

SYMPHONY IN A GYM

O'Reilly Family Event Center ups technology factor.

BY DAWN ALLCOT

Tony Bishop of T.E. Bishop Consulting and Design (www.tebishop.com) described the new O'Reilly Family Event Center on the campus of Drury University in Springfield MO as "a sports arena that sounds like a musical performance space." He admitted, "Many folks were skeptical about having a 'symphony in a gym'." But the superior acoustical design skills of Dr. Bruce Moore (a professor at the Drury University Hammond School of Architecture), sound design by Bishop and the processing capabilities of a Peavey MediaMatrix NION for the Renkus-Heinz sound system made it possible.

Biggest Challenge

Pete Radecki, Vice President in charge of facilities for the college, said that finding a compromise between a good space for concerts and a good space for sports was one of the project's biggest challenges for the sound consultant and the acoustician: "If you want to have a lot of energy in an arena for a game, you wouldn't do any acoustical treatment. Let the sound bounce off the walls and, even with 10 people in the place, it'll be loud. Obviously, that doesn't work well when you're holding a concert."

He offered a realistic, yet favorable, assessment of the arena's capabilities. "If someone is looking for a premier concert hall, this isn't it. But we've had two symphony pops concerts in the space, and they've been great!"

In completing the audiovisual design in the new 3100-seat arena, Bishop, who

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designed and laid out the sound systems in the rooms and also consulted on the video aspects of the project, faced many challenges, not the least of which was fulfilling every item on the client's wish list for the space.

Springfield MO-based Killian Digital (www.killiandigital.com) installed the audio systems, while nearly all the video components, including a 9'x16' LED screen on the south end of the venue, were supplied and installed by Brookings SD-based Daktronics (www.daktronics.com). The Killian Digital team included David Simone, Project Manager, and Andrew Mitzel, Lead Technician, along with Killian President Spencer Cox. Joe Kurta of TechSpa in Winter Park FL (www.techspa.net) was responsible for programming the NION system.

Killian's Cox commended the entire AV team that worked on the project, noting, "As a consultant, Tony was extremely hands-on throughout the project. He was always available to answer questions about functionality and the owner's expectations. The success of the project definitely is attributable to the professional relationship between Tony and our team."

In addition to audio in the main arena, the project comprised AV systems in a banquet hall and VIP suites that sit on the concourse level, as well as an adjacent outdoor courtyard area, which includes Tannoy outdoor speakers.

Audio For Multiple Purposes

The main space in the O'Reilly Family Event Center is a horseshoe-shaped arena, with collapsible bleachers at the south, or open, end of the horseshoe seat-

ing arrangement. When the bleachers are not up, a stage resides on that end. As Radecki related, the school wanted a compromise between a high-energy environment for sporting events and a system that would be adequate for all manner of public speakers and presenters, concerts, school graduations and other public events. The client also wanted to be able to set up the venue in a center-stage configuration or with a stage at the south end. With this in mind, Bishop considered the

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possibility of remote mix locations for the Yamaha 01V digital mixer, without actually having to move the mixer; this was another design challenge Bishop faced—and met—head-on.

Bishop specified a speaker system consisting of Renkus-Heinz STX2/64 12-inch three-way speakers, TRX121T/9 12-inch two-way speaker, and a collection of 15-inch and 12-inch subwoofers. Three speakers cover each of the long sides of the horseshoe, with four speakers in the bowl area. Three speakers on the floor cover the floor seating, as well as a student seating area on the open end of the court.

Bishop likes the Renkus-Heinz products because of the smoother, more intelligible voice reproduction offered by three-way speakers. He explained: "I prefer three-way speakers because the primary intelligibility range for spoken word is from about 500Hz up to about 3500Hz. Two-way speakers tend to put the crossover point right in the middle of that intelligibility range. With three-way speakers, I can keep the speech intelligibility range in a paper driver rather than a high frequency driver."

Additionally, the dual concentric horns in the Renkus-Heinz boxes have the high range and mid-frequency exiting out of the same wave guide for even greater voice intelligibility, he offered. This was important in this application during sporting events and public speaking engagements.

MODERN AUDIO.



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Architectural Blueprints

Bishop laid out the speakers first based on architectural blueprints, using EASE modeling software. Crest Audio CA Series amplifiers power the system.

Although the right speaker choice was important, Bishop is quick to credit the room's excellent acoustics, designed by Dr. Bruce Moore, for a good portion of the project's success. "It's one of the best-sounding arena-type venues out there, so that made my job a lot easier," Bishop said.

The MediaMatrix NION also played a large role in fulfilling the client's requirements for a flexible space. The NION is programmed with eight differ-

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A Fortunate Triple Play

The sports analogy may not fit precisely for a school with winning men's and women's basketball teams, but it was, essentially, a trio of factors that resulted in the creation of Drury University's O'Reilly Family Event Center last year.

For the past 60 years, since the late 1940s, the Drury University Panthers played in Weiser Gym, a 2200-seat sports venue that originally was a World War II airplane hangar. Radecki related that the old facility had no air conditioning, no media room and few amenities...certainly nothing like the banquet hall, workout room and VIP suites in the new venue. Additionally, Panthers fans consistently sold out the space as the Drury University men's and women's basketball teams made the D2 NCAA finals on a regular basis. It was time for an upgrade.

The O'Reilly family, known as owners and founders of the nationally known O'Reilly Auto Parts, offered an elite gift that catalyzed the \$14 million project. At the same time, construction costs began dropping due to the economic downturn in 2008. "The costs for the project went down, the donor stepped forward and the timing was right," Radecki told *Sound & Communications*.

The Weiser Gym, a landmark on the Drury University campus, will be turned into a fitness facility and kept intact for students to enjoy.

ent pre-sets that alter the configuration of the speakers, depending on the application and the seating arrangement. "We can change any speaker's zero time alignment point from the center of the room to a stage set up on the open end and also turn different speakers on or off," Bishop explained.

TechSpa's Joe Kurta completed the NION programming remotely, a huge time saver when it came to tuning the system. Killian's Cox, who worked closely with Kurta, reported, "Once the court floor was painted, sealed and dry, we only had a few days to EQ and commission the main audio before the first event."

It was extremely important that Joe was able to connect his laptop wirelessly to the NION and manipulate settings in real time as he roamed the floor and sat in dozens of seat locations. The process would have taken ages if he'd had to physically connect to the DSP and deploy settings each time a change was made."

Time Was Short

Time was one thing in short supply during this project. The installer faced schedule challenges from the start, while hanging the speakers and

building equipment racks. "We only had a few weeks between the time the conduit was ready and the ceiling was painted before they were to start laying the court floor," Cox said. "In that time, we had to pull all the 10AWG speaker wire, install the speaker and subwoofer rigs, and aim the speakers according to Tony's EASE plots. Once the court floor was installed, there was no opportunity to bring in a lift to make adjustments or changes. We had to nail it the first time."

Often, installers save time on a tight project by building the racks offsite in the shop. But with rack locations in tight, hard-to-access spaces, Killian Digital had to complete all the rack work onsite. Cox credited Project Manager David Simone's diplomacy skills as a key to getting the job done in time. "David overcame all obstacles normally associated with working among other trades in a new construction project.... He's able to get things done in a physically challenging and high-pressure work environment."

In addition to the rig for the main PA, the arena also includes rigging for visiting bands and performers to bring in their own systems. Bishop made sure the space had all the power require-

ments necessary, and audio, video and fiberoptic connectivity throughout the venue.

Multiple Mix Locations

Certainly, the O'Reilly Family Event Center is a unique space—the only kind of its quality in Division 2 college basketball, according to many people—and Bishop decided to apply a unique solution to the question of where to place the Yamaha 01V mixer. "One of the challenges I've run across in doing basketball arenas is the placement of the mixer," he said. "The actual mix location typically can't be at an optimal place for the operator to hear and mix correctly."

Bishop had been toying with a solution to this problem for some time, and implemented it at the O'Reilly Center. "I've been working on being able to address a digital mixer via a simple control surface at the mix location rather than having a full-blown mixer there."

Bishop connected a JL Cooper FadeMaster Pro MIDI controller to the Yamaha 01V, which is located in the equipment room situated in an entry tunnel on the floor. He ran the MIDI through Cat5 cabling because of the long run, and set up five different mix

locations on the floor or on a platform above the floor where operators can plug in the FadeMaster Pro and control the volume on eight channels of the mixer. "That's all they need for athletics," he said.

"They're not dealing with changing EQ, because it's typically the same announcer and same scenarios. So, instead of having to carry and plug in an entire mixer and all the wires involved for mic inputs, they just have a small case that they interface via Cat5."

During musical and speaking performances, the Yamaha 01V typically is brought to a front-of-house mix location set up opposite the stage on the north end of the arena floor. When visiting performers bring in their own mixer but use the house speakers, they can bypass the 01V with a direct input into the house sound system.

Multiple floor boxes also provide the capability for a variety of other mix locations without long cable runs. Mix locations include a booth above the



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luxury boxes, the score table on media row or even the video edit room, which is an office in the office suites located on the concourse level. "There's a lot of sophistication and a lot of flexibility," Radecki said.

'A Bit Of A Risk'

It wasn't only Bishop who experimented with unique solutions to common problems in sports arenas. Radecki reported that the architects and *(continued on page 68)*

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Drury University's O'Reilly Family Event Center in Springfield MO.

Equipment

Main Audio

- 2 Atlas AT-35 volume controls
- 6 Crest CA9 1800W 2-channel power amps
- 4 Crest CA2 500W 2-channel power amps
- 2 Crest CA18 3600W 2-channel power amps
- 2 Denon DN-C615 Pro CD players
- 1 Denon ST7001P AM/FM/XM tuner
- 2 Furman MP-30 power relays
- 1 JL Cooper FadeMaster Pro MIDI controller
- 1 Middle Atlantic ERK-4425 rack enclosure w/accessories
- 1 Middle Atlantic PTRK-2726 portable rack enclosure
- 1 MidiLink MidiDataExtender UTP data extender
- 1 Peavey MediaMatrix NION nX DSP processor
- 2 Peavey MediaMatrix xControl 4S control panels
- 1 QVS CA284E-4S Cat5 manual switch
- 1 Rane DA216S distribution amp
- 6 RDL STD-150 audio combiners
- 8 Renkus-Heinz STX2/64 12" 3-way speakers
- 3 Renkus-Heinz TRX121T/9 12" 2-way speakers
- 4 Renkus-Heinz BPS15-1 15" subwoofers
- 2 Renkus-Heinz CFX121M 12" 2-way monitors
- 3 Sennheiser ew135G3 wireless mics
- 3 Sennheiser e835s mics
- 1 SurgeX SEQ power conditioner
- 8 SurgeX ICE 20C power conditioners
- 4 Tannoy CMS501BM 5" ceiling speakers
- 2 Tripp Lite N784-001-SC media converters
- 1 Whirlwind CI8L 8-channel AD converter
- 1 Williams Sound PPA 375 PRO assistive-listening system
- 1 Yamaha 01V96VCM digital mixing console

Suites/Banquet Room Audio

- 1 Crest CKi 200V 200W 2-channel power amp
- 2 Crest CKi 800V 800W 2-channel power amps

- 2 Denon ST7001P AM/FM/XM tuners
- 1 Middle Atlantic DWR-24-22 wallmount rack enclosure
- 3 Peavey Architectural Acoustics D1V control panels
- 1 Peavey Architectural Acoustics Digttool MX matrix DSP processor
- 1 Peavey Architectural Acoustics VSX 26 speaker processor
- 1 Sennheiser e835s mic
- 1 Sennheiser ew135G3 wireless mic
- 2 SurgeX SEQ power conditioners
- 19 Tannoy CMS501BM 5" ceiling speakers
- 2 Tannoy Di6 6" outdoor speakers

List is edited from information supplied by TechSpa.

Front End Video

- 1 AJA HA5 3 HDMI to HD/SDI converter
- 2 Alesis M1 Active 520 USB 12 self-powered audio monitors
- 4 Clear-Com DMQ-2 Que-Com beltpacks w/dual-muff headset
- 1 Hewlett-Packard LP3065 15 30" pro video monitor
- 1 Manfrotto 501-351MVB2K 13 pro video tripod kit
- 1 NewTek Control Bundle
- 2 NewTek Sports Graphics Packages
- 1 NewTek Tricaster broadcast live video production workstation
- 1 Sharp LC-22LS510UT 12 22" LCD monitor
- 1 Sony HVR HD 1000V 14 digital video camcorder

List is edited from information supplied by T.E. Bishop Consulting & Design.

Display Video

- 4 Daktronics BB-2108 4-sided basketball scoreboards
- 1 Daktronics PS-X LED 8'6"x14'6" display
- 1 Daktronics PS-20 (now part of the DVX Series) 3'x14'6" LED video display panel
- 2 Daktronics SD-2103 statistics displays

List is edited from information supplied by Daktronics.