

mondoo

E11EVEN MIAMI

A deep-dive into the state-of-the-art audio, lighting and visual technology at the one-of-a-kind ultraclub.

HOUSES OF WORSHIP

We take a closer look at the innovative uses of technology in churches, synagogues and mosques.

MOVING HEADS

A round-up of the latest lighting fixtures.





© 2021 Darris Lee Harris Photography

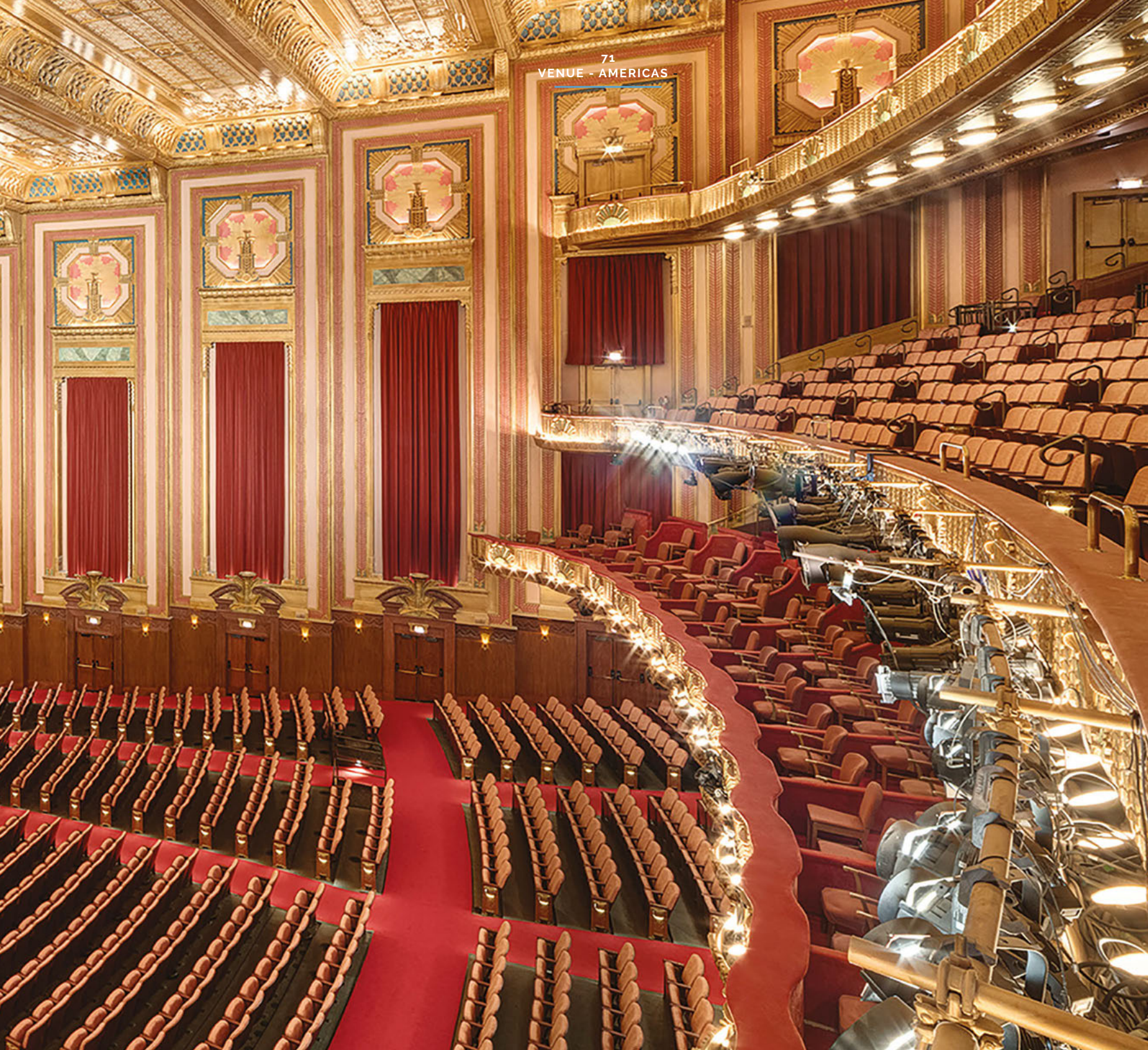
LYRIC OPERA HOUSE



CHICAGO, USA
AMERICAS

The internationally-renowned Lyric Opera of Chicago is one of the world's great opera companies. Founded in 1954, Lyric has a long history of presenting the finest international singers, conductors, directors, and designers. Lyric is still at the forefront of the advancement of opera in America today, continually producing artistic excellence, increasing relevance and reach for both traditional and new audiences, engaging diverse communities through signature learning and exploration initiatives, and expanding as a cultural cornerstone in Chicago.

The Lyric Opera House has been the venue hosting powerful performances that resonate with audiences long after the curtain falls since the company was founded. Built in 1929, complete with a truly breath-taking Art Deco design, the now 3,276-seat auditorium has recently undergone a seating reconfiguration to increase and improve accessibility for the



• Above
Inside the
Lyric Opera
House, built
in 1929

audience, as well as the sightlines to the stage and overall comfort. The aim has been to improve the audience experience, all while maintaining the historic building that has been the jewel of Chicago's cultural and architectural community. Michael Smallwood, Lyric's VP / Technical Director, takes up the story: "We replaced the seats during our last major renovation from 1992 through to 1994, so they were in need of an upgrade. As well as the seating, we had also been looking at the sightlines when it came to the main floor - put simply; there was no staggering whatsoever, with every seat directly behind another. Plus, we had to bring ourselves up to date when it came to accessibility. "We're a non-profit company, of course, but we were able to fund this renovation

thanks to a very generous anonymous donor, who really cared about the project - particularly when it came to making the venue accessible for everyone." To help complete this project, the team at Lyric enlisted the help of leading consultants. Theatre design and planning firm, Schuler Shook, assisted in identifying new seats for the venue; Kirkegaard were brought into as the acoustic engineers to ensure the incredible acoustics of the opera house remained the same; the architects at Goettsch Partners created the new seating design; and Bulley & Andrews were the contractors tasked with the installation. As a company, Schuler Shook is no stranger when it comes to the Lyric Opera House, with its history dating back to 1977 when Duane Schuler began as its resident Lighting Designer. Todd Hensley,

Partner at Schuler Shook, later became Duane's Assistant LD. As Schuler Shook developed a growing consultancy, they were selected as theatre planners for the comprehensive renovation of its venue in the mid 1990s. Now, with the latest seating project, the strong relationship has continued with Lyric and its Chief Operating Officer and Deputy General Director, Drew Landmesser, who brought Schuler Shook on to envision the new seating arrangement in a feasibility study. Todd explained the design process further: "Lyric asked us to develop potential layouts that increased the row-to-row spacing on the main floor, develop improved sightlines by offsetting the rows to create seat stagger - where patrons are not sitting directly behind those in the row in front of them - and to expand the



© 2021 Darris Lee Harris Photography

number of accessible seating locations throughout the hall. Lyric had known the seats themselves needed replacement. Also, The Joffrey Ballet of Chicago is joining the Lyric in residence at the opera house, making it a logical time to address these layout improvements.”

Schuler Shook worked through approximately 30 layout options to develop the maximum comfort, sightlines, accessibility, exiting and seat count for the venue.

“We visited the archives at the Chicago Historical Society to see the Lyric Opera House seats from the 1970s and to confirm the seat’s shape, their end panels, and upholstery. This gave us a good perspective on the items we wanted to reflect from the past,” Todd added.

“During this process, we reviewed the layout options with client stakeholder groups, including Lyric’s box office, marketing, and development departments. We met regularly with the architects and acousticians to discuss improvements to the hall as part of this work, including the relocation of the main floor cross aisle and adjustment of the main floor aisles to provide a more efficient flow of patrons to and from their seats.

“We met with the Lyric’s accessibility consultant, LCM Architects, to review improvements in placement and disbursement of the accessible

seating locations on all levels of the theatre, too. The final layout has over 3,000 fixed seats and up to 25 accessible wheelchair positions.”

Goettsch Partners, the architects responsible for the new seating design, also has a strong relationship with Lyric dating back more than 10 years. Prior projects included the restoration of the office building lobby, including historic ornamental plaster, decorative painting and stone restoration; the two-year project of restoring the cast-iron storefront on four sides of the building; and the historic lighting along the block-long Grand Portico.

Leonard Koroski, FAIA, LEED AP, Principal, of Goettsch Partners said: “Historic theatres are always an honour to work on, but when you can seamlessly increase seating visibility, accessibility, and lighting improvements into the historic fabric, that is exciting.

“Existing conditions in historic theatres can be challenging as built documentation may be limited. The team invested time upfront in design to laser scan and investigate conditions. In construction, with the seating removed, trimble surveys re-checked earlier scanning prior to proceeding with the new slopes, grades and concrete work, along with the updated seating layout.”

When it came to deciding on the seating, no stone was left unturned, as Michael explained: “We had in-depth conversations with four different seating companies. There are hundreds of little decisions that go into finding the perfect seat - and we made sure we found the one that was right for us.”

Todd added: “It began with ‘long sit’ tests of many samples. We encourage our clients to evaluate theatre seats in a lifelike setting, which is by sitting continuously for an hour or more without getting up - this test often distinguishes the winner! Lyric tested chairs from four manufacturers that we recommended, and they were very clear in their choice of Series Seating. “We found the chair’s ‘envelope’ - its front-to-back dimension - useful for maintaining row access and leg space. Its wood detailing is appealing, too, and Series refurbished the existing end standards and added new LED lighting to improve the aisle illumination.”

Michael futhered: “We chose a real state-of-the-art seat design with the Series option. Aesthetically, it works perfectly in the theatre and provides comfort for those coming to watch the productions. We wanted to be as Green as we possibly could throughout the project, too. Series Seating has environmentally-responsible manufacturing at their facility in Bogotá, >



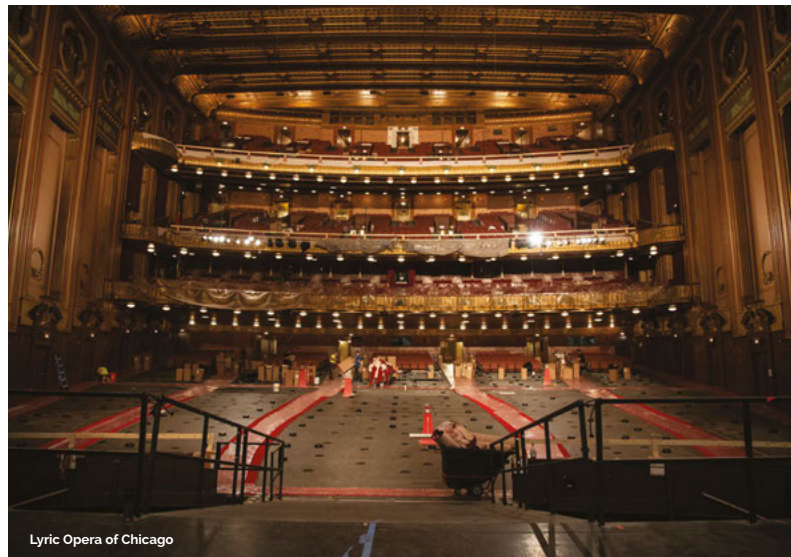
Lyric Opera of Chicago



Lyric Opera of Chicago



Lyric Opera of Chicago



Lyric Opera of Chicago



© 2021 Darris Lee Harris Photography



© 2021 Darris Lee Harris Photography

• Above
The new
seating in
place at the
Lyric Opera
House

Colombia.”

A vital part in the whole process of reconfiguring the seating was ensuring that there were no problems with regards to the acoustics, which is why Kirkegaard Associates were asked to be part of the process. The acousticians are another company with close links to Lyric, with Chief Design Officer, Joseph Myers, a Lyric subscriber and regular patron since 1988. Joseph also played a huge role in the renovation in the early 90s and was joined by his colleague, Polyana Frangetto, who acted as Project Manager for the latest project.

“The brief was like a physician: ‘First, do no harm.’ Lyric wanted to make the seating more comfortable and improve legroom and sightlines, while more gracefully accommodating patrons with mobility issues. This required an extensive reworking of the main floor seating layout and new chairs. Since the new chairs at the new spacing would unavoidably absorb sound at least somewhat differently than the old condition, both when the theatre is occupied and when it is empty, our job was to ensure that the difference did not cause acoustic problems,” said Joseph.

“We were also concerned that the new chairs should not generate noise - no squeaking as people shift their bodies and no loud thump when a patron stands up and the seat bottom swings out of the way.”

To maintain the venue’s signature acoustics, there was, understandably, a lot of focus on the chair - it had to be comfortable, quiet and attractive, all while incorporating the concept of supportive, sculpted padding that was not too thick. Joseph furthered: “There was interest in slightly thicker padding on the back for comfort reasons, which meant each seat was likely to be slightly more absorptive. However, the re-spacing of the chairs on the main floor meant there were fewer chairs covering the same area, which somewhat reduces absorption. We needed to confirm that the increased absorption per chair would not result in an overall increase of absorption in the theatre. “Once a chair that met all the criteria had been selected, we arranged for a group of eight chairs to be tested at Riverbank Laboratories, with and without people sitting in them. We measured the absorption of eight of the existing old chairs, then measured the absorption of eight of the proposed new chairs, and then swapped out some of the preferred new backs with more thinly padded backs. For each of the occupied tests we used the same people, in the same positions, in the same clothing so the comparisons could be as accurate as possible. The new chairs with the thinner backs performed pretty much like the new chairs with the more comfortable backs, so we committed using the more comfortable thicknesses.

“We measured the overall reverberation in the existing (unoccupied) theatre, and then adjusted the values to account for the slightly more absorptive new chairs at the same spacing in the balcony and the more open spacing on the main floor. The effect on the reverberation was very small, with the greatest impact being a more consistent performance at low frequencies.”

When it came to the installation, Bulley & Andrews (B&A) were the ideal choice as they specialise in construction and renovation of performance spaces. Brendan Keane, Project Executive at B&A, revealed how the project started with Lyric: “Three years ago, Lyric engaged B&A to provide pre-construction services for the seat replacement project. Working collaboratively with the design team, we developed a strong cost estimate and preliminary schedule. Lyric subsequently hired CBRE to manage the process, then issued an RFP to several contractors to complete the scope of work. Given our team’s extensive performance space experience and technical expertise, we were able to provide the most cost economical and logistically sound approach to the assignment and were awarded the project.”

With the brief in place, there was plenty to consider when it came to the installation process, as Brendan explained further: “Our main focus for this



© 2021 Darris Lee Harris Photography



© 2021 Darris Lee Harris Photography

project was proper layout and coordination. Given what was to change, every inch mattered. This project reduced the seat count by nearly 300, so it was not a 'like for like' replacement. "We had to coordinate new electrical stub ups at exactly the right location in order to be concealed by the seat end panel. This is a challenging task in a historic, 90-year-old building. Additionally, because of the new row spacing and aisle layout, more than 350 floor return grilles had to be filled or relocated. "Our success on this project was predicated on leveraging the right technology; the best trade partner to perform the contouring work. In this instance, a concrete restoration company experienced similar work requiring sloping and fill operations - and a job site superintendent with significant experience which ensured everything was well-coordinated and came together correctly." Huge renovations such as the one at the Lyric Opera House are complex, requiring the meticulous attention to detail that's been displayed by all the companies involved. However, although it was certainly a successful project, it wasn't without its challenges - not least a global pandemic. "We were originally planning to begin the renovations in June 2020, with everything wrapped up just before the opening night of our 2020/21 season in September. However, once COVID-19 hit properly in spring, it forced us to come up with some alternative plans to continue the project. The main thing was keeping everyone safe and well throughout, though," Michael explained. Brendan added: "Similar to other projects, the pandemic threw a wrench in our initial schedule. Due to forced shutdowns, the manufacturing of the seats was delayed several months. However, the 2020/21 opera season was cancelled, so the

project's end date was able to be extended. "To protect both our workers and the Lyric crew, strict COVID-19 safety measures were implemented during construction. Daily health screenings were performed on every crew member entering the project and socially distancing protocols were strictly enforced." Away from the challenges brought about by COVID-19, there were other areas that required patience, as Joseph revealed: "The whole process ran pretty smoothly and everyone was very cooperative. Perhaps the biggest challenge we came across was coordinating with the mechanical engineers to work out the best approach for returning air through the vents in the floors. "Many of the old vents could no longer be used because the new location of the chairs left the vents in a circulation path. But we didn't want to lose any vents, since that would leave some audience in a more stagnant condition and would increase airflow through the remaining vents, which could generate noise from turbulent airflow. Eventually we worked out a combination of approaches for reusing and replacing vents. There was a colour-coded map of the existing openings that helped us figure out exactly what to do with each one." Schuler Shook also had to overcome some issues with regards to the detailed laser scan of the building. "One of the biggest challenges was that while Lyric had invested in a detailed laser scan of the building, the scan included the seats themselves. Once the existing seats had been removed, Bulley & Andrews was able to update the existing information. They discovered some minor differences between the drawings and the actual built conditions," said Todd. "That resulted in some minor in-process adjustments of row layouts and electrical infrastructure to meld the

new layout with the actual built conditions. "The project is reusing the existing historic aisle panels, but those panels must be refurbished and modified to support the new seats. The timing challenge has been that the existing panels could not be removed until the construction phase began. Once the seating removal began, those panels were sent to the factory to be cleaned, stripped, repainted, and modified to work with the new seats and have the existing aisle lighting replaced and re-wired." With the new seating in place, increased accessibility and improved sightlines, the Lyric Opera House is ready to welcome the audiences back to the venue, as Lyric continues to redefine what it means to experience great opera. The finished project will allow the historic venue to connect with and grow new inclusive audiences, engage with the community, and ignite creativity across Chicago and beyond. Joseph commented: "Lyric Opera of Chicago is one of the world's great opera companies, and the Lyric Opera House is an architectural treasure. We have been honoured to be part of this practical and thoughtful effort to make the theatre an even more accessible, comfortable, and welcoming place to see a performance. We will be back there as soon as there's an opera to see and hear!" Leonard concluded: "Our civic and cultural communities are suffering, and we all hunger for social interaction and the arts. We need to find ways to support the arts and help heal our communities." The Lyric Opera House has gone a long way to enhance how it offers and supports opportunities for communities to celebrate the arts - and is certainly going to be a place of art, creativity and inspiration for years to come. 