HUMANERGY BALANCE

Lighting solutions for the balance between environment, energy and the individual

Intelligent lighting solutions by Zumtobel strike a perfect balance of lighting quality and energy efficiency – HUMANERGY BALANCE

Energy efficiency through innovative luminaire technology and resource-saving lighting control – a sensible investment into the future

Lighting quality creating visual comfort, enhancing people’s performance and sense of well-being

www.zumtobel.com/HumanergyBalance

Topic: WHAT REMAINS?

Questions and Answers on SUSTAINABILITY in Architecture and Design, with projects from Paris, Munich, St.Gallen, Lake Garda, Düsseldorf and Hamburg

www.zumtobel.com
Reduced availability of raw materials coupled with rising energy and transport costs has forced businesses to consider sustainability issues in relation to their activities. This also applies to the lighting industry. New illuminants, such as LED, storming the market on the basis of the argument of high energy efficiency, intensify this further.

My understanding of a sustainable product is one that remains useful for the customer for a long period of time and which maintains its value, in the sense that it is considered to be valuable and not replaced prematurely or thrown away. Lamps have a functional and a formal use. Let’s start with the formal use and therefore sustainable design. Many designers are keen on an aggressive display of the sustainability of products, believing that the product design should obviously be seen to be sustainable. I personally disagree with this. Sustainable design should be timelessly elegant without any indication of the period of time of design, always modern, but not in a fashionable sense: simply classic.

Klaus Vamberszky, Research, Development and Product Development Director, Zumtobel, about sustainability in the lighting industry

Sustainable products are characterised by an excellent standard of quality. They are made of high quality materials that age or wear as little as possible so that the good functional properties are retained for a long period of time. Premium products therefore survive the passage of time significantly better than ‘me-too’ products or bargains. This is aptly illustrated by the fact that more than 90% of all the Rolls Royces ever built still exist today, with most of them moreover in very good condition.

A consideration of the sustainability of a product always includes an energetic evaluation of the product over its entire life cycle. The energy consumption of a lamp in the course of its service life is basically made up as follows: less than 5% of the total energy is required for manufacturing the lamp, while over 90% of the energy is consumed by operation of the lamp and the rest is required for its disposal. Going back to the Rolls Royce example: in view of the huge associated consumption of fuel, it cannot in this sense be considered to be very sustainable to drive to work in an old Rolls Royce every day. In conclusion, the very latest and most energy-saving technology should always be used in a lamp and classic products should be upgraded to bring them in line with the latest standard.

Energy consumption should however not be overrated — a lamp has to fulfil many other and also important functions after all. Humanergy Balance – a human orientated balance between the qualitative features of lighting and the quantitative energy used – describes Zumtobel’s approach to this.

The solution therefore lies in an intelligent combination of innovation with the successful and familiar. This applies to all disciplines and areas of life. In short: Tradition + Innovation = Sustainability. Typically Zumtobel.
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Dance floor functions as generator with almost no waste – Rotterdam’s sustainable discotheque

The club’s flagship is its dance floor, which is quite literally a centre of energy: The floor is spring-mounted on small plates. The vibrations of the dancing crowd liberate energy used to illuminate the dance floor and supply the DJ console with energy. An additionally entertaining feature is that the more energetic the dancing, the brighter the LEDs.

Depending on weight and vigour, every dancer can generate 2–20 W. The better the night, the lower the emission of CO₂. The little lights beneath the dancer’s feet also make them more aware of their own ability to produce energy.

www.watt-rotterdam.nl
www.studioroosegaarde.net
Sustainable planning and building means more than just reducing energy consumption. Prof. Brian Cody’s views on the discussion about energy efficiency and sustainability of buildings.

Brian Cody is professor at the Faculty of Architecture of the Technical University of Graz and head of the Institute of Buildings and Energy. According to his definition, real sustainability can only be achieved by a harmony of three factors: low energy consumption, optimal room climate and architectural quality. This introduces a parameter to the energy discussion that was fairly disregarded before. Since qualitative values can not be measured absolutely, this primarily means that the development of buildings to become more energy efficient cannot take place at the cost of the freedom and versatility of architectural design.
Where do you see the greatest potentials for saving in the overall building process? What is the position of lighting in relation to the other crafts?

Brian Cody: Instead of looking for potentials to reduce costs all the time, I tend to try and find ways to maximise the overall performance of systems. I like to consider not only the effort required, but also the benefit obtained or the best possible relation between the two. The greatest potential for saving in the building industry, the way I see it, is to achieve more with less. The most commonly observed response to the challenge to increase performance in the building industry however, simply seems to consist of continuously adding new components and elements to buildings. This linear way of thinking produces increasingly complicated buildings that do not necessarily achieve increased performance. As far as lighting is concerned, I find that maximum utilisation of daylight and an intelligent combination with artificial light are important. The fact that lighting runs on electricity, which is a high grade energy form, makes it highly significant from a primary energy point of view.

Energy efficiency discussions seem to exclusively revolve around savings. What about the human aspect?

Brian Cody: That’s a very important question. Some current discussions about energy efficiency in the building sector are essentially flawed. Low energy requirement should not be confused with energy efficiency. Efficiency is the ratio of useful energy provided to the energy supplied. The key question is which qualities are created by the amount of energy supplied? In a building context, energy efficiency is the ratio of room climate to primary energy requirement. The complete lifecycle of the building should be taken into account when considering energy requirement. We have managed to develop a method to determine the actual energy efficiency of buildings at our institute. The human factor is a central issue in this.

Do qualitative factors also play a role?

Brian Cody: Qualitative factors can however be evaluated and measured definitely. A huge amount of basic research was carried out in the field of human comfort during the past decades. This allows us to predict the thermal comfort perceived in a room relatively precisely. Studies have shown that disregarding these factors often leads to incorrect conclusions, with a decrease in the energy requirement accompanied by a decrease in the energy efficiency instead of an increase. The energy efficiency discussion in Europe is mainly about heating buildings. But that’s only a relatively small proportion of the total energy consumption in an office building. Ventilation, cooling or lighting are often much more significant. Optimisation of a single aspect with exclusion of all other aspects is a tendency unfortunately found in practice as well as in research. I believe that this type of one-dimensional thinking is a major problem at present.

Zumtobel has developed a quality assessment system for lighting: ELI. To what extent do you think can such a method be used for general evaluation of lighting comfort?
Brian Cody: Such a method can be very useful. On the other hand, a subjective factor will always remain for lighting as well as for architecture in general. Although this factor cannot be fully captured by an assessment method, it is very important for an overall consideration. This means that other than the purely quantitative aspects of lighting such as light brightness, colour, glare etc. that can be measured, there are criteria of a qualitative nature perceived by human beings subjectively. We also know that with regard to human health, daylight has a completely different quality compared to artificial light, which also extends to effects on architecture. Le Corbusier talked about the interaction of light and shape; he talked about composing with light in architecture. Light is an important architectural element. Just because some aspects cannot be assessed objectively and quantified with a number doesn’t mean that the whole idea is pointless. My approach is: assess objectively what can be assessed objectively. The rest has to be included differently.

You coined the phrase ‘Form follows Energy’. What does that mean?

Brian Cody: I used this phrase for the first time in the early 90s during a project in Berlin, when I conducted a study to try to develop the perfect building shape in terms of energy, before the whole design process. This shape was used to generate the architectural design. That was an unconventional way of doing things at the time. Many buildings developed in cooperation with various architects in which the design language and shapes were influenced by our energy efficiency maximisation strategies, have come to exist since then. More subtle projects have been completed in the last years. Rather than influencing the exterior appearance, new typologies and plan configurations not immediately associated with energy efficiency were developed for these. In a narrower sense, what I meant with ‘Form follows Energy’ is the creation of new design languages and new shapes in architecture on the basis of a consideration of the varied aspects of energy efficiency in the design process. Today I also mean the general relationship between energy efficiency and architecture. Whether Form follows Energy or Energy follows Form, the energy efficiency of a building or an urban design is mainly determined by its architecture.

Is there a city in which you find a lot of ‘Form follows Energy’?

Brian Cody: That’s a difficult question. Hong Kong is an example of a city in which energy can be quickly understood in a building context. This is probably due to the density of the people and buildings, but also because the energy flows are highly visible. If someone wants to get a feeling for how energy is used in buildings, I recommend a trip to Hong Kong. Energy flows, including those in buildings, are easy to understand there just by looking around consciously.
The reconstructed fresco cycle from the Saint Savin sur Gar-
tempe Abbey is accentuated with special lighting: warm light is
cast in the barrel vaulting of the long hall by reflectors based on
the Tecton system located on the walls above the shelves. Both
the impressive spatial volume and the colour of the frescos are
equally emphasised in this manner.

An overview of the Cité d’Architecture:

1  Auditorium
2  Galerie d’actualité
3  Galerie d’expositions temporaires
4  Hall d’entrée, restaurant et boutiques
5  Bibliothèque d’architecture
6  Galerie des peintures murales
7  Le Corbusier
8  Galerie des moulages
9  Galerie moderne et contemporaine
10 Espace partenaire
CITÉ DE L’ARCHITECTURE ET DU PATRIMOINE IN PARIS

IN THE LIGHT OF THE GRANDE NATION
The entrée of the Bibliothèque d’Architecture offers a spectacular view of Paris. The central area of the library is supplied with direct and indirect light by the filigree light band system Tecton. (above and right side).

The entrance hall of the terminal pavilion (right) has light lines of the Slotlight series fitted flush into the ceiling. The fitted linear lighting requires no luminaires and blends into the impressive column architecture.

Palais de Chaillot at night:
located in the central axis of the area between the wings of the building – on the other side of the Seine – the Eiffel Tower.
After careful renovation of the Palais de Chaillot, the world's largest architecture centre presents itself in the magnificent east wing of the building by the Seine. Its opening last year was declared to be a state affair and celebrated in a ceremony with the President of France.

There are not many places entirely dedicated to architecture that demonstrate this fact as impressively as this one. The entrée of the central Bibliothèque d’Architecture in Paris presents itself as a light-flooded space with vertical narrow bands of windows. The view from the lounge sofa opposite the reception sweeps across the Seine to the Eiffel Tower, rising up into the Parisian sky like the spectacular postcard motif that it is. The Cité d’Architecture et du Patrimoine opened on Chaillot Hill on the rive Droite in autumn 2007. Since that time, several installations uniting historical and modern architecture with the cultural heritage of France have been gathered in these representative premises with a view of Paris. No location other than the monumental wing-shaped building near the Eiffel Tower could have been suited better to demonstrate the importance of architecture in the Grande Nation.

The modern classical Palais de Chaillot was built on the foundations of the former Trocadéro Palace for the World Exhibition in 1937. After sensitive renovation and alteration of the historical building under direction of the Parisian architect Jean-François Bodin, the magnificent building under preservation order now presents itself as a pulsating cultural platform, accommodating the archives and conference rooms, museums and changing exhibitions, as well as, the architecture library in one location: a city of architecture and national cultural heritage that does credit to its name.
There are about 28,000 books in the high and flowing rooms of the open access library on the first floor of the head-end pavilion. Periodicals and monographs, as well as, films and plans are distributed in elegant shelf walls made of powder-coated steel. Bodin has managed to create a functional and modern library interior used by students, researchers and readers living in the neighbourhood with a relatively little intervention in the old fabric of the building. He integrated the approximately forty meter long hall with a reconstruction of the medieval fresco cycle from the abbey church of Saint Savin sur Garetempe – formerly part of the Museum of Murals - in the library. The colours of the ceiling fresco are emphasised by indirect illumination with special lighting that also accentuates the spatial volume of the barrel vaulting. Varied room structuring is achieved by placing the shelves and large tables in wall niches as well as distributing them freely in the open room with a historical natural stone floor. Different ceiling heights are additionally used for spatial differentiation of book and multimedia zones, as well as, reading areas. Lines of light in the ceiling provide balanced and warm illumination of the darker regions. Daylight is supplemented by long light bands suspended along the outside walls and in the high ceiling areas.

The lighting design of the spacious entrance hall of the Cité on the ground floor imparts this area with a clear structure, enhancing visitor orientation and centralising access to the various areas. The light lines set in the ceiling trace the main axes of the hall along the monumental columns while simultaneously marking the system of access routes. Bands of light in an east-west direction highlight the way to the Gallery of Plaster Casts and the stairs leading to the upper floors. The Gallery of Architecture on the second floor is however the most impressive part of the 23,000m² exhibition area of the Cité. It spreads out over the entire narrow and curved area of the broad wing of the building, presenting modern and contemporary architecture from 1850 to the present with a focus on France.
The long gallery room, not divided by any barriers at all, presents an abundance of models and drawings, photographs and audiovisual montages organised on low platform islands according to eleven topics. A broad panorama of French architecture unfolds, including Haussmann-style town planning, as well as, large council housing projects built since the 80s by architects such as, Dominique Perrault and Christian de Portzamparc. Backlit ceiling rotundas immerse the exhibition areas in a uniform light that can be regulated as required. The exhibition concept and the newly designed rooms in the Palais de Chaillot present French architectural heritage with an impressive clarity. One milestone of French architecture is naturally not presented in the permanent exhibition and yet remains omnipresent: the tower built by Gustav Eiffel for the World Exhibition in 1889 is the real architectural landmark visible from the south-facing windows of the gallery. Entirely without medial assistance by the museum.

Lighting solution
Entrance hall: SLOTLIGHT light lines
Library: TECTON continuous row lighting system, TETRIS continuous row luminaires
Architecture and exhibition design, 2008: Atelier Brückner, Stuttgart/D
Architect, 1973: Karl Schwanzer, Vienna/A, Munich/D
Lighting design: Delux AG, Zurich/CH / Media design: Art+Com AG, Berlin/D
Photos: Atelier Brückner (p 15 top, p 17 left), Marcus Buck (p 17 right, p 19 top, p 20 bottom, p 21), Florian Holzherr (p 15 bottom, p 16, p 18, p 19 bottom, p 20 top) / Text: Katja Reich

BMW MUSEUM
2008

REBIRTH
OF A
VISION
“The idea of letting architecture get into motion creating different atmospheres beyond the functional necessities fascinates me ...”

Uwe R. Brückner, Architekt
“Architects need to have the necessary courage to want to fulfil visions” – considering the new constructions for BMW, Karl Schwanzer not only had the courage for his architectural visions in the early 70s, but also managed to make these become reality. The building ensemble made up of the ‘four-cylinder’ BMW administration tower and the bowl-shaped BMW Museum, is an altogether unique and powerful outward expression of the performance and philosophy of the company. Today, these architectural icons are as impressive and symbolic as ever.

This effect is not diminished by the new prominent BMW Welt (BMW World) designed by Coop Himmelb(l)au. On the contrary, the construction emphasizes the qualities of the existing buildings, taking up its place as a modern addition to the complete ensemble. Extensive renovation of the BMW administration tower and extension of the existing museum building were essential factors to achieve this. The shape of the museum structure not allowing an extension of itself as such, Stuttgart studio Atelier Brückner came up with a design mainly using the flat building adjacent to the administration tower to provide the necessary space required for a modern exhibition area.
‘Continuation of the street in enclosed space’ was the central idea of Schwanzer’s architectural design. The museum was intended to provide an adequate space for a modern presentation of the icon of the road – the car. The original exhibition concept first brought visitors to the uppermost platform by means of an escalator. Further platforms and ramps leading downwards passed by a variety of exhibits, brief impressions of which could be spotted in advance from the upper floors. A modern exhibition area has been achieved by the ingenious interpretation of this basic principle by the designers at Atelier Brückner.

Today, visitors enter the foyer on the ground floor and start walking around the new museum area accommodating a permanent exhibition. Ramps leading downwards take up and visually emphasise the street theme of the original museum with polished asphalt ‘bitumen terrazzo’ and take the visitor to a fictitious city that seems to be built out of light. The exhibition is as bright as day even though it is located below ground. This impression is achieved by downlights, providing the basic lighting, in combination with presentation cubes or ‘bodies’, to use the appropriate BMW terminology. The internal illumination of the cubes by means of the innovative Zumtobel LED technology Startup LEDON sheds light on visitor paths through the glass outer walls of the cubes. Zumtobel provided glass areas of 3,000 m² with over 300,000 LEDs for this project.
The height of these specially developed LEDs with a colour temperature of 5,600K is particularly small. The distance between individual light lines is 14cm, arranged in lengths of 1.20m. Illumination is controlled by the building’s DMX system.

A brightly lit ‘BMW City’ presents itself to visitors, free to enter any one of the houses for more intensive contact with the subject matter and exhibits presented there. Each house is characterised by an individual identity with a specific appearance and appropriate lighting design. Directed spotlights in the precious looking ‘Treasure Trove’ designed all in black makes the exhibited rarities and unique specimens look like jewels. Other rooms feature a more technical design, with an appropriate dynamic flair to accompany the topic of motor sports, a playful and light atmosphere presenting the theme of inspiration and a cheerfully nostalgic display of the 1950s Isetta with gaudy lights and a historic photo wall.
The ramps and different levels of the permanent exhibition also allow many visual links, a feature the architects adopted from Schwanzer’s original design. Interactions and thought connections are generated – familiar objects and things already seen disappear and reappear again presenting themselves in a new light. The major topics Company, Design, Motorcycles, Technology, Motor sport, Model line and Brand in variously sized rooms are linked to each other and accentuated by means of light-based dynamising transitions. Ideal illumination of exhibits are achieved by means of the dynamic effect of novel dimmable Xeno HIT spots with an output of 150W.

Lighting, film sequences and slide shows are coordinated to the second by means of a DMX control system in the fully synchronized ‘Touring Car’ room (top). The laboratory style atmosphere of the ‘Lightweight Construction’ room is achieved by neon contours arranged behind microperforated acrylic glass (bottom).
An area called the BMW Platz represents a central point, as well as, a transition to the historic part of the museum, in which visitors are lead in the reverse order of the original route, past illuminated information spheres upwards via ramps and then back to the exit by means of the central escalator. Film sequences by the Berlin design office for new media Art+Com are presented on a 12m high light wall, displaying the museum programme like a larger-than-life table of contents. Background music composed by two instruments enhances the visual stimuli, achieving a visual-acoustic spatial experience.

“Visual, acoustic and real stimuli are used to deliver a complete multimedia show with optimal activation of the visitor. Light, sound and projection effects, keep the visitor’s attention without any loss of concentration in relation to the actual exhibits in the exhibition area” - Schwanzer’s vision of the BMW exhibition in the early 70s. An adequate addition and optimal realisation is achieved by the new extension of the museum, light and design dramatisation and media technologies.

Lighting Solution
Basic lighting: PANOS downlights
Exhibition: XENO spotlights, special model, TETRIS continuous row luminaires, special model
Glass backlighting of visitor paths: LED with DMX multi-channel dimmer control, special model

Upward view of the rotunda of the old part of the museum. The spherical graphical image carriers transport the contents of the temporary exhibitions (left). The current ‘Concept Cars’ exhibition ends with the design study GINA on the uppermost platform of the circular building (right).
Two completely different lighting effects are achieved by flush integration of specially developed downlights in the ceiling: a bright starry sky for the shopping centre ceilings (below) and small islands of light on the floor (right side).
Client: Jelmoli EKZ, St.Gallen/CH, Ikea Immobilien AG, Stadion AG, St.Gallen/CH
Architects: Ramseier & Associates LTD., Zurich/CH
Lighting design: Bartenbach Lichtlabor GmbH, Aldrans/Innsbruck/A
Electrical design: Amstein & Walthert, Zurich and St.Gallen/CH
Photos: Jens Ellensohn, Ramseier & Associates (p 22) / Text: Nadja Frank

AFG
SHOPPING
ARENA
ST.GALLEN

TWO IN ONE
More than half of the world’s population already lived in cities in the year 2000 and it is estimated that this will rise to two thirds by the year 2050. Intensive utilisation of the limited space is a task that architects and planners are therefore confronted with more and more. Combining various usage concepts in one common infrastructure is a new way for companies, investors and clients to be future-compliant.

‘Everything under one roof’ is the motto of the new Shopping Arena in St.Gallen. Visitors have a choice of fifty fashion, jewellery, electronics and sports shops, as well as, food outlets, on a sales area of 30,000m². But that's not all, the area also includes an IKEA furniture shop and the FC St.Gallen football stadium, conveniently located between two motorway routes. Ideal utilisation and accessibility of the three-store building complex is ensured by synergic use of the car parking facilities by shoppers during the day and football fans in the evenings, coupled with the central connection to the local traffic system. The Shopping Arena’s football pitch is however the architectural highlight. It floats impressively above a 7,000m² shopping area that is located underground and therefore not exposed to daylight. This unique example of multiple usage of space combines impressive design and extravagance.

On the ground floor, the floors are white and brightly illuminated while the ceiling is dark, giving the shopping arcade a floating character. The colour scheme of basement level 1 located underneath is completely white.
In cooperation with the renowned lighting specialists at Bartenbach LichtLabor, the architects opted for a special lighting solution. The ‘slotlight series’ is based on the idea of a multifunctional lighting system that allows diverse lighting to be produced using identical ceiling mirrors and a uniform lighting geometry. Fitted with energy-efficient metal vapour lamps that are remarkable with respect to long operating life, high luminous efficacy and good colour rendering, the lighting concept can be said to be a highlight from an economic point of view as well. With a power input of only 20 W/m², the Shopping Arena has a significantly lower energy requirement compared to other shopping centres. Narrowed light outlet openings concentrate the light to form decorative islands of light on the floor. A stylish interaction of shadow and light is achieved by the precision of this illumination, positively opening up the entire Shopping Arena premises for visitors to make use of. The slotlights used, also known as ‘artificial suns’, make use of 4,200K to create sunlight effects, in conjunction with true-to-life-colour rendering, achieving an ideal interior ambience. In contrast to the sophisticated floor lighting, the downlights make the ceiling look like a bright starry sky. This makes the Shopping Arena a stage transporting visitors to stimulating and fascinating worlds by means of a highly engaging combination of light, colour and material.

‘Artificial suns’ bundle the light and create decorative islands of light on the Shopping Arena floors (above). The slotlight series reflectors are fitted in uniform ceiling pockets without any tools (detailed section and view from below on a scale of 1:5).

Lighting Solution
Ground floor and basement of shopping mall:
Downlights Lichtlabor Bartenbach – spotlight system for focussed and diffuse lighting effects
Covered exterior lighting: SERONDO downlights
Underground car park: ZX2 continuous row lighting system
“His approach to design is philanthropic. His charisma saturates his work”

Jürg Zumtobel about Ettore Sottsass

The Italian designer and architect Ettore Sottsass (1917–2007) continued to be creative even when he was quite old. In 1969 he designed the famous bright red portable typewriter ‘Valentine’ for Olivetti (this page). In the late 90s he designed the office pendant luminaire Aero for Zumtobel (right).
CHRISTOPHER REDFERN ON THE SUSTAINABILITY OF GOOD DESIGN

Successful work which survives time without being questioned, thus being long-lasting in the deepest sense. Ettore Sottsass summed up this thought and concept by stating: “If something is going to save us, it will be beauty.”
Together with the Memphis Group - which was initiated by him - he broke all existing rules of functionalism. The predominant functionality of design objects was radically challenged, at the same time, he developed technical products within the industry which are characterised by his holistic way of thinking. One example is Ettore Sottsass’ design for the office pendant luminaire Aero. Seen from a creative and technological angle, he created a unique product at the same time at the end of the 90s.

With his design team including the young Chris Redfern, Sottsass created a lamp which was convincing through its classic timeless design. The so-called waveguide technology turned this lamp into a product which marked the beginning of a new era in the world of light. For the first time, it was possible to equip an extremely flat lamp with high-quality light controls. Fluorescent tubes are arranged in a sideway manner, the light is controlled by a computer generated prism structure. Aero won several design prizes and also turned into a successful product for Zumtobel from an economic point-of-view. Furthermore, it served as an example for a countless number of flat lamps.

Ten years later, the world of light was revolutionised by a new light source, the LED. Thanks to its ever increasing efficiency, the small powerhouse is on its way to conquer functional lighting as well. This development brings about the challenge to integrate this new technology into office lamps as well. For Zumtobel this resulted in two alternatives: To create an entirely new lamp or to make use of an existing design? Early on in the development process, it became clear that the original Aero concept needed to evolve. The design of the conventional Aero underwent a face-lift to EMBRACE the new light source in the best possible manner. Chris Redfern, the designer of Aero II and CEO of Sottsass Associati in Milan, discovered a convincing way to renew the existing design and to turn it into something familiar and at the same time elegant, futuristic and new.

The new Aero II Hybrid combines futuristic design with innovative technology (this page). Christopher Redfern, chief designer at Sottsass Associati is responsible for this Aero redesign. The hybrid concept of the new Aero generation was developed in the course of many sketches by Redfern with Zumtobel.
Interview with Chris Redfern, the designer who developed the new lamp Aero II Hybrid to the LED technology with micro-pyramidal optic (MPO+).

Do you currently have a favourite design object or project?
Chris Redfern: I don’t have a favourite object or project but, I find projects which have duration very interesting and fascinating, those objects which have longevity, but also have a certain mystery about them, make the objects almost sacred. Designing objects that last a long time is so difficult to do, for example, I find the furniture projects of Charles and Ray Eames intriguing. Projects which were designed so long ago and yet are still very successful and interesting today. The same applies to the simple Alessi oil & vinegar set by Sottsass which was designed in the late seventies. Apart from this aspect of an object being fascinating, I also think it’s an ecological approach to design.

The new Aero lamp is a true masterpiece. Why was the decision made to keep the existing design?
Chris Redfern: I wouldn’t say it’s sticking to an existing design, it’s more an evolution of a lighting technology and design concept. When the original Aero was designed in 97/98 the waveguide theory was the pinnacle of lighting technology at that moment in time. The product had this harmonious balance between it’s technology and it’s design. Now the next chapter has come along for Aero II with new LED hybrid technology and I want to use the thinking and approach of the original Aero to create the balance as before between the technology and it’s design, telling a story and creating an identity. Take for example the design of the car, you can see that it’s the same car concept from 20 years ago, but it has evolved with new technologies, mechanics and materials.

Did adapting the LED technology to the existing design bring about technical problems which had to be resolved?
Chris Redfern: There were a few technical issues to resolve, obviously with new technologies you have to accept that
Christopher Redfern was born in Great Britain. He graduated in 1993, obtaining his degree in graphic design from the Norwich School of Art & Design and the Fachhochschule Aachen in Germany. He then spent a period of time living and working in Hong Kong and China, designing toys and making the move into the industrial mainstream and mass-production. In the search for an alternative approach to manufacture, he moved to Italy where he studied for a Master in industrial design with an award from 'The Royal Commission for the Exhibition of 1851'. Following his study, he moved to Sweden where he worked as a furniture and industrial designer with the architect Thomas Erikson in Stockholm. In 1996, Redfern returned to Italy to collaborate with Ettore Sottsass & James Irvine at Sottsass Associati in Milan. In 1998, he became the design associate of Sottsass Associati and the principal designer of the studio. He is currently living and working in Milan and is designing projects for Sottsass Associati as well as for other companies.

There will be a few teething problems. For example the heat release was a big problem to resolve and also the uniformity and glare issues of the direct light. We had to be sure that a person could feel at ease whilst working under the luminaire. We wanted the light to be calm and gentle ... I think with the technicians and engineers at Zumtobel we’ve managed to create a very calm illumination.

**Which technical possibilities do you think will the LED technology offer in the future, also for a designer?**

**Chris Redfern:** LED technology has changed things, it’s been so interesting watching this technology slowly evolve into a serious light source. The O-LED technology is also compelling for a designer. The aspect I like about this technology is that it’s small and increases the possibilities and places of where to illuminate. Before LEDs, designers had to think so much about how to hide or make a huge lamp look good, but now I think that designers and architects can think more about the actual light and applications. We can now concentrate more about setting atmospheres, emotions, colour changes and writing the poetics of light for the comedy of life.

**In the end, what does the perfect luminaire look like to you?**

**Chris Redfern:** For the perfect luminaire I think you just have to look upwards, the way the sun goes down in the evening indicating time to sleep and increasing when the sun rises telling us it’s time to get up. The way it effects us emotionally, the way it changes colour – when it’s angry with dark greys and you know a storm is coming and when its beautiful and happy with pinks, blues and the pure white diffusion of the clouds. It’s so generic to us you don’t notice it’s there ... Only when you have to ....
„I am convinced that beautiful and intelligent design enhances our life psychologically as well as physically.“

Chris Redfern
“Knowest the house?
Its roof on columns fine, Its hall glows brightly and its chambers shine,
And marble figures stand and gaze at me (...)”

Johann Wolfgang von Goethe
It must have been right here, high up in the hills of the Gargnano, leaning on the trunk of an ancient olive tree, gazing at the brilliant blue of the lake, the air filled with the sweet scent of lemon trees. This is where the lines of Goethe’s most famous poem ‘Know’st thou the land where the lemon-trees bloom ...’ simply has to have sprung to his mind just like fresh fruit falling in his lap.

Even today, two hundred years later, the landscape around Lake Garda is just as fascinating. A perfect combination of steep cliffs and green hills, fragrant olive and lemon groves – pure magic. Or perhaps it is the beauty of the azure-blue water that captivates? This perfection of nature also won over the founders of the regional airline Air Dolomiti, Liliana and Alcide Leali. The first hotel of their new hotel label ‘Lefay’ was opened in the hills of the Gargnano some days ago.

The Lefay Resort & Spa Lago di Garda is not an ordinary 5-star hotel, but an extraordinary combination of luxury and sustainability. Building in harmony with nature, from design, utilisation of environmentally friendly building materials, to sustainable energy planning, is known by the term ‘bioarchitecture’ specifically coined by the architect Hugo Demez. “The unspoiled nature of the slope was both an incentive and a challenge for me. Our solution, to divide the complex into several units and partially integrate these directly into the slope resulting in energetic and visual advantages. The slope remains naturally green on the one hand, while less heat is lost through unnecessary façades”, explains Hugo Demez. The typical manor houses of the region with their ‘limonaia’, a conservatory for lemon trees, served as an inspiration for the architect in the design of the main building including the lobby and reception, as well as, a restaurant covered by a filigree glass roof. The Spa area consisting of two lower level floors covers a total area of 3,000m². Breaks for rest and relaxation alternate with fitness and exercise trails spread all over the 11 hectares of park landscape. The wellness programme is rounded off with personal medical care, massages, specific health treatment or acupuncture.
Regeneration and economical use of energy – this is the primary concept that completely dominates the Lefay. The hotel was awarded the environmental management standard ISO 14001 and the quality management standard ISO 9001 for ‘Development of Architectural Solutions for Innovative Environmentally Friendly Resorts’. Reference is made with great pride to an energy concept of several pages for buildings and outdoor facilities, prescribing minimum energy consumption and maximum utilisation of renewable resources. Individual building complexes and window areas are designed to achieve maximum solar gain in winter by means of efficient thermal insulation and utilisation of heat insulation glazing. Most of the thermal energy is supplied by means of a biomass heating system fired with wood chips. Thermal solar equipment on several flat roofs of the hotel contributes towards the generation of hot water for the sanitation system and the swimming pool water heating system.

Even the glass cupola of the dining area is fitted with photovoltaic modules serving both as energy supplying and shading elements. The fact that rain and swimming pool water is recycled and used for watering the green areas is a matter of course. Further potential for saving is offered by the lighting and shading systems. Zumtobel’s light management system Litenet Flexis calculates the precise quantity of light required in public areas by means of a daylight sensor, ensuring appropriate lighting or shading. Infrared detectors in the corridors cause lighting dimmed to a minimum value to be increased to a specific comfort level. Light and shade provided as required serves to create a pleasant atmosphere as well as helping to save energy.

The philosophy of fire and water is celebrated with numerous indoor and outdoor pools, a salt lake, steam baths and diverse saunas – cool water versus soothing warmth and intense heat.
Luxury and saving are therefore combined very effectively. The 90 suites are another proof of this fact. Direct integration in the slope reduces thermal losses, combined with an excellent view of the lake. The coherent design uses the finest Italian fabrics, precious marble, combined with local olive and walnut wood. Nothing superfluous, yet providing every convenience. The ingenuity of it all is that the saving going on in the background is perceived as luxury by the hotel guest. One secret lies in the innovative lighting control system by Zumtobel. Controlled by ZBOX, a light management system specifically designed for hotels and a transponder card, the curtains are opened automatically on entering the suite, welcoming the guest with a magnificent panorama.

Circle Control Points are adjusted to suit the particular position in the room and the lighting requirements. They are pre-addressed and fitted with appropriate pictograms. The guest can opt for one of three pre-programmed lighting atmospheres using a simple and intuitive system of operation.

The largest and most beautiful suite, the Lefay Exclusive Suite with 80 m² offers a fantastic panorama and ultimate luxury. Light colours and dark wood please the eye, while exquisite parquet strip design contrasts the minimalist furnishings.
The intuitive control system in the Lefay takes the guest by the hand, leaving a feeling that the lighting and technology system is able to anticipate personal requirements. Circle Control Points allow all the lights in the rooms and terraces to be switched on or off, dimmed as required, with pre-programmed moods and settings recallable at the push of a button. A Nightlogic function makes sure that switching the lights on after 10pm results in a soft illumination, making visits to the bathroom during the night in floodlight conditions a memory of the past. Bathroom lighting in Lefay suites is also controlled via ZBOX and Circle Control Points. Three different atmospheres can be selected by the push of a button: bright lighting, accentuated make-up lighting or romantic wellness lighting. Infrared detectors in the bathroom and hall areas control the light sources, and all the lights and electrical devices are switched off automatically when leaving the suite. The control system makes an important contribution to the positive energy balance of the hotel, as well as, looking after the personal comfort of the guests – luxury at the push of a button. In contrast, an emergency lighting system, Onlite CPS, is automatically switched on in case of a disruption of the power supply of the hotel. In this manner, control with Litenet Flexis and ZBOX also ensures the guest can find his or her way safely at all times.

‘Creare luoghi sognati’ – creating places that people dream of – that is the aim of the hotel owners Liliana and Alcide Leali. The Lefay in Gargnano is just such a place. Or to quote Goethe, in translation: “That is where I want to go.”

Lighting Solution
Public areas: LITENET FLEXIS Lighting management system, ONLITE CPS emergency light system, TECTON cove lighting / Hotel rooms: ZBOX Lighting control system
Ideal workplace illumination and decorative lighting object in one: the pendant luminaire Clearcell developed further by two. In the offices of the advertising agency Grey, the cover of the external ballast features the corporate colour orange.
CREATIVITY MEETS TECHNOLOGY

ONE CONCEPT – TWO SOLUTIONS
Creativity is a major asset of advertising agencies. The creative agency Grey also wished to emphasise this fact within their premises. Together with the interior designers Cossmann_de Bruyn, a concept was developed to allow the interior design of the office to express Grey’s brand message to both visitors and staff. The new head office in Düsseldorf was to convey the company’s philosophy to visitors as soon as they entered the building – in order to emphasize the function of the premises as a ‘place for ideas’, the city council was urged to rename the old address to ‘Platz der Ideen’. Barracks under a preservation order, consisting of a team house and two smaller outbuildings, were completely renovated and a new building was added to create an inspiring working environment for over 500 employees. The inherent colour of only four materials dominates the interior design: fibre concrete, flame treated steel, rubber and wool felt. These materials stand for clear and focussed communication.

Appropriate illumination is naturally an important aspect in this regard, influencing spatial character as well as ensuring good working conditions. The very deep rooms of the old building particularly required lighting that was both discreet and efficient. It became evident very quickly that no existing luminaire design was suitable for the new premises of the advertising agency. Partners, Claudia de Bruyn and Achim Nagel therefore developed a lighting system for this project that specifically aimed at mediating between a technical work lamp and emotional room lighting. For this purpose, the two architects took up an idea that they had been pursuing for some time. They were convinced that today’s conventional office lighting could certainly do with a facelift. The status of office luminaires is rather one-sided: long bands of aluminium radiating light upwards and downwards, bashfully hiding their own design.
“The lamps are hiding in a narrow light band of aluminium, as if their business of providing light was an embarrassment. We were determined to change this”, explained Claudia de Bruyn. With the development of the Clearcell luminaire, the two architects have managed to design a lamp that presents itself as a natural element of the room as well as providing visible evidence of its purpose. “This lighting system has an air of confidence and does not hide its purpose”, Achim Nagel commented satisfactorily on the result. “It’s great to be able to see where the light is coming from.”

The cooperation between ‘two’ and Zumtobel took less than ten months for the finished product to emerge from the original idea. Zumtobel’s complex knowledge of material and technology was indispensable in this process. It soon emerged that the desired translucent effect could be achieved on the basis of the technology of the high-bay reflector luminaire Copa. The micro facettted finish used consists of individual facets made of a composite material coated with vaporised aluminium. The absolutely identical and precisely calculated facets guarantee extremely homogenous light distribution. If a transparent material is used for the basic structure, the facettted finish gains a translucence that allows illumination of the luminaire housing itself using the identical lighting technology. The pendant luminaires are available in single- and dual-flamed versions with various outputs. A special design feature is the plastic cover of the ballasts which can be supplied in various colours, e.g. in the CI colour of a company. An attractive orange now glows at Grey’s – the corporate colour.

Clearcell pendant luminaires designed as a band of light ensure ideal illumination of computer screen workplaces, representing design elements in the room.
After the enormously efficient process of developing the pendant luminaire, a second building project for which this lighting concept also proved to be suitable came up during the realisation phase. The Kontorhaus and Oval at the Kaiserkai designed by the renowned architects at Ingenhoven Architekten is situated in one of the most exposed locations in the new Hamburg HafenCity project. The client wanted to realise an office and residential building complex close to the future architectural highlight ‘Elbphilharmonie’. In addition to modern architecture, the company specialising in harbour and conversion areas, Imetas GmbH, also attaches great value to innovative building technology. “We work with the latest developments in resource friendly utilisation of energy in all our projects. In order to optimise operating costs, we opted for concrete core activation in the case of the Kontorhaus”, explained Heiner Kropp, Managing Director of Imetas. The daylight optimisation and shading system for the 4,000m² of the building is fully automatic.

In order to achieve the flexibility required for an office building, the client selected a mixture of Clearcell standing and pendant luminaires. A variety of usage situations can be served in this manner. To achieve this, the pendant luminaire design was reduced by utilisation of compact fluorescent lamps to harmonically blend into any architectural situation. The upper shape is reflected by the base of the luminaire, forming an attractive counterbalance. The translucent material used frees the luminaire and makes it a point of visual attraction. This turns the luminaire into an architectural element itself, radiating a pleasantly soft atmosphere of light.

The Kontorhaus at the Kaiserkai was completely rented before completion: “That’s obviously also attributable to the innovative building concept and matching light solution”, commented Heiner Kropp of Imetas GmbH. Clearcell is used as a floor lamp (top) as well as a pendant luminaire (right) in the offices in Hamburg.
Lighting Solution
Office lighting Düsseldorf: CLEARCELL pendant luminaires, special model, LIGHT FIELDS surface-mounted luminaires, XENO spotlights, CLARIS pendant luminaires
Office lighting Hamburg: CLEARCELL pendant luminaires, CLEARCELL standing luminaires, SOLAR spotlights

“The product development process was an exciting exchange and an enriching experience. The great cooperation also benefited from the appreciation we found at Zumtobel.”

two
Claudia de Bruyn and Achim Nagel

The two architects founded the company in 2001 and have since been awarded many international design prizes, including the German Design Award for their ‘tec’ carpet. Product developments for Vitra, Carpet Concept, Vario and TTC.
www.two-product.com
Banishment is an ugly word. How could anyone even think about relating such a word to one of the most beautiful sources of light that we know? The wonderfully pleasant, warm, and excellently dimmable light of the incandescent lamp is to be phased out? Banned, like a 15th century criminal? The term ‘sustainability’ is traditionally a term used in forestry that hardly interested anyone for (too) many years, but which, for understandable reasons, has become a ubiquitous key word. Just to make things clear from the start: sustainable action should be a matter of principle for everyone and necessitates consistent action in many areas. But a world without an incandescent lamp?

The magically conciliatory atmosphere of a clear 15W ES is to be replaced by a ‘warm white’ compact fluorescent lamp (CFL). That at least, is the intention of the industry’s marketing concepts and production targets. As a lighting designer, I simply cannot approve of this, until an equivalent replacement has been developed - if this is at all possible, of course. The incandescent lamp is accused of being a pure thermal radiator – uneconomical, inefficient, inadequately effective – simply outdated. What with all the press information about the ‘energy-saving bulb’, I wonder who forgot to inform the general public about the immensely high cost of energy involved in the production of and the not unproblematic disposal of this alternative? Which consumer is aware of the fact that the colour ‘warm white’ will never reach the quality of an incandescent light bulb and who knows that fluorescent lamps should only be used with an external ballast to operate really efficiently?

The International Association of Lighting Designers (www.IALD.org) has published a ‘Position Statement’ on the planned banning of the incandescent light bulb. Some of the core statements include: “There is presently no lighting technology that can replace certain types and uses of incandescent lamps. There are still drawbacks such as poor colour, bad dimming performance, and high cost that make replacement technologies ineffective replacements for incandescent in some applications. A grace period is needed to allow the development of light sources that can replace incandescent in all applications. Replacement lamps must be cost-effective. The most efficient electric light source is the one that is turned off. Effective use of daylight and aggressive use of lighting control technologies will be needed to significantly reduce lighting energy use.”

I was in Los Angeles recently and noticed that the entire exterior airport lighting was switched on during a bright sunny day. What was the reason for that I wonder? I guess an important energy saving aspect was obviously not taken into account. Good lighting design. Amazing amounts of energy could be saved in a project of this size by daylight control, daylight utilisation and intelligent lighting control. The tremendous light pollution in the capitals of the world, too much unused scattered light – that truly is a waste of energy on a gigantic scale. In the face of that, we are now expected to do without our most beautiful illuminant? The LED is sure to replace many conventional technologies, but even in this case it will take some time until a long-term coordination of technology, requirement and design can be achieved. The new LED street lighting in New York will be really interesting, since one of the largest saving potentials lies in the lighting of our cities. Office buildings are large energy consumers, where utilisation of the incandescent lamp is no longer an issue. The proportion of electrical energy consumed by lighting in private households in Central Europe is a mere 8%. How much of these 8% are likely to attribute to incandescent lamps? Is it really worth the fuss?

1978–81 Joiner and cabinetmaker training, first lighting and furniture designs.
1982–85 Product and exhibition design as part of the Ingo Maurer team.
1987–89 Freelance designer in Milan and Berlin.
1989–98 Lighting design and graphic design for Ingo Maurer, projects in Europe, USA, Asia.
1996 Establishment of pfarré lighting design in Munich.
Professional Member of the International Association of Lighting Designers IALD, Chicago.
2002–05 IALD Committee Member. Member of the German Work Federation (Deutscher Werkbund).
ZUMTOBEL HIGHLIGHTS
A large Zumtobel Highlights tour specifically intended for all customers unable to see the new product developments at the Light & Building 2008 in Frankfurt personally, started in September. The Highlights use a transportable version of the multi-application cube design that proved to be so successful at the exhibition stand. The Humanergy Balance concept with four key application areas Art and Culture, Hotel and Wellness, Presentation and Sales as well as Office and Communication will be on show at over 40 locations all over Europe. In addition to an informative product presentation, customers can look forward to an entertaining performance on the subject of Space, Time and Light.

www.zumtobel.com/highlights

HOMMAGE TO DAVID CHIPPERFIELD
David Chipperfield is one of the most significant architects of our time and particularly renowned for his museum buildings. His architectural designs are characterised by coherent spatial proportions, authentic material and light. His great interest in location and people is reflected by an intensive consideration of each particular building project. In addition to his work as an architect, Chipperfield is also active as a highly competent product development consultant for industry. This is how the new lighting series Arcos, particularly designed for use in museums, galleries and exhibitions, came to exist in cooperation with Zumtobel. Zumtobel displayed current David Chipperfield projects under the title ‘Recent Work’ in the Dornbirn Light Forum this summer, honouring the architect’s work in a very special setting. The exhibition included his outstanding architectural projects of recent years as well as his industrial design work.

www.davidchipperfield.co.uk

In a fascinating performance, visitors will experience the dimensions of time, space and light, and artificial light as the perfect supplement of daylight.

(Photos: Zumtobel)
Architecture of Change is a fascinating book on the subject of sustainability in architecture based on the Zumtobel Group Award for Sustainability and Humanity in the Built Environment. The book presents projects that in addition to their exceptional architectural quality make a notable contribution to a liveable and sustainable future. The book includes projects by Morphosis, Steven Holl Architects, Sauerbruch Hutton, SMC Alsop, Rural Studio, Urban Think-Tank, Architecture for Humanity, Werner Sobek, Engineers without Borders and many others, as well as essays on current initiatives by and interviews with internationally renowned experts in architecture, science, economics and politics. The book by Kristin and Lukas Feireiss is published in English, includes many coloured images on 304 pages and costs €49.90 ($75.00; £37.50).

ARCHITEKTUR-BIENNALE VENICE
The Venice Biennale is one of the most important international architecture and urban development exhibitions. Held for the eleventh time, the dates to remember this year are 14 September to 23 November. Current developments and trends in architecture and related disciplines are going to be presented and discussed in the context of ‘Out there. Architecture Beyond Building’. Zumtobel is involved in two projects this year, one is in support of the German contribution to the Biennale ‘Updating Germany’ that is concerned with the protection of resources, therefore taking up a core issue of the company, and the other is Zumtobel’s illumination of the presentation by the architect and artist Hani Rashid.

The installation 64kW by the Austrian light artist Siegrun Appelt is on show in the German pavilion. The artist wants to draw the attention of visitors to ways of saving light and energy with 32 spotlights of 2,000W each. Various cooperations allow the installation to be run with ‘neutral consumption’: the lights at the Brandenburg Gate in Berlin are turned on and off according to a choreography by the artist.

Sieggun Appelt is exhibiting installation 64kW in the German pavilion. In order to offset the energy required for the installation, the illumination of the Brandenburg Gate in Berlin is switched on and off according to a choreography by the artist. (Photos: Christian Richters)

Zumtobel is also involved in Hani Rashid’s presentation in the Arsenale (bottom).

Three works reminiscent of the early days of experimental architecture in which the boundaries between architecture, technology and art were still wonderfully blurred are presented by Hani Rashid as ‘Three Houses for the Subconscious’ in the Arsenale. The backlighting with fluorescent lamps using two different colour temperatures imparts the works with an almost floating character and a very special atmosphere.

www.labienale.org
ZUMTOBEL AT THE 4TH GOTTFRIED VON HABERLER CONFERENCE

The 4th Gottfried von Haberler conference was held at the university ‘Hochschule Liechtenstein’ in Vaduz on 26th September 2008. The international elite from the worlds of science, business and politics considered a politically explosive topic this time: the latest in environment, climate and energy issues and possible alternative solutions.

The organizer of the conference is the ‘European Center of Austrian Economics Foundation’, with Prince Michael of Liechtenstein as president. The aim of scientific discourses such as the conference is to promote the study and dissemination of the ideas of personal responsibility as well as economic and social freedom.

Zumtobel took part in the event with an exhibition cube presenting efficient utilization of energy by modern lighting systems and lighting management. A live presentation offered conference attendants an opportunity to convince themselves of the potential saving that can be achieved by lighting systems through the use of innovative lighting systems and modern lighting management.

DESIGNERS’ SATURDAY

Designers’ Saturday was held for the twelfth time in Langenthal on 8–9 November 2008. For one weekend, the small Swiss town once again turned into an international meeting place for architecture and leading design. Presentations by numerous internationally famous companies in various exhibition areas accompanied the cartes blanches, spatial scenarios and research projects of design schools and designers. The great atmosphere at Designers’ Night on Saturday evening has become an established feature of Designers’ Saturday. Zumtobel took part with a stand in the premises of Glas Trösch.

As opposed to a furniture exhibition, Designers’ Saturday intends not only to provide an overview of new products, but to allow visitors an insight into the depths of the world of design and to inspire by means of installations, unconventional presentations and prototypes. A new feature: four D’S Awards 2008 went to the best presentations this year, in the categories best room, best theme, best booth design and best dramatic presentation.

www.designerssaturday.ch
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www.zumtobel.com/HumanergyBalance