



# a pearl of great price

## The Pearl Concert Theatre is the jewel of the Palms Casino Resort's \$600-million upgrade

By: Mel Lambert

Often cited as the fastest-growing city in the world, Las Vegas offers freshly minted casinos and shows on a regular basis; at the same time, its existing entertainment venues are regularly upgraded, the better to compete with newer, glitzier attractions. In this problematic economy, properties have to keep up in order to survive.

Consider the case of The Palms Casino Resort, which opened in 2001. Located on the “wrong” side of Interstate I-15, which transects the city, it is a leading off-Strip destination, consisting of a hotel, a “fantasy tower” (offering, among other things, the only hotel suite in the world with a basketball court), and a residential building. Among other things, The Palms hosted the 2002 edition of MTV's *The Real World*.

Given its location apart from the iconic hotels on the Strip, a great deal of work has gone into making The Palms a desirable destination. (It has a reputation for attracting a young, Hollywood-oriented crowd.) When the time came to re-evaluate the hotel's various entertainment offerings, the owner, George Maloof, realized that it lacked a performing arts center—the kind of deluxe theatre, fitted out with multi-level lobbies and VIP amenities, that would be capable of hosting top touring rock acts as well as boxing

matches and other one-off events. To remedy this situation, a site located between the original two towers was identified for a flexible auditorium, to be known as The Pearl Concert Theatre.

“Our first goal was to create a space where every seat has a perfect view,” Maloof says. “Customer comfort was our number-one concern; right behind that was the comfort level of the artist. During the last 20 months, we've had some of the world's top musical and comedic acts on its stage, and have hosted awards shows.” These have included The 2007 MTV Video Music Awards, as well as live sporting events like The Ultimate Fighting Championship. “With that sort of rotating entertainment and the venue being so intimate, The Pearl had to be versatile in sound, lighting, video—all production elements,” he adds.

For the overall design, Maloof turned to Pfeiffer Partners. “We got a call from The Palm's master plan architect, The Jerde Partnership, explaining that the property was planning a 2,500-seat theatre,” recalls architect and company partner William Murray, AIA. “Working with a local firm, KGA architects, we were the lead architect in developing the design and documentation effort from beginning to end. To assist us in the technical side of the theatrical design, we brought in Auerbach Pollock Friedlander as consultants on the critical design elements, including seating and sightlines, plus the sound and lighting systems.” The total cost of The Pearl Concert Theatre, which opened in April 2007, is reported to be \$80 million, part of The Palms' \$600-million Phase II expansion.

According to Steve Pollock, of Auerbach Pollock Friedlander, “We were designated the project's theatre technical designer, advising on systems and infrastructure.” The firm also partnered closely with Pfeiffer on room layout



## ARCHITECTURE

and planning issues. New York-based SIA Acoustics, under the leadership of Sam Berkow, handled audio and acoustical design. Lighting design was handled initially by Kelley Technologies and later by Production Resource Group, with architectural lighting by Kaplan Gehring McCarroll.



Two views of the auditorium, with different stage configurations.

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### Design challenges

It was a challenge simply to fit a theatre into the casino footprint. “The designated 120’-by-120’ site area meant demolishing an existing meeting facility landlocked between the existing casino, cinemas, hotel tower, and an alley,” Murray says. “As a result, we had no choice but to go vertical, digging down to bedrock some 40’, with audiences entering the main lobby from the casino at the balcony level. This meant having some of the audience travel a grand stair and elevators to the main levels of the theatre. Additional lobbies and bars were planned on the lower levels, to create a spacious and exciting theatrical experience.” One major mandate was the need to ensure direct access for VIP guests from the hotel to the theatre’s side boxes and VIP lounges.

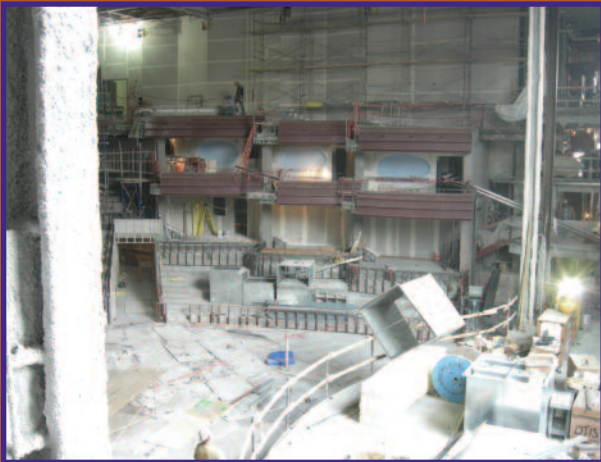
“The Palms originally envisioned a traditional ‘rock-shed’ concept,” Murray says. “We challenged this notion, providing George [Malooof] with a design model and drawings of another concept. I termed the new idea a ‘hybrid performing-arts-and-rock venue’—a room that would serve rock ‘n’ roll first, but could be flexible enough to accommodate sporting events, fashion shows, and banquets. We created a traditional room with a balcony and wraparound side boxes, but maintained a flat floor at the main level. While the site was not able to accommodate a true fly tower, it really wasn’t necessary, given the types of events that were envisioned here. For complete flexibility, we provided the capability for rigging over the entire stage and audience chamber.”

Because the stage can be reconfigured for runways, fight rings, and passarelles, attention was paid to sightlines, ensuring unobstructed views from all locations on the elliptical surround of steeply-raked fixed parterre, boxes, and balcony seating. In addition, two 14’ x 16’ Stewart video screens are located on either side of the stage, with additional Panasonic plasma screens placed throughout the concourse areas. Other features include 18 private and semi-private sky boxes—nine per side on all three levels. Operable shades allow the hall’s capacity to be adjusted to accommodate different set-ups ranging from 1,100-2,500 guests. The auditorium’s seating was supplied by Irwin.

A forestage rigging system of catwalks and steel beams provides structural support for grids and trussing over the floor, for when events are staged in front of the proscenium opening. The regularly televised Ultimate Fighting events utilize a star-truss assembly with moving lights and robotic cameras, which is suspended over the lower seating area and UFC’s signature 24’ octagonal ring. Lighting, audio, and video control are all managed from the floor, with a comprehensive cable gutter system running from both sides of the stage out to the rear/center of the floor area.

“One of the greatest design challenges facing the project team,” says Pollock, “was fitting the required theatre and

support spaces into the limited space within the Palms' existing hotel towers, and below the new ballroom and the meeting room complex. The result is an unusually intimate, yet comfortable, venue with steep sightlines and reduced viewing distances, where no seat is obstructed and no patron is ever more than 120' away from the event on stage. The Pearl is certainly not your typical event space 'box.' By blending the amenities normally associated with leading performing arts centers and VIP-oriented sporting venues, The Pearl brings a unique, new hybrid approach to patron and performer comfort in a facility that is truly a rock-'n'-roll concert hall."



Left: The theatre under construction. Right: A view from the stage; note the extra-long line arrays.

### The flexible sound system

The Pearl is also linked via audio and video tie lines to Studio at The Palms, a state-of-the-art recording/post-production facility. "Because the owners wanted to allow artists to create live albums of performances at The Pearl," explains Berkow, "we needed to pay particular attention to sound isolation and acoustic treatment within the space. And, to accommodate both rock events and on-the-floor shows, the sound system had to be capable of covering a very wide audience area located on three levels."

To that end, says Berkow, "We specified a [JBL Professional] VerTec line-array system that comprises 20 4888DP-AN self-powered loudspeakers and 10 4082DP-AN self-powered subwoofers per side. In addition, we added a trio of four-box VerTec 4887DP-AN self-powered delay clusters for the high balconies." Supplementary rigging points allow the system to be reconfigured for in-the-round events. Centralized system control is provided by a BSS Soundweb London and Harman's HiQnet System Architect software.

"To be honest," Berkow says, "the sound system is more than adequate for the venue. But we believe in

providing plenty of headroom, in case visiting artists need extra horsepower. A huge priority in choosing the loud-speaker system was meeting the demands of the world's touring acts. These VerTec [boxes] are very rider-friendly; we wanted an in-house system that meant acts wouldn't need to truck in their own. Also, we are strong believers in self-powered systems, like these VerTec arrays, since they dramatically reduce cabling, and ensure enhanced audio quality because of shorter loudspeaker connections." Some 60 JBL Control Model 26C in-ceiling loudspeakers are also found in various locations throughout the theatre.

The sound equipment was supplied and installed by Colorado Springs-based Audio Analysts. "The infrastructure is highly flexible, to accommodate supplemental touring equipment, and to link the performance venue to the facility's recording studios," explains Marc Nutter, vice president of Audio Analysts' commercial division. "In the design process, the project team was particularly aware of both the acoustical design and functional plans for the venue.

"We frequently receive comments about the uncommon length of The Pearl's main arrays—20 elements each," he adds. "This was done for two reasons. First, the extended

length improves the degree of low-frequency pattern control, enhancing the typical bass build-up as one approaches an array. At the same time, utilizing a large number of elements minimized the splay angle between enclosures, and the consequent 'lobing' or 'fingering' that is often seen when fewer elements are splayed hard. Instead of the large-format [VerTec 4889 cabinet], we opted for the mid-size enclosures as a function of the enclosure quantity; with this number of elements, less power is required from each, because of constructive mid- and low-frequency



The room offers seating on many levels, including VIP booths.

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interaction. The result was what we had predicted: a smoother and more consistent amplitude and frequency response throughout the venue’s main seating area.”

Self-powered cabinets with on-board DSP offer other advantages. “From a contractor’s perspective,” Nutter says, “these types of systems are much easier to install, and they often provide additional functionality, compared to conventionally powered systems. For the user, there are many advantages—a greater degree of control and monitoring, improved reliability, and more flexibility when it comes to accommodating a variety of acts. The manufacturer selection was based primarily on JBL’s brand recognition, known quality and overall value.”

“For front-of-house mixing,” Berkow says, “we specified a Digidesign Venue D-Show digital console.” The unit is equipped with 64 inputs and 24-outputs; an 80-channel analog snake connects to on-stage microphone sources. “For stage monitoring, we selected an identical Venue D-Show console and 16 Audio Analysts VFX monitor wedges, powered by Crown I-Tech amplifiers, plus a pair of Audio Analysts’ 18” drum subwoofers.”

For connection to the Studio at The Palms recording facility, an all-digital Aviom Pro 64 system comprises 12 6416dio digital I/O modules and three MH10 merger hubs; it is backed by a 96-channel analog snake. Stage sources run through Grace Design and Aphex pre-amplifiers and 64 channels of Apogee analog-to-digital converters. An 80-channel transformer-isolated slit is available to a fourth location at the truck dock for remote recording mobiles. Stage and auxiliary inputs include eight 12-channel sub-snake boxes connected via four primary locations; nearly 100 additional inputs are provided throughout the theatre and peripheral areas.

Acoustical treatment at The Pearl includes a 1.5" layer of K-13 spray-on insulation applied to the ceiling “to control low and medium frequencies,” Berkow states. “We also added absorber panels into the rear walls across the entire width, along with absorbent material built into the underside of the VIP boxes and balconies. The fronts of the balconies were scalloped by the architect and curved to reduce sound reflections, and also covered in perforated metal with a fiberglass backing.”

### Lighting for all occasions

The theatre’s lighting system is also designed to serve a variety of events. “We proposed a design for an in-house lighting system that was flexible enough to go from a standard rock concert one night to a boxing ring the following night to a fashion show the night after,” recalls Kelley Technologies’ Adam Gregory. Three primary elements were of critical importance, he adds: “First, it needed to provide enough infrastructure to handle all of the above events with in-house gear. Second, a touring act should be

able to use its entire sound and lighting rig, with no in-house gear. Third, we needed to accommodate a combination of the in-house rig with added components from a tour.

"The fly loft area was kept clear of traditional linesets and pipes, since the stage really couldn't support a road version of a musical. Besides which, most rock/music acts don't carry more than one or two backdrops, which, most of the time, are hung from the back truss—so there was no need for them, and it saved on costs, too.

"We designed in a minimum amount of dimming—around 240 circuits," Gregory continues. "Most of today's tours barely carry any dimming; it's all movers and LEDs. To be honest, we see dimming as a dying technology, especially with the advent of LEDs for conventional lighting, video walls, and displays."

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The lighting truss comprises a total of sixteen 20.5" by 20.5" by 10' aluminum box sections hung from CM Lodestar chain-motor hoists; hanging points are located in the grid, and above the venue floor. A separate soft-goods truss system consists of eight additional half-ton CM hoists for scenic drops and curtains. Lighting power disconnects provide an additional 400A/three-phase 120/208V camlocks, two 60A/120V panels for backline/band equipment, and a single 200A/three-phase 120/208V for recording trucks.

As often happens, the original draft designs were revised by the firm selected to supply and install the hardware—in this case, Production Resource Group, who brought in the lighting designer Michael Keller to give the plot a fresh eye. "Because of space limitations, we needed to make the most efficient use of the available area as possible," Keller says. "The trusses were in place when I first saw The Pearl, and I realized that the lighting design had to tuck out of the way to accommodate visiting acts; the truss needed to offer space for other rigs. In terms of specific selections, to provide visiting designers with something they are used to, I went with the industry standard: ETC instruments and a MA Lighting grandMA controller. The design incorporates a combination of conventional and automated fixtures. Automation offers more choices, yet takes time to program—but it does allow presets to be cloned for other productions." Jim Holladay served as PRG's project manager, with system installation by Bombard Electric.

The original design called for two hundred fifty-six 2.4 kW

dimmers in a modular rack system, distributed to Socapex plug boxes located at the grid, catwalk/front-of-house truss, balcony, side sky box, stage floor, and wall positions. Control is via a DMX-based Ethernet system with multiple connection points. The lighting-package consists of 116 conventional fixtures—120 ETC Source Fours PARs and 20 Source Four ellipsoidals—plus 23 Martin Professional MAC 700 profiles and 14 Mac 700 Wash units. (Four Martin Atomic strobes are also available.) Two Reel-EFX DF-50 hazers and two High End Systems F100 foggers were specified, along with a pair of Lycian Starklite II spotlights. A Socapex patch panel was chosen for the company switch location, for additional dimmed circuits from a rental rack, distributed to boxes at the same locations. Moving-light power can be distributed from a central relay panel to

Socapex plug boxes next to the dimming boxes.

"The only changes we have made to the sound system since it was installed," says The Pearl's production manager, Jed DeFilippis, "was to add six d&b [audiotechnik] self-powered floor subwoofers—three cabinets per side—to improve the low-frequency performance in the room, especially for more energetic rock concerts and sporting events. It's been nearly two years since we opened and we are proud of what we have to offer."

As we go to press, bookings at the Pearl include Puscifer, the new project for Maynard James Keenan of A Perfect Circle; the world light heavyweight boxing championship, pitting Chad Dawson against Antonio Tarver; and the Fall Out Boy tour—making for a lineup that is light-years away from other venues, offering Cher, Bette Midler, Barry Manilow, or Cirque du Soleil.

"At The Palms, we continue to challenge ourselves in order to provide incredible experiences for all of our customers," says Maloof. "The timing of The Pearl was right in line with the movement of The Palms—we are able to reflect upon the amazing things that happened over the past five years and expand on the great venues before us, to develop something extremely unique and exciting." 📍

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