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CASE STUDY - HOSPITALITY | QUERÉTARO METROPOLITAN CENTER





## BRINGING A NEW ERA OF EVENTS AND PERFORMANCES TO QUERÉTARO

The Querétaro Metropolitan Theater & Convention Center is located two hours outside of Mexico City in the city of Querétaro, Mexico. It's a space for the community, private companies and more to gather and engage in exciting events and dynamic performances – but it needed new capabilities to match.

In 2018, the Querétaro Metropolitan Theater & Convention Center technical and operations team began a project to renew and improve their general audio system with the intention of strengthening its audiovisual experience to attract more dynamic, high-level artistic performances and private events from companies throughout the region.

The project included the three key areas of the theater: the Main Hall, which is ideal for a variety of events, such as concerts, operas, musicals and plays; the versatile Experimental Hall, which is perfect for events that require a more intimate atmosphere with the audience; and the Dance Hall, which was designed specifically for theater, dance and body expressive performances.

“Renewing the audio solution was a necessary step to put the Querétaro Metropolitan Theater at the forefront and attract new customers and performers,” said Héctor Quintero Martínez, head of operations at the Querétaro Metropolitan Theater and Convention Center.

## DELIVERING THE PERFECT COMBINATION OF AUDIO POWER, INTELLIGIBILITY AND COVERAGE

AV solutions integration company Ponle Audio presented an in-depth proposal led by company director Iván Romero. The design centered around upgrading the sound intelligibility and overall coverage and quality within each of the halls. Given the variety of space sizes — and variety of uses of each — the audio solution needed to provide the ideal audio for a variety of performance types.

The goal of the audio system is to deliver exceptional performance through the combination of power, intelligibility and coverage capacity.

One of the biggest challenges was to achieve optimal coverage in the balconies of the upper levels of the Main Hall. With the original line array system, the only way to deliver audio to the balconies was to increase the volume, which was counterproductive, since the volume causes the audio to become distorted in the lower seating areas.

A key goal for the Experimental Hall was to deliver a sound system with the flexibility to adapt to the multiple cultural activities and artistic presentations for which this venue is used. This capability created a better experience for guests and positioned the venue in a more attractive light for new clients interested in using the space.



“For audio, our priorities were coverage and intelligibility,” said Joel Ramírez, audio engineer and production supervisor at the Querétaro Metropolitan Theater. “We are cautious about the sound pressure level, so we were not looking for equipment that was loud enough. We wanted absolute clarity and intelligibility. And that’s what the ShowMatch system delivered.”

## SHOWMATCH STEPS UP TO THE MULTI-SPACE CHALLENGE

For the Main Hall’s system, Ponle Audio selected the Bose Professional ShowMatch DeltaQ line array loudspeaker technology as the backbone of the system. The performance and versatility offered by the RoomMatch Utility loudspeakers was truly showcased, particularly in being powered by the PowerMatch PM8500 power amplifiers and the ControlSpace EX-1285C processors.

The solution consisted of installing a line array system with 14 ShowMatch modules — a combination of SM5, SM10 and SM20 — plus six SMS118 subwoofers on each side of the stage in addition to a central cluster with eight more ShowMatch SM5, SM10 and SM20 modules. The bass was complemented by a cardioid arrangement of two SMS118 subwoofers per side in infra configuration (below 40 Hz) and a front-fill with four SM20 modules to cover the front lower part of the space. Four additional ShowMatch SM5, SM10 and SM20 modules and an SMS118 subwoofer were installed on each side of the stage to create a side fill that delivered the accurate level of sound within the stage area. Ponle Audio made customized brackets to anchor the stack arrangement of the six side subwoofers to the wall to ensure the intense sound pressure did not mechanically interfere with the loudspeaker functionality.

To overcome the challenge of consistent coverage represented by the third level of balconies, Ponle Audio

installed a system hanging from the catwalk structure in the upper level of the theater. ShowMatch loudspeakers were arranged in a 1 + 2 + 2 + 2 + 1 configuration, with a total of eight modules that remain hidden from the audience view thanks to a porous gray mesh cover, which also provided the additional aesthetic element giving texture to the venue ceiling. To ensure a rich audio experience in the theater’s more removed lateral seating and in the third-floor balcony area, a series of RoomMatch loudspeakers were strategically integrated throughout the spaces.

The Experimental Hall has an area of 1,066 square feet and more than 300 retractable seats, so Ponle Audio modified the original location of the loudspeakers and designed a solution focused on improving intelligibility and achieving sound coverage for the entire room. The system includes a series of RoomMatch RMU206 loudspeakers, two on each side, plus a balcony area with six RMU105 loudspeakers and six MB210 subwoofers. The side fill consisted of two RoomMatch loudspeakers, installed one on each side, with two additional loudspeakers placed within the audio booth. The combination of the RoomMatch loudspeakers and subwoofers created a cohesive solution supporting superior voice and music audio.

The system is powered by four PowerMatch PM8500 power amplifiers with Dante network cards, a ControlSpace EX-1280C processor, a digital console, a touchscreen panel and a complete system of wireless microphones.

With this new audio system, the Experimental Hall is ready to meet the demands of the orchestras that use it as a rehearsal room, as well as plays, musical concerts, television shows and even corporate events.

The Dance Hall is a more intimate, 583-square-foot space used for rehearsals and warm-up sessions for dancers who perform in the Main Hall. A pair of Bose L1 Model II portable



line array systems are ready to provide audio whenever needed. These loudspeakers are portable, intuitive and easy to use, so dance artists or instructors operate them without the need of a technician.

The Convention Center, located in front of the Querétaro Metropolitan Theater, offers ample and functional space for trade shows, conferences and meetings. With 10 versatile event rooms — two on the second floor and eight on the third floor — each can be used individually or merged, transforming into a large space to receive hundreds of guests.

The 10 rooms are equipped with a Panaray MA12 loudspeaker and a Panaray MB4 subwoofer, all connected to a Dante network. The system enables listening to an audio source in each individual space or across all of them at the same time.

“When we switched to the Bose Professional system, the results were immediately noticeable and significantly improved.”

— Joel Ramírez  
Audio Engineer and Production Supervisor

## QUERÉTARO METROPOLITAN CENTER & CONVENTION CENTER READY FOR YEARS OF UNIQUE, EXCITING EVENTS

No matter which hall a performance is held in, the audience is now ready for an audio experience that ensures each performance delivers its fullest impact.

“We have a more balanced sound experience, and a much more neutral response supports the balance. But we were impressed by two things: the intelligibility and total coverage of the venue. We get a sound with outstanding clarity, so equalization in the room is minimal.”

These results have greater affects than just the improved technical aspect. According to Quintero, “the sound and lighting infrastructure put us at the forefront in the Centro-Bajío region. The sound quality improved substantially, and these feelings are shared from producers to entrepreneurs. It is a renewed tool that helps us to attract more and better events.”

In the development of the ambitious project, Romero and his team worked closely with the group of Bose Professional specialists, who worked closely with Ponle Audio technicians and the staff of the Querétaro Metropolitan Theater.

“We shared all the information, the coverage and response maps of the system,” Romero said. “The Bose Professional team responded with many recommendations, including some changes that we made to the presets of the ShowMatch boxes for the lateral and central line arrangements, which was decisive in achieving the sound success in this venue.” ■



## SYSTEM COMPONENTS

**Panaray MA12 modular columnar array** loudspeaker

**Panaray MB4 modular bass** loudspeaker

**L1 Model II** portable system

**ShowMatch SM5 DeltaQ Array** loudspeaker

**ShowMatch SM10 DeltaQ Array** loudspeaker

**ShowMatch SM20 DeltaQ Array** loudspeaker

**ShowMatch SMS118** subwoofer

**ControlSpace EX-1280C** digital signal processor

**PowerMatch PM8500** power amplifier

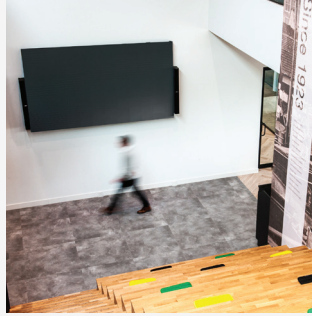
### **Panaray MA12**

Allows stacking of multiple enclosures in a line array configuration to provide increased vertical pattern control which improves “throw” distance and reduces unwanted floor/ceiling reflections.



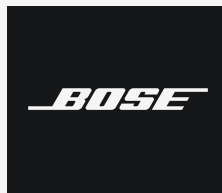
### PARTNER: **Ponle Audio**

Ponle Audio is a team of audio professionals dedicated to delivering the best audio solution our clients need. We strive to provide the best audio designs and we're committed to growing our expertise through continued training and education. This enables us to know what's possible and realize our customers' visions.



Bose Professional serves many different markets, delivering great sound in venues all around the world — performing arts centers, theaters, places of worship, stadiums, restaurants, schools, retail stores, hotels, and corporate buildings.

We know that our pro audio customers depend on us in a unique way. This is your business, your reputation, your livelihood — not just an amp, not just a loudspeaker. So, when you buy a Bose Professional product, you get the full weight of the global Bose Professional team behind you — our time, support, and attention. We see every purchase as the beginning of a partnership.



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