Editor’s note

Dear readers,

Today we are illuminating a historical structure – preserved in modern architecture. The remains of an important gateway in the Roman limes wall have been discovered in Rainau-Dalkening, Germany. The structure was built in 213 A.D. to honour the Roman Emperor Caracalla. An impressive glass cube now protects the original remains of the wall so that we and future generations can experience them in a museum-like environment.

We also report on the new location of the Max Planck Institute for Solar System Research in Göttingen, Germany. Here, three scientific departments are devoted to the “Sun and the Heliosphere”, “Planets and Comets” and “Solar and Stellar Interiors”.

It’s a fitting environment for product improvements and innovations, like our new BEGA system bollards, as well as the next logical step in the development of our line of pole-top luminaires. We then have a look at the pendant luminaires from GLASHÜTTE LIMBURG. Here we introduce you to three different luminaire concepts.

Heiner Gantenbrink
Limes Gate · Rainau-Dalkingen
A world cultural heritage sheltered by modern architecture

The limes gate in Rainau-Dalkingen is an impressive architectural structure that marks an important trade route from Roman times. The 16-metre-high glass cube is now located at the site where a large gateway was used to monitor traffic through the limes wall. The cube forms an impressive link between the ancient Roman walls of the past and modern architecture. Like Hadrian’s Wall and the Antonine Wall in Great Britain, the Upper Germanic and Rhaetian Limes is one of the transnational UNESCO World Heritage Sites “Frontiers of the Roman Empire”. The limes wall begins at the Rhine River north of Koblenz and extends to the Danube west of Regensburg, and passes through the district of Ostalb for a distance of about 51 km. With a length of 550 km, the limes is the largest archaeological monument in Germany, and its overall length makes it the world’s second largest archaeological site, second only to the Great Wall of China.
In this area, the Roman legions built up to 900 watchtowers and 60 forts in the period between 100 and 200 A.D. The purpose was to establish a boundary between Rome’s provincial territories and the Germanic settlements. Because of their large number, the towers are a significant structural feature of the limes. The Rainau Limes Park was developed to give visitors a better understanding of Roman times and contains reconstructions of many towers along the former frontier.

The watchtowers along the frontier were placed at a distance of 200 to 1,000 metres apart and were used to monitor rather than defend the border. The guards who manned the watchtowers communicated with other towers by means of torches or horn signals. At the gates in the limes, the guards monitored the traffic of persons and goods between the Roman provincial territories and the lands controlled by the Germanic tribes. At Dallingen, the passageway led to the Main River to the north. Many Germanic settlements, which existed in harmony with the Roman Empire, were located here. Initially, the border crossing was a simple watchtower, which was later expanded into a gateway structure.
The Emperor Caracalla

was born on 4 April 188 A.C. in what is now Lyon, France. He spent most of his childhood in Rome. Since boyhood, he had an intense rivalry with his brother Geta. In 211 A.D., both brothers assumed the Emperor’s throne from their father. In 212 A.D., Caracalla conspired to have his brother killed so that he could gain full power. He then consolidated this power through violence and military spending, until in 217 A.D., he was killed in battle.
In order to honour Emperor Caracalla, a decorative façade was added to the gateway in 213 A.D. in the form of an honorary arch. The arch was 13 metres high and 9.5 metres wide, making it a unique monument along the limes. Its discovery created an archaeological sensation. The original remains of the wall were uncovered in 1975. To preserve the site, a protective structure was planned by the Recreational Area Association of Rainau-Buch, which would be the owner of the structure, and the Oestlb District Administration.

This cube, which was created in 2010 by isin architeken, an architecture firm based in Aalen, protects the historical structure and forms a link between the Roman walls of ancient times and modern architecture. The dimensions of the glass cube are based on the height of the old triumphal arch: 12 metres. The glass structure was designed to encompass the dimensions of the original arch and present the Roman site as if it were in a display case in a museum. The glass structure is approximately 20 metres long. The imposing glass façade is inclined 23° from the vertical in a northerly direction. The glass walls on all sides of the building make it possible to experience the historical site from the exterior. Like a display in a store window, the old Roman gate is visible to visitors day and night. This underscores the historical significance of the structure. Another key feature becomes apparent in the interior. The large glass façades allow the visitor to be “part” of the limes, intensifying his experience of this successful linking of ancient and modern architecture.
The arch that was part of the basic wall is depicted by a 1:1 scale fabric cube. This floating reproduction of the triumphal arch is suspended from the glass structure with the help of a steel frame. The substructure is 14.0 x 1.5 x 7.0 metres in size. A printed fabric membrane depicting the gate in its original size and presumed external appearance was stretched onto this substructure. In addition to the imposing reproduction of the gate, the interior of the structure is designed as a museum environment to present the history of Roman times in the vicinity of the limes. The lighting concept underscores the interplay of ancient and modern architecture. Floodlights and adjustable in-ground luminaires highlight the unique setting. The unrestricted view into the illuminated building makes it a landmark in the Rainau Limes Park. On the outside, square base bollards mark the walkways to this impressive building set in the hills of the Ostaib region.

Building owner: Zweckverband Erholungsort Rainau-Buch
Project management: Landesamt Östliche Gebäudeverwaltung, Aalen
Supporting structure: Graf Ingenieur, Schwäbisch Gmünd
Lighting design: Kummich & Weitkamp, Boppingen

Luminaires used in this object: 88750 - 88700 - 88626
Max Planck Institute for Solar System Research

With its clear-cut lines, the new home of the Max Planck Institute for Solar System Research blends in perfectly with the existing surroundings of the Georg August University in Göttingen. Modern research departments are combined with organisational areas and public utility spaces to achieve and overall floor space of 10,000 square metres. The institute studies our solar system in three scientific departments, "Sun and Heliosphere", "Planets and Comets" and "Solar and Stellar Interiors". The individual research groups investigate comets, solar changes, and their effect on our Earth's climate. 

The predecessor of the Max Planck Institute for Solar System Research, the Max Planck Institute for Aeronomy, was founded in 1946 in Kaltenburg-Lindau. In 2009, the Senate of the Max Planck Society decided to move the Institute to Göttingen, 30 kilometres from the original location. The prime motive for the site change was to move closer to the departments of Astrophysics and Geophysics at the University of Göttingen to facilitate cooperation with these departments.

The new complex is fully tailored to the special needs of researchers. The various utilization areas are housed in three building elements. Wing 1 consists of a two-storey base structure, which is 83 metres wide and about 92 metres long and whose lower storey extends into the building that rises up to the north. The main entrance is located in the southern section of the base area and has a foyer that is open to the two storeys. Public rooms like the library, seminar rooms and auditorium adjoin this area. In the southern part of the institute, the administrative wing with its three-storey glass...
cube projects above the main entrance. All of the research areas and supporting organizational units are located in this second wing. The three-storey rectangular wing with its glass façade dominates the entry area. The rectangular structure, which is 18 metres wide and 59 metres long, appears to float over the underlying component, thus underscoring the main focus of research at the institute.
The third wing is a two-storey spanning structure, 31 metres wide and 53 metres long, above the cleanroom and laboratory area. Laboratories and portions of the office space for research and software development are located here. A unique feature of the Max Planck Institute for Solar System Research is the cleanroom area with its floor space of 2,500 square metres. Airborne particles are kept to a minimum in this area to ensure that special processes can be used to manufacture flight components that could not be produced in conventional ambient air. Here, the staff develops and tests measurement instruments that are suitable for use in space environments and that are integrated into space probes used to investigate the various bodies in our solar system.

An 11.50-metre-high cleanroom connects to this space and is used for the assembly of large equipment. Additional halls and an airlock are used as a test space for balloon experiments. To allow researchers to work with highly sensitive measuring instruments, a floating floor was installed in the cleanroom area to provide isolation from vibrations. The outdoor walkways and the inner
The courtyard is illuminated with BEGA bollards with square layout. Matching light building elements enhanced by an impressive light graphic offer perfect illumination of the entrance area on the south side. These luminaires are particularly well-suited to create a distinct lighting design, separate various elements and structure the outdoor area. The entrance area is also illuminated by BEGA recessed ceiling downlights fitted with LED modules. The downlights feature shallow installation depths and high light output. They provide excellent illumination in the entrance area of the institute while simultaneously creating a friendly and inviting atmosphere. The lighting concept used in the Max Planck Institute for Solar System Research successfully enhances the architectural design.
BEGA LED system bollards

We are pleased to present an innovative modular LED bollard concept in the form of the BEGA LED system bollards. Often it is desirable for a lighting system to have luminaires of the same type and lighting technology, but with different heights or diameters. Auxiliary components such as integral floodlights, motion sensors and sockets can be meaningful additions. Separate additional installations are not needed, thus lowering the costs. BEGA LED system bollards can be equipped on request with emergency lighting batteries for one or three hours of emergency lighting operation.

Simply order the bollard head and also the desired bollard tube. Both modules can be joined together easily and quickly during the installation. BEGA LED system bollards will impress you through the choice of colour temperature, a minimum LED service life of 50,000 hours and 20 years’ availability guarantee for the LED modules.

All technical data can be found on the Internet in the data sheets issued for the luminaires at www.bega.com.
For this new modular luminaire concept, you must select the bollard tube required for the bollard head. Tubes of different diameters and heights are available with the following auxiliary components:

- with charging module insert for electromobility
- with integral adjustable LED floodlight
- with two integral safety sockets
- with integral passive infrared motion sensor
- with integral single emergency lighting battery for one or three hours
LED pole-top luminaires

with asymmetrical flat beam light distribution

These luminaires serve many applications in street, site and urban lighting. Two light distribution configurations are available:
1. an asymmetrical flat beam light distribution for illuminating streets in accordance with DINEN13201, and
2. the asymmetrical light distribution for spatially deep illumination of squares and large areas.

The BEGA LED modules, Miro® reflectors and anti-glare single-pane safety glass, together with die-cast aluminium luminaire housings, are combined to produce a solid unit.

The luminaires achieve protection class IP66 with safety class II. Various output levels make them suitable for nearly every lighting application with a mounting height of from 3.5 to 10 metres.
with asymmetrical light distribution

Even greater flexibility is achieved through the ability to adjust the luminaire head attack angle from 0° to 15°.
All models in this series are dimmable from 1 to 10 V and are ideally suited for integration into the BEGA Control system.
PLANETA
LED large-area pendant luminaire

Large-area LED light with exceptionally high light output – PLANETA pendant luminaires open up new creative options in many areas of interior design. Slim-profile luminaires in two diameters and various material configurations. The light from the LED travels through a white flush-mounted frosted crystal glass lens, ensuring uniform light distribution on the illuminated surface.

For optimum coordination of the light with the lighting situation, the luminaires are dimmable between 1 and 10 V or are DALI controllable. The long service life and cost-effectiveness of the LED also cut installation, maintenance and operating costs. If these luminaires are to be integrated into an LCN- or ZigBee-controlled building management system, we recommend using our BEGA Control light control system.

These are luminaires which will impress you through the choice of colour temperature, a minimum LED service life of 50,000 hours and 20 years’ availability guarantee for the LED modules.

LED colour temperature: 3000 K – Article number or 4000 K – Article number + K4

Select your desired material type of the luminaire housing by changing the code numbers.

Code number .1 – white enamel finish
Code number .2 – stainless steel
Code number .3 – chrome
We can also supply these luminaires in any desired RAL colour as custom-made products.
STUDIO LINE

LED pendant luminaires
with various interior colours for any desired ambience

A new line of LED pendant luminaires in various sizes. These impressive luminaires combine our economical LED technology with various metallic enamels for a fascinating interplay of colours and finishes. All of the luminaire housings have a velvet black exterior finish and a black connecting cable.
Choose from three interior colours to match your interior: aluminium, copper or brass.
The LED light from these pendant luminaires is dispersed by a handblown three-ply opal glass in the interior of the metal reflector and is directed downward to achieve a soft and pleasant lighting atmosphere.

These are luminaires which will impress you through the choice of colour temperature, a minimum LED service life of 50,000 hours and 20 years’ availability guarantee for the LED modules.
LED colour temperature: 3000 K – Article number or
4000 K – Article number + K4
Select your desired enamel finish on the luminaire housing by changing the code numbers.
Code number .2 – velvet black · matt aluminium
Code number .4 – velvet black · matt brass
Code number .6 – velvet black · matt copper
Verre intérieur opale soufflé à la bouche

Tous les luminaires sont laqués à l'extérieur en noir satiné. Couleurs intérieures aluminium, laiton ou cuivre.

Intérieur aluminium mat indice 2

Intérieur laiton mat indice 4

Intérieur cuivre mat indice 6

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DUOLOGIC

A glass especially designed for high visual comfort for an LED pendant luminaire line

When implementing new ideas, we have the major advantage of being supported by our own in-house LED and glass manufacturing facilities. This allowed us to develop a special LED module just for this line and then to uniquely combine it with our own glass to produce a glass with two different light intensities. We call this glass DUOLOGIC. The maximum LED intensity is guided downward through the glass directly onto the surface that is to be illuminated, achieving the maximum possible brightness. The second brightness zone travels upward and emphasizes the lower edge of the glass. A metal shield also ensures perfect lateral glare suppression. Luminaires for a multitude of lighting applications above tables, countertops or reception desks.

These are luminaires which will impress you through the choice of colour temperature, a minimum LED service life of 50,000 hours and 20 years’ availability guarantee for the LED modules.

LED colour temperature:  
- 3000 K – Article number or 4000 K – Article number + K4

Select your desired material type of the luminaire housing by changing the code numbers:
- Code number .1 – white enamel finish
- Code number .2 – stainless steel
- Code number .3 – chrome
- Code number .5 – velvet black enamel finish
DUOLOGIC
Part of the light exits from the top of the metal shield, illuminating the area above the luminaire and increasing visual comfort.

Black connecting cable
Luminaire housing and canopy options:

White anamal
Code number 1

Stainless steel
Code number 2

Chrome
Code number 3

Velvet black enamel, matt
Code number 5

We can also supply these luminaires in any desired RAL colour as custom-made products.

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