

The Times They Are A-Changin',

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THE TIMES THEY ARE A-CHANGIN’

Technology fulfills Holland Performing Arts Center’s needs.

BY JIM STOKES

“The times they are a-changin’.” Bob Dylan’s lyric aptly applies to the Peter Kiewit Concert Hall at the Holland Performing Arts Center (omahaperformingarts.org) in Omaha NB. Accordingly, the facility has installed audio improvements to accommodate more amplified presentations. Thus, the Holland presents world-class musical events, from legendary jazz, blues and country artists to world music ensembles and the Omaha Symphony Orchestra.

Two Venues

Omaha Performing Arts manages two venues: the Holland Center and the Orpheum Theater, which is a 1927-vaudeville house. According to Production Manager Kate Williams, who oversees show-by-show productions, show advances, equipment rentals and local labor for both venues, “The difference between the two venues is that the Orpheum is basically a road house doing Broadway touring shows and opera. It’s a proscenium theater, whereas the Holland Center is a con-



Photo by Casey Wood

View of the Holland Performing Arts Center from the FOH mix position.

cert hall with no proscenium.”

The center, which is located in downtown Omaha, opened in October 2005. Occupying two square blocks, the venue offers a grand view of the downtown. The two indoor performance spaces are the 2000-seat Kiewit Concert Hall and the 400-seat Scott Recital Hall. The Kiewit, which we are covering here, has a 64'x48' stage. The space is modeled after European “shoebox”-shaped halls, and is detailed with fine-grained woodwork.

The shoebox configuration is essentially a building within a building, separated by a two-inch acoustical isolation joint that extends from the foundation through the roof. The exterior is covered in stone and capped by an illuminated glass lantern (one of only two in the world) that allows natural light to filter in during the day and shines like an illuminated lantern at night. A zero-void specification required crews to ensure that there were no hollow spots behind any finished surface.

Kiewit acoustics have been praised by media and architects. “Visiting musicians praise the hall’s acoustics, [but] the true evidence is the vibrant, precise sound one hears in practically any seat in the house,” according to Architectural Record. In fact, the Kiewit has four levels, with each level offering a different perspective on the performance.

Long, Narrow Room

“The shoebox design is a long, narrow room that’s completely open,” Williams explained. “It’s open basically from top to bottom. We have movable reflector panels over the stage that can direct acoustic sound the way we need it. For amplified shows, we actually raise those reflector panels all the way up and try to create more space above the artists, rather than less space that would bounce sound waves around.

“The room is designed to have really solid acoustics for natural sound and unamplified sound,” explained Williams. She noted that there’s been a change over the years from acoustic to more amplified performances. “The sound system installed in the beginning was really designed for more acoustic performances. It didn’t have the versatility and the beef that we needed for an amplified show. Because the room is also so live, we couldn’t just throw a big old arena sound system in there just to get

volume.”

Overall clarity was a problem in the existing system, as well. “The delays were way off,” Williams pointed out. “The balcony is pretty far back, and we have a lot of stage volume. We were always wrestling with snare drums and guitar amps, so we needed a sound system that could bring out clarity of sound to all levels of the room but not overwhelm that live acoustic quality of the room.

Different Speaker Systems

“We looked at a couple of different speaker systems through our acoustician [Threshold Acoustics], and we found the d&b,” continued Williams. “It has a really narrow 75° throw that keeps a lot of audio energy off the side walls from bouncing around. Instead, that energy focuses on people in the seats.”

Furthermore, the speakers are touring-act friendly. “Usually, when I get an artist or tour manager on the phone, the first question is, ‘What kind of PA do you have?’ All I have to say is d&b and that will be fine,” related Williams. “It has made my life so much easier, and incoming shows relax because they know what they’re coming in to. We get a lot of compliments from touring sound engineers, your road guys.”

Consultant Threshold Acoustics and integrator Audio Logic Systems (ALS) worked together to provide an upgraded sound system for the Holland Center Kiewit Concert Hall.

Variety of Performances

Williams cited examples of unaccompanied and large group performances using Kiewit Hall. “Just the other night, we had acoustic guitar folk singer Arlo Guthrie,” she said. “It sounded amazing from where I sat in the very back of the house. It was crystal clear. We’ve had John Legend on an acoustic tour. Country singer Reba McEntire did a special fund raiser, and she brought her arena show. She agreed to use our sound system, and it worked so well. That was a loud show that was sold out. Everybody was happy, and you could understand all of the words.”

The Omaha Symphony uses the hall for unamplified, as well as amplified, concerts. “We do one unamplified masterworks classical concert every month,” said Williams. “That’s where we can turn off the sound

system and hear the room shine in its acoustic nature. But part of what we did with the install is use the box fills on the side, the front fills and the small center cluster as a speech system. That way, people can hear the conductor’s introductions and remarks about the performance. We’ve had to have microphone training with our conductors.”

In contrast, the Omaha Symphony does a pop series and a rock series where the orchestra is completely amplified, and they will usually have a guest band in front. In other music genres, the space hosted performers ranging from jazz trios, quartets and big bands to the New Orleans Jazz Orchestra. Alto saxophonist Dave Sanborn and his band recently played in the Holland Center Kiewit Concert Hall.

Integrator’s Perspective

Next, let’s detail the speaker install and challenges along with other install aspects from the integrator’s perspective. John E. Simshauser, Esq., Director of Operations and Legal Counsel for Audio Logic Systems, Eden Prairie MN (audiologicsystems.com), pointed out that the integrator was brought into the project by consultant Threshold Acoustics, based out of Chicago (thresholdacoustics.com). Jonathan Laney was Threshold’s Project Consultant. Jason Kartak was part of the project team, working for ALS at the time; he later joined Threshold.

“This was a pretty fast-track project,” said Simshauser. “Consultant Threshold did a lot of the conceptual work, but they brought us into the process even before drawings were complete. They had a very rudimentary set of drawings and a rudimentary gear list. We worked hand in hand with them to move it more quickly.”

In summary, during an extensive audio system update that spanned six months, ALS installed a new d&b audiotechnik Q1 line array and Qi1 under-balcony delay speakers, E8 under-balcony box fills, two J subwoofers, a smaller Qi10 speech center cluster and T10 front fills. Other key features include a DiGiCo SD10 console with fiberoptic signal distribution and a new d&b monitor rig, including M4s, M6s and B4 drum subs. The main patch rack was rewired, consisting of more than 500 lines of audio, video and networking cable. All work was completed while the facility maintained an active performance schedule.



The full house from upstage at the Holland Performing Arts Center.

Photo by Tom Kessler

‘The sound system installed in the beginning was really designed for more acoustic performances. It didn’t have the versatility and the beef that we needed for an amplified show.’

One Of The Challenges

According to Simshauser, one of the challenges was setting up the d&b Q1 left/right main line arrays so they would properly retract through the clouds in the concert hall. For this aspect, the J. R. Clancy flying system was updated with new pull points to accommodate the new rig. “Polar Focus was used for custom rigging on top of the d&b flyware,” said Simshauser. “When the array goes up, the cable spools into a collection bin. Spine frame adapters make aiming the array and adjusting the array angle available at the turn of a screw instead of having to decouple the array, change the rigging points and then put it back in. So, the Polar Focus piece allows you to make quick adjustments to the array without taking it down.”

He noted that the Q1’s 75° narrow-angle array pattern and the natural sound of the d&b rig made it the right choice for the Kiewit Concert Hall. “The Q1s cover the floor and the first balcony,” said Simshauser. “Then the upper balcony is covered by a delay set of Q1s. The fronts and delays are the same model speakers, except the Q1 is the touring version that can be taken down and put back up. The Q1 delays in back are for installations. The only difference is the hardware on the box.”

Furthermore, there are two sets of main speakers for different purposes. “The main array and delays give you a stereo image field for more contemporary music,” explained Simshauser. “As I said, those arrays can be totally removed for orchestra concerts. Then there’s a small Q10 center cluster of two boxes, which cover the entire room for speech only.”

Signature Piece

“That’s one of the signature pieces of [Threshold Acoustics Project Consultant] Jonathan Laney,” continued Simshauser. “After he does the big stereo line arrays for the high-powered concert, that can all go away, then you have these two basic, non-intrusive, smaller point-source boxes for speech. It’s hard to even see these center clusters. In a room with proper acoustics, that works marvelously well.” All speaker processing is done within the d&b D6 and D12 power amplifiers.

Although we’ve already summarized the d&b speakers, there are other features to note on the T10 front fills. “The front fill system is really dual purpose,” declared Simshauser. “The horn can be rotated without any tools. So, they can be used as point-source boxes for other applications. They can be used as an independent speaker somewhere else for a breakout session, or they could have the eight front fills across the front of the stage. Laying the T10s on their side widens the pattern.”

Other Equipment

“The DiGiCo SD10 live mixing console was selected, partly because of the industry,” said Williams. “It’s a console we see commonly on tech riders and that touring engineers are familiar with. My local engineers are gaining familiarity with it. It has such a really clean sound. There’s a really low noise threshold on it, and we can have a lot of inputs. So, when we do our

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symphony shows, like the big Christmas concert every year, it’s really easy to put together.”

“The SD10 control surface for DiGiCo is one of their middle-of-the-road flagship consoles,” said Simshauser. “It has a lot of the features of their SD5 and SD7 at a price that is a little more affordable.” He noted that the SD10’s ease of use and the fiberoptic network were key features. “The concert hall had some really challenging noise. By going to fiberoptics, we basically have a noise floor equal to the air handling in the room. When the system is on, there’s no intelligible notice that the system is actually on until it’s activated and in use. This was a huge upgrade for them. They have this incredibly beautiful room that had a lot of noise problems for various reasons before the DiGiCo and changing to fiber-optics. The SD10 outputs directly to the

d&b amplifiers with no other processing.”

No Stage Console

The console is located two thirds of the way back on the house-left side of the hall. There’s no stage console. All monitors are running from the FOH. “I’ll be going down and doing a checkup for this install,” said Simshauser. “We’ll be upgrading to the new DiGiCo SD app so they can run their whole DiGiCo system off an iPad.”

The patch bay received an update as well. “We calculated that there were almost 1000 lines coming in and out of the rack; we gutted and re-terminated them. Basically, we had two guys working on that patch rack for almost a month full time to redo the entire rack. Audio, video and networking lines for the facility all come into that rack.

“The bulk of the cable was reused from the initial install. We pulled some new cable for what we were doing. I think we only had to do one core drill into the floor and put a couple of new J boxes to run a few new lines and the fiber. Architecturally, the facility was a wonderful place to work.”

Regarding existing AV equipment, there’s a large-format projector that fires onto a screen for such needs as orchestra concerts and children’s concerts. A single PTZ camera in the hall feeds different green rooms and offices. Most of the lighting system is comprised of moving-head intelligent lighting. However, this project was very much a complete overhaul of the audio system.