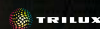


3lux:letters

LIGHT | ARCHITECTURE | TECHNOLOGY 3 | 2015



lux: Outdoor lighting
Diverse lighting

lux: Light in Japan
Looking beyond the familiar

lux: Light and Intelligence
Multi-Lens technology



Dear Readers,



Illuminating exteriors requires a certain amount of sensitivity. Currently, lighting varies from restrained to extremely conspicuous. However, no single lighting task is better than another; they all have equal merit, and indeed the fact they differ so much constitutes their attraction.

In our lead article we move beyond the familiar by venturing to Japan (page 10). Dr. Christian Tschumi casts a critical eye at the special significance and use of light in Japan and simultaneously compares this to habits in Europe, emphasizing both the differences and similarities.

Three light designers give us an insight into their experience and personal attitude to outdoor illumination: Malte Maass (Maass-Licht Lichtplanung, Hamburg, DE), Nicholas Tory (ample projects, Surry Hills, AU) and Maik Böhmer (Planorama, Berlin, DE) in our interview (page 18).

We present different ways of designing the landscape: namely the Kö-Bogen in Düsseldorf, Paderborn University, Troisdorf Town Hall (page 22), the railway station in Villena (page 28) and the Gruga park in Essen (page 34).

In our Planning Issues (page 38) we examine how great a role illumination plays in the smart city, while in our history section we elaborate the development of outdoor lighting through to cutting-edge multi-Lens technology (page 4). We also outline this intelligent technology's special characteristics and explain just what it can do (page 40).

I hope you will enjoy reading the current issue of 3lux:letters!

Yours sincerely,

Thomas Kretzer, CEO TRILUX Vertrieb GmbH



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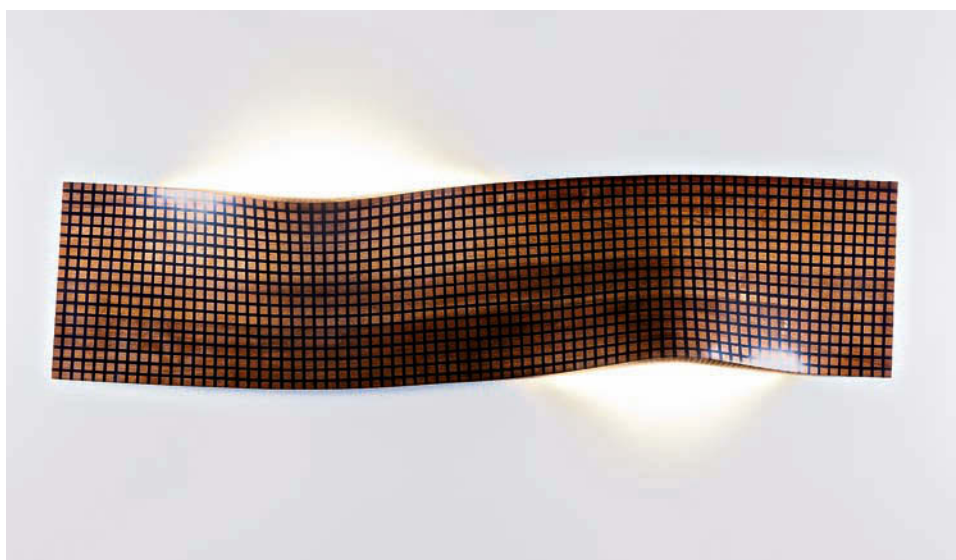
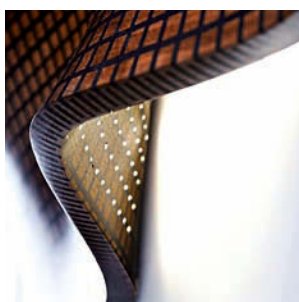
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OUTDOOR LIGHTING

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Dynamic

With his Grid luminaire series Belgian industrial designer Maarten de Ceulaer unites art, craftsmanship and modern LED technology. First grids are milled in the top and bottom of solid wood planks to de Ceulaer's specs. This makes the wood malleable enough to mould it three-dimensionally using hot steam. Once a final shape has been found the LEDs and electrical components are affixed to the wood. Finally, the grid pattern is cast in resin, freezing the shape. The LEDs in the ceiling or wall lamp can be individually programmed after installation. www.maartendeceulaer.com



Photos: Nico Neels

lux: HISTORY

The history of multi-lens technology

The 16th century witnessed first attempts on the way to permanent public lighting. From pitch-pan lamps and pinewood chip lamps via oil and gas lamps through to carbon arc lamps – outdoor lighting was subject to radical changes until the mid-19th century. Carbon arc lamps proved unpopular and were replaced first by incandescent light bulbs, then in the 1930s by mercury-vapour lamps and fluorescent bulbs. For the latter from the 1950s TRILUX marketed outdoor luminaires with simple metal reflectors for light control. The oil crisis in the early 1970s then accorded greater emphasis to energy saving and light efficiency. Which resulted in improved street lighting and better light control. In about 2000 TRILUX used enhanced computer programmes with 3D simulations to

optimise the reflectors, resulting in freely shaped reflectors and greater efficiency. This lighting technology was miniaturised for LEDs, and efficiency increased again thanks to targeted light using more precise lenses. This finally led TRILUX to multi-lens technology (MLT^{IQ}), which ensures optimal flexibility, light current, lighting technology and colour plus better energy efficiency. Consequently, luminaires can be better adapted to customer wishes. A crucial step in the development of outdoor lighting!

More about MLT^{IQ} on page 40.

Oil drip lamp, street lamps with oil burners using rapeseed oil or petroleum (top, from left to right); pole-mounted luminaire with several luminaires in a star-shaped arrangement for fluorescent bulbs (bottom left); modern column luminaire – series 98 – with MLT-Technology (bottom right).



Photos: Book „Lichter und Leuchter“, Arnsberg, 1987; TRILUX

Twin perspectives

amsterdam light festival
28.11.2015 – 17.01.2016



„Effervescence“, Géraud Périole, Photos: Janus van den Eijnden

Between November 2015 and February 2016 the lights in the centre of Amsterdam will burn especially brightly: For the third time in succession the Amsterdam Light Festival will run under the motto “A Bright City”. Unlike other events of this kind, visitors interested in light can explore the Festival from two different perspectives: by boat or on foot. The “Illuminade” route takes pedestrians once round downtown Amsterdam while “Water Colours” takes them on boats along the canals and Amstel River. There are light sculptures, projections and installations by international lighting artists together with special events related to light throughout the city.

www.amsterdamlightfestival.com



„my light is your light“, alaa minawi



Photo: Yuri Palmin

Symbolic space

At an old factory site (EMA, medical equipment) in downtown Moscow KOSMOS created a centre for alternative culture and art in summer 2015. The centre seeks to visualise in architectural form this huge city's infrastructure that is used every day but is largely hidden. The spatial intervention takes place on different levels, symbolised by elements visible from a distance: the silver frontage, which bonds the various structures of the complex into a whole, the technical roof, which represents the invisible network of service functions and the disk as a striking symbol of transformation and projection surface for films and installation.

www.k-s-m-s.com

Baroque re-interpretation

Gammel Holtegård country mansion is not only a centre of modern art in Denmark, but also an impressive example of North European Baroque architecture. In the grounds modelled on the royal French gardens and extensively reconstructed in 2003 three temporary pavilions will in coming years link contemporary architecture and the historical forms of the estate designed by Lauritz de Thurah. The first pavilion's theme is an orangery designed by Danish architects lenschow & pihlmann and Mikael Stenström. Arguably the most famous baroque architecture of all provided inspiration, namely Francesco Borromini's San Carlo alle Quattro Fontane in Rome – transformed into a contemporary, translucent spatial sculpture. www.lenschowpihlmann.dk



Photos: Hampus Berndtson

Mirror image



Photo: NN design band

The Reflect Lamp by Anastassia Leonova from Almaty, Kazakhstan combines an atmospheric uplight, a focused beam reading lamp and diffuse night light. From the solid, but translucent base in which the light source is located a wooden rod rises up; attached to this are reflecting mirrors that can be infinitely adjusted for height and angle. The reflector (after which the lamp is named) means the lamp can if need be forgo an artificial light source, as it focuses sunlight onto a certain spot and can be illuminated without electricity. The intensity of light can be regulated by the mirror's different shaped sides. www.nnbandedesign.com



jDARK!
+ Dark II (two, too)
26.09.2015 – 03.04.2016
Zentrum für Internationale
Lichtkunst Unna

Light in the dark

In the exhibition "jDARK!" the Centre for International Light Art Unna is presenting works by Anthony McCall, Diana Ramaekers, Regine Schumann, Vera Röhm and Lucinda Devlin until 3 April, 2016. In keeping with the topic the artworks can only be perceived in the dark rooms once visitors have grown accustomed to the limited light. What all works have in common: they repel the dark on the one hand, but only come to life in interaction with it. The exhibition has a fundamental interactive concept, whereby visitors can enter the individual installations and they become part of the objects. www.lichtkunst-unna.de

lux: STATEMENT

Light for the city

Electrical lighting is an instrument that not only permits greater security but allows more powerful individual presentation too; lighting can serve to attract attention and a certain prestige is involved in having modern, innovative technology. This philosophy is all the more common today since the quantum leap in lighting technology makes any size, colour and type of application both simpler and cheaper. It is vital we grasped light not only as a tool for traffic safety or advertising, but established artificial lighting's diverse uses as an integral part of urban planning and architecture. After all, light makes our multi-faceted city structure legible by night! This represents a huge opportunity. The challenge facing politics, administration and planners: to limit the indiscriminate and rampant proliferation of light – instal-

lations, and channel their proper use. Apart from sensitising the persons involved this requires continual planning, in-depth communication, and additional regulation. However, if individuals are to be motivated to use light as effective publicity light must be seen in a broader urban concept. Specifically, light must be grasped as a building material, an integral part of architecture and the city.

Uwe Knappschneider
Urban planner and lighting planner
licht|raum|stadt|planung, Wuppertal



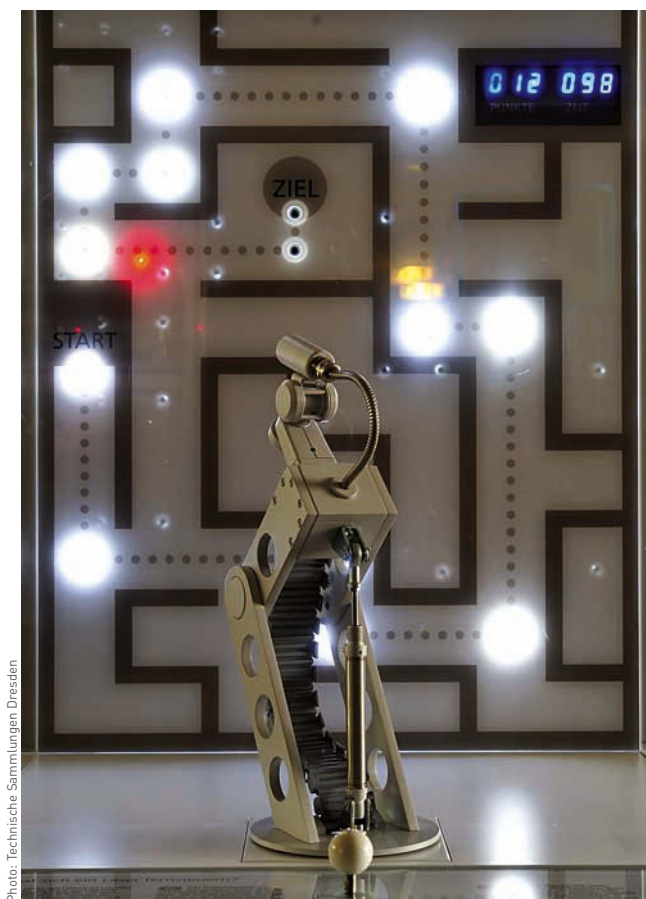


Photo: Technische Sammlungen Dresden

New light

Exhibition „Hi Lights!“
20.06.2015 - 19.06.2016
Technische Sammlungen Dresden

Until June 2016, during the International Year of Light in Dresden visitors to the “Hi Lights!” show can explore scientific occupation with light. Visitors experience research first hand through interactive experiments, guided tours and workshops. Thematically, the exhibition extends from the first observation of light in classical antiquity through to modern laser technique. In the “Manege der Photonik” test setups from local research firms and companies present the most important current applications. They also show the development of energy-efficient light sources and laser-accelerated particle radiation in cancer therapy, but also spectacular images from microbiology.

www.dresdner-lichtjahr.de

Everyday hero



Photos: Renato Biancotto



With its Fantasia luminaire line Italian design studio M.I.D transfers the nostalgic memory of Disney's eponymous cartoon and the little helpers of the sorcerer's apprentice into contemporary design. Similarly, as if by magic only through everyday things do the luminaires receive their true creative expression: In the openings of the 3D-printed plastic base you can store such disparate items as broom handles, bottles, screwdrivers or even vegetables. They come with blue, green, red or yellow leads. With their idea M.I.D sought to encourage clients to become creative and grasp design as a process that is never complete.

www.designmid.it

**Le Corbusier et la lampe Gras /
Le Corbusier and the gras lamp**

Didier Teissonniere
Published in 2015
Éditions Norma
124 pages, 96 illustrations,
210 x 280 mm
bound with ribbon
French, English
€ 35,00
ISBN 978-2-91554-2707
www.editions-norma.com



Publisher Norma Édition has devoted a wonderful yet very private book to a little known facet of the famous architect: Le Corbusier's close connection with La Lampe Gras. The flexible desk, wall and standing lamp was designed 1921 by Bernard-Albin Gras, one of France's most innovative designers in the 1920s. Le Corbusier was fascinated by its ergonomics and simplicity; it has no screws or welded joints. He was so taken by its design and user-friendliness that he became an enthusiastic supporter of Bernard-Albin Gras and used the lamps in his offices and numerous projects worldwide.

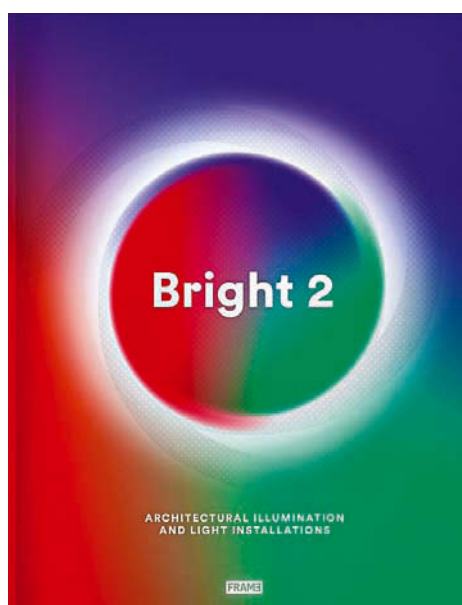
**Bernd Nicolaisen
Restlicht. Photographs |
Tableaux | Lightboxes
Iceland 2004-2015**

Bernd Nicolaisen
Published 2015
Hatje Cantz Verlag
192 pages, 103 images,
25.2 x 30.2 cm
clothbound with dust cover
German, English
€ 58,00
ISBN 978-3-7757-4061-6
www.hatjecantz.de

Using a large-format camera from 2004 to 2015 photographer Bernd Nicolaisen captured the unique world of Iceland's glaciers and the Swiss landscape in a fascinating manner. Restlicht - the light remaining from the day before night falls immerses the pristine landscape in deep blue through to bright turquoise, sometimes only in shades of grey. Detailed surface structures and the tiniest lines and shapes make the icy setting with its majestic elevations seem fairytale-like – almost unreal. The impressive photos let readers experience this beauty.



Bright 2
Carmel McNamara, Ana Martins
Published in 2015
Frame Publishers
368 pages
230 x 297 mm
hardcover
English
€ 59,00
ISBN 978-94-91727-41-2
www.frameweb.com



Bright 2 whisks the reader away on an exciting voyage of discovery through the contemporary world of light art. Fascinating images present an array of illuminated architecture, temporary installations and projections as well as sculptures you can touch, change or enter. Not only established light artists and architects the world over, but also young, (still) unknown designers created these pieces, some of them immobile, others dynamic. The clear layout provides a host of interesting information on technical details and the creative minds behind the individual pieces, from native Peruvian Grimanese Amorós to Rotterdam's Studio Roosegaarde.

光 HIKARI

Aspects of light in the Land of the Rising Sun

When providing lighting for outdoor spaces, transforming night into day is not the sole consideration. One of the most important factors is the cultural background – the social context. A look at Japan's history reveals an attitudes to light that differs from that in Europe.

Dr. Christian Tschumi

Light is even part of Japan's own name for itself – the word Nihon (日本), i.e. Japan, consists of two characters, the first meaning "sun" and the second "origin". In other words, the country where the sun originates, as it were. For China, this really is the case because from China's viewpoint the sun rises to the east of the country, which means in Japan. And so it is not only the kanji, the complex characters used by the Japanese, that come from China, but likewise the country's very name.

Moreover, the Kojiki, the legend of how Japan came about, explains how the Tenno, the Japanese Emperor, is the direct descendent of Amaterasu, the goddess of the sun. Incidentally to this day it is from her that he derives his authority and his sovereignty. Together with the gods, light itself, in the shape of the sun, plays a very important role in Japan.

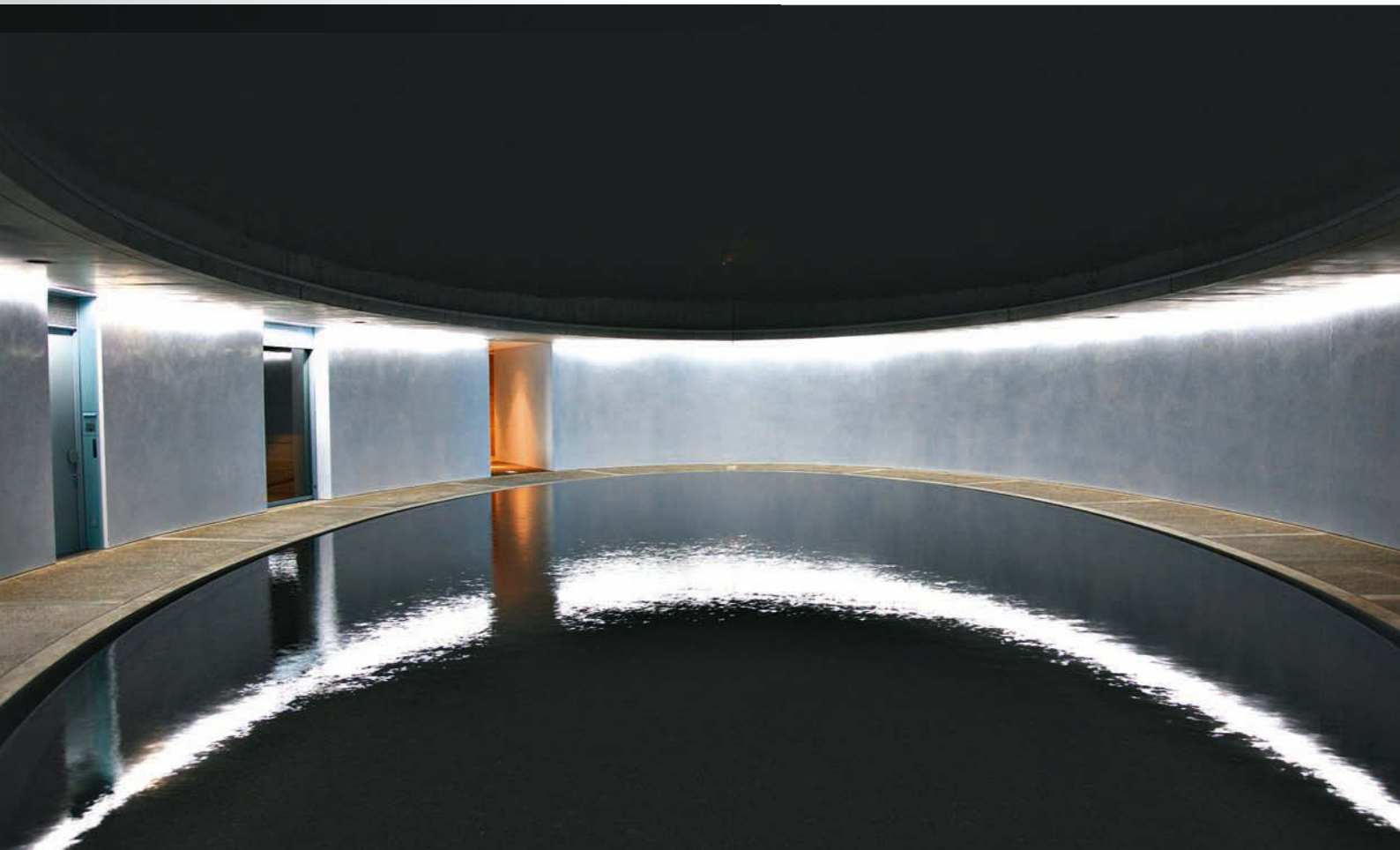
If, as a consumer of light and a landscape architect, I try to get to grips with everyday light the situation becomes rather more prosaic as well as more down to earth. In Japan, there are many

aspects of the subject of light with which we in the West are really not familiar. At the same time, we do have some things in common, particularly nowadays.

石灯籠, **ishi-dōrō, stone lanterns**

The original purpose of stone lanterns was to provide illumination but today they are used more to create a mood and to act as focal points in Japanese gardens. They came to Japan from China via Korea and their original function was to light the entrance to Buddhist temples. When the tea gardens caught on in the Momoyama period (1573 – 1603) they found their way into gardens. This marked the birth of the garden lamp as we know it today. In the West in particular, such lamps have come to represent the epitome of the Japanese garden. Together with gravel and bamboo, in many people's eyes they symbolize the very essence of the Eastern garden.

The stone lantern must be one way of using light in the garden that is almost unknown here in the West. Even if we have now



Benesse House Oval in Naoshima
by architect Tadao Ando

produced a great number of beautiful luminaires we hardly ever use them as centrepieces or lighting features in our gardens. It is more the case that we hide them, using them to illuminate something else – a tree, a sculpture or a building. For us, luminaires are a means to an end and hardly ever something to be admired in their own right.

御幣, **gohei** – the light of the sun

Because of the significance of light in the context of Japanese culture mentioned at the beginning of this article the gohei repeatedly assumes a symbolic function. In this connection the question arises how light can be lent abstract form, i.e. how the essence of light can be represented as something abstract. One answer to this supplied by Japanese culture is the gohei, a specially folded strip of paper symbolizing the brilliance of light. It is often to be found attached to a piece of rice string and tied around a holy tree or stone, where it attests to the divine radiance of the relevant object. Here, light, as represented by the splendour of the sun, is a talisman against evil, marking out a

purified location. I have never come across this usage of light in the West. Of course, our deities do have their holy lights as well, but in the latter case the symbolism appears to be rather more rudimentary.

I discovered a particularly quick and dangerous form of light on the bamboo fence at the Ryôgin-an temple in Kyoto. Dramatic zigzag lines represent the streaks of lightning that sweep over this part of the garden. Around the corner a dragon rises up from a sea of gravel. Of course, the action is accompanied by thunder and lightning. As part of this scene, the fence acts as a partition and a projection screen for the symbolic flashes of light.

和紙, **washi** – paper for filtering and creating a mood

As a general rule the Japanese approach to light may seem rather more restrained than that of the Western world. In the context of traditional architecture the Japanese often use indirect and specifically subdued lighting. Both daylight and artificial light often shine through washi, thick, parchment-like Japanese



Paper windows and shoji at the Koumyou-in Temple in Kyoto



Gleaming red lantern in front of a noodle shop as a sign of welcome for potential guests (top)
Misaki stone lantern in the garden of the Katsura villa in Kyoto (centre)
Gohei on a rice straw rope around three sacred stones (bottom)

paper. This makes it possible to really orchestrate light, creating a positively elevated mood. In Japan this paper is not only used for lampshades, it often illuminates entire walls of sliding doors, known as shoji. After all, the sun is often particularly glaring there in the hot summer months. At this time of year Spartanically-lit rooms can do tired minds and bodies a power of good.

However, decades of globalization have not failed to leave their mark on Japan. Nowadays we do have many things in common, including what we do with light, and eastern metropolises are just as brightly lit at night as are ours, perhaps even slightly more so if we take Tokyo and Osaka as the measure of all things. A surfeit of light to the point of overstimulation and light pollution. The prosperous garden owner in Nippon also illuminates his stones and bonsai trees, just the way that we do. And one particular highlight of the year in Kyoto, Japan's horticultural capital, is the annual spectacle of illuminating the splendour of the autumnal gardens. With this in mind, new cabling is run repeatedly through centuries-old trees and gardens, so they can be festooned with

lights, thus delighting the droves of evening visitors that they receive over a period of between two and four weeks. A welcome source of income for the temples and their priests, even if the latter would prefer illumination of a different kind.

Incidentally, people who journey through Japan by train often find themselves sitting in a Hikari. This is what Japan Rail calls its fastest high-speed trains. And even if the Hikari Shinkansen Super Express trains do not convey travellers to their destinations at the speed of light it certainly get them there in next to no time. And if, upon disembarking, passengers find themselves in a side street near to the station they often see dozens of signs in Japanese characters illuminated by red lights. If the light is on, the restaurant is open. Here, the light represents an invitation and a clear sign – we are here waiting for you!

Time and time again Japanese culture impressively succeeds in combining the old with the new, the traditional with the contemporary. One past master of this art is Osaka-based architect



Surfeit of urban light in the centre of Osaka

Tadao Ando. In his buildings, Ando most skilfully plays with the light which he uses, just like walls, as a construction element. On the island of Naoshima he has designed two hotels and several museums. In the Benesse House Annex he has placed one of his most beautiful light installations on top of a hill, with a view out over the Seto Inland Sea. At night, the oval courtyard appears to be open not only at the top but also at the bottom. The dark water absorbs the light that subtly illuminates the entrances to the rooms. This ring-like building appears to positively float between heaven and earth – as if the sun goddess herself had had a finger in this pie.



Dr. Christian Tschumi

After an apprenticeship as a gardener Christian Tschumi studied Landscape Architecture at Hochschule Rapperswil and at Harvard University's Graduate School of Design. In 2000 he gravitated to Japan, where he researched into the revival of the Japanese garden in Kyoto. He holds a Ph.D. on the subject, partly done at ETH Zurich, and published the results in a book – *Mirei Shigemori – Rebel in the Garden* (Birkhäuser, 2007). He has been planning open urban and suburban spaces with Tschumi Landschaftsarchitektur since January 2012

www.tschumi-la.ch



BRIDGE LIGHT



Blue illuminated bridge, Dubai; Photo: ©iStockphoto.com/typhoonski

“Success comes via the bridge of planning.”

Adolf Loos (1870 - 1933), Austrian architect



LIGHT BRIDGE



Rainbow in the spring, New Zealand; Photo: ©iStockphoto.com/Peter ten Broecke

“Rainbow – a bridge for the imagination”

Else Pannek (1932 - 2010), German poet

LOOKED INTO

3lux:letters asked three lighting experts three questions on outdoor lighting.



Malte Maaß
lighting designer
Maass-Licht Lichtplanung, Hamburg/Mainz/Hannover

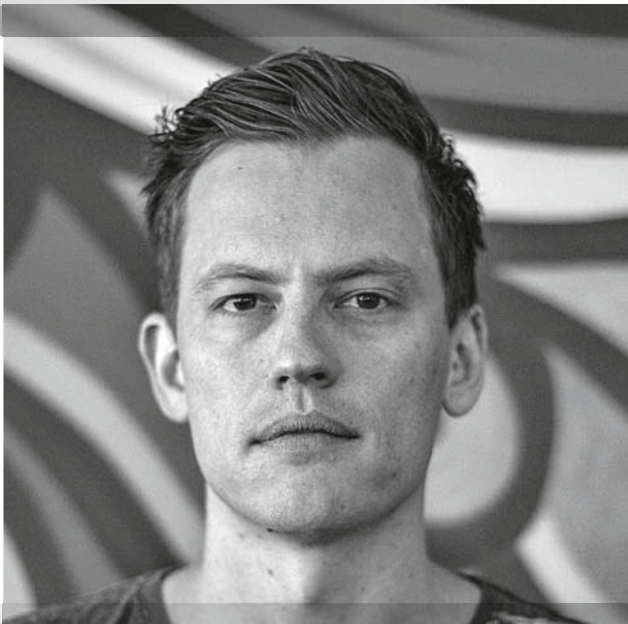
What particular aspects do you focus on when realizing outdoor light art projects?

Malte Maaß: When planning lighting for architecture we use the medium of light to design spaces flexibly and to create moods and a feeling of safety or well-being. Since the invention of electricity we can even experience cities at night. Planning lighting for outdoors is particularly interesting because it brings architecture, space and light directly together, visibly shaping the evening cityscape for the general public. Lighting is generally divided up into three categories: Light for seeing, light for looking at, and light for inspecting. The function of the lighting in question should be defined at an early stage in order to guarantee good outdoor lighting planning. If the purpose of the relevant lighting is to orchestrate an object or a brand the factors that apply are not the same as those for functional usage, which is aimed at safe orientation. Lighting emphasizes architecture and uses state-of-the-art technology to throw the spotlight on special places and monuments. When thought goes into the process, illuminating nature in the evening can heighten our awareness of the former, even when darkness reigns.



Facade illumination ING-DiBa Headquarters "LEO", Frankfurt/Main (2015)

Photo: MM Fotowerbung, Kaulungen



Nicholas Tory
lighting artist
ample projects, Surry Hills, AU

Nicholas Tory: Our motivation for creating outdoor light art projects is to create experiences or stories that people connect with. We like to make people think differently about an idea or a place, and to provide people with something that they have not seen before. In parallel with this storytelling development process, the formal 3 dimensional characteristics of the architecture or outdoor space must provide the visual framework for the design of the project. We create architectural projection shows, interactive light installations, light sculptures, soundscapes, and festival precinct designs. We artistically and technically direct our projects, and we enjoy collaborating closely with other artists and suppliers.



Maik Böhmer
landscape architect
Planorama, Berlin

Maik Böhmer: For us, lighting planning is a tool not to be underestimated when designing exteriors. Appropriate lighting can highlight and orchestrate a design. A good lighting concept lends a building an additional atmospheric dimension – its own look. Something that is obvious in the daylight hours can be conveyed equally well at night if the lighting is appropriate; particular features can be further accentuated. For us, lighting also plays an important role in terms of security. Good lighting concepts create a sense of well-being and security and minimize any cause for anxiety.



Photo: ample projects

"Visions of Vienna" for Sydney Symphony Orchestra 2015 (Sydney Opera House)



Photo: Lichtschwärmer

Market square Mönchengladbach Rheydt with brass fountain and church

The media focus is often on the energy turnaround and cutting back on power consumption. In light of these debates, do such lavishly illuminated façades still fit the times we live in?

Malte Maaß: Admittedly always banging on about lighting is one way of attracting public attention but it never achieves its desired aim. State-of-the-art lighting technology and professional light planning help us to allay critical attitudes to façade lighting. The intensity of the light and the energy consumption of the products used should be commensurate with the ambient lighting. The lights should be programmed to switch off during unfrequented periods. Moreover, special regulations apply in terms of the relevant building's energy certification. In my opinion, the problems relating to light pollution are considerably more serious. The additional brightness in the night sky caused by incorrectly positioned lighting that then confuses wildlife should be taken into greater account in outdoor lighting concepts.



Photo: Bert Rietberg Photography, Amsterdam

Facade illumination Schouten Toren office tower, Capelle aan den. IJssel (2013)

In your opinion, which outdoor illumination best succeeds in striking a balance between kitschy overabundance and austere gloominess? And what characterizes this lighting design?

Malte Maaß: One successful installation, one that competently presents the requisite balancing act, is the "Uniqa Tower" in Vienna, which was planned by Licht Kunst Licht AG. Despite a plethora of programming options, the concept decided on was not unnecessarily obtrusive. A playful approach to light has made for a lively façade that changes and plays with light/dark contrasts most impressively. The media façade shows what it is capable of in play, thus leaving its own very special mark on the Viennese cityscape. In your questions you used the term "kitschy", one that has rather negative connotations. For me, something is kitschy when it is consciously exaggerated. With most lighting concepts the illumination should be restrained and should fit in with the given situation. Exceptions to this rule are temporary installations and events in which a little exaggeration and a little bit too much colour are acceptable because there are occasions when light can simply be fun.

Malte Maaß

Born in Bremen in 1987. As part of his studies toward an engineering degree in Lighting Design at HAWK Hildesheim he worked at a lighting planning company in Sydney. After graduating he established his own bureau, Maass-Licht Lichtplanung, in Hamburg in 2008. Other locations followed, one in Mainz in 2010 and one in Hanover in 2015.

www.maass-licht.de

Nicholas Tory: While our light sculptures use low voltage LED lighting, we do create content for high voltage large scale architectural projection installations for art festivals. While our ephemeral projects tend to focus on sustainability and environmental themes, and we believe that all festivals should be at least partially carbon offset, the truth is our motivation is to make art. The festivals that we work with have carbon offset schemes (Vivid Sydney for example is 100 per cent carbon offset). We think it is equally important that arts, cultural, music and ideas festivals around the world present content that is not superficial, or overly reliant on technical tricks, as well as maintaining responsible energy usage practices.

Maik Böhmer: The lighting industry is taking the right approach in developing energy-efficient, long-lasting products. We are at great pains to remain open to new, (economical) developments, just as we always go for the durable solution in our choice of materials. As we see it, completely foregoing lighting of any kind is not an option. Partly in view of the above-mentioned security aspect and partly because in the evening an illuminated object radiates an entirely different atmosphere from its daytime appearance. This is quite obvious with our marketplace project in Rheydt, a district of Mönchengladbach. In this central, well-frequented location the lighting helps people to find their way around, as well.

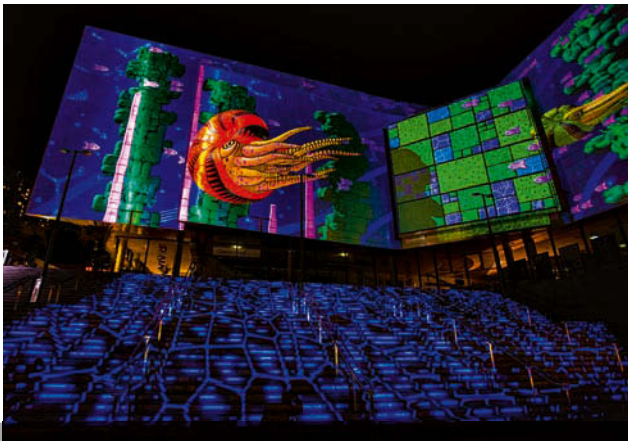


Photo: ample projects

"The Nautilus & The Sea" (The Concourse), Vivid Sydney 2015

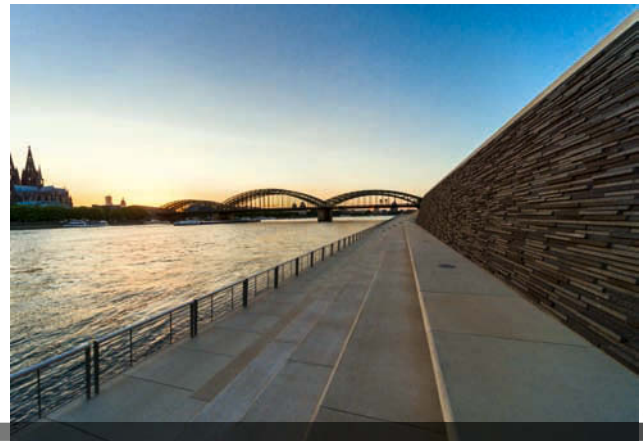


Photo: Hanns Joosten

Rheinboulevard in Cologne-Deutz

Nicholas Tory: There are too many different artists, festivals and genres to say that there is only one way to make good work. There are a lot of people creating work that is elegant in it's design approach concerning the medium of architectural lighting and projection, but has no apparent thematic depth, and therefore is not memorable. There is a lot of work that combines sound, visual design and motion spectacularly, but has no or very little overarching conceptual framework. I think people will eventually get tired of this sort of work. In my opinion there is a lot to explore in making good work in this medium, and there are infinite ways to do it. The idea or story needs to be good. The highest quality music and sound is the glue that ties an entire project together and makes it work. Without good sound a project misses the mark. The people running festivals need to foster a broad range of artists and projects that present strong concepts, or good stories.

Nicholas Tory

Born in Sydney in 1979. Studied at the Sydney College of the Arts (Sydney University), graduating in 1999 with a Bachelor's in Visual Arts - Electronic and Temporal Arts. From 2006 to 2009 he was a senior artist and designer at Spinifex, then, until May 2013, art director at The Electric Canvas. He has been working as an artist and director at Ample Projects since August 2013. www.ampleprojects.com

Maik Böhmer: Many piazzas in Italy are lit in a very balanced, harmonious fashion. The façades and the edges of the squares are usually more brightly lit and towards the middle of the square the light becomes more diffuse and less intense. Particular objects such as fountains and historical statues on such squares are illuminated in order to underscore them. The relevant lighting is always harmonious and never too glaring. It contributes to making lingering on squares in southern Europe on warm summer evenings so pleasant.

Maik Böhmer

Born in Kirchen/Sieg in 1977. He studied Landscape Architecture at the universities of Applied Sciences in Lippe and Höxter. Even before graduating he worked at Planungsbüro Grüner Winkel, after qualifying in 2003 he worked as a landscape architect at Topotek1 in Berlin. He established his own studio, "Planorama" in Berlin in 2006. www.planorama.eu



EXTERIORS

Exteriors play a key role in building presentation and design, both in relation to landscaping and lighting. How different and yet similar design can be is demonstrated by the Kö-Bogen, an expansive commercial complex in Düsseldorf, the Q building at Paderborn University and Troisdorf town hall.

Marina Schiemenz



Embedded in a notable landscape design with a well-considered lighting concept, the Kö-Bogen in Düsseldorf impresses with its striking architecture.

A building's architecture is usually the first thing that grabs our attention. That said, often the effect would be only half as good if the outside areas had not been deliberately presented in a series of squares and paths. Not only placing the focus on the main structure, but also upgrading the outdoor space.

In demolishing the elevated motorway affectionately called "centipede", removing motor vehicles and (re)inventing a differentiated urban structure and installing the **Kö-Bogen** in the heart of Düsseldorf planners created a unique series of spaces. These open spaces meant new potential could be exploited and previously separated areas networked with one another. The pillar luminaires arranged around the building are fitted with upward and downward pointing elements and others for illuminating the facade that both give off bright, warm light. Permanent basic lighting ensures the partly curving facade is evenly lit. In the passage between the building parts those

sections connecting the individual parts are lit from below. An identically illuminated bridge spanning the Düsseldorf leads to the spacious Hofgarten, while in the park itself lighting is more subtle to respect the former's function as landscaped space and biotope.

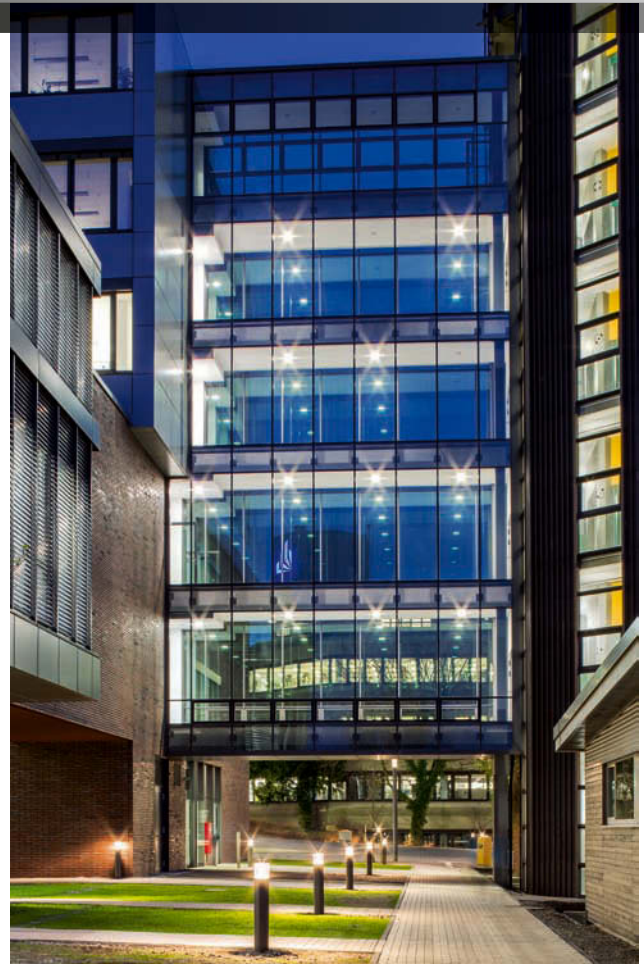
Visitors to **Paderborn University** reach the somewhat concealed main entrance via the newly designed outdoor area of the six-storey Q building. The idea: to create a communicative zone with welcoming, bright lighting that has a guiding function. Thanks to the new build's position and architecture the University is now more strongly oriented to the city and consequently more readily noticed. Moreover, the terrain's topography is reflected by flights of stairs both in front of the building and inside it. Pillar luminaires further enhance orientation.

Troisdorf town hall is surrounded by a spacious yet unadorned square with an evenly designed surface of anthracite coloured,



The outdoor space for Paderborn University's new Q building is designed to emphasize it as a communicative zone and axis to the uni's main building.

large cast-stone slabs. Elevated beds separate the square from the trunk road, while broad steps and ramps set at intervals provide access. Floor-recessed spotlights accentuate the sculptural-looking solitary trees, creating a pleasant play of light and shadow at dusk and night time. Pillar luminaires illuminate the square. Their modular structure means the outdoor space and town hall can be differently illuminated. Although the Kö-Bogen, Paderborn University and Troisdorf town hall differ in design and purpose their outdoor spaces largely have the same goals: to guide visitors safely and create a pleasant atmosphere. All these projects have achieved this in ways that are both similar yet also totally different.





Kö-Bogen
Düsseldorf, DE

Architect (Kö-Bogen)
Studio Libeskind, New York, US

University Paderborn
Paderborn, DE

Architect (University)
Feyerabend + Gunder, Goslar, DE

Town hall Troisdorf
Troisdorf, DE

Architect (Town hall)
K+H Architekten, Stuttgart, DE

Light planner (Town hall)
licht|raum|stadt|planung,
Wuppertal, DE

Luminaire
ConStela

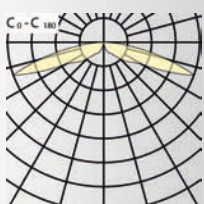
Photos
Boris Goltz, Arnsberg, DE
(1, 2, 4, 5, 6)
krischerfotografie, Duisburg, DE (3)

The pillar luminaire on the square
fronting Troisdorf town hall permits
individual illumination to suit vari-
ous events.

lux: TECHNOLOGY

ConStela

High demands are made both of street lighting and illumination in downtown areas. The ConStela modular pillar luminaire by TRILUX blends ideally with the cityscape. Not only is it perfectly suited to presenting public squares and paths, it also creates an agreeable atmosphere. Thanks to various modules the luminaire can be customised to suit its environs. ConStela is fitted with the multi-lens technology (MLT) developed by TRILUX and provides rotationally symmetrical light distribution. The luminaire's anthracite coloured body is subtle enough to merge with almost any background.



Luminous intensity distribution





ILLUMINATED LANDSCAPE

Though Madrid is 350 km away it can now be reached from the town of Villena in just two and a half hours thanks to the new high-speed rail connection. The historical town also boasts an impressive steel station building in the midst of the main industrial park.

Monja Horrer



The bollard luminaires 8831 reflect the architects' equally sleek design and create pleasantly lit paths.

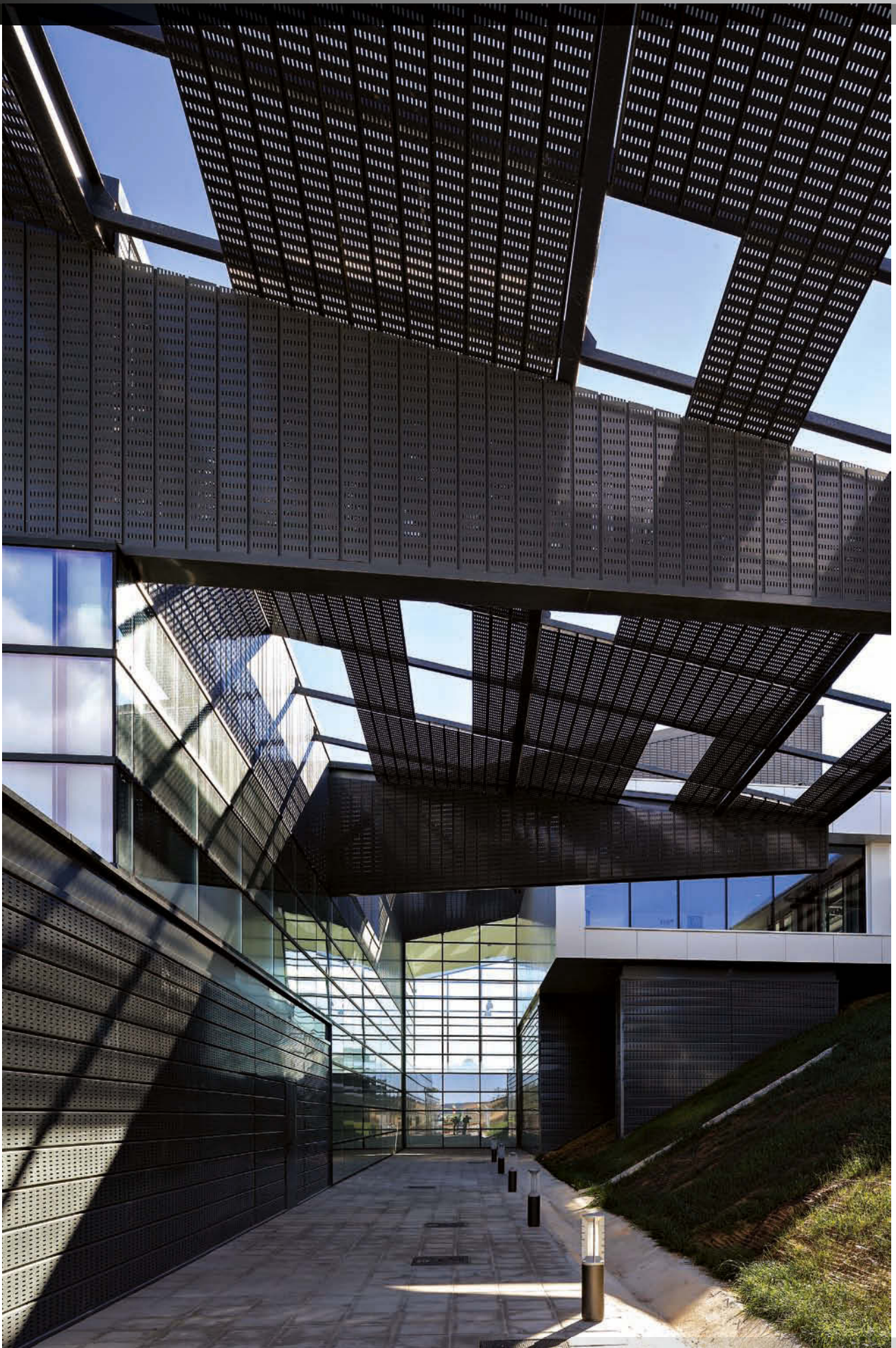




Lumena 40 and bollard luminaire 8831 present the station and its outdoor areas in the surrounding landscape to good effect.

Villena is located close to the Spanish port of Alicante on the Costa Blanca and just a few kilometres from great Mediterranean beaches. There are still signs of early Arab rule in historical buildings like the “Castillo de la Atalaya” or “Museo del Festero” and the narrow, steep streets. To enable locals and tourists to reach the popular, but distant Madrid more quickly and easily the architects at COT & Partners collaborated with INES Ingenieros to create a new station on the high-speed line. Sited on a slope and surrounded by expansive farms, the arresting building with its spacious outdoor areas is a true landmark. On the town’s outskirts the steel structure with its glass facade and metallic look is visible from afar. Alternately arranged square, dark-grey perforated metal panels and differently sized emerald-green glass fragments

structure the roof’s striking overhang, which gives protection from the sun and rain. The interplay of metal elements and glass facade makes the edifice seem casual and open. Inside the clear design is continued with fitted elements, materials in bright white and numerous grey shades. Pale wooden seating in the concourse makes waiting pleasant for travellers. The outer areas are also designed to make time pass agreeably in this seemingly abandoned farming landscape. Different sized flagstones in light shades and individual luminaires reinforce the character of the zones. Floodlights brightly illuminate the waiting areas near taxi stands and bus stops; bollard luminaires and wall and ceiling lamps provide bright lighting for the paths to the station. And the luminaires not only set accents but also ensure better passenger orientation and safety.





Seemingly freely arranged perforated metal sections produce a natural yet fascinating play of light and shadow.

Location
Villena, Alicante, ES

Client
ADIF, Madrid, ES

Architect
COT & Partners,
Madrid, ES

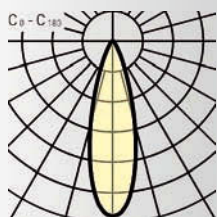
Luminaries
Lumena 40
Bollard luminaire 8831

Photos
Christoph Meinschäfer,
Arnsberg, DE [1,2,3,5]
Miguel de Guzmán,
Madrid, ES [4]

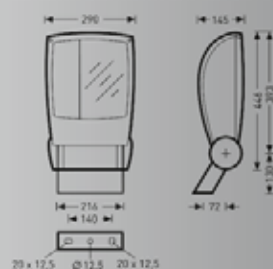
lux: TECHNOLOGY

Lumena 40

While the LED floodlight Lumena 40 appears light and delicate, it is robust and highly functional. Featuring separate pole connections for individual or multiple arrangements, Lumena 40 is ideal for illuminating passages, car parks or port areas. Extremely asymmetrical medium-wide light distribution provides effective lighting for various outdoor areas. The LED floodlight has a subdued silver-grey housing and with its neutral white light colour it presents streets and squares in an attractive light.



Luminous intensity distribution



A NEW LOOK

Versatile landscaped zones and expansive meadows, colourful beds of dahlias, plenty of concerts, impressive shows and adventure playgrounds. Every year millions of visitors flock to Essen's popular Gruga Park. Set in a densely populated conurbation the "Great Ruhr Landscape Gardening Exhibition" is a spacious recreational area for locals and tourists alike.

Monja Horrer





Modern column luminaire (series 98) with historic charm illuminate the main paths in the colourful park.



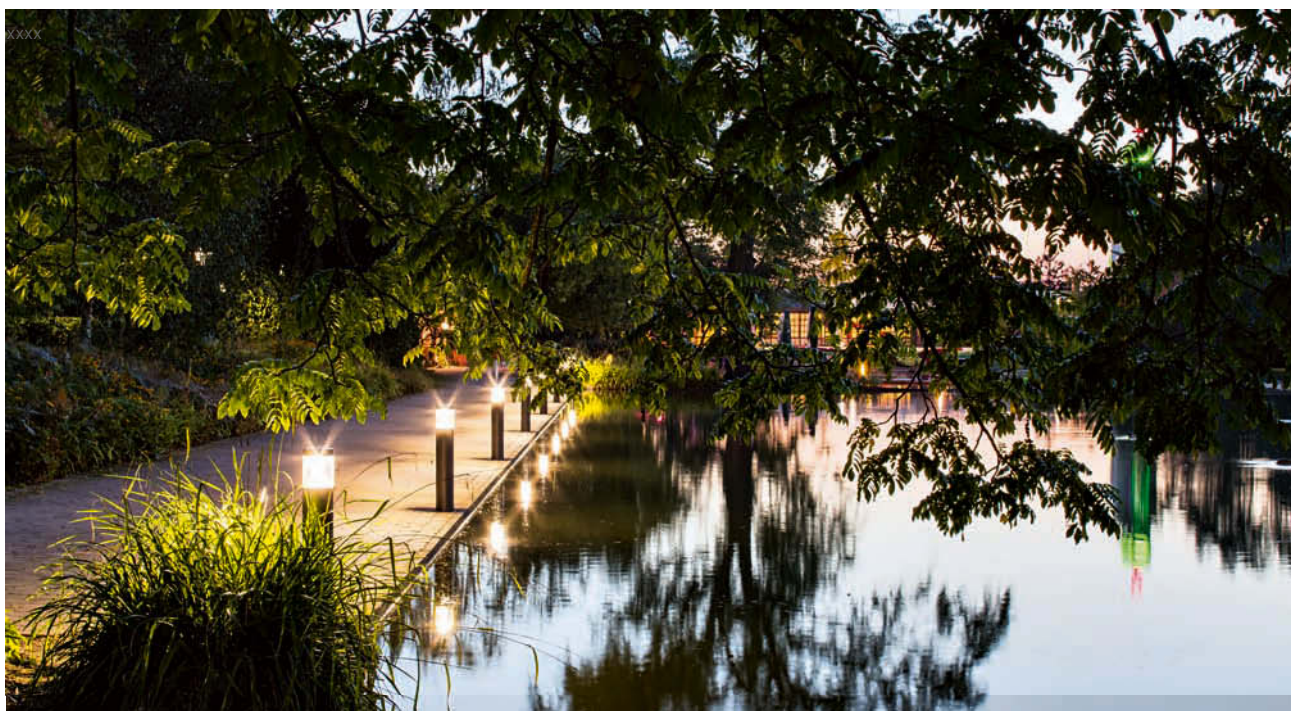
Designed by landscape architect Johannes Gabriel, the 13-hectare "Great Ruhr Landscape Gardening Exhibition" (Gruga) was created 1929 between Essen's exhibition complex and the Botanical Gardens. That year from the end of June till mid-October almost two million people – some from abroad – visited the impressive show in the Ruhr district. Its huge popularity led to the Gruga Park being merged with the Botanical Gardens; the ensemble re-opened at Easter 1930. The industrial city had acquired a park open to the public all year round. Under the Nazis the popular park was extended to 47 hectares as part of the "Second Reich Garden Show". It also gained a courtyard decorated with ceramics (Keramikhof) and the "Grosser Blumenhof" restaurant; other attractions included the steam-operated Liliput train and a small children's zoo. Yet Nazi propaganda was evident even in this picturesque park: Red swastika flags wafted over colourful dahlia beds and rabble-rousing slogans adorned the comfortable seats. During the Second World War extensive air-raids destroyed the sea of flowers, leaving behind a bleak rubble

landscape. Until 1948 the wasteland was used to grow vegetables for the local hospitals. In 1949 part of the complex was opened to the public again. Although the area had little to offer visitors it still drew millions. In the following years a park was created that re-interpreted nature and landscaping: The strict outlines gave way to curving lawns and generous vistas. Today the 65 hectare large area boasts sport grounds, playgrounds, a Tropical Rainforest House and gardens, not to mention culture and art for locals and tourists. Moreover, in the park's show gardens where RWE Deutschland has installed a permanent luminaire exhibition, visitors get to marvel at trailblazing designs and find out about pioneering lighting technology.



The bollard luminaire 8841 illuminates dark corners in the Gruga and creates a pleasant atmosphere.

Borbecker Mühlenbach: the stream in the park's centre is cleverly staged by the streamlined outdoor lights.



In the day, the LED luminaires along the paths appear subdued.



Location
Essen, DE

Client
Grugapark, Essen, DE

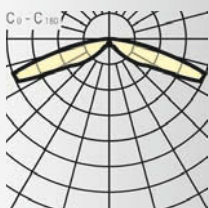
Luminaire
LED-bollard luminaire 8841
column luminaire series 98

Photos
Boris Golz, Arnsberg, DE

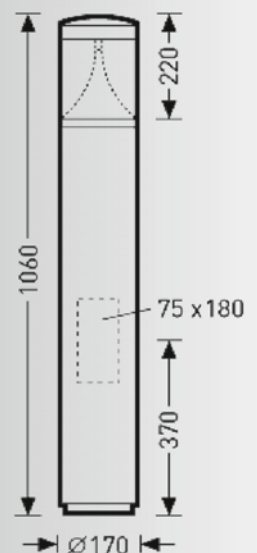
lux: TECHNOLOGY

8841

Architecture goes beyond building design, continuing in its surroundings. In the day the new TRILUX LED bollard luminaire 8841 emphasizes outdoor features while at dusk its excellent illumination lights the way both in pedestrian areas and in parks and residential complexes. Whether with rotationally symmetrical or asymmetrical wide light distribution, the 106 cm tall LED bollard luminaire provides an ideal solution. An optional anthracite coloured column of extruded aluminium provides added vandalism protection. The lamp uses the TRILUX multi-lens technology (MLT).



Luminous intensity distribution



PLANNERS ASK, MANUFACTURERS ANSWER



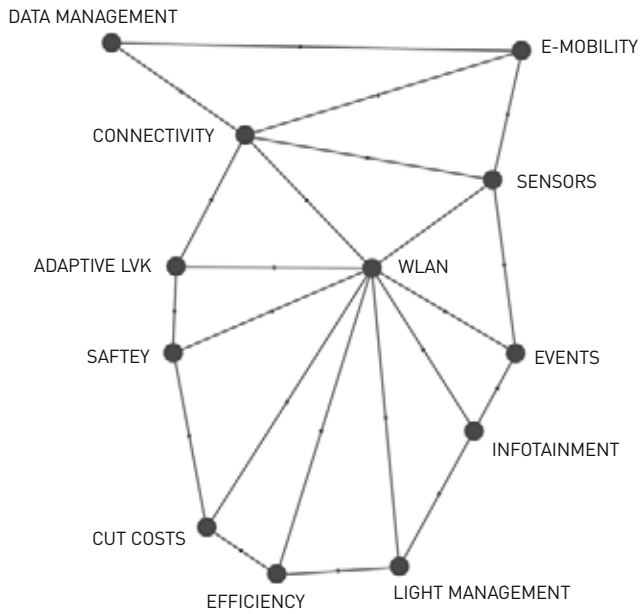
Thomas Kretzer
Managing director
TRILUX Vertrieb GmbH

The notion of the “smart city” is a hot topic. But what role does outdoor lighting play in it?

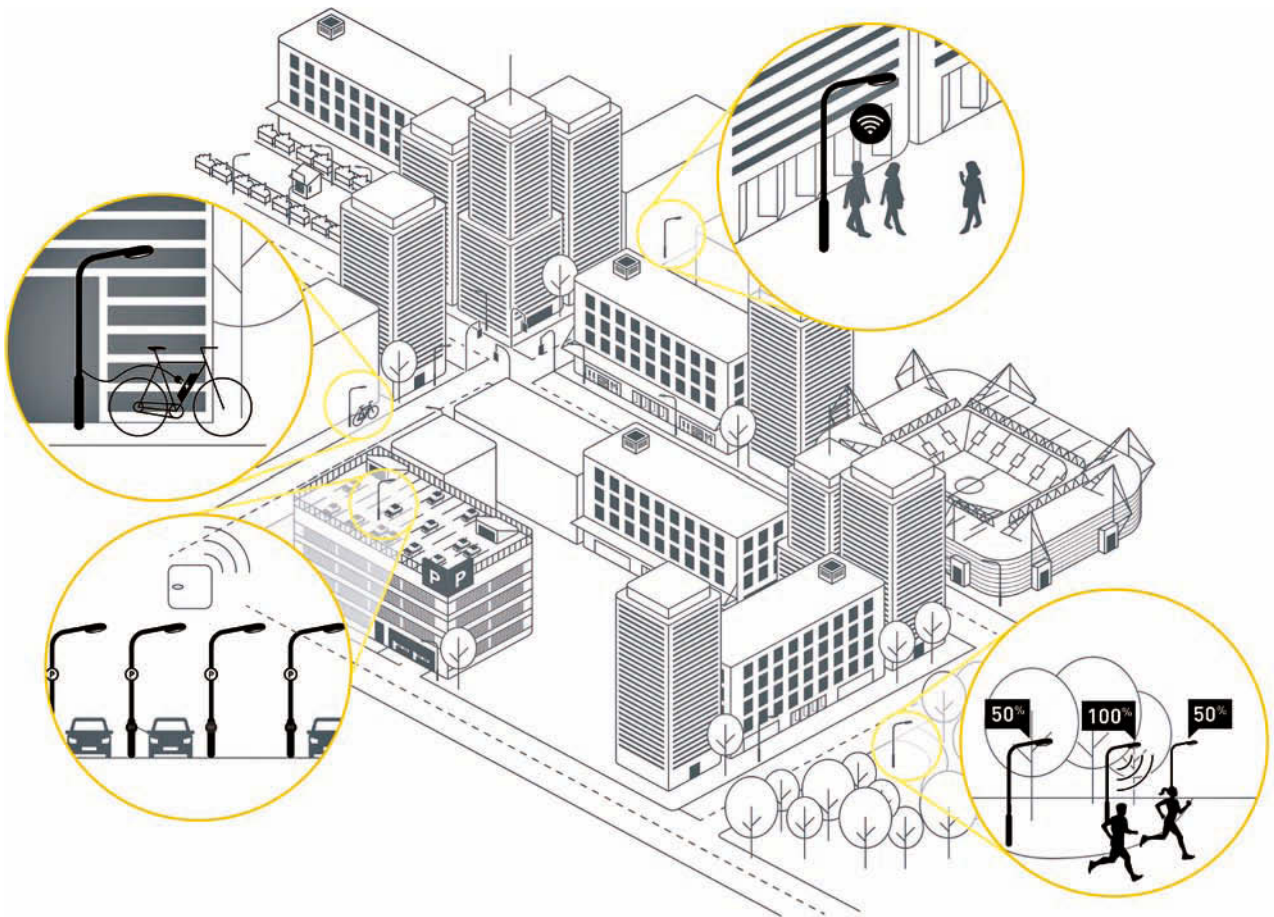
The jury is still out on what exactly constitutes a “smart city”. The term is used to apply to technical, economic and social innovations meant to make our cities more efficient, sustainable and pleasant to live in. Moreover, the smart city is expected to find solutions for urban challenges such as pollution, demographic change and population growth. The innovations associated with the “smart city” are not necessarily new; what is new is that they are now linked with one another and with the city as living space for the first time. This spawns a host of innovative options where light is needed or is a design element in the public sphere and opens up new approaches for modern urban planning: for example light columns and bollards can dim their light not just to suit the weather, but also in relation to traffic frequency. Thanks to their sensors they help find parking spots, provide wireless Internet access, have small information displays and loudspeakers,

serve as electronic signposts and charging stations for e-bikes and electric cars. Service and maintenance can be controlled centrally and almost automatically. Consequently, street lighting can be an ideal and practical conveyor of innovation. An ideal choice: bollard luminaires, which are accessible from all sides and can be transformed into flexible energy and information stations by adding special modules. However, luminaires offering so many features do not come off the peg: Diverse shapes and a large choice of designs coupled with sophisticated technology call for individuality. And to ensure costs remain reasonable we rely on the module principle. This means that both small series and one-offs can be easily tailored to customers’ needs.

Do you have any questions for the experts at TRILUX?
Then send us an e-mail: 3luxletters@trilux.de



In the modern Smart City numerous aspects are networked with one another (top) and make everyday life easier (bottom).



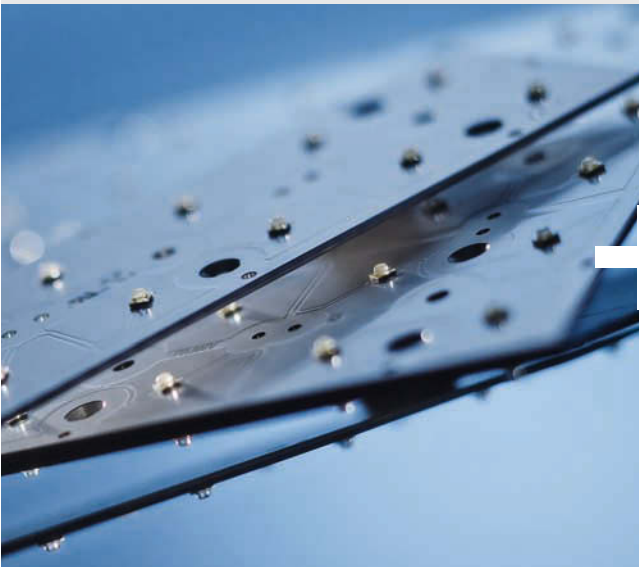
MLT^{IQ}

TRILUX has created a tool of impressive flexibility and quality: smart multi-lens technology (MLT^{IQ}). Depending on lighting tasks the perfect luminaire can be easily configured from over 20 lenses with varied beam characteristics, which are installed onto four differently sized circuit boards, then integrated into one of the numerous Trilux models.

Individual lighting design is not only a pivotal factor in ambitious architectural projects. In less complex cases there is no reason to forgo a tailored solution. Appearance aside, a luminaire's light colour, technology, energy consumption and beam distribution are key factors. Simultaneously, expectations regarding flexibility are constantly growing. TRILUX has responded to this challenge by developing the multi-lens technology (MLT^{IQ}). Now it is simple to meet customer requirements and cover the various beam characteristics of all P and M lighting classes. And taking into consideration the proportions of street width and mounting height the right solution is swiftly found. Floodlighting and lighting squares and surfaces in industrial sectors are possible using the new modular, intelligent lens system MLT^{IQ}. Moreover, the idea

behind the technology is impressively simple: Firstly, there are LEDs in two light colours (3,000 K and 4,000 K) that can be flexibly distributed on four differently sized circuit boards. Secondly, depending on requirements different lenses are selected for street and surface lighting and floodlighting and light distribution set from asymmetric wide via symmetric through to rotationally symmetric wide. Thirdly, the resulting customised MLT lens is integrated into one of the numerous TRILUX series. Since the lenses can be swivelled in 90 degree steps this further increases flexibility. This versatility means luminaires can be configured to suit almost any outdoor lighting situation. Moreover, the modular structure keeps costs manageable. Finally, MLT^{IQ} technology is also suitable for numerous other options.

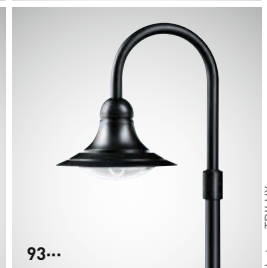
Various PCBs



Application-oriented distribution characteristic



**Optimum illumination
with selected product ranges**



Photos: TRILUX

Further ranges upon request.

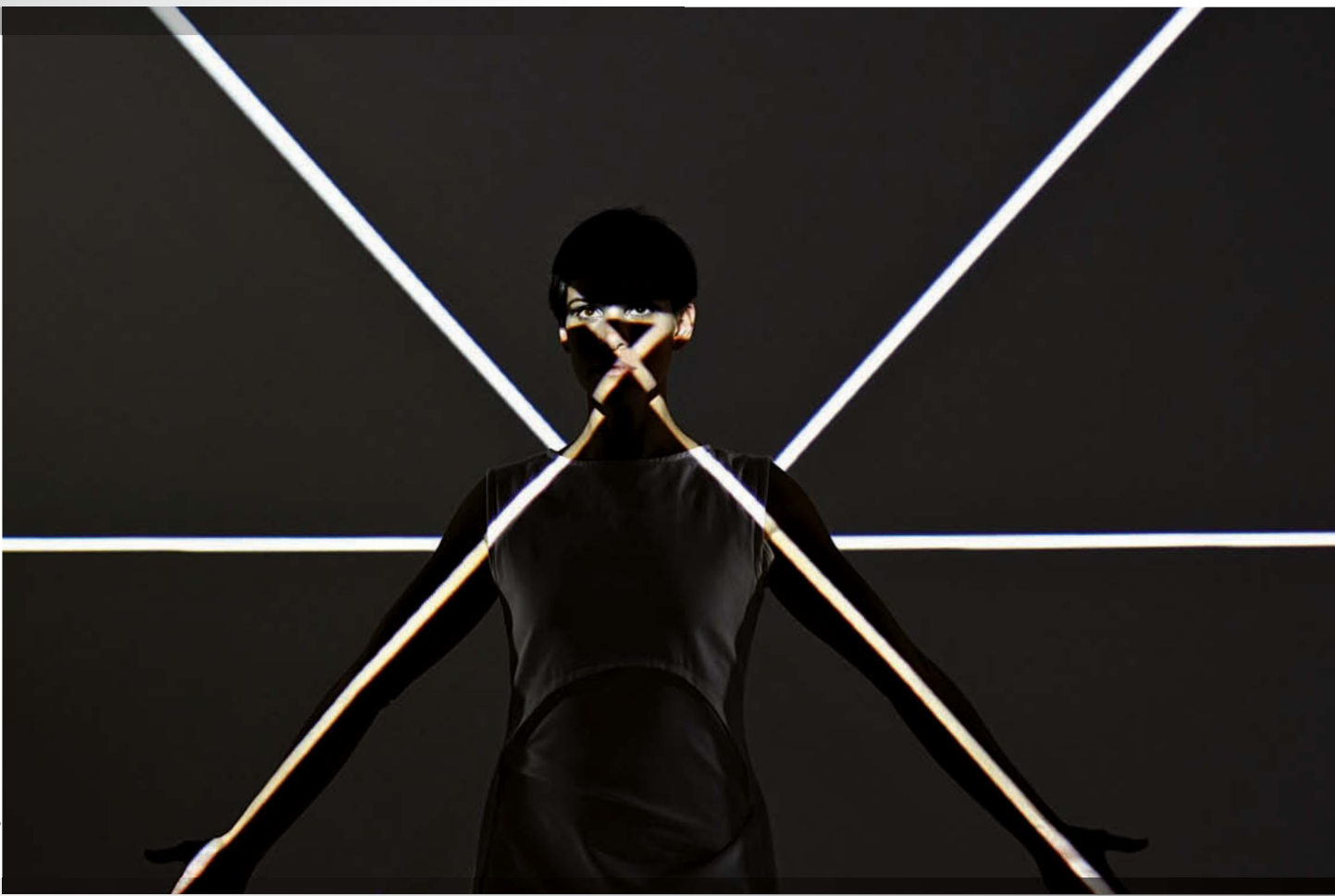


COLOURFUL

The Serpentine Gallery pavilions in Kensington Gardens, London are a regular feature of the architecture world. For the 15th edition, selgascano created a walk-in light sculpture.

Following on from Peter Zumthor, Herzog de Meuron, Rem Koolhaas, Zaha Hadid and other eminent international architects in 2015 selgascano created a pavilion with a non-directional geometric structure. While it melds organically with the landscape of Kensington Gardens signalling accessibility, its bright colours cite architectural interventions in existing environments. The work by the Spanish architects is defined primarily by innovative materials and techniques. The characteristic feature: a shell of ETFE foil, whose transparency permits the structure's atmospheric night-time impact. In interaction with the optimized frame a structure arises in which the customary architectural definitions of inside and outside become blurred. As no access to the centrally located interior is alike, the pavilion's architecture symbolically reflects the heterogeneous and diverse nature of city life.

www.serpentinegalleries.org



INTERACTION

In the form of “wake”, Lightbeast have crafted a video installation that alters the hierarchical relationship between projection and dancer, where visitor movements define the rhythm of the visual effects.

In combined dance and video performances the chronology and scenic sequence is usually determined in advance in a precisely evolved choreography. Much-vaunted interaction is often thus little more than window dressing. By contrast, “wake” created by lightbeast founders David Glicksman and Moses Journey expands the genre’s boundaries, combining software and lighting technology to form a medium of artistic expression and true interaction. This was possible by using TouchDesigner software, which can recognize objects and interpret them spatially and is thus specially tailored to the needs of light and video artists. All the shapes projectors depict on the dancers and their background in the course of the piece are created in real time by their movements alone. Owing to minor deviations and the ever-varying feedback between man and machine every performance becomes a unique work of art.

www.lightbeast.net



TIME TUNNEL

In the Swarovski Crystal Worlds near Innsbruck Snøhetta send visitors on an imaginary trip through time. An audio/visual installation creates the illusion of dynamism and infinite space.

For its 120th anniversary Swarovski has enlarged its theme park. Three teams specializing in architecture, design and landscape architecture designed the attractions, which opened to the public in early summer 2015. The international architects at Snøhetta added a playtower, a café and shop entrance: For shop visitors reluctant to walk through the dreamlike Crystal Worlds the planners created dedicated access with an almost psychedelic feel. The basic idea behind the design was to make visitors feel removed from space and time by going through the tunnel. A seemingly endless spiral of light wraps round the meandering path. The illusion of a time tunnel is emphasized by a specially composed sound installation. The manipulated reproduction of the surrounding noises, in particular people's own steps on the metal floor – evokes the sense of infinite space. The other-worldly sound is complemented by a rising and falling humming sound corresponding with the intensity of the light spiral.

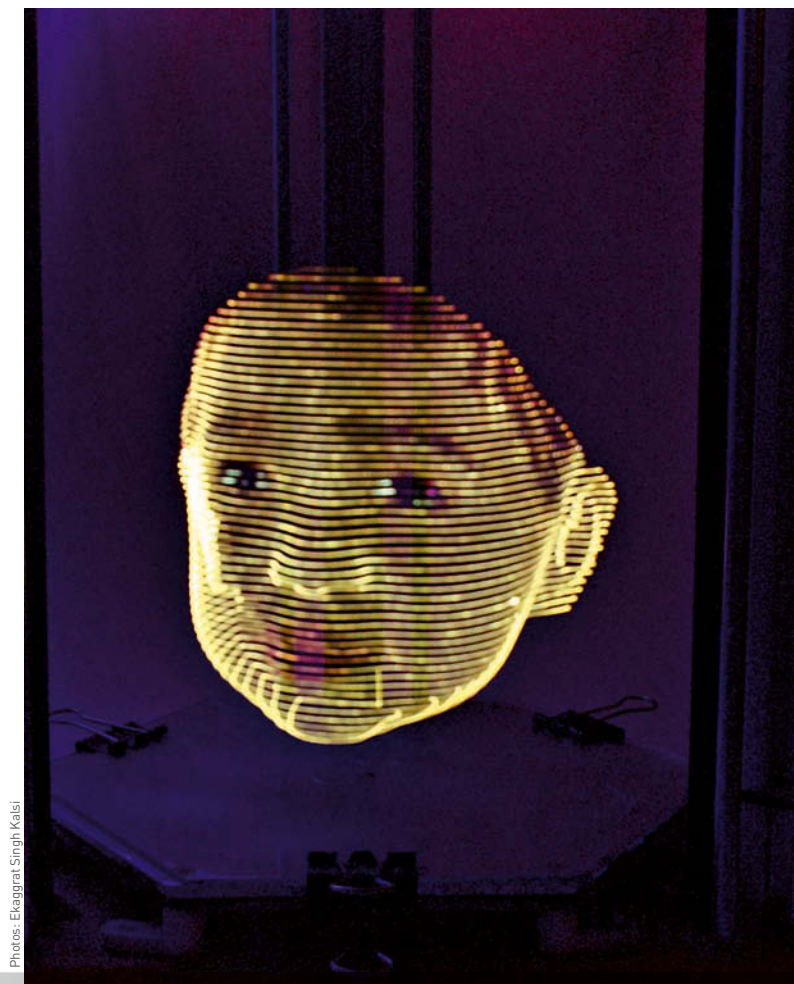
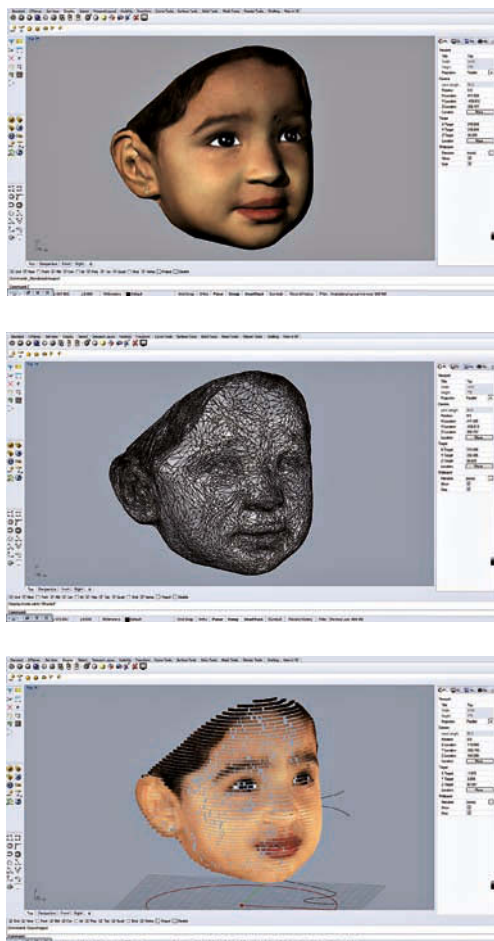
www.snohetta.com



HOMAGE

Ford House by architect Bruce Goff forms the “canvas” for the light installation “Lyrical Geometry”, which Petra Bachmaier and Sean Gallero of Luftwerk accompany with piano music by Goff.

As a self-taught architect Bruce Goff created buildings that thanks to their unusual organic idiom and eclectic combinations of materials can hardly be included in the design canon of his contemporaries. His work as composer is almost unknown, but the pieces he composed, mostly for piano, have not been played since premiering in 1936. For the concert by the Third Coast Percussion Ensemble, intended to revive interest in music that has all but been forgotten Luftwerk created a light installation, which forges a link between Goff’s architecture and his musical oeuvre. The pinned barrels on which the architect’s music has survived form the visual leitmotif. The interaction of music, architecture and light installation produces a unique kind of art experience. This artistic approach visualises the links between built space, surroundings and the people who live and work in these structures. www.luftwerk.net



Photos: Ekaggrat Singh Kalsi

LIGHT PRINTING

The 3D light printer by Indian architect Ekaggrat Singh Kalsi impressively demonstrates the potential digital fabrication has for contemporary media and light art. The models from this 3D light printer are not made by hardening or melting plastic, ceramics and metal, but by the light of an LED attached to the print head. To realize his ideas Ekaggrat Kalsi uses a computer programme also deployed to create physical models in design and architecture: Line for line during the “printing process” a hologram of the three-dimensional model is produced. A digital camera with an activated long-term exposure documents the production process, storing it as an image. This printer does not produce real objects, merely images of the manufacturing procedure.

www.ekaggrat.net

LIGHT PAINTING

In the years of their genesis light painting and photography could not be regarded as two distinct areas of art; after all, the word photography stems from the Greek and literally means 'painting with light'. Technically, too, the pioneers of photography were more light painters in the contemporary sense, given that the exposure time for helio-graphs by Frenchman Joseph Nicéphore Niépce was several hours, which in many cases probably exceeds the exposure times of modern light painters. The options the new medium offered artists produced diverse results: In 1884 the American Thams Eakins experimented with multiple exposure and succeeded in visualising the complex movement sequences of people and animals. Just five years later a light source was intentionally used to draw abstract forms in the air, which thanks to time exposure were visible on the

finished image as glowing stripes. With this intention Frenchmen Etienne-Jules Marey and Georges Demeney had incandescent bulbs attached to their assistant who then moved up and down in front of a camera. Two men who helped establish light painting as an art form to be taken seriously were Bauhaus member Laszlo Moholy-Nagy with his "photograms" and American Man Ray, for whom painting with light and chemicals made a change from oil painting or real photography. But the most famous light artist was arguably Pablo Picasso, who in collaboration with photographer Gjon Mill created luminographs. Like Man Ray, he used a "penlight" – a small light source which with the corresponding exposure time appears on the photograph as a trail of light. In the course of the 20th century photographers and artists repeatedly devoted themselves to



Photo: Johanna Niescken

Photo: xxx

light painting and advanced their technique and forms of expression. Today, executing a precisely choreographed sequence of movements with a light source during a time exposure is called Light Art Performance Photography, or LAPP. Light painting enjoyed increasingly popularity in the early 21st century with the emergence of digital cameras that allow images to be viewed immediately.

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Editorial Staff

Vivian Holtmann (TRILUX)
Claudia Martin (TRILUX)
Thomas Kretzer (TRILUX)
Marina Schiemenz (GKT)
Monja Horrer (GKT)

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Please send a short email including your postal address to: 3luxletters@trilux.de

Contacts for architects

Jan van Riel
Belgium
Phone +32 (0)15.293622
jan.vanriel@trilux.com

Sabine Madaus
North Germany
Phone +49 (0) 151.17 11 02 12
s.madaus@trilux.de

Martin Rohde
South Germany
Phone +49 (0) 151.17 11 02 72
m.rohde@trilux.de

Richard Holt
Great Britain
Phone +44 (0) 12 45.46 34 63
r.holt@trilux.co.uk

Chris Skinner
Great Britain
Phone +44 (0) 12 45.23 63 16
c.skinner@trilux.co.uk

Roberta Riboldi
Italy
Phone +39 02 36 63 42 59
progettazione@trilux.it

Hetty Rümke-de Gier
The Netherlands
Phone +31 (0) 33.4 50 71 12
hetty.ruemke@trilux.nl

Harry Schulenburg
Switzerland
Phone +41 (0) 56 419 66 06
schulenburg@trilux.ch

Ana Cárdenas
Spain
Phone +34 (0) 902.46 22 00
acardenas@trilux.es

Pavel Boucek
Czech Republic
Phone +420 235.524 580
pavel.boucek@trilux.cz



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