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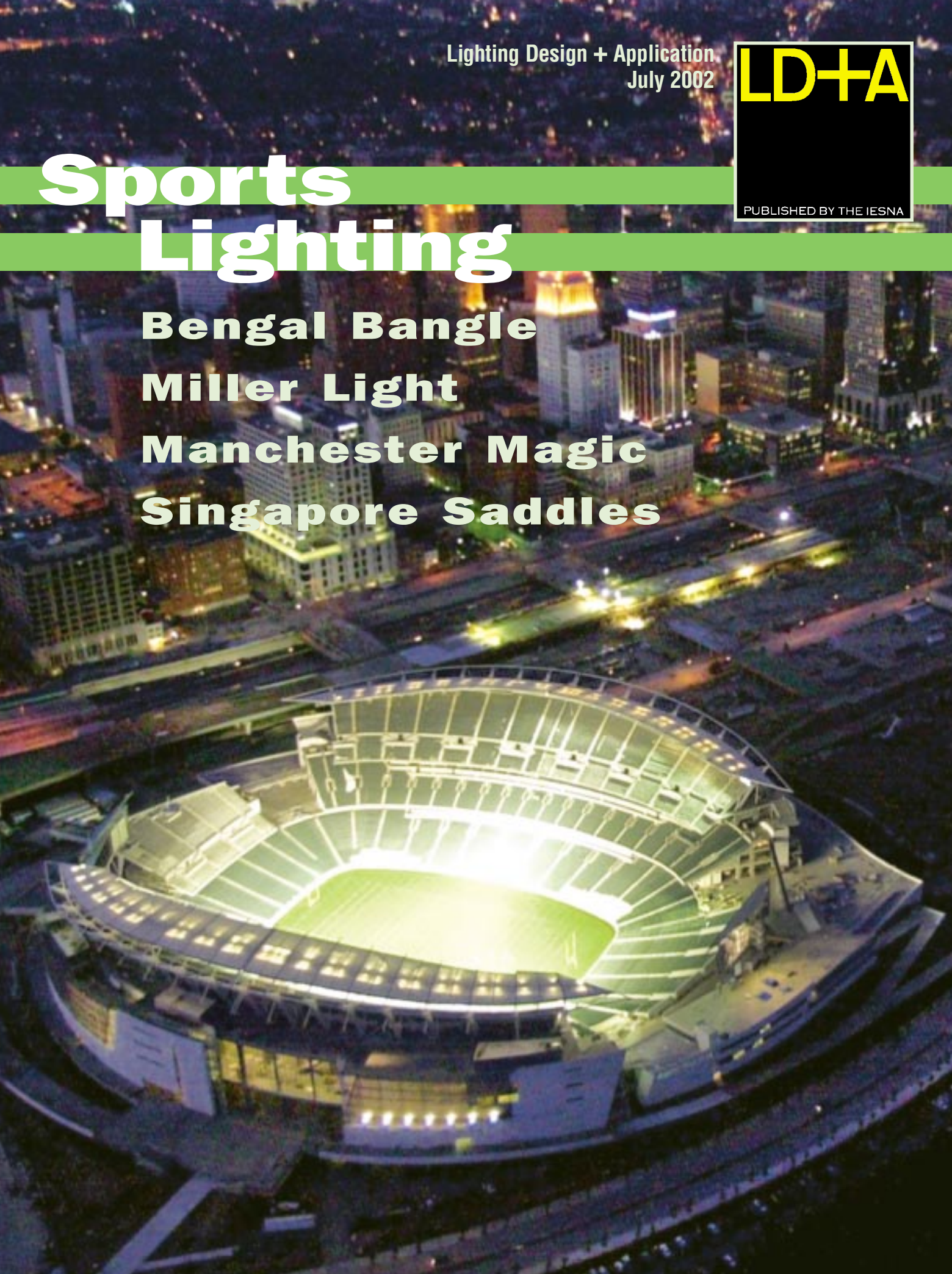
Sports Lighting

Bengal Bangle
Miller Light
Manchester Magic
Singapore Saddles



*For **Bonny Ann Whitehouse**, sports lighting is more than illuminance values and uniformity ratios. It's a blend of architectural and theatrical techniques*

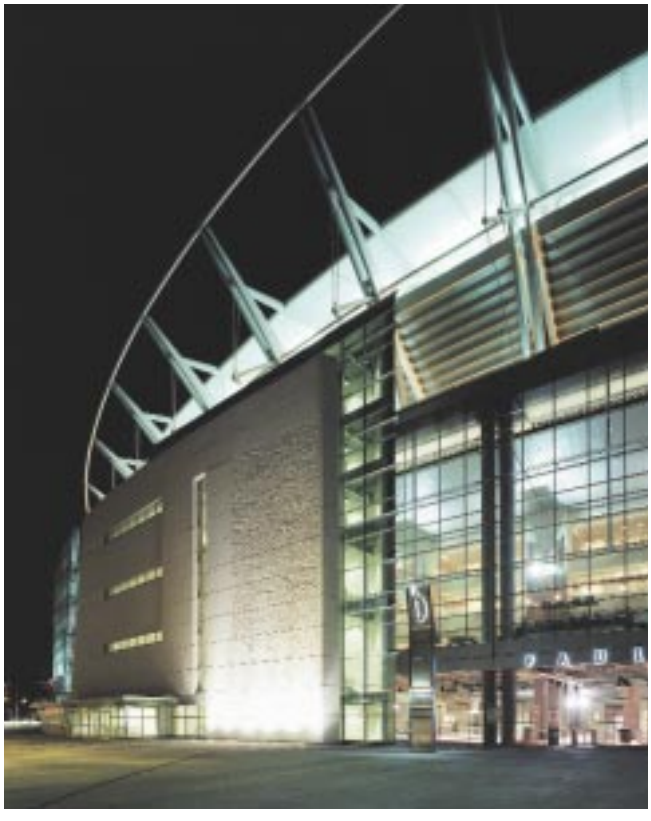


PHOTO: TIM GRIFFITH/COURTESY OF NBBJ

KEEPING HER EYE ON THE BALL

Bonny Ann Whitehouse is a senior lighting designer for Flack + Kurtz Inc., an international consulting engineering company based in New York City. In addition to her rich background in architectural and theatrical lighting, her experience includes an impressive list of major sports facilities—like Miller Park, Milwaukee, and American Airlines Center, Dallas.

"I approach sports lighting as a multitude of diverse systems for event and architectural lighting that must be melded and

(top) F+K Lighting Group provided event lighting for 42,500-seat Miller Park with a fan-shaped retractable roof by integrating the location of the lighting structures using state-of-the-art technology for field illumination and control.
(left) The designers accentuated the facade of Cincinnati's Paul Brown Stadium, providing sparkle to the surfaces of the building, highlighting an instant landmark along the Ohio River.

At the Portland, OR, Rose Garden arena, lighting design encompassed the suites, concourses, restaurant, and exterior facade, as well as illumination for the events.

controlled as one," she told Chuck Beardsley, Editor of *LD+A*. "It's lighting for restaurants and clubs. It's television lighting for events. All of these areas add to the 'game' experience.

"Event lighting should be designed with metal halide fixtures—1000 or 1500 W—because of their color temperature and color rendering index, both of which plays an important part in meeting both the leagues and television broadcasters' requirements."

Polk and Portland Perspectives

Polk County Iowa Events Center—now under construction—presented significant design challenges for Bonny. The lighting design considered the needs of an arena and an exhibition hall, as well as a total building lighting control system.

The arena caters to basketball, indoor football and hockey events. Aside from the main events, the design of the lighting controls allows for the versatility required by events such as trade shows, car shows, graduations, large-scale meetings and concerts.

Metal halide floodlights with 'instant on' shades will permit instant blackouts for visual effects. The versatility required by the exhibit hall will be addressed with two lighting systems: metal halide floods with stepped "on-off" dimming for flexibility and dimmable quartz to provide a more intimate setting for dining.

"It's more than event lighting," says Ms. Whitehouse. "It's the total integration of the lighting in the facility, including the suites, clubs, concourses, restaurants, and exterior facades. The requirements of each facility need to be considered separately. Each has unique features that present new and different lighting challenges.

For example, Flack+ Kurtz's Lighting Design Group has implemented an indirect lighting approach at the Portland, OR, Rose Garden arena, home to the NBA Portland Trailblazers.

"By nature, arenas are energetic frenetic places," Ms. Whitehouse observes. "The lighting designer seeks a calming, soothing and organized atmosphere to help with crowd control."

At the Rose Garden, the main concourse general lighting is provided by illumination of the underside of the seating rake, offering subdued ambient lighting.

The event lighting was designed to meet the needs of both the players and the NBA without causing glare to the spectator.

Manchester Magic

At the Manchester, NH, Verizon Wireless Arena, which opened in November 2001, F+K provided an integrated design solution for the event and architectural lighting.

Manchester is located on the Merrimack River and a nautical influence can be found in most of its architecture. This

The challenges of lighting Seattle's Safeco Field were a combination of meeting the stringent requirements of both major league baseball and ESPN broadcast standards. An acceptable max/min ratio was achieved while maintaining a low glare level within the seating.

theme was applied to the arena, which is located at a major intersection and set back from the curb.

At the entry, four columns, shaped to resemble smokestacks from old ocean liners, are grazed with a tight beam metal halide downlight. The main entrance lobby has a front façade wall of 40-ft-tall glass structures with few mullions. The space is lighted with indirect metal halide fixtures reflecting off large mirrors suspended from the ceiling. The mirrors provide diffused downlighting, and the mirrors' shadows along the ceiling plane give a celestial appearance. The indirect metal halide fixtures graze various walls as they reach upward toward the ceiling mirrors, adding to the constellation appearance of the lobby.

On the main concourse levels, along both sides of the arena, oversize indirect fixtures are mounted along the interior columns, uplighting the double-height space. The exterior is glass, offering passersby a view of the interior suite space.

The arena lighting used ESPN design criteria to provide lighting levels for hockey and basketball. A building control system provides lighting controls from a central location, which allows one to easily adjust arena lighting levels for a variety of events.

Catwalk-mounted aisle lighting forms the egress stairs of the arena seating area.

Cincinnati Jewel

Built as a showcase for the NFL's Cincinnati Bengals, the Paul Brown Stadium features a European-style cantilevered roof over the upper seating. Quartz uplight fixtures accentuate the elegant flowing features of the roof.

F+K's goal was to create a jewel within the city's skyline. Metal halide floodlights add sparkle to the metal finishes of the exterior façade. High pressure sodium lamped fixtures flood the underside of the seating rake on all upper concourses, giving a wash to the stadium that accented the façade.

To meet the stringent requirements of ESPN broadcast standards, over six hundred 200 W metal halide sports lights were used. The unique lighting concepts added sparkle to the facade of the building, highlighting an instant landmark along the Ohio River.

Miller Time

F+K designed the event lighting for Milwaukee's Miller Park. Among the challenges of the design were stringent guidelines from major league baseball and the television networks, as well as the need to minimize lighting glare for the players.

"Baseball is a multi-directional aerial spot," notes Ms. Whitehouse. "So the possibility of lighting glare increases. Careful consideration to the players' perspectives is critical, as is minimizing glare to the spectators. At the same time, shadows of the players on the field must be minimized to not distract the television viewer."

Miller Park—home of the 2002 All-Star Game—was particularly challenging because the lighting levels had to be sufficient for indoor conditions, when the convertible roof is closed, and outdoor conditions, when the roof is retracted. The heights of the fixtures are fixed and the locations had to be closely coordinated around the mechanics of the roof.

Undoubtedly, Miller Park's most unique feature is the roof. The only fan-shaped convertible roof in North America, the 12,000 ton, seven-panel structure opens and closes silently in just 10 minutes.

Metal halide floodlights were used for both event and emergency lighting. Hot restrike lamps were specified to overcome the long restrike time of standard metal halide lamps.

"My theatrical training helped in hands-on aiming of the fixtures at Miller Park," says Ms. Whitehouse. "Lighting was initially skimming the scoreboard, creating a mammoth shadow. Working all night, for three consecutive nights, we re-aimed the adjacent fixtures to increase the lighting levels at the trouble spot without jeopardizing the vertical footcandle levels at the original aimed location of the fixtures. In arenas, banners and speaker clusters can also create shadows that can cause aiming challeneges."

More than a decade of planning and four and a half years of construction went into building the $400 million park, home to the Milwaukee Brewers. From its statues of Hank Aaron and Robin Yount to its brick and stone façade and towering steel arches, the 42,500 seat stadium resembles the ballparks of the 20s and 30s.

URI Traditional

The University of Rhode Island's Convocation Center is a 7500 seat, 200,000 sq ft multi-use center with accommodations for basketball, concerts, and public shows. It contains all of the amenities of a professional arena, including six luxury boxes.

F+K worked with the design team to maintain a traditional style with a modern undertone. Red brick with green tint metal trim was used, and large 400 W metal halide pendant fixtures with a green patina metal finish were specified for the concourses. The main features of the lighting design include energy efficient fixtures and a total building lighting control system, which uses occupancy sensors in all major pubic spaces.

Compact fluorescent high-bay fixtures were used in the arena for house and emergency lighting. By tying the energy efficient emergency lighting into a separate generator, URI earned significant rebates from Narragansett Electric.

"I sculpt with light," says Bonny. "Multi-directional aerial sports like baseball demand critical vertical illuminance over the height of the playing area, as well as horizontal illuminance at ground level.

"But I also design for every other conceivable event—from dog shows to graduations—by carefully designing a flexible, user-friendly lighting control system. There's no single way to best light these activities. Each multiuse sports facility—whether an arena or a stadium—presents unique design challenges."

The designer: Bonny Ann Whitehouse, IESNA, IALD, has a wide range of lighting experience, both in architecture and theater. Her theatrical background has led to a variety of different consulting opportunities with architectural firms and architectural lighting designers. She is a senior lighting designer at Flack + Kurtz, Inc., New York, and has been a member of the IESNA for three years.