

# The Aria Convention Center

Since Las Vegas is the world's pre-eminent convention city, you can never have too many convention centers. The Aria Convention Center features 300,000 sq. ft. of meeting and convention space, which can accommodate gatherings ranging in size from 10 to 5,000 attendees. There are four ballrooms, three offering fully functioning theatrical stages ranging from 21,000-50,000 sq. ft., and 38 meeting rooms, each ranging from 800-2,000 sq. ft. Auerbach Pollock Friedlander (APF) planned and designed the theatrical and event services elements of the facility, developed the ballroom and meeting room rigging concept, and designed the theatrical systems, including the ballroom stage rigging systems and architectural lighting control systems in the public spaces.

The most technically complex venue in the convention center is the Bristlecone Ballroom, located on Level One. It provides 51,561 sq. ft. of meeting space, seating up to 5,100 people in its theatre layout. The room is divisible into as many as ten separate segments, each of which provides a clear ceiling height of 24' 3".

The room is designed for rapid load-ins, thanks to dedicated truck docks conveniently located next door—so convenient, in fact, that when carpet protection is installed, full-size trucks can be driven directly onto the ballroom floor. Dual Megavator freight elevators provide for direct loading access to the over-ceiling concealed catwalk system.

For the ballroom stages, APF proposed automated rigging to avoid use of a conventional double-purchase

counterweight scheme that would otherwise be required with the building's limited loft height. The automated rigging permits for a significantly reduced load to the building's structure and results in more efficient use of the limited stage floor area; it also provides ongoing savings in turnover time and staffing.

The fully equipped stage has a proscenium opening of 22' 6" high by 48' wide. The stage ceiling is 49' 11" above the stage floor. All of the stage rigging, provided by Stage Technologies, is automated, including the main curtain, four dedicated electric battens, and 21 general-purpose electric battens, each of which is 58' long.

Event rigging provisions within the ballroom are fully integrated in to the ceiling design. More than 300 concealed hatches provide access to rigging beams located in the catwalk space above. Lighter weight decorative and signage elements may be supported from approximately 7,000 linear feet of load-rated strut integrated into the ceiling.

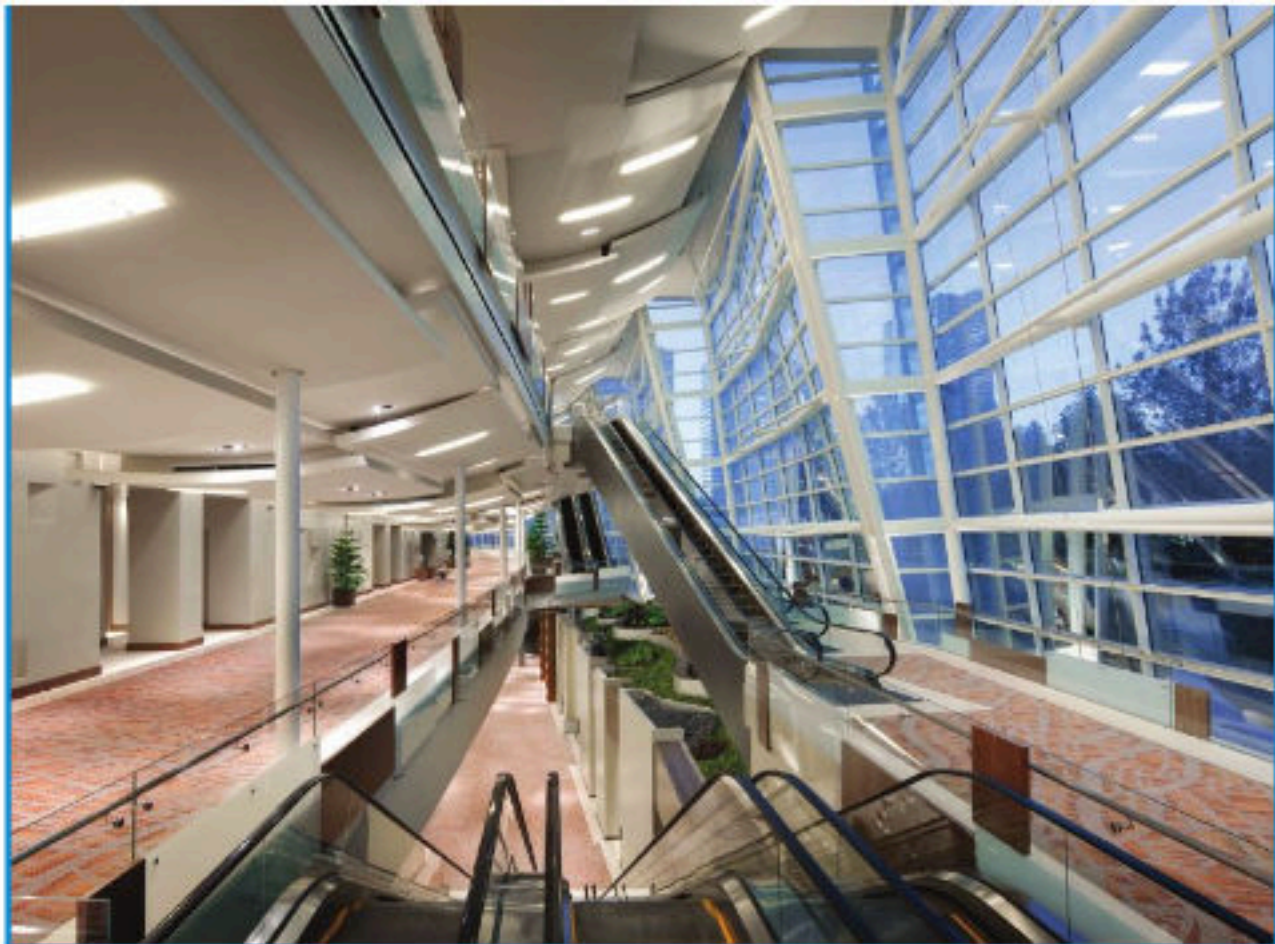
Rob Hill, APF's project manager, says the stage lighting provisions include four on-stage dedicated electric battens, two on-stage side lighting galleries, and three front-of-house stage lighting positions integrated into the ballroom's ceiling. Theatrical-purpose lighting distribution is available, concealed throughout the ballroom ceiling to provide for decorative lighting of dining tables and décor elements. A full complement of conventional and moving lights is available.

All lighting systems are integrated and managed as a cohesive whole.

Lighting controls are segmented to coordinate with the ballroom operable partitions and the individual cove elevations of the ceiling. Controlled architectural loads include dimmed halogen downlights, dimmed halogen decorative chandeliers, dimmed linear fluorescent cove fixtures, dimmed LED wall art elements, relay-switched fluorescent and HID work lights, and relay-switched fluorescent blue light running lights. Two dimmer rooms, located at the ballroom catwalk level, provide for efficient load distribution to the ballroom stage, theatrical-purpose, and architectural lighting loads.

For basic meetings, load-ins, load-outs, and cleaning, the lighting can be controlled from local touch panels and by a snapshot memory system. For larger and/or more complex events, the stage and architectural lighting can be operated by theatre-style consoles, which, thanks to the network in place, can be located anywhere in the ballroom.

There are three other ballrooms of varying sizes. The Pinyon Ballroom contains 38,301 sq. ft. of meeting space, seating up to 3,800 in theatre mode. It can be divided into eight segments, each with a clear ceiling height of 24' 3". In terms of stage layout and facilities, it is identical to the Bristlecone. The Ironwood Ballroom is identical in size and capacity to the Pinyon and in technical facilities to the Pinyon and the Bristlecone. Because it is located on Level Three, load-in is achieved using Megavators; three dimmer rooms on this level supply power. The smaller Juniper Ballroom



The sleek design of the Aria Convention Center allows for plenty of sunlight.

features 20,275 sq.-ft. of space, and can seat up to 2,000 in theatre mode; it can be divided into four segments, each with a clear ceiling height of 20'. The technical support includes concealed heavy load rigging points, strut rigging integrated into the ceiling, theatrical-purpose lighting distribution, and agile lighting control systems.

The various meeting rooms can accommodate between 70-195 people, depending on the room, and each has 14' clear ceiling. Each features strut rigging integrated into the ceiling and distribution for theatrical lighting. Two pre-function spaces and an atrium are also set up in much the same way.

The rigging systems for the ballrooms employ 12 Stage Technologies Big Tow 390 and 65 Big Tow 250 zero-fleet winches, three Stage Technologies Nomad control systems, three H&H Specialties/Stage Technologies draw curtain machines, and 24 SSRC pantograph systems. Overall, the project called on 30,000 linear feet of ceiling rigging strut with

over 900 heavy rigging points.

Kenneth Fause, of APF, says, "The convention center rigging was designed with drops distributed over each of the ballroom floors, with access through the ceiling designed as a 10' grid spacing. This grid conforms to standard lighting trusses, permitting locations anywhere within the space. A secondary steel support structure is coordinated with the drop points and is accessed from a catwalk system from which you can hang chain hoists at any 10 by 10 drop point."

The lighting systems use 3,752 channels of ETC Sensor dimmers, 432 channels of ETC Unison universal fluorescent dimmers, 72 channels of DMX control for LED decorative lighting elements, more than 1,000 Ethernet taps on the theatrical and architectural lighting control network, 17,000 linear feet of two-circuit theatrical-purpose bus track, and more than 1,000 theatrical-purpose bus track tapoff receptacle devices.

Regarding the lighting systems, Fause says, "The design challenges

were driven by the scale of the convention center. We defined a total of eight dimmer rooms to keep branch circuits to reasonable length for voltage drops and for reasonable economics. For the architectural lighting control system used for load-in, load-out, cleaning, and basic meetings, we had a preview of the proposed ETC Paradigm products well ahead of release. ETC committed to deliver on the project schedule and implemented specific control features the project required. ETC and Creston cooperated to produce driver software to operate the Paradigm control platform from the touch panels that were part of the scope of the AV system."

#### Convention sound

The sound package for the convention center makes use of a staggering amount of Harman Professional gear. The loudspeaker tally includes 606 JBL Control 332C, 446 Control 432CT, 192 Control 328C, 14 Control 227CT, and 14 Control 26Ct units. The amplifier



The entrance to the convention center.

count includes five Crown CT 4200 USPCN, 262 CTs 2000 USP3CN, 113 CTs 1200 USP3CN, and three Crown 1160A units, and, for digital signal processing, the BSS London BLU system, including 80 BSS London BLU Blu Net 0x16 outputs and 109 Blu Net 16x0 inputs. Also available are 44 JBL VerTec 4887APD line array elements, 18 JBL VerTec 4881APD subwoofers, 24 JBL VP7212/64 powered delays, 54 VP7212M powered stage monitors, and 36 dbx in-ear monitor processors—and, for control, three Soundcraft Vi6 ninety-six channel digital consoles

Darren L. Smith, at the time a senior consultant for PMK Consultants—he is now CEO of Vegas-based Entertainment Systems Design—reports that he was responsible for the entire AV system design for the Aria Casino and Conventional Center, as well the Vdara Hotel. His colleagues were Andy Weaver and Scott Bray, now also partners in

Entertainment Systems Designs. Smith says, “Harman offered my only option to satisfy my vision and the project requirements, specifically with London. The size of the project dictated that equipment rooms be spread out all over the campus, with complete interconnectability and inter-routeability of any an all sources, and that meant that we theoretically needed all of the BSS BluLink channels plus all of the CobraNet channels. We could not come up with a solution using any other platform.”

Smith adds, “We evaluated several top manufacturers’ speakers and a few not-so-well-known manufacturers. The top two choices were Tannoy and JBL. JBL won out due to the package. No other manufacturer had ceiling speakers for every application/condition that we encountered, complete with UL-listed and fire-rated back boxes and sleek and sexy grills coupled with the supporting product lines in cabinet-style speakers with

the same voicing.”

He adds, “There were three criteria that were the decisions makers: 1.) code compliance, 2.) sound quality and matching voicing out of speakers that fit the application to maintain the continuity of design, and 3.) and the total package, to streamline design process and purchasing. Harman won #3 hands-down; it was the only manufacturer that could provide amps, processing, and speakers from a single source. It also won #2 hands-down, with the vast product line and commitment to deliver product that was still in the design phase at the time. Number one was also won by Harman, as JBL has nailed the UL and fire process in functional and good-sounding back cans and integrated can speakers.”

Smith says, “I believe that it is the best-sounding property in Las Vegas. Ultimately, the sound quality delivered from the BSS DSP through the Crown amps and out the JBL speakers is a



One of the convention center's ballrooms is set up for a banquet.

winning combination for this project. Given the number of amps, speakers, and processors, there have been very few failures, which is often more important than sound quality in a project of this magnitude."

Interestingly, he says, "Recently, I was given the opportunity to contract services for a couple of shows in the Aria Convention Center as a front-of-house engineer, working with the VerTec rigs that we specified for the Convention Services Department. The most recent show included two 10-box hangs of 4887DP with eight 4881ADP and eight 4881ADP subs, plus VP7212 delays and center fills, VP7210 front fills, and VP7212DP wedges. The consoles were a [Soundcraft] Vi6 for the front of house and another Vi6 for monitors; extra

processing was via dbx Drive Rack 4800s. A 60-piece orchestra was on the main stage, with a five-piece band in the round on the center stage. The first set featured the orchestra alone; the second set was a combination of the two groups, with the third featuring the five-piece band alone. The system needed to function as one rig, and, with careful speaker placement and delay alignment, it was great-sounding, a dream to use, and incredibly easy to tune."

Also on the audio video gear list are 36 Shure PSM700 in-ear monitor systems, 24 Symetrix 581E distribution amplifiers, 80 Furman PL-PRO power conditioners/surge protectors, 42 Da-Lite screens, 42 Christie HD10K projectors, 80 Extron ISS-506

scaler/switchers, six Multidyne EOS-4000 HD-SDI switchers, 240 Multidyne HD-3000 fiber-optic transport links, one Ashly Audio MX-508 mixer, 24 Crestron PRO2 dual-bus control system, 71 Crestron TPMC-8L wired touch panels, and 16 TPMC-8X wireless touch panels.

Speaking of its work on the Aria and Vdara, Smith adds, "This is rumored to be the single-largest consolidated AV system design in history. Sixty venues, thousands of ceiling speakers, three complete concert line array systems, 20-plus equipment rooms, thousands of runs of fiber infrastructure, hundreds of input/output panels. The list goes on and on and on. The battle was a long one, but the winner, hands-down, on this project is the client." ❧