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Light lends architecture an additional design dimension, and every form of architecture is unique. As a result, ERCO develops lighting tools for specific applications. The product ranges are based on a system concept, allowing designers to easily choose the ideal technology for their projects irrespective of the luminaire design. With 'ERCO individual', we also offer extensive options for individualising luminaires. The fact that ERCO develops and manufactures in Germany guarantees the maximum precision and quality of our lighting tools – one more reason why we call ourselves the Light Factory. But is the metaphor of a factory not slightly outdated in the era of digital light?

Actually not at all. Whilst development work for our LED innovations may, in some ways, be more representative of the agile, networked approach of digital start-ups, we combine this with the deep-seated experience of a traditional industrial company that enables us to concentrate on what ERCO has always done best – perfecting architectural light with ultimate precision. The fact that design, production and assembly are all carried out under one roof simplifies our interdisciplinary dialogue and enables maximum quality. Supported by our international network of

ERCO lighting consultants, the latest requirements consistently flow into our development processes. As a consequence, ERCO pays attention to the needs of architects, lighting designers and electrical contractors, offering innovative lighting solutions for eight specific application areas:

Work	light for office and administrative buildings
Culture	light for museums and galleries
Community	light for public buildings
Shop	light for worlds of shopping
Contemplation	light for sacred buildings
Living	light for residential spaces
Public	light for outdoor facilities, bridges and memorials
Hospitality	light for hotels and restaurants

Light is the fourth dimension of architecture.



ERCO is a leading international specialist in architectural lighting, using 100% LED technology. The family-owned business in Lüdenscheid in the heart of Germany operates as a global player with independent sales and partner organisations in around 55 countries.

Founded in 1934, ERCO pioneered architectural lighting across Europe in the 1960s, and today, less than 50 years later, is the first established luminaire manufacturer with a portfolio based entirely on LED technology. Around 1,000 committed and dedicated ERCO employees worldwide ensure that LED technology is developed from a pure technology into a sophisticated lighting tool – because perception-orientated lighting design, implemented in the context of efficient visual comfort, is our mission.

Focus at ERCO is given to open, interdisciplinary and international cooperation: Whilst our ERCO luminaires are developed and produced carefully and with an eye on the future by our team at the Lüdenscheid Light Factory, our competent and motivated lighting consultants at international ERCO sales offices ensure that they are used in thousands of different applications around the globe.

We would be delighted to offer you the possibility of experiencing ERCO lighting tools in operation: in any of our ERCO showrooms worldwide as well as in workshops at our headquarters, and of course at trade fairs and other industry events.

Simply contact us:
www.ercos.com/service



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 Complete planning information, new features for selecting products and comprehensive knowledge modules make ercos.com a key planning instrument for architectural lighting.



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Top: Welcome to ERCO – here at the Lüdenscheid technical centre in Germany. Right: The international ERCO team discusses innovations and current lighting issues at the Light & Building trade fair.





Light is essential. Light is poetic. Light provides atmosphere and orientation. People have always used light as a way of creating harmonious places. ERCO understands light as the fourth dimension of architecture. As a design feature in its own right, light can model space and objects using different levels of illuminance and significantly alter the nocturnal appearance of architecture.

The ERCO product range is based entirely on LED technology. Our lighting tools are developed in close collaboration with architects, lighting designers and electrical consultants. Intensive dialogue with the industry stakeholders gives ERCO a clear, realistic and yet also a visionary idea of what the designer requires. Creative thinking inspires us and we want to share this inspiration. We see our role as lighting consultants, working in the background to support designers in the implementation of their concepts with targeted solutions.

Qualitative lighting design

ERCO lighting tools provide the creative scope required for the lighting design of complex building projects. With this in mind, our products are developed on the basis of a perception-orientated approach to lighting design. The American lighting designer Richard Kelly (1910-1977) subdivided light into three categories for qualitative lighting design: ambient luminescence, focal glow and play of brilliants. This "language of light" is an optimal solution for illuminating architecture, from large open-plan offices and boutiques to libraries, in a user-friendly way. Experience shows that lighting concepts are judged to be particularly successful if all three components – general lighting, directed accent light and decorative light – are combined in a balanced ratio. With a variety of light distributions, warm white and neutral white light, different construction sizes and lumen categories, the ERCO luminaire system design offers all components required for nuanced and user-focused lighting concepts.

For further information see: www.erco.com/lightfinder

The "grammar of light".



Light for seeing designates simple general lighting. It enables users and observers to find their bearings and provides them with a feeling of safety.



Light for looking at represents accent light that highlights objects, surfaces and spatial zones and creates hierarchies in perception. It is a primary consideration in the scenographic illumination of art and fashion, façades and monuments which are intended to attract attention.

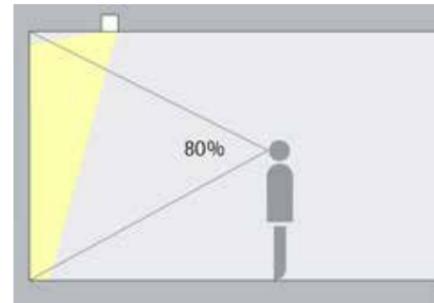


Light for viewing is decorative light, light for admiring or an aesthetic end in itself. It also includes light effects with coloured light, decorative luminaires and objects of light art.



Lighting needs energy. Manufacturers, designers, engineers and users are obliged to use limited resources to the greatest effect. ERCO addresses this challenge by consistently launching highly efficient LED technology.

For ERCO, efficient visual comfort (EVC) means continuously improving not just energy efficiency but also the quality of light with the use of innovative technical concepts enabling sustainable design. EVC, as a strategy, rests on the intent of designing light with focus on the user based on the principles of human perception, requirements of the space and efficient glare control, thereby minimising energy usage. We have defined five quality factors that describe efficient visual comfort at ERCO.



The five quality features for efficient visual comfort

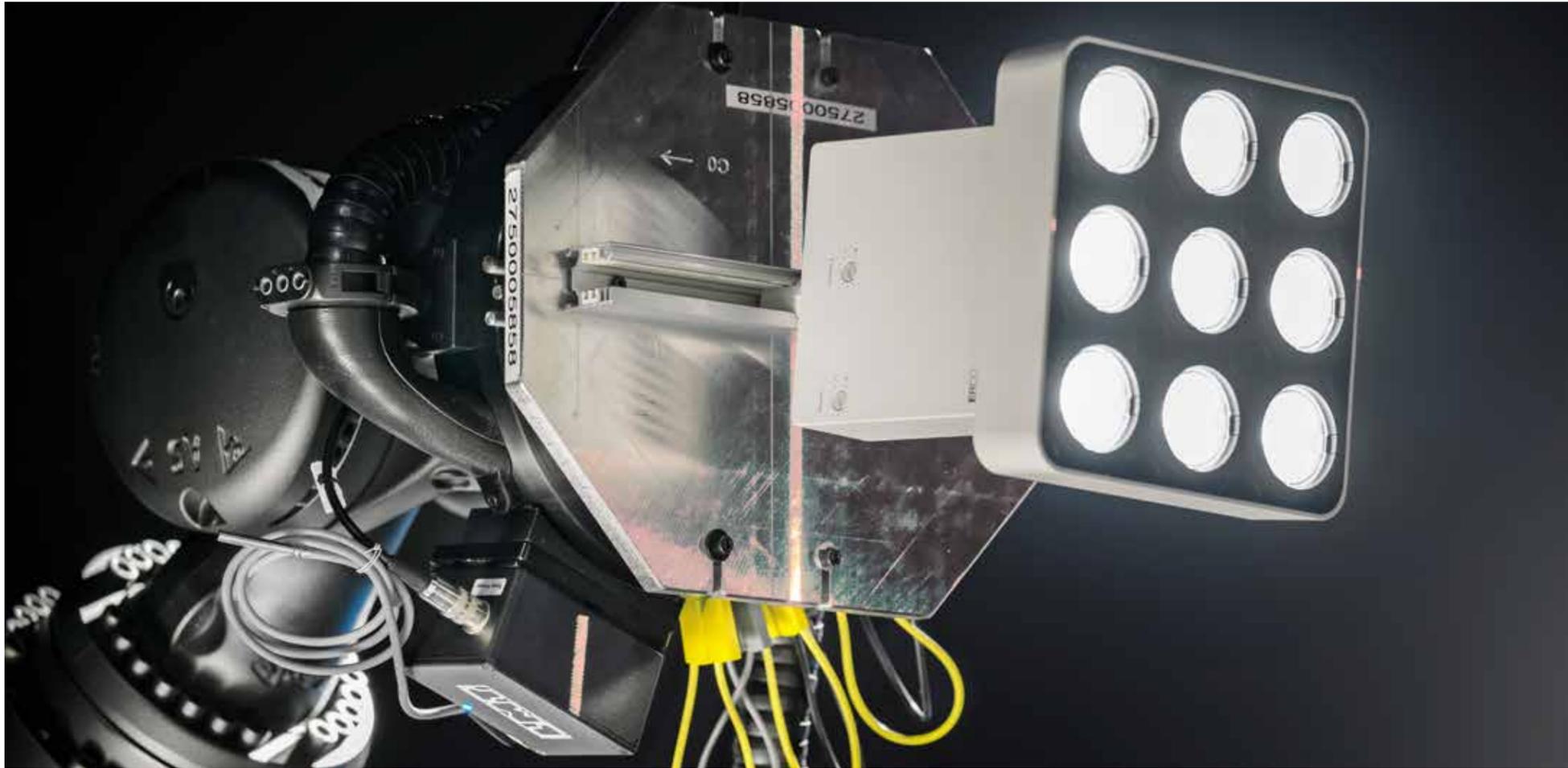
1 Qualitative lighting design
 In putting people at the heart of its strategy, ERCO develops and designs its products with focus on a careful, perception-orientated approach to lighting design. ERCO lighting technology uses light to create hierarchies of perception and specifically, to ensure optimised performance of the visual task at hand. Qualitative lighting design centres on vertical illuminance and accentuation, as well as glare control. Glare-free surroundings with consistent levels of luminance are easier on the eye, eliminating the need to adapt constantly to changing lighting conditions. This enables the designer to produce an energy-efficient solution based on lower illuminance levels and subtle contrasts.

2 Vertical lighting
 Due to the natural orientation of our visual field, the vertical planes of an environment constitute around 80% of our perception, making them far more important to the subjective perception of brightness than the light on horizontal surfaces. Vertical illuminance, therefore, is a characteristic feature of well-designed and economical lighting concepts. ERCO offers an exceptionally wide range of appropriate lighting tools. Our wallwashers produce a wide and spacious impression of the room whilst reducing visual contrasts

3 Effective lighting technology
 Efficient, precise optical systems lower the energy requirement for lighting. A comprehensive array of solutions ensures optimised light distribution for specific lighting tasks. This extends from the asymmetrical wallwasher to various spot-light characteristics. ERCO lighting tools offer highly effective technology designed to direct the light specifically onto surfaces relevant to perception. The projected light of LEDs, combined with the high-quality lens systems provided by ERCO, ensures significant efficiency advantages over conventional light guidance via reflectors.

4 Intelligent control
 ERCO offers luminaires for different control technologies, such as DALI, Casambi Bluetooth and phase dimming. This makes scenic lighting intuitive, uncomplicated and accessible. Typical scenarios include the use of presence detectors to dim or switch off lighting in unused rooms. Similarly, ambient lighting sensors or analogue daylight sensors can be used to call light scenes for supplementing the available daylight. ERCO lighting tools, thanks to in-house developed control gear, feature optimised dimming behaviour, are mostly suitable for film recording and can be continuously dimmed down to 1%.

5 Efficient LED technology
 ERCO's accomplishments and leading role in architectural lighting with LED are based on the decision to draw on its own expertise in optoelectronics. Due to in-house development ranging from LED PCBs and electronics to thermal management, ERCO always has complete control over the features of all products. Therein lies the basis for the efficiency of our luminaires and the principle at the core of each and every ERCO lighting tool: specifying the highest standards for our LEDs, based on criteria such as colour rendering and constancy, luminous flux and thermal stability, enables us to guarantee consistently exceptional quality in terms of luminous efficacy and durability.



Today, the architectural lighting branch is well on the way in its migration to LED technology. The focus is now on exploiting the full potential of state-of-the-art lighting technology in all areas of creative lighting – from shops to offices and administration buildings through to museums. ERCO has taken the lead in opto-electronics, by developing LED products in response to the lighting requirements of modern architectural, cultural and corporate projects.



The strengths of our ERCO LED technology

LED modules

ERCO is known for its perfectionist approach to details: We source the best LEDs available in the market from reputable manufacturers – specifying the highest standards of luminous efficacy, colour rendering and consistency, luminous flux and forward voltage. In this way, we guarantee the problem-free combination of different ERCO luminaires. Utmost attention is given to the LED PCBs as the basis for the specific characteristics of the relevant lighting tool. Based on state-of-the-art LED technology, ERCO develops and assembles its PCBs in-house. This approach enables us to guarantee a consistently high quality in all product details.



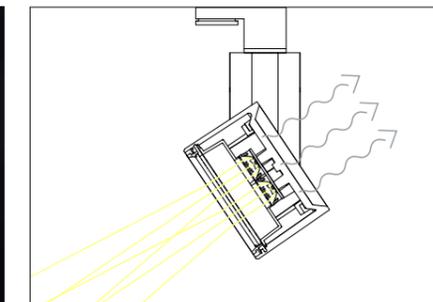
Long functional life: L90/B10

Lumen maintenance is a critical performance metric for luminaires and explains our focus on ensuring the best values for the LEDs in our products. ERCO therefore uses high-power LEDs with the specification L90/B10 for a very consistent lifetime performance, supported by advanced thermal management in great lighting tools. This means up until 50,000 operating hours, at least 90% of all high-power LEDs used by ERCO emit more than 90% of their initial luminous flux. During this time a maximum of 10% of LEDs are permitted to fall below this (L90/B10). These LEDs have an L90 specification for 100,000 operating hours. Our focus on the highest quality means that ERCO LEDs exceed the standard specification currently used in the market, offering the lowest possible maintenance requirements for the highest possible efficiency of our lighting tools.



LED lenses

As the quality and design of the lenses significantly affects the performance of an LED luminaire, we have invested considerably in superior lens systems. Be it shops, offices or exhibitions: ERCO has developed optimised lighting systems to meet the various lighting requirements. This includes solutions such as the modular lens system with Spherolit technology and the economical compact lens that ideally exploit the potential of LED technology. Understanding the effect of light distribution in a concept, we apply ourselves to providing the widest array of precise photometric options to support nuanced lighting designs.



Thermal management

Thermal management is a key design factor in ensuring the longevity of LEDs and electronic components, and ultimately, in optimising the lumen maintenance of the luminaire. ERCO uses passive heat sinks that dissipate heat through convection, ensuring efficient and quiet operation. All our LED modules are designed to operate comfortably within their approved temperature range to achieve their rated life and output for the specified power throughout their entire operational life. As a result, thermal management at ERCO contributes to implementing an effective and sustainable lighting concept.



Control gear

ERCO's luminaires are always provided as a unit, with matched, pre-connected control gear. The control gear is precisely matched to the relevant LED module to ensure maximum efficiency of the LED over the specified number of operating hours with high luminous power. Every combination of luminaire and connected control gear is tested in-house so the user is ensured ideal operation and safety, including full compliance with EMC (electromagnetic compatibility) requirements. Due to quality reasons, ERCO increasingly uses in-house developed control gear. As a result, DALI control gear for example can be continuously dimmed down to 0.1%, and thanks to constant current dimming is also suitable for film recording.

Simplicity



Jilly for track



Jilly square, recessed and surface-mounted



Jilly linear, recessed and surface-mounted

Product design

ERCO's compact system design blends into both classic and modern architecture. Based on simple geometric shapes, all product ranges are easy to combine with each other and in different sizes. The enormous range of lumen packages covered by ERCO lighting tools gives the designer flexibility to execute projects of any scale and complexity.

The ERCO luminaire system

As important as light is for human perception, its significance is difficult to measure and compare in daily life. As a unique selling point in the market, ERCO explains complex lighting technology in a way that makes it easy to understand and operate. Focused on the user, ERCO lighting tools guarantee consistent quality, compatibility and comparability. This simple luminaire system, applied to our product range, provides all our partners with true added value.

Consistent light quality

Through strict specification of the optoelectronic components, ERCO guarantees outstanding quality of light in terms of colour rendering, colour temperature, colour locus and luminous flux. There is an ideal light colour and colour rendering for every application. ERCO therefore offers different LEDs and up to eight spectra in its standard programme.

ERCO light distributions

Lighting concepts are as diverse as the architecture, the exhibition or the brand for which they are developed. In order to meet the different demands on light, ERCO offers specific application-oriented lens systems with different light distributions based on an easy-to-understand system. This includes a broad spectrum of beam characteristics, such as the full bandwidth from narrow spot to flood and oval flood through to wallwash for spotlights. These optionally create efficient ambient lighting, uniform wallwashing or directed accents.

Downlights for track

ERCO has set itself the goal of constantly rethinking and improving its lighting tools. For example, the new downlights for track offer a flexible alternative to classic recessed downlights for office and administrative buildings. The combination of downlight and track enables lighting solutions that can be optimally adapted to changing furniture arrangements at any time. They can also be quickly and easily disassembled and taken away in the event of a move.

ERCO light distributions
ERCO's product range includes a broad spectrum of precise light distributions: from focused narrow spot and highly efficient extra wide and linear beams through to uniform wallwashing.



Light approached systematically – and designed for practical diversity.

ERCO lighting tools



Jilly – highly efficient and standard-compliant office workplace lighting with track as a flexible basis.

www.erco.com/jilly

Compar – Differentiated light from the ceiling in an innovative design

www.erco.com/compar



Diversity of technology for indoors and outdoors

Be it spotlights for accentuated exhibits and fashion, flexible downlights for track as pleasant office lighting or wallwashers in long office corridors – ERCO's product range offers a comprehensive set of tools for qualitative lighting design in any application. Extending the design concept to the outdoor area, we have launched digital projectors, floodlights and wallwashers delivering excellent performance with a level of efficiency and glare control that may impress even experienced designers.

The diversity of our photometric technology and design options enable architects, lighting designers and electrical consultants to develop a holistic concept of indoor and outdoor lighting with ERCO luminaires.

More information at www.erco.com/products

Atrium double focus – sophisticated lighting for room heights of 6m and more

www.erco.com/atrium



Kona – high luminous flux and maximum visual comfort for outdoor lighting tasks.

www.erco.com/kona



Castor – a lighting tool for paths and squares, which with Dark Sky technology fulfils the requirement of high visual comfort.

www.erco.com/castor

Tesis – an innovative pioneer in outdoor lighting.

www.erco.com/tesis





ERCO has its manufacturing base in Germany. By carefully accompanying the processes in our production facilities and with on-location assembly, we guarantee high efficiency and outstanding quality. This applies both to our series products and to customer-specific product solutions, whether this involves photometric precision for illuminating art, low-maintenance operation for public buildings, the necessary visual comfort for worlds of work or high luminous efficacy for retail applications. With our "ERCO individual" service we offer you extensive options for the individualisation of series products as well as support in the development of sophisticated special luminaires. To better adapt your luminaires to your project requirements, further variants are also possible in addition to series configurations, e.g. alternative LEDs, over 10,000 additional housing colours and individual mounting solutions.

Lighting tools according to your needs.

Selected projects with customised lighting solutions



Particularly slender facade luminaires for a highly special glass facade
The glass shell lends the Société Privée de Gérance building a uniquely prestigious character at night within its urban context. To integrate the lighting technology inconspicuously between the glass lamellae, ERCO individual has developed a new luminaire with very compact dimensions.



One luminaire for all trade fair locations
The lighting technology for the Grand Basel Motor Show must not only be portable and capable of repeated assembly and disassembly, but must also comply with regulations and safety requirements and be compatible with the mains voltage. The 'ERCO individual' experts have developed special control gear for this purpose. Special LEDs with 5700K light colour were specified to create a daylight-similar impression.



Taxi yellow for the New York Times
For all new buildings in Times Square, local regulations stipulate a lighting code that corresponds to this special location in terms of brightness, colour and dynamics. The lighting technology of the spotlights was perfectly suited for the extremely high facades of the New York Times building. At the request of the lighting design office OVI, the ERCO luminaires mounted in pairs on the base storey were coated in the special colour "New York Taxi Yellow".



Precise light for democracy
Lighting in the Reichstag plenary hall is a balancing act between the comfort requirements of Members of Parliament and the technical requirements of television cameras. Together with lighting designer Claude Engle, a high lumen-output spotlight with very good glare control was developed. Precisely aligned and individually focused, they now provide the right light in the plenary hall.



High lumen-output projectors
The lighting concept of the Louvre-Lens aims at a constant illuminance level. Highly efficient contour spotlights supplement the daylight and crisply illuminate the works of art. To ensure a high level of visual comfort for visitors, the custom-made optic is shielded on its sides to prevent glare.

Diversity with light in indoor and outdoor spaces

All forms of architecture, both indoors and outdoors, require an independent lighting concept. ERCO has many years of experience in the design-oriented illumination of architecture and objects in a variety of architectural sectors and provides state-of-the-art LED technology for this purpose.

We have detailed the individual benefits of ERCO LED lighting tools for modern office, retail, museum, airport and facade lighting on the following pages. As part of this, we respond to the most important issues concerning lighting with LED within the context of our eight essential fields of application.

More at:
[www.erco.com/
anwendungen-planen](http://www.erco.com/anwendungen-planen)



Indoor and outdoor lighting for our fields of application



Work
Light for offices and administrative buildings
www.erco.com/work



Culture
Light for museums and galleries
www.erco.com/culture



Community
Light for public buildings
www.erco.com/community



Shop
Light for worlds of shopping
www.erco.com/shop



Contemplation
Light for sacred buildings
www.erco.com/contemplation



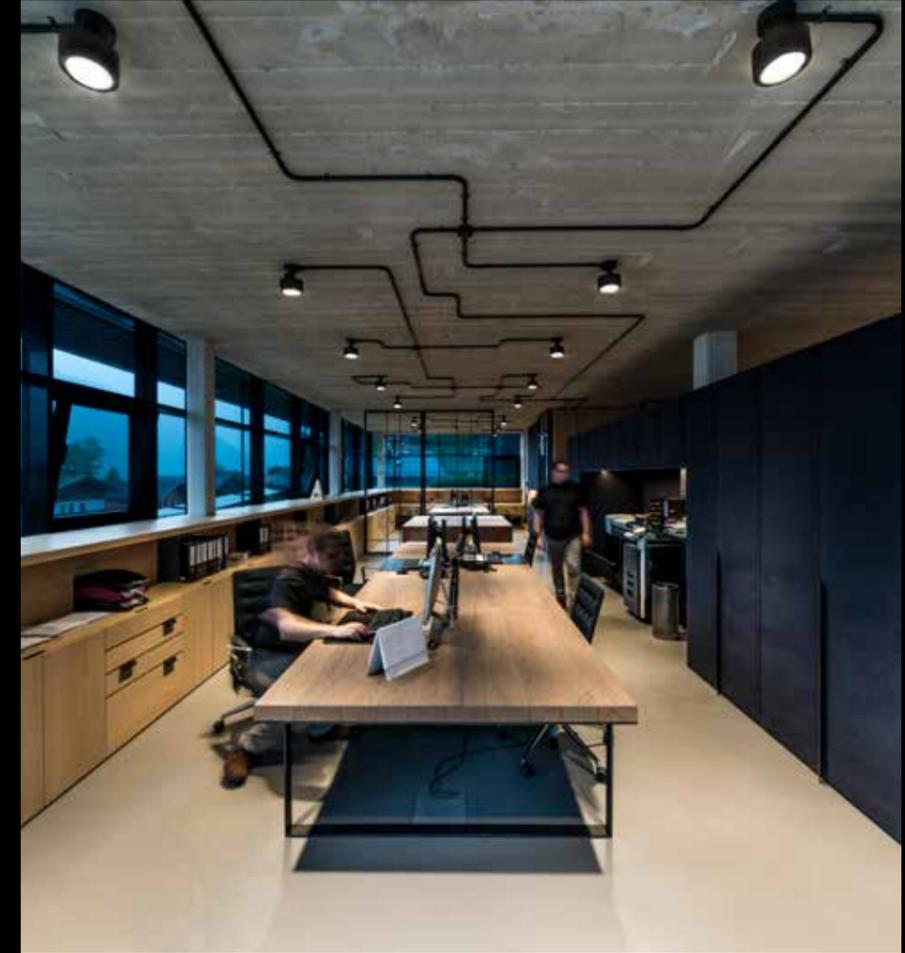
Living
Light for living quarters
www.erco.com/living



Public
Light for outdoor facilities, bridges and memorials
www.erco.com/public



Hospitality
Light for hotels and restaurants
www.erco.com/hospitality



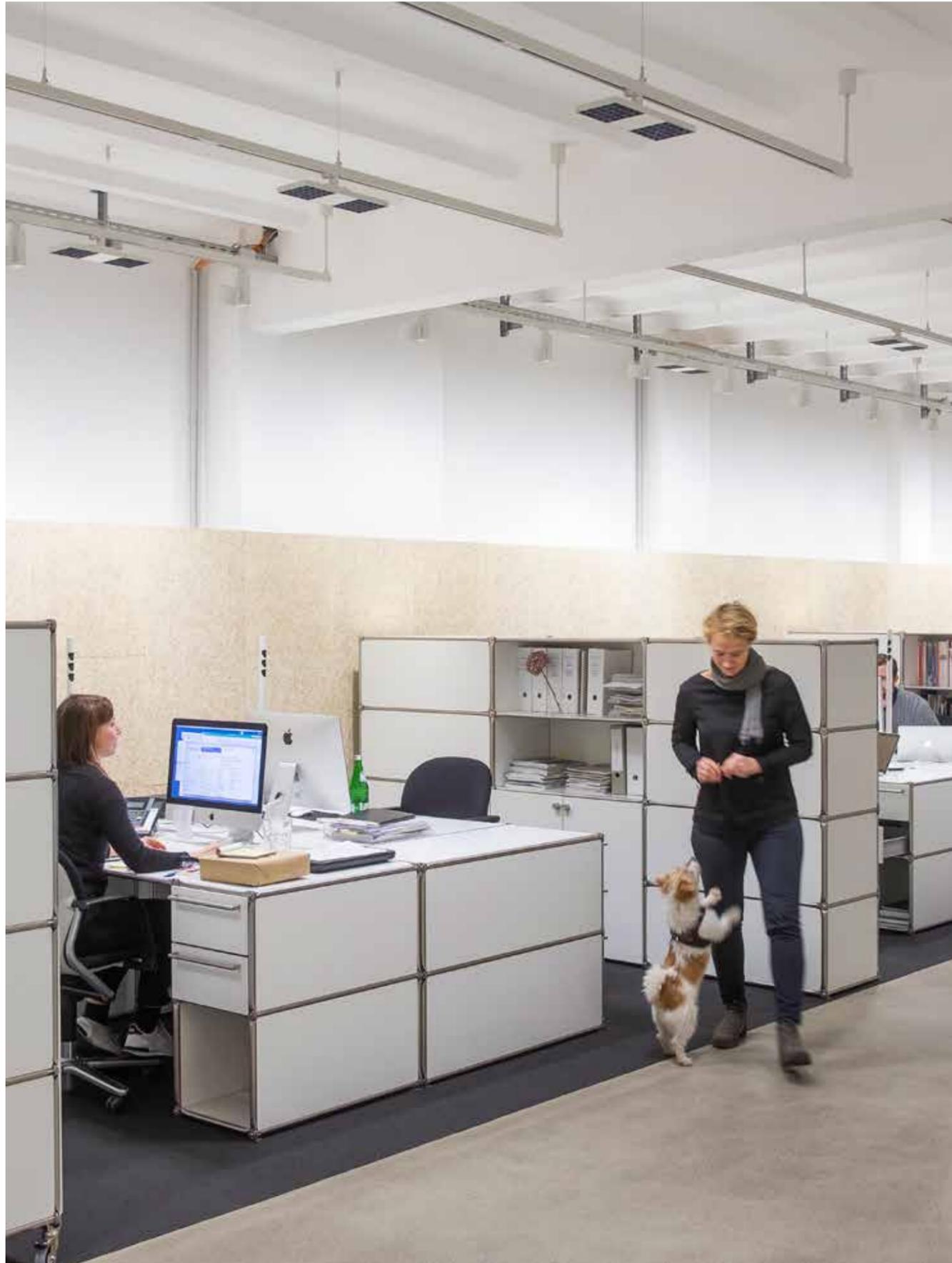
Bernd Gruber, Stuhlfelden, Kitzbühel / Austria.
 Architecture: Stöckl Egger und Partner, Kitzbühel & Saalfelden / Austria.
 Photography: Gustavo Allidi Bernasconi, Vienna / Austria.



BSkyB, London / Great Britain. Architecture: Alexandra Steed Urban, London. Lighting design: Arup UK, London. Photography: Lukas Palik, Düsseldorf / Germany.

Ingenhoven Architects, Düsseldorf / Germany.
 Architecture: ingenhoven architects. Lighting design: Tropp Lighting Design, Weilheim / Germany.
 Photography: Thomas Mayer, Neuss / Germany.

Faerber Architekten GbR, Mainz / Germany.
 Architecture: Faerber Architects. Photography: Lukas Palik, Düsseldorf / Germany.



Concentrated work demands pleasant work surroundings with high visual comfort. As well as appropriate illuminance levels, this also includes optimum glare control and the balancing effect of vertical illuminance. With this in mind, ERCO has continually optimised its lighting tools to combine powerful and effective lighting technology for high light output ratios with optimum glare control. A particular strength of ERCO is its downlights for track – an attractive and flexible alternative to linear luminaires and recessed downlights.

1 In which phase of an office project does lighting design become crucial?
 Digital light is the fourth dimension of architecture – it is therefore a crucial part of the planning process, particularly in challenging spaces such as offices. Our global teams of lighting consultants support creative and technical designers from the first stages of the concept with project-specific advice. Each lighting concept can also be viewed before implementation in our showrooms or by organising mock-ups on site. Our knowledge of the complexities of a building process is reflected in the system design of our products: separate installation components for dry construction and electrics, such as mounting rings for downlights, optimise the logistics on site.

2 Is there office lighting that can be flexibly adapted to various desk arrangements?
 In modern, dynamic working environments in which office layouts are constantly changing and adapting, downlights for track achieve the flexible, efficient and standard-compliant lighting of workplaces. Thanks to mounting on track, these downlights can be optimally aligned, reconnected and even taken to the new location in the event of a move. Nuanced light distributions such as oval flood and oval wide flood illuminate office workplaces, conference rooms and circulation zones, whilst wallwashers create a generous impression of space.

3 How can light be conducive to an environment for concentrated and productive working with high visual comfort?
 Uniformity, high vertical illuminance levels and very good glare control – the strengths of all ERCO downlights – are the preconditions for ergonomic light at places of work. The enhanced visual comfort of an oval light distribution for desks is supported with uniform wallwashing. Combining bright vertical and horizontal surfaces also creates a balanced contrast that prevents premature eye strain. In addition to this, the glare-free light of downlights and wallwashers enhances the impression of brightness in the room and supports orientation.

4 What makes office lighting economical?
 Nuanced light distributions within an ERCO luminaire family enable application-oriented and therefore economical solutions: the ERCO downlight lens technology improves the efficiency of the optical system by guiding the light precisely onto the target surface without spill light. Optimised thermal management, ERCO control gear and LED modules with high long-term lumen maintenance enable efficient lighting systems with low maintenance. Oval flood distributions enable wide spacing between the luminaires with workplace lighting, thereby reducing the connected load of the installation.

ERCO lighting solutions for offices and administrative buildings
www.erco.com/work



mai public relations
 GmbH, Berlin / Germany.
 Photography: Sebastian
 Mayer, Berlin.



The Polygon Gallery, Vancouver / Canada. Architecture: Patkau Architects, Vancouver. Photography: Moritz Hillebrand, Zurich / Switzerland.

Axel Vervoordt Gallery, Wijnegem / Belgium. Architecture: Tatsuro Miki. Photography: Thomas Mayer, Neuss / Germany.



Yves Saint Laurent Museum, Marrakesh / Morocco. Architecture: Studio KO, Paris / France. Scenography: Christophe Martin, Paris. Lighting design: Lisa Ishii. Photography: fotografieSCHAULIN, Hamburg / Germany.



Esti Rahva Muuseum, Tartu / Estonia. Architecture: DGT (Dorell, Ghotmeh.Tane), Paris / France. Lighting design: Hedengren AS. Photography: Johan Elm, Stockholm / Sweden.



Effectively staging artwork and scientific objects in exhibitions, naturally in the best possible light, is defined as much by the core curatorial requirements as by the cultural environment and the zeitgeist. We have developed a wide range of LED spotlights with Spherolit lens technology to give exhibition organisers the broadest possible scope for design, from the neutral presentation of objects through to dramatically accentuated items. For decades, ERCO has given focus to the perfect perception of art enhancing it with precise and efficient lighting technology to preserve the art while rendering it in brilliant colours.

The Feuerle Collection, Berlin / Germany. Architecture: Jon Pawson, London / Great Britain. Lighting design: Désiré Feuerle, Berlin. Photography: Sebastian Mayer, Berlin.

1 How does light emphasise the effect of art?

Light quality and visual comfort have a huge impact on the atmosphere in an exhibition. ERCO LED modules and the proprietary photometric systems help to present art realistically thanks to optimal colour rendering, identical light colours and a consistent colour locus through to the end. The LED light projected through the precision Spherolit lenses creates very uniform light distributions with a precise beam that sets apart each object. Superb glare control offers optimal visual comfort for the visitors.

2 How do you illuminate art as an eye-catching feature without damaging it?

The light emitted by the ERCO LED lighting tools is effectively free of ultraviolet and infrared components, thereby minimising the damaging effect of photochemical and thermodynamic processes that cause materials and colours to deteriorate. In addition, the different light distributions, along with dimmer settings of up to 1%, let the user design perception-orientated lighting concepts with varied, high-contrast lighting effects that focus maximum attention with low illuminances. Vertical illuminances with wallwashers add a complementary touch that gives the room a bright impression when using low illuminance levels.

3 How can continuously new exhibition concepts be realised in a contemporary design?

Light can focus attention and provide orientation in any room. An infrastructure with track offers the greatest flexibility. ERCO spotlights can be mounted, adjusted and aligned in the track without the use of tools. With modern control modes such as Bluetooth via Casambi, luminaires can be dimmed via smartphone and light scenes set via the app. Interchangeable Spherolit lenses provide the lighting designer with nuanced light distributions. Even simpler are the innovative ERCO zoom spotlights which allow manual adjustment of the light beam by simply rotating the lens. Buildings of different sizes can be accentuated and the perception of rooms designed with just a single family of luminaires.

4 Is the "museum angle" still an applicable rule of thumb with use of LED technology?

Established lighting principles such as the museum angle are useful even in the age of LED technology to implement lighting solutions with efficient visual comfort. Light with an angle of incidence of 30° from the vertical emphasises the three-dimensions of sculptures and facilitates the reflection-free illumination of paintings. Installing the luminaires next to the work of art instead of above it avoids additional glare. The quality of light of the ERCO LED modules and our specially developed optical systems ensure that art is presented realistically thanks to optimal colour rendering, identical light colours and a consistent colour locus across the complete service life.

LED lighting for museums and galleries
www.erco.com/culture



Community – light for public buildings



Spark Building, Solent University, Southampton / Great Britain. Architecture: Scott Brownrigg, Cardiff / Great Britain. Lighting design: Arup, Bristol / Great Britain. Photography: Lukas Palik, Düsseldorf / Germany.



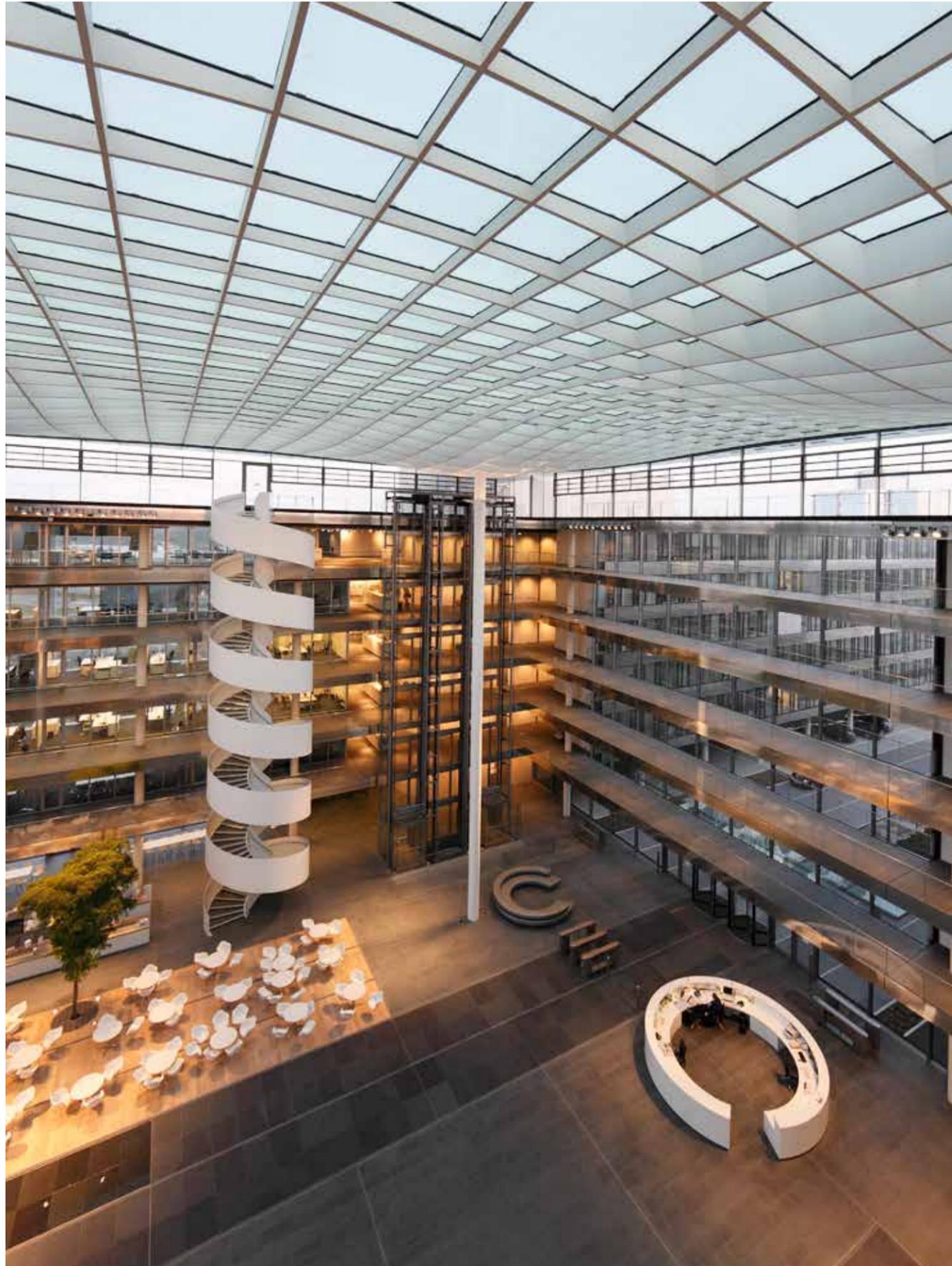
Jernbanestasjon, Bergen / Norway. Lighting design: Ruth Marie Bottenheim. Photography: Johan Elm, Stockholm / Sweden.



Aeropuerto Internacional de Carrasco, Montevideo / Uruguay. Architecture: Rafael Viñoly Architects, New York / USA; Carla Bechelli Arquitectos, Buenos Aires / Argentina. Lighting design: Ricardo Hofstadter, Montevideo / Uruguay.



Det Kongelige Bibliotek, Aarhus / Denmark. Architecture and lighting design: Arkitema Architects, Aarhus. Photography: Johan Elm, Stockholm / Sweden.



The combination of economy and high visual comfort are the focus of lighting for educational, administrative and transport buildings and provide high cost-effectiveness for operators. As well as accentuating the architectural concept, light in administration buildings, conference and entertainment facilities, airports and railway or bus stations facilitates orientation and therefore helps to ensure the safety of large crowds. This requires optimum illumination of such large spaces with high levels of luminous flux as well as efficient glare control. ERCO's double-focus downlights facilitate sustainable lighting solutions in high rooms for administration, education and work whilst focusing on the requirements of the community and the individual.

Head office of HDI Gerling insurance.
Architecture: Ingenhoven Architects, Düsseldorf / Germany. Lighting design: Tropp Lighting Design, Weilheim / Germany.

1 What are the specific challenges of lighting design for public buildings?

Light plays a crucial role in the design of public buildings, as it must balance the interests of the general public with those of the individual. Circulation zones as well as work, waiting, communication and break areas each present their own challenges in terms of visual comfort and privacy. They therefore require specific lighting solutions that reconcile the seemingly conflicting priorities of a perception-orientated approach and low operating costs. ERCO's consistent system design enables a cross-functional, perception-orientated lighting concept by providing various construction sizes, diverse light distributions and a wide variety of lumen classes within one luminaire range.

2 How does light provide orientation in administration, education and transport buildings?

Vertical planes make up around 80% of our visual perception. Illuminated walls support human orientation by increasing the perception of ambient brightness, while creating reference points that help us perceive a space and its dimensions. ERCO lens wallwashers enable uniform vertical lighting with wide spacing between the luminaires. Complemented by accent lighting to focus attention on specific zones and information elements, the perception-orientated approach can be applied even to large rooms.

3 What does efficient lighting in the public sector imply?

Luminous efficacy and light output ratio describe the efficiency of a luminaire in quantitative terms. For a luminaire to be efficient in every aspect of its application, however, the light needs to be emitted to the target surface with as little loss as possible. This can be achieved, for example, with precise optoelectronic systems as used by ERCO. A qualitative lighting concept supports this aspect of efficiency, in that light is used only where it serves to enhance perception. The long-service life luminaires facilitate operation especially in areas that are difficult to access regarding maintenance. Furthermore, the ERCO lighting technology enables installations to be equipped with a relatively low number of luminaires due to large luminaire spacing with high visual comfort.

4 How can glare-free yet efficient light be generated in areas with high ceilings?

In rooms with high ceilings, such as reception halls or event spaces, the narrow light distribution of double-focus downlights enables economical general lighting with good glare control. The room appears brighter, with a balanced contrast between horizontal and vertical illuminance levels, particularly in combination with lens wallwashers. In prestigious spaces with ceiling heights of less than 5 metres, wide distribution downlights are suitable for uniform general lighting with wide spacing between luminaires.

ERCO lighting solutions for public buildings
www.erco.com/community





Steen & Strom, Oslo / Norway. Photography: Johan Elm, Stockholm / Sweden.



Grand Basel, Basel / Switzerland. Lighting design: 360x media Andreas Seiler, Weimar / Germany. Photography: Moritz Hillebrand, Zurich / Switzerland.



Fiorital, Padua / Italy. Architecture: Lorenzo Viola, Milan / Italy. Photography: Sebastian Mayer, Berlin / Germany.

Kiton Showroom, Milan / Italy. Architecture: Franco Maggi, Milan / Italy. Lighting design: Gruppo C14, Milan / Italy.



Striking corporate lighting enhances the identity and image of international labels. Local brands, in contrast, maintain their status against competitors with inventive concepts, exquisite quality, individual service and, of course, the right lighting. ERCO spotlights and downlights include diverse and efficient light solutions for corporate lighting to present products in a professional and eye-catching style – thereby creating a recognisable image for the brand environment.

1 How can I regularly surprise my customers with new lighting concepts without having to exchange the luminaires?

In shops, a track system with spotlights mounted without tools form the basis for flexible lighting design. The infrastructure with track allows spotlights to be freely mounted to ceilings and walls or to suspended light structures. Just a few precise lighting tools can create eye-catching contrasts. Modern ERCO zoom spotlights for example enable manually adjustable light distributions without needing to exchange the luminaires. Alternatively, lighting designers can also implement varying lighting concepts thanks to interchangeable Spherolit lenses on all ERCO spotlights.

2 How can customers be guided through the shop with nuanced illumination?

Dramatic lighting effects are an essential means of sales promotion. ERCO lighting tools for the retail sector provide the requisite design flexibility for narrating stories in the space, effectively presenting merchandise and implementing the latest trends in shop design: accents with nuanced light distributions such as narrow spot specifically highlight individual products, whilst oval flood distributions emphasise groups of objects and long units such as shelves, thereby subdividing the sales space into zones. Uniformly wallwashed walls have an almost magnetic effect, drawing customers even further into the room.

3 How does light emphasise the high quality and natural appearance of my merchandise?

Real shops, unlike their digital counterparts, offer the advantage of authentic and tangible shopping experiences. Perception-orientated lighting concepts for effective product presentations combine accentuation with vertical illuminance. ERCO luminaires with chip-on-board LED technology guarantee a quality of light that renders colours in a natural way, emphasises the structure of materials and underlines the innate characteristics of surfaces. The extensively UV- and infrared-free spectrum prevents the fading of colours and is suitable for heat-sensitive products such as foodstuffs.

4 How do I transfer the lighting concept for my store accurately and consistently to my international branches?

Recognisable light structures help to transform your brand into a spatial experience, by using contrast, light colour and zoning for a unique corporate lighting concept. ERCO showrooms and professional mockups enable lighting concepts to be visually evaluated. During installation and implementation, ERCO supports with its many years of experience in international chain store retailing and a detailed understanding of branch-specific requirements. With the worldwide ERCO consulting and sales network, we can assist you in the execution of your project, for example by offering optimised site logistics with on-time deliveries, luminaires ready for connection and complete documentation.

ERCO lighting solutions for worlds of shopping
www.ercolighting.com/shop



Parscan



Gimbal

BLACK SWAN, Beijing / China. Lighting design: Beijing Zhouhongliang Lighting Design, Beijing / China. Photography: Sebastian Mayer, Berlin / Germany.

Contemplation – light for sacred buildings



Milan Cathedral, Milan / Italy. Lighting design: Ferrara Palladino e Associati, Milan / Italy. Photography: Moritz Hillebrand, Zurich / Switzerland.



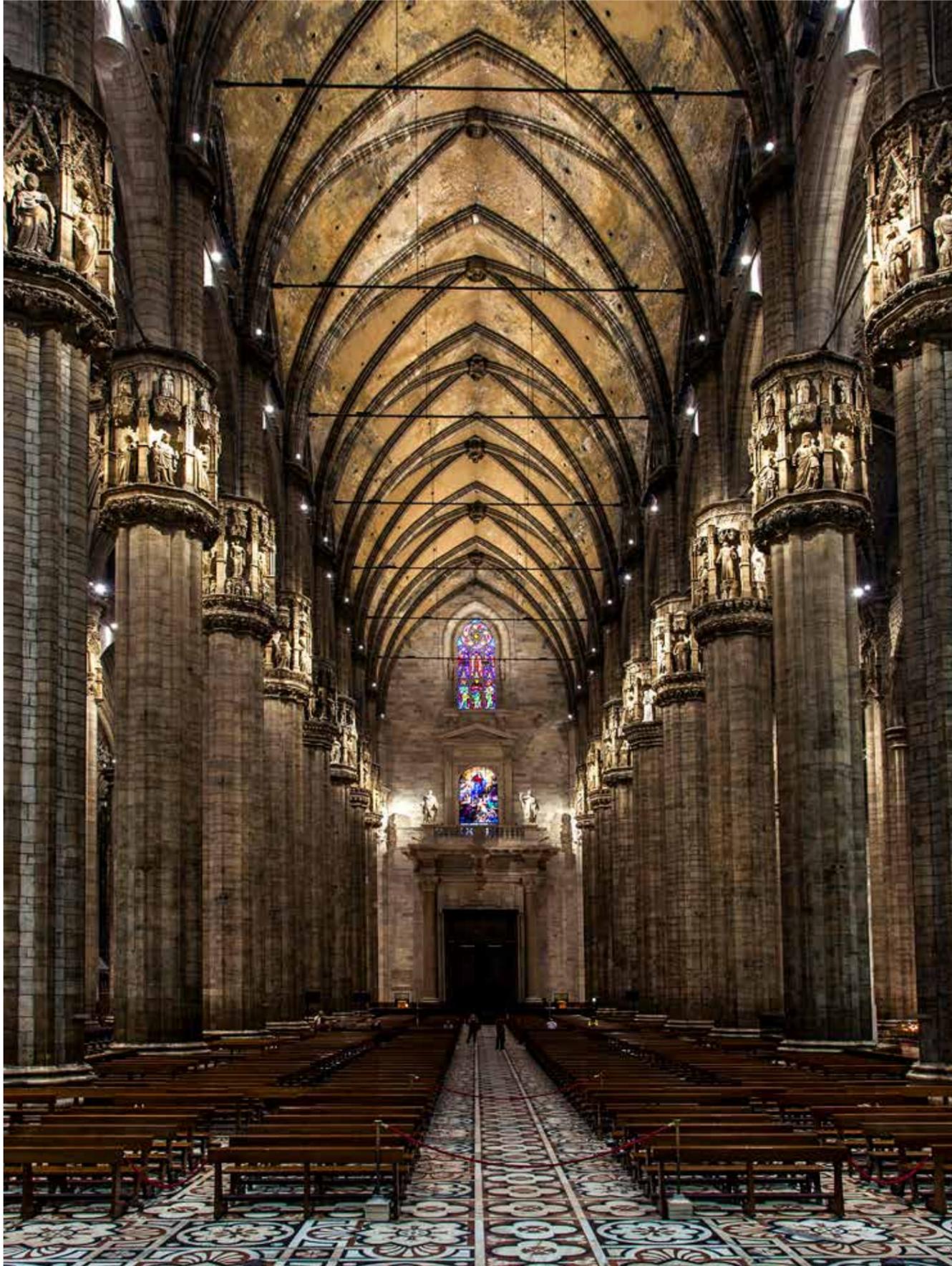
Sheik Zayid Mosque, Abu Dhabi / United Arab Emirates. Architecture: Yusef Abdelki, Syria (design), Halcrow International Partnership, Dubai / United Arab Emirates (execution). Interior design: Spatium Architects, Milan / Italy. Lighting design: Speirs + Major, Edinburgh / Scotland.



Niushoushan Cultural Park, Nanjing / China. Lighting design: ATL Lighting Systems Ltd. Photography: Sebastian Mayer, Berlin / Germany.



Church of the Sacred Heart, Würzburg / Germany. Architecture: Albert Bosslet (1929). Photography: Thomas Mayer, Neuss / Germany.



The language of light is understandable across cultures. In all religions, light is not only a tool of design for architecture but also a distinct symbol of the divine. Light in sacred places creates a contemplative atmosphere for meetings between believers. Whether in churches, mosques, temples or synagogues – light accents help to guide the view onto the essentials. ERCO illuminates both ancient and modern places of worship using light to create a separate, timeless language. Light emitted from wall and ceiling washlights generates a protective and tranquil environment. Accentuated light helps to direct the attention to essential aspects of the space, such as the altar or other architectural details. Glare-free light ensures optimal visual comfort for the congregation and orients itself to the quality of the incident daylight.

2 How can light produce a contemplative ambience that focuses attention on the liturgical setting?

Light can enhance the liturgy of a religious service by allowing essential elements as well as protagonists to be visually placed into the foreground. To create hierarchies of perception without detracting from the contemplative atmosphere as caused by use of harsh light, nuanced lighting design is suitable incorporating light from various directions and with various illuminances. According to the principle of three-point lighting, bright guidance light as the main light source accents a person or object located in the room. To moderate contrasts and shadows, this can be supplemented by weaker fill light that should be installed at an offset of around 90°.

1 How can light be used effectively to emphasise architectural details?

Sacred architecture translates the beliefs and importance of a religion into a physical structure – light enhances this message. The innate dignity of monumental temples can be accentuated with light from wall and ceiling washlights for example. Ceiling washlighting is also able to underline the protective character of domes and other canopies. Decorative aspects and wall murals are also rendered visible. Accent light serves to model works of art on walls and the surface structures of ornamental details as well as emphasising religious insignia. Not to be neglected are discreetly integrated floor washlights emitting light with good glare control, for also providing a feeling of safety and orientation during the ceremonies.

4 What are good luminaires to use so they operate as long as the building they illuminate?

LED luminaires are the optimal answer to light for sacred buildings, as the luminaires are often mounted at significant heights that are hard to reach. With extremely low-maintenance requirements, LED options therefore save a significant amount of trouble. The longevity of LED lighting tools is explained by two factors – the quality of the LEDs used as well as advanced thermal management. ERCO selects the best high-power LEDs available in the market based on strict criteria and has taken thermal management to a level that ensures efficient illumination with high lumen maintenance over a very long period of time: Up to 50,000 operating hours, at least 90% of

3 What are the main challenges with selecting luminaires for sacred spaces?

Unusual spatial geometries and materials make it necessary to test samples on site. ERCO consultants assist lighting designers in the implementation of individual lighting design concepts with professional advice throughout the project. In addition to high luminous flux levels corresponding to the room height and individually suitable light distributions for liturgical elements and objects, good glare control of the luminaires must be observed in order to provide optimum light for the reading of prayer and hymn books. Vertical illuminance brings walls to the fore in their function as delineating surfaces, or in contrast, lends them an immaterial quality. Special grazing light wallwashers enable unusual surfaces to be emphasised in addition to natural stone, wood and concrete.

all High-power LEDs used by ERCO emit more than 90% of their initial luminous flux. Until this time a maximum of 10% of LEDs are permitted to fall below this (L90/B10). These LEDs have an L90 specification for 100,000 operating hours. The probability of total failure of single LEDs is merely 0.1% with ERCO lighting tools.

ERCO lighting solutions for sacred buildings
www.erco.com/contemplation



Milan Cathedral, Milan / Italy. Lighting design: Ferrara Palladino e Associati, Milan / Italy. Photography: Dirk Vogel, Dortmund / Germany.

Living – light for residential spaces



Wohnhaus Schnabel, Berlin / Germany. Architecture: Ingenbleek Architekten, Berlin / Germany.



South Street, Grand Designs House. Architecture: Sandy Rendel Architects, London / Great Britain. Photography: Lukas Palik, Düsseldorf / Germany.

Private house, Dortmund / Germany. Architecture: Heiderich Architekten, Lünen / Germany. Lighting design: Light Design Engineering Kober, Dortmund / Germany.



Near Düsseldorf, private residential home. Architecture: ingenhoven architects, Düsseldorf / Germany. Lighting design: Tropp Lighting Design, Weilheim / Germany. Photography: Frieder Blickle, Hamburg / Germany.



Designing rooms in which we live requires our special attention. ERCO lighting solutions bring this flexibility to any situation. Wall-washers and downlights with compact dimensions create sufficient space for living, even in small rooms. Light scenes combine ambient lighting with striking accents; architectural lighting and decorative luminaires harmonise to create ambient luminescence, focal glow and a play of brilliants (based on Richard Kelly, see page 5). Lighting accents from spotlights or directional luminaires, created with a few simple means, underline the character of a private residence: they can emphasise a collector's vase on a sideboard or present artworks on a wall. Vertical illuminance on the other hand achieves an expansive spatial impression. ERCO luminaires with Bluetooth via Casambi can be conveniently controlled with a smartphone or tablet.

2 The kitchen is a central room with highly diverse functions. Which lighting concepts are most suitable?

The kitchen is a room where good colour rendering is essential to ensure that food looks appetising. Our perception of colour is stimulated by the colour of light as well as that of the object, referred to as the body colour. The light colour and body colour mix together upon the surface of the product to commonly create the colour impression. The orange-yellow colour of bread rolls for example only comes to the fore thanks to the yellow components in light – the reason why bakers usually specify warm white to orange-coloured lighting for their merchandise. Uniform light with a focus on the work surfaces is generally suitable for kitchens. To generate sufficient light without glare or harsh shadowing on the target plane, the luminaires should be installed in an offset arrangement above the work surface.

Private home, Winsen / Germany. Architecture: SKAI Siemer Kramer Architekten Ingenieure Partnerschaft mbB, Hamburg / Germany. Lighting design: team licht, Hamburg / Germany. Electrical planning: Elektrotechnik Wernicke GmbH. Photography: Frieder Blickle, Hamburg.

1 What should be taken into account when selecting luminaires if the room has several light sources?

Consistent light colours with a uniform colour locus create a calm and coherent atmosphere above tables, within shelving and behind seating arrangements in living rooms despite different light sources. ERCO LED modules with high-power and mid-power LEDs feature very good colour consistency and achieve the outstanding typical initial value of SDCM ≤ 1.5 . The higher the SDCM value, the greater the variation of light colour from the chromaticity coordinates specified in the technical data of the light source. A value of less than 2 SDCM means that any colour deviation between individual LEDs is barely perceptible to the human eye.

4 How can space be created in small rooms using light?

Uniform wallwashing gives small rooms and narrow hallways a higher and more spacious appearance. Vertical illuminance also achieves sustainable and efficient ambient lighting more effectively than horizontal light – with the same connected load – by optimising the spatial impression of brightness. Thanks to the brilliance and uniformity of LED light, wallwashing adds a decorative effect to shelves and enables book spines for example to be easily read. A structured, tidy room impression is created by combining wallwashing with

3 How can the living room be optimally linked with the outdoor space?

Gardens and terraces are an important part of our home. A good approach to creating a link between indoor and outdoor areas is to illuminate trees and vegetation using precisely targeted accent light. During the night, glass surfaces take on the appearance of black planes when viewed from indoors – these can be dissolved via visible elements in the outdoor space. Walls of vegetation can be illuminated like other walls to create a holistic spatial impression. "Moonlighting" for example creates a natural effect by using spotlights mounted to facades that illuminate trees and bushes from above. The vertical lighting of hedges on the other hand emphasises the innate structure of branches and leaves.

accent light. Bright accents emphasise important room elements such as a seating arrangement in the corner, an artwork on the wall or a design icon.

ERCO lighting solutions for living rooms
www.erco.com/living





Emperor forums, Rome / Italy. Lighting design: Francesca and Vittorio Storaro, Rome / Italy. Photography: Vittorio Storaro, Rome.

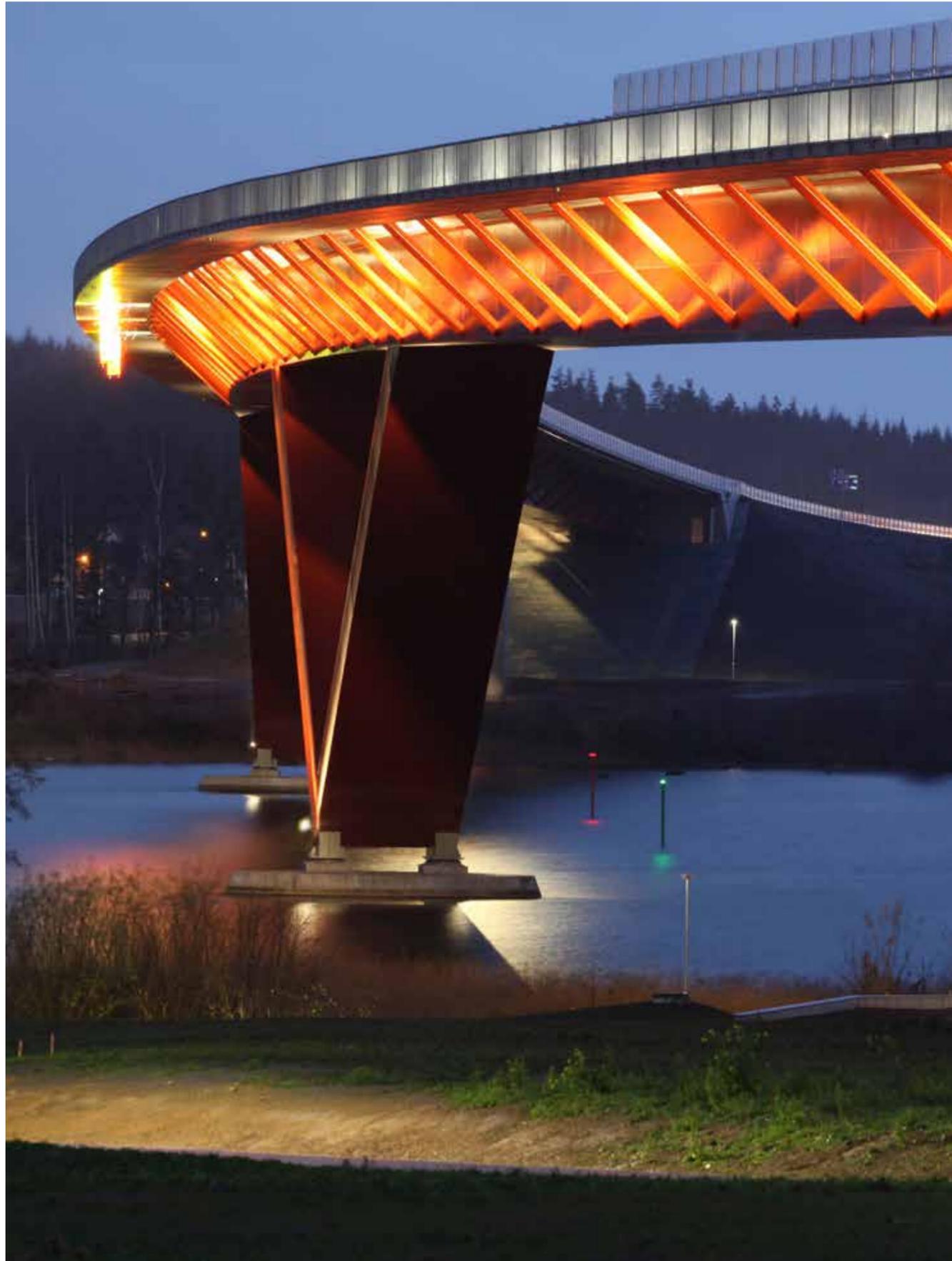
Sydney Opera House, forecourt. Photography: Jackie Chan, Sydney / Australia.



Biblioteca Nacional de la República Argentina, Buenos Aires / Argentina. Architecture: Clorindo Testa, Francisco Bullrich, Alicia Cazzaniga. Lighting design: Estudio Juan Altgelt & Asociados. Photography: Alejandro Wirth, Buenos Aires.



Hagaparken, Stockholm / Sweden. Lighting design: AF-Infrastruktur AB, installation: Autodidact Craft Experience AB. Photography: Johan Elm, Stockholm.



Parks, public places, monuments and facades characterise the face of a city at night with their illumination. Their light provides orientation for various user groups, contributes to safety, enhances spatial details through accentuation and creates atmosphere. ERCO lighting tools for outdoor areas are designed to define urban spaces during nocturnal hours with highly efficient LED light, whilst themselves receding into the background thanks to their outstanding glare control.

2 What defines the good lighting of vegetation?

Illuminated greenery attracts the attention of the observer to thus determine the atmosphere and spatial perception of the exterior. Trees as objects in the wider space become visible from several sides. Light positioned close to the trunk serves to ground the tree – the crown appears to shine from within. The further away the luminaires are installed from the trunk, the more intense the crown is emphasised. "Moonlighting" on the other hand achieves a natural effect by using spotlights mounted to facades that illuminate the trees and bushes from above. In general the following applies: hedges and bushes, as with other types of partitions, are suitable for vertical lighting that emphasises the size of spaces (see question 1).

Motalabron Bridge, Motala / Sweden. Architecture and lighting design: Tyréns AB, Stockholm / Sweden. Photography: Johan Elm, Stockholm.

1 How can facades and architectural elements be illuminated to create high attention?

The right light distribution either integrates facade lighting into the surroundings or specifically sets contrasts. The accentuation of historic facades generally draws attention to features relevant to their architectural era, such as columns or ornamentation, whereas contemporary architecture tends to give focus to the building structure. Modern facade systems are ideally presented with graduations in brightness. Linear grazing light emitted directly onto the facade on the other hand underlines the characteristic of the surface. Vertical facade lighting emphasises the complete facade surface as a single unit with uniform light distribution from the bottom upwards. This approach achieves a bright spatial impression and brings the wall to the fore in its function as a delineating surface.

4 What should be considered when using ground-recessed luminaires?

Ground-recessed luminaires attract attention because both the light sources on the ground as well as the direction of light from below to above is unusual and therefore particularly noticeable. In this respect they also assume directive lighting tasks, e.g. by marking pathways or highlighting entrances. The luminaires can also be used for effective architectural lighting, for example facade illumination. One challenge with ground-recessed luminaires is the danger of corrosion. For this

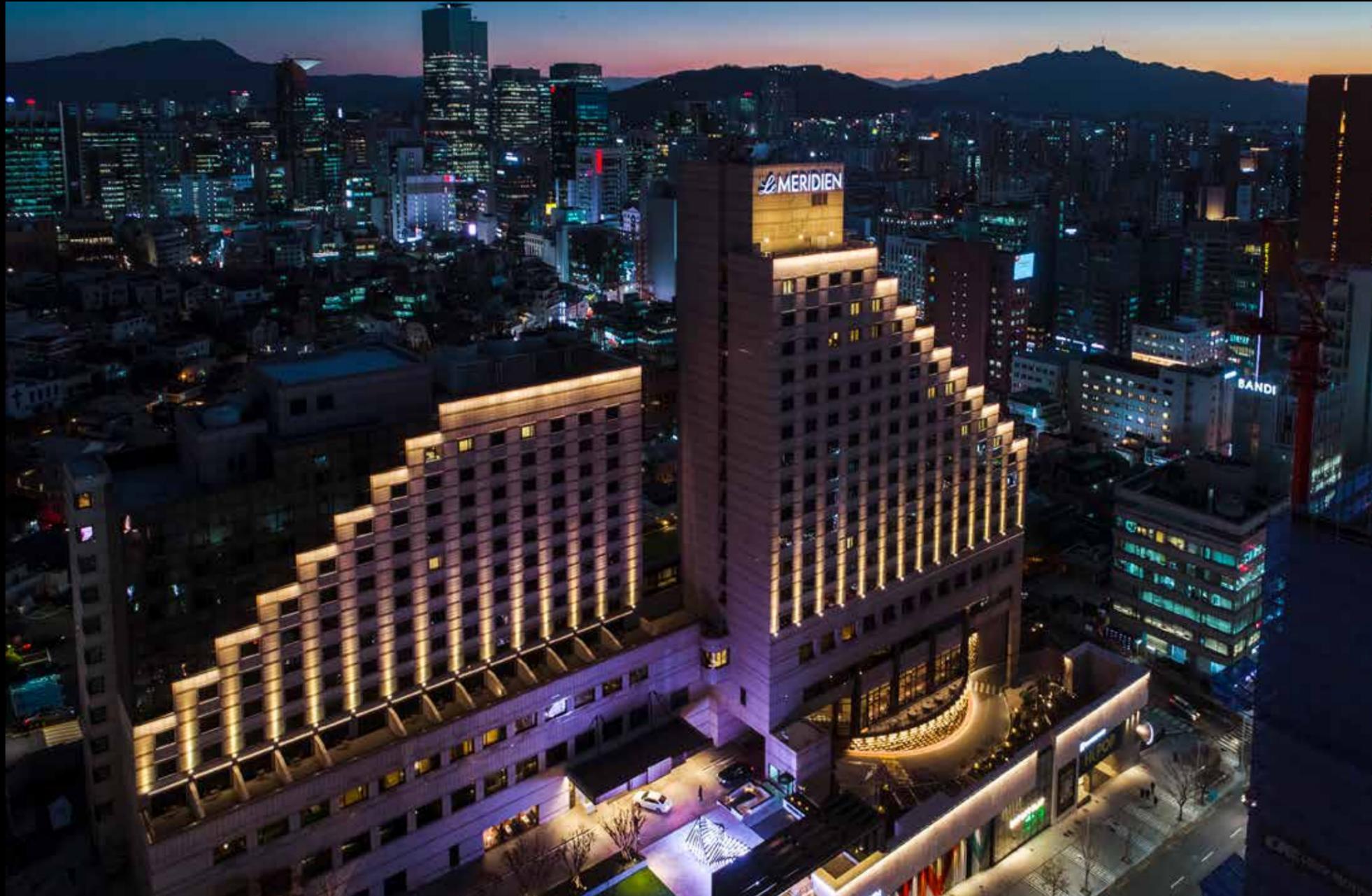
3 How can I ensure a long life for luminaires that are frequently exposed to moisture, dirt and stress?

The main criterion to consider in selecting outdoor luminaires is to ensure a robust housing offering reliable protection against damage, particularly if the luminaire is exposed to frequent moisture and mechanical stress. A good indicator for the longevity of ERCO lighting tools is the high IP rating in addition to the robust design of the luminaires with a high-quality, corrosion-resistant special surface coating. A characteristic feature of all ERCO ground-recessed luminaires, as well as a moisture-proof junction box, is advanced capillary protection designed to prevent water penetrating into the housing through pressure compensation when the luminaire cools down.

reason ERCO no longer produces the Tesis ground-recessed luminaire components from aluminium but from long fibre-reinforced polyamide which is characterised by improved material properties such as high resistance to corrosion and high resilience.

ERCO lighting solutions for outdoor facilities, bridges and memorials
www.erco.com/public





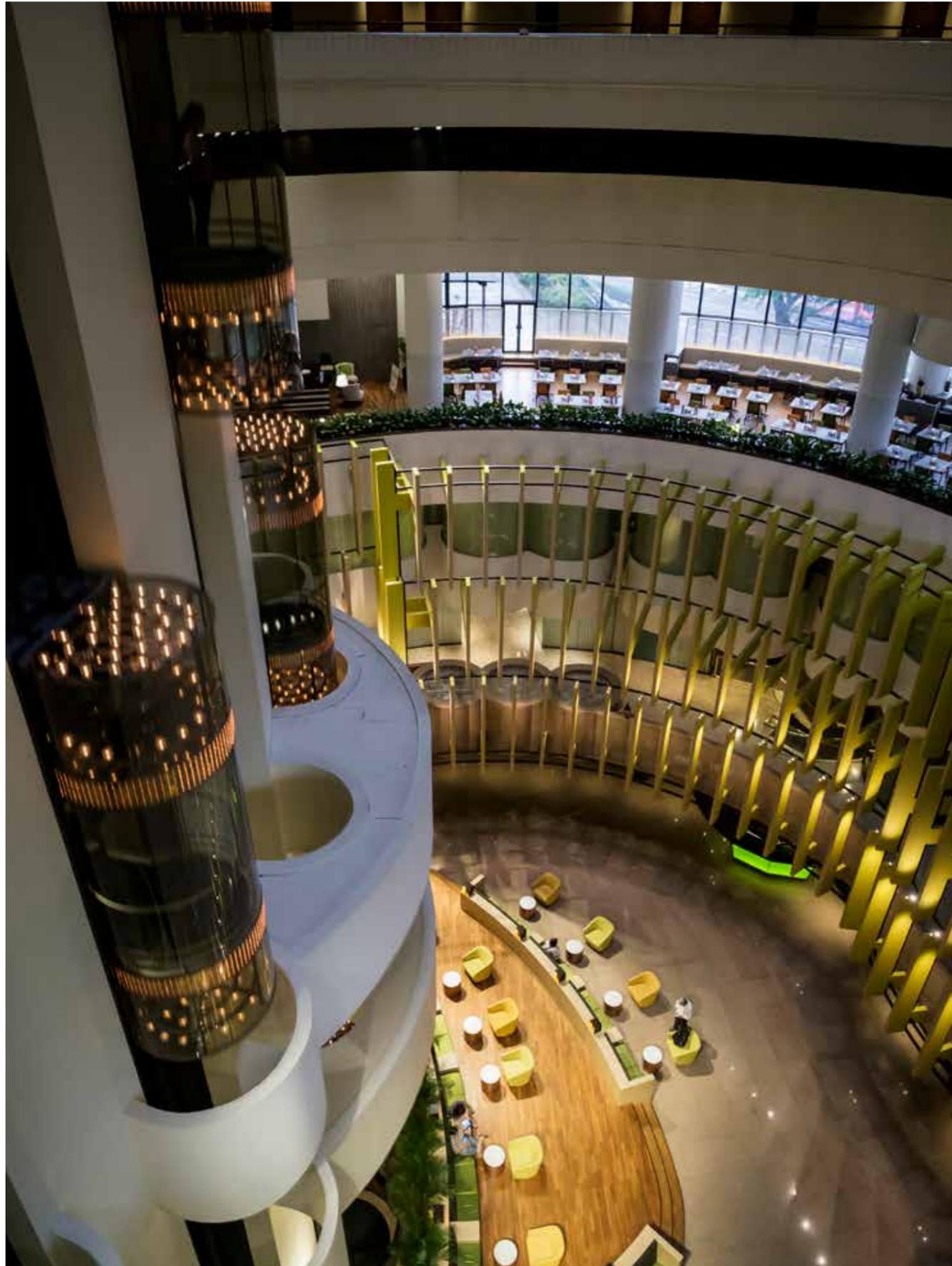
Restaurant Magorabin, Turin / Italy. Lighting design: Simone Gabbini. Photography: Dirk Vogel, Dortmund / Germany.

Guillaume at Bennelong restaurant in the Sydney Opera House / Australia. Architecture: Jørn Utzon, Copenhagen / Denmark and Dale Jones-Evans, Sydney / Australia (restaurant). Lighting design: Barry Webb Design, Pymble / Australia.



Sheik Zayid Mosque, Abu Dhabi / United Arab Emirates. Architecture: Wimberly, Allison, Tong & Goo. Lighting design: DHA Design & Lighting Design Int. Photography: Charles Crowell.

Le Meridien, Seoul / South Korea Interior design: David Collins Studio, London / Great Britain. Lighting design: bitzro & partners, Seoul (interior), EON SLD, Seoul (exterior). Photography: Jackie Chan, Sydney / Australia.



Hospitality projects today are a testing ground and platform for new ideas, concepts and trends: The promise of exquisite cuisine is underlined by an interior of unique character. Be it design hotels, themed restaurants or temporary bars: Every concept applied to gastronomy requires a scenic frame to carry and communicate the relevant theme. ERCO provides architectural lighting solutions with a diversity of scenographic options for room situations that convey enjoyment and pleasure.

1 How can cosy dinner situations also be created in large and high rooms?

The solution, whether for a factory dining hall, a former church or a modern concrete cube, is accent lighting precisely targeted to illuminate each table separately from above. Whereas oval flood distribution is suitable for long tables, spot or narrow spot adds the finishing touch to a setting for two. With narrow spot 6° distribution for example, ERCO provides an extremely narrow distribution that achieves a slender and therefore strong light beam even with high ceilings. Warm white light creates a cosy atmosphere. Important in high rooms is also glare control of the luminaires to ensure that guests are able to enjoy their meal undisturbed.

2 How can light enhance the appeal of freshly prepared dishes?

Good food, a pleasant ambience and stimulating conversations are crucial factors for the success of a gastronomic concept, and as such define its lighting requirements. Colour rendering is critical for the quality of light and can enhance the appeal of food. Luminaires with chip-on-board LED technology enable high flexibility for selecting the most suitable spectrum and also feature outstanding colour rendering. For cosy atmospheres we recommend warm white light colours, e.g. 2700 - 3500 K Ra ≥90. Reflections make fruit and vegetables look appealing and give drinks a fresh appearance. Decisive in this respect is the direct lighting of the table (see question 1). The brilliance of light from high quality luminaires makes food appear especially appetising.

3 How can light be used to tell a story that communicates the gastronomy concept?

The visual experience in a restaurant should enhance the culinary experience, not to compete with it. This is where architectural lighting comes in, providing a diversity of scenographic options that are subtle, yet effective. Establishing zones achieves a sense of orientation when guests enter a room by emphasizing the bar and eating areas for example. Scenographic light also offers guests diverse light atmospheres by coherently creating a sense of drama. Bluetooth-capable luminaires enable such light scenes and can be simply set using a smartphone.

4 How can the counter as the primary focal point in a bar or hotel draw in customers with attractive lighting?

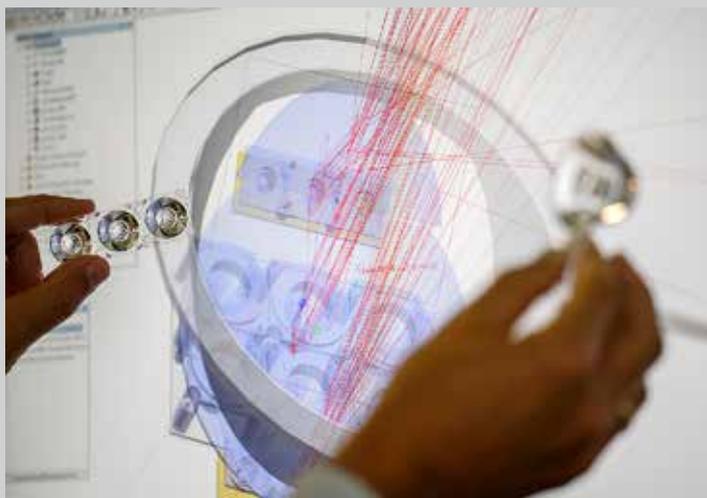
The illumination of bars and counters must achieve the balancing act between inviting, eye-catching light for guests to facilitate orientation in bars and hotels and high visual comfort for staff behind the counter. This balance between glare-controlled workplace lighting and atmospheric bar lighting is created by the combination of vertical light behind the bar and pendant luminaires above the bar. Wallwashing creates an expansive, inviting impression of the room and achieves a drawing-in effect. It also ensures high visual comfort for work behind the bar and at reception desks with screens.

ERCO lighting solutions for hotels and restaurants
www.ercolighting.com/hospitality



Holiday Inn, Singapore.
 Photography: Sebastian Mayer, Berlin / Germany.

Light is the fourth dimension
of architecture



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