

case study | The New York Times Building

New York, NY

The Lead Story: Lutron's Quantum® solution makes "front-page" news within The New York Times Company for creating a dynamic and energizing work environment and for delivering over 70% energy savings. Details can be found at www.lutron.com/nyt.



All eyes in the architectural and green communities remain on the new 52-story headquarters of The New York Times Company as its Quantum total light management system continues to outdo itself in energy efficiency, saving the company significant money.

An analysis of a full year's worth of data shows, the Quantum system is achieving a **72 percent reduction in lighting energy** claims Glenn Hughes, energy consultant and Director of Construction for The New York Times Company during the design, installation, and commissioning of The New York Times Building.

"The energy savings are stunning," says Hughes. "Lutron's Quantum™ total lighting management system has delivered an absolutely over-the-top performance. When I talk with other construction and lighting consultants, they're astonished at the results."

Hughes asserts that, based on an electricity rate of \$0.15 per kWh, the savings from using Quantum add up to **\$30,000 per year per floor** for the floors where it has been installed.

This equates to approximately **\$1 per square foot per year** and a prevention of over 3,300 metric tons of CO₂ emissions each year.

He attributes the cost savings to a significant reduction in both lighting and cooling loads. Since lights emit heat, reducing lighting power reduces cooling demand. Thus, approximately 25% of the savings stem from reduced HVAC costs.

Hughes says total light management "represents the single greatest opportunity for energy savings in commercial buildings, whether retrofit or new construction projects."

The energy consultant stratified his data in a number of different ways, including season by season to take into account differing conditions of natural light and heat.

Last year, Hughes was widely quoted as saying "We designed our building to use 1.28 watts per square foot of lighting power. With Quantum®, it's using only 0.38—that's 70 percent less."

In April 2009, Hughes unveiled data showing that the building's total light management system equaled or surpassed that figure in each of the previous four seasons:

Winter 2008-2009	0.37 W/sq. ft.
Fall 2008	0.37 W/sq. ft.
Summer 2008	0.33 W/sq. ft.
Spring 2008	0.38 W/sq. ft.

The seasonal data reflects yearly lighting energy savings of 72 percent.

Hughes says that the story doesn't end by looking at energy savings alone. Quantum dramatically improved the lighting environment inside The New York Times Building. According to Hughes, assuming a mere 1% increase in productivity (a conservative estimate), from the improved lighting environment, the Quantum system paid for itself in less than a year. He also emphasizes that this value-add goes on year after year.





The New York Times Building uses Quantum® to increase comfort and productivity while saving energy (www.lutron.com/nyt).



First published in 1851, The New York Times has long enjoyed pride of place among all news organizations in the United States. The Times is a time-tested institution operating in the American media capital and the most fabled city of the modern world where supremacy is the norm. It's an organization that understands that what it says and does reverberates across many borders.

It's no surprise then that when the newspaper's parent company, The New York Times Company, a global media enterprise, decided to build a new headquarters in Manhattan, it eschewed the idea of maintaining a passive role in the project. The company resolved to exercise control at every stage of the project's design and construction processes, ensuring that the new building accurately represented its corporate culture and values, and reaped real business benefits for the company.

"We desired an interior environment that allowed our employees to be as comfortable as possible and that would reinforce our company's emphasis on open communication, collaboration and transparency," said David Thurm, Sr. Vice President, Operations of the Times Company. "In addition, we insisted that the building be as environmentally friendly as possible."

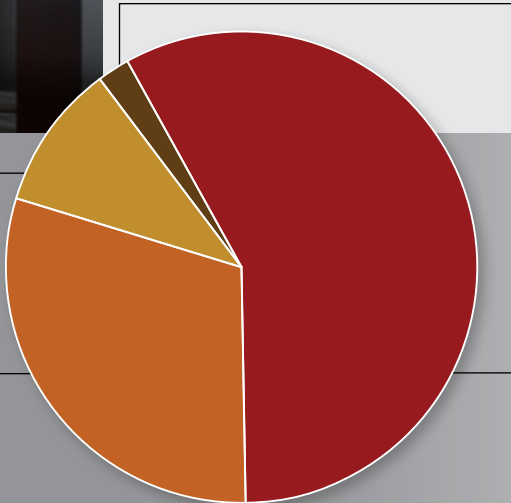
The lighting energy savings achieved by The New York Times Building is primarily from the following strategies:

10% Daylight harvesting

dimming electric lights when daylight is available

30% Occupancy sensing

turning off lights when spaces are vacant

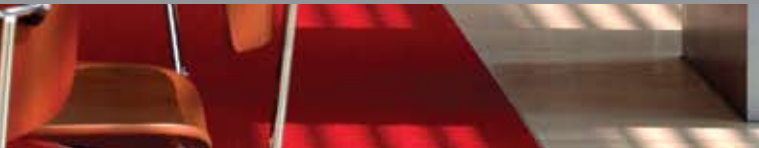


2% Scheduling

turning lights off during certain times of the day

58% Light level tuning

setting the appropriate light level for each space



Source: Lutron Electronics Co., Inc.



To accomplish these objectives, the Times Company hired the world-renowned architect Renzo Piano, along with two major architectural firms, FXFOWLE of New York, and Gensler, headquartered in San Francisco. The Times Company also employed the lighting design services of SBLD Studio of New York.

The result is a dazzling 52-story tower with 1.5 million gross square feet jointly owned with Forest City Ratner Companies of New York. The building is a mix of office and retail. Its chief attributes are open spaces and floor-to-ceiling glass walls that provide building occupants wide views of the neighboring skyscrapers and, conversely, allow outsiders to look in.

“The whole building structure is designed for maximum light,” said Thurm, whose company owns 28 floors or about 625,000 square feet—the interior space designed by Gensler. “The number one priority was to allow natural light to make our employees feel more comfortable and to produce an energizing work environment.”

The importance of lighting controls was recognized by the Times Company from the start. Executives extensively researched the state-of-the-art lighting control options to satisfy their twin desires for daylight harvesting and for the flexibility to reconfigure spaces easily and simply. The word extensively is not used loosely. As Thurm himself described in an article published in the Harvard Business Review, virtually every decision fell under tight scrutiny to drive innovation and to avoid what he called, “well-intentioned guesses by others as to what you want.”

“When you have a client interested in exploring new territories it is very exciting,” said Edward Wood, Principal and Design Director for Gensler. “The entire project was a big research study.”

Another Gensler principal echoes that sentiment: “Because they are a media organization, they are very research-oriented, very probing, always asking a lot of questions and challenging the status quo,” said Rocco Giannetti, AIA.

The research eventually gravitated to the Building Technologies Department at the Lawrence Berkeley National Laboratory at the University of California. With guidance from the Berkeley Lab, the project design team and manufacturers, the Times Company built a replica of the southwest corner of its new building at one of its printing facilities in Queens, New York. For six months, from winter solstice to summer solstice, the mock-up tested an array of different lighting technologies and products from a variety of manufacturers—including a new technology just emerging from Lutron Electronics Co. Inc.

The testing, plus Lutron’s response to a competitive bid, convinced the Times Company to select Lutron’s Quantum light management solution for its office space. Quantum® employs a number of different strategies—including daylight control, occupant control, target set point control (light level tuning), time clock control, and emergency lighting control—to give building occupants maximum comfort, and to give business owners the flexibility to adapt their work environments to meet changing business requirements. Quantum also features software to control, monitor, and report on the lighting usage in the building.

After the building had been occupied for a year, Glenn Hughes, now president of Glenn D. Hughes Consulting Associates, utilized Quantum’s 30-day energy usage report to see for himself how much energy savings was achieved by the Quantum solution. At the time, he said the following:

“We designed our building to use 1.28 watts per square foot of lighting power,” Hughes said.

“With Quantum, The New York Times Company is using only 0.38—that’s 70 percent less.”

Hughes says the data he has collected and analyzed now indicates that the energy-savings performance has risen to 72 percent.

Hughes said the design goal of 1.28 watts per square foot of lighting power was within the local code in effect when the building was constructed. It has since tightened to 1.1 watts.



Inside the New York Times Building, lights automatically dim when daylight is available.

“Our energy performance is still way, way better,” said Hughes. He said the Lutron lighting control system has established an excellent baseline for the building which is poised to achieve even better energy savings as the system parameters are tweaked. Hughes says this is the type of energy efficient system that supports the federal Department of Energy’s goal of constructing net-zero energy buildings by 2025.

“What we have achieved with our building is spectacular,” said Thurm. “But any office space eventually needs to move in different directions and this lighting system gives us the flexibility to change as we see fit.”

With Quantum, the daylight sensors make the most of natural light pouring into a space, continually and imperceptibly adjusting the electric light levels accordingly—all the while maintaining a consistent overall light level as set for the people working in that space.

“With all the daylight coming in, the avoidance of glare was a crucial issue to the client,” said Attila Uysal, Principal and Technical Director of the lighting design firm SBLD Studio. “Lutron’s involvement from the beginning was invaluable. They understood that the ‘quality’ of the lighting mattered as much as anything—and they were able to deliver a highly sophisticated digital lighting system with a very powerful control software tool that’s easy to use and that carried the clients’ wishes to the nth degree. Everyone was impressed.”

Uysal said every floor’s lighting scheme is divided into zones, each with its own lighting levels that fit the needs of the employees (depending on what type of work they perform) and based on the amount of daylight that penetrates that space. Roughly 18,000 digitally addressable EcoSystem® ballasts were used to achieve that kind of precision, according to Hughes. The Times Company executives report increased employee satisfaction.

Lighting is a vital component of any construction project, serving as a favorite ‘form and function’ instrument of architects designing a space. It reveals volume, area, ideas of scale, and it allows a building’s occupants to interact with their environment. As such, it affects workers’ comfort levels and, in turn, their productivity. However, as any building owner or tenant can attest, this function comes at a steep price: the cost of electricity.

“As a company,” Thurm said, “we intuitively understood that, if we were going to work in a building with so much outer glass, we had to keep a rein on our energy consumption. That helps our bottom line but also is the environmentally responsible thing to do.”

Employee comfort, increased productivity, reduced energy usage, and ease and flexibility of use—is there a big story here? The New York Times Company already has decided.

**For more information,
visit www.lutron.com/nyt.**



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