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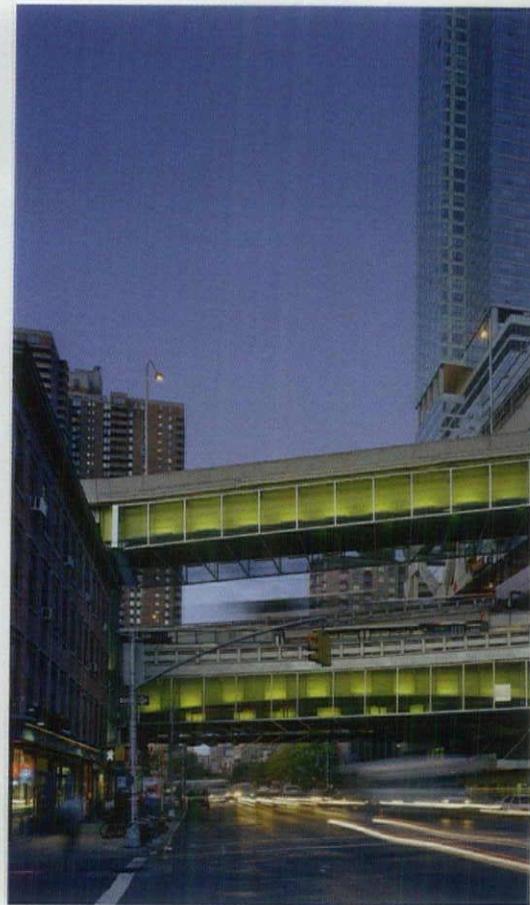
- 10 **park** /The High Line, New York

Cover: L'Observatoire International's lighting design illuminates New York's elevated High Line park.

EMILE H DUBUISSON © 2009

This page: The High Line makes use of an abandoned rail line along the western edge of Manhattan, and section drawings show the structure of the High Line and the widths of the walking paths.

LEFT: ELIZABETH DONOFF © 2009; RIGHT: © JAMES CORNER FIELD OPERATIONS



Triple Decker

A neglected urban space is transformed into a place of wonder

The series of access bridges (three were built in 1950 and a fourth added in 1961) that link the Lincoln Tunnel with the Port Authority Bus Terminal in New York have long created a dank and uninviting area along Ninth Avenue. But that now has changed, thanks to an inventive lighting strategy developed by New York-based Leni Schwendinger Light Projects in collaboration with architecture firm PKSB. Fifteen years in the making, the Triple Bridge Gateway project speaks to lighting's ability to transform neglected spaces and capitalize on the beauty of urban infrastructure. "The idea was to create a luminous room where once there was a dark abyss," Schwendinger says.

The project's design dates back to 2004 (see

"Urban Light," April/May 2004), when lighting enhancements were integrated into an already scheduled rehabilitation of the 50-plus-year-old ramps. Schwendinger found inspiration in the urban environment, crafting the project as an homage to the city's industrial vernacular and incorporating the way that sunlight reflects off glass buildings. Her first step was to call out the bridges' infrastructural elements by coating them in different colors, making the spans visually legible to commuters and pedestrians. Since colored lights would have bled together, Schwendinger used white light from T12 linear fluorescent fixtures to illuminate the painted surfaces.

The lighting also works with the architect's solution to wrap the sides and underside of each ramp

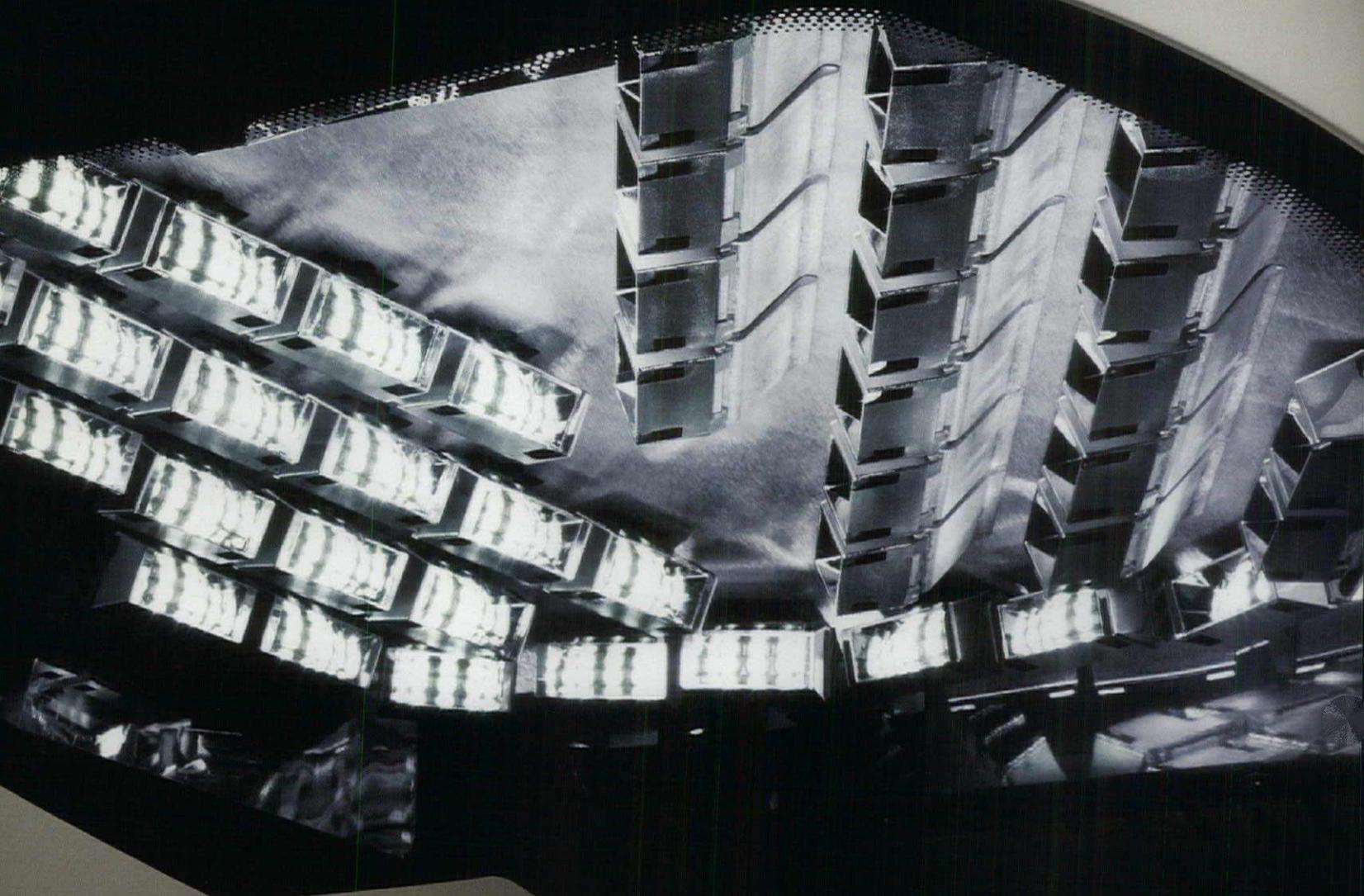
in a containment system of stainless-steel chain-link scaffolding. This containment system solves the problem of providing maintenance access and it also is used as a light scrim. In addition, a series of highly polished stainless-steel panels are hung beneath the bridge ramps, illuminated by 1000W metal halide lamps mounted on the adjacent buildings. Light skims the mesh and the panels, casting dappled reflections onto the street below.

The project also is mindful of the passage of time. An electronic control system creates compositions that range from a minimal illumination of the bridges' beams to an all-out spectacle of color and flash. Either way, the project stitches together a neighborhood that has long been divided. **AARON SEWARD**

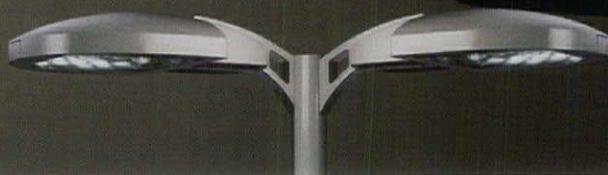


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enLIGHTen America Raises Awareness for Energy-Efficient Lighting

Lighting accounts for almost 40 percent of a building's energy use, so implementing energy-efficient lighting strategies seems to be a logical choice for commercial property owners looking to reduce operating costs. However, finding useful information to navigate the retrofit and upgrade process has not been readily accessible. So in August 2008, in an effort to reach out to building owners and alert them to the benefits of "energy and costs savings through lighting renovations," the National Electrical Manufacturers Association (NEMA) initiated the enLIGHTen America program, which was designed as an advocacy initiative to represent the entire lighting supply chain, not individual companies. Today, more than 40 manufacturers have joined to endorse the program, which provides information about the benefits of upgrading out-of-date lighting products and systems. According to NEMA consultant Doug Baillie, the program's message has reached its initial target audience of 600,000 building owners in its first year.

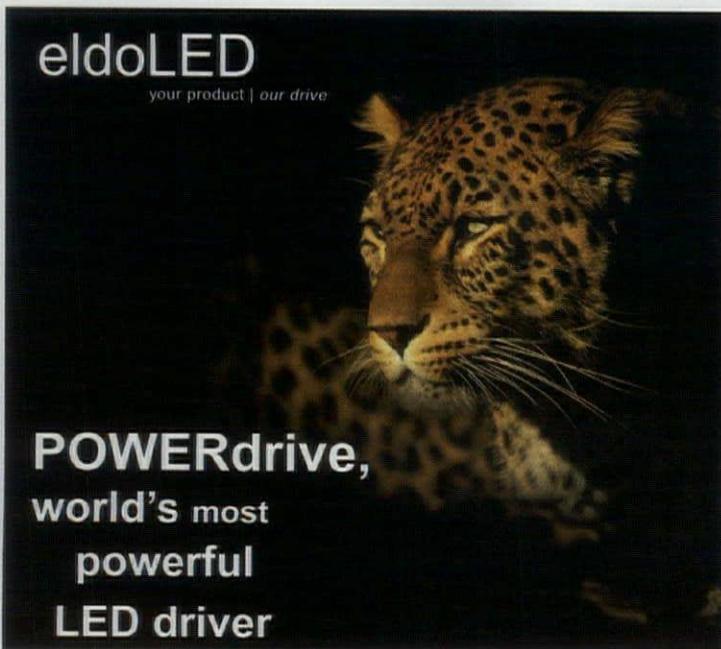
Although developed a year before the financial crisis hit, the program's launch could not have been more timely in light of the economic turbulence of

the past 12 months, particularly as building owners are now looking even more closely at cost-saving measures. To continue enLIGHTen America's momentum in 2010, NEMA is broadening the initiative's reach, expanding its target audience to include facility managers, architects,

lighting designers, contractors, and lighting maintenance staff. "We want to build visibility about lighting technology," Baillie says, "and how using the latest lamps, ballasts, and controls can contribute to lighting energy savings"—a

savings that could reach 50 percent or more. From the data compiled, the program estimates that the renovation market represents close to \$1.5 billion next year alone. Lighting upgrades are scheduled to occur in 41 percent of the approximately 5 million commercial, industrial, and institutional buildings in the United States. Not only will upgrading to a more energy-efficient lighting system help reduce operating expenses, it also will provide better quality lighting and increase a building's asset value—a particularly important consideration in the current real estate market.

By alerting building owners and lighting specifiers to the advantages of implementing energy-efficient lighting strategies, enLIGHTen America serves as a starting point for a greater awareness about lighting's contribution to reduce a building's energy consumption. NEMA organizers are confident that green building initiatives will take hold and establish themselves in the marketplace, becoming commonplace best practices. Once we get to that point, energy-efficient building solutions will not require specially focused awareness campaigns such as enLIGHTen America. Program details are available online at nemasavesenergy.org. **ELIZABETH DONOFF**



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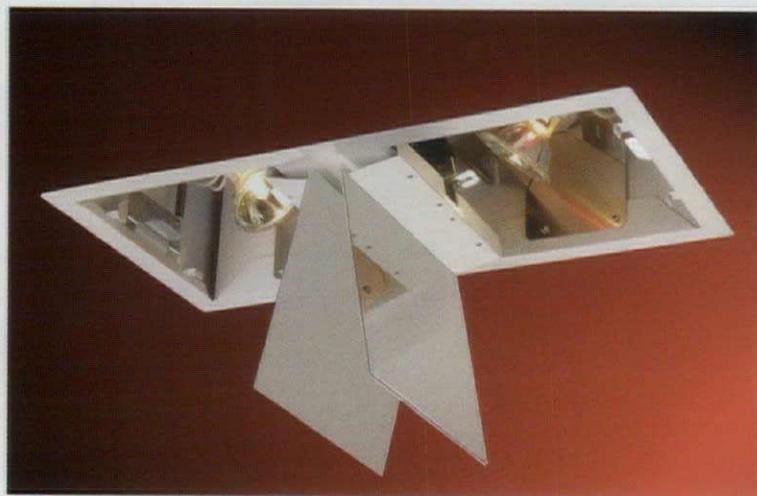
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T12 Ballast Changes Set the Stage for Upgrades

If a lighting specifier thinks about the equipment and maintenance needed for a project, lamp and ballast selection is probably one of the most important "lighting infrastructure" decisions that he or she can make. And yet, a report by the National Lighting Bureau (NLB), a nonprofit independent lighting information source, said sales of T12 lamps are still quite strong, accounting for 30 percent of all 4-foot-length fluorescent sales.

The NLB's late August 2009 release is alarming for several reasons. First, it signals the continued production of this 70-year-old fluorescent technology which, as NLB vice chairwoman Susan Bloom of Philips Lighting and Philips Lighting Electronics says in a press release, "is generally considered outdated when compared to the far more efficient T8 and T5 fluorescent technologies currently available." Second, it means that a substantial portion of the nation's buildings are not using the most efficient lighting technologies, and thus not operating at cost- or energy-effective standards. According to Bloom, industry sales data indicates that three out of every 10 4-foot fluorescent lamps sold in the United States is a T12. Finally, continued sales of 4-foot T12s indicates that many building owners and facility managers likely are not aware of the Department of Energy (DOE) mandate that will go into effect on July 1, 2010. This mandate says the magnetic ballasts most commonly used for the

operation of 4-foot T12 lamps will no longer be produced for commercial and industrial applications.

According to the NLB's report, the July 2010 deadline is the final phase of a multistep process, which began July 1, 2005. At that time, ballast manufacturers could no longer sell T12 magnetic ballasts for use in new luminaires with full-wattage T12 lamps. In the next phase of the process, March 31, 2006, was the last day lighting manufacturers could incorporate those ballasts in any new full-wattage T12 fixtures. When July 1, 2010, arrives, "the manufacture of T12 magnetic ballasts solely for replacement purposes will cease."

What does this mean? Millions of T12 sockets eventually will become obsolete because the substantially reduced number of available replacement ballasts will make them harder to maintain. So building owners will have to decide when, not if, they will address how to change these fixtures. The good news is that there are a lot of efficient options available, such as replacing the magnetic ballast with an electronic ballast; modifying the fixtures to accept either a T8 or T5 lamp and its companion electronic ballast; replacing the entire fixture; or exploring a completely different lighting technology.

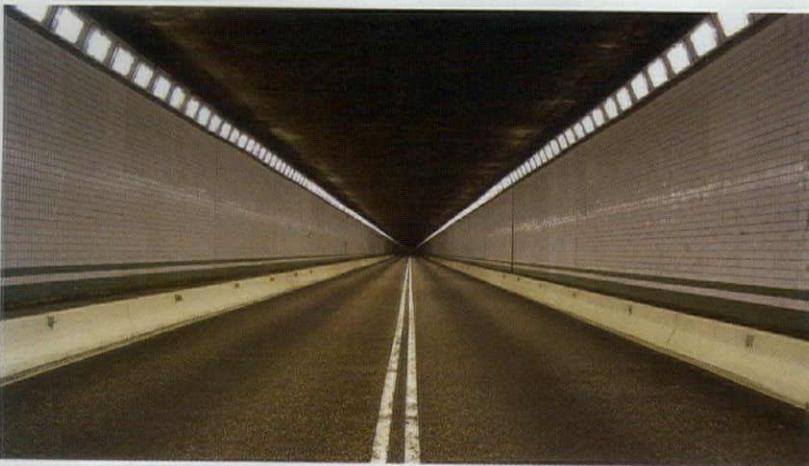
There also are incentives available to make the switch less burdensome to the building owner. Some are administered by individual states and utility companies. There also is the Commercial

Building Tax Deduction outlined in the Energy Policy Act of 2005—if the lighting upgrade qualifies for this federal tax incentive.

However, as with all federal regulations governing lamps, there are exceptions to the deadline. The following can continue to be manufactured:

- T12 ballasts that dim to 50 percent or less;
- Two-lamp F96T12HO ballasts designed for outdoor sign applications where temperatures may fall to as low as minus 20 F; and
- Magnetic ballasts with power factors less than 0.90, designed and labeled for residential building applications.

Nevertheless, the end of T12 magnetic ballast production will serve as a kind of national house cleaning when it comes to inefficient lighting technology. The DOE's Energy Information Administration's last released Commercial Energy Consumption Survey in 2003 reported 2.73 million pre-1980 buildings and 1.92 million post-1980 buildings that have been using outdated lighting technology. That data is nearly six years old; one can only imagine the 2009 numbers. In the end, switching from T12 fluorescent lamp technology to either T8 or T5 lamps has the potential to reduce lighting costs by almost half, which should make a lot of building owners happy and alleviate many of the concerns they might have regarding the impending change. **ED**



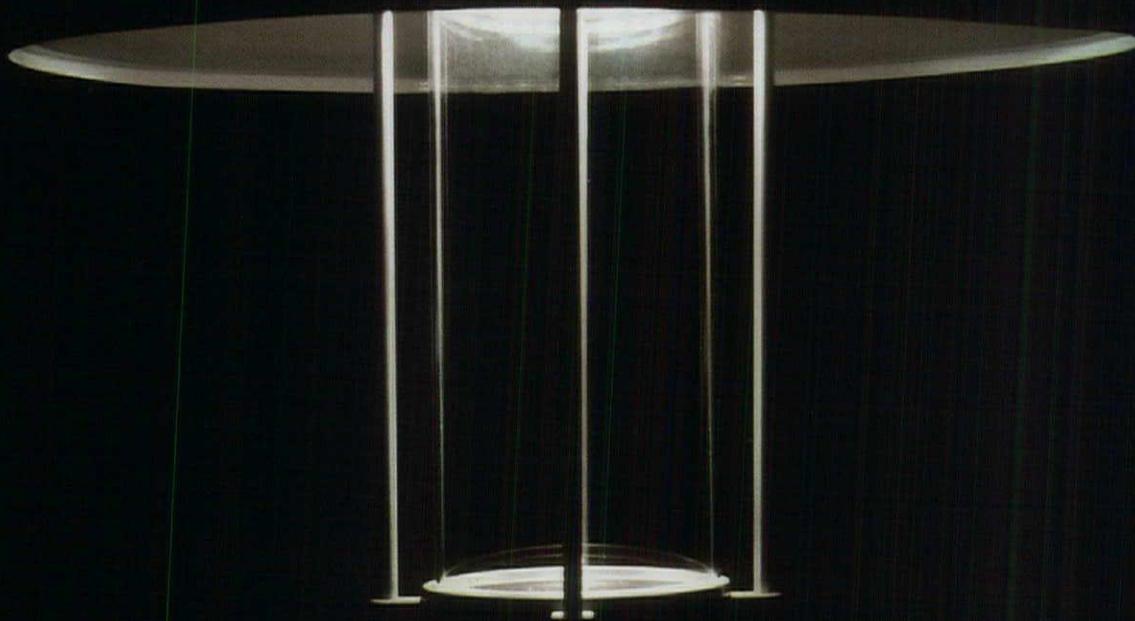
SCHRÉDER Advanced Tunnel Lighting Solutions

Spec'd for use in the U.S., this tunnel lighting system adjusts its light output intensity to correspond to day and night driving conditions to ensure driver visual comfort. Housings are available in either anodized extruded aluminum or stainless steel to withstand high impact conditions, and mountings are configured to reduce installation time and maintenance costs. Models meet IP65, IP66, or IP67 requirements to prevent water intrusion. LEDs are the principal light source, but T5 fluorescent, compact fluorescent, low- and high-pressure sodium, and halogen lamping also is available. schreder.com ■ CIRCLE 101

SELUX Olivio Systems

Olivio Systems comes in three fixture-head sizes (Grande, Medio, and Piccolo) and five mounting styles (Candelabra, Sistema [shown], Universal, Gracil, and Bollard). All housings are made from pressure die-cast aluminum and have a selection of four standard colors or a custom exterior color. With a choice of five reflector distributions in 20W to 150W metal halide or LED sources, Olivio can address a range of applications, from accent lighting to street lighting along minor roads, parks, industrial areas, and plazas. The fixture heads have an ergonomic design that allows for a vertical tilt of up to 175 degrees and rotation of 180 degrees that can be adjusted on-site. The fixtures also can be locked in a downward-aiming position to achieve IDA-certified dark-sky-friendly full-cutoff optics. selux.com ■ CIRCLE 102





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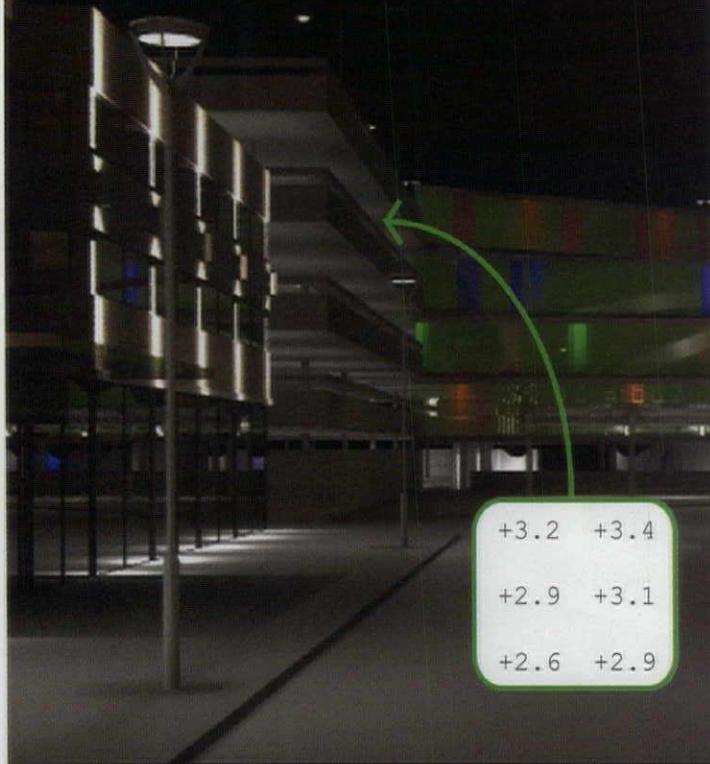


PHILIPS LUMEC RoadStar LED Luminaire

The RoadStar luminaire incorporates Lumiled's Luxeon Rebel Power LEDs to illuminate large areas, streets, and roadways. According to the company, RoadStar saves approximately 50 percent on energy consumption when compared with tradition high-intensity discharge cobraheads. Available in two configurations, the GPLS model measures 23³/₄ inches long by 13³/₄ inches wide, while the GPLM model is 45¹/₈ inches long by 13³/₄ inches wide. Both luminaires can be retrofitted to a city's existing infrastructure and, according to the manufacturer, the LEDs provide more than 70,000 hours of operational life, reducing the labor and costs of replacing burnt out lamps. lumec.com ■ CIRCLE 104

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Magic Garden

THE HIGH LINE'S LIGHTING DESIGN OPENS UP VIEWS TO THE CITY AT NIGHT WHILE CREATING A SAFE AND LEGIBLE ENVIRONMENT

Once an elevated freight railroad that ferried goods and materials to and from Manhattan's west side factories, now a public park featuring sun decks, ponds, and native plantings, the High Line is not your typical piece of infrastructure. Built in the early 1930s to move train traffic off 10th Avenue, the viaduct once stretched more than two miles from the west side rail yards to St. John's Park Terminal on Spring Street. Unlike most elevated tracks, which run above the street, the High Line cut through the center of the block and into the warehouses it was meant to serve, creating a safer environment at grade. Though an immensely functional artery, use of the route declined with the rise of commercial trucking in the 1950s. In the 1960s the city demolished the southern section from Gansevoort Street down to Spring Street, and the last train traveled the track in 1980, pulling a load of frozen turkeys.

The High Line was abandoned. Over the next 25 years, nature was left to its own devices and allowed to take its course. Among the steel rails and crushed rock grew trees, grasses, and wildflowers. What once was a bustling corridor of commerce became a bewitching garden in the city, an enchanted ruin open only to the adventurous.

The elevated track would have stayed that way until it eventually was demolished if it hadn't been for the efforts of two men, Joshua David and Robert Hammond, who in 1999 formed Friends of the High Line and began advocating for its preservation and adaptation into a public space. David, a journalist, had lived in the shadow of the rail for years, but didn't know its full extent

Nature and industry cohabitate happily in the unique urban setting that is the High Line, an elevated freight railroad transformed into a public park. Looking south, streaming late afternoon sun creates a sublime setting along the section of the park known as the Washington Grasslands, between Little West 12th and West 13th streets.

IVAN BAAH © 2009; BACKGROUND CONTEXT AERIAL MAP: © JAMES CORNER FIELD OPERATIONS





Constructed in the 1930s to move train traffic off 10th Avenue, the High Line creates a dynamic slice through the city (left). Use of the route declined over time, and by the 1980s a landscape of wild flowers and native grasses had found an unlikely home on the abandoned rail line (right).

until doing research on West Chelsea for an article. "When I realized it was still intact from Gansevoort to 34th [streets] I thought, what an amazing opportunity, what a way to experience the city, it's so unique and special," he says.

Friends of the High Line obtained the support of Mayor Michael Bloomberg, raised more than \$130 million, and held an international design competition that attracted 720 entries from 32 countries. In 2004, a team was selected that included landscape design firm James Corner Field Operations; architects Diller Scofidio + Renfro; and lighting designers L'Observatoire International.

URBAN INFRASTRUCTURE / URBAN LANDSCAPE

"The question for our team was how to take this incredible landscape and bring people up onto it without destroying it," says Ric Scofidio of Diller Scofidio + Renfro. "How do you put a path on it while keeping the serene quality?"

The designers did not want to follow in the footsteps of the project's predecessor, the Promenade Plantée in Paris—another park built on an abandoned railroad viaduct—which functions more as a thoroughfare than as a place to relax and enjoy the surrounds. The team's answer was to develop a concrete planking system whose long tapering members vanish into the plantings, creating an integrated trail and a sense of walking through the growth rather than down a "linear path through a garden," as Lisa Switkin, associate principal of James Corner Field Operations, puts it. The system is raised to accommodate drainage and electrical systems, and integrates well with the existing rails. The designers also "peeled up" certain planks to form benches, creating a seamless flow from path to seating. To further slow down the traffic and create a leisurely environment the team developed "pooling" areas to catch visitors, such as a terraced seating area perfect for viewing the city, and a grassy lawn just right for a nap.

But before construction could begin, the slate, so to speak, had to be wiped clean. The existing rail bed, and in some places the concrete decking, had to be removed, and the tracks were tagged so they could be returned to their original locations. While the existing steel structure was quite robust, some of it had to be repaired or replaced, and the entire expanse had to be sandblasted in con-

tainment units and then primed and repainted. Steel beams also were removed to allow for access stairs at various entry and exit points along the line.

LANDSCAPE / PLANTINGS

The vegetation that had grown on the High Line during its years of dereliction was a vigorous mix of native and invasive species that needed no help from green thumbs to grow. This meadow in the sky also gave a surreal quality to the postindustrial surroundings. The designers wanted to maintain both of these qualities when developing and integrating a manmade landscape. "From the beginning one of the primary challenges was to keep the spirit of what was already a magical space," Switkin explains.

The designers put together approximately 210 species of mostly native grasses and perennials, a collection that built off the self-sown greenery and its resilience. They also worked with the microclimates that exist along the 1.45-mile course, which switches from open to sheltered, wet to dry, sun to shade, and woodland to grassland. The plants chosen are wild in character, distinct from the look of a traditionally cultivated garden where the interventions of the horticulturist are clearly visible. This varied texture is further enhanced by the fact that the plants' bloom cycles were staggered to maintain a changing but constant variety of color throughout most of the year.

Another factor that guided the selection of plants is the High Line's lack of depth—it is basically a 6-acre green roof. "It's quite different from most park landscapes in the city because the shallow rooting zones generally only have between 18 to 24 inches of soil," Switkin says. The team combined a highly engineered soil mix that accounts for this minimal depth with a 2-inch layer of crushed stone, reminiscent of railroad ballast, which encourages water retention.

LIGHTING

When considering the High Line's lighting design (the park is open until 10 p.m. every night) one thing became abundantly clear—views of the city had to be maintained at all costs. The designers responded by keeping the line of illu-





In the 1960s, the city demolished the southern section of the High Line leaving an abrupt cut at Gansevoort Street (above). The designers wanted to maintain the feel of the amazing array of plantings that had vigorously grown wild on the rail line, and selected species of grasses and perennials that reflect seasonal changes and varying textures. Luminaire selection was kept at a minimum so the fixtures could integrate into the plant beds (left).

mination points low. "For me it was important that for once you would have most of the light below your eye level," says Hervé Descottes of L'Observatoire International, "so when you would be outside in the city you wouldn't feel like you're in a tunnel of light." Typical overhead streetlights produce a looming glare that blocks vision. Bringing the light lower both adds more efficiency because it covers a shorter distance, and maintains a visual connection to the city.

The designers also lit the plants and left the path dark. This was a viable solution because the eye reverses the effect, making the walkway plainly visible. It also silhouettes the plantings, which were chosen for their evocative

profiles, keeping the sense of mystery and fascination alive while creating a safe-feeling environment.

In an attempt to maintain the feel and presence of the High Line, the designers looked for a way to integrate the lighting into the infrastructure so the luminaires are not visible. They found a perfect housing in the existing structural railing, which had to be raised approximately 6 inches to meet city code for a pedestrian space. The team added another bar to the system, outfitted with coves that shelter linear fixtures of 1W LEDs tuned to 3000K. Similar fixtures, which range in size from 2 feet to 6 feet long, were placed in alcoves beneath the benches. While these two typologies provide the bulk of the lighting, LED light sticks rooted in the planting soil fill in the gaps. LED spotlights also highlight the trees. All of these fixtures were applied with discretion, creating a subtle glow that defers to the magnificence of the city and the rough beauty of this industrial landmark.



The project's lighting design creates lines of light, as the High Line integrates itself back into the city fabric (facing page top right). Lighting designer Hervé Descottes kept illumination points low so views to the city surroundings would be maintained (above). Linear 3000K 1W LED fixtures ranging from 2 to 6 feet long illuminate the pathway as well as the planting areas. LED light sticks, also rooted in the planting beds, add an additional layer of light (facing page bottom).

SOCIAL IMPACT

Since the first phase of the High Line—which runs from Gansevoort Street to 20th Street—opened in July 2009, the park has attracted a steady stream of visitors from New York and around the world. Section 2, which extends from 20th Street to 30th Street, is scheduled to open in late 2010. Situated as it is with its tail in the trendy Meatpacking district (which plays host to a number of fashion designer's boutiques), the old elevated railway has become its own kind of fashion runway, where the downtown crowd comes to promenade, and is home to some of the best people watching—not to mention city gazing—around. It is perhaps an unlikely end for a ruin of the mechanized age, but nevertheless the High Line stands as a shining example of the success of public/private partnerships, thoughtful design, and adaptive reuse. **AARON SEWARD**

Aaron Seward is an associate editor at the Architect's Newspaper and a frequent contributor to ARCHITECTURAL LIGHTING. He lives in Brooklyn.



DETAILS

Project The High Line, New York

Design Team (2004-09)

The High Line design team is led by New York-based landscape architecture and urban design firm **James Corner Field Operations** with New York-based architecture firm **Diller Scofidio + Renfro**.

Structural/MEP Engineering Buro Happold, New York

Structural Engineering/Historic Preservation
Robert Silman Associates, New York

Planting Designer Piet Oudolf, Hummelo, The Netherlands

Lighting L'Observatoire International, New York

Signage Pentagram Design, New York

Irrigation Northern Designs, New York

Environmental Engineering/Site Remediation
GRB Services, New York

Civil and Traffic Engineering/Zoning and Landuse
Philip Habib & Associates, New York

Soil Science Pine & Swallow Associates, New York

Public Space Management ETM Associates, New York

Water Feature Engineering CMS Collaborative, New York

Cost Estimating VJ Associates, New York

Code Consultants Code Consultants Professional Engineers,
New York

Site Surveyor Control Point Associates, New York

Expediting Municipal Expediting, New York

Photographers Iwan Baan, Emile H Dubuisson, and
Joel Sternfeld

Project Size 1.45-mile-long elevated rail structure from
Gansevoort to 34th streets, varies in width from 30 to
60 feet; Section 1: Gansevoort to 20th streets (.5 miles);
Section 2: 20th to 30th streets (.5 miles); Section 3:
30th Street to west side rail yards: (.45 miles)

Project Cost \$152.3 million (Sections 1 and 2)

Manufacturers Principal luminaires are Bega/US and
Winona Lighting; additional fixtures by Allscape, Celestial,
and Waldmann.



Lighting's Hat Trick

One of the hardest hit sectors during the recent economic meltdown has been the building industry. And it's not just the construction side of things that has suffered, designers have felt it, too—

no matter the discipline, architecture or lighting.

As a way to temper the pressure of these times, everyone has been looking to see what piece of the stimulus pie might be available to them. The American Recovery and Reinvestment Act of 2009 has been charged with distributing \$787 billion allocated by Congress. Transparency has been one of the greatest concerns underlying this entire process, and to ensure that the funds get to where they need to go the Recovery Accountability and Transparency Board was established. It oversees the allocation of funds and reports its findings on the website recovery.org. As of Oct. 8, 2009, \$173.2 billion has been spent via the three formats for distribution: grants, funds, and contracts. Reportedly, this has resulted in the creation of 30,383 new jobs for federal contract projects.

But how is this money being spent? The U.S. Department of Transportation has made \$48.1 billion available for infrastructure projects across the nation to construct and repair highways, roads, mass transit, bridges, tunnels, and airports that are sorely in need of refurbishment and, in some cases, complete overhaul. Other initiatives include energy-efficiency programs, weatherizing of homes, and water system upgrades. When all is said and done it should be one of the most comprehensive face-lifts the nation has seen since the implementation of New Deal programs such as the Works Progress Administration.

Where does lighting fit into the stimulus agenda? It is a beneficiary of this money, but lighting is usually only one component of a project. Thus, monitoring funds spent on lighting can be a challenge. In addition, much of the initial stimulus funding has gone to projects

that were "shovel ready," meaning they were either about to start construction or had already begun. Whether these projects had a lighting component is unclear, but for those projects that will commence because of the stimulus funding, there is a better chance for a lighting component to be included.

In fact, energy efficiency is the real calling card that will see the lighting industry through these tough times, long after all stimulus money has been spent. An October 2009 report issued by the Lawrence Berkeley National Laboratory titled "The Shifting Landscape of Ratepayer-Funded Energy Efficiency in the U.S." indicates that subsidies for energy-saving light bulbs, home energy audits, and commercial building retrofits will increase over the next 11 years anywhere from \$5.4 billion to \$12.4 billion, up from the \$3.1 billion that was spent in 2008.

Regardless of funding from the federal government, the lighting industry already has its own stimulus mechanism of sorts. It's what I call lighting's hat trick: energy-efficient products, lighting controls, and new technologies such as LEDs. The lighting industry has the ability to generate its own success by reaching out to every sector and offering the products and technologies it produces as a means to achieve energy efficiency, cost savings, and eco-friendly design. The need to retrofit and renovate buildings, coupled with energy-efficient lighting strategies, makes it easy for lighting manufacturers and designers to step in and fill the gap between shovel-ready projects and projects that are still in the specification stage. The lighting community should not fall victim to the current economic pressures, the tools for recovery are already there.

ELIZABETH DONOFF
EDITOR



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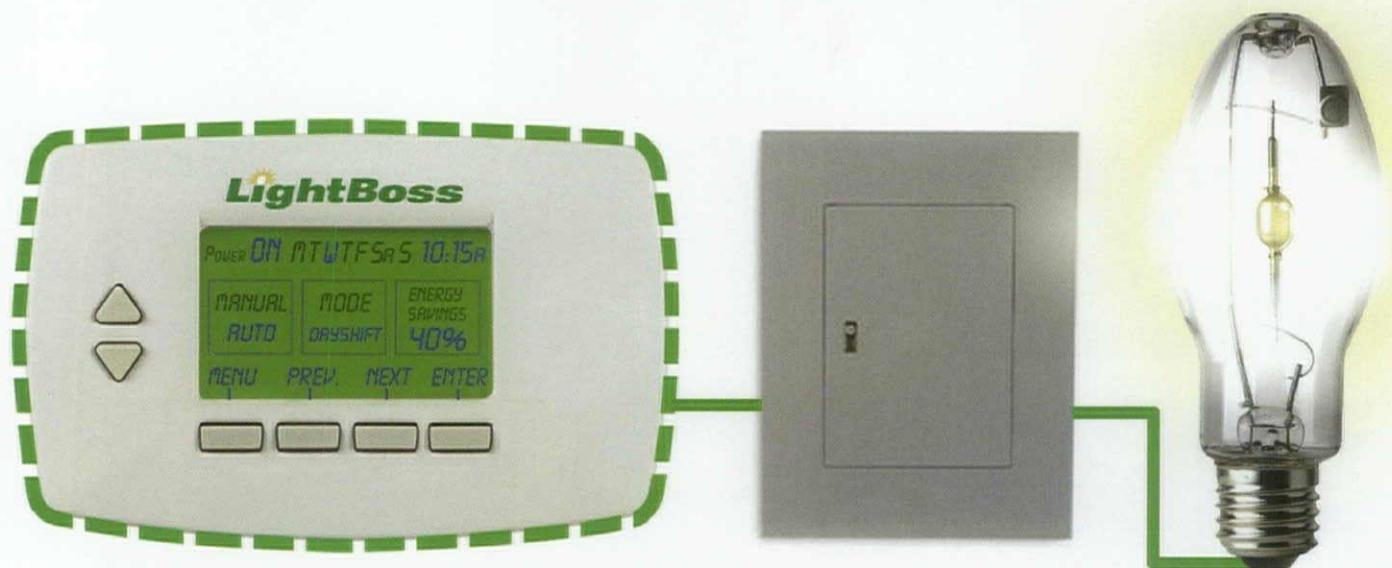


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