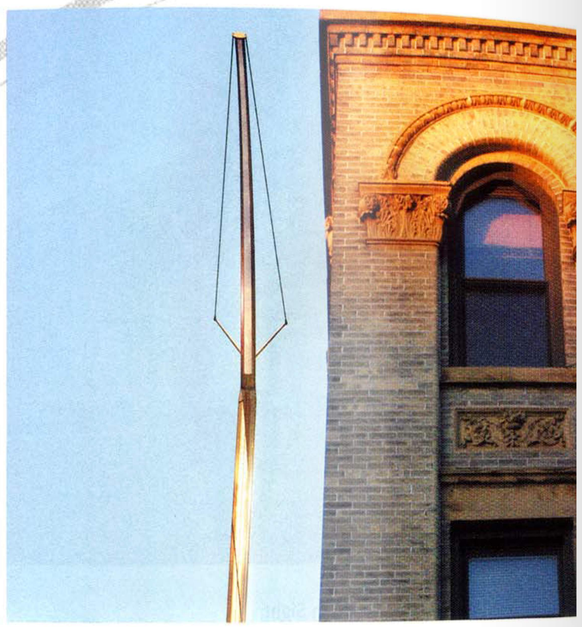


Coming Soon To BROADWAY

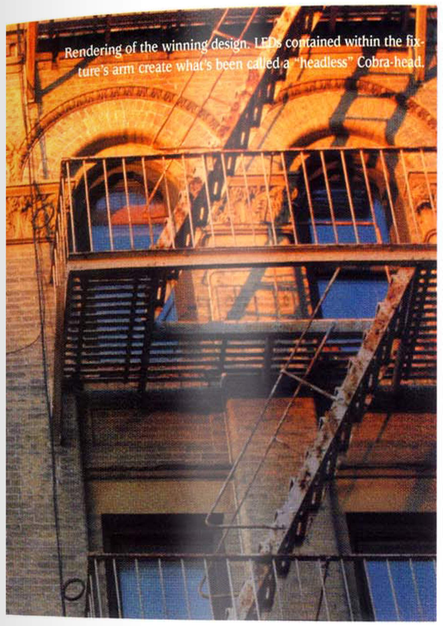
AN INTERNATIONAL DESIGN COMPETITION HAS PRODUCED A SLEEK, MODERN LUMINAIRE THAT MIGHT REPRESENT THE FUTURE OF STREETLIGHTING IN NEW YORK CITY

By Paul Tarricone

New York City planners searched the world over for a new streetlight design during their recent "City Lights" competition, reviewing more than 200 proposals from 23 countries. But when all was said and done, they ended up selecting a fixture concept developed by an architecture/lighting design team located right in their own backyard of Manhattan. However, the winning design is unlike anything currently found on the streets of the Big Apple.

Architect Thomas Phifer & Partners and lighting consultant/engineer Office For Visual Interaction (OVI) joined to create the first-place design, selected last October by a jury comprised of city officials and members of the A/E and lighting communities. Second place went to Skidmore Owings & Merrill, Chicago, IL; third place to Atelier Imrey Culbert, New York, NY. Three-quarter scale models of the first- through third-place winners were on display through November at the Museum of the City of New York.

The city cast a wide net for entrants in Stage I of the competition, inviting architects, artists, urban designers, product and industrial designers, manufacturers, lighting designers and landscape architects to participate. Stage II winnowed the field to the three finalists, who produced more detailed designs. Their mandate was to capture the diversity of the city's architecture and urban landscape while meeting the technical performance standards for a New York City streetlight.



Rendering of the winning design. LEDs contained within the fixture's arm create what's been called a "headless" Cobra-head.

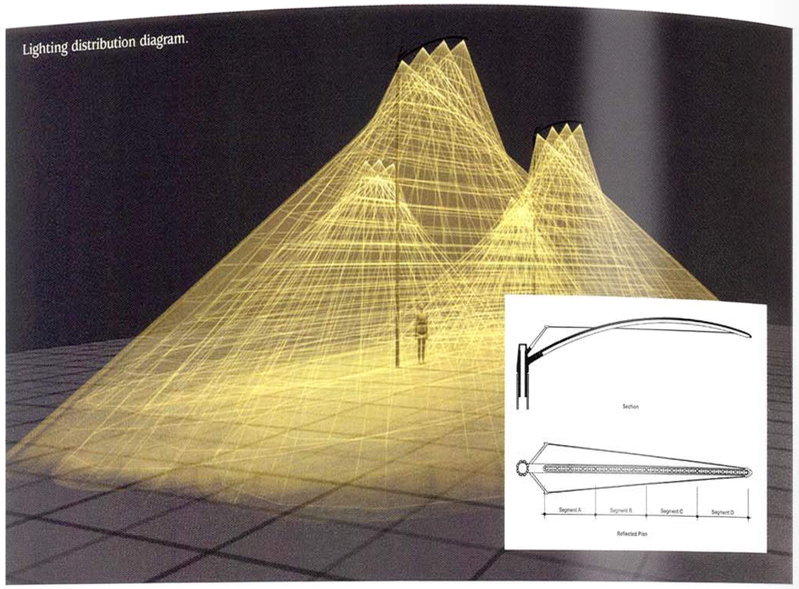
The chosen design and its variations will be added to the New York City DOT's "Street Lighting Catalogue" and will be used to light streets, sidewalks and parks within the city's five boroughs. Installation of new fixtures could take place in two to five years, according to published reports. Manufacturers will also be brought onboard soon. "We will look for manufacturers of poles and LEDs to create a prototype in the very near future," says OVI principal Enrique Peiniger.

Eventually, the new design could even eclipse the tried-and-true steel pole and Cobra-head luminaire—the city's design standard for the past 50 years—as the "pre-eminent" streetlight in New York. One of the city's goals for the competition was to find an "imaginative, cost-effective and enduring design" that could over time become the new street lighting standard for New York and its inventory of more than 300,000 streetlights.

The Anatomy of a Streetlight

Competition guidelines stipulated that the new streetlight has to allow for a one-to-one replacement of existing streetlights. The base has to be anchored to the foundation with four bolts in a pre-defined location, while also maintaining the central conduit connection. Design criteria required that all luminaires must be operable with 110/120 volt, 60-hz electrical service; produce light with a CRI of 21 or better; and produce an even distribution of light. Other criteria addressed issues such as the use of materials and finishes to resist corrosive agents and graffiti; mitigating the effects of lightning; and light pollution.

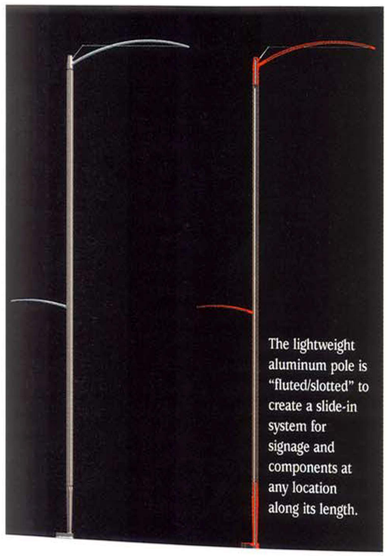
The city also has its eye on cost containment. New York currently spends between $1500 and $9500 to fabricate a streetlight with a single luminaire. The Cobra-head is the least expensive; the M-pole with teardrop luminaire the most expensive. The competition guidelines advised designers to "strive for a streetlight that is practical to fabricate and can be produced by more than one manufacturer. Ideally cost of fabrication would fall in the bottom half of the current spending range."



ALL RENDERINGS COURTESY OVI

The design strategy of the Thomas Phifer/OVI team was to integrate fixture and light source. LEDs are contained within the fixture's arm, creating what's been referred to as a "headless" Cobra-head. "The new design is one that is interwoven with technology," says Peiniger.

What follows are highlights from that design:



• The pole is located asymmetrically at the base. This off-center positioning allows optimal access to the mounting bolts and cable conduits via a hinged access door, while all the components are concealed within a slim rectangular profile, which acts as the base for the luminaire.

• Devising a method for affixing signage and other components to the pole was a key design consideration. The pole is constructed of lightweight aluminum and is "fluted/slotted" to create a slide-in system for signage. In addition, the fluted design enhances the pole's appearance while minimizing its surface area, potentially reducing vandalism. The slots work like a track, and allow components to be slid into place or "snapped in" at any location along its length and 360 deg in orientation. "This is a much cleaner appearance than the typical strap/banding currently used," says Peiniger.

• The final element of the streetlight is the luminaire component. The lighting is an integral design element, not an "add-on." The use of LEDs allowed for design flexibility and the ability to make the luminaire small. As a result, the luminaire takes on the form of the streetlight itself, rather than that of a traditional "luminaire head." An oval profile was preferred and maximizes surface area, acting as a heat sink for the LEDs.

• The lighting for the new streetlight combines current hi-flux LED technology with state-of-art lensing optics in a small, slim, oval-shaped profile, which provides the structural framework and heat sink for the LED modules. A linear array of LEDs is grouped into four segments. Each segment will have an optics lens with macro lens light shaping film diffuser technology to achieve the light distribution pattern. This modular design strategy of components allows interchangeability and usage of components between the various street light configurations (e.g. long- and short-arm versions, as well as, the park/pedestrian light configuration). Peiniger points to lifecycle, better color rendition vis a vis high-pressure sodium, minimal maintenance, low-wattage consumption and the small, lightweight characteristics of LEDs as reasons for their selection. Moreover, "LEDs are robust and not susceptible to vibration (harmonics) inherent in roadway applications," he adds.

Will the luminaire design have "legs?" That is, will it stand the test of time? Peiniger says yes. "The segmented/modular design is inherently interchangeable to accommodate the next generation of LED technology. It can be swapped out for another segment in the future that may have fewer LEDs, or higher wattage LEDs. Rather than becoming outdated in 10 to 20 years, the system will be able to evolve with current technology and improve with age."

About the Designers: Jean M. Sundin, IALD, Member IESNA (1994), is a principal of Office for Visual Interaction, New York City. Ms. Sundin received a Bachelor of Fine Arts degree in Interior Design from the Virginia Commonwealth University. Ms. Sundin has been involved in the lighting design and management of world-class signature projects for over 16 years, including the Grand Louvre and Richelieu Wing in Paris, France; Hirshhorn Museum Sculpture Garden and Korean War Veterans Memorial in Washington DC, Carre d'Art in Nimes, France and Stansted Airport in Essex, UK. In addition, she has developed prototype luminaries, which have later become industry standards.

Enrique Peiniger is a principal of OVI. Mr. Peiniger received his Masters Degree in Architectural Engineering from the Technical University of Berlin, Germany and is a certified Diploma Engineer (Dipl.-Ing.), M.A. Mr. Peiniger entered the field of lighting with a specific focus on luminaire manufacturing and daylight systems. He is a member of the U.S. Green Building Council, the International Facility Management Association and the American Association of Museums, and has lectured at universities in both the U.S. and Germany.