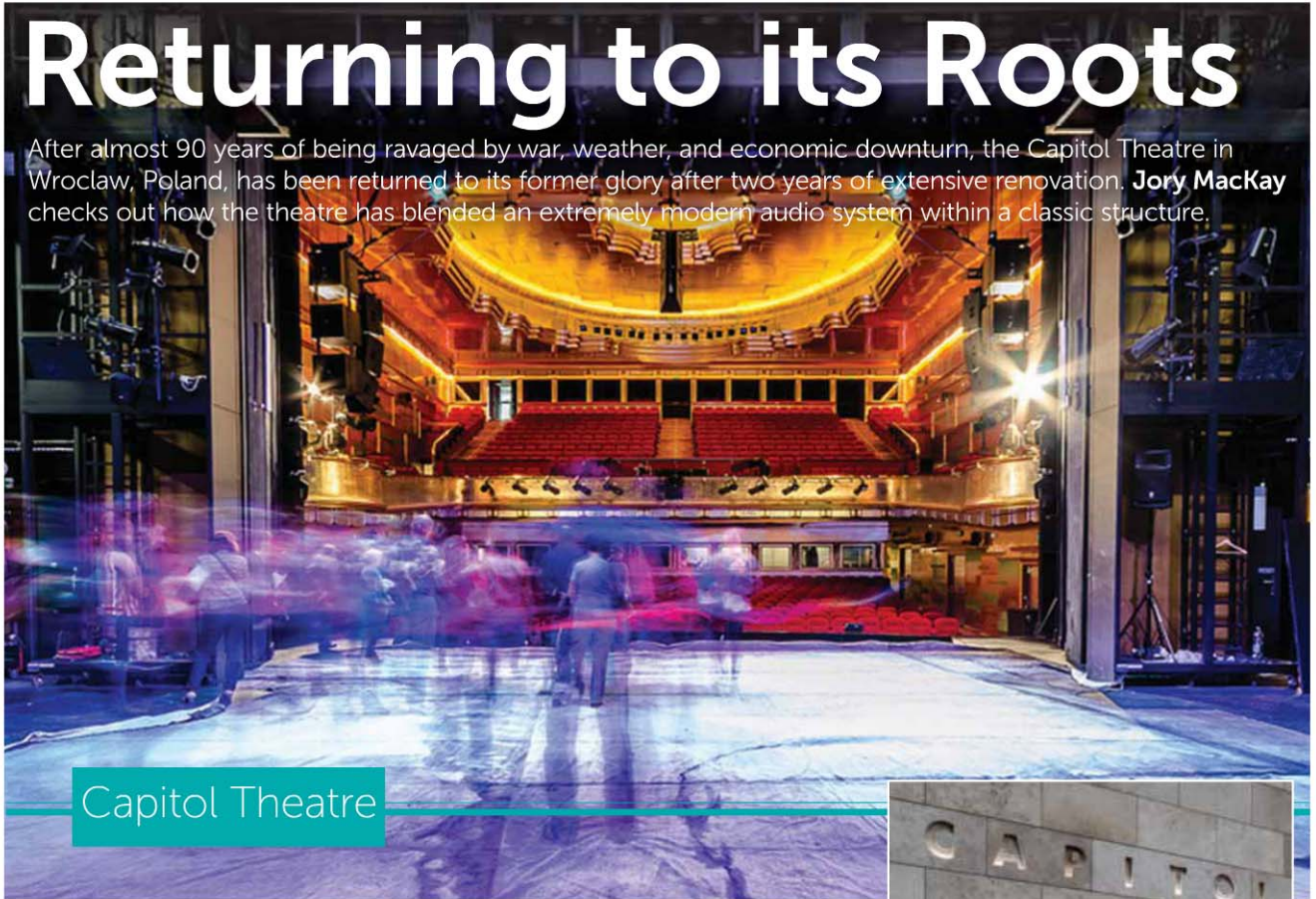# Returning to its Roots

After almost 90 years of being ravaged by war, weather, and economic downturn, the Capitol Theatre in Wroclaw, Poland, has been returned to its former glory after two years of extensive renovation. **Jory MacKay** checks out how the theatre has blended an extremely modern audio system within a classic structure.

Capitol Theatre

SITUATED IN Wroclaw, the largest city in Western Poland, the Capitol Theatre (or Teatr Capitol in Polish) has survived everything from war to neglect and now stands as a story of cultural resolve.

Originally opened in 1929 and consisting of a façade housing a hall with apartments on the upper floors, a main auditorium, and an administrative building with warehouse, the building was partially destroyed by attacks on the city during WWII.

A decade later the theatre re-emerged, fashioned in the angular architectural style of Poland's post-war Communist regime. A series of management changes ensued before a failed reconstruction in the mid-'70s led to the theatre falling into disrepair. When a major flood destroyed a significant portion of the building in 1997, it seemed to ring the death knell for Capitol.

NEW BEGINNINGS

Thanks to funding from a major EU grant, the venue has recently reopened following a two-year, multi-million zloty rebuild. Restored with incredible diligence and respect for its past incarnations, the new Capitol Theatre is now more than four times larger with a total area of 18,000sqm.

In line with the theatre's mission to combine new and innovative musical theatre without turning away from established tradition, the construction of the 'new' Capitol Theatre is a perfect blend of state-of-the-art technical infrastructure and classic design.

"Our goal was to build a modern, all-purpose comprehensive sound system for multiple stages as well as upgrading the acoustics of the main concert room," comments Capitol Theatre's sound engineer and technical chief Artur Poplawski.

The venue now features a large performance hall, secondary auditorium, a recording studio, and rehearsal rooms for orchestra, ballet, choir, and actors, all of which, for the most part, are connected by an intricate Dante network allowing the technical staff to quickly and easily move audio around the building.

"We wanted to have the option to take signals from the main stage, or the secondary stage, or the orchestra room, to the studio for recording," continues Poplawski.

The audio system was designed by Firma Producencka Gorycki & Sznyterman and implemented by system integrator M. Ostrowski. While the origin vision was for a different system, the timeframe from inception to implementation allowed the designers to explore other options.

"One of the goals was a universal system of signal transmission with digital transmission that covers the entire building – a system that is easy to use and configure," comments sound engineer Lukasz Marciniak who, along with a large team from systems integrator M. Ostrowski, were responsible for the install.

Marciniak explains that the choice of Dante came from its versatility and flexibility. Using, among other things, eight Cisco switches placed in different locations, the theatre is dense with fibre cables, shortening the typical 'copper path' of signals and allowing the entire building to be tied into one large network: "By default the network is configured in such a way that each of the rooms is a separate audio network with the possiblity of patching/combining these signals into one global network."

The end result is that all signals can be taken from any location in the building (after crossing appropriate subnets) using Dante, Yamaha converters, and Focusrite's RedNet interfaces.

"A strong emphasis was placed on using the least amount of A-D/D-A conversion as possible and the signals are transmitted directly from the Dante system to the amplifiers in AES/EBU format," explains Marciniak.

Another goal of the design was to maintain the familiar workflows of the technical staff while maximising the use of kit they already own (Capitol was one of the first digital audio console users in Poland with the adoption of the Yamaha DM2000). The new system now features Yamaha CL series desks and R-series I/O racks with embedded Dante in both the main and secondary halls.

RED-Y FOR ACTION

While the Yamaha kit is used to move audio around within the concert halls a major part of the theatre's networked audio infrastructure is taken care of by Focusrite's RedNet audio interfaces and converters.

Supplied by Focurite's Polish distributor Audiotech, the Capitol Theatre features 14 RedNet units in total with one RedNet 1 eight-channel AD/DA I/O and two RedNet 3 32-channel digital I/O installed in each of the rehearsal rooms.

"The RedNet system completes the network that is mainly based on Yamaha products with signals from the Yamaha AD8HR preamps that were already owned by the theatre being transferred to RedNet3, while linear signals are transmitted to the RedNet 1 and 2," explains Marciniak.

While the system is still quite new and the technical team is still experimenting with it, the potential is that users can register any performances or rehearsals for training purposes from any room in the building.

All signals are sent to a PC running Steinberg Nuendo 6.0 and installed with a RedNet PCIe card in the small recording studio, which, according to Poplawski, has seen significant use since the theatre's opening, recording performances for archival purposes. The studio is also equipped with Avalon Design 737SP channel strips, Universal Audio 4-710D preamps, and additional Yamaha AD8HRs.

For further future-proofing and to ensure that the theatre is ready for upcoming broadcasts of its performances, they have also opted to install two RedNet 6 64-channel MADI bridges in the main auditorium giving them access to 128 channels of bidirectional MADI channels at standard sample rates (44.1/48kHz), or 64 channels at 96kHz.

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CREATING AN IMMERSIVE ATMOSPHERE

Architecture, networks, and studios aside, a theatre truly shines when the technology becomes transparent and the audience can become immersed within the performance.

Picture by Lukasz Giza

Electro-acoustic specialist M. Ostrowski was commissioned to install Capitol Theatre's auditorium sound systems and knowing that it wanted to utilise the Dante network, and with a long-standing history with Yamaha, the company opted to fit both the main and secondary auditoriums with consoles from the company.

In the main auditorium, two Yamaha CL3 digital consoles sit at FOH with a CL5 at the monitor position and six R-series I/O units. The smaller auditorium features a Yamaha M7CL-48 digital console fitted with the MY16-AUD Dante interface card and two further R-series I/O units.

"The theatre started using Yamaha equipment when the 02R console was introduced and subsequently used DM2000s," says Pawel Zachanowicz, application engineer for Yamaha Music Europe, who consulted with the theatre during the build. "The technical staff know Yamaha equipment very well and trust its stability and reliability."

The official opening of the theatre this past September saw the release of a stage adaptation of Mikhail Bulgakov's classic novel *The Master and Margarita*, which has received great reviews despite hickups during rehearsals.

"There were several problems with room acoustics, the wireless system, and the PA system – all the new stuff, so it's normal," says Artur Poplawski. "We are learning all the time and in the end, the performances were great."

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