

(Day)lighting the Way

BY MATTHEW RICHARDSON

Later in this decade, the focus of the New York skyline will be on three new towers. Clad in glass, they will make a striking contrast to the sea of solid-faced structures that surround them. Their transparency is likely to command the public's attention, but the interior spaces they create will also be of interest—especially to business tenants.

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Getty Images

While new headquarters buildings for The New York Times Company, Bank of America, and the Hearst Corporation herald a new generation of skyscrapers in the City, they will also feature progressive workplaces that are designed as much for employee well-being as for environmental quality.

“Until recently, there’s been little awareness of the impact of the sustainable workplace on employee performance,” says Gensler’s Paul Lalli, a LEED-accredited professional and strategic planning consultant in New York. “Now we’re starting to see a growing market demand for healthy offices that boost the bottom line.”

Motivated by Performance

This emphasis on human performance was definitely the case for The New York Times Company. “We came to sustainable design through the back door,” says Glenn Hughes, director of construction at The Times. “We hadn’t set out to build a sustainable building. We decided to build what would enhance our company’s business. A lot of sustainable ideas are in the building by virtue of us trying to improve our workplace.”

One of the trademark features of The Times’ iconic 52-story tower, designed by Renzo Piano Building Workshop, is its low-iron, clear glass façade. A metaphor for the paper’s ethos of transparency—the public’s right to news and information—the facade also maximizes daylighting of the office floors, which The Times realized was key to creating an optimal workplace. “Natural light not only provides visual comfort, but it connects people to the outside and helps them synchronize their circadian rhythms,” says Hughes.

The daylight directive created opportunities and challenges for the architectural team, which also includes Fox & Fowle

Architects. Unobstructed daylight contributes glare and solar radiation to interiors. To offset this effect, Piano designed a ceramic tubing sheath that limits solar heat gain by nearly 50 percent and streams quality light through the space. But more investigation was needed to control the daylight effectively. To understand better how the building and its workspace would perform, The Times built a 4,000 square-foot mock-up facility, replicating at full-scale a one-story portion of its new tower.

Supported by the U.S. Department of Energy, the California Energy Commission, and the New York State Energy Research and Development Authority, The Times engaged Lawrence Berkeley National Laboratory to partner with an interior architectural team*, including Gensler, to develop the first-ever large-scale automated shading and dimmable daylight systems in a commercial office building. This innovation, tested at The Times' mock-up facility, is "daylight harvesting" at its most sophisticated. It allows lighting levels to be adjusted to particular working needs while taking account of the sun's position and available daylight. It set a new sustainable standard in cost and energy savings as well as in human comfort.

At the same time, Gensler was tasked with ensuring that these leading-edge systems are supported by the interior design. "Ninety percent of The Times' staff will work in open workspaces that reach to the core," says Gensler team leader Rocco Giannetti. "So we planned the layout with low-height workstations that ensure that captured daylight penetrates as deeply into the office floors as possible."

Personalized Microclimate

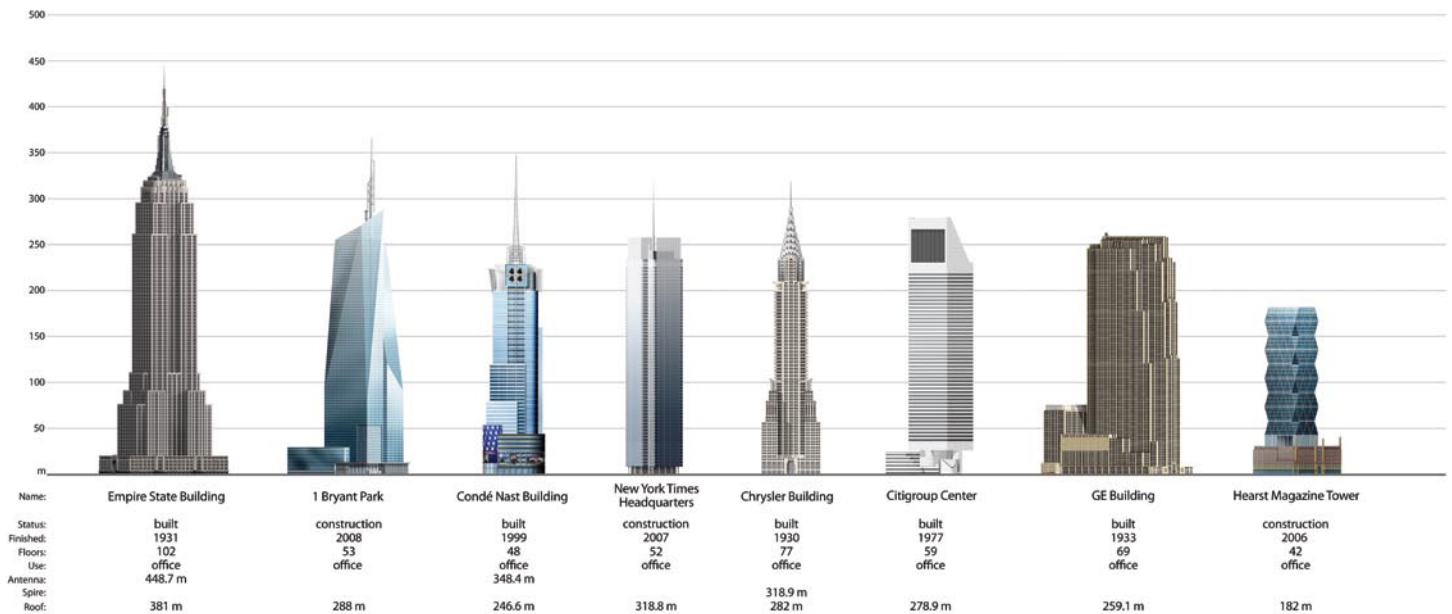
In addition to the signature lighting features, the design team developed an under-floor air distribution system that will be the first of its size in New York City. Because of the tower's large, open floor plans, raised-floor ventilation is ideal for delivering air throughout the space. In contrast to conventional ceiling-duct systems, under-floor systems pump tempered air through adjustable floor vents at individual work settings, thereby providing personal control for each employee.

The beauty of an under-floor system is that it capitalizes on air's natural upward flow. Instead of forcing air downward from the ceiling—where it must travel through unoccupied space—under-floor systems more effectively distribute air where people are and create a more consistent temperature. It's more comfortable for workers. Less energy is expended in the whole cycle, since as the air flows up, it gathers surface heat, which enters the return air plenum where it is filtered, cooled, and pumped back through the system again.

Testing at The Times' mock-up facility is credited with saving the company more than \$2.0 million in initial building and commissioning costs. It offered the additional benefit of allowing employees to visit and test-drive their proposed workplace.

The Currency of Green

The Times aimed for a progressive, future-flexible workplace, and in the process designed a sustainable tower. Bank of America is taking a more direct approach toward the sustainable workplace.



Building illustrations by Dylan Leblanc and Frank Karabassa of www.skyscraperPage.com



Mock up by David Joseph

Innovative sustainable measures for The New York Times Tower, like the ceramic tubing sheath (top) and automated shading and dimmable daylighting systems, were developed at The Time's full-scale one-story mockup facility in Queens, NY.

Its mandate for Bank of America Tower at One Bryant Park, says John Saclarides, senior vice president for corporate real estate, is to develop “the world’s most environmentally responsible highrise office building. The 2.1 million square-foot tower, co-developed by The Durst Organization and designed by Cook + Fox Architects, features the largest projected commercial under-floor air system in the US; a \$10 million, 4.5-megawatt cogeneration plant; 100 percent stormwater capture for the building’s non-potable water use; and air filtration systems that remove 95 percent of particulates as well as harmful VOCs (volatile organic compounds). When the One Bryant Park project is completed, Bank of America will seek to have the 54-story tower become the first highrise to obtain the U.S. Green Building Council’s LEED Platinum designation—its highest rating.

The LEED (Leadership in Energy and Environmental Design) rating system measures environmental performance from a “whole building” perspective over a building’s life cycle. Like the UK’s BREEAM ratings, it provides a definitive standard for what constitutes a “green building.”

While the green initiatives of Bank of America Tower will demonstrate responsible development and generate economic

benefits for Bank of America, Saclarides says its primary benefit to the Bank will be a workplace that fosters employee health and comfort. In addition to the green initiatives in the base building, the bank’s interiors, which are being designed by Gensler, are expected to add numerous sustainable features in order to achieve a LEED Gold rating.

“The Bank of America is driving a very healthy and environmentally responsible workplace design, but it won’t look obviously green,” Giannetti says. “Sustainable materials and products are quickly becoming much more visually sophisticated, and many green design strategies are simply invisible.”

Turning Old Into Gold

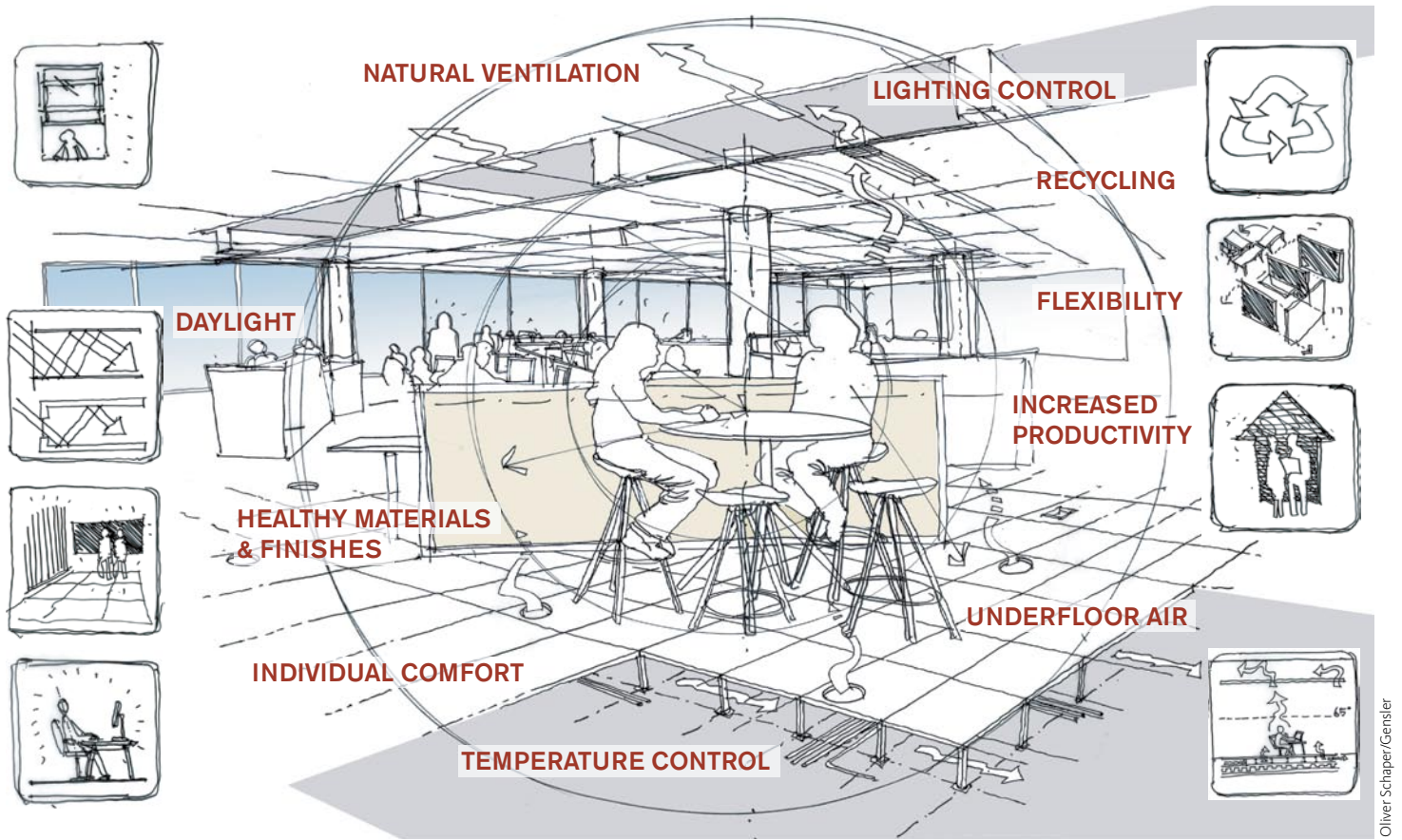
Instead of replacing Hearst’s historic headquarters, Foster Partners designed a new tower that slips into and rises from its preserved 1927 shell. The 856,000 square-foot tower features a sky-lit atrium and a low-temperature “slab integrated” system for heating and cooling, designed by mechanical engineers Flack + Kurtz using CFD—computational fluid dynamics—to model how air will flow on each office floor.

The new Gensler-designed Hearst workplace will add numerous sustainable features to work settings that give their employees access to daylight and views. All the finishes and materials will either have substantial recycled content (as in the carpeting, for example) or be environmentally safe (as in the furniture and furnishings). By reducing contaminants often emitted by paints and sealants, the workplace will augment a ventilation system that is designed to monitor and maintain healthy indoor air.

“Buildings have tremendous impact on the health of our employees and the environment they work in,” says Brian Schwagerl, Hearst’s director of real estate and facilities. “We are putting our employees first by making the extra special effort to invest in a green building.” When it’s finished, Hearst will seek LEED Gold designation for its new headquarters.



Oliver Schaper and Eugene Chang/Gensler



Oliver Schaper/Gensler

Dollars and Sense

The relationship between a healthy workplace and worker productivity is still being established, but researchers have found that people who work in these settings exhibit less illness, and less absenteeism, and report higher levels of performance. California’s Sustainable Task Force estimated in 2003 that a one percent gain in workplace productivity represents \$650 per employee per year in “offset” value. For a workplace of even modest size, that value adds up. Even small increases in human performance attributable to sustainable measures can quickly pay for their added cost. “Ninety-two percent of the money invested in a building over a 30-year period goes to personnel costs,” says Lalli, “versus only eight percent for capital and operational costs. So productivity gains can have more of an impact than gains in operating efficiency.”

“How a company arrives at the sustainable workplace is not important,” Giannetti adds. “What’s important is that they arrive at all. If you’re interested in improving the human experience of the workplace, you will invariably end up with elements that are sustainable. Likewise, if you’re interested in sustainability, you will inevitably produce a workplace that benefits your employee.”

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Gensler’s Oliver Schaper contributed the above illustration and, with his colleague Eugene Chang, the rendering on page 3. Gensler’s Stephen Andrews, Jeff Barber, Joe Brancato, Eric Brill, Jana Edelbrock, Evelyn Fujimoto, MR Hicks, Robin Klehr Avia, David Koren, Jan Lakin, Phil McCurdy, Janet Pogue, Nellie Reid, Susan St. Lawrence, Bob Seitz, Julia Simet, Dean Strombom, Craig Taylor, Rives Taylor, and Jon Wollak also contributed to this article.

* The Times’ interior architecture team also includes Renzo Piano Building Workshop, Fox & Fowle, Flack + Kurtz, Susan Brady Lighting Design, Gardiner & Theobald, Turner Interiors, Ferguson Cox, and numerous vendors.