ARCHITECTURE

Harrah's Sign of the Times

An Atlantic City Hotel provides the setting for a bold experiment in LED display

By: David Barbour Photography: Courtesy of Tim Hunter Design

The Atlantic City skyline got a dazzling new feature last year with the opening of the 47-floor tower addition to Harrah's Resort Atlantic City. (At 525', it is now the tallest building in town.) It's not just another skyscraper; the façade is covered with LEDs, transforming it into the biggest video wall you've ever seen. It's the latest testament to the power (and power savings) of LED technology, resulting in a unique lighting display—it's an architectural adornment, light-art installation, and enormous digital signage, all rolled into one.

The project, with participants that include New York City-based Tim Hunter Design (THD), the systems integrator PRG, the software provider C-Nario, and the LED manufacturer Philips Color Kinetics, has not gone unnoticed. Last November, it was a finalist in the ESTA Rock Our World Awards. In February, it earned THD the 2009 Digital Signage Expo Content Award. In May, the firm received a Merit Award at the 2009 SEGD Design Awards. And in June, at InfoComm, it was recognized with an ARCHI-TECH AV Award, sponsored by *Archi-Tech* magazine.

Despite attempts at rehabilitation, Atlantic City still battles image problems, with many seeing it as a poor relation to the bigger, glitzier Las Vegas scene. This is especially true of the resorts found along the Boardwalk. However, in recent years, a sassier, sexier version of Atlantic City has sprung up in the Marina District, home to the Trump Marina and the Borgata—resorts that are making a concerted play for a younger and more upscale crowd. The addition of ACES, a New York City-to-Atlantic City train route, sponsored by the Marina District hotels, is part of this plan.

Harrah's, which is also located in the Marina District, has grown into an enormous complex. The new $550-million Waterfront Tower has 961 rooms, 104 suites, and eight super-suites. The building also features the Taste of the Shore food emporium and a 24-hour café. It also houses The Pool at Harrah's, a 172,000-sq.-ft. complex with a 90'-high domed area containing a 23,000-sq.-ft, 86,000-gallon pool—where the temperature is always 82°—plus Jacuzzis, cabanas, and deck areas. Still, the building's glittering, colorful façade—which covers 44 stories—is its biggest talking point.

This is not Harrah's first experience with an LED façade. When the 28-story Bayview Tower was built in 2003, its exterior was covered with 4,100 linear feet of Color Kinetics iColor Fresco units, their linear circuit boards mounted to the building's exterior in waterproof outdoor extrusions. The lighting, which required 11 DMX universes, was controlled by a Horizon system from Entertainment Technology/Genlyte, with offsite programming handled by Martin Professional Showdesigner. (The lighting was a project of Atlanta-based Stone Mountain Lighting

floor of the building's exterior. (Levy's firm is well-versed in large-scale and/or themed designs; its credits include Citywalk at Universal Studios in Los Angeles, the Forum Shops at Caesear's Palace in Las Vegas, and the Blue Martini restaurant at Bally's in Atlantic City.) RFPs went out to three systems integrators, with the project being awarded to PRG and Philips Color Kinetics.

Bill Groener, now the president and COO of Tim Hunter Design, was, at the time of the project's inception, vice president/general manager at PRG. He notes that the rapid pace of

move the system toward a video-based form of control. At the time, however, PRG didn't have the ability in-house to specify something like that; that's when Tim Hunter Design was brought in to design, specify, and lay out the control system."

The system's components

The fixture chosen for the building was iColor Accent Powercore, which, Groener notes, was part of Levy's original design. It's a version of Philips CK's iColor Accent fixture, retooled to make it friendlier for entertainment applications. In both
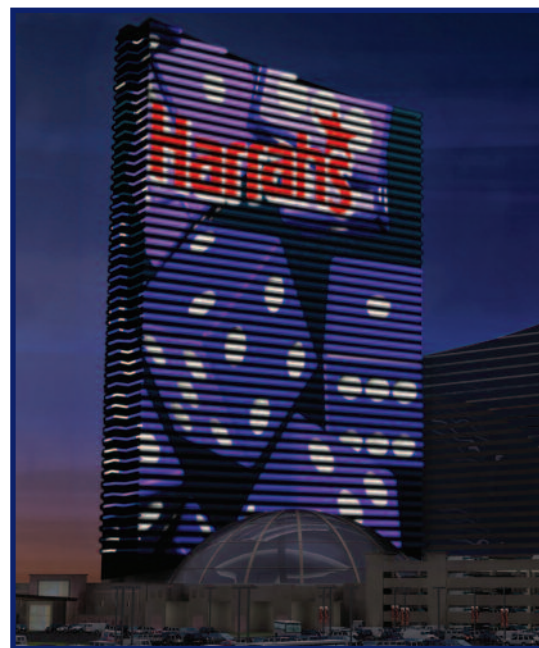
Above: Three concept renderings show images spread over the entire LED facade.

Group.) At the time, Dave Jonas, president and general manager of Harrah's Atlantic City, said the design had "forever changed the skyline of Atlantic City."

That was then; this is now. With the Waterfront Tower going up, it was time to take the LED concept to the next level. John Levy, of the design firm John Levy Lighting Productions, working with Friedmutter Group, the architect, proposed the idea of putting a row of LED units on each

change in technology transformed the Harrah's project over the course of its development period: "The project was specified and designed in 2005-06. At the time, the idea of driving video to LEDs was limited to concerts and major special events—not in permanent installations. The control specification was broadly sketched out."

However, he adds, as the participants became aware of what was possible, "PRG was asked to

versions, it's designed to be an LED alternative to neon. It comes in lengths of 2', 4', and 8' (and custom lengths as well), and, the company says, can be put together to create seamless columns or rows of colorful effects. What may be most important for this application is the fact that it offers a control resolution in 1.2" increments, thus making it workable for video or graphics. The fixture, which is rated for both indoor and outdoor uses, also incorporates

Philips CK's proprietary Powercore technology, which directly accepts line voltage, eliminating the need for external power supplies; without this feature, one imagines that the Harrah's project would have been simply impossible.

Hunter says the iColor Accent "is great, really beautiful in terms of color. Also, the hardware from Color Kinetics is easy to integrate." He adds, however, "The control system was key to getting the content to play correctly. When we came to the project, there was the thought that the units would be controlled by DMX. We spent a lot of time exploring that idea—and it was informative. But it wasn't the best solution, because the content production process would have been difficult and expensive. As a result, we began looking at a digital signage approach, which led to a very, very simple control system that the client can manipulate."

To develop the control system, THD turned to C-Nario, a provider of digital signage software solutions. "We started working with C-Nario in 2001, on Time Warner Center," says Hunter. (THD provided a site-wide media and broadcast delivery system, specialty lighting, custom audio system, and an events production infrastructure for that popular New York City destination.) "We worked with C-Nario there to develop a synchronous player," adds Hunter. "We did a number of projects with them. For Harrah's, C-Nario jumped on it, working with PRG to develop the software platform that is running the system today."

The control system is based on C-Nario's Messenger software platform, which handles files that are made up of more than eight million pixels. The system also manages and schedules files while synchronizing playback of the videos across the building's four faces. However, says Mike Hansen, of THD, a number of issues had to be resolved: "How do

you take four facades worth of content, and make it work with the Color Kinetics video systems engine, which is particular about the parameters and amount of information you can put into it? We solved that, working with C-Nario to develop an algorithm program; it takes the information and breaks it up, so the Color Kinetics engine can understand it and send it out to the LEDs. This required a lot of calculation work; we were really relieved when we did our first test in the field and the colors were right and everything lined up. Getting the algorithm right allows us to create the content the way we want—and to know it will always appear correctly."

Concept and presentation

Aside from the technical challenges, a large conceptual leap was being made, and it was paramount that everyone should understand what was really involved. The Bayview Tower was colorful and, for its time, quite bright, but it was essentially a lighting installation. As controlled by the Horizon, it was capable of executing a number of effects, including color chases, sunburst patterns, rainbow effects, wipes, and an American flag look. To turn the façade of the Waterfront Tower into what would essentially be a giant video wall— well, that was another story altogether. "Both the owner and the general contractor—TN Ward—had trouble visualizing the control system," says Groener. "They asked for a demo. Again, this wasn't in PRG's scope, so PRG was given a change order, giving THD the opportunity to do a demo. The client liked it, and that led directly to a contract for THD to do 35 pieces of content."

In many ways, the layout of the iColor Accent units dictated the nature of the images. "When you look at a HD TV screen, it has 1,080 rows of pixels going vertically and 1,920 horizontally," says Hunter. "Here, on

The aurora borealis look.

the vertical side, we have 44 pixels placed 10' apart, and, horizontally, 3,000 pixels that are 1.2" apart." Or, as the awards citation for Digital Signage Expo says, "To create this expansive display, Tim Hunter Design had to leverage the company's understanding of the unique spatial relationships between image and brain recognition functions to create a seamless stream of evocative imagery from the linear LED fixtures located at 10' intervals up the sides of this tall structure."

In plotting out content, there were other considerations to consider, as well. "The most challenging part was figuring out how the product would look a mile away, or five miles away," says Hunter. "We tested this, using our own office building in Manhattan. We

put some Color Kinetics product on the exterior, with one of our project managers standing a few blocks away, holding a ruler up to his eye to see how much the product flared when the eye perceived it from a distance—that information had to go into the digital model, too. You have to deal with the fact that your contrast is created by nighttime, and that it is always changing; also, the night might be clear or it might be foggy. All of this alters your perception of the images."

The demo process at THD typically unfolds in several steps. "Early on," says Hunter, "we'll take an elevation of architectural drawings and mock up some still views. In this way, we test ourselves, to see if we're honest about the capability of the system. Then we go into 3D Studio Max, to create a 3-D model of the building; next, we deploy our design equipment into that model, to scale. Using AfterEffects, we create animations, mapping them into the 3D StudioMax model, moving the camera around, so the owner can see exactly what the guest or pedestrian passing by the building will see."

The THD team has these presentations down to a science. "We can review them over the telephone," says Hunter. "We direct the client to a web page with an image of the building; on the left, they can see the image we're creating, and, on the right, the building with the image mapped on it. It makes for a very fast review."

In the case of Harrah's, says, Hunter, the first task "was to show the client what the building could and could not do." This is where Hunter's appreciation of the system's unusual resolution became important. "We showed them things that wouldn't work—the company's logo in the corner of the building, and full-motion video from a TV feed." In doing so, it became clear that any image requiring really high-density pixelization was out.

Next, Hunter and company presented more workable ideas. "They have this fabulous pool area," Hunter
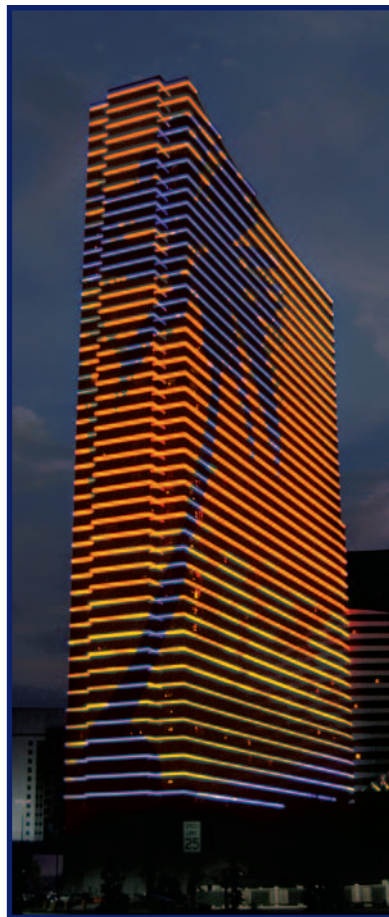
The oasis look.

says, "so we showed them reflected water, a palm tree, moonlight. They liked that. Basically, we took them through a process of definition and explanation, to develop an aesthetic for them, and also to define the different buckets of media." "Bucket" is Hunter's term for the different categories of images. "There are seasonal images—Valentine's Day, New Year's, Thanksgiving," he says. "Another one is branded content, like, say for the World Series of Poker; another is building-morphing pieces," or in-motion geometric color chases that alter one's perception of the building's shape.

Harrah's is not limited to the content created by THD, however, "They can import a jpg file if they choose—write in a ticker message—and click and drag it onto the building," Hunter says. "Rather than create

a design solution where the owner is dependent on other people, we try to give them some kind of autonomy. It's expensive to build this stuff and you can't ask them to invest in millions of dollars of new media content on an annual basis, so we've developed a strategy of giving them options."

Hunter, echoing Hansen, makes the point that, in a project like this, painstaking preparation is everything. "Quite often," Hunter adds, "people will take a piece of content and just slap it on a building—and what you'll see are big gaps, or holes, or flares. We're really proud, because the client walked out one night with a rendering in hand, and said, 'It looks exactly like the rendering.'"

Images in the Night

It's the kinetic effect of the images that really grabs one's attention, not to mention their size and scale. At any time, one might see dice tumbling down the building; a colorful representation of the aurora borealis; an American flag zooming into place; a cascade of hearts, diamonds, jacks, and spades; or bursts of fireworks. And, as is always the case with LEDs, this extraordinary representation doesn't translate into significant power outlays.

The Waterfront Tower is a sign of the times in more ways than one, providing hard evidence of how much LED technology has changed over a very short period. In fact, the new tower makes such a strong impression that a change of plans was needed, and the Bayview Tower's LED display has now gone dark. "In the beginning, the idea was to operate the lighting on both towers," says Groener. "But once everyone say the new tower's level of brightness, they made the decision to turn off the older tower and let the Waterfront Tower be the star of the show." No worries—the new star is appearing nightly, giving Atlantic City's skyline a sleek new profile. 🔊