panels until a single compromise position was reached.

“We needed acceptable positions for the panels, while also accommodating certain atmospheric lighting of the stage walls requested by the architect,” explains King.

This wall lighting had to be done from the first catwalk, immediately downstage from the first tip-and-fly panel. If that panel was lowered too far, it would occlude the lighting aimed at the rear and side walls. The fourth panel also faced tight space constraints limiting its maximum height.

During the tuning events, experimentation was focused on adjusting the middle two panels; King believes their compromise “works reasonably well and also looks good.” He notes that future alterations can be made easily with the motorized system.

Since its re-opening in February 2009, the Starr Theater has been praised by audience members, performers and critics alike. The improved brightness and warmth of the hall’s acoustics are perfectly complemented by the beautiful, rich aesthetics.



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