

# A New Model Studebaker

By: Mel Lambert



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## A storied Chicago theatre gets a 21st-century upgrade

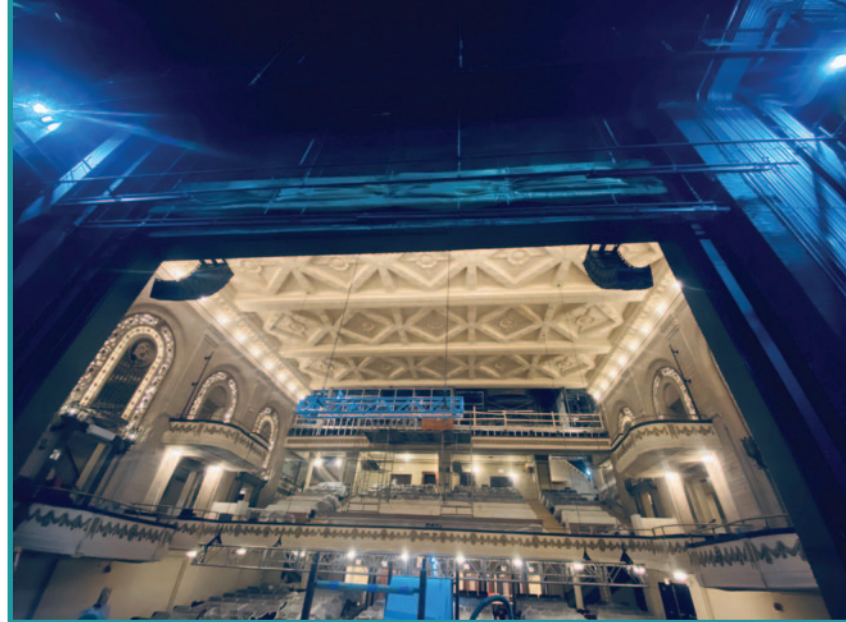
Chicago has a heritage of elegant performance venues, ranging from the very modern Salt Shed (*LSA*, December 2023) to the Studebaker Theater, a 125-year-old landmark within the city's down-

town Fine Arts Building on Michigan Avenue. Founded by Clement Studebaker to produce wagons, buggies, carriages, and harnesses, the company began manufacturing electric and gasoline cars after the turn of

the 20th century. Facing severe financial challenges, automobile production ceased in 1966.

The company's first showroom was in the Chicago Loop region, within a multi-story Romanesque building





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façade designed in 1885 by Solon Spencer Beman and extensively remodeled in 1898. The Studebaker sales and service showroom also handled manufacturing on the upper floors. In addition to the Studebaker Theater, located across three floors, the renamed Fine Arts Building now houses artists' lofts; art galleries; theatre, dance, and recording studios; instrument makers; and other businesses associated with the arts, together with offices for Chicago Youth Symphony Orchestras, Jazz Institute of Chicago, and the Chicago International Puppet Theater Festival.

The Studebaker Theater was dedicated in 1898; in 1917, it underwent its first major renovation under the direction of architect Andrew Rebori, retaining the original ceiling. Paul Whiteman and His Orchestra gave its first public performance of Ferde Grofé's *Grand Canyon Suite* at the venue in late 1931; it also hosted some of the earliest live TV shows, including DuMont Television Network's *Cavalcade of Stars* and *Hawkins Falls*, *Population 6200*, a popular soap opera broadcast live in the 1950s. Running continuously as a live-performance theatre until 1982, the Studebaker was then partitioned into a multiplex cinema; a 2015 renovation returned it to a live-performance theatre with an audience capacity of 740, including a covered orchestra pit measuring 24' wide by 7'

tall, designed to accommodate approximately 15-25 musicians, depending on instrumentation.

### The renovation plan

The current multimillion-dollar restoration and renewal began in mid-2021 under the Berger Realty Group, updated many technical capacities for the venue, including a reshaped balcony and seating areas in a new VIP lounge located on the third floor; it formally reopened in May 2022. "Our latest project was triggered by a generational change of ownership," recalls Jacob Harvey, the Fine Arts

Building's managing artistic director. "Erica Berger took over running of Berger Realty [following the death of her father, Bob, in 2015], with a clear vision of how she wanted the venue to provide enhanced capabilities." Top of mind, Harvey reports, was a performance space that could serve as a permanent home for National Public Radio's Peabody Award-winning comedy news quiz show, *Wait, Wait...Don't Tell Me!*, which left its long-time home at the nearby Chase Auditorium to take up permanent residence at The Studebaker; the first live taping there by WBEZ Chicago



A full house in 1910, around the time Sarah Bernhardt appeared at the Studebaker in her signature roles of Camille, Phedre, and Jeanne D'Arc.

Top, both photos: Mercer-Aplin/Threshold Associates; Bottom photo: Book of the Fine Arts Building



occurred on June 16, 2022.

*Wait, Wait* show host Peter Sagal leads a rotating panel of comedians, writers, listener contestants, and celebrity guests through a review of the past week's news. Contestants vie for what has been described as the most coveted prize in public radio: a custom-recorded greeting by any of the cast members for a voicemail.

Key participants in the privately funded renovation project included theatrical consultant Schuler Shook: “[principal] Josh Grossman and I worked together closely on a study for the Fine Arts Building, along with other spaces for arts organizations,” Harvey says. Schuler Shook’s consultant team also included Angie McMahon. John Strong and Mercer Aplin, of Threshold Acoustics, oversaw acoustical upgrades and the selection of new AV equipment, with Strong focusing on acoustics and Aplin on system components. The architect of record was Hammersley Architecture, whose on-site team included Brian Hammersley and Lisa Wronski. Drucker Zajdel Associates handled major structural changes, with Calor Design Group

coordinating electrical engineering. Audience seating was supplied by Grand Rapids-based Irwin seating; new rigging was manufactured and installed by The Chicago Flyhouse. Nathan Knapke is the Fine Arts Building’s technical director.

The venue marked its 125th anniversary with a public celebration in mid-October 2023, during which Mayor Brandon Johnson declared October 13 as Fine Arts Building Day in Chicago “in recognition of [this] milestone” and to “encourage all residents to support this historic landmark.”

### Control rooms

Grossman says the renovation’s scope involved several complementary processes. “Our primary focus was to make necessary updates so the theatre could become the new home for *Wait, Wait...Don’t Tell Me!*,” he says. “This involved revising the upper balcony to create a broadcast booth and VIP lounge, as well as upgrading the AV systems.” Separate sound and lighting booths were specified for the resculpted second balcony. “We also

improved accessibility and audience comfort,” Grossman adds. “This involved replacing the seating, re-raking the balcony, and making minor modifications to the seating layout on the main floor. Our new seat count is about 615.” Improved audience amenities include the addition of new bars and some toilet upgrades. “We also created front-of-house rigging positions, which included putting in ceiling penetrations with new structural and electrical accommodations above the auditorium ceiling, plus the installation of new house-lighting trusses, speaker trusses, and a projector truss.”

“Conveniently, we have an office within the Fine Arts Building,” says Brian Hammersley, principal at Hammersley Architecture. Having consulted with its owner over several years, he adds, “We secured programming ideas from everybody involved, to accurately determine the other applications the theatre would be used for. We remained open to ideas from virtually anyone, while obviously working closely with Erica Berger and Jacob Harvey. Reviewing the key programming requirements, we decided that we could do a lot with the current space. The remodeled first balcony was a challenge but, with input from Schuler Shook and Threshold Acoustics, we were able to develop a viable solution. We were aiming to design a high-performance space for whoever wanted to stage an event here, ensuring a technically sound environment while looking after NPR’s exacting broadcast needs. We were especially fortunate to have such a great team working cooperatively on the project.” The Hammersley Architecture team also included Lisa Wronski and Anton Tonchev.

The existing dead-hung stage rigging system was replaced and the gridiron was reinforced. “A new motorized rigging system was installed with all-new stage curtains,” Grossman adds. (The new curtain was sewn by Rose Brand and provided by The



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Chicago Flyhouse.) "Finally, we renovated the existing dressing rooms."

According to Aplin, "When we began work, the design intent was small: Update the auditorium enough to be a viable production location for *Wait, Wait...Don't Tell Me!*" Work kicked off in April 2020, during the beginning of the global pandemic. But, by 2021, the facility's owner, with Jacob Harvey, recognized that, if the venue was properly outfitted, it could also serve the needs of opera, new musicals, jazz, and small concerts. With that new directive, a better understanding of *WWDTM's* needs, and based on their requirements as a touring venue, Threshold "collaborated extensively with OSA Integrated Systems"—the event production company/AV systems integration firm—"to upgrade electrical services, pull new AV,

conduit, and generally help with the significant infrastructure needed to make The Studebaker an amplified-friendly house for all types of performances."

The lower production booth accommodates five technicians who handle AV throughout the facility, while the upper production booth provides space for three technicians overseeing lighting control. Tie lines, network and video connections, and power sources link to various sources and destinations. The booths share the same physical space, with the upper booth overlooking the lower one. Adjacent is NPR's custom control room, used to produce and mix the weekly quiz show.

With the opening of the new musical *Skates* scheduled for May 2022, the renovation team now had a hard deadline. "Because of the pandemic and

supply shortages, our equipment decisions were made based on what was available and what could be installed in time," Aplin says. "Working closely with OSA Integrated Systems allowed us to gut-check cost estimates and, as OSA were themselves dealers for key manufacturers, secure accurate estimates of lead time for items and availability. This planning allowed the whole team to make better decisions. Load-in was underway in March 2022, in preparation for opening."

"To cover as many bases as possible, we had to issue purchase orders to several competitors," confirms Brandon Gardner, who headed up the team from OSA Integrated Systems and now works with Professional Audio Designs. "Whoever could deliver first and on time got the contract. We



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couldn't have made the tight deadlines any other way."

In terms of sound treatments, Strong says, "The auditorium was in pretty good shape. It had a one-second RT60 [at frequencies of interest] with controlled reflections off the side walls and ceiling. Since we were targeting a multi-use environment—the NPR show and musical performances, plus drama and opera—we concluded that the space was moderately lively yet friendly sounding. There were no monolithic reflective surfaces, including the coffered ceiling with surface indentations."

### The house sound rig

The proscenium is 37.75' wide and 25.25' tall, 45.6' from the new Austrian main curtain to the back wall; the height to the dead-hung pipes is 30'. Because, by design, the theatre lacks a full-height fly tower, the option to fly full backdrops is limited. Large building support trusses run through the fly tower, affecting the movements of line sets three and 14. Dead-hung soft goods, including traveler curtains and masking legs, are attached to the grid and do not fly; they can only be removed with a lift. Line set three is the first electric, 5' from the stage edge and dead hung at 35'; line set eight is the second electric 12' from the stage edge; line set 12 is the third electric, 18.5' from the stage edge; finally, line set 16 is the fourth electric, 25' from stage edge.

"We prepared a report for Erica [Berger] and Jacob Harvey, who provided a clear vision for the space," adds Aplin. "Because of time crunches and a very fast build schedule with help from OSA Integrated Systems, we were able to separate the design and installation stages."

The main PA system is dead-hung from the proscenium arch and comprises a left and right hang of eight L-Acoustics KARA II long-throw cabinets arrayed on a custom-designed loudspeaker trapeze "similar to a Polar Focus PY1-ZBMF-20-1550



Proscenium-arch lighting was upgraded to include LED retrofits. "Eventually, we are exploring moving away from arc lamps and conventional sources in both our architectural and theatrical lighting," Knapke says.

Multifunction Zbeam," Aplin says. The center array comprises eight L-Acoustics KIVA II long-throw cabinets also suspended from the sound-system truss. Main subwoofers, suspended on either side of the central array, comprise four L-Acoustics KS21 cabinets hung from the truss in two cardioid arrays. The side-gallery fill loudspeakers comprise up to four L-

Acoustics X8 passive cabinets mounted to the wall. VIP lounge systems consist of two L-Acoustics X8 passive cabinets attached to the ceiling with horizontal yoke brackets; additional X8 passive cabinets on similar yokes provide balcony and under-balcony fills. L-Acoustics 5XT passive cabinets to handle front and balcony fills. The left, center, and right arrays are powered

Photos: Mike Pickett



The automated rigging system comprises the proprietary Flyhouse Ease controls and winches developed and supplied by The Chicago Flyhouse, with variable-speed, cue-based operation; load cells; and slack line detection.

by L-Acoustics LA4X controller/amplifiers, with other passive cabinets being driven by additional rack-mounted power amps.

A 16:10-aspect-ratio, lace-and-grommet projection screen with a 20' diagonal—10' high by 17' wide—is suspended from a utility batten for videos of audience Zoom calls during the quiz show. A dedicated Panasonic PT-RZ21 presentation projector is attached to the balcony rail. A Panasonic AW-UE70 unit, mounted beneath the balcony, serves as a center-balcony camera capable of ultra-low light operations.

“We selected L-Acoustics loudspeakers, processing, and amplification because of the company’s excellent engineering reputation,” Aplin continues, “and also because, from personal experience, we like the way they sound in this type of performance environment.” Technical staff from L-Acoustics were brought in for the final system tuning, Aplin recalls, using the firm’s M1-P1 measurement and tuning. “The result sounds excellent throughout the Studebaker auditorium, with very good intelligibility.”

Front-of-house mixing is handled from a choice of two locations within the audience seating area by a DiGiCo Quantum 225 digital console connected to audio distribution and stage racks. The console accommodates 72 input channels, 36 aux/subgroup busses, an LR/LCR master bus, and a 12-in/12-out matrix. AES-format digital signals connect directly via a QSC Audio Q-Sys network that manages routing to the system’s power amplifiers through a matrix mixer, allowing the PA to be configured in various configurations, ranging from stereo and stereo plus subs to stereo with subs and fills, plus others. Sixty-four Dante-format digital input channels are featured plus 64 output channels via a DMI-DANTE64@96 expansion card. An Apple Mac Studio PC at the front of house runs QLab 4 software for programming audio and video cues; it connects directly to the DiGiCo console via UB-MADI ports.

A wireless microphone system features two channels of Sennheiser EW-D SKM-S handheld and EW-D SK body-pack wireless transmitters, which can be expanded at extra cost to 20 channels available from the theatre’s inventory. Wired microphones include Shure SM58s, SM57s, BETA 98 Hs, KSM44As, KSM137s, KSM8s, BETA 52As, and SM7Bs together with Neumann KM 184 and Earthworks DM20s and SE 25s. A Clear-Com production intercom system, featuring four wired party lines has been installed throughout the theatre, with eight BP50-X4 wireless and eight CC-300-X4 wired stations. In addition, the Studebaker incorporates a Clear-Com FreeSpeak Edge wireless comms system that can be configured with multiple party lines according to production requirements. Free-range cable runs can also be accommodated via patch bays for network, audio, video, and fiber cabling.

The double-glazed windows, added in front of the production control rooms for sound isolation, presented their

own challenges. “We angled the glass backward away from the audience, relying on the ceiling to absorb any unwanted sound scatter,” Strong explains. The stage-left and -right chorus, plus five private dressing rooms, feature AV feeds controlled by tech staff plus stage management paging.

A four-camera pan-tilt-zoom (PTZ) video system with individual camera control and live switching uses a Blackmagic ATEM 1 M/E production switcher for archival recordings, live streaming, and corporate events. Recording/streaming options include a Blackmagic HyperDeck Studio 4K Pro system, while livestreaming is handled through a Blackmagic Web Presenter 4K. A Sharp confidence video monitor, installed on the balcony face, comprising a single 65" display, can receive video feeds from a conductor camera or any other required source.

The project team from OSA Integrated Systems comprised Brandon Gardner as director, Greg Bentz as on-site project manager, John Sinshack as systems engineer, Lisa Ruggiero overseeing operations, and Angelo Ponzetti as lead installation technician.

### The lighting package

The production lighting system was upgraded as per the Studebaker’s in-house technical crew, with Schuler Shook and Threshold specifying additional power infrastructure.

According to Nathan Knapke, the venue’s technical director, “We have two Lex Products PowerGate 200A company switches located at stage level for onstage electrics. Currently, one 200A switch is dedicated to the rep plot while the other serves outside tours and events with their own power distributions. Additionally, a Lex PowerGate 100A switch, situated in the attic space above the house, accommodates the two house trusses. To distribute power to lighting fixtures, we use a pair of Lex Viceroy 200A distros that feed Socapex to L6-30 twist-lock connectors. To minimize amp draw and allow us more fixtures per circuit, our rep plot primarily operates at 208V.” Isolated-ground 120V Edison and three-phase L21-30 outlets were strategically placed throughout the theatre to accommodate audio-related requirements.

The automated rigging system comprises the proprietary Flyhouse Ease controls and winches developed and supplied by The Chicago Flyhouse, with variable-speed, cue-based operation; load cells; and slack line detection. The multi-axis control system provides a fully programmable motion controller capable of operating overhead rigging, stage machinery, etc. from the same interface with touch screen and joystick controls.

The house lighting topology “was selected primarily for its flexibility,” Knapke continues, “as well as the use of Socapex and breakouts for power distribution. The theatre is equipped with a rep plot and infrastructure designed to assist clients who do not bring extensive gear. However, we also have the flexibility to rearrange and accommodate any



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gear on any line set or position as required by a show. Maintaining a modular lighting infrastructure enables us to customize our approach for shows with lighting requirements that differ from our standard configuration.”

The lighting inventory comprises an ETC Ion Xe controller with 12K output, connecting to 37 ETC Source Four Lustrs and 12 ETC ColorSource PARs, plus eight ETC automated ColorSource CYC fixtures, 11 Martin MAC Viper Performance automated fixtures, with 18 CHAUVET Professional Rogue R2 Wash units. Optics include ETC 26° and 10° lenses, plus ETC medium and wide ovals. Lighting system control is built on an Art-Net protocol, distributed via Cat-6 and network switches using two network nodes—a 12-port Luminex LumiNode 12 and a quartet of four-port Elation NETRON EN4 units—that output five-pin DMX signals to the fixtures via a DMX patch panel is located on the third-story jump.

Architectural lighting within the venue is controlled by a Strand/Vari-Lite A21 dimmer rack connecting to standard E26 socketed LEDs and conventional sources. Options include touch Vision.net panels and control directly from the lighting console. Proscenium-arch lighting was upgraded to include LED retrofits. “Eventually, we are exploring moving away from arc lamps and conventional sources in both our architectural and theatrical lighting,” Knapke adds. The Strand system was supplied and installed by Chicago-based Grand Stage Company.

According to Spence Benedict, from Irwin Seating, the auditorium was reformatted to accommodate between 600 and 650 seats, dependent upon box occupancy and upper-balcony usage. Schuler Shook planned a new seating layout with “orchestra seating at 381 with six wheelchair-accessible seats,” Benedict explains. The first balcony behind the orchestral seating features 218 seats, including five wheelchair-accessible seats. Box seat-



A new VIP lounge is located on the third floor.

ing along the sides of the auditorium offers around 30 fixed or freestanding seats—some with restricted sight lines—while the upper balcony features an estimated 20 seats.

“When the theatre first opened 125 years ago, audience expectations relative to comfort were different,” Benedict stresses. “Nowadays, guests expect wider seats and more legroom for added comfort. Additionally, we supplied multiple chair sizes between 19” and 23” wide, with a centerline stagger for improved sight lines. One of Irwin’s specialties is supplying replica chairs for historical theatres. For the Studebaker, we liaised with a Canadian mill, J. B. Martin, to supply a synthetic plush fabric, which looks like the originally used wool-mohair.”

### Conclusion

“The greatest creative challenge we faced during the Studebaker Theater renovation,” says Berger, “was realizing that we had to build what was essentially a new, high-tech, and modernized theatre within a 120-plus-year-old theatre. I remember going to the third floor—the second balcony—when it was a terrifying storage space that hadn’t functionally been touched in decades, if not 100 years. But now, that’s our state-of-the-art booth and VIP space designed by a dear friend, [interior designer] Rae Rockwell, and

our architect—and fellow Fine Arts Building tenant—Brian Hammersley.

“This project was, first and foremost, about creating a great place for art to happen but also to ensure the Fine Arts Building maintains its place in Chicago’s cultural fabric. I’m proud to steward the next chapter of this theatre and building, which I know to be deeply alchemical and more than a bit magical. It was not easy, but I’m grateful, and hope others see the value in continuing to invest in historically relevant physical spaces to honor the past, present, and future.”

Finally, one of Threshold Acoustics’ founding partners, Carl Giegold, saw the rock band Talking Heads perform in 1983 at the Studebaker Theater. “Threshold has very deep roots to work on the revitalized venue!” he concludes.

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