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After 25 years, Atwood Concert Hall gets its own sumptuous acoustic shell

Mike Dunham | September 25, 2014

Jennifer Nelson, a consultant with Threshold Acoustics, takes sound measurements in Atwood Concert Hall at the Alaska Center for the Performing Arts on Wednesday, Aug. 20. The Anchorage Symphony Orchestra played various pieces as measurements were taken and the shell's panels were adjusted.
Bob Hallinen / Alaska Dispatch News

The Anchorage Symphony's first concert of the 2014-15 season will likely draw oohs from the audience before a single note gets played. Patrons heading for their seats will see an impressive new addition to Atwood Hall. Instead of the plain, tan, ill-fitting acoustic shell that has been positioned behind the orchestra for the past 25 years, elegant maple walls will frame three sides of the stage.

The $1.7 million Diva acoustic shell will be capped by a roof made of three separate "clouds" supported by rust-colored "tusks." The angles of the roof over the performers will reflect the diamond arrowhead pattern of the ceiling above the seating area. The overall effect will be to tie the stage into the auditorium visually.

But the main purpose of the glorious box is sonic, not visual. The Saturday, Sept. 27, concert will be the public's first chance to hear what the Alaska Center for the Performing Arts has gotten for its investment.

The new shell has been a priority for a long time, said ACPA president Nancy Harbour.

"It was originally planned that Atwood would have its own shell, but when the center was being built and the money became scarce, it was decided to postpone it," she said. Instead, the existing shell designed for the smaller Discovery Theatre was brought over.

The temporary solution was unsatisfactory on several levels. It left the Discovery without a shell and didn't do a lot to enhance listening in the Atwood, where much sound escaped the borrowed, undersized shell and disappeared in the enormous fly loft above the stage.

It was less of an issue for miked performances in which speakers could project sound straight at the crowd. But for acoustic music, the visceral connection between the ear and the instruments could be tenuous. Music written to shine and shimmer aurally often felt muffled. Different instruments lost something of their characteristic timbres. Cellos and horns sounded similar. The basses disappeared. Musicians on stage found it difficult to hear one another.

"There was a facility assessment (for the ACPA) four years ago," said Scott Pfeiffer of Threshold, an acoustic analysis company based in Chicago. "There was a long list of recommended improvements

and the shell was the most dire need."

The Diva shell was built by the Wenger Corporation of Owatonna, Minnesota, a company that specializes in structures and equipment for musical, theatrical and sports events.

The walls consist of several towers that fit together to create a solid cabinet. Each tower measures 13 feet wide and up to 35 feet high. When needed for a symphonic performance, they are rolled into position on dollies. When the space is needed for something more theatrical, like a rock concert or Broadway show like "Les Miserables," they are rolled to the back of the stage area and stored flat against the wall.

The three "clouds" that form the top of the shell are long panels reminiscent of the wings on an aircraft. They can be set at different angles to accommodate different types of music and ensemble configurations. When not in use, they're tilted vertically and raised into the fly loft above the stage.

The acoustic components are composed of a honeycomb and hardboard Masonite "sandwich" clad in a veneer of maple. (White birch was the first choice but the builder couldn't get enough of the wood to build such a large piece at this time, Harbour said.) They are light and sit solidly when lowered from the dollies and secured. But it motion they tend to be precariously tall. Stagehands must roll them carefully and slowly, no faster than one foot per second.

TUNING THE HALL

On Aug. 20, members of the Anchorage Symphony gathered to give the new shell its first test drive and "tune the hall." Cameras tracked the positions of the panels as they were moved into place. A dodecahedron omnidirectional speaker dispersed signals evenly to get a "snapshot of the sound of the room." Microphones and computers recorded the notes and echoes, reverberation and decay times, as hard digital data. A small audience of donors and music lovers listened attentively.

Assistant conductor Lynn Weeda gave the downbeat and the orchestra launched into Rossini's "William Tell Overture." It was a cold run-through of a familiar work, but the cello section performed the chorale at the beginning of the overture with grace and sensitivity. The divided pizzicato basses, which are often inaudible, were clear and plain, despite playing quietly. The brass totally overpowered the winds in the storm scene. The fanfare that ushers in the famous "Lone Ranger" conclusion came off crisply, plainly sounding like three separate trumpets rather than a trumpet section.

The Rossini was followed by excerpts from John Williams' lush movie score for "Star Wars." Then Pfeiffer opened the floor to comments.

"I can't hear the trumpets," said trombonist Patty Devine. "The basses didn't carry," said another player.

"You're probably getting more support from the shell than you're used to," said Pfeiffer. "There are always difficulties with adjusting to a new sonic environment."

The matter of the basses, he suggested, could stem from the fact that additional panels -- not readily visible from either the stage or audience -- had been included to block off chambers in the proscenium arch used to house speakers in amplified performances. Like the fly loft, they absorb part of the sound; one is located just behind the bass players' left elbows.

Pfeiffer flattened the angle of the clouds, taking the front panel from 27 degrees to 21 degrees. The flatter angle pushed more sound back onto the players, but perhaps at the expense of sound going toward the audience.

The reset took time. The panels, suspended by cables, beams and chains, had to be lowered. Ratchet wrenches were used to loosen the metallic arms that hold the panels in position. The angle was measured and remeasured as it was adjusted. Then, when everything was right, the arms were tightened and the panels lofted back up.

The musicians played the pieces again. “It’s more compact,” said one. “I can hear better.” “The basses were warmer in 'Leia’s Theme.'”

“I can hear the trumpets better now,” said Devine.

But some thought the strings were “less present.”

“We may wind up splitting the difference,” said Pfeiffer, referring to the angle of the “clouds.” “But ... all this lovely wood. Think about it. Let the hall play for you.”

SHRINKING THE HALL

After a couple of hours, most of the orchestra was dismissed, but the string players remained while Pfeiffer “shrunk the hall.” He had the back wall brought forward so that only the front third of the shell was used. The clouds were repositioned and the strings played Bach’s “Air on a G String,” along with excerpts from Benjamin Britten’s “Simple Symphony.”

By now, the players were starting to get tired. Shrinking the hall had taken around an hour all by itself. But they were still ready to discuss whether the tweaks made the sound more lively or dead and, above all, how they were hearing each other. “It’s definitely a different feel,” said one.

“I could hear things very clearly,” said Weeda. “Could you hear yourself?”

Heads nodded.

“Well, there you go.”

As the players prepared to go home, several took a parting look at the new feature. They seemed to cock an ear to the clatter as Pfeiffer, other members of the technical team and the stage crew turned to housekeeping chores, looking over the data and quietly conversing.

Among other things, the recording equipment showed how long a note -- or cymbal crash -- lingers in the hall after being sounded. Acoustic engineers refer to reverberation time in terms of RT60 or just T60, the time it takes for a sound to decay by 60 decibels. (A decibel is a logarithmic unit and measured on a curve, rather like the Richter scale used to measure earthquakes, so direct comparisons with familiar noise levels aren’t always precise. But 60 decibels is the difference between the noise level in a library and a helicopter hovering 100 feet above your ears.)

The tentative T60 in the mostly unoccupied auditorium of Atwood Hall with the Diva shell in place came out at 1.7 seconds, equivalent to Carnegie Hall and close to the vaunted 1.9 seconds of Symphony Hall in Boston. The Carnegie and Boston times noted here are for occupied halls; T60 times are longer in an empty house.

On the Atwood stage, the T60 was a luxurious 2.5 seconds.

Kathryn Hoffer, the longtime concertmaster of the ASO, was among those smiling as she put her violin back in its case.

“I like it,” she said. “I’ve been wanting to play in a hall like this my whole life.”

THE ANCHORAGE SYMPHONY ORCHESTRA will present its first concert of the new season at 8 p.m. on Saturday, Sept. 27, in Atwood Concert Hall. The program will consist of “Marche Slave” by Tchaikovsky, the First Piano Concert of Rachmaninoff with Van Cliburn gold medalist Olga Kern and the Second Symphony of Sibelius. Tickets are available at centertix.net.

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Heidi Herbert-Lovern · Section Bass at Anchorage Symphony Orchestra

We have been experimenting with onstage layout-- I think tomorrow's audience will have one hell of a pleasant surprise waiting for them. I know we've been enjoying the new space profoundly.

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