

What is new in  
LED street lighting?



Low energy, great looks.

The TRILUX Convia LED.



# 3lux:letters

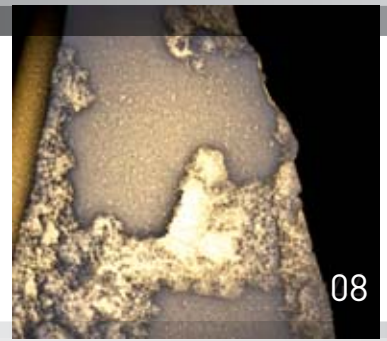
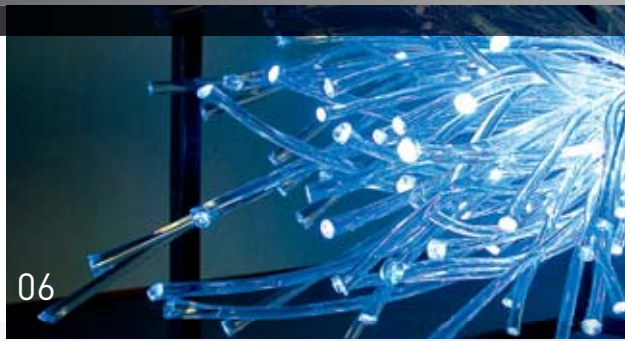
NEW LIGHT | ARCHITECTURE | TECHNOLOGY 1 | 2011 

**lux:** Light in the exterior space  
Clever outdoor lighting

**lux:** Changing light  
Development of exterior lighting

**lux:** Light in Arnsberg  
The newly designed client areas





**Title page:** A somewhat more unusual kind of exterior lighting is provided by the TRILUX LED illuminated floor. In front of the new business- and leisure centre at the Nürburgring, it turned into a striking eye-catcher marking the entrance area like a racing bend.

Photo: Christoph Meinschäfer, Arnsberg



## Dear Readers,

in the year 2010, the economy improved again and we are now stronger as well. LED technology continues to be in the fast lane and we have developed our luminaires in this direction complementing our product range with innovative luminaires. In the sector of OLEDs – whose development is still in the initial stage – we also made very good progress last year with the prototype of the OLED Enspiro.

The start of the new year brings further interesting news: With the takeover of the luminaire manufacturer RSL (Rodust & Sohn Lichttechnik GmbH), we have welcomed a specialist for high-quality special-purpose luminaires into the TRILUX family. The resulting expansion of our portfolio is one of the many important steps in the restructuring of our service culture (page 40). Also new is the redesigned customer area in the Arnsberg main plant where our luminaire systems can be experienced in practice (page 38).

In this edition of 3lux:letters, we focus on the subject of "Light in the exterior". Swiss lighting designer Mario Rechsteiner gives us an introduction with his survey of the history of exterior lighting and its development, as well as providing insights in how emerging countries are dealing with lighting (page 10). Current projects such as the leisure and business centre at the Nürburgring (page 28), the Unicampus of Johann Wolfgang von Goethe University in Frankfurt (page 22) or the Parlamentsufer in Düsseldorf (page 32) show how clever use of lighting is able to upgrade a project considerably co-determining the appearance. In our interview, three (luminaire) designers explain what is decisive in designing a luminaire (page 18) and there is a tongue-in-cheek answer to the question of why LEDs are particularly well suited to illuminate ice sculptures (page 37). In addition, you may look forward to numerous further topics concerning light!

I wish you a lot of fun while browsing through the current edition of 3lux:letters!

*Dietmar Zembrot*

Yours sincerely

Dietmar Zembrot, Sales and Marketing Director



# LIGHT IN THE EXTERIOR SPACE

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Simulation: Till Nowak

Since November 2, 2010, the historic water tower at the periphery of the city centre of Neumünster has displayed the "Kelvin" light projection by the Hamburg artist Till Nowak. Four gobo projectors and two LED colour changers stage the 45-metres-high water tower by reacting to the current weather: In cold temperatures, the tower shines in a rich red; when it gets warmer outside, the colour changes to a cool blue. This contrary choice of colours influences how people feel and corresponds to the relief of heat with cold as well as to that of cold with warm water. At the same time, the light lines trace the mouldings and struts of the building which otherwise are only visible by daylight and creates visual associations with pipelines and streaming water circuits.

Depending on the outside temperature at various times of the day and the seasons, the "Kelvin" light installation changes the look of the historic water tower.

#### "Kelvin" light installation

Till Nowak, framebX  
Permanent staging of the water tower in Neumünster  
[www.framebox.de](http://www.framebox.de)

## lux: HISTORY

### The Pilzleuchte – a classic lantern

The economic miracle of the 1950s could also be clearly felt in the luminaire sector. The reconstruction after the Second World War made the cities friendlier and the intention was to also make the citizens feel safer after years of being afraid. An important factor in this was to bring light into the dark cities. At the time, TRILUX introduced the so-called Pilzleuchte, the classic lantern, into the market: The simple luminaire had a glass casing sitting like an upside-down truncated cone on the mast and with a round roof forming its upper plane. In the catalogue of 1954, the materials and the qualities of the Pilzleuchte are described as follows: "Roof of corrosion-resistant light metal, base of cast light metal, exterior metal parts of weather-proof, green, stove-enamelled TRILUXIT special hammer-blown

enamel. Sealing of age-resistant, ozone-proof foam rubber, sealed tight against water and insects. Two opposite fluorescent lamps each in tandem connection, which makes series connection 2 and 4 luminaires possible." Initially, fluorescent lamps developed during the Second World War were used as lamps. Later, variants were also available with high-pressure mercury vapour lamps. In the 1960s, the luminaire was refined and the product range complemented accordingly. Today, the Pilzleuchte classic lantern with its striking design still determines the look of numerous cities. However, in a slightly altered form, its timeless design – combined with the latest technology and adjusted to current requirements – can be found in several present-day TRILUX exterior luminaires.

In the 1950s, the so-called Pilzleuchte classic lantern was to bring light into the darkness of cities and thus make them safer for the citizens.

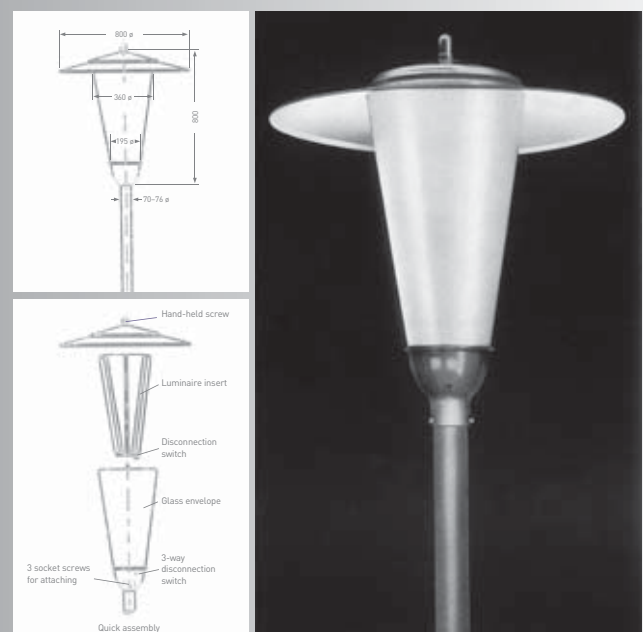
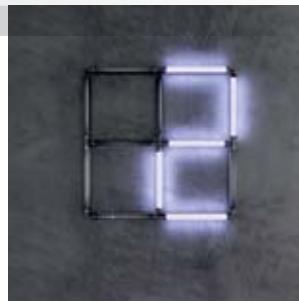


Photo: TRILUX

**"Time Square" wall installation**  
 Tenshi7 – Furniture and Lighting  
 Brainworks, Athens  
[www.tenshi7.com](http://www.tenshi7.com)



Photos: Tenshi7

In a new way, the designers from the Greek creative firm Tenshi7 combined the subjects of light and time into a single art object. With the help of the latest technologies, they developed the "Time Square" installation which turns out to be a hybrid of wall clock, sculpture and luminaire: twelve aluminium cylinders equipped with LEDs show the full hours "digitally" while, in the bottom left tube, the minutes regularly show the progression of time in the form of flashing LEDs dots. Whether in a party venue, a station hall or a living room, the 1.40 by 1.40 metre "TS" can be universally used as a luminous object and at all times covers the light spectrum from subdued diffuse to brightly shining thanks to an integral dimmer. The "on", "off" and "time" modes can comfortably be operated by remote control.

At full performance, the tubes equipped with 12-Watt-LEDs are able to illuminate 150 square metres of space.



The "Blue Night" in 2010 was able to attract approximately 110,000 visitors. At the time, the artist Axel Voss showed the light projection "On the Way – A City Trip in Pictures" at the castle.

**Blaue Nacht 2011**  
 Long Night of Art and Culture  
 in Nuremberg  
 28 May 2011, starting at 7 p.m.  
[www.blauenacht.nuernberg.de](http://www.blauenacht.nuernberg.de)

For the twelfth time, on 28 May of this year the "Blaue Nacht" (Blue Night) light and art festival will take place in Nuremberg. For one evening and one night, the centre of the major Franconian city will show a varied programme consisting of projections, light installations and art projects – all with the heading "Strange Worlds". As every year, the light projection at Nuremberg Castle – in addition to numerous other art projects and illuminations – will be one of the main attractions of the festival in 2011 and enchant the city. The preceding "Blaue Nacht"-Art Competition results in a wide variety of projects which the visitors themselves are allowed to evaluate since, for the first time, in 2011 an audience prize amounting to 5,000 euros will be awarded.

The "Art Flu" project by the artists' group pep berlin focuses on the subject of contagion and transference: over the course of the night, 7,500 glow sticks were distributed all over Nuremberg.



Photos: Herbert Reinl



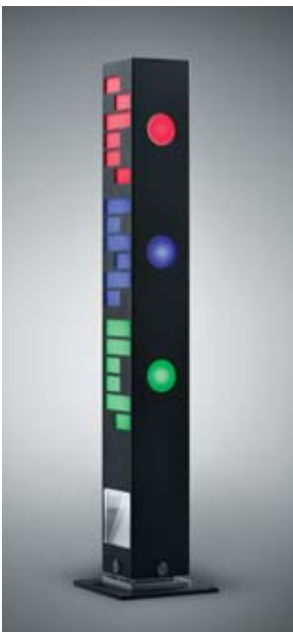
Photo: David Levene

**Outrace**

Clemens Weisshaar & Reed Kram  
London Design Festival 2010  
[www.kramweisshaar.com](http://www.kramweisshaar.com)  
[www.outrace.org](http://www.outrace.org)

Alienated: For their "Outrace" light installation, Clemens Weisshaar and Reed Kram used robot arms which are otherwise used in the car industry. In the context of the London Design Festival 2010, however, eight industrial robots served purely artistic purposes: Equipped with LED lamps (also alienated from their use in the car industry), the machines wrote light messages onto the nocturnal sky. The authors of the texts were distributed all over the globe and sent their messages to London with the help of a specifically created Internet site. High-resolution cameras with long exposure time recorded the light messages which could subsequently be admired as Internet videos by all and all over the world.

The LED lamps at the mechanical robot arms are from Audi. They are used in the R15-TDI-car which last year won the "24 hours of Le Mans race".



Photos: Trilux

The 96 centimetre-high pillar luminaires by TRILUX have been designed and manufactured specifically for the Landesgartenschau. They convince with the combination of separately dimmable, warm-white pathway lighting in the lower part and colourful effect lighting above.

**Landesgartenschau Norderstedt**

21 April to 9 October, 2011  
Admission daily from 9 a.m. to 7 p.m.  
Adults € 15/reduced € 13  
Children (taller than 1.10 m,  
up to age 15) € 3  
[www.landeshgartenschau-norderstedt.de](http://www.landeshgartenschau-norderstedt.de)

This year, in Norderstedt for the second time a Landesgartenschau (regional horticultural show) will take place in Schleswig-Holstein. Three flowering garden- and adventure landscapes invite to stroll and marvel: In addition to the "Wald-" and the "Feldpark", the "Seepark" impresses with a wonderful view of Lake Norderstedt as well as a circular path illuminated by 106 TRILUX pillar luminaires. The light concept is by designer Ralf-Ingo Koch who, with the special light effect, wants to expand the visitor's perception of nature. At the same time, the colour harmonies of the integrated effect lighting are intended to emotionally move the viewer. The control developed by Prof. Dr. Cecil Bruce-Boye ensures economic operation: The coloured light effects shine on segment after segment ahead of the stroller and go out as soon as he leaves the path.

**Licht 21**

Light-Art Visions for  
the 21st Century  
4 December 2010 to 27 March 2011  
Zentrum für internationale  
Lichtkunst in Unna  
[www.lichtkunst-unna.de](http://www.lichtkunst-unna.de)

The light-art works by the Finn HC Berg, such as "Eye of Light" from the year 2000, have as their theme the abolishing of the borders between light and space.

In the context of the joint exhibition series "Mapping the Region" of the RuhrKunstMuseen on the occasion of the Capital of Culture Year 2010, in the Zentrum für internationale Lichtkunst Unna the "Licht 21" exhibition will be shown. From 4 December 2010 to 27 March 2011, in the underground vaulted rooms of the museum works by the artists HC Berg, Brigitte Kowanz and Christina Benz can be seen. With fluctuating light-space models, visions of the future of the medium of light are demonstrated. In the centre of the exhibition is the work by the Finn HC Berg, one of the best-known light artists of Northern Europe. By blurring the limits of perception between light and space, HC Berg succeeds in mentally and physical directly integrating the viewer into the art work.

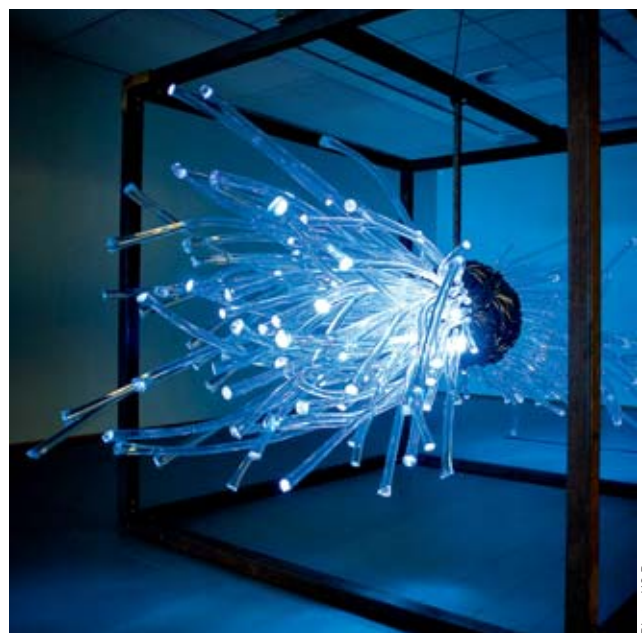


Photo: HC Berg

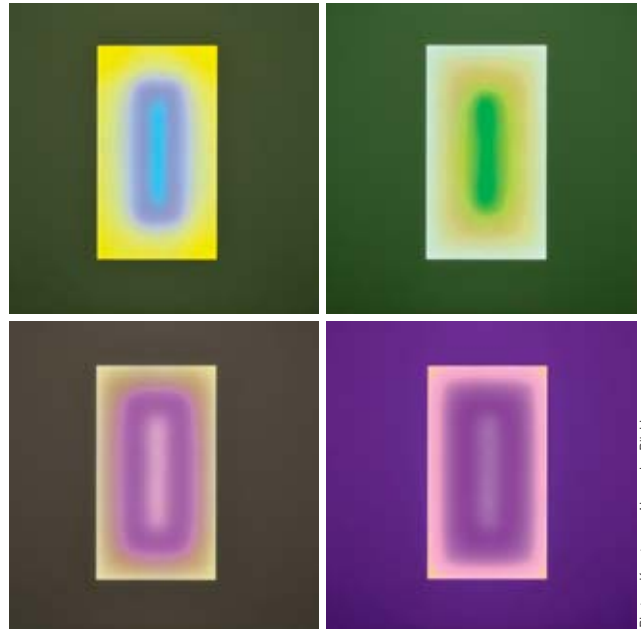


The installation by Claude Lévêque, where in irregular writing the words "Plus de Lumière" are written with neon tubes, gives the exhibition its title.

Until 20 March 2011, the Freiburg Kunstraum Alexander Bürkle will show, in the context of the "Plus de Lumière" exhibition, light art of the past 50 years and, for this purpose, invites internationally renowned light artists to Freiburg. Classic as well as modern works of light art will be seen: The displays will range from the beginnings of this art genre in the middle of the 20th century to the very latest projects. The visitors will get a good impression of this particular art scene which is currently developing at the same speed as the new technologies. The wide range of works goes from light painting to light sculptures to space-consuming light installations. Complementing lectures and rounds of discussion on the subject of light will take place parallel to the exhibition.

**Plus de Lumière**  
Exhibition in the Kunstraum  
Alexander Bürkle, Freiburg  
24 October 2010 to 20 March 2011  
[www.kunstraum.alexander-buerkle.de](http://www.kunstraum.alexander-buerkle.de)

Starting from numerous LED luminaires, in the "Tall Glass Piece" by James Turrell changing colour modulations of light are produced on a glass surface whereby the borders of space and colour appear to dissolve.



Photos: Kunstraum Alexander Bürkle

## lux: STATEMENT

### Subtly illuminating



Photo: Panirama

Ingo Dietzel (left) und Kai-Uwe Schwenck, Panirama, Scharnebeck

Bottom left: During the pre-Christmas period in 2010, the Lüneburg City Hall was in a subtle yet clever way illuminated by Panirama with high-performance projectors.



"More light!" If these really were Goethe's last words, he probably would not have said them referring to today's public space. That – at least in the figurative sense – there is much light, however, remains uncontested.

Frequently, the communal light far outshines the limits of what is requested let alone what is necessary just in order to supposedly guarantee safety. In no time, the light quality there resembles that of a cold-storage hall or an operating room theatre. It is rarely pleasant.

In the context of private or commercial illumination, the possibilities of modern luminaires and controls, as well as their availability, frequently lead to results which are not easy on the eye. Without calling for even more regulations and

guidelines, the plea can be made to apply a better sense of proportion and to respect the actualities of the situation. Far too often, the not inconsiderable expenditure is ruined by using the wrong illuminants or too much colour. Taking the building into consideration, the surroundings and existing installations, or designing a joint concept with the neighbours may be a very simple way to a harmonious overall impression. This is not bound to dramatically raise the costs. On the contrary: Less can be so much more.

Light which emphasises what is worth emphasising and leaves in the shadow what belongs in the shadow, creates a place where one likes to linger. If one only notices that what matters is the light at second glance, the effect is all the more intense.



**"Malva" luminaire series**  
 ettlabenn  
 Material: sponge clothes  
[www.ettlabenn.com](http://www.ettlabenn.com)

For the lampshades of the "Malva" luminaire series, designers Oliver Bischoff and Danilo Dürler of ettlabenn have chosen a rather unusual material: traditional sponge cloth consisting of cellulose and viscose. Yet the production of the black-and-white luminaires is highly remarkable as well: The cut and sewn fabrics are pulled over a basic mould while still wet and – once the water has completely evaporated – are turned into lampshades stable in their dimensions and light as feathers. A further positive aspect of the "Malva" series, which offers suspended as well as floor luminaires, is their environment friendliness: Should any of the users want to do so – each of the objects is completely compostable.

In addition to the unique choice of materials, "Malva" wins with sustainability: The low-energy production and the compostability of the cellulose-viscose fabric makes the luminaire a highly environment-friendly product.



Photos: diephotodesigner.de

**"Lior N° 2" pendant luminaire**  
 Jaim Telias  
 Material: polystyrene  
[www.jaimtelias.com](http://www.jaimtelias.com)



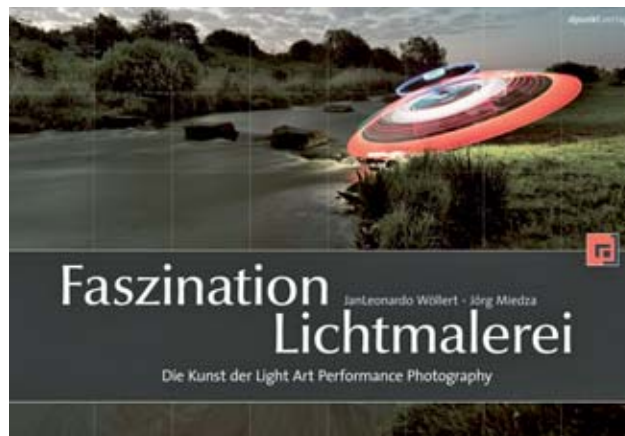
Chile-born designer Jaim Telias shows how the serially produced "Lior N° 2" polystyrene luminaire becomes a unique piece.



Transformation wanted: Only in the beginning does the pendant "Lior N° 2" luminaire by designer Jaim Telias have its original trapezoid shape. As soon as the user manipulates it and scrapes parts out of the polystyrene lampshade, the minimalist form changes – the luminaire becomes one of a kind. Revised in this way, the lighting performance of Lior also changes: The diffuse light now penetrates at the remodelled points of the polystyrene luminaire more strongly. This play with the material and its structure as well as the resulting dialogue between user and luminaire is characteristic of Telias's work. The seemingly simple polystyrene structures are only the starting point for further complex forms which the user may create.

Photos: Manuela Giusto

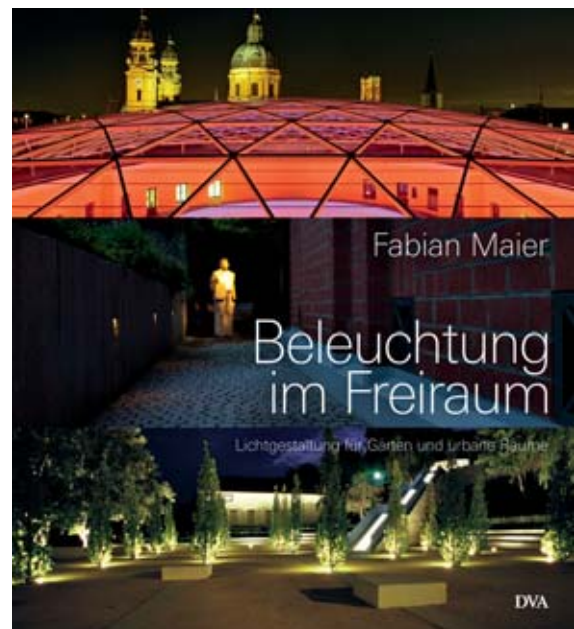


**Faszination Lichtmalerei****Die Kunst der Light Art  
Performance Photography**JanLeonardo Wöllert, Jörg Miedza  
Published in 2010by dpunkt.verlag, Heidelberg  
224 pages, completely in colour  
30.5 x 20.5 cm, hardcover  
german  
€ 39,90 | CHF 56,90  
ISBN 978-3-89864-669-7  
www.dpunkt.de

In mid-2007, the light-art photographers Jan Leonardo Wöllert and Jörg Miedza established their own form of light painting – they called it LAPP (Light Art Performance Photography). In the darkest night, in structured and perfectly choreographed motion sequences, they paint pictures with their tools of light in front of the open camera shutter. Their book "Faszination Lichtmalerei", published in September 2010, now provides an insight into the world of this kind of art. On 224 pages, the history of LAPP as well as the artistic and technical aspects of this form of work is described. Numerous photographs inspire and stimulate one to try it.

**Beleuchtung im Freiraum  
Lichtgestaltung für Gärten und  
urbane Räume**Fabian Maier  
Published in 2010 by DVA Munich  
136 pages, 200 colour illustrations  
50 drawings  
25 x 28 cm, hardcover with wrapper  
german  
€ 69,99 | CHF 115,00  
ISBN 978-3-421-03802-9  
www.dva.de

A phenomenon which has been known for centuries on theatre stages – the reduction to viewer and object – increasingly conquers the private but also the free public space. In the process, the tension between object and viewer is determined for the major part by the light used. With the help of the appropriate lighting, the free spaces become an attractive expansion of the interiors into the exterior at night. Based on current examples, lighting designer Fabian Maier presents, in his book, the basics of this designing with light, he explains the most important planning tools and points to areas where mistakes can be made. On 136 pages with 200 colour illustrations and 50 drawings, he provides a well-structured insight into the trendy topic of lighting design.

**1st Biennale für  
internationale Lichtkunst  
open light in private spaces**Matthias Wagner K (editor)  
Bettina Reichmuth (editing)  
Published in 2010  
by Revolver Publishing, Berlin  
285 pages, ca. 200 illustrations  
21.5 x 27.5 cm, paperback  
german | english  
€ 29,00  
ISBN 978-3-86895-102-8  
www.revolver-books.de

The catalogue for the 1st Biennale für internationale Lichtkunst Ruhr.2010 – open light in private spaces – sums up what this extraordinary exhibition has to offer in six chapters. In three chapters, several photo series by renowned photo artists have been dedicated to the region as well as to the works of art and the respective hosts who have been involved. Texts in German and English guide the readers through the exhibition and its history and present the artists who are behind the works. In addition, the authors had interesting talks with ten of the hosts who opened their private rooms to the public for a few weeks. Even after the first page, it becomes difficult to put down the catalogue designed with much care and love of detail!

Various light scenarios on Kornmarkt in Lucerne: At dusk, for instance, the building facades are emphasized by LED spotlights (top); at night, however, the focus is rather on the square itself (bottom).

# DEVELOPMENT OF THE EXTERIOR ILLUMINATION

Nowadays, cities are prone to exaggerating when it comes to illumination so that frequently we rather talk of cases of light pollution instead of beautiful light installations. Even in the so-called emerging nations, illumination is steadily increasing although the prices of modern illuminants are still extremely high in most cases in those countries. Let us hope that, in future, light will again be used in a more discrete manner, such as for instance in the case of the Plan Lumière of the city of Lucerne.

By Mario Rechsteiner

For thousands of years, the glow of a flame at night provided dim light which was sufficient for personal and social purposes. This applied not only to interiors but also outdoors. Thus around 260 B.C, the Alexandria lighthouse is reported to have made entering the port safer with its light signal. There are indications, from the year 378 A.D., of alley illumination in ancient Antioch on the Orontes River, illumination which, according to Ammianus Marcellinus (Roman historian around 330 – 395 A.D.), “competed with the shining brightness of the day”. After the fall of the Roman Empire, for centuries artificial lighting was mainly used in interiors. That is one of the reasons why historiography writes about the “dark” Middle Ages.

On the other hand, during the early Italian Renaissance, more and more often spear lanterns were mounted on the facades of the palazzi. For special occasions, the exterior space would be illuminated with burning wreaths of pitch. During the Baroque, a different facet of illuminating the exterior played an important role. The “Fuochi Artificiali”, for example, enchanted the court with pyro-technical effects and coloured fires. In the 17th and 18th centuries, illuminating the important streets and squares was started in the major cities. This was done first

with oil lamps, which were later replaced by gas lamps. Not least this is proof that the change in society over the past two centuries is also strongly reflected in the history of lighting in the public space.

Thanks to artificial light, night became day and the citizens felt safe in the public space after sundown as well. Urban life thus no longer depended on the change from day to night. People started to live with new rhythms. In the country and in the small towns, however, this development was much slower and strongly depended on the prosperity of the communities. Thus in many places continuous illumination of the public space was only started after the Second World War and this development is still continuing. Currently, the metropolises around the globe are in competition for a recognisable nocturnal identity.

## Measures against light pollution

Today, the public space is so strongly illuminated in many places, that one can often talk about a proper flood of light. As a rule, this concerns the sum of the different kinds of illumination. In addition to the, in most instances, only slightly above-the-norm street lighting, facades and building complexes are



illuminated by private owners or the local authority. Shop window illumination and luminous advertising frequently add to the existing abundance. That is why, even at the beginning of the 1990s, astronomers complained about the increasing "pollution" of the sky at night. Not only major cities but also places in rural regions are these days recognisable by the colouring of the nocturnal sky from a very great distance. The stars in the night firmament, on the other hand, can only just be discerned and the splendour of the Milky Way can in many places no longer be seen at all. With the help of satellite pictures, researchers were able to prove that the light level on the European Continent alone has risen many times over in the course of the last 15 years. What at first was ridiculed is today slowly gaining significance.

Due to the competition between communities, the subject of "citybeautification" has become quite familiar. One of the measures to be taken for this purpose is the proper dealing with light in the public space. With so-called master plans, attempts are made in many places to establish sets of rules to deal with light and to ensure a continuous development for the future with laws and guidelines. All too frequently, however, these are highly theoretical attempts. When it comes to the implementation,

changes happen. In the process, the basic concepts of the ideas are often lost.

An exceptional present-day case is no doubt the Plan Lumière of the city of Lucerne in Switzerland. It puts the strong elements of the historically valuable city with its attractive surroundings into proper light and increases the quality of staying there for inhabitants and guests. Superimposed light effects are avoided in favour of a harmonious overall look and the superfluous installations dismantled. Light pollution and its negative effects on flora and fauna are reduced. The uniform range of luminaires submits to the desired light effect. By a controlled lowering of the overall light level, not only is energy saved but urban quality is also created for the residents in the old part of town. As a further measure, the illumination of shop windows and advertising requires a permit. In this way, at night excessive emissions by the shop windows can be eliminated and the light level in the windows reduced. For the implementation of the master plan, luminaires and light sources of the most modern construction are used. For accent lighting, wherever possible the planners choose projections. It is possible to precisely omit scattered light and to individually adapt the vertical illuminance to the respective environment. Receiving the city.people.light Award 2010 showed



Photo: Gabriel Ammon, Luzern

The Nölliturm in Lucerne is lit by globo spotlights which gives it a pleasantly dreamy atmosphere.

Even in Cape Town in South Africa, at night the city centre is immersed in a sea of light, while the fringes are rather sparsely lit.

Photo: Mario Rechsteiner, St. Gallen

that the approach of the Plan Lumière for Lucerne – “less is more” – also finds international acceptance.

### **Illuminating the exterior space in emerging countries**

On the other hand, the significance of public illumination is steadily increasing in developing and emerging countries. Except in metropolises and centres of population, however, the requirements are on a much lower level. One of the main functions of public illumination is to make streets safer at night in order to lower the crime rate. Thus, in South Africa, for instance, during Apartheid the homelands were illuminated by spotlights on high masts, which put the alleys and paths between the huts into a dim, diffuse light produced by high-pressure sodium vapour lamps. To this day, this kind of lighting can still be found in the majority of places. Under the new government, most cities are now starting to adapt the public lighting in the surrounding homelands to the standard of the cities. The investments for these conversions are very high and that is why they are only made very slowly.

Due to the relatively high electricity prices, the use of energy-saving light sources is an urgent topic in many places. Yet not

much attention is paid to the quality of the light. In addition, it is not always easy to purchase the light sources, which makes for a haphazard choice. It depends on what is available, true to the motto: “Better any kind of light than no light at all”.

LED technology is also slowly being introduced. Often, however, the investment costs are still too high. This has the consequence that the luminaires are only reserved for a financially strong minority.

### **What does the future of exterior illumination look like?**

The innovations in illuminants, or the electronics industry as a whole, which presently caused a real hype in interiors, do not stop when it comes to exteriors. Luminaires equipped with LEDs are the measure of all things. In order to provide high energy efficiency, neutral or cold white LEDs are used in most cases. But unfortunately, when it comes to a colour temperature of between 4500 Kelvin and 6000 Kelvin, we can no longer speak of a comfortable ambience. Furthermore, the luminaire manufacturers are fighting against the rapid pace of the development of LEDs. Almost quarterly, novelties appear on the market. Today, we distinguish between luminaires with



firmly integrated LEDs and luminaires with exchangeable blocks of LEDs. In the long run, the second version will probably prevail. Not least because they are easy to handle.

At the present time, two different light technologies are used. The luminaires work with overlapping or composed light-distribution curves. Due to the still relatively low luminous efficiency compared with the high-pressure sodium vapour lamps, the use for main traffic routes with mounting heights of more than nine metres is still very limited. But in residential areas and on squares with a mounting height of between four and six metres, using them can definitely be considered.

In the coming months and years, we will notice a strong increase in the field of architectural illumination because light as an architectural means is becoming a component of overall concepts more and more. Here, LEDs are making their way, since they offer a multitude of possibilities of use thanks to their size and their promised durability. Media facades and dynamic, in most cases colourful light installations increasingly try to attract the attention of guests, tourists and consumers. One can only hope that, in future, moderation and sensitivity will determine the dealing with light in the public space.



#### **Mario Rechsteiner**

Born in Herisau in 1961, during his time as an electrician and light technician, he studied light technology at Technische Universität Ilmenau from 1994 to 1996. In 1997, he founded Art light GmbH in St. Gallen. From 2001 to 2005 he was a lecturer for light design at St. Gallen University. Since 2004 he has been teaching in Constance at HTWG in the department of architecture/interior design and is a professor of light design at the Schweizerische Textilfachschule.

[www.artlight.ch](http://www.artlight.ch)



# NATURE LIGHTS

A sunrise is far more than a fascinating spectacle of nature, which has been inspiring people since the beginning of time. It is more than a physical miracle whose bright play of colours day by day illuminates the sky's horizon in a new way. Sunrise and sunset represent two essential points in time in our daily life: Beginning and end of day and night, of the active and the passive phases of our lives. Particularly impressive is the warm-red sea of colour which forms on the long way through the atmosphere and thus, for a short while, almost completely displaces the blue light with its short wavelength.



Photo: ©iStockphoto.com/AVTG

**“We must not assume that all the miracles of nature are only found in other countries and on other continents. They are everywhere. But we do not appreciate those that surround us because we have seen them every day since we were children.”**

Johann Peter Hebel, German poet and pedagogue, 1760-1826



# CITY LIGHTS

In nature, as a rule a colourful sea of light is only of short duration, just like our life in general is subject to constant change and alters from second to second. Man, however, whose nature is more determined by holding on than by letting go, tries to give this bright appearance a fixed form. The Shanghai skyline, for instance, shines the whole night through like a fiery sunset across the harbour. And this is no less impressive than the natural spectacle. The only difference being that in this case every night shows the same scene in which man is the unsteady component.





Photo: ©iStockphoto.com/Nikada

**“Nature reaches out her hand in friendship, she invites us to delight in her beauty; yet we are afraid of her silence and escape to the cities where we huddle together like a flock of sheep facing the wolf.”**

Khalil Gibran, Lebanese-American painter, philosopher and poet, 1883–1931

## LOOKED INTO

3lux:letters has asked three renowned light experts three questions on the topic of „Light in the Exterior Space“.



**Rino Bossy**  
Industrial Designer  
Bossy Design

**Every individual luminaire has to fulfil specific requirements when it is planned. No doubt, your approaches also differ from case to case. How do you experience the planning and design phase and what, for you, is special in the design of a luminaire?**

**Rino Bossy:** This can best be shown with an example: The “Convia” luminaire I designed for TRILUX had pioneering characteristics because, through it, LED technology had to become a matter of in the exterior sector. Consequently, I geared the design towards broad acceptance and high utility. The design builds on existing seeing habits and adopts new functions with innovative line management and rational practicality. Part of this is the meaningful transition from luminaire body to pole head, the aperture of the light emission analogous to the radiance angle of the traffic area and the unobtrusive, lower plane view with a back-printed light-emitting surface. In this way, “Convia” makes its mark both with its effect close up and from a distance and adds value to its surroundings.



“Convia” luminaire



**Knud Holscher**  
**Architect**  
**Knud Holscher Design**

**Knud Holscher:** On the one hand, luminaires today have to fulfil a specific task in lighting, on the other hand, the continuously newly developing technologies are a challenge for us as designers since lighting technology and light sources have a major influence for how we approach the design. In addition, several parameters have to be made clear: Is it a case of technical and functional lighting or is the luminaire to become a decorative, artistic object? What requirements, surroundings and function are to be taken into consideration? Creating a luminaire is something special and very exciting because it can be an architectural element which has to completely fit in. It merely supports the surroundings it illuminates in a sophisticated way. In other cases, however, the luminaire may be a "sculptural", decorative object, an eye-catcher adding value to the surroundings. For us, however, the functionality plays the major role in the design process.



Photo: Anders Hviid

"Moai" luminaire



**Toan Nguyen**  
**Industrial Designer**  
**Toan Nguyen Studio**

**Toan Nguyen:** Innovations are an essential aspect in lighting design, which is why an intense exchange with the technical team is absolutely necessary in order to be able to present a successful proposal, with regard to the product as well as the light source. The first and perhaps most important step is always to define the product itself with regard to the requirements of the client and his know-how. The market is already full of all kinds of lighting products and so I am only confident in making a new suggestion if I seriously believe that it is justified for really good reasons. Once the direction has been determined, I invest all my energy into developing solutions that have a clear idea, are functionally efficient and obviously show good design. To judge this, I try to put myself in the end customer's shoes, to understand whether I myself would like to use the luminaire in my own home, in my office or in places I frequent.



Photo: Tommaso Sartori; designed by Antonio Citterio with Toan Nguyen

"Belvedere collection"

**In the meantime exterior luminaires have become much more than mere providers of light since, with the development of the illuminants, the demands of the design as well as of the light mood increased just as much as those of the luminaire itself. In your opinion, in which direction is the development of electrical exterior lighting heading and what, for you, would be the next important step?**

**Rino Bossy:** LED technology is a major step in the development of exterior lighting. It offers us designers a high degree of freedom. This is exactly where I see that the future development has reached a crucial point: The seduction to focus on a creative end in itself has to be resisted. It has to be our aim to act responsibly with new perspectives and to develop solutions which are ecologically valuable in the long run. We should use the potential for innovation for the aspects of user-friendliness, energy efficiency, traffic safety and design quality. I believe that "Convia" shows that it is definitely possible to combine aesthetic aspects with the existing requirements.



Photo: Boris Götz

"Lumena" luminaire on Zoozubücke in Cologne

**Although the designer has an influence on how the luminaire looks, it is no longer in his power how it will be used later. Yet for successful illumination, not only does a luminaire with an appealing design play a role, just as decisive are the light effect or the arrangement and the orientation of the luminaires. In which project in the exterior space do you find the light concept particularly successful and what exactly was it that most fascinated you about this project?**

**Rino Bossy:** Of course, we have no direct influence on how our luminaires are used. All the same: We take all the relevant factors for the product into consideration all the way down to the recycling. And: We include in the development process all those people who will have to deal with our product. From the planner to those who will ultimately live with our luminaires – as users, pedestrians, motorists, local residents. If the meaningfulness of the product meets with acceptance, this pleases me. As in the case of the Cologne Zoozubücke. The light concept ensures a successful welcome. Well accented light makes the bridge across the Rhine come alive. A visual experience that delights.

**Rino Bossy,**

born in Wuppertal in 1960. After his studies in industrial design at Bergische Universität Wuppertal, he founded his own design studio in Wülfrath in 1985. That is where product designs are developed, among others, luminaires for interiors and exteriors, machines and facilities, medical technology and cars as well as temporary architecture. In addition, he consults leaders in technology concerning their product development, their CI as well as their CD. [www.bossy-design.de](http://www.bossy-design.de)

**Knud Holscher:** Today we are in a transition period where more and more luminaires are being equipped with LEDs. In the future, luminaires as physical objects will no longer play the same role. In the public space, LEDs could for instance be integrated into pavements, crash barriers, benches etc. I believe that the luminaire as such will disappear and we will have light itself becoming the parameter for the design. The numerous possibilities which LEDs offer us when it comes to dynamic lighting, the changes of the intensity and colour, the control of light through movement, temperature, the seasons etc. are a fantastic world that has to be explored. There is no doubt that LEDs and other new lighting technologies will take over in the near future and this will lead to a completely new way of thinking about lighting.



Photo: K&T-Studio/Johnny Neegaard

"Primula" luminaire in front of the high school in Egå

**Toan Nguyen:** Exterior lighting is to respect the architecture or, at least, not make it worse. Today, the new lighting technologies and LEDs allow designers and architects an incredible freedom in designing exterior luminaires. Paradoxically, the technology is developing very rapidly while the luminaires are expected to be durable and it can often take a long time to install new exterior luminaires. I do not really believe in general trends since every situation is different: In some cases, it is better to have a plain, classic luminaire; in other cases, the luminaire has to be completely invented anew and in the process may even lose part of its physical presence. The challenge for a designer consists in creating an industrial luminaire – flexible enough to be installed in different places without losing its character and its attraction.



Courtesy: Aubinlam, designed by Antonio Citterio with Toan Nguyen

"Alba collection"

**Knud Holscher:** As a responsible architect, I frequently feel the lack of a uniform production series of luminaires which could cover the whole spectrum of scenarios within a building complex. This often ends with the architect designing the luminaires himself. This was also what happened in the case of the new Royal Theatre in Copenhagen situated in a marvellous spot near the water. In my opinion, the architects (Lundgaard & Tranberg Arkitekter) succeeded in combining a dramatic, theatrical light atmosphere with a kind of functionality which is sophisticated and unique. As a result, the theatre-goers as well as the general public are able to enjoy the varied and integrated lighting of their new theatre.

**Knud Holscher,**

born in Denmark in 1930, studied at the School of Architecture of the Royal Danish Academy of Fine Arts in Copenhagen. Graduated with a diploma in 1955. From 1960 to 1964, he was a partner of Professor Arne Jacobsen. In 1966 he became a partner and later co-owner of Krohn & Hartvig Rasmussen. 1968 he became appointed professor at the Copenhagen School of Architecture. In 1995, he founded his own design studio Knud Holscher Design. [www.knudholscher.dk](http://www.knudholscher.dk)

**Toan Nguyen:** It is fortunate that designers have no influence on how the luminaires that they have created are used. I think a product can be said to be a good design if it is no longer an industrial product but has become a personal object for the end customer. You may think I am a chauvinist but the lighting of the Eiffel Tower is always fascinating. I believe it is one of the best sources of inspiration for realising a new lighting concept every year. The illumination can also be seen far from Paris if you are standing in an elevated spot. At exactly 1 o'clock in the morning, you can clap your hands and, like magic, the Eiffel Tower is switched off for the rest of the night.

**Toan Nguyen,**

born in Paris in 1969, studied industrial design at ENSCI-Les Ateliers in Paris. After working in various European design studios, in 1998 he started his collaboration with Antonio Citterio, later becoming design director and design partner. In 2008, he founded his own design studio in Milan, a multidisciplinary office focused on design management and product development, collaborating with leading international companies. [www.toannguyenstudio.com](http://www.toannguyenstudio.com)

# WESTEND STORY

As part of the Grüneburg site, the Westend Campus in Frankfurt am Main looks back on an eventful history: Formerly owned by the Rothschild family, the area became the company site of the IG Farben Group in the 1920s. After the war, it belonged to the restricted zone of the US Armed Forces. The future promises to be exciting as well because the Campus will become the new centre of the four main campuses of Goethe University – the soon to be “most modern university in Europe”.

By Christina Dragoi

**Client:**

Land Hessen, Hessisches Baumanagement

**Architect:**

Architectural office Ferdinand Heide, Frankfurt am Main  
Joint office Topos, Frankfurt am Main

**Open-space planning:**

Topos Stadtplanung Landschaftsplanung Stadtforschung, Berlin

**Light planner:**

Topos Stadtplanung Landschaftsplanung Stadtforschung, Berlin

**Location:**

Frankfurt am Main

**Luminaires:**

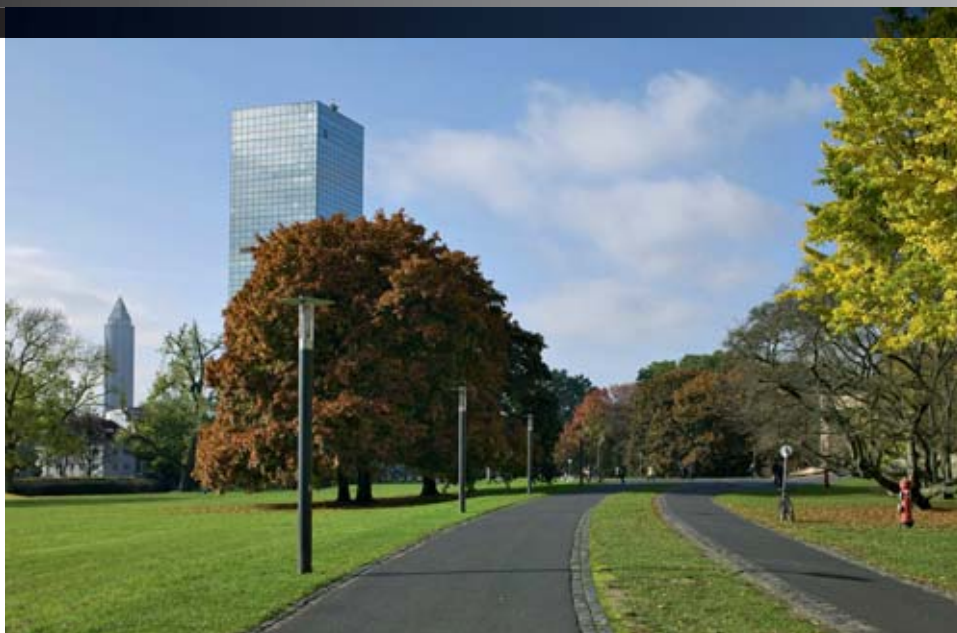
VR 330 (as special solution)  
RL 500  
Lichtlinie

**Photos:**

Boris Golz, Arnsberg







Inspired by Grünewald Park and the gardens of the IG Farben site, the Campus has an open look. Spacious areas of meadows are structured by bicycle and foot paths.

The subtle handling of light defines the edges of the Campus Square and adds rhythm to its area. With the help of the open façade of the Casino on the ground floor, the latter is integrated into the action.



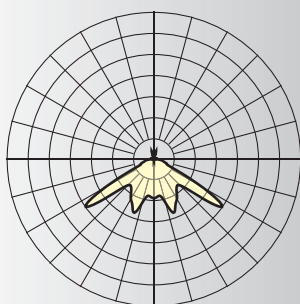


To guarantee a uniform appearance, the same luminaires line the paths which were already used in the existing garden south of the IG Farben Building.



## lux: TECHNOLOGY

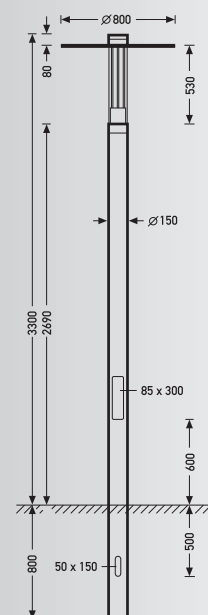
### VR 330

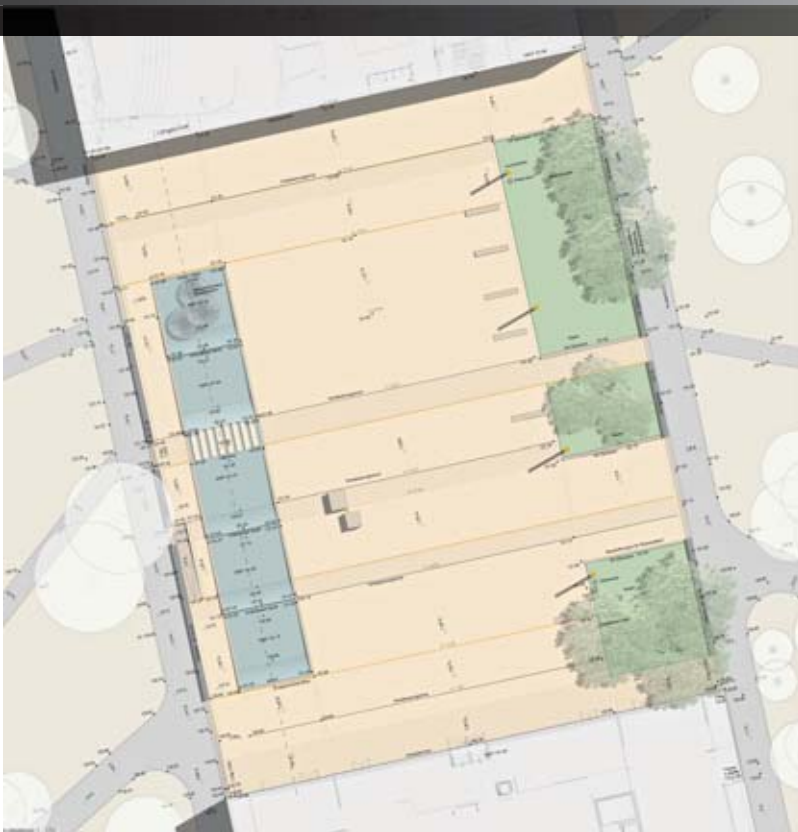


Luminous intensity distribution

The decorative VR 330 pole top luminaire provides a rotationally symmetrical, narrow-wide light distribution with attractive upper light emission.

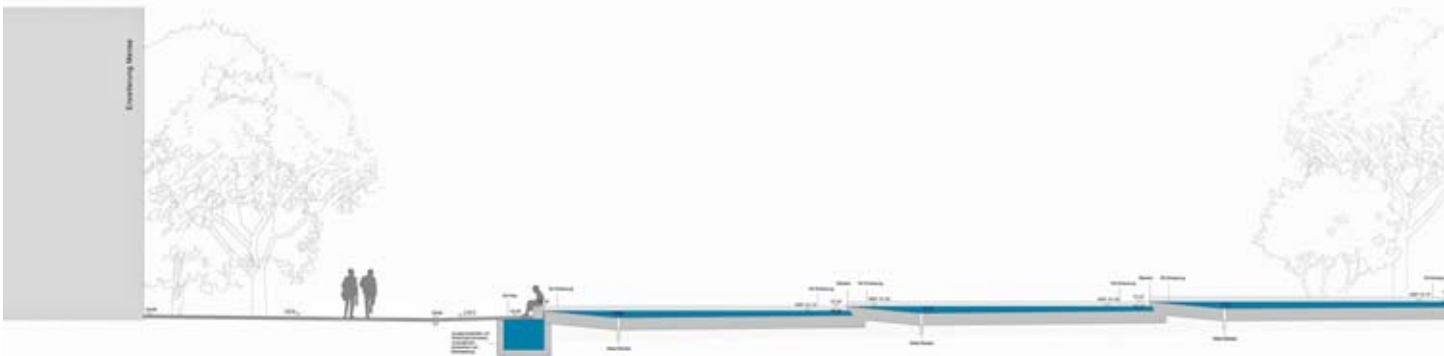
The VR 330 Outdoor pole top luminaire appeals with its unobtrusive, noble design as well as with the high quality of the materials. A profile of cast aluminium with continuous bituminized underground support forms the pole. Flush fitting, an end cylinder of robust borosilicate glass protects the luminaire head which is covered by a corrosion-proof aluminium canopy. As a secondary reflector, the latter ensures rotationally symmetrical light distribution. The canopy is supported by inner stainless steel rods so no exterior fixing devices disturb the elegant look. All the electrical components are concealed by a perforated steel cylinder. The colour – a dark grey, similar to RAL 9006 – has a metallic effect and is powder-coated and hence weather-proof.





Renderings

Design of the square (without scale)



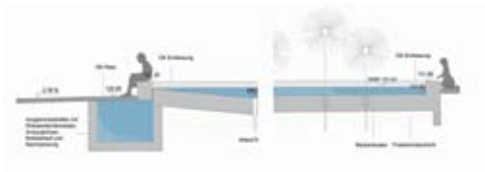
Longitudinal section of the Campus Square

With over 37,000 students, Goethe University in Frankfurt am Main, established in 1914 as a foundation university, ranks amongst the largest teaching institutes in Germany. By its 100th anniversary in the year 2014, it will become one of the most modern European universities as well. This ambitious project of the Hessian government was preceded by an urban-planning realisation competition for the design of the Westend Campus which the Frankfurt architectural office Ferdinand Heide won in 2003.

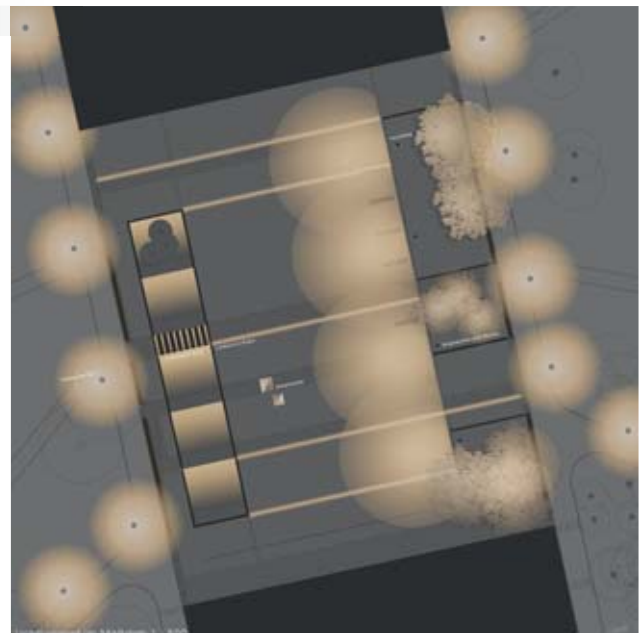
The 12.5-hectare area extends between the listed IG Farben Building, by the Berlin architect Hans Poelzig, in the south and Miquelallee in the north. In the west, it is bordered by the Grüneburgpark, which used to be a popular place of recreation for the upper class in the 19th century – Johann Wolfgang von Goethe and Bettina von Arnim were among the regular frequenters. The park, designed in the style of an English garden and with numerous exotic trees, some 100 years old, contributes to a high degree to the special quality of the adjacent Campus. Despite its size, the Westend Campus is to be given a

uniform character and a clearly visible identity. The design of the buildings – individual faculties and auditoriums, a canteen as well as various housing facilities – is oriented on that of the IG Farben Building which, with its façade of Cannstatt travertine, radiates warmth as well as monumentality.

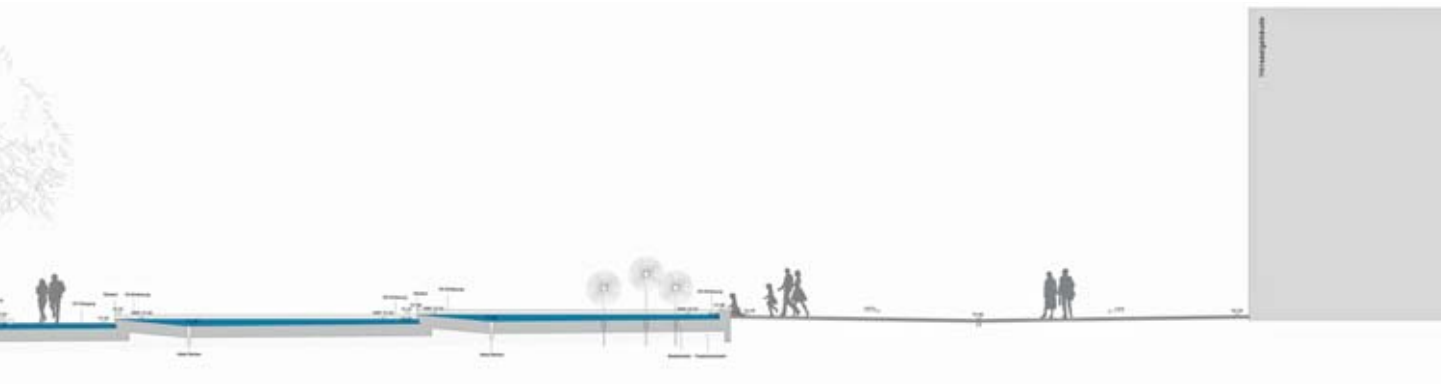
The Ferdinand Heide office, in cooperation with the Topos joint office of Frankfurt, developed the concept for designing the open spaces. The structure of the new Campus follows the example of the open spaces south of the IG Farben Building. This area was designed by the landscape architect Hermann Mattern during the construction of the group headquarters in 1929 and was created according to his characteristic design principles: Spaces are created by modelling the site, lawn- and water areas are bordered by shrubs or bushes. Analogously, the new area is now dominated by large lawns with groups of trees as accents as well as various shrubs around the edges. Wide terraces with walls of natural stone in addition to grass strips structure the topography. Crossing foot and bicycle paths add rhythm to the strips and function as links between



Sections



Illumination concept (without scale)



the different sectors of the Campus. To preserve the open character and to make orientation easier with visual perspectives, the protected tree population of the Campus park was carefully supplemented, however, extensive new planting was avoided. When it came to the lighting, the architects resorted to the design elements of the gardens south of the IG Farben Building. The type of pole luminaire installed there was used as a linear element along the newly created main paths to strengthen the uniform appearance.

In the centre of the sites, between the Casino expansion and the new auditorium building, is the so-called Campus Square, the central meeting point and public area of the grounds. In future, two squares currently under construction – at Bremer Straße as well as at Hansaallee – are to mark the entrance to the university grounds and, at the same time, integrate the Campus Square into the public open-space and path system; a spacious terraced garden links it with Grüneburgpark.

A 60-metre narrow water basin defines the western edge of the square. Due to the slight inclination of the grounds, the edge

of the basin increasingly rises out of the surface and provides generous seating areas. At night, various lines of light additionally emphasise the water as it cascades out of the basin. The opposite edge of the square, is bordered by high light pillars. Together with the linear bands of light running between the long sides of the square, they ensure optimal illumination of the Campus Square. The sophisticated illumination of the square is complemented by individual accents: Thus, the crowns of the mighty trees are emphasized with in-ground spotlights and the seating elements with integrated lighting.

# THE INTOXICATION OF SPEED

Despite its remote location in the Eifel, the Nürburgring can be pleased with the large numbers of visitors it receives: Approximately two million guests travel to visit the legendary race track and its attractions. Since mid-2009 and with the expansion of the motorsport facility into a leisure park open all year around, there is now an even wider range of entertainment available.

By Annika Dammann

The ring°racer, one of the fastest roller coasters in the world, runs around the building parallel to the ring°boulevard.

**Client:**

Nürburgring Automotive GmbH  
[www.nuerburgring.de](http://www.nuerburgring.de)

**Architect:**

Tilke GmbH & Co. KG, Aachen

**Location:**

Nürburgring Boulevard 1, Nürburg

**Exterior luminaires:**

LED-Lichtboden, Lichtstele,  
Sekundärreflektorleuchte, Lumena, Varisto

**Photos:**

TRILUX, Christoph Meinschäfer,  
Nürburgring Automotive GmbH







In the ring°arena, a wide variety of events take place – from stunt shows to the pop concerts.



The 350-metre ring°boulevard serves as the access axis and strolling mile of the new leisure facility.

Squealing tires, roaring engines – on the Nürburgring in the Eifel everything is about the intoxication of speed. The passion for motorcar racing started at the beginning of the 20th century: In 1927, near the Rhineland-Palatinal community of Adenau the 28.3 kilometre race track of the Nürburgring was opened after two years of construction. The enthusiasm of the spectators for the track, lovingly called the “green hell”, remains unbroken to today – reason enough for the operators of the Nürburgring to expand the motorsport facility into a leisure and business centre open all year round. Since July 2009, the visitors here can find an extensive facility with many attractions focused on motorsport: the welcome°center as a central starting and distribution point, the 15,000 square-metre ring°werk leisure park, the covered ring°boulevard promenade suitable for use in any kind of weather as well as the air-conditioned ring°arena event hall with seats for up to 5,000 visitors. The offers are complemented by a new trib-



Race-track atmosphere:  
The red and white buried  
LED lamps guide the arriv-  
ing visitors directly to the  
welcome°center.

une at the starting and finishing line as well as a new conference centre. Overnight accommodation is provided by the Lindner Hotel in the immediate proximity of the Nürburgring or the specifically built Eifel village Green Hell east of Federal Highway 258. The complex was planned and built by the Aachen architectural office Tilke GmbH, which has already made an international name for itself as a specialist when it comes to race-track expansion: Along the north loop, the individual buildings extend with the various sectors of the business- and leisure centre. A special highlight is the ring°racer roller coaster running once around the main building parallel to the starting and finishing line.

The light concept by TRILUX, which includes the whole exterior as well as the interior lighting, is intended to let the visitors experience motorsport and its atmosphere away from the race track as well. Slender column luminaires guide the arriving guests from the Federal Highway to the

welcome°center. Here the red-white LED in-ground luminaires in front of the entrance immediately catch the eye: The buried luminaires reminiscent of the curves of the race track, trace the access zone and communicate a feeling of dynamics and speed when entering the Nürburgring. The second entrance zone of the motorsports park is also staged by TRILUX luminaires. A further important exterior area is at the south-west end of the boulevard which runs through the building complex like an access axis. Here, where the Nürburgring ring°racer roller coaster spectacularly spirals upwards, large secondary reflector luminaires illuminate the entrance zone as well as the bridge linking the leisure park with the conference and motorsports hotel Lindner. Not least, the access to the Rock-am-Ring grounds, situated to the north – a further popular event of the Nürburgring – has been re-designed: Here exterior luminaires of the Lumena series show the festival visitors the way.

# PROMENADE IN A NEW LIGHT

Twenty years ago, the Düsseldorf Media Harbor was still anything but an innovative and modern city district with a future. At the time, brownfields for industrial goods traffic with cranes, silos and storage halls dominated the scene in the inland port. After an extensive conversion, the area is now characterised by contemporary architecture and modern service providers in the creative sector.

By Hanna Dietrich

In the background, the buildings of the Neuer Zollhof by Frank O.Gehry can be discerned which form the backdrop of the Mediterranean marina.

**Client:**  
Stadt Düsseldorf

**Planner:**  
Stadtwerke Düsseldorf

**Location:**  
Parlamentsufer, Düsseldorf

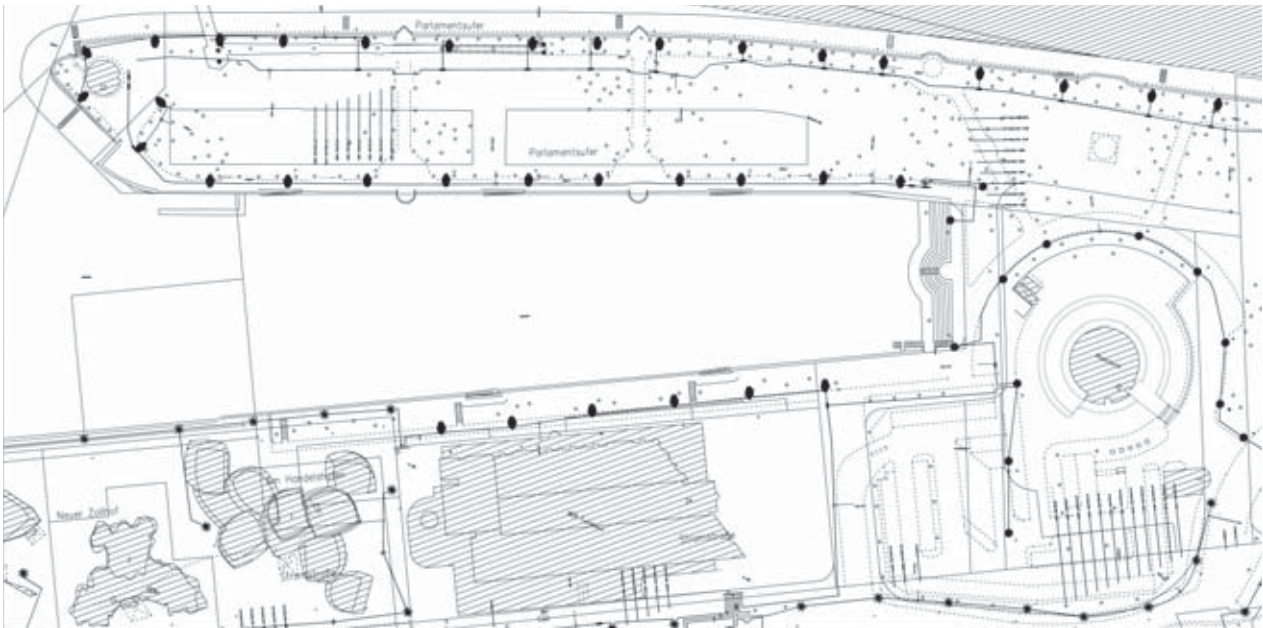
**Luminaire:**  
Lumega 600

**Photos:**  
Boris Golz







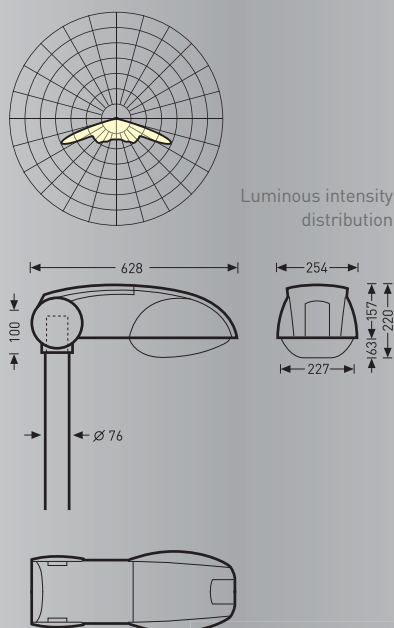


Plan documents for the conversion of the Parlamentsufer with luminaires.

## lux: TECHNOLOGY

### Lumega 600/LED

Due to its small, maintenance- and installation-friendly form, the slim exterior luminaire is particularly suitable for energy-efficient renovation. The diffuser of highly impact-resistant PMMA, the electrical block as well as the connection housing can be opened without tools and simply changed. Replacing the lamp as well as altering the tilt angle of the whole luminaire head is also uncomplicated. Thanks to being equipped with the durable LED module and to the robust construction of the luminaire body, a maintenance interval of four years becomes possible and potential savings of approximately 77 per cent compared with conventional street lighting with high-pressure sodium lamps results. The neutral white light colour of 4000 Kelvin ensures natural colour rendering.



Simple Design: The transparent diffuser cover, the luminaire body of die-cast aluminium and the adjustable joint form a compact unit.





The marina at dusk: the illumination of the promenade is just as important as the architecture surrounding it.

In an elegant ambiance, the visitor who interested in art strolls along the Düsseldorf Parlamentsufer, which runs along the Rhine between the Landtag and the MediaHarbor and each day lures hundreds of curious people onto its promenade. No wonder, since the headland is surrounded by places of interest: On the one side is the marina with Frank O. Gehry's characteristic buildings, while opposite opens up a magnificent panoramic view of the other bank of the Rhine. Particularly at night, when one after the other, the buildings around the MediaHarbor are immersed in artificial light, the Parlamentsufer now also shines out against a stylish backdrop. But this was not always the case. Before the summer of 2010, when the new luminaires were installed in the area, the place mostly stayed in a shadowy dark and the sparsely placed spherical lanterns threw glaring areas of light onto the otherwise gloomy paths. But with the highly efficient LED exterior lighting, the park and the paths are now illuminated in a targeted way – without glare and with natural colour rendering as much as possible. The city of

Düsseldorf deliberately went for modern technology: Due to a municipal resolution of 1997, it is committed to promoting environment-friendly and innovative technologies and to send a signal when it comes to sustained developments. The new luminaires at the Parlamentsufer not only save 50 per cent of the previous energy consumption, they are also progressive in their design and their concept. With their slender shape, the small luminaire bodies and the subdued colouring, they discretely blend into the tree-lined avenues while attractively staging the green spaces and the network of paths. The urban planners not only succeeded in integrating the high-performance LED technology into the traffic area in an exemplary way – the city of Düsseldorf now has one of the first functioning LED street lighting in Germany. This strengthens the overall concept of the former industrial port which was only given a new life at the beginning of the nineties thanks to the targeted new development by such well-known architects as Steven Holl, David Chipperfield or William Alsop.

# MATERIALS: SEA-WEATHER RESISTANCE

Gusty winds often whirl up plenty of sand which it whips through the air a high velocity, particularly in the vicinity of the sea. There is also saltwater which is extremely corrosive on the paint coat of the luminaires. So that promenade illumination does not fall victim to corrosion after only a few weeks, much must be done in the preparatory phase.

In test devices like the one shown here, the luminaires are submitted to the so-called salt-spray test.

The best results in the salt-spray test are achieved by coatings with aluminium components. On the other hand, in the case of die-cast aluminium parts, the vital prerequisite is the copper content which should not exceed 1 per cent.



Photos: TRILUX



Particularly high standards are demanded of luminaires which are positioned close to the sea. To guarantee their durability for as long as possible, TRILUX gives its outdoor luminaires a very special treatment: In the first step, the raw materials are degreased with the help of acid and rinsed several times. Then the luminaires are sprayed with a chrome-free conversion substance and again rinsed with demineralised water. This pre-treatment is designed to cope with the specific conditions of the later location. A further important point to prevent corrosion is the special layering of the coating: An epoxy primary coating is either followed by a polyester powder coating or a 2K polyurethane varnish as the final coating. All three coatings combine to give very good resistance to weathering. In order to test how well the coating will last in practice, TRILUX submits the luminaire to a so-called salt-spray test. Here the performance of various coatings under the influence of saltwater is tested. With this preparation, the TRILUX luminaires are ready resist stormy sea weather.

# PLANNERS ASK, MANUFACTURERS ANSWER

In the everyday work of a planner, many a question comes up which cannot be found in any handbook. Answers to such questions are given here by the experts from TRILUX who also tell you one or more tricks.

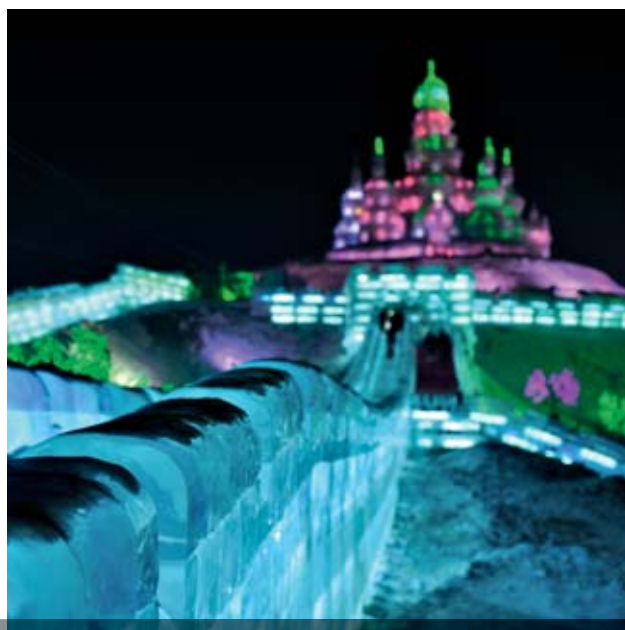
**Incandescent lamps get extremely hot when they glow; with LEDs, however, one hardly feels a change in temperature. What is the reason?**



**Thomas Kretzer**  
Managing director  
TRILUX Vertrieb GmbH

At the annual held ice- and snow festival in Harbin in China, visitors get to marvel at gigantic, illuminated ice sculptures.

In incandescent lamps, a metal wire – a several times twisted, one-metre long tungsten wire in most cases – is electrically heated until it glows. In this way, visible light is produced yet, at the same time, an enormous amount of heat is given off as only about five per cent of the energy absorbed is turned into light. That is why we also call incandescent lamps heat radiators. LEDs, on the other hand, belong to the so-called electroluminescence emitters. By applying an electric voltage, they are activated to emit electromagnetic radiation – for instance in the form of light. In this way of producing light, practically no heat is radiated and for this reason LEDs are considerably more efficient than traditional incandescent lamps. However, in the case of LEDs the luminous efficiency strongly depends on the lamp colour – for cold-white light it is still markedly above that of warm-white light. But it far exceeds the luminous efficiency of incandescent lamps and thus there is no question that objects susceptible to heat, for example ice sculptures, will probably be exclusively illuminated by LEDs in the future.



# SHOWROOM ARNSBERG

Successful communication with customers is one of the core tasks of any company – and part of this is also an appealing presentation of one's products. However, the times of the classic product show, when only the luminaires themselves were shown, are over: In the newly designed client areas at the TRILUX main plant in Arnsberg, visitors are able to directly experience the luminaires in their practical use.

The varied use of luminaire systems by TRILUX and an inspiring interior await the visitor in the recently renovated customer centre of the Arnsberg headquarters which has been newly designed with utmost care and love of detail. Four years after the first extensive conversion, designer Sabine Brunner and architect Norbert Jansen, together with the team of the TRILUX Facility Management, once more redesigned the 500-square-metre communication and exhibition rooms. The so-called Light Lounge is the prelude of the client area: On one side a bistro invites conversation between customer and employee, while opposite the new LED Office concept is demonstrated with different workplace situations. The downlights for general lighting as well as the Neximo and Enspiro luminaires show visitors that the office sector can no longer be imagined without LEDs. A seating arrangement composed of high-backed sofas is the ideal communication place in an open office structure. It is illuminated by the Valuco Active luminaire series which combines diffuse and directed light in such a way that lighting simi-

lar to daylight is produced. Then on to the casino which has been expanded into a generous and open space with numerous mirrored areas. The installation of a water bar, where high-quality mineral water from all over the world is served, and special Asian design elements create a relaxation oasis where, at the same time, the visitor is shown the function and the design of individual luminaire systems. The former showroom is dominated by the topics of industry, efficiency and sustainability. Upon entering, an oversized rusty steel cube inevitably catches the eye since it stands in the way of the visitors. Inside the rough, gold-brown cube hide the light solutions for industrial lighting. A further highlight is the "glass office" where modern lighting and audio technology are shown in practice. These can be comfortably controlled from an iPad or a touch panel outside the office. It is precisely the many different uses and the successful practical implementation which make the new TRILUX client areas an ideal place for communication and product presentation.



Photos: TRILUX

Downlights for general lighting as well as the Neximo and Enspiro workplace luminaires demonstrate to the visitors that LEDs have long taken over in the office sector.

Various office solutions show the visitors how flexibly TRILUX luminaires are able to meet the most varied requirements (top). Every section has been designed with little details so that the luminaires and their light effects create the fitting context (bottom).

The Light Lounge is the heart of the new client areas at TRILUX: Here the visitors are able to experience the various luminaires in their practical use and afterwards in the new bistro discuss the numerous possibilities with the employees.



# MORE SERVICE: TRILUX NEW LIGHT.

TRILUX has carefully screened and rethought the quality of its service. From “TRILUX New Light.”, the customer may now expect a holistic light solution which, in addition to the product, includes a variety of services. TRILUX CEO Johannes Huxol talked to 3lux:letters about the new service culture of the Arnsberg company.



**Johannes Huxol**  
Managing director  
TRILUX GmbH

**3lux:letters: You are promoting your employees and recruiting executives and experts from your own company. But what does this have to do with the service culture at TRILUX?**

Johannes Huxol: In the year 2008, we initiated an extensive programme for the promotion of junior employees. Talented, young people from various departments of TRILUX were to participate in order to be systematically promoted. Some of them with a side career path in view, others as specific experts in a certain field – both important factors in a well-functioning company. In addition to various meetings covering subjects such as team work, target-orientation and feedback culture, the group was also commissioned with two major projects. The first was more business-oriented, while the second concerned the service culture of TRILUX. Due, especially, to the interdepartmental composition of the group, holistic themes suggested themselves which are also currently highly significant for further corporate development.

**What exactly was the objective of this project?**

We have already successfully established several service

aspects at TRILUX, such as the Customer Service or the After-Sales Sector. These had been important steps, however, we did not think were sufficient yet. We wanted to take a more holistic look at the issue of service and that is why we asked the project group to closely examine and structure all those aspects of a company relevant to this. As a consequence, the young people in the team went through all the processes that are important and necessary for service. Subsequently, they took the relevant list of customer satisfaction in individual sectors and categorized it. This careful analysis was followed by to-do lists with improvement suggestions regarding process optimisation and these lists were passed on to the individual departments. However, the project group also realised that the quality of the service cannot be only measured by the processes but, above all, stands and falls with the person providing the service to the customer.

**This is an important realisation. How did you proceed?**

First, an internal survey was conducted regarding the com-





At a one-hour meeting, the project results were presented to the employees and the new strategy was explained.



Photos: TRILUX

plaints- and service culture at TRILUX. How can we draw attention to the subject of service culture? How can we succeed in making sure that what "TRILUX. New light" wants to communicate to the customers will reach them? In the end, these considerations made us aware that the concept of service first and foremost has to be internalised in the company, then we can take it outside and act accordingly. Smaller activities – so-called "pinpricks" – followed, which we used to shake up our employees. For instance, we distributed T-shirts with the slogan "Service has many faces. One of them is mine." and little (motivational) smiley icons were attached to all the mirrors.

**What concrete measures followed these internal activities in order to offer TRILUX customers an all-inclusive service?**

The products in the luminaire sector are becoming increasingly similar, so the point is to have convincing marketing campaigns which stand out. The customer orientation at TRILUX is to become visible in each and every element, which

represents a completely new culture that has to be implemented step by step. A small, not to be underestimated aspect in this is the telephone culture: A uniform, friendly greeting formula gives the customer at first contact the impression that he is in good hands. Also, TRILUX is not only a manufacturer of luminaires but, as a "light solver" also offers holistic solutions: The customers come to us with their problems and we at TRILUX focus on their individual requirements, we can then generate appropriate lighting designs and, in addition, give tips for ways of using light. We install and adjust products in addition, we can measure the light control and, for example, check whether the promised energy saving is also achieved. In brief: At TRILUX, we don't leave the customers alone but, from the first contact to the completion of the project and beyond, we take care of them. With Rodust & Sohn Lichttechnik GmbH, who are part of the TRILUX Group from the end of 2010, we also offer our customers made-to-measure light concepts. Thus our customers can be sure that their ideas and wishes are in the right hands at TRILUX.



Mike Thompson's "Blood Lamp" aptly visualizes that energy is not unrestrictedly available and therefore has to be used with consideration and not unthinkingly.

Photos: Mike Thompson



## LIGHT AT ANY COST

Light appears to be naturally produced by a lamp and to be free into the bargain. A misbelief, as British designer Mike Thompson impressively shows us with his "Blood Lamp".

By Christina Dragoi

In the western world, we use energy in a wasteful way. Everyday life without electricity can no longer be imagined and, for a long time, light at any time of the day and night has become a matter of course. But what would happen if we had to give our blood for light in the truest sense of the word? British designer Mike Thompson asked himself this question and, as a result, created the so-called "Blood Lamp" – a luminaire which only functions one single time and even then only when blood is added. The principle is simple: When a pear-shaped glass filled with a liquid is opened, a powder falls from the lid into the liquid and causes a chemical reaction. If the user now breaks the glass neck of the jar, cuts his finger on it and makes blood drop into the luminaire, the liquid shines blue for a while. Since this reaction can only occur once, it has to be well-considered when and if light is really necessary. However, the "Blood Lamp" is not a consumer product for everyday life. The artist wanted to awaken the awareness for how precious energy is and point out how incredibly thoughtlessly we handle it. [www.miket.co.uk](http://www.miket.co.uk)

The installation "Self Portrait" plays with the viewers and makes them the actors.

The portrait of a person facing the initially empty screen forms slowly. Yet before it fills the whole image width, the portrait already begins to fade again.



Photos: rAndom International



## ART OF THE PRESENT TIME

With their installation "Self Portrait", rAndom International confront the viewer with the transience of the moment: The image has hardly formed when it fades again and only leaves the memory behind.

By Julia Zürn

Transience is a subject which has occupied art from the beginning of time. In Ancient Egypt, artists had tried to depict life as well as people and their feelings in numerous images and (self) portraits. But how quickly moments can pass is demonstrated to the viewer by the London trio rAndom International with their installation "Self Portrait". With a camera, a photosensitive coating and an LED print head, "Self Portrait" shows an image of the person standing in front of the installation, and by doing so turns the viewers themselves into the actors. They leave their individual traces on a framed picture on the wall yet these fade again the very next moment and appear to irrevocably dissolve into nothing, just as if they had never existed. "Self Portrait" questions the content as well as the traditional concept of the portrait: How are we dealing with the phenomenon of transience today? Is art actually able to preserve memories with the help of images? In the end, however, we do not get any answers but are pensively facing the empty, white screen.

[www.random-international.com](http://www.random-international.com)



Photos: Oliver Basch

The elaborate LED installation changes the colour and structure of its walkable surface every second and thus invites the visitors to ever new choreographies.

## LED'S DANCE

It is the spontaneous movements of the actors which bring the "Ønskebrønn" in Berlin's main station to life. A fantasting light and sound formation playing with time and space.

By Hanna Dietrich

For two whole weeks last October, people travelling by train were welcomed to Berlin with spherical sounds and pulsating luminescence. The unusual installation by the creative "phase7" network of artists – originally created for the Norwegian Culture Capital of Stavanger – had a guest appearance in the large hall of the main station. The sophisticated light and sound installation gave the travellers the chance to enter into an interactive dialogue with the field of light which could be exclusively activated through movement. With a camera installed at a height of seven metres, each body movement from head to toe was turned into light information on the experimental surface. Thus beneath the feet of the amazed actors ephemeral fountains and streamlined structures were created which formed new figures with every step. Luminous letters could even be materialized and flowed across the field like ice floes during the spontaneous performances. The artistic dances were accompanied by just as transitory as surprising sound compositions. Waiting for a train had not been such fun for a long time.

[www.phase-7.de](http://www.phase-7.de)

GRL, the Graphic Design Lab from New York, developed the graffiti of light. In no time at all, it had enthusiastic fans all over the world.

Similar to fresh paint, the lettering may run and splash in all directions. As the latest feature, it can even be reconstructed as a 3D model.



Photos: Evan Roth

## IN LUMINOUS LETTERS

Graffiti for marking the territory of gangs, as a form of political protest or – in their antique form – as a sign indicating the way to prostitutes, we have seen it all. As luminous lettering, however, it is something new – and legal!

By Christina Dragoi

The more stringent legal situation and increasingly improved observation methods make it considerably more difficult for graffiti sprayers to practice their art in the public space. The New York Graffiti Research Lab (GRL), headed by Evan Roth, developed a form of graffiti which does not conflict with any law since the works of art can be deleted at the click of the mouse: Laser Tag. One writes or draws on buildings with a laser beam while the person doing so may stand hundreds of metres away. With an open-source software originally developed by the GRL, the laser beam is caught and is projected as a line of light onto the chosen surface via a beamer and only splitseconds later. Pictures of performances in Vienna, Bordeaux or of the "Pirates of the Canals" in Amsterdam are spinning through the Internet and testify to the amazingly rapid spread and the echo which Laser Tagging is experiencing in all age groups. With new software, Evan Roth has meanwhile succeeded in reconstructing the tags, the line management of the graffiti, as 3D models and to make them last for eternity as sculptures. [www.graffitiresearchlab.com](http://www.graffitiresearchlab.com)



Photos: Estelle Sauvage



## THE DISCOVERY OF THE (TEA)LIGHT

By Hanna Dietrich

The last days have dawned for the incandescent lamps still around although now, the shapely glass bodies with their glowing tungsten filaments can almost only be bought under the counter or at flea markets. However, there are people who give such endangered design objects added value. One of them is Estelle Sauvage. The French designer made use of the side effect of the heat loss and turned the significance of the illuminant around: In her newly interpreted Ipsos Facto water heater, the infrared energy of the 100 watt lamp is used to heat the water and the light has gained a new function as an indicator that the kettle is on. Thus the invention does justice to all: the environment, the nostalgic design fans and the experienced tea drinker as the water temperature is exactly 85°C – optimal for the perfect enjoyment of tea.

[www.viadeo.com/fr/profile/estelle.sauvage2](http://www.viadeo.com/fr/profile/estelle.sauvage2)



Photo: EFRA Lichtwerbung GmbH

# TRIUMPH OF LUMINOUS ADVERTISING

Even in the 16th century, illuminated, artistically forged tavern signs tried to attract guests. The breakthrough of luminous advertising, however, did not succeed until the invention of the incandescent lamp at the end of the 19th century. Initially only words flashed, whose letters were formed out of many individual incandescent lamps. The "Manoli wheel" in Berlin's Alexanderplatz, however, already produced in 1898 the impression of a circular motion thanks to incandescent lamps quickly switching one behind the other – a small sensation. A special spectacle also consisted of the luminous, slowly tilting champagne bottle of the Kupferberg company which seemingly poured champagne into a glass from which thousands of air

bubbles then rose. Moving artificial light was soon equated with the modern nightlife, progress and luxury, and luminous advertising was the most popular new advertising medium. But the more possibilities the new medium of luminous advertising offered, the more enthusiastically but unplanned it was used. A proper flood resulted, a kind of drunkenness with light, the eye "was nothing but blinded by an overwhelming number of light elements which cancelled each other out in their effect" as architect Ernst May aptly described it. Luminous advertising no longer to functioned with the motto "The more lamps, the better" but become a means of design. Thus it happened that, in the twenties, famous architects such as Mies van

der Rohe, Erich Mendelsohn or Wassili and Hans Luckhardt precisely calculated the light effects of luminous advertising in their designs. With the beginning of the Second World War, however, having conventional luminous advertising became a criminal act due to the obligatory darkening so that, by 1942, it disappeared from the German street scene. After the end of the Second World War, fluorescent lamps – which had already existed in Germany since 1923 – became the embodiment of the boom of the fifties. With the dynamically curved tubes, numerous motifs in a variety of colours could be made to shine. In the sixties and seventies, more and more frequently back-lit acrylic showcases with foil coatings were used as these

were easier to produce than the hand-made lettering consisting of filigree tubes. With the development of the LED technology, there are nowadays hardly any limits to luminous advertising. Whether large-format displays, running fonts or advertising on house facades – the triumph of luminous advertising can no longer be prevented.

In Rudolfplatz in Cologne, for more than 40 years "he" and "she" take turns "filling up" (top).

Above Alexanderplatz in Berlin, at the beginning of the 20th century night after night the luminous Manoli wheel was turning (bottom left). Las Vegas is still the city with the most impressive luminous advertising (bottom right).



Photo: Deutsches Historisches Museum, Berlin



Photo: GFDL, image by Larry D. Moore (© 1986)

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Vivian Hollmann (TRILUX)  
Dietmar Zembrot (TRILUX)  
Thomas Kretzer (TRILUX)  
Marina Schiemenz (GKT)

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### Free subscription:

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

### Contacts for architects:

Martin Westermann  
Germany West  
Phone +49 (0) 151.17 11 03 22  
m.westermann@trilux.de

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

Birgit Richter  
Germany South  
Phone +49 (0) 151.17 11 02 90  
b.richter@trilux.de

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

Lorenzo Clerici  
Italy  
Phone +39 02.36 63 42 59  
Lclerici@trilux.it

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

Pierre Thinès  
Belgium  
Phone +32 (0) 497.43 58 69  
pthines@trilux.be

Pål Frigstad  
Norway  
Phone +47 67.10 92 00  
pal.frigstad@trilux.no

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

Markus Bucco  
Switzerland  
Phone +41 (0) 56.419 66 66  
mail@trilux.ch