

Case Study: The Music Mill Concert Hall



Auralex Acoustics was brought in to design and implement an acoustical treatment solution that will provide a new 650 capacity concert venue with a clean, detailed listening environment when using the installed audio system.

The primary areas of treatment include:

- Acoustical Treatment of the Main Venue
- Implementation of an Acoustically Transparent Covering Over the Subwoofer Enclosure
- Acoustical Treatment of the Backstage Area

The Music Mill, a recently opened live performance venue and restaurant on the north side of Indianapolis, Indiana, renovated an existing unoccupied facility with the goal of creating a contemporary space for concerts, corporate functions and private events. This unique business model posed a challenge for **Auralex Acoustics**, the contracting dealer, **Mid-America Sound**, and the facility designer, **Chapel Lane Productions**.

The space not only had to sound good during the performance of a live band but also for private functions when only speech, and no amplified sound, would be present.

Treatment of the Main Venue

The acoustical environment of the main venue was the primary area of concern due to its irregular shape, reflective surfaces, 36' wide stage positioned in a corner, and the chosen audio system, an EV QRx monitoring rig and JBL line arrays and subwoofers.

Based on the off site analysis conducted as a part of **Auralex's Personalized Room Analysis Service** and the experienced issues discussed by the sound engineer, the problems included Reverberation Times (RTs) that were too long, harsh reflections off of the rear wall surfaces and inconsistent speech intelligibility throughout the main listening area. These issues required the strategic placement of absorption panels on various wall surfaces. While there were several types of products that would have been effective against the specific problems of this facility, **Auralex Custom ProPanels™** were chosen because of their cost-effective nature, ability to be fit aesthetically into the design of the space, and general ease of installation.

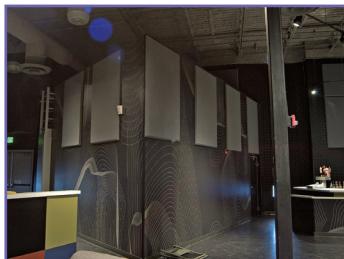


Figure 1: Irregular walls in the main venue



Figure 2: Modified panel layout on sidewall

Through close work with the project's designers, facility managers and contracting dealer, **Auralex Engineers** were able to create an overall panel design that fit perfectly into the modern environment of the **Music Mill** and allowed the full performance of the installed audio system to be realized.

Auralex and **Mid-America Sound** coordinated the installation using trained local contractors and the full panel design was successfully implemented in two days.

While some on site modification was made to the original plan because of a previously unspecified insulated ceiling and wall obstructions that would not allow a continuous panel placement, the installation kept true to the original specification drawn up by **Auralex Application Specialists**.



Covering the Sub-Woofer Enclosure

The four JBL dual 15" subwoofers were installed in a custom metal cavity directly under the main stage. In order to reduce the unwanted resonance of this cavity and provide a finished look to the stage front, additional **Auralex** products were needed. **SonoFiber™**, an all-natural cotton-based absorber, was placed as a lining in the enclosure.

The front was then framed and finished using the **Auralex Custom Fabric System (CFS)** and an acoustically transparent fabric.

Auralex certified installers were contracted to implement the framing, **Retention Channel** and fabric covering from Guilford of Maine.



Figure 3: Framed subwoofer enclosure without the fabric installed

Treatment of the Backstage Area



Figure 4: Auralex ProPanels backstage

The final challenge presented by the staff of the **Music Mill** was the acoustic control of the backstage area. With reflective surfaces on all sides, the echo and resonance of the space from both speech and music created an unacceptable environment for performers, guests and personnel.

Once again, **Auralex Custom ProPanels™** were suggested because of their superior broadband frequency absorption and aesthetic finished appearance.

Using the same fabric covering and similar panel design, the experienced problems were greatly diminished with only around 30% total coverage of wall surface area.

Conclusion

Once all of the acoustical treatments had been installed as designed, the finished result was a live performance venue with a sonic environment rivaling or exceeding that of any facility in the area.

Between the sound engineer, the **Auralex Application Specialists** and the contracting dealer, the consensus was that the treatments implemented in the **Music Mill** were a complete success.