

# Making the Case for Acoustical Shells and Choral Risers

BY ELIZABETH HAAK

**F**ederal education legislation defining the arts as a “core academic subject” should have helped place choral music education on equal footing with academic subjects.

However, when budgets are tight, choral directors can still expect a struggle in justifying their requests for new or updated equipment. This is particularly true with larger expenditures like an acoustical shell or choral risers.

How can choral directors successfully state their case? From conversations with choral directors and other experts across the country, four critical factors emerged. In academic terms, they could be considered the “Straight A’s” – for advocacy, acoustics, aesthetics, and assurance.

## Advocacy – Getting Involved

Although it might be considered a “chicken-or-egg” dilemma, many



## Acoustical Shells Help...

- Enhance reverberation and conserve sound energy by shielding onstage sound absorption (curtains, scenery, etc.) and joining stage area to audience chamber.
- Increase strength of sound by more than 3 decibels at many seat locations (approximately equal to doubling the size of the performing group). Onstage effects are even greater, more than 5 decibels, according to findings published by the Acoustical Society of America.
- Enhance warmth by providing heavyweight boundary surfaces around performers and overhead reflections toward audience.
- Scatter sound among performers to facilitate onstage intercommunication.
- Contribute to musical presence by providing early reflections to the performers after an approximately 30-millisecond delay.

choral directors believe that a strong, quality choral program must come first – before the request for new or updated equipment. But what is a “quality” program?

“Teaching is first and foremost,” says Jan Swanson, general music teacher with Garfield Elementary School in Medina, Ohio. Swanson has taught vocal music at both the high school and elementary levels for 20 years. “We must offer an authentic musical experience for all students. Our district offers an all-inclusive music program for children grades K-12, both vocal and instrumental.” Swanson says many students participate in elective arts courses, including music.

School involvement is also vital. “I volunteered on every school committee,” says Kim Boyd, former music department chair at Rutherford B. Hayes High School in Delaware, Ohio. “It’s important to be a leader in every aspect of your school’s organization.” During her 30 years of public-school teaching, Boyd also worked closely with athletic coaches to minimize scheduling conflicts for musician-athletes. “Without this cooperation, music educators are cutting their own throats,” comments Boyd. “Whenever possible, students should not be forced to choose between music and sports.”

Outside the school, public perception is also important. “Your music program must be very visible – a contender in the public eye,” says Boyd. “You need to become a person people can count on for help, whatever the situation.” Adds Boyd, “We usually

gave 50-60 performances a year, including shows for various community groups.”

Boyd’s generosity was returned to her – she forged a strong network of community organizations, influential people and music boosters. Her tenure saw the construction of a new, state-of-the-art music wing and auditorium, partially outfitted through funds raised by these supporters. (Boyd currently serves as assistant director of choral activities at Otterbein College in Westerville, Ohio, helping teach the next generation of choral music educators.)

## Acoustics – Sounding Good

While a high rate of music participation among students and strong

attendance at performances are certainly desirable goals, and positive signs of a program’s popularity, creating a successful choral music program is more than a numbers game. Award winning programs focus first on acoustical considerations because music is learned, and experienced, by listening.

“The choir’s ability to hear itself is crucial to music-making,” says Dr. René Clausen, conductor of the Concordia Choir, Concordia College, Moorhead, Minnesota. “Risers and an acoustical shell both help shape the acoustical space around a choir, affecting the group’s ability to hear itself. If they can’t hear, the choir suffers on every level — intonation, balance, timing, confidence — all the aspects of ensemble that coalesce to create a beautiful sound.”

The typical auditorium, with a proscenium arch and curtain separating the stage and audience area, poses several acoustic challenges for a music performance. The fly-loft space, designed to lift and store curtains, lighting and scenery, also traps and absorbs much of a group’s sound, compromising performance acoustics.

In any performance environment, the lack of reflective surfaces – such as acoustical shells or overhead panels – will make it difficult for musicians to hear each other. In addition to losing the sense of ensemble, the undirected sound energy may be dissipated or absorbed before fully reaching the



audience. For these reasons, it is critical to have reflective surfaces behind and above the choir.

Swanson stressed these acoustical benefits during the planning phase of a new 1,200-seat high school auditorium, which opened in the fall of 2002. "Since the commitment was there for a first-class facility, the music faculty felt strongly that we should not cut corners on acoustics," declares Swanson, who adds that a full-stage acoustical shell was selected. She says music educators need to clearly present their objectives to administrators and others involved in the planning process, and to share in the dialogue.

"Proper acoustics help the students' education onstage and also educate the audience about what an exemplary sound can be," notes Swanson.

When a choir travels away from its "home" performance environment, a portable acoustical shell can provide important benefits, according to Dr. Anton Armstrong, director of the St. Olaf Choir, St. Olaf College, Northfield, Minn. "Even when we perform in a superior concert hall – and not many of these exist – it takes some time for the group to feel comfortable," comments Armstrong. "A portable shell provides a degree of acoustical security for the choir."

Gordon Wildman, an audio producer and recording engineer who owns the Wildman Music Group in Salt Lake City, Utah, has recorded performances of the St. Olaf Choir for a number of years. He agrees that familiarity is vital to excellent performances. "This is a primary reason I work on location," explains Wildman. "When a choir performs in an environment in which they are familiar, they give their finest performance."

Another expert in choral music recording is Al Giles, who has recorded a wide range of choral music performances for more than 40 years. Based in Olympia, Wash., Giles has worked across North America and Western Europe, including tours with the Concordia College, St. Olaf College and Luther College choirs.

Giles says the floor surface in front of the choir is also a key acoustical consideration, because the initial sound waves skip off the floor toward the audience. Even a thin layer of carpet can inhibit sound reflection. According to Giles, solutions used by some college choirs when traveling include black-painted plywood or clear stiff plastic (like used for stair runners) laid on the floor between the choir and audience.

Along with an acoustical shell and adequate sound reflection, a tiered arrangement of vocalists on risers or staging platforms is also essential for optimal sound projection. If performers are all on one level, a portion of the group's sound output will always be directed at the back of their fellow performers.

"Each singer needs his or her own 'window' of space", says Weston Noble, director of the Nordic Choir at Luther College in Decorah, Iowa. "Otherwise sound is absorbed by each other's bodies, hair and choir robes." Noble says the size of this window will vary depending on the competency of the singer and space available.

Although they are not very common, Giles prefers two-step risers to spread out the ensemble horizontally, resulting in less sound "jammed" into surrounding vocalists. Even insecure high school students usually find their singing improves with a larger window of space, according to Giles. "They hear their own sound in better balance with other voices," he explains. Because of the importance of spacing – Giles recommends an 18-inch buffer around each vocalist – a regular staircase does not offer the required distance between rows.

Risers also offer greater flexibility for performances. Both Swanson and Boyd often change the arrangement of their singers on risers to create acoustics appropriate for different pieces in the repertoire. Boyd prefers a four-step riser and likes to "stack" her sections by placing the strongest singers in the middle of the section or in a "T" formation across the top and down the center of each section.

The goal of the risers and shell should be to help each singer hear his/her own voice naturally. It's very important that the shell not be crowded up against singers. "This is particularly true for the basses, who need to hear their own reflected sound – as well as the sounds of others – off of the shell behind them," Giles observes. The low pedal tones from the basses have wavelengths of approximately 16 feet and he recommends this measurement be factored into determining the proper spacing. While 16 feet is ideal, it's often not feasible. Eight feet, or half a wavelength, is a compromise. In tight situations, the minimum measurement he recommends is four feet. Another solution is moving altos or tenors to the back, bringing basses as far forward as possible to help them hear more reflected sound.

Once acoustical considerations are addressed, a choir can focus on the other elements of a successful performance, including their appearance.

## Aesthetics – Looking Great

"Choral music is a visual – as well as an aural – art form," says Matthew Wanner, choral director at Muskego High School in Muskego, Wis. "It's important that the audience can see the faces and hearts that go with the music. The interaction between the audience and singers gives life to a performance," adds Wanner.

"I can't imagine how to showcase more than 20 students without risers, even if they are a variety of heights, and have everyone be seen and heard and look good," notes Wanner, who adds that a singer buried in a large group without risers would feel that the value of their own contribution is diminished. "Good-looking, quality equipment makes an impression on students, letting them know the importance of what they are doing," comments Wanner.

Emily Slaven agrees and also stresses the affect such equipment has on the audience. Slaven is choral director at Boardman High School in Youngstown, Ohio. "I think some

**"Perfection is not our goal, and the failure to achieve it is not a punishable offense. Relax and enjoy the music-making process."**

performing groups miss the boat by not focusing enough on their appearance. This includes everything: uniforms, shoes, equipment, etc,” declares Slaven. “If what the audience sees doesn’t match the sound they hear, it detracts from the performance. I want us to look as good as we sound, and our new shell and risers help us do that.” Slaven believes the equipment raised the students’ confidence level and they now sing better than ever before.

## Assurance – Feeling Secure

For musicians to feel completely poised on stage, able to fully concentrate on their performance, they must have confidence that the beauty of their choral equipment is more than skin-deep. It should not compromise their safety in any way. This is particularly true of risers – even the slightest instability can cause anxiety.

“On a practical side, risers must be quiet and well constructed, to handle a significant amount of weight,” comments Clausen. A mixed college choir with 70 voices might easily weigh more than five tons! Risers that squeak or creak will detract from the quality of a performance, especially when choreography or movement is involved.

Choral risers should be easy for small number of people to move, set up and take down. Touring risers should be relatively lightweight and easy to transport. A back railing is a particularly important safety feature for younger musicians.

Wildman says an unfortunate number of performing sites use old, beat-up risers that are difficult to work with. “If not unsafe, they certainly give the impression of being insecure,” notes Wildman, who believes it affects the performers, too. “If audience members were asked to find their seats while the auditorium floor was moving and pitching beneath them, they wouldn’t tolerate it,” Wildman observes. “Yet this is a daily occurrence for performers on old risers.”

He believes some school administrators may have unrealistic expectations about a choral riser’s longevity. “The administrator might say, ‘We’ve

only had them 25 years – they’re made of metal and should never wear out,’” says Wildman. “I would ask these administrators if they are satisfied driving a 25-year-old car!”

Just as automotive technology has dramatically improved over the past quarter century, choral equipment has also advanced. Today’s risers and acoustical shells are made from stronger materials, with enhanced designs and more durable construction methods. More than ever, this choral equipment represents an investment that pays dividends through meaningful instruction and memorable performances.

While it was properly lauded as a major victory for arts learning and music education, the “No Child Left Behind” act does not guarantee that an

individual school’s music program will not be left behind when budget dollars are allocated.

By focusing on making Straight A’s – advocacy, acoustics, aesthetics and assurance – choral directors can better obtain the equipment necessary to ensure the success of their programs for years to come.

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