



DIVA ACOUSTICAL SHELL, WENGER LIETO WHITE AND RGBW LED FIXTURES

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CHALLENGE

Design a custom acoustical shell to match the decorative features in the venue while also accommodating a variety of performances including opera, ballet, band, choir and orchestra.

WENGER SOLUTION

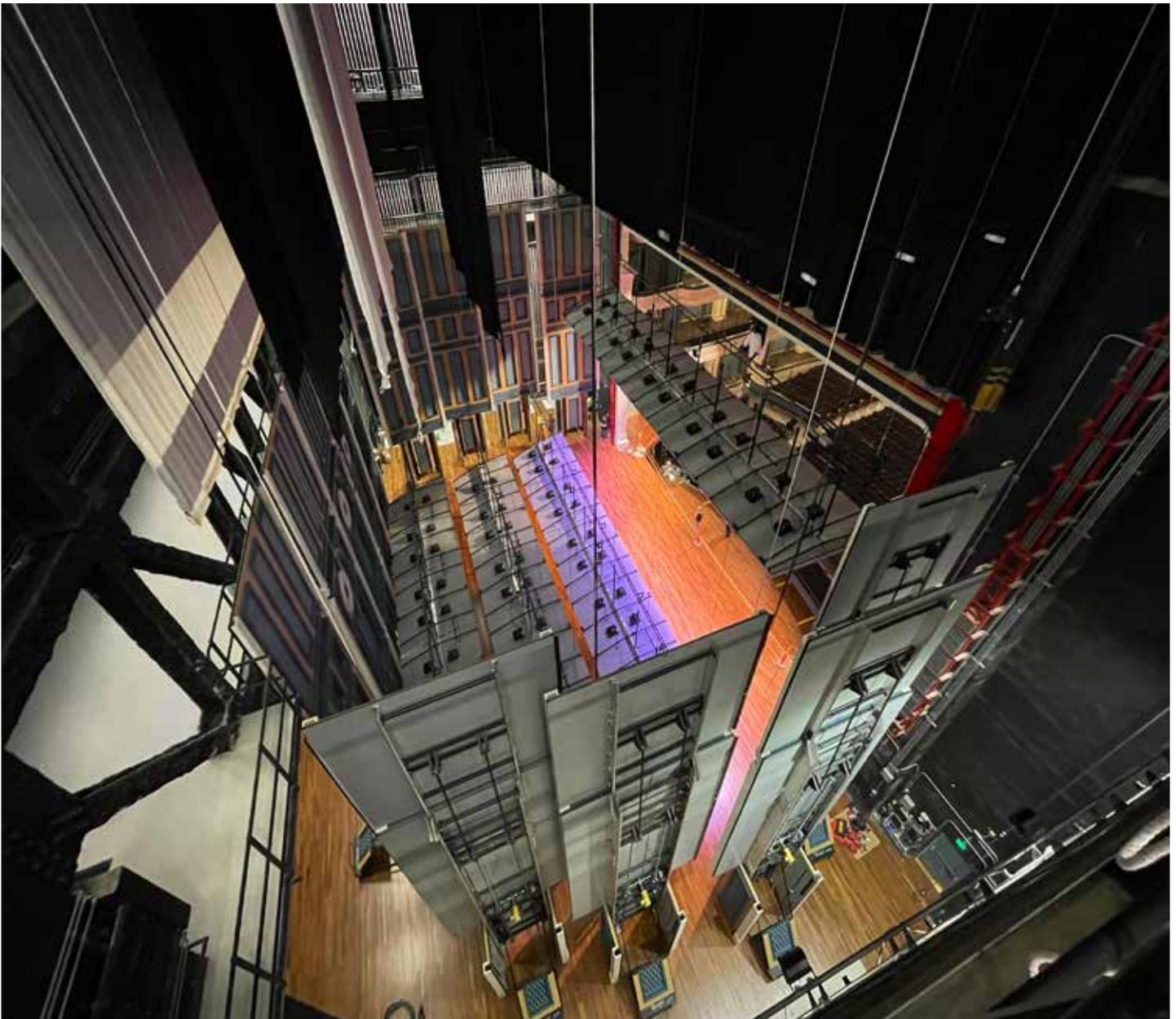
Wenger Corporation built a beautiful custom Diva® Acoustical Shell as versatile as the performances the hall would be hosting. The shell towers are big enough to accommodate large ensembles, but fold over with a unique and safe automated mechanism that allows them to be quickly stored when not in use.

BELMONT UNIVERSITY

NASHVILLE, TENNESSEE

BENEFITS

- New performing arts center with a Diva Acoustical Shell
- Flexibility to support many kinds of performances
- Beautiful and intricate shell design that matches the interior of the room
- Superior sound quality for both musicians and audience
- Bright, dimmable, cool lighting and multi-colored lighting for performances
- Safe, automated controls for folding shell for storage
- One of the most impressive performance halls on a college campus in the U.S.



HIGHLIGHTS

Belmont University is a private, four-year Christian university serving more than 8,700 students located just two miles from downtown Nashville, Tennessee. The school's College of Music and Performing Arts offers internationally recognized, nationally accredited programs in music, theatre, and dance.

The Fisher Center for the Performing Arts

In 2018, the school began work on a new 1,700-seat, multi-functional auditorium to accommodate many of the school's dance, theatre, and musical performances, as well as an array of special events, including performances by the Nashville Ballet, Nashville Opera, traveling Broadway shows and international artists. From the very beginning, the expectations were high, and the team had a complicated task with the new center.

"The president of Belmont called and said, 'I want to be able to search "finest performing arts center on a university campus," and I want Belmont to pop up,' so that was our charge," said David Minnigan of ESa Architects.

The team included ESa Architects, Theatre Projects Consultants, Akustiks, R.C. Matthews and several members of Wenger Corporation's engineering and design team.

The specially engineered, horseshoe shaped auditorium was modeled after traditional European opera houses, with ornate chandeliers, aqua-painted interior, tall domed ceilings, and world-class acoustics. However, completing it took an extraordinary amount of collaboration, communication, and planning.

The Star of the Show

The focus of the new center is a custom Diva® Acoustical Shell, created by Wenger Corporation.

"This is a highly customized one-of-a-kind shell, which was years in the making," explains Carrie Renchin, Wenger Corporation Project Manager.

The main requirement for the shell was to match its decorative features to those in the room. Custom urethane shapes were applied the front of the tower and ceiling panels to mimic the intricate design of the venue. The shapes required several iterations and model changes prior to final approval to ensure the aesthetics would complement the space.

Wenger Corporation engineers then made a full-size mockup of a tower and a portion of a ceiling row at Wenger's facility. After some minor modifications, the shell design was approved for production.

The shell has 13 towers that are each 12 feet (3.65 meters) wide and 40 feet (12.19 meters) tall. There are four onstage ceiling

rows and one forestage reflector. The ceilings and forestage reflector incorporate a combination of Lieto™ LED White and RGBW light fixtures.

The Lieto fixtures provide more lumen output than other fixtures currently used in acoustical shells, meaning fewer fixtures are required in the shell ceiling. They're also silent, which is critical for performers on stage, much cooler than conventional lighting and dim down to zero percent. Plus, they're easy to adjust, with three-axis beam positioning to provide tool-free pan, tilt, and rotation, as well as the ability for front-face focusing.

Belmont University incorporates both Lieto White and RGBW fixtures for multi-colored lighting on stage. Now Belmont is able to add a pop of color for special events and keep the stage incredibly well-lit with a variety of options.

Creativity in Engineering

The first challenge Wenger engineers had to solve, was how a 40-foot-tall (12.2m) tower would fit into a 30-foot-tall (9.1m) storage area. They designed motorized sections that fold the top ten feet (3m) back so the shell can be stored when not in use.

The second challenge was the sheer weight of the towers.

"The Wenger team reinforced the aluminum and steel structure to withstand the weight but made sure it was mobile enough to maneuver on stage," explains Kellie Cultice, Wenger Corporation Lead Project Engineer.

In addition, extra weight meant regular castors would damage the floor. Cultice asked R.C. Matthews, the general contractor for the project, to send them flooring samples. This allowed the Wenger team to experiment and settle on a final solution before sending the shell to Belmont.

"Making it simple for the end user was really important," offers Millie Dixon, Theatre Projects Director/Project Manager. "Wenger really stepped up to the plate when it came to balancing those practical needs of height, weight, and functionality with all of the features that the architect wanted on the face of this shell. They did an outstanding job."

Fine Tuning

The Belmont shell was customized not only from an engineering perspective, but from an acoustical one, too. Performances here range from professional orchestras to student choirs, to a variety of large and small ensembles, to any number of special events, requiring a very versatile shell.

"We start with the room," explains Russ Todd, Akustiks Principal and Managing Partner. "What we do in designing a multi-use hall is create a concert hall condition in a room that also has the ability to function as a theatre with a full fly tower. The way we do

that is by designing an orchestra shell. The shell is an extension of the room, and it blends in perfectly.”

Todd points out that the room needs to work for amplified music, too.

Todd and his team also designed a sound-transparent ceiling as opposed to a plaster ceiling that allows the sound to project up into the upper volume of the room for the orchestra or opera for a full, rich resonance. “But for the amplified mode, we bring in adjustable acoustics above the sound transparent ceiling to dampen that reverberation,” he says.

Another custom element of the shell towers is a series of venting doors in the side wall towers. The venting allows for balancing sections of the orchestra, or if amplified sound is too intense, doors can be opened to allow some of the sound energy to escape.

The shell is versatile depending on the number of towers utilized for performances. The full shell occupies the full depth of the stage which will accommodate a full orchestra plus a choir. The adjustability of the shell benefits ensembles of any size.

And finally, the shell is as intricately beautiful as it is complex. There are many colors on the 3D faces of the shell that match the paint in the interior of the room. The result is a multi-functional shell that produces excellent sound and blends perfectly into the rest of the room.

“Having worked with Wenger, Theatre Projects, and ESa on many installations before, we’ve really grown as a team over time, and advanced ideas and thoughts about how to create these halls,” Todd says. “It’s exciting when it comes together.”

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Ready to Roll

Named for retired Belmont President Dr. Bob Fisher, the Fisher Center for the Performing Arts was officially dedicated in a special ceremony in September.

The first official performance in the hall will be a December filming of the 2021 “Christmas at Belmont” concert, a massive holiday spectacular featuring nearly 650 student musicians and vocalists that will be broadcast nationally on PBS. Dr. Stephen Eaves, Belmont’s Dean of the College of Music and Performing Arts, says they’re ready.

“This new space will help Belmont students reach for higher excellence in the arts,” he says.

New Belmont President Dr. Greg Jones agrees.

“The beauty and performance capabilities of The Fisher Center for the Performing Arts are simply unmatched, and its possibilities are unparalleled,” he says. “This venue will equip students with the confidence and real-world experiences that set them apart as Belmont graduates while also attracting world-renowned artists to share their immense talents with our campus and the local community. With Belmont’s rich tradition of creativity and imagination across our campus, the Fisher Center will be a place for those values to come to life through curating, producing and presenting stories and art that inspire.”

PRODUCT LIST

Custom Diva Acoustical Shell, Lieto™ LED Fixtures, White and RGBW, Music Chairs and Stands

ABOUT WENGER | J.R. CLANCY

Wenger and J.R. Clancy provide the widest array of innovative, high-quality products and services for the performing arts industry. Their advanced products provide the highest levels of safety, reliability and aesthetics, helping transform performance venues and engineer unforgettable experiences.



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