

PROFESSIONAL **LIGHTING** DESIGN



Magazine for
professional lighting design

MAIN TOPIC

Creative facade lighting

LIGHTING DESIGN

Flame Towers
in Baku/Azerbaijan

GoggleWorks Center
for the Arts in Reading/USA

The Province of Limburg's
government building/NL

PRACTICAL ISSUES

The Rookery in Chicago/USA

LUMINAIRE DESIGN

Promenade in Niendorf/D

LIGHT ART

Mischa Kuball

PROFESSION

Legalisng the profession

FAIR

Euroluce: an analysis for all
those who didn't make it ...

Subtlety at its best

The Rookery in Chicago receives its first facade lighting scheme.

Text: Joachim Ritter
Photos: The Rookery LP, The John Buck Company, OVI

Little real development has been made in the illumination of historical facades in the last few years. The overriding task is to define the architectural details to enable the building to be viewed – and celebrated – after dark. The finer these details, the more difficult it became to light the facade using conventional light sources and luminaires, the latter being too large and ungainly to integrate into the texture of the facade. Size is not an argument when it comes to solid state lighting, however, and precision is also no longer an issue, as the award-winning project The Rookery in Chicago more than adequately demonstrates.

Completed in 1888, The Rookery is one of the greatest surviving examples of early commercial skyscrapers and is considered a milestone in American architectural history. Designed by Burnham & Root, the twelve-story building employs masonry hung from a steel frame – an innovation in construction at the time of its completion that allowed the building to achieve unprecedented height. The Rookery was added to the National Register of Historic Places in 1970 and designated a Chicago Landmark in 1972.

For over a century, the building's distinctive dark red masonry facades have been unlit, making it visually disappear at night. Now, lighting softly activates the intricate masonry carving, creating a subtle presence of brightness, shadow, and contrast that renders the building visible without overpowering it with light.

While the building appears symmetrical, nearly every window condition is unique. With over 100 irregular ledges, the use of standard luminaires proved impossible. Instead miniature, custom 14-watt LED luminaire modules are individually positioned to achieve symmetrical, even lighting. The reduction of overall hardware and the associated costs contributed towards meeting the owner's tight budget.

One key to the success of the project was achieving the desired light distribution while meeting strict historic preservation regulations. The Chicago Landmarks Commission required that lighting hardware be meticulously concealed from pedestrian view and street lines-of-sight. The lighting design scheme therefore uses small-dimen-

sioned, visually unobtrusive custom luminaires optimized to measure only 36.8 millimeters (1.5 inches) high. The luminaires are positioned at every third level, grazing the facade and detailing around the window frames with a soft glow of light.

Another critical issue for the Commission was preventing harm to the Rookery's masonry and locating the custom luminaires while avoiding penetration of the historic building fabric. While the building appears visually symmetrical, nearly every window condition is unique. In addition, all the ledges have different stepped profiles, and masonry ribs are present at stone joints throughout – in no specific rhythm. This was a waterproofing detail from the time of the original construction. Each of the luminaires had to be positioned to work around the rib locations, then adjusted to provide symmetrical, even lighting.

To protect the integrity of the building, a custom telescoping mounting arm was designed to accommodate the different ledge conditions and allow for lockable field adjustment and aiming. This allows the luminaires to be anchored to the granite window sills instead of to the facades, while polyurethane feet minimize direct contact with the historical building ledges. The pivoting assembly is finished in 'Rookery-red', and is accessible within arm's reach.

Every aspect of the custom luminaire is carefully designed in order to both maximize performance and maintain aesthetic elegance. Based on observations made during on-site mock-ups, a custom luminaire with



Historic photo of the Rookery taken in 1891. (Wikipedia)

The Rookery's signature red color during the daytime.

Photo: The John Buck Company

The corner of La Salle and Adams Street: the exterior of the Rookery at night. Photo: The Rookery LP



special micro-optics was developed in order to simultaneously minimize power consumption and light trespass into the night-sky while eliminating glare for tenants. The sustainable design approach strategically utilizes only 14.4-watt LED luminaires, a total of 2,304 watts for the entire project, with custom optics that create a "flattened cone" of illumination extending three stories high. The micro-sized technology of LEDs makes it possible to achieve this using a custom luminaire that fits into the palm of a hand. The 3000K color temperature enhances the distinctive red color of the terracotta and masonry of the building.

The Rookery has had a long history, and time has changed the way construction documentation is produced. Aged, hand-drawn floor plans and building sections are not as accurate as modern CAD drawings that can be easily reviewed at various scales. Ultimately, the level of precision required for the placement of the miniature-sized luminaires also required the interpolation of dimensions, field surveys for verification, and redrawing to accurately document the site conditions.

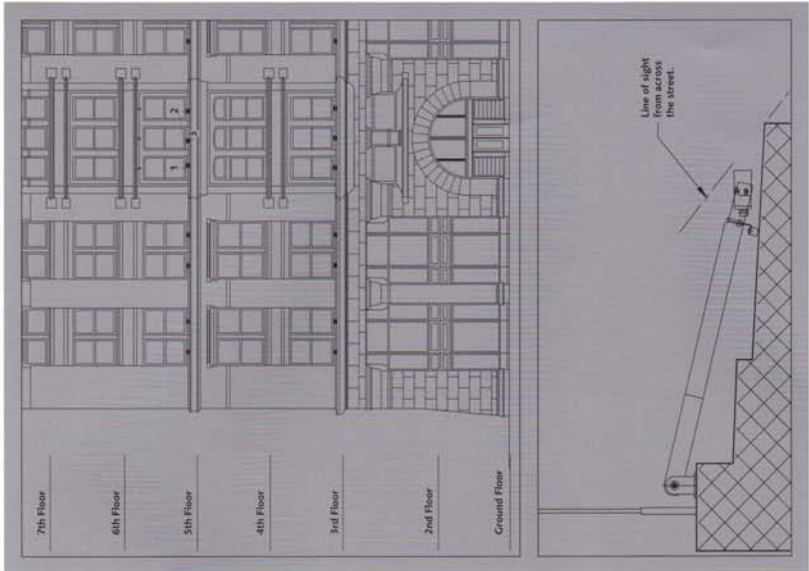
A ceremony was held to officially inaugurate the lighting for The Rookery. As evening set in, a reception took place in the light court under the theme "Brilliant Past, Brighter Future". A road closure on South LaSalle Street allowed a crowd to gather outside the building to witness the illumination of the facade for the first time in

its history. The kind of attention usually accorded to the completion of a new building was trained on the red stonework as the building transformed from disappearing into the dark sky to stepping forward from the night as one of Chicago's beloved landmarks. The Rookery's elegant and restrained nighttime identity links it to the time of its creation, emphasizing the importance and beauty of its architecture.

The lighting design for The Rookery received a Lumen Award of Excellence from the Illuminating Engineering Society (IES), and the project was selected Winner and 2012 Lighting Project of the Year of the World Architecture News (WAN) Lighting Awards.

The WAN Lighting Award judges commented on the judicious and tremendously subtle approach to the lighting design for the prestigious building and the success to which this was achieved. It was felt that the project had not only been beautifully executed but that it also displayed "an admirable appreciation for the building and its heritage".

- Legend**
- 1 – The bracket is offset to avoid contact with the rib.
 - 2 – The outer luminaires are offset towards center of the window bay to avoid contact the facade "rib".
 - 3 – The center luminaire is offset to the east (away from La Salle Street) to avoid contact the facade "rib".



Each ledge of the building has a different profile. Site surveys were necessary to measure the facade ledges for the placement of the luminaires.



Project team:
 Client representative: Stefan Boehme
 Architects (original): David Burnham and John Wellborn Root
 Lighting design: Office for Visual Interaction (OVI)
 Structural engineering: Klein and Hoffman
 Electrical engineering: Environmental Systems Design
 Lighting manufacturer: Zumtobel



View of facade ledges from inside the Rookery Building. Luminaire positions had to work around the intermittent ribbed detailing at all of the ledges.