



Photos: Jeey Kirkman

STEVEN TANGER CENTER



NORTH CAROLINA, USA
AMERICAS

The Steven Tanger Center for the Performing Arts in Greensboro, North Carolina is now the home to the largest Meyer Sound Constellation acoustic system in the United States. The Center's events will be supported by world-class audience amenities and advanced technologies, including variable acoustical environments tailored for each performance. The project was both boldly ambitious and fiscally conservative. It was ambitious in that the \$90 million facility would incorporate the latest technologies for acoustical and staging flexibility, allowing the venue to serve as a concert hall for symphony performances and opera, as well as an auditorium for spoken word events and a road house for touring shows from rock concerts to Broadway musicals. It was conservative, however, in that the cost was substantially less than what would

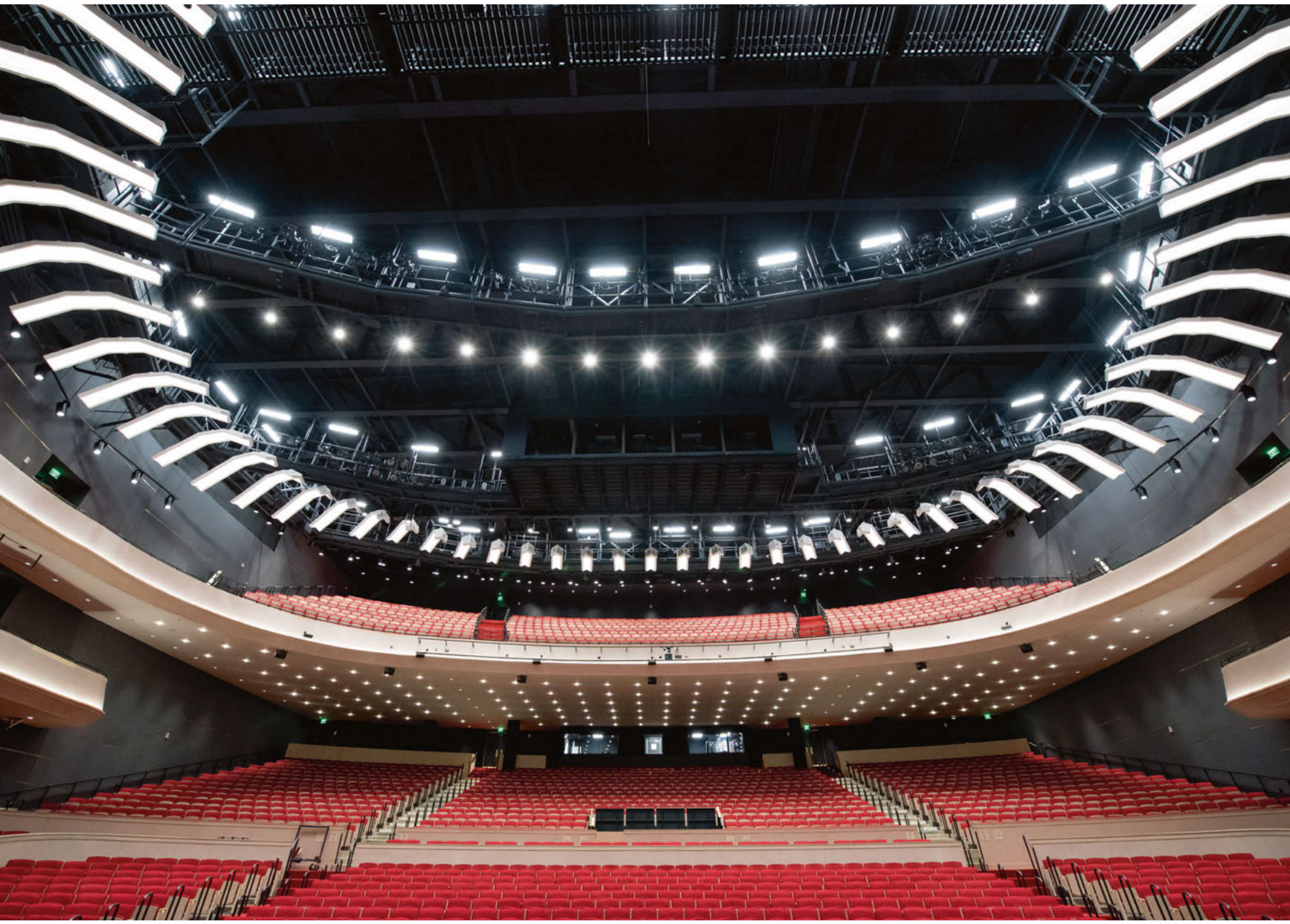


• Above
The Steven
Tanger
Center's
main
auditorium

be needed to build two separate venues. "I knew from the outset that the economics would be driven by selling out touring shows, which is why we set 3,000 as our minimum capacity and designed our staging to accommodate tours well into the future," stated Matt Brown, who as Managing Director of the Greensboro Coliseum Complex now also carries responsibility for the Tanger Center. "Yet following the demolition of the old War Memorial Auditorium, the Greensboro Symphony was in need of a new home. Our goal was to provide an optimum environment for both types of performances without compromising either." He continued: "The audio systems in the venue needed to have the capability and

flexibility to deliver state-of-the-art sound quality for a wide variety of events. The Tanger Center will host everything from symphony classical music performances to rock concerts to lectures to Broadway to family shows and the sound systems must be able to deliver the highest level of performance for all those different types of events." The challenge was handed to the acoustical consultants for the project, Arup of New York, with acoustical design at various stages guided by Matthew Mahon, Christopher Darland and Ed Arenius. Arup's recommendation was to design the hall with relatively dry physical acoustics to accommodate spoken word and amplified music with electroacoustic enhancement added as required for most

other musical events. "The symphony would have preferred a 1,600-seat symphonic concert hall, but Guilford College's Bryan Series and Broadway series were selling double that number," recalled Matt, "so we needed to acoustically accommodate both. That led to a thorough education on electroacoustic technology culminating in the selection of a Constellation system." Also involved early in the process was Cliff Miller, president of SE Systems, eventually selected as the AV systems integrator. Although brought on board primarily to consult on road house requirements, Cliff also helped connect key people in Greensboro to the Meyer Sound team in Berkeley. "To a great extent, the choice of



Constellation was driven by a push from Dmitry Sitkovetsky, the Music Director of the symphony,” recalled Cliff. “He visited Meyer Sound in Berkeley to hear Constellation early on when other systems were still under consideration. He also consulted with other conductors familiar with the technology before tilting strongly toward Constellation.”

Not only did Sitkovetsky hear Constellation in the audience at Meyer Sound’s Pearson Theatre, he also sat in with a string quartet, playing his Stradivarius violin. In addition, he had previously noted the acoustical improvements at Moscow’s Svetlanov Hall following installation of Constellation there. Also traveling to Berkeley to audition Constellation was Tom Phillion, president and CEO of ArtsGreensboro. Cliff Miller, also explained that the level of cooperation between the key participants in the project was considerably higher than usual, something he ascribes to the work his company has done with the city of Greensboro over the

years - that relationship goes back to a sound system they installed in its Coliseum venue in 1996 - and the work SE Systems did with Parsons Electric (now Archkey Technologies) on Charlotte’s Bank of America Stadium in 2014. “Being familiar with each other definitely helped, but so does the fact that we’d have regular Monday and monthly meetings, often with all on site,” he said. “And the fact that everyone, including ARUP, was open to making changes.” Sam Trexler, SE Systems’ project manager for this job, added: “Everyone was willing to look at ideas that went beyond just the conventional ones.” That flexibility helped with the installation of SE Systems first Meyer Sound Labs Constellation electro-acoustical system, especially since the Tanger Center was also the largest Constellation installation in the U.S. to date. While the Meyer Sound system is fully discrete from the house PA system - its main overlap that it shares with the d&b sound system is two of the five systems-core racks located on the venue’s catwalk - its



installation required a high degree of interaction with certain vendors. For instance, Sam explained, the absorptive fabric used on the side walls as acoustical treatment specified by ARUP and installed by a local provider varies in thickness, between two and 12-inches, in different places in the auditorium. Those variances could impact the effectiveness of some of the 226 loudspeakers and 57 microphones embedded in the auditorium's walls and ceiling that are used to alter the room's acoustical response.

"ARUP did the acoustical modelling of the room, and we were working from Meyer Sound's Constellation system design, which they did from the architectural drawings," he said. "We needed to make sure the loudspeakers and microphones were placed consistent with where Meyer said they were supposed to be, but also that somewhere underneath there wasn't an overlap seam in the wall covering."

Cliff added that they needed to have the same level of cooperation and coordination with the drywall contractors, who had to build recessed boxes around approximately 90 of the wall-installed loudspeakers. In other cases, a support beam might be discovered where a loudspeaker was intended to be placed, necessitating the beam's repositioning. "The important thing for the Constellation installation was to keep the loudspeaker and microphone groups' distribution plan intact," he said. Small changes were made to the system design by Meyer Sound technicians on site; for instance, one designer was able to reduce some of the amount of the cabling around the balcony areas by tweaking the conduit routing. Nonetheless, the Constellation





system's wiring still needed more than double the 31,000 ft of Belden and Windy City cabling the design originally called for. "That's not surprising in a building this densely designed," said Sam. "It might take 250 ft to get from point A to point B while on the drawings it says 100 ft."

The pleasant conclusion of the Constellation aspect of the project was that the entire Greensboro Symphony Orchestra was able to set up on stage for a rehearsal that doubled as the final tuning of the system. "That certainly helped Meyer with the tuning process, but it also helped the orchestra get used to working with the new electronic shell over the stage," said Cliff. "That was completely new to them."

The Constellation system as installed by SE Systems comprises a total of 205 small full-range loudspeakers mounted laterally and overhead. Eight different models were deployed, both full-range and subwoofers, all incorporating Meyer Sound's exclusive IntelligentDC for self-powered

systems with simplified cabling requirements. For ambient acoustical sensing, 57 miniature condenser microphones are arrayed throughout the hall, feeding signals to the 18-module D-Mitri digital audio platform. Five of the modules are D-VRAS processors hosting the patented Virtual Room Acoustic System algorithm.

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The Tanger Center schedule for 2021 and beyond features the Greensboro Symphony subscription series highlighting concerts with Kenny G and Sting. Also on tap is the inaugural Broadway season with *Wicked*, *The Lion King*, *Dear Evan Hansen*, *Mean Girls* and *Beautiful – The Carole King Musical*.

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installed, the Greensboro Symphony Orchestra held several rehearsals so the system could be fine-tuned as needed. The Symphony's feedback was extremely positive, and they can't wait to perform in their new home. The acoustical toolset we have in Constellation as applied in a 3,000-seat setting affords economic advantages that I believe will be a model for all future performing arts venues of this type, not just here in the United States, but around the world," summarised Matt. It was a disappointment to the arts community in Greensboro, North Carolina when COVID-19 forced cancellation of grand opening festivities for the new Steven Tanger Center for the Performing Arts only days before the scheduled event. The multi-day celebrations in March 2020 were to include performances by, among others, Josh Groban, Tony Bennett and Jay Leno. A new opening date has not yet been set. [dr](#)