



Southwest Magnet

Oklahoma's McKnight Center for the Performing Arts is designed to draw patrons statewide

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Here's proof positive that a city doesn't have to be a major metropolis to draw the world's most accomplished performing artists. In Stillwater, Oklahoma, a city of about 50,000 residents halfway between Oklahoma City and Tulsa, a series of enlightened individuals saw the potential for attracting top artists, and they determined the most likely way to make this happen. Oklahoma State University (OSU) president Burns Hargis

became the driving force behind the movement for a new, on-campus performing arts center, one that would reflect the scope of the university's strong music and theatre programs. "I thought we needed a showplace, both for the university and for Stillwater," he told OStateTV, the campus television network. "We really went round and roundabout, trying to figure out how to make it happen."

The project got a major boost from Billie and Ross



The glass exterior of the McKnight Center allows the Stillwater community to see activity inside.

McKnight, who donated \$25 million to create an endowment for programming a new performing arts center, one that would provide a world-class experience for visiting artists and an exciting learning opportunity for students. Hargis says, “They thought that if we put together a big endowment to fund programming, it would not only do what I was dreaming of for our students, but it would also do so much for...the community and even this region, by bringing in top performers in lots of genres, and those people would work with our students and faculty. So it was a huge win-win.”

The result is the McKnight Center for the Performing

Arts (MCPA), which opened its doors in October. MCPA immediately established its place on the national map by hosting a five-day residency of the New York Philharmonic.

“We had our grand opening with the Philharmonic on October 11 and, over the course of five days, we did 30 different events,” says Mark Blakeman, MCPA’s Marilyn and Carl Thoma executive director. “We had education opportunities, not only with the university students but with primary and secondary school students as well. They taught master classes for every instrument in the orchestra, all open to the public. We had all the first- and second-graders from Stillwater schools come in for a young



Above: The 1,098-seat main hall features OSU's school colors: orange and black. Right: The New York Philharmonic gave the first performances during the McKnight Center's opening week.

people's concert."

Bringing such high-level talent to the opening was no fluke. MCPA's first season includes performances by the Academy of St. Martin in the Fields, world-renowned pianists Jonathan Biss and André Watts, Preservation Hall Jazz Band, and a tour of the musical *An American in Paris*. "When we announced our first season, we were so over-run with people buying subscription packages that, six weeks after we announced, we had to stop selling tickets," says Blakeman. "We had to do a time-out while we figured out the jigsaw puzzle of seating everyone. Now we're enjoying an average fill rate in the mid-80 percent," or close to 900 people in MCPA's 1,098-seat main auditorium.

Before it could fulfill the promise of the endowment,

however, OSU needed the hall. The journey to October 11, 2019 began nearly a decade ago with a team of consultants, including the architecture firm Beck Design, with offices in Oklahoma City, Tulsa, and New York City.

The next level

OSU's music and theatre arts departments have a national reputation for quality, but students attended classes and performed in facilities that were "way out of date," says Casey Tarp, Beck Design managing partner and project manager. The Beck Design team included Don Beck, principal-in-charge; Paula Beck, interior designer; and Wes Rutledge, design director. "The university really wanted to showcase its commitment to the arts," Tarp continues. "They commissioned us to evaluate the buildings and look

at improvements.”

It didn't take long to discover that simply renovating the aging facilities would be neither cost-effective nor practical. “The university expressed a desire for something unique,” Tarp says. “It should be something spectacular, not only to appeal to their current students but to recruit new students. We wanted it to serve as an introduction to the arts for those who may have little opportunity to experience them otherwise. It would be a multi-purpose facility: choral, band, dance, opera, orchestra, Broadway shows.”

The existing buildings on campus, with their neo-Georgian architecture, did not lend themselves to the level of innovation in design the university wanted to achieve. “They wanted to make it a very contemporary showcase for the arts,” Tarp says. “The university found a site that was just off-campus but still very accessible. We performed a feasibility study to determine what Stillwater and the university could support.”

With its fairly remote location and small community, Stillwater is not a place for the 3,000-seat performance hall a major city could fill on a regular basis. “The university wanted to draw patrons statewide and make it a destination arts center,” Tarp says. “We looked at the type of func-

tions that would happen within this facility and the big goals the university had in mind, and we came to the conclusion that our emphasis should be the activity within the performance hall.”

This conclusion—that the audience chamber and stage would have design dominance over the building's lobby and exterior—led directly to a box-in-box approach.

“We came up with the idea of making the audience chamber the star of the show,” Tarp says. “We built it in such a way that we could have a transparent skin around it, like a jewel box. That performance space is the soul of the building, where all the activity takes place. When there's an event at the PAC, we wanted it to be transparent to the public, to show that the core of the building is where everything happens.”

The result is indeed transparent: roof-to-ground windows around three sides of the building, through which passers-by can see all of the activity in the lobby while the audience arrives for any performance.

“The glass-enclosed lobby faces north,” Tarp says. “We have a lot of nice natural light as a result. Within the lobby, there's the radial shape of the audience chamber. That shape is derivative of the acoustical signature of the interior



ARCHITECTURE

of the hall. We mapped out the overlapping acoustical energy from the stage to the back of the hall and used that to form that shape within the building. The overlapping ripples and sound waves you'd see on an acoustical evaluation [are what] you're seeing reflected in the wooden curve of that space." The sound wave metaphor continues into the lobby ceiling as it wraps around the outer edge of the building's interior, with architectural lighting that illuminates the facets of the billowing curves.

"Box-in-box is a visual thing, but it's also a very technical process," Tarp notes. "The stage house and structure are constructed of concrete for acoustics. The stage house and audience chamber are separated from the rest of the building by sound-isolation joints the thicknesses of the wall, so that sound energy and vibrations are not transmitted from outside the performance hall. No exterior

noise, no traffic. We've really isolated the audience chamber acoustically."

The effect of this acoustical isolation, coupled with the work of acoustician Ben Willt, senior consultant at Kirkegaard, created a hall that can be fine-tuned to maximize sensitivity to any kind of performance. Variable acoustic banners, supplied by Texas Scenic Co. (TSC), are positioned on either side of the house, with lengths between 21' 8" and 41'. Acoustic curtains in the house include two 40' forestage variable acoustic travelers, two 55' travelers in the rear of the house, and eight panels of acoustic curtains in the orchestra pit, each 8' wide.

"It's been fantastic," Tarp says. "When the building was finished, the acoustician came in and programmed the space. We can drop banners down, we can deaden the sound, we can make it lively, make it right for amplified



An outdoor screen and lawn space bring every performance to an additional audience at no charge.

sound and recorded sound. Ben said that the hall's acoustics are nearly perfect."

Top technology for stagecraft

Moving OSU from an outdated performance space to one equipped with the latest technologies was a task for Schuler Shook, theatre consultants. Jack Hagler, ASTC, a partner in the firm, joined the design team for the 2010 feasibility study.

"When we started, the theatre department had their own theatre that had just been renovated, though their studio theatre and backstage support areas had not been," says Hagler. "We did a study on what it would take to build a multipurpose hall with a fly space that was equipped and designed to handle Broadway and popular music as well as the university's school of music. Then we

solidified what the project was going to be: a multipurpose room."

Many improvements in functionality became imperatives, Hagler says. "It had to have a fly tower. It had to have the ability to do theatrical lighting. It had to have a vertical acoustic banner system for variable acoustics. It had to have adjustable stage sizes. It needed a portable concert shell."

The Schuler Shook team, led by Chip Ulich, enlisted many suppliers to install this array of theatre technology systems. Texas Scenic led the list, providing a rigging system that included 40 counterweight line sets with lines up to 2,000lb capacity, and six motorized single-batten line sets for the grand curtain and stage electrics. Another five motorized sets with dual 1.5HP motors control the orchestra shell ceiling, with capacities up to 3,000lb. A single,



The McKnight Center lobby brings in natural light through ceiling-to-floor windows.

4,000lb-capacity drum winch holds the speaker array, mounted on the front-of-house gridiron over the forestage reflector. TSC fabricated a set of proscenium-reduction panels with a custom finish completed by Wood Systems.

Lighting, also procured and installed by TSC, includes 234 ETC Source Fours and 40 Source Four PARs, and 16 Chauvet Professional COLORado LED units. Schuler Shook rounded out the package with 20 Philips Showline SL BAR 660 moving lights. An ETC Gio console provides lighting control for the main auditorium.

Audio in the main hall includes a center cluster of three NEXO GEO S1230 loudspeakers, and speaker arrays left and right featuring six Geo S1210 speakers, one Geo S1230 for downfill, and two Nexo LS18 subwoofers. Two Nexo PS10 side-fill speakers complete the amplification in the main hall, with a Yamaha CL5 mixing board for audio control.

Staging Concepts supplied the orchestra shell system, including 14 Bravado acoustical tower panels, each 30' 6.5" high. Four Bravado acoustical shell and cloud system panels, each 9' 6" wide, form the ceiling; one is equipped with a proximity sensor to prevent contact between the proscenium header and shell ceiling. Each panel features built-in PAR fixtures for orchestra lighting. A 450-sq.-ft. Spiralift, provided by Gala Systems, forms the orchestra pit floor, raising it to become level with the front of the audience chamber to provide additional seating as needed. Staging Concepts also furnished eight seating wagons to accommodate additional seating. In addition, the stage is supplied with a Harlequin Cascade heavy-duty dance floor.

The combined architectural, acoustical, and theatre consultant teams made certain that the technology that finally ended up in the theatre was as up-to-date and forward-thinking as they could make it, Tarp says. "We started the final drawings in 2013 and we finished them in 2016. When you try to accommodate the existing technology of the time, by the end of the project all of the equipment and technology you specified is obsolete. So we had to get out the crystal ball and say, Okay, the technology will change; we'll have to build a lot of flexibility into our design. We have cameras and projectors all over the place, we have the simulcast with an outdoor LED screen. All of that equipment had to be evaluated at the end of construction to be sure it was the best and most up-to-date equipment and AV technology we could get."

Installation of Wi-Fi became one vivid illustration of advancements in technology since the project's beginnings. "The overriding thought at OSU back in 2013 was that they didn't want any Wi-Fi in the building; they didn't want anyone on their cell phones during a concert," Tarp says. "Then technology changed, and social media became critically important, and now we want people to take selfies in front of the building, we want them to post

to social media. The thought process changed significantly."

Blakeman notes the advanced audio-video technology within the audience chamber, which provides new possibilities for innovation: "We have high-definition cameras so we can capture content from the stages and use it for different purposes. There are LED walls [supplied by Aurora LED] at house left and right, so we can do image magnification and show close-ups of performers during concerts. Musical components and repertoire are paired with some visual components, using those screens to provide visual content with the performances. For example, a piece performed in September was inspired by a series of national parks. So as the piece was performed, images of national parks were shown on the screens." (A pair of Show Servers, supplied by ShowSage, for storing content on a 4K projector, will be used for 3D environmental projections, created using Dataton WATCHOUT software.)

The McKnight Center also provides a Listen Technologies' LT-800 induction-loop system for the hearing-impaired, both inside the audience chamber and recital hall and outdoors on the plaza lawn.

The latest technology is expensive, Hagler notes, but the university seemed amenable to the cost. "Nigel Jones, the university architect, was very good about not compromising on cost reduction that would harm the vision and mission of the project," he says. "He was really true to the project and what he wanted to get out of it. In the facilities department, Mike Buchery, the project manager, was always mindful of the budget. They worked very closely together to make sure that what we got architecturally and functionally was not compromised. If they needed more money to do something right, they went and got it."

More than an auditorium

In addition to the main hall, the McKnight Center features a recital hall with 217 seats for more intimate music performances, black-box theatre productions, lectures, and other activities. The poured-in-place textured-concrete venue features an ETC Ion console and shares the fixture inventory with the main hall. It benefits from an acoustical design by Kirkegaard, including a variable acoustic curtain system. A smaller audio package features one Nexo Geo S1210 each on the left and right sides of the room, controlled by a Yamaha TF3 digital mixer. Also in the audio inventory are Electro-Voice TX1152 and TX1122FM monitors, as well as two Electro-Voice ETX 12P powered monitors.

The outdoor plaza, a public green space with a 32' LED wall and an extensive sound system, invites OSU students and the general public to pull up a lawn chair and watch the same performance as it takes place. (The outdoor screen is also supplied by Aurora LED.) Tickets are not required; in fact, this simulcast is absolutely free to anyone



A 217-seat recital hall provides a more intimate space for music and theatre performances.

who happens by.

“It’s a great tool to reach a wider audience than those filling the seats inside,” Blakeman says. “It’s a great entry point for people who are not familiar with the performing arts or who don’t want to make a financial commitment. They can sit outside and watch a great performance. We did a really fun performance on Halloween: a screening of Lon Chaney’s silent movie *The Phantom of the Opera*. We brought in an organist who improvised an accompaniment to the film. We’re exploring other ways to put the outdoor plaza to use; for example, we’re planning a festival in the spring. It’s about building a bridge to the broader community. It’s a really cool and unique feature of this facility.”

The outdoor plaza screen “makes it a part of the community,” Tarp says. “You can go there and see students doing performances, or you can see more formal theatre productions. Just as we want people to look inside, through the glass, to see what’s happening, we want them to see performances as well.”

The building features all of the amenities visiting artists need when they arrive at a performing arts center: a full

scene shop with adjoining loading dock, laundry, wardrobe rooms, dressing rooms large enough to accommodate a full choir, additional private dressing rooms, and a well-appointed green room.

With the new facility open and hosting performances that draw thousands of audience members, the rave reviews continue to arrive from all quarters. Deborah Borda, president and CEO of the New York Philharmonic, attended the opening night gala and heard the musicians’ comments about it firsthand. “What really impressed me was walking into this absolutely state-of-the-art, beautiful facility,” she says. “The orchestra turned to me and they said, ‘We’d like a hall like this’.”

In the end, it’s all about the audience, Blakeman says. “The community’s response to the center has really just been overwhelming. There’s so much enthusiasm for what it is that we’re doing.” 📶

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