The Luxembourg art museum MUDAM by I.M. Pei, built on the walls of an old fortress, is a veritable lighthouse of culture. Its appearance at night will change how Luxembourg is perceived. Architectural lighting not only shapes our immediate surroundings but also creates striking images – the currency of a global media society.
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Indoor area and outdoor area. These are two sides of the same coin for ERCO, two aspects of a holistic approach to design. This is most ably demonstrated in Luxembourg, at the recently built Musée d’Art Moderne designed by I.M. Pei. In MUDAM, ERCO was not only responsible for lighting the artworks, but was also equally involved in the scenic presentation of the outdoor area. The result is a coherent lighting concept of consistently uniform quality.

Rather smaller in scale, but no less striking in terms of the interplay between interior and exterior, is a private residence in Düsseldorf. Large window surfaces acting as a transparent membrane between the indoor and outdoor areas make a holistic approach to lighting design virtually imperative. This has produced a spatial continuum, which loses nothing of its spacious feel, even at night.

Recent years have seen ERCO continue to expand its toolbox for outdoor lighting and this year is no exception. Once again ERCO has considerably extended the possibilities of light engineering. The technology section of this Lichtbericht therefore features an initial introduction to the company’s current innovations for the outdoor area. These all share one thing in common: they were developed following the design brief of “efficient visual comfort.” Visual comfort, which is achieved through effective lighting technology producing excellent glare control and precise light guidance, is combined here with efficiency, achieved in turn through the use of cutting-edge light sources such as metal halide lamps and LEDs.

Further reports on outdoor projects such as the Palmengarten in Frankfurt, a residential complex near Düsseldorf or the “VinContoret” in Swedish Tidaholm show to what extent architects and lighting designers are now using ERCO outdoor products. Successful lighting design makes these places not only attractive to look at but also a pleasure to be in. One thing evident here is that even though it is now over half a century since Richard Kelly added scenic lighting to the gardens of Philip Johnson’s Glass House, the concepts of the American pioneer of lighting design are as applicable today as they ever were.

Therefore it is hardly surprising that the touring exhibition on Richard Kelly met with such great interest at all its venues. This was organised by PLDA (Professional Lighting Designers Association) together with ERCO and toured throughout Europe in 2007. In our Backlights column, we look back on the exhibition. In recognition for bringing the exhibition to Europe, ERCO was awarded “Best Partner in the Lighting Industry” at the PLDC (Professional Lighting Designers Conference) in London last October. Many thanks to the jury, to all who visited the exhibitions and in particular, Mrs. Addison Kelly and to the Richard Kelly Grant for their inspiring teamwork!
Keylights

Siggen (Heringsdorf)
The Alfred Toepfer Foundation Trust in Dethlefsen runs the Gut Siggen Seminar Centre. A modern seminar complex has been built next to the manor house. The lighting solution: ceiling-integrated Gimbal directional luminaires for low-voltage halogen lamps.
Gut Siggen Seminar Centre
Architect: Auer + Weber + Assisierte, Stuttgart
Lighting design: Neher Butz Ingenieure, Constance
www.toepfer-fvs.de/siggen.html

Tokyo
A perfect place for design in the heart of Tokyo: the 21_21 Design Sight Museum presents exhibitions from the Fields of product design, graphic design and fashion. The directors, Issey Miyake, Taku Satoh and Naoto Fukasawa always maintain a discerning programme. The entrance and foyer form a pavilion of folded surfaces. ERCO tracks and Eclipse spotlights are mounted in the underground exhibition room.
21_21 Design Sight Museum
Architect: Tadao Ando Architect & Associates, Tokyo
www.2121designsight.jp

Gothenburg
Even in Gothenburg, factory buildings from the industrial age are converted and made suitable for the information and service provider society. The differentiated facade lighting with Tesis in-ground luminaires and Beamr projectors creates a striking image and contributes to the appeal of the carefully restored factory complex as a location for new enterprises.
Gamlastadens Fabriker
Lighting design: Primetec AB, Gothenburg
www.gamlastadensfabriker.com

Stockholm
The new Eriksdalabadet is a modern sports and leisure pool at a highry traditional location on the edge of Stockholm city centre. The bath’s entrance driveway is designed as a ramp and is illuminated economically and without glare by Visor floor washlights for metal halide lamps.
Eriksdalabadet
Lighting designers: Retea, Stefan Sjölund, Stockholm
www.eriksdalsbadet.com

London
The complete gentleman will have his clothes bespoke made on Savile Row in London at a tailors such as Henry Poole, whose warrants of appointment include HRH Queen Elisabeth II. The renovation of the business premises combined the charm and style of 200 years with new lighting technology in the form of Quadra directional luminaires and wallwashers, plus Optoec spotlights for the scenic shop window display. Low-voltage halogen technology ensures optimum colour rendition of the fine clothing material.
Henry Poole Bespoke Tailors
www.henrypoole.com

Wagenningen
Dutch research and teaching in the field of agriculture and foodstuff is concentrated at Wageningen. The heart of the new campus is the Forum building with the university library, where T-16 light structures illuminate the bookshelves.
University of Wageningen, Forum Library
Architect: Quist Wintermans Architects, Rotterdam

Eberswalde
The district of Barnim has been given a new building for its local council and district administrator in the regional capital of Eberswalde. Covering 15,000 square metres, the complex provides workspace for about 500 local council employers. Grasshopper projectors accentuate the greenery in the atrium.
Paul-Wunderlich-Haus (District of Barnim, District Hall)
Architect: GAP mbH, Berlin
Lighting design: Licht + Elektroplanung Hecht, Rankow
www.barnim.de

Barnim, District Hall (Paul-Wunderlich-Haus)
Architect: GAP mbH, Berlin
Lighting design: Licht + Elektroplanung Hecht, Rankow
www.barnim.de

Bad Sooden-Allendorf
A new thermal complex has transformed the traditional salt baths in North Hesse into a contemporary health and leisure oasis. The designers used ERCO luminaires with high protection made in both the indoor and outdoor grounds, e.g. Panorama bollard luminaires or Beamr projectors.
Werrataltherme
Architect: Geirer + Geirr Freie Architekten, Stuttgart
Lighting design: Facit Lichttechnik, Lemgo
www.werrataltherme.com

Eriksdalsbadet
Lighting designer: Retea, Stefan Sjölund, Stockholm
www.eriksdalsbadet.com

Coyverton
On the site of a former power station, the Electric Wharf urban development programme is designed to complement a modern work-life balance and consider contemporary ecological issues. A curvaceous steel footbridge, illuminated by integrated Visor floor washlights, provides access across the Coventry Canal.
Electric Wharf Foot Bridge
www.electricwharf.com

Florencce
The Uffizi accommodates one of the most well known art collections in the world. For many years the museum’s exhibition architects and technicians have worked with lighting equipment from ERCO. For the new lighting of the Niobe Gallery, they opted for Parscan spotlights for 75W QT12 low-voltage halogen lamps and Parscopic washlights for 300W QT-D2 halogen lamps. These are mounted on the all-round cornice and display the richly ornamented vaulted ceiling to its best advantage.
Uffizi
Lighting designer: Soprintendenza Speciale per il Polo Museale Fiorentino, Arch. Antonio Giodoli
www.polomuseale.firenze.it/ english/musei/uffizi/
Bright prospects

De Grote Markt (market square), Antwerp
Beamer projectors illuminate sculptural decorations of the Renaissance gables.

Photo: Dirk Vogel, Dortmund
For those foreign visitors who initially thought of Luxembourg as some abstract financial location or as the administrative headquarters of the European Union, the varied topography of the old fortified city probably will come as an initial surprise. The city suburbs, each reflecting a different era of the city’s development, jostle for position on high plateaus between the deeply cut serpentines of the River Alzette. High bridges link the city’s historical core to the train station district and its Wilhelminian palaces in the south and to the Kirchberg plateau in the west. This is where the first European Parliament buildings were built in around 1960. Following on came the administrative headquarters of banks and financial service providers; forming an office-block city devoid of any urban charm.

On the strategically advantageous peak of the plateau, pointing towards the old city, lie the ruins of Fort Thüngen. This Vauban bastion is surrounded by a park complex known as “Drei Eicheln” (Three Little Oaks) – named after the roof decoration of the fortress’s three domes. Wanting to press the Kirchberg plateau further into the general consciousness of Luxembourg at the end of the 1980’s, the then prime minister Jacques Santer was particularly instrumental in establishing and building a museum for contemporary art. It was scheduled for completion in 1995 because Luxembourg had been elected the European cultural capital for that year. Like his political colleagues Mitterrand and Kohl, he also commissioned the architect I.M. Pei and together they chose the “Drei Eicheln” location – as a “bridgehead” between the two halves of the city.

It actually took until 2005 for the museum to finally open – hampered by repeated political criticism and significantly scaled-down from its original scope in an attempt to cut costs. Yet more time will elapse before the park surroundings have been landscaped and the fortress complex completely restored. Nevertheless, the fact that Luxembourg’s cultural policy has combined with an architect of world-renown to create a true “lighthouse project”, in the best and literal sense, is hard to overlook – not least because the building, when dramatically illuminated at night, so prominently advertises its role of providing modern art with a space and an appropriate setting in this city.

MUDAM, Luxembourg: a lighthouse of art

The first large art museum in Luxembourg, MUDAM, or the “Musée d’Art Moderne Grand-Duc Jean” to give it its full name, is a “lighthouse project” for the cultural policy of the little Grand Duchy in the heart of Europe.

Architecture: Consortium of Pei Cobb Freed & Partners, New York, and Georges Reuter Architekten, Luxembourg
Lighting design: ARUP, London; Fisher Marantz Stone, New York; Projekt Licht – Andreas Thiel, Saarbrücken

Photos: Bernd Hoff, Düsseldorf

www.mudam.lu

The museum’s front door faces south towards the old city beyond the River Alzette – the entrance bright lies on the other side of the building and establishes the connection to the new cultural centre that is being built on the Place de l’Europe.
The lockable joint allows the angle of inclination to be set exactly to the degree.

To illuminate the surfaces effectively and economically, the lighting designers arranged a row of Focalflood floodlights for 26W TC-TEL compact fluorescent lamps along the wall of the new building.

Focalflood floodlights
Floodlights with axially symmetric light distribution provide uniform illumination of objects or surfaces. The light distribution has a point of focal emphasis.

The new museum stands on the foundations of the old fortress. It therefore follows the same crosshead-plan layout of the former “Fort Thüngen”, which has been partly restored and converted to a fort museum. The illuminated moats now glow magically under the bridges leading to the museum entrance at the northeast point of the building.

Along the entire historical fortress wall, the lighting designers have arranged hundreds of linear floodlights in a special installation trench. The grazing light creates a dramatic impression and emphasizes the highly varied surface of the old walls. This exactly follows what the architect had in mind, since I.M. Pei, in referring to this project, writes, "What interests me is how to harmonize past and present so that they mutually reinforce each other".

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Lightcast downlights in concrete housings produce an inviting carpet of light under the porch. In the area closest to the wall, washlights have been installed to provide additional vertical luminance. Lightcast downlights in concrete housings produce an inviting carpet of light under the porch. In the area closest to the wall, washlights have been installed to provide additional vertical luminance.

Focalflood facade luminaires
The IP65 rated floodlights are fitted with warm white T16/28W linear fluorescent lamps. The connection housing in the mounting bracket enables practical through-wiring.
Time, Place and Purpose: I.M. Pei and his architecture

In his conversations with the journalist Gero von Boehm, Leoh Ming Pei once said that light is of overarching importance for his buildings. Even though he was primarily talking about natural light, an unusually sensitive use of architectural lighting is a characteristic running through all of Pei’s work. ERCO has had repeated opportunities to work together with Pei and his respective technical designers on lighting solutions for significant projects. The results were often just as innovative as the actual building itself – one only needs to think of Pei’s most popular work, the glass pyramid of the Louvre! It is not just his personality and works that make Pei so fascinating but also his life; it seems to prefigure the current phenomenon of globalization and the new dynamism of China. Born into the family of a leading banker in Canton, China in 1917, he left home at 17 to study abroad. His chosen destination was the USA and his chosen subject was architecture which he studied at the MIT in Boston, graduating with a Bachelor of Architecture in 1940. The onset of wars, first between China and Japan, then of WWII, forced him to stay in America. It was to be several decades before Pei was able to set foot in his homeland once again. The young Chinaman was not the only one stranded on foreign shores, the protagonists of the architectural modern age, Gropius and Breuer, were there also and became his teachers at the Harvard Graduate School of Architecture. After completing his postgraduate studies in 1946, Pei stayed on at Harvard, working as an assistant and lecturer and the collegial relationship with his professors grew into a friendship. Nevertheless, Pei soon came away from the doctrine of “International Style”, developing instead the idea of a culturally, historically and geographically conditioned, individually styled architecture that sees the design as a function of time, place and purpose.

After these years within the academy, Pei sought and found practical challenges as head of architectural lighting. It is against this background that Pei became independent in 1955 opening his own design offices, I.M. Pei & Associates in New York, although he did still work exclusively for Zeckendorf until 1960. The breakthrough in the architectural community came with a nested cube design at the National Center for Atmospheric Research in Boulder, Colorado (1961–67). The NCAR is located in the foothills of the Rocky Mountains and is a bastion for researchers. It was also in the 1960s that the architect, who seems to have a contagious smile on almost every photograph of him, was to meet the young presidential widow Jacqueline Kennedy. Pei freely admits that it was primarily because they got on so well together that he received the direct contract for the Kennedy Library – a project that was to take several years (1965–79), but one that opened the door to a new group of property developers. Commissioned by the power-holders of the world, Pei was from now on able to operate above and beyond any political disputes and resistance. With friendly persistence and seemingly boundless patience, he could ensure his architectural ideas were eventually pushed through.

Whereas princes would have once immortalised themselves with castles and bishops with cathedrals, the edificers of the Modern age are public museums. They are also the cornerstones of Pei’s further work and range from the National Gallery of Arts (1968–78) in Washington, the extension of the Louvre commissioned by François Mitterrand (1983–89), the Miho Museum in Shiga, Japan (1991–97) and the German Historical Museum in Berlin (1997–2003) to the new MUDAM in Luxembourg (1999–2006). Another strand of Pei’s biography is his professional return to China: the “Fragrant Hill Hotel” was built from 1979–1982, followed by buildings for the Bank of China in Hong Kong (1982–1989) and Beijing (2001). Both threads come together and culminate in what is probably the Pritzker prize winner’s most personal work from 1983, the new museum in Sushou, the place of his childhood.

MK

Literature:
Gero von Boehm, “Light is the Key,” Conversations with I. M. Pei (Munich: Prestel, 2000)
Website of the Pei Cobb Freed & Partners design offices: www.pcfpandp.com

For the German Historical Museum, Berlin, whose collection is housed in the former arsenal building on the “Unter den Linden” street, Pei designed an annex with rooms for rotating exhibitions. The contract was awarded in 1997 directly by the then German chancellor Helmut Kohl.

The new museum in Sushou reflects the city’s traditionally styled gardens. Pei’s family originates from this city and he used to spend the summer of his childhood here with his grandparents.

The Miho museum near Shiga (Japan) is spectacularly situated in a country park. The museum primarily displays treasures of Asian art.

Dorothea Seidler de Requejada, now on every picture postcard, the glass pyramid (1986–93) of the Louvre in Paris has become an icon of the French capital and the prime example of successful architectural lighting.

The lighting designer Claude Engle inspecting a mock-up of the lighting for the extension of the Louvre in Paris in 1984. The opportunity to work together on this groundbreaking project also gave ERCO a breakthrough as an international brand for architectural lighting.


The new museum in Sushou reflects the city’s traditionally styled gardens. Pei’s family originates from this city and he used to spend the summer of his childhood here with his grandparents.
With its protracted planning history, MUDAM reminds us that architecture should be judged by rather longer timescales than we are used to in our fast-paced age. An ambitious curatorial programme and a collection of modern art, which has been systematically built up since the year 2000, ensures the new museum has equal appeal to both avant-garde art-lovers and those more conservatively inclined. The sensibilities of the latter are placated by the tastefulness of Pei’s typical surface designs and proportions, preparing their minds for the audacious creations of contemporary artists. Almost 115,000 visitors have already been counted in the first year – a previously unheard of figure for Luxembourg.

After the rather intimate entrance foyer, the large central hall under the pyramidal glass roof is a celebration of space, of lines of vision and of the view of the fort, the city and the landscape. The museum layout is easily comprehensible, offering commensurate space for all important art genres on three floor levels; whereby, link passages, footbridges and stairways dramatically connect the large halls and small studios. Two spacious sky-lit halls provide classic painting gallery conditions, whereas the windowless rooms on the basement level offer space for media-intensive art forms. In MUDAM, the museum café and gift shop, which are often just an afterthought in other art galleries, are not only spacious but also conceptually integrated parts of the museum tour. Both these service facilities follow their own, original curatorial strategies, with features such as wooden pavilions and felt shingling designed by the Bouroullec brothers.

The clean, geometric shapes and high-quality surfaces in Pei’s buildings benefit from lighting concepts that predominantly work with ceiling-integrated downlights and wallwasher lighting. This approach can be seen in the ancillary rooms, whereas the exhibition galleries are fitted with ERCO’s future-safe DALI tracks that can be flexibly fitted with luminaires to suit the required situation. The transparent roof and facade surfaces, built of glass and steel, also have tracks and spotlights for lighting the room and objects. As in the glass pyramid of the Louvre, spotlights are also mounted in concealed fashion on the transition from the wall to the glass surfaces in order to add focused scenic lighting to the filigree support structure.
City in flux

On dematerialisation and the nocturnal buzz of the city

by Dr. Oliver Herwig

Devotees of the big city love it – the corner of 42nd Street and Broadway that is. This designation marks not just a crossroads at the heart of Manhattan, it forms the epicentre of the global news network. The city flickers as if it were an electric current itself with video info-screens operating 24-7, broadcasting news via the iconic skyscraper at One Times Square. It’s as if the whole world were compressed into dramatic news headlines. The news ticker has a long tradition. Commissioned in 1928, 14,800 lamps once lit up the waterfall display and the giant ticker display. Today the gigantic monitor from NBC News trumps the historical bend of red light. As ever-changing news production is playing live over the heads of tourists and local populace. The facade dissolves into pixel drift as moving images transform the immutable real estate, making it invisible. The building recedes into the background and becomes as a mere carrier for a media skin. New York becomes the hub of the universe: auditable, discernable and tangible. Ridley Scott took up the image of the electronic metropolis in his grey futuristic vision entitled Blade Runner. Flying machines whiz above a thick sea of lights called San Francisco. New York extends which to the horizon. Gas flares lick the sky, while looming high in the background is the crown of the city, a step pyramid, the headquarters of the Tyrell Corporation. Floodlights are aimed at the facade and once again illuminate the vibrating background of the cityscape. Science fiction needs archaic power and even post September 11 there is still prominent architecture and a straight structure and orientation points in the sea of buildings. Those who want to catch a glimpse of tomorrow no longer have to go to the cinema because the mega-cities are on the advance all around the world. If there is any direction in the process of civilisation, it is called urbanisation. In the 19th century, cities accommodated barely any historic lighting or orientation points. People are always on the move, and all architectural detail is lost for the light and all architectural detail is lost. For instance, corporate clients when renting the notona for an evening can have for example the Mumbai Cricket Ground of the All Blacks illuminated in red and gold. Designers explain that without conventional lighting, even the best material would be lost. But what exactly is good light and how is it used? Critics of the new light addiction point to the darker side of nocturnally illuminated architecture; the historical anachronism justifying for effect. Uplights simply invert traditional architecture with its cornices upside down, turning the house that was designed for daylight on its head. For instance, the more classic, more obvious facades and balconies. Following on from corporate architecture, the endeavour to implement the rules of design consistently in three-dimensional buildings, is corporate lighting: the art of magically illuminating buildings.

Booming lighting market

The lighting market is booming. Architects, designers and light artists are busy re-styling buildings with scenic lighting. Radiant entrances promise good business. Light is disengaged from the building to show a new rhythm that first has to be read or decoded. Like Cinderella, a pauper by day and a princess by night, more and more buildings transform after dark. For instance, corporate clients when renting the notona for an evening can have Munich’s Pinakothek der Moderne resplendently lit in red and gold. Designers explain that without conventional lighting, even the best material would be lost. But what exactly is good light and how is it used? Critics of the new light addiction point to the darker side of nocturnally illuminated architecture; the historical anachronism justifying for effect. Uplights simply invert traditional architecture with its cornices upside down, turning the house that was designed for daylight on its head. For instance, the more classic, more obvious facades and balconies. Following on from corporate architecture, the endeavour to implement the rules of design consistently in three-dimensional buildings, is corporate lighting: the art of magically illuminating buildings.

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Electricity is light, and light is the city. What we do with it is not just left to the individual, but needs a new consensus of the whole society, probably also including something such as design regulations for light.

With its transformation of the tangible world, the modern age has already opened the next chapter. The dematerialisation of our environment (i.e. the emancipation from buildings) therefore enters a new phase. Once it was the so-called “job nomads” who said goodbye to their office cubicles, then Internet and globalisation rose up to become the next determinative societal factors. Today, even the built-up city seems to dissolve in its own aura. Each night it glows a little more: a party for everyone, if designers are also included.
Efficient visual comfort and dark sky

For 2008, ERCO presents new product groups and product range additions for the outdoor area. These all follow a clear overall concept: efficient visual comfort, i.e. they attain maximum lighting quality while caring for the conservation of environmental resources. This is achieved not only by modern, energy-saving light sources and control gear but also, and above all, by ERCO’s efficient, highly advanced lighting technology. This ensures that the light is directed exactly where it is needed: without glare; with minimum spill light and without causing light pollution – all in the interests of “Dark Sky”. This all means that ERCO provides the perfect tools for innovative and responsible lighting concepts in the outdoor area.

Kubus

Midipoll

Using well-integrated lighting technology, the Kubus range of luminaires takes the ERCO principle of “Light, not luminaires” to positive extremes – a smaller luminaire, after all, is hardly conceivable. The miniaturised light sources, inconspicuous, ultra-compact cuboids with robust cast aluminium housings, are completely immaterial compared to their striking lighting effect as floor washlights or facade luminaires. Their high energy efficiency and extended maintenance cycles is due to the use of modern metal halide lamps and LEDs.

www.erco.com/kubus

The Midipoll bollard luminaire provides architects, lighting and landscape designers with a tool which competently performs not one but several tasks: Midipoll is not only an efficient instrument for outdoor area lighting, but itself also serves as an unobtrusive, space-dividing element – both during the day and at night. The light beam emitted from the totally glare-free, shielded front lens illuminates the surrounding area while also grazing the elegant, cross-shaped profile to produce a discreet luminance on the bollard itself.

www.erco.com/midipoll

Lightmark

Tesis

The Midipoll bollard luminaires are powerful lighting tools, but they can also function as spatial dividers by night and day.

www.erco.com/midipoll

The Lightmark range is an extensive system of outdoor luminaires with a variety of flood light distributions from cuboid shapes. These integrate precisely and inconspicuously into architecture as well as in open areas and landscape designs. In addition to the existing bollard and facade luminaires ERCO now offers Lightmark luminaires for wall mounting. These luminaires make it possible for lighting concepts for open areas and pathways to be matched with free-standing bollards and floor washlights which are flush in walls.

www.erco.com/lightmark

Tesis is the well-established range of recessed floor luminaires in protection mode IP68 for universal use in outdoor areas. The versions with square front lens in the Tesis range have now been completely redeveloped. In this shape, which designers prefer in specific architectural situations particularly for aesthetic reasons, the Tesis recessed luminaires are available as directional luminaires, as LED varychrome recessed floor luminaires, and with various wallwasher characteristics.

www.erco.com/tesis

As with a modular system, the miniaturised Kubus luminaires allow a uniform solution to be found for different lighting tasks in the outdoor area.

With their wide ranges of light distribution, Lightmark bollard luminaires combine versatile usage possibilities with efficient lighting for open areas and facades.

The square Tesis models have been completely redesigned with the emphasis on different wallwashing characteristics.
Focus

Lamps for the outdoor area

Lamp selection for outdoor as opposed to the indoor area requires different design criteria when such issues as changing ambient temperatures, difficult to access mounting locations and a high demand on illumination levels need to be considered. Ambient temperatures can fluctuate greatly throughout the seasons and time of day. Depending on the actual lamp, this will have an effect on switching characteristics and on the luminous flux. To avoid the poor luminous efficacy and slow start-up behaviour of conventional fluorescent lamps when cold, special fluorescent types are available for low ambient temperatures.

Metal halide lamps and LEDs prove to be highly powerful and efficient light sources for the outdoor area. Their luminous flux is largely constant even at low ambient temperatures. Control gear specifications are of particular relevance for cold environments. Exact data on the temperature behaviour can be found in the manufacturers’ product data sheets for the lamp and control gear.

High pressure discharge lamps boast high luminous flux and very good good luminous efficacy. The miniaturisation of the 20W metal halide lamp offers increasing relevance for applications with low power and sufficient luminous flux such as small area facade lighting or for lighting vegetation.

The LED is an important light source for those lighting solutions that only require relatively low illumination levels, such as orientation lighting or special-effect lighting. A decisive benefit of this technology is the availability of LEDs producing highly saturated colours. This allows the construction of powerful monochrome or vanychrome luminaires (with RGB-colour-mixing technology).

The rapid technical progress in this field is enabling LED modules with increasingly more power and higher luminous flux. In consequence, ranges of luminous flux for high-pressure discharge lamps and LEDs are coming closer together in technological terms, enabling highly differentiated lighting concepts when used in combination with each other.

Although high-pressure discharge lamps provide an extremely long functional life in comparison with incandescent lamps, this is greatly surpassed by LEDs. This longevity reduces the running costs and also allows the luminaires positioning to be governed by other factors rather than by maintenance accessibility, e.g. when lighting bridges or complex structures.

**LED**

- High-power LEDs provide economical lighting and are suitable for low illumination levels in the outdoor area.
- Compact LED modules produce the light for a symmetrical light intensity distribution.

**Lamp data**

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**Lighting tasks and lamp types**

Great distances between luminaire and object, large facade areas and the high illumination levels needed for producing an effect at a distance, all call for lamps with high luminous flux levels in the outdoor area — lamps such as metal halide lamps. This type of lamp varies not only in its output rating and light colour but also in its physical shape. Whereas the single-ended version, due to its compact discharge tube, seems predestined for brilliant accent lighting with spotlights, the double-ended version with the lengthened discharge tube is ideal for floodlighting.

Depending on the reflector used with the double-ended lamp, it is possible to produce either an asymmetrical or an axially symmetrical light intensity distribution pattern, for facade washinglighting or uniform floodlighting respectively.

In order to adjust the quality of light needed to suit the adaptation behaviour of the eye, light sources with low luminous flux such as LEDs for example, are especially suitable in the outdoor area when it is desired to retain contrasts between dark surroundings and low level illuminated surfaces.

LED modules also come in different forms. The preferred method of producing round beams for projectors or bollard luminaires is to use compact LED modules. Conversely, an LED row is used for wide-area step lighting or for grazing light across facades. Due to their compact form, LEDs open up new possibilities for designers and lighting technicians for optimising the design of luminaires. Since the LEDs already emit light bundled in one direction, fewer optical elements are needed in order to direct the light onto the surface to be illuminated and this increases the efficiency.

**Lamp power P (W)**

- HIT | 25–100 |
- LED | 20–100 |

**Luminous flux (lm)**

- HIT | 1000–15000 |
- LED | 1000–15000 |

**Luminous efficacy (lm/W)**

- HIT | 80–95 |
- LED | 80–95 |

**Lamp and control gear**

- HIT-CE | 80–95 |
- HIT-DE-CE | 80–95 |
- HIT-CE | 80–95 |
- HIT-DE-CE | 80–95 |

**Lighting tasks and lamp types**

- Projectors: Projections produce a narrow beam for accentuating objects or details.
- Floodlights: Floodlights with asymmetrical light intensity distribution provide uniform illumination for facades.
- Step luminaires: The technical lighting system produces optimum visual comfort when illuminating flights of stairs or steps.

Thomas Schielke
It is a stroke of luck to find such a plot of building land right in the middle of today’s densely populated Germany. Located to the edge of a well-kept village suburb, a mere stones throw from a conservation area with its gently undulating landscape and stork of mature trees – only a few kilometres from all the conveniences of a major modern city. The designers from Ingenhoven Architekten respectfully positioned the building on a corner of the site closest to the entrance. The shape of the building plan consists of a slightly curved circle segment like a viewing grandstand for the natural backdrop. This is the first residential building from the offices of Ingenhoven who are primarily known for the design of administrative buildings and tower blocks. Their remit to tackle modern day issues such as energy efficiency and conservation of resources using intensive technology combined with industrial precision and a decidedly modern repertoire of varying formats. When designing this house for a family with several children, Ingenhoven came up with forms and details far removed from the clichéd villa motifs or expressive experiments. Instead, the unimposing elegance, slender columns and fine curves are a little reminiscent of the best examples of 1960’s architecture.

The building does not seem to flaunt any typical features of the eco-look, so it comes as an initial surprise when the architect and occupants are keen to point out how environmentally friendly its design is. It exceeds the low-energy standards and uses environmentally compatible building materials in order to obtain the smallest possible carbon footprint. “We save 85% of the annual energy requirement for heating from solar collectors and a heat pump with ground sensors,” states the house owner proudly. Additional heating is possible with wood pellets. Ecological considerations have also gone into the construction. Thus, for instance, the building has a solid core formed from activated concrete ceilings and wall panels through which it can be heated in the winter and cooled in the summer. The facade consists of a timber frame featuring copious amounts of glazing, Oregon pine panelling and automatically controlled vents for natural air handling. The elegantly curved roof rests on a row of slender steel columns which are arranged around the perimeter and continue the rhythm of the facade divisions.

The building layout is consistently oriented towards the park-like landscaped garden measuring 44,000m² (11 acres). The juxtaposition of the rear facade, the border of the plot and a flat-roofed garage building form a small courtyard area. From here, one can look directly through the glazed, double-height entrance hall getting a sneak preview of the extensive views awaiting in all the rooms, balconies and patios of the Southwest facade. Visitors standing on the ground floor can orientate themselves straight ahead towards the garden patio, to the right into the living area or left to the dining room. With its open plan kitchen holding a giant table that on its own provides a clear insight into the size of the family and the hospitality on offer. The steel staircase allows a retreat to the private quarters on the upper floor. The realm of the parents to the left of the entrance hall and to the right is an array of children’s rooms. Each room overlooks the garden, whereas the bathrooms are on the rear facade. In the basement, the designers have created space not only for storage cellars and the building management system, but also for a comfortable multi-purpose room, which the occupants use as a home cinema, and for a spa and health spa.

The transparency of the entire garden facade makes the countryside an integral part of both the architecture and the daily lives of the occupants. However, it also meant that the designers were confronted with similar problems to those that Philip Johnson, the pioneer of transparent residential architecture faced over 50 years ago with his “Glass House”. At night, reflections and contrasts can all too quickly transform a glass facade into an impenetrable mirror from the inside. Following in the footsteps of lighting designer Richard Kelly, who designed a groundbreaking lighting concept for Johnson, Christoph Ingenhoven and his lighting designer Clemens Tröpp opted for three central measures. Firstly, in the indoor area they used accentuated light from highly shielded light sources in order to minimize reflections on the glass. Secondly, they created a brightened transitional zone around the periphery of the building in the form of the wide all-round terrace. Thirdly, they added scenic lighting to specific targets in the landscape background at night so that when dark, the architecture still had that open feel which appeared to continue into the garden.
In-ground luminaires are the most discreet way of scenically lighting an outdoor complex. The designers used 35W HIT Tesis lens wallwashers.

Lighting concept

It is precisely in living areas that visual comfort is a particularly important criterion for lighting, especially where large glass surfaces turn every unshielded light source into a myriad of irritating reflections at night. The designers therefore used Lightcast downlights for low-voltage halogen lamps in the ground-floor living and dining areas. Perfectly shielded by their Darklight reflector technology, these luminaires produce defined illuminated zones in the room.

Closer to the glass facade, ERCO tracks are integrated flush within the ceiling. Fitted with Parscan spotlights for low-voltage halogen lamps, they accentuate the furniture, objects or other features in the room, again totally without glare. An “intelligent home” bus-system installed throughout the entire building allows programmed light scenes to be ‘called up’ or luminaire groups to be manually dimmed.

The scenic lighting of the natural garden backdrop using Tesis in-ground luminaires combines with the carefully planned lighting of the indoor area to ensure that even after dark the special quality of the transparent architecture is retained: the integration of indoor and outdoor areas. The 35W metal halide lamps and a timer control system guarantee the economical operation of the outdoor lighting.

The plan view shows how the building is orientated to face the countryside.

The communal rooms of the ground floor together with the central lobby form an open spatial continuum.

The Parscan spotlights even provide brilliant, glare-free light above the long dining table. From this perspective it becomes clear how the all-round transitional zone mediates between the indoor and outdoor areas: the timber roof and the supports remain visible from the inside even at night. In addition to Tesis in-ground luminaires, this zone also makes use of Visor floor washlights, as seen here for lighting the steps.

The sleek form of the Parscan spotlights complements the modern living environment. Whether by day or night, tuned lighting accents direct the viewer’s path, emphasize or reduce contrasts and make surfaces come to life: “tune the light.”

Tracks are also integrated in the ceilings in the basement. Parscan wallwashers create a light atmosphere with their vertical illuminance.

Dimmable downlights provide ambient lighting in the rear section of the living area. Towards the glass facade, this lighting is supplemented by directed accent light from highly shielded Parscan spotlights.

In the indoor area the designers used recessed ceiling luminaires and spotlight/track systems. Low-voltage halogen lamps provide good colour rendition, a pleasant colour temperature and problem-free dimming.
VinContoret, Tidaholm

Today, visitors to the idyllic company headquarters of Swedish wine importer VinContoret may be surprised to learn that just 100 years ago half of the world’s matches were supplied from here.

Experts are divided as to who exactly invented safety matches in the mid-19th century, but Swedish companies were soon to dominate industrial mass production to such an extent that the Germans began calling matches “Schwedenhölzer” (or “Swedish sticks”). The modern day town of Tidaholm owes its existence to this unique industrial boom.

On the fertile landscape of Västergötland, where once-only farmers worked the land, heavy industry took its first foothold in 1799 with the formation of a small ironworks. In 1868 the factory, located on an island in the small River Tidan was converted with great success, to the production of matches. By around 1900 the “Vulcans Tändsticksfabrik” had actually become the largest matchmaking factory in the world! Additional factories and a hydropower station for the energy supply were constructed on the banks of the river and on a further island. Tidaholm was chartered in 1910 and today has a population of about 8,000.

Today’s visitor to the old industrial quarter on the banks of the River Tidan with its romantically patinated brick buildings, ancient trees, jetties, meadows and embankment walls would hardly imagine that in days gone by, such an idyllic place, could be home to smoking chimney stacks, smell of sulphur and the clanking of heavy machinery. Matches are still manufactured in Tidaholm, but now in the modern factory of “Swedish Match AB” situated beyond the town. A part of the “Vulcans” plant from 1894 and now lovingly restored, it forms the headquarters of VinContoret, an importer and dealer of wines, spirits and other delights from all around the world.

Modern day planning changes that engulfed entire regions, such as the Ruhr-valley in Germany, took place on a miniaturised scale here: the industrial estate was turned into a desirable residence with museums, schools, cafés and an art gallery being built. Private building owners like VinContoret also contributed to the town’s attractive look by revamping their company grounds using intelligent night time lighting.

The effective lighting of water cascading down the weir uses downwardly aimed Beamer projectors for 50W QT12 low-voltage halogen lamps.

For scenic lighting of the background landscape, the designers use the whole bandwidth of ERCO’s outdoor product range. Tesis in-ground luminaires for illuminating the aged trees and Panorama bollard luminaires for lighting the open areas with LED orientation luminaires for safe, maintenance-free light on the steps.

In the course of the industrialisation, weirs tamed the River Tidan rapids and its formidable power was harnessed. A network of paths and bridges provide access to the river’s banks and islands. The lighting design ensures that a night time tour through this historical industrial heartland is a truly memorable experience.

The architecture and interior design of the headquarters is by White Arkitekter AB, Gothenburg and the lighting design is by White Design AB, Gothenburg.
"Beim Dorf" housing development

High quality lighting in the outdoor area adds the finishing touch to this residential complex in the Düsseldorf suburb of Niederkassel and ensures the ‘lighting by night’ aspirations of architects and investors are also met.

Architecture: Lievens und Partner, Aachen
Lighting designer: Ingenieurbüro Kiep + Braun, Wuppertal
Photos: Dirk Vogel, Dortmund

The balanced lighting of horizontal and vertical surfaces is also important in outdoor areas. The Panorama bollard luminaires ensure the ‘lighting by night’ aspirations of architects and investors are also met.

Individualistic home builders may show total disdain at the idea but, compact building developments within existing residential areas are a much-needed housing solution from the ecological and urban planning point of view. Yet even in desirable locations close to the city of Düsseldorf, the regional capital of North Rhine-Westphalia, such housing does not automatically sell itself. The potential clientele are very discerning when it comes to architectural design and décor; faceless buildings would be a poor financial investment.

For the “Beim Dorf” (At the Village) housing development in Niederkassel, the Aachen-based architects Lievens und Partner produced a design that sets itself apart. Its clear structures and open facades exude a timeless elegance. A total of 43 apartments were built and divided into six buildings on a plot measuring over 7,000 square metres (1.7 acres). The generously laid out freehold flats have living areas ranging from 95 to 250sq.m (1022 to 2690sq.ft). Ceiling-height windows, higher than average ceilings and luxurious interior fittings lend a studio character to the light-flooded premises.

The property developers from the Provinzial-Leben-Baubetreuungs GmbH, Düsseldorf, were also persuaded that carefully planned, scenic lighting design for the outdoor area would ensure the development had an attractive and striking appearance during the hours of darkness. Supported by ERCO lighting consultants, the designers drew up an outdoor lighting concept that offers high visual comfort via glare-free luminaires, dramatically emphasising the horticultural design of the courtyard, while also proving to be extremely economical to operate thanks to efficient lighting technology and modern light sources such as metal halide lamps.
The rose garden in Frankfurt’s Palmengarten (Palm Garden) is the park’s horticultural showpiece and visitor attraction. The intelligently designed lighting lends this area a new quality, ensuring a pleasant stay even during twilight hours.

The rose is esteemed as the queen of flowers and, as befits any diva, is very demanding in terms of location, nutrition and care, giving many a recreational gardener cause for grey hairs. So it is nice when all the hard work can be left to the professionals and one can simply enjoy the flower’s aesthetic appeal, which is why one visits public rose gardens like those in Frankfurt’s Palmengarten. The tradition of a rose garden at this site dates back to the founding of the botanical gardens in 1868. Its actual location within the Palmengarten has changed several times over this long period, but it has maintained its current position since 1988. It commences shortly after the entrance exhibition building of Frankfurt’s Palmengarten directly into the newly laid out rose garden.

Over time, roses will deplete the soil of nutrients. After around two decades the Frankfurt gardeners entered a renewal of the rose garden onto the agenda, whereby the old soil was deeply excavated and replaced by new. The occasion also gave the opportunity to renew the pathways and herbaceous borders, to lay electrical cables and to redesign the lighting. However, the latter task was not completed by Palmengarten’s head gardeners but by the Offenbach-based lighting design offices, Atelier deLuxe. The lighting designer Daniel Zerlang-Rösch devised a lighting concept designed to give optimum viewing conditions, by illuminating the visitors’ surroundings without dazzling them. This concept was also applied to the countless seating arrangements thereby taking the lower eye-level into account. The pathways and the plants are now sufficiently illuminated so as to be well recognisable, while the visitors themselves emotionally remain in semidarkness. This effect was achieved using Lightmark bollard luminaires along the pathways and Grasshopper projectors mounted on the pergola at a height of almost 4m. With these luminaires and their respective positions, the designers were able to lend the rose garden a pleasant, glare-free lighting atmosphere that invites visitors to stay.

In the rose garden area, the designers opted for Lightmark bollard luminaires with double-sided light apertures because their focal point is set at a low-height and yet they still emit a wide beam on the paths and flower-beds. The optimum glare control allows them to completely vanish in the background opposite the illuminated plants and areas. The warm white metal halide lamp (35W HIT) boasts a good colour rendition that is ideally suited to lighting the plants.

The Grasshopper projectors are arranged behind the columns so that they are not visible as a light source from the rose garden. In addition, one Grasshopper projector is aimed directly at each of the sculptures so that the interaction of light and shadow will emphasise their three-dimensional form.

The beams of light from the Lightmark bollard luminaires lead the visitors from the entrance exhibition building of Frankfurt’s Palmengarten directly into the newly laid out rose garden.
Solar power from the light factory
In December 2007, ERCO commissioned a solar power system in Lüdenscheid. The approximately 2,500m² roof of the P2 factory building now has 891 solar panels with a nominal output totalling 160 kilowatts (kW), about 10 percent of ERCO’s power consumption. Under the local weather conditions, it is estimated that 112,800kWh of electricity will be fed into the power grid per year. This means that after just three years the system will save more CO₂ than was produced by its manufacture.

New ERCO showroom in Vienna
ERCO has moved into a spacious new showroom and offices in an historic loft building in the Viennese suburb of Leopoldstadt. The new premises will not only serve the Austrian market, but also control all the business operations in Central and Eastern Europe. To mark the occasion of the new opening, the “Richard Kelly: Selected Works” exhibition was hosted in Vienna from 30.11 to 14.12.2007 – the private viewing was also the inauguration ceremony. The address of ERCO’s Vienna office is:

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Engerthstrasse 151/Loft e.6
1020 Wien
Austria
Tel.: +43 1 798 84 94 0
Fax: +43 1 798 84 95
info.at@erco.com

The three aisles of the former tram workshop have been converted to include not only a spacious mock-up area for demonstrating the qualities of light but also office space and conference rooms for project meetings.

Richard Kelly Exhibition: a look back
The “Richard Kelly: Selected Works” touring exhibition was presented for the first time ever in Europe in 2007 by the PLDA (Professional Lighting Designers Association) and ERCO. The exhibition, containing a total of 37 framed works and photo boards with original drawings, prints and photographs from the Richard Kelly archive, was previously shown in 2006 at the Center for Architecture in New York City. It provides an exemplary illustration of both the philosophy of the famous American lighting designer and architect and his visionary approach to architectural lighting, daylight usage and luminaire design. On this page we present impressions from the venues throughout all Europe.

Stockholm (09.02–02.03.2007)
Berlin (16.03–01.04.2007)
Paris (26.04–10.05.2007)
Naarden (13.09–05.10.2007)
London (25.10–16.11.2007)
Vienna (29.11–16.12.2007)

Bust of honour for the opening at ERCO Netherlands in Naarden: Addison Kelly (above right) in London and Paris and Gad Giladi (below left) in Berlin.

At all venues the exhibition and accompanying literature met with the great interest of architects, lighting professionals and culture fans.

ERCO Lichtbericht 84
Hotel Kieler Yacht Club, Kiel
New light for the traditional hotel on Kiel’s Hindenburgufer coast road. Only six Lightmark facade luminaires are needed to illuminate the facade without glare and all made possible by high-quality lighting technology and the use of energy-efficient 35W metal halide lamps.

Architect: Nagel & Partner Architekten BDA, Kiel
Lighting design: team licht, Hamburg