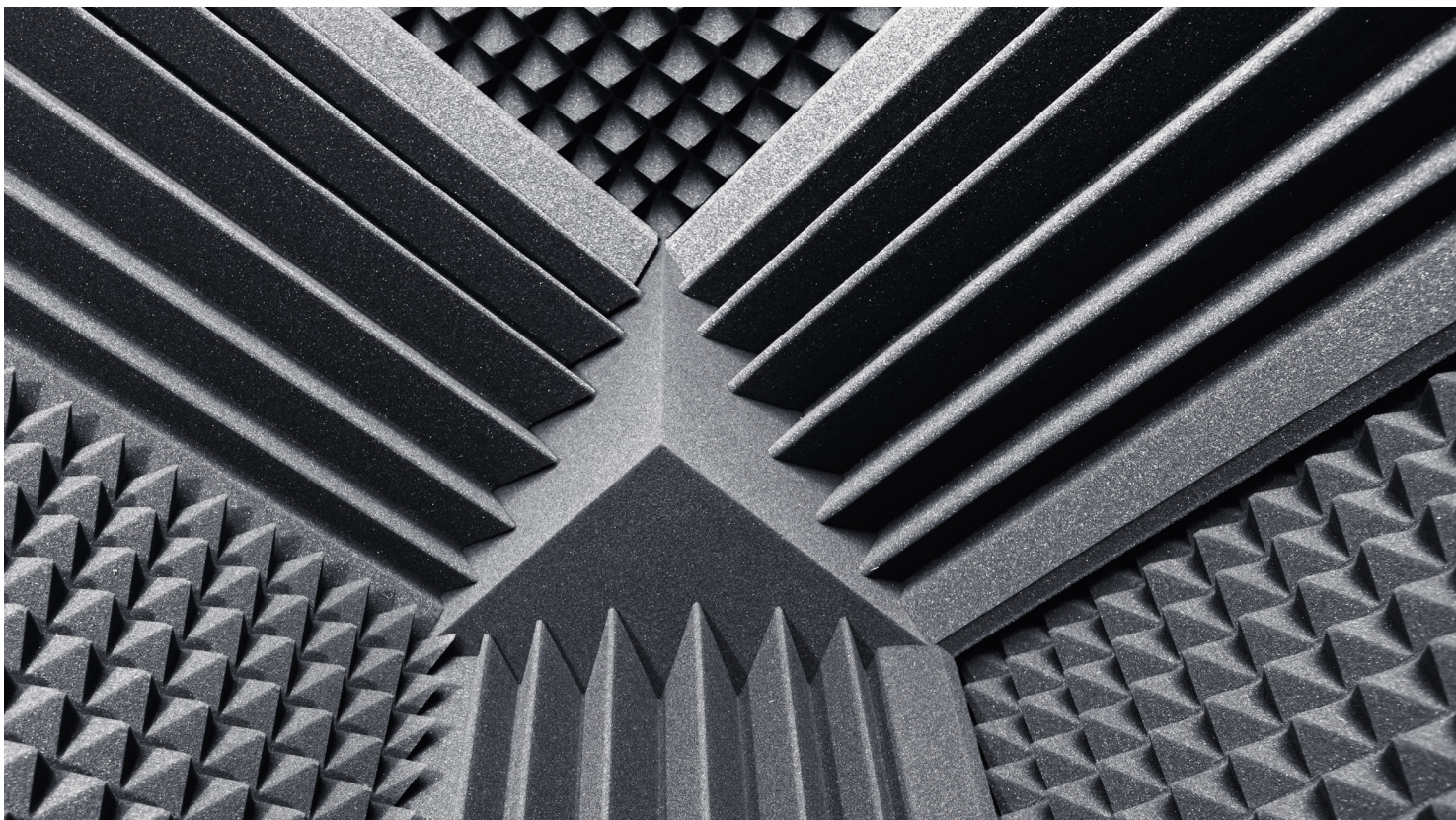


OPTIMIZING ACOUSTICS FOR SHOW CHOIR PERFORMANCES:

A TECHNICAL GUIDE FOR DIRECTORS

by Ed Bauer



Among all the moving parts that come together to create an electrifying show choir performance, the importance of acoustics cannot be overstated. A well-optimized acoustic environment can enhance the clarity, richness, and overall impact of a show. Directors must understand the technical nuances of acoustics, including the principles of sound propagation, acoustic treatments, and optimal microphone placement to ensure their choir's talent shines through with every note and movement. We took a closer look at some of the key factors that contribute to showtime acoustics that are so perfect, the audience will never know the effort your team put into making it happen.

Before delving into the specifics of acoustics for show choir performances, it's crucial to grasp the foundational principles of sound propagation. Sound behaves differently in various environments, influenced by factors such as room size, shape, surface materials, and audience presence. Show choir directors must carefully consider these

factors to create an acoustically favorable environment.

Acoustic Treatments

Acoustic treatments play a pivotal role in shaping the sound of a performance venue. These treatments are designed to mitigate unwanted acoustic anomalies such as reverberation, echoes, and frequency imbalances. Directors should work closely with venue managers or sound engineers to implement the following acoustic treatments:

1. **Absorption Panels.** Strategically placing absorption panels on walls and ceilings can reduce reverberation and control unwanted reflections. Panels should be positioned in areas where sound energy is likely to bounce off surfaces, such as behind the choir and along the sidewalls of the performance space.
2. **Diffusers.** Diffusers scatter sound waves in multiple directions, promoting a more uniform distribution of sound energy throughout the venue.

Incorporating diffusers into the design of the performance space can help minimize the perception of “hot spots” or areas with excessive sound intensity.

3. **Bass Traps.** Low-frequency sounds, particularly from bass instruments and vocalists, can accumulate in corners and create acoustic problems. Bass traps, typically made of dense materials such as fiberglass or foam, absorb low-frequency energy and prevent it from building up in specific areas.

4. **Ceiling Clouds.** Suspended acoustic panels, known as ceiling clouds, can be installed above the performance area to further improve sound diffusion and absorption. Ceiling clouds are particularly effective in venues with high ceilings, where sound reflections can be more pronounced.

5. **Floor Coverings.** Choosing appropriate floor coverings, such as carpets or rugs, can help reduce floor reflections and improve overall acoustics. Additionally, carpets can minimize



footstep noise during performances, enhancing the audience's listening experience.

Optimal Microphone Placement

In a show choir performance, microphone placement is a critical aspect of achieving balanced sound reinforcement without compromising the natural acoustics of the venue. Directors should collaborate with sound engineers or audio technicians to determine the most suitable microphone placement for the choir members and accompanying musicians. Here are some key considerations for microphone placement:

- 1. Choir Microphones:** When micing a show choir, consider using a combination of individual microphones for soloists or small vocal sections and overhead microphones to capture the entire ensemble. Overhead microphones, such as condenser microphones or shotgun microphones, should be positioned at an appropriate height above the choir to capture a balanced blend of voices without obstructing sightlines or choreography.
- 2. Directionality:** Choose microphones with appropriate directional characteristics to minimize feedback and unwanted noise. Cardioid or supercardioid microphones are commonly

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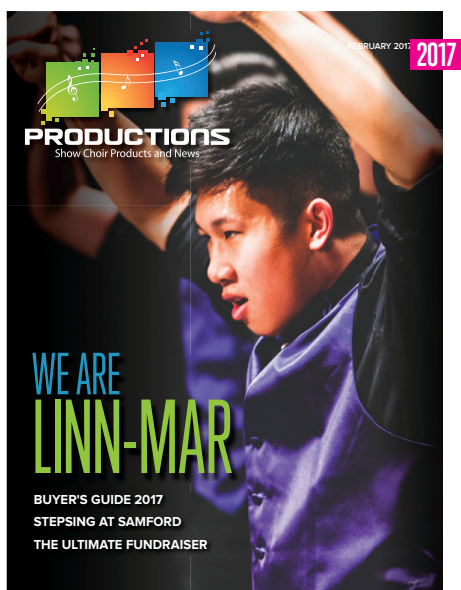
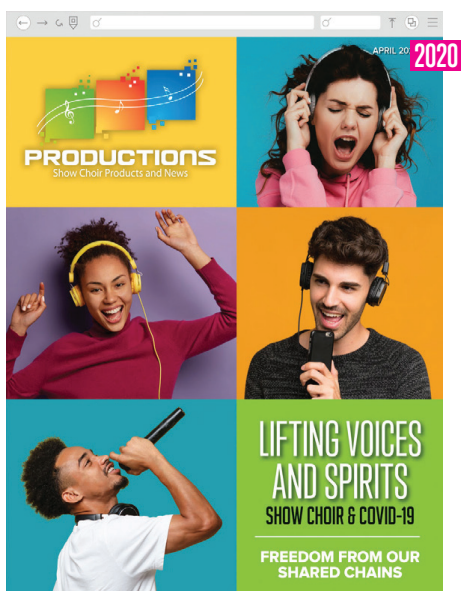
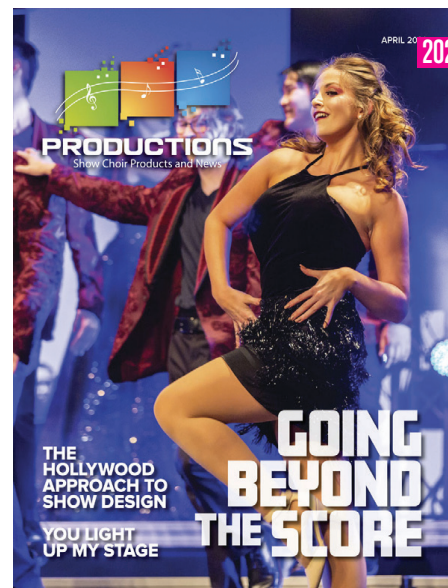
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used for live vocal performances for their focused pickup patterns and rejection of off-axis sound sources.

3. Avoiding Phase Issues: When using multiple microphones to capture different sections of the choir, pay careful attention to phase coherence to prevent comb filtering and other phase-related anomalies. Adjust microphone placement and polarity settings as needed to ensure that all signals are in phase and reinforce each other cohesively.

4. Instrumental Micing: For accompanying instruments such as keyboards, guitars, or percussion, employ close micing techniques to capture the nuances of each instrument's sound while minimizing bleed from adjacent sources. Position microphones at optimal distances and angles to achieve a balanced mix with the choir's vocals.

Achieving optimal acoustics is a multifaceted endeavor that requires careful planning, technical expertise, and collaboration among directors, performers, and audio professionals. By understanding the principles of sound propagation, implementing effective acoustic treatments, and mastering the art of microphone placement, directors can create immersive sonic experiences that elevate their choir's performances to new heights. With a keen focus on acoustical precision, show choir directors can ensure that every note resonates with clarity and every movement reverberates with impact, leaving audiences captivated and inspired.

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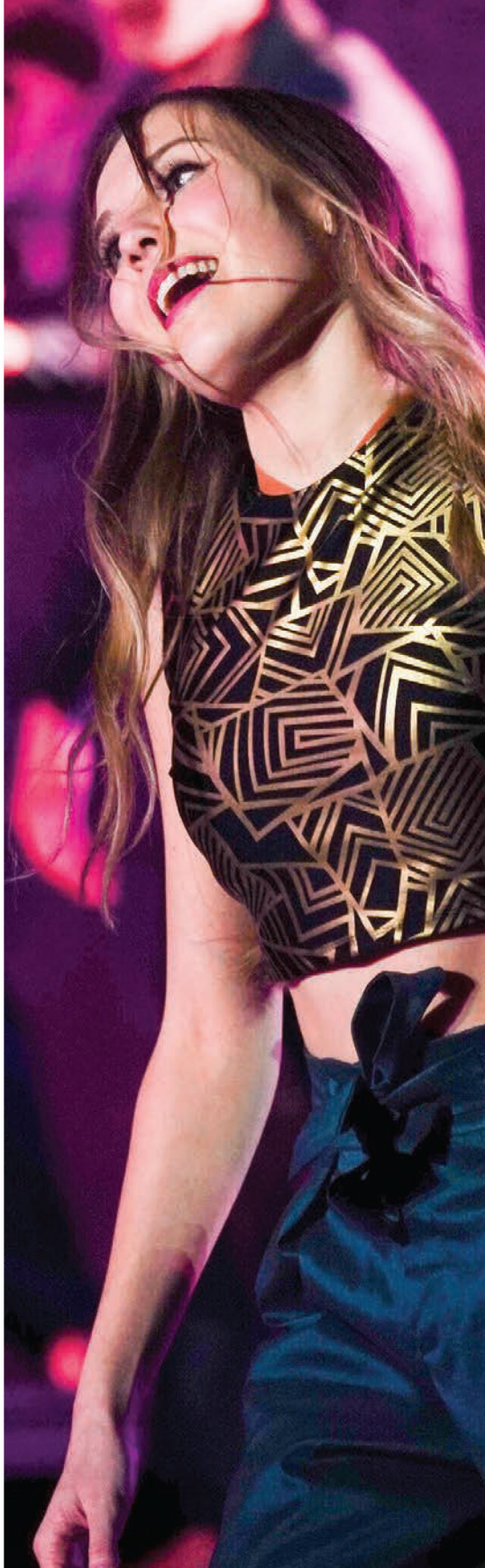
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ABOUT THE AUTHOR: Ed Bauer has been in publishing for over twenty years. He was introduced to Show Choir by his daughter and he is forever grateful to her for this wonderful gift.



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