

Corporate Office: 02
Case Study: Bank of China

COO2

Commercial Lighting Control Case Study

Bank of China

Beijing, China



The Bank of China headquarters in Beijing is a highly recognizable symbol of modern China. The lighting designer and architect of this monumental building chose the GRAFIK 6000® and HWI Lighting Control Systems from Lutron® for their lighting control needs and to provide automation of the lighting.

THE CHALLENGE › Design a lighting control system for the prestigious Bank of China Headquarters in Beijing that would both highlight the sheer grandeur and inspired design of the space, and also maintain a sense of openness that is inviting to the public.



- PROJECT REQUIREMENTS** ›
- › A lighting control system that provides flexible dimming and switching of all the lighting in the public areas and private office spaces, including whole floors of fluorescent lights
 - › The system should be powerful enough to handle the enormously varied range of demands placed on the public areas and private office spaces and still realize significant energy savings
 - › The lighting control system should be able to withstand power quality fluctuations and ensure a consistent, high quality dimming performance.

Beijing is the new home of China's most profitable state bank, the Bank of China. Since its completion in 1999, the monumental structure has become one of the country's most instantly recognizable and architecturally and technologically sophisticated buildings. The Bank of China, with a worldwide ranking in the Fortune 500, primarily serves foreign embassies, corporations with business in China, and Chinese companies conducting trade abroad. The bank is often cited as China's best-managed financial institution,



and is already preparing for its first public offering in the not-too-distant future. Designed by New York-based Pei Partnership Architects, the building introduces an important new concept in Asian architecture: a combination of traditional Chinese elements with an inspired brand of corporate modernism. As they went about combining an office building with a civic institution, the architects infused a spirit of openness to the project. The core of the structure is designed for year-round public enjoyment and contains the

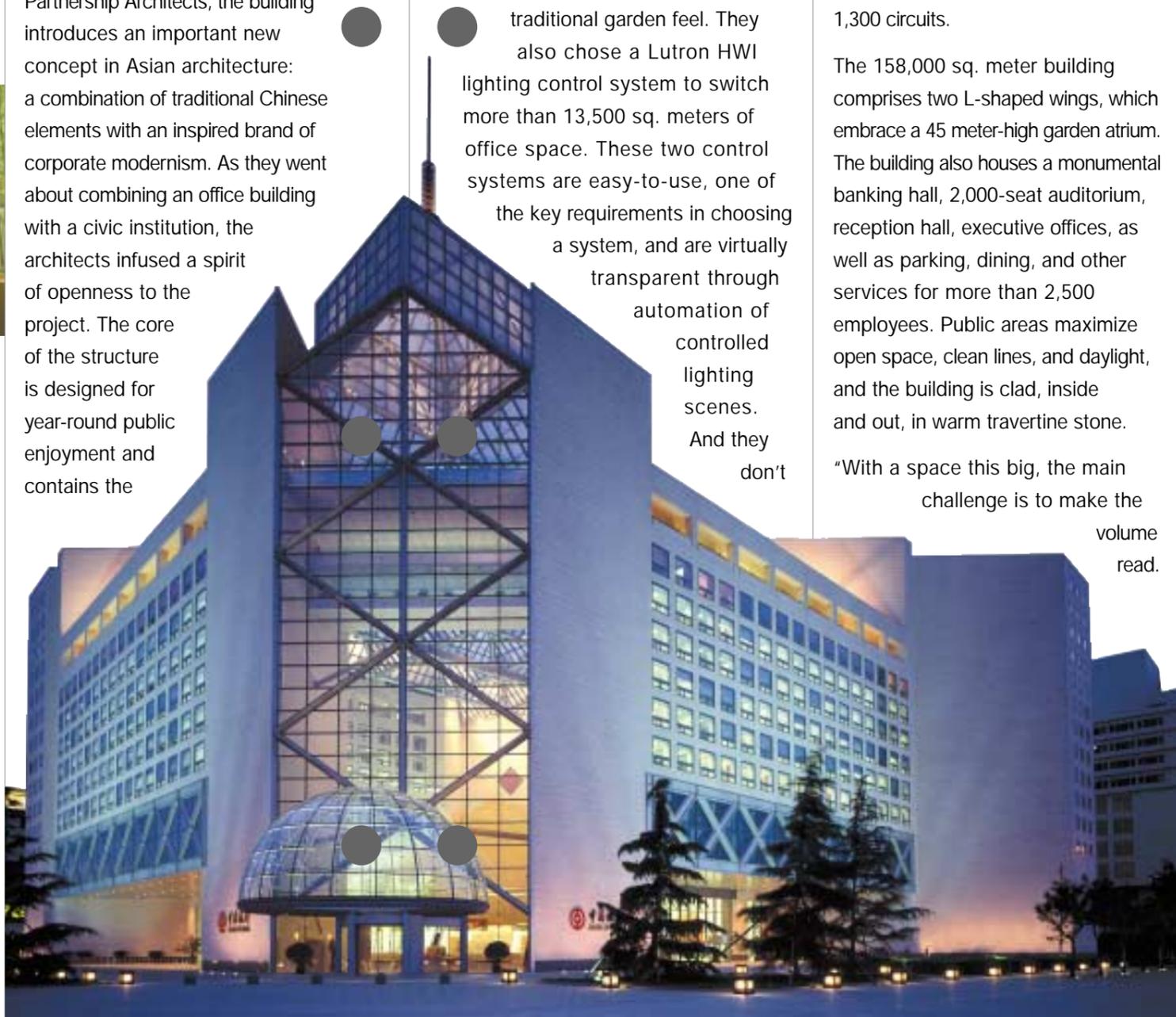
essence of a traditional Chinese garden, an artistic interpretation of the natural world. Plus, an overall flexibility in design will help the bank and its tenants meet the ever-changing technological demands of 21st century business. The architect and lighting designer trusted U.S.-based Lutron Electronics to handle the complex lighting demands of this architecturally and culturally

significant project. They chose a Lutron® GRAFIK 6000® lighting control system to meet present and future lighting challenges and to create that traditional garden feel. They also chose a Lutron HWI lighting control system to switch more than 13,500 sq. meters of office space. These two control systems are easy-to-use, one of the key requirements in choosing a system, and are virtually transparent through automation of controlled lighting scenes. And they don't

just enhance the architecture; they save energy, too. Lutron, with its worldwide reach, coordinated the design, installation, and commissioning teams from around the globe. Orchestrating 64 dimming panels, the GRAFIK 6000 lighting scenes reveal the architectural detail of the building and help conduct occupants and visitors

through the space. On the upper floors, the HWI lighting control system allows software control of time clocks and occupancy sensors for more than 1,300 circuits. The 158,000 sq. meter building comprises two L-shaped wings, which embrace a 45 meter-high garden atrium. The building also houses a monumental banking hall, 2,000-seat auditorium, reception hall, executive offices, as well as parking, dining, and other services for more than 2,500 employees. Public areas maximize open space, clean lines, and daylight, and the building is clad, inside and out, in warm travertine stone. "With a space this big, the main challenge is to make the

volume read. the open atrium to the elevator banks and other access areas. The magnificent atrium forms the functional and symbolic core of the building, where water, rocks, and plants represent the traditional Chinese garden. Overhead, inconspicuous clusters of PAR56 light sources light the atrium floor and banking halls. These downlights virtually disappear among the trusswork of the vast pyramidal, clear-glass skylight. The 10-meter bicycle-wheel chandelier, which hangs above an oculus in the floor of the upper banking hall, holds tiny MR16 lamps. Above, 1000W PAR64s shine down through the chandelier, making the cables sparkle and illuminating through the oculus to the banking hall below. With the scale of the space, long distances for throwing light, and energy and maintenance concerns, halogen sources may not have seemed the most logical choice. At night, you still want to appreciate the sheer scale of the space but make it inviting using layers of light," said lighting designer Jerry Kugler. So he decided to bounce a lot of light off the floor that would give some glow to the walls. By directly lighting some of the more important walls—the walls opposite the soaring glass curtain wall and the walls on either side of the entrance—they are able to draw visitors from the outside across



the open atrium to the elevator banks and other access areas. The magnificent atrium forms the functional and symbolic core of the building, where water, rocks, and plants represent the traditional Chinese garden. Overhead, inconspicuous clusters of PAR56 light sources light the atrium floor and banking halls. These downlights virtually disappear among the trusswork of the vast pyramidal, clear-glass skylight. The 10-meter bicycle-wheel chandelier, which hangs above an oculus in the floor of the upper banking hall, holds tiny MR16 lamps. Above, 1000W PAR64s shine down through the chandelier, making the cables sparkle and illuminating through the oculus to the banking hall below. With the scale of the space, long distances for throwing light, and energy and maintenance concerns, halogen sources may not have seemed the most logical choice.



PROJECT DATA

- › Project Name:
Bank of China,
Beijing
- › Lighting Designer:
Jerry Kugler,
Kugler Tillotson
Associates,
New York, NY
- › Architect:
Pei Partnership
Architects,
New York, NY
- › Lutron Products:
 - › GP Panels [64]
 - › HWI Remote Power
Modules [456]
 - › G6000 Processor
Panel [1]
 - › Architectural 2B
Control [470]
 - › NTGRX 4B [22]
 - › NTGRX 4S [35]
 - › KP5 [136]
 - › KP10 [42]
 - › KP15 [5]



Grafik 6000
Processor Panel

But the space had to look beautiful, and "HID sources were never going to make the honey-colored stone look great," Kugler explained. "We can get narrow beams from these larger PAR-lamps, so we can put the light just where we want it. Plus, we have the same color of light on all the surfaces—one vocabulary of light. The result is very beautiful."

In addition, time-of-day dimming conserves energy and extends lamp life by reducing burning hours. "There's so much daylight coming through the skylight, the lights don't need to be on all the time," said Kugler.

Plus, Lutron's lighting control systems are installed in buildings all over the world so they are designed to withstand power quality problems, which can vary from country to country and are not unheard of in Beijing.

Lutron's patented RTISS™ (Real Time Illumination Stability System) design enhancement filters out line noise to dimmers to ensure consistent, high quality, dimming performance. Plus, the flexibility of the GRAFIK 6000 system allows for local control, including override of universal presets—such as time clock-initiated shutoff sweeps. This is especially useful in the executive offices

and auditorium, which have multi-button wallstations.

The system's automated switching of entire floors of fluorescent lighting



KP5 Keypad

saves vast energy costs for Bank of China and its tenants. By illuminating spaces only when occupied, lamp life is extended, saving maintenance costs. The system's centralized control allows any load on the system to be switched from any one of the more than 600

keypads or wallstations. Each relay is addressed individually, which allows for extremely flexible zone assignments. Of course, overrides are available at all the wallstations, permitting anyone working late to illuminate their workspace or a path of exit.

"Lutron provided support, reliability, and a great team effort," said Kugler. "I have years of experience with them, and I knew they would support a client half the world. And they have."



Architectural
2B Control

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All photographs by Kerun Ip and Kiyohiko Higashide, courtesy of Pei Partnership Architects.

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