

Editorial

Illuminating art: conserving knowledge – arousing curiosity

Collecting, conserving, researching and exhibiting – these keystones of museum activities were established more than 200 years ago as part of the European Enlightenment and characterise work in public museums, galleries and private collections up to the current day. Each of these individual spheres of work are now provided with suitable lighting thanks to the possibilities of high-quality LED lighting, without having to compromise in terms of visual experience and the conservation of art. In this way LED light is able to comply with the diverse requirements of curators, scientists, exhibition designers, restorers and museum management. Light for art though is not just a matter of illuminating the exhibits, but also the architecture and therefore the needs of the visitor.

A dialogue with exhibition organisers worldwide

Light from ERCO is used in the world's first people's museum – the Louvre in Paris. Its younger offshoots, for example the Louvre Lens, also place their trust in the expertise of ERCO, as do the National Portrait Gallery and the National Gallery in London, the Uffizi Gallery in Florence and private museums such as the PRADA Foundation. ERCO lighting tools are also used in scientific and cultural science museums such as the Museum of Technology in Berlin.

Design flexibility for contemporary showcasing

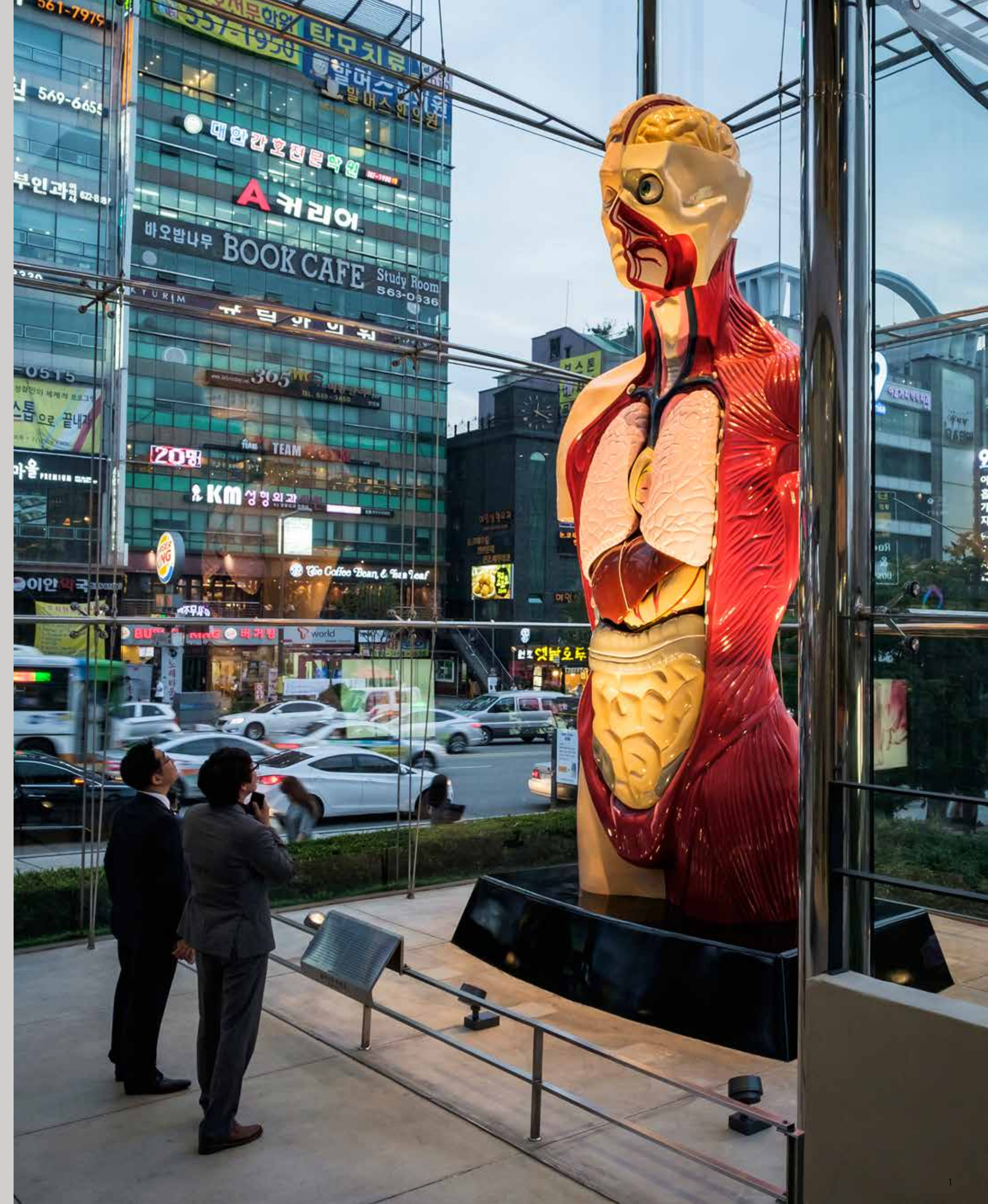
Why is ERCO the optimum partner for museums? We have been dedicated to illuminating objects of culture of every type for more than half a century in close cooperation with exhibition organisers. We are aware that we need to create diversified, intelligent forms of entertainment from museum knowledge – without however neglecting scientific and conservation considerations. A flexible infrastructure of light that utilises diverse spotlights and lens systems for changing methods of display contributes to arousing the curiosity of people interested in culture over and over again. This brochure explains how your lighting design can comply with conservation targets without needing to dispense with design flexibility.

The museum as a building

An intelligently designed, striking lighting concept contributes to transforming exhibition venues into premium brands for culture. It is not only a matter of making original works of art accessible to the public in the long run, but also suitably showcasing the architecture, ranging from the car park, sculpture garden and foyer to the exhibition store and café. In addition to the art itself, good orientation, high quality of light and a suitable atmosphere changes a visit to a museum or gallery into an experience. With good colour rendering, identical light colours, differing control variants and highly durable LEDs, ERCO enables luminaires to be randomly combined according to the specific lighting function. The result – lighting concepts from a single mould.

Efficient visual comfort in museums

We at ERCO see light as the fourth dimension of architecture. We wish to make a positive contribution to architecture and society as a whole by transforming lighting technology into culture. With our lighting tools we offer a modular kit system for implementing perception-orientated lighting design that supports the themes and messages of curators and exhibition designers. This design approach is based on the concept of the lighting designer Richard Kelly that divides light into three categories: general lighting for fundamental orientation, accent light that emphasises areas and objects, and decorative light in its own right. By including the strategy of efficient visual comfort throughout the product development stage, we ensure that the complete range of factors for sustainable museum lighting are taken into account, ranging from quality of light and visual comfort to cost-efficiency.



Right:
Arario Gallery, Cheonan / South
Korea. Lighting designer: Arario
Creative Design Team, Jeju.
Photographer: Sebastian Mayer.

Forms of presentation in museums and galleries

Showcasing art with light

The inherent diversity of art treasures is reflected in the wide range of exhibition concepts and lighting used by museums and galleries. Each art-historical era focuses on different ideals for presentation, and in a similar way, social preferences also change with regard to suitable methods of reception. Large-format, minimalist paintings for example look best with planar vertical lighting. Accent lighting on the other hand is ideally suited to small, high-contrast works of art. In addition to illuminating individual exhibits, gallery owners and exhibition organisers also use light as an essential component in the overall presentation of exhibitions and buildings. In this way, visitors are impressively exposed to both culture and architecture.



Exhibits against a neutral background

Neutral exhibition spaces in white support the factual and objective communication of art. Curators avoid emphasising individual exhibits with the aim of achieving a uniform presentation. The exhibits and the room are given equal importance and appear as a single unit.

Differentiated presentation of objects in the room

Visually impressive exhibitions celebrate the viewing of art as a multi-layered experience, and illuminating individual exhibits is only part of the lighting design. Of equal importance is communicating the atmosphere of the exhibition theme via light in the room. Different levels of brightness establish hierarchies of perception between the artworks themselves and in

Strikingly emphasising artworks

Accenting puts the focus on the works of art in an exhibition – in either a subtle or striking way. Coloured walls, as found in many historic rooms, already create discreet contrasts between a picture and its background. Intensive contrasts in brightness are achieved via accenting light. Crisp light

beams give the exhibits the appearance of individualists in the space. The directed light creates brilliance on surfaces and an expressive interplay of light and shadows with sculptures.

relation to the surrounding space. Various colour temperatures provide additional support in creating contrasts between zones, thus also contributing to an emotional overall experience.



The grammar of light

Qualitative lighting design for museums and galleries

ERCO lighting tools offer precisely the design flexibility that complex exhibition projects need. The basis during product development is a perception-orientated lighting approach. The American lighting designer Richard Kelly (1910–1977) subdivided light into three categories for qualitative lighting design: light for seeing (ambient luminescence), for looking at (focal glow) and viewing (play of brilliants). This "grammar of light" enables museums, exhibitions and galleries to be optimally illuminated. 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. The "grammar of light" offers a proven method of analysing rooms, structuring lighting concepts and selecting suitable lighting tools. The luminaire system applied in the ERCO product spectrum consists of various light distributions, colour temperatures, construction sizes and lumen packages and is ideal for the implementation of differentiated exhibition concepts.

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



Light for seeing designates simple general lighting. This lighting method, using uniform vertical lighting for example, is ideal for illuminating exhibits on walls and also enables good orientation.



Light for looking at represents accent light that highlights objects, surfaces and spatial zones and creates hierarchies in perception. It is a central means of guiding the attention of observers when displaying art and architectural elements.



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.



Richard Kelly (1919–1977)

The U.S. American Richard Kelly was a pioneer of qualitative lighting design, combining facets of perception psychology and stage lighting to create a single concept. Kelly replaced the issue of light quantity with the approach of qualities of light. In his profession as a lighting designer he worked on important buildings such as the Glass House (Philip Johnson), the Seagram Building (Mies van der Rohe) and the Kimbell Art Museum (Louis I. Kahn).

Exhibition lighting in practice

Implementing curatorial concepts with light

The display of art demands the consideration of light qualities. For this reason, each exhibition poses the question of which lighting tools are best suited to the task. For successful exhibition concepts it is not only product quality that is decisive – architects, lighting designers and electrical contractors make the most of extensive ERCO services ranging from concept support to on-time delivery as well as commissioning and illuminating the exhibition. For curators, the flexibility of the lighting installation is highly relevant. ERCO lighting tools enable quick adjustments shortly before the opening. Visitors on the other hand appreciate the high level of visual comfort when uniform vertical lighting and glare-free light are used in an exhibition. From the point of view of the exhibition organiser, lighting is therefore much more than just sufficient light for viewing works of art – it progresses to become an important medium for showcasing culture. Five parameters help to identify the right lighting solution for art, from small regional galleries to large international museum projects.

For more exhibition projects see:
www.erco.com/culture



Guidance and orientation

Light is ideal for leading visitors into a museum and guiding them through exhibitions. Effective hierarchies in perception can be established by implementing brightly lit vertical surfaces in the central visual axes and differing lighting levels. The Long Museum West Bund in Shanghai for example welcomes visitors with generous wall-washing, as well as accenting

the suspended exhibit as a focal point. ERCO luminaires with different lumen packages enable a differentiated nuancing of brightness levels for both small and large rooms.

Creating atmosphere

Optimally showcasing the treasures of an art collection and creating an appealing ambience for visitors are some of the most important tasks for the curator. In the large hall at the Musée Bourdelle in Paris, spotlights impressively accent the large sculptures with a striking play of light and shadow. Different light colours enable various materials to be shown with nuanced tones.



Showcasing artworks

Because exhibitions contain objects in many different sizes, formats and materials, a wide range of flexible lighting tools are indispensable. With several spotlight families and tracks, ERCO provides an ideal infrastructure for such purposes, suitable for the architecture of both small galleries and major museums. The high-performance lighting tools range from narrow light beams and brilliant accenting with floodlights to wallwashers. Contour spotlights round off the spectrum for showcasing with a sense of magic.



Conserving art

The careful handling of valuable, light-sensitive exhibits is part of a conservator's everyday work. With innovative lighting concepts, high quality LEDs and in-house developed lighting and control technology, ERCO complies with the highly demanding lighting specifications of conservators and simultaneously offers visitors an attractive atmosphere. ERCO services also include inspection of the installation to ensure that the quality of works of art is maintained in the future, as for example for the exhibition of valuable prints in the Museum Kunst Palast in Düsseldorf, Germany.

Perfecting visual comfort

It is not only the method of light display that contributes to the quality of an exhibition experience but also the visual comfort of the lighting. In the Louvre Lens, shielded light minimises direct glare and accessories such as anti-glare frames improve the already high visual comfort of ERCO luminaires.



Lighting functions

What is the role of light in museums?

Museum lighting needs to fulfil a variety of requirements – in every project designers are faced with the challenge of bringing together conservation specifications, economic targets, organisational framework conditions and design aspects into a single lighting concept. The range of tasks far exceeds typical exhibition spaces, beginning outside with the access area, facades and outdoor exhibits then on to the foyer, café and shop as well as the actual visit to the museum. A theoretical model of lighting functions helps to evaluate the quality of lighting not just according to purely quantitative criteria such as illuminance. It separates lighting from the static room cubature to focus on using a spatial situation to include the interior, the facade and the exterior installations.

This form of zoning allows individual tasks to be identified: should a room welcome, invite to discover, protect culture, entertain, or provide a location to stay and browse?

The model enables designers to flexibly respond to a high diversity of curatorial concepts and architectural situations as well as modularly grouping lighting tasks and scaling these according to needs.

At the start of each lighting project, lighting designers should ask the following three questions regarding each functional area required:

- 1 Which cultural, architectural or functional importance does the room or spatial zone have?
- 2 Which tasks in a museum can lighting adopt to optimise the display of cultural assets?
- 3 Which individual lighting strategy and methods of lighting are suitable as the basis for lighting design?



Conserving

Presenting works of art to a wide public and simultaneously protecting light-sensitive exhibits poses major challenges for designers. LED technology and an appropriate lighting strategy ensure visitors have an impressive experience of art despite high conservation demands.

- High-quality LEDs enable lighting without damaging spectral components in the UV and IR ranges. Acceptable illuminance levels can be individually set by dimming, for example with potentiometer dimmers on the spotlights. In contrast to halogen lamps, quality of light is maintained with the LEDs.
- Precise lighting tools and a perception-orientated lighting concept are the preconditions for illuminating exhibitions with conservation requirements.



Welcoming

Facades and outdoor exhibits represent the museum and position it within its surroundings as an important cultural brand. Light transforms the museum into an urban point of orientation with an inviting gesture – accents in the foreground adopt the role of orientation when viewed from a distance. A bright entrance area defines the route and facade illumination establishes the background.

- Accent lighting creates appealing points of interest, and even from a distance highlights the building's importance.
- Vertical lighting creates prestigious illumination and emphasises the dimensions of the entrance and building.



Discovering

The combination of various media, changing exhibitions and use of the museum for events require a multifunctional lighting infrastructure. The contemporary transfer of knowledge along with innovative lighting concepts enables exhibition organisers to establish themselves as an important brand for culture.

- Track offers the ideal infrastructure for changing lighting requirements. Track mounted spotlights can be repositioned and aligned without tools.
- Interchangeable light distributions mean that a luminaire can be used for a variety of applications, e.g. for precise accent lighting, general lighting or uniform wallwashing.



Experiencing

Light renders art perceivable for visitors. It showcases exhibits and rooms, it guides the view of the observer and contributes to the drama of an exhibition by giving a special status to important works in a collection. Brilliant light and good colour rendering are indispensable for viewing details.

- Accent lighting creates perception hierarchies. The directed light required for this has high brilliance and supports rich-detail modelling.
- Authentic and nuanced colour rendering is achieved by a balanced spectrum and by specifying a suitable colour temperature.



Marketing

Museum shops and cafés are an important source of income and also contribute to establishing the brand of the cultural institution. As in the exhibition rooms, light is indispensable here for the attractive display of merchandise and for creating a relaxed atmosphere. Ideal lighting is achieved with a combination of wallwashing and accents.

- Accent lighting creates contrasts for the attractive presentation of illustrated books and other retail merchandise, as well as the café tables.
- Vertical lighting achieves a deep and pleasant spatial impression. In the retail area this is ideal for the uniform illumination of shelving and posters on the walls.

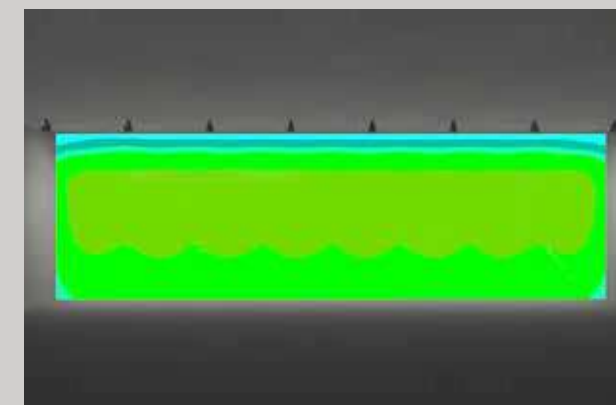
A comparison of lighting technology

Projection and reflection: what is the difference?

Spotlights, floodlights and wallwashers are flexible and efficient lighting tools for the effective presentation of art. The quality of lighting technology is not only decisive for the precise distribution of light and a qualitative art experience, but also for the long-term cost-efficiency of the lighting installation. When comparing the technical performance of luminaires, key figures need to be evaluated based on comparable lighting tasks. ERCO's Spherolit lens technology provides very economical solutions compared to conventional reflector products with LED modules because the optic directs all light beams emitted by the LEDs in a controlled way onto the specific target plane. This for example enables either wider luminaire spacing, thereby minimising the quantity of luminaires needed or achieves higher illuminance.

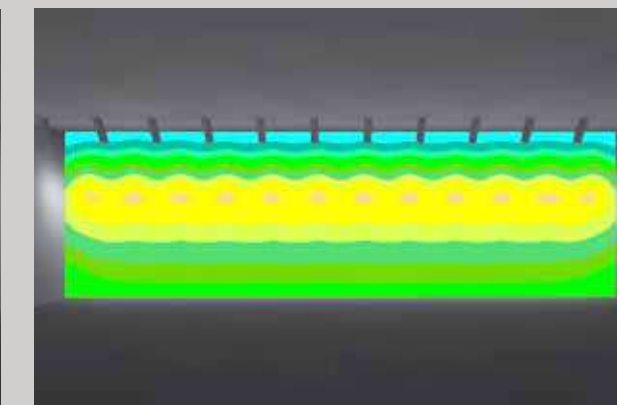
Wallwashing

Uniformly illuminated vertical surfaces in exhibitions are suitable for the effective display of paintings and photography. Only a few luminaires are needed for this purpose. This is demonstrated by a direct comparison of lens technology and reflector technology on a wall with a length of 10m and identical illuminance (200lx) and uniformity.



ERCO Spherolit lens technology
The special light distribution of the ERCO lens wallwasher achieves high levels of uniformity even with wide luminaire spacing.

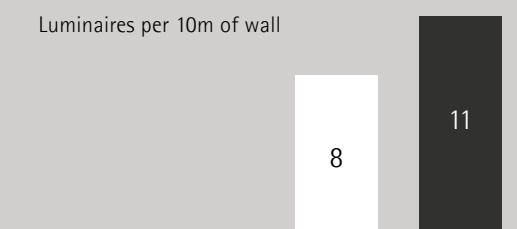
Wallwash	Wattage per area (W/m ²)	4.0
	Uniformity (E _{min} /E)	0.66
	Luminaires per 10m of wall	8



Conventional reflector technology
With reflector-based luminaires, the application requires more luminaires to achieve comparable horizontal and vertical uniformity.

Wallwasher reflector	Wattage per area (W/m ²)	8.4
	Uniformity (E _{min} /E)	0.5
	Luminaires per 10m of wall	11

Summary
ERCO lens wallwashers enable uniform vertical lighting with wide spacing between the luminaires. Despite the spill light component, a higher quantity of wallwashers with conventional LED reflector technology is needed to achieve comparable uniformity and illuminance.

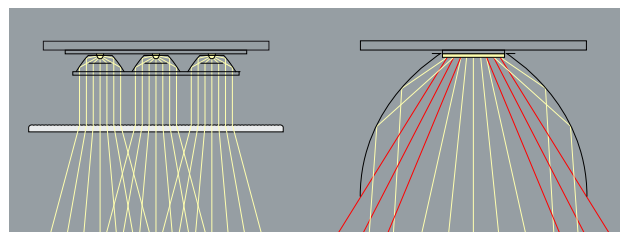


27% savings

■ ERCO Spherolit lens technology
■ Conventional LED reflector technology

Construction design, quality of light and efficiency

Luminaires are efficient if the energy deployed reaches the target plane in the form of light. For this reason ERCO uses individually arranged LEDs and an in-house developed lens system consisting of collimators and interchangeable Spherolit lenses. Conventional optical systems however consist of chip-on-board (COB) LED modules and a reflector. Here several LEDs are arranged below a phosphor layer and form a large luminous surface. Not all light beams can be directed with this construction – this creates spill light (the red lines). The result – the optical system is less efficient and precise.



Projection:

- High uniformity
- Maximum precision
- No imperfections
- No colour shifts
- Narrow light beams possible
- No spill light losses
- High-efficiency (lx/W)

Reflection:

- Hotspot in the centre
- Blurring, different coloured light beam edges
- Not clean beams (e.g. halos)
- Only suitable for wide light beams
- High spill light losses (red lines)

Floodlighting

Illuminating large-format works of art is efficiently achieved with floodlights. Lenses enable precise light control. Linear exhibits for example can be illuminated with oval light distribution instead of three conventional spot light distributions. This reduces investment overheads as well as installation and connection costs.



ERCO Spherolit lens technology
A range of light distributions such as oval flood enable light beams to be specified according to the exhibit.

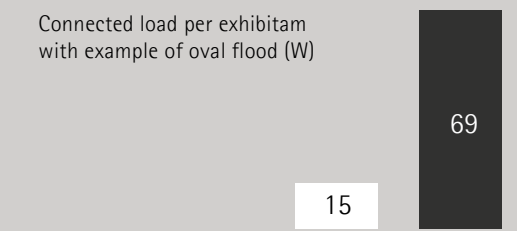
Oval flood	Connected load (W)	15
	Efficiency (lx/W)	19.0
	No. of luminaires	1



Conventional reflector technology
With a limited selection of light distributions, several light beams may need to be installed in sequence for an exhibit.

Flood reflector	Connected load (W)	69
	Efficiency (lx/W)	6.9
	No. of luminaires	3

Summary
A range of interchangeable light distributions gives exhibition organisers the flexibility to select the light beam according to the exhibits. This dispenses with resource-burdening solutions with complex installations and several luminaires.

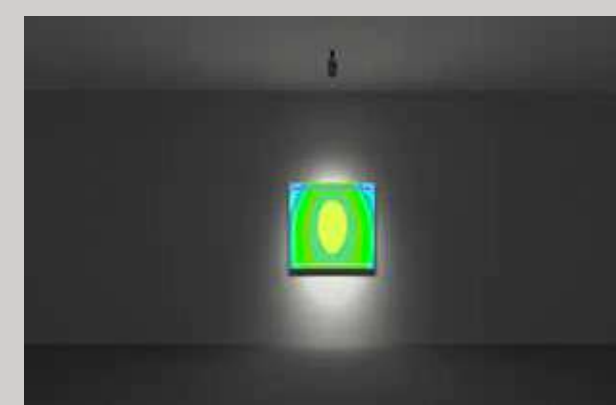


78% savings

■ ERCO Spherolit lens technology
■ Conventional LED reflector technology

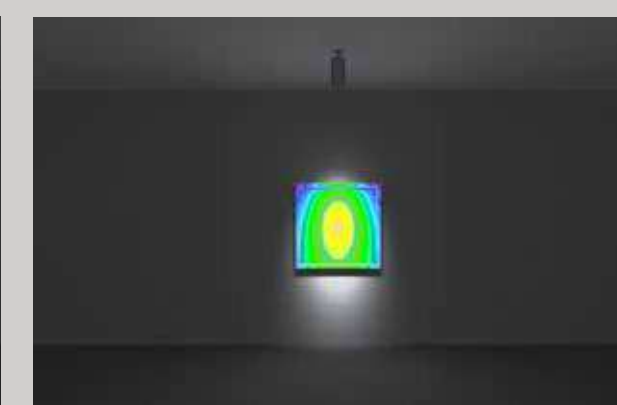
Accenting

Spotlights effectively accent exhibits, emphasise individual objects and create perception hierarchies. ERCO Spherolit lens technology guides the light of the LEDs precisely onto the target plane – without any spill light. Compared to luminaires with reflectors this enables highly efficient lighting solutions.



ERCO Spherolit lens technology
With its LED spotlights, ERCO utilises the efficient principle of projection via lenses – all light beams impact the target plane.

Spot	Connected load (W)	8
	Efficiency (lx/W)	35.1
	Illuminance (lx)	281



Conventional reflector technology
LED spotlights with reflectors have high spill light loss that significantly impairs the efficiency of the system.

Spot reflector	Connected load (W)	17
	Efficiency (lx/W)	15.4
	Illuminance (lx)	261

Summary
Precise Spherolit lens technology enables accent lighting with high efficiency (lx/W). The energy converted into light is projected onto the target plane and does not escape uncontrolled into the room in the form of spill light.



56% savings

■ ERCO Spherolit lens technology
■ Conventional LED reflector technology

Light is the fourth dimension of architecture

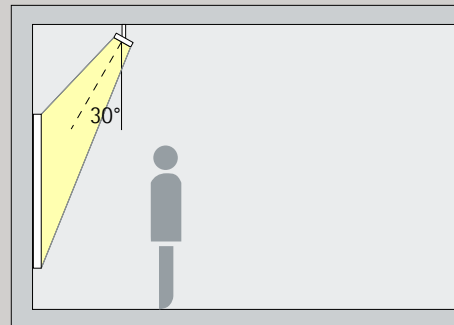
Efficient visual comfort as a strategy for museum lighting

ERCO understands light as the fourth dimension of architecture. Our vision is to make a positive contribution to society and architecture through our actions. We develop and produce lighting solutions for this purpose that create high-quality, authentic surroundings for enjoying art at its best and that simultaneously comply with conservation and energy considerations for sensitive art collections. The basis for this is Efficient Visual Comfort (EVC) – our strategy for seamlessly connecting sustainable design approaches with innovative product technology. To implement this ambitious task in practice we have formulated five quality criteria.



Qualitative lighting design

In addition to their task of presenting and conserving art, many museums also offer state-of-the-art knowledge transfer. The visitor's journey begins at the entrance to the building, and presentation is not limited to the exhibition areas. This means that in addition to illuminating the exhibits, a further perception-orientated component becomes part of the lighting design: good orientation.



Vertical lighting

Vertical lighting determines 80% of people's spatial perception and thus influences our sensitivity to brightness much more strongly than light on horizontal planes. Wallwashing is therefore not only important in the exhibition areas. Vertical lighting also influences the perception of the architecture and facilitates visitors' orientation in foyers, museum shops and cafeterias.



Effective lighting technology

Only high-performance, precise optical systems enable striking accents. Not only the luminous flux but also the actual illuminance on the target plane is important. ERCO utilises in-house developed Spherolit lens technology for this purpose. The result – projected light has no spill light losses. To enable maximum flexibility in exhibition design, ERCO's luminaire portfolio for tracks features seven interchangeable light distributions ranging from narrow spot to wallwash.



Intelligent control

With in-house developed control gear, ERCO provides interfaces for various control technologies such as DALI. Phase dimmable spotlights, floodlights and wallwashers are dimmed via either external dimmers or potentiometer dimmers directly on the luminaires. The brightness of each spotlight can be individually set via the potentiometer. This therefore enables precisely adjusted light scenes in exhibitions that have no control infrastructure.



Efficient LED technology

The leading role adopted by ERCO in architectural lighting with LEDs is based on the decision to expand the company's optoelectronics expertise. Due to in-house development ranging from LED PCBs and electronics to thermal management, ERCO has complete control over the features of its products. In practice this means perfect quality of light also for conservationally demanding exhibits as well as lumen maintenance exceeding market standards for maximum longevity.

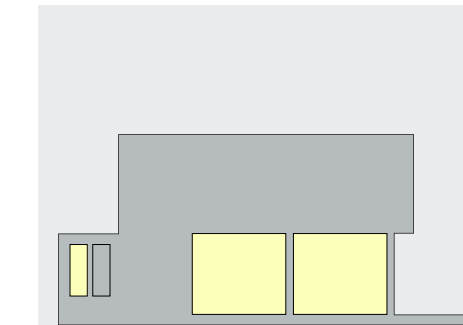
Summary: Holistic designs with ERCO



ERCO supports curators, designers, building owners and users in achieving holistic lighting solutions. We take into account the conservation aspects of the art collection, the design ambitions of architects and the technical aims of engineers when defining the lighting strategy, arranging luminaires or specifying the details of individual luminaires. Illuminating museums and galleries with ERCO means:

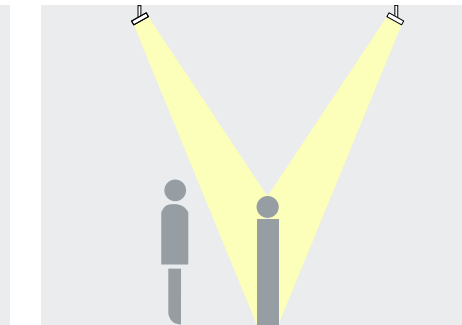
- 1 Flexible infrastructure of light for inspiring, perception-orientated displays of art.
- 2 Brilliant LED light with excellent colour rendering for maximum conservation demands.
- 3 Precise, interchangeable light distributions for impressive experiences of art.

Your design process with ERCO:



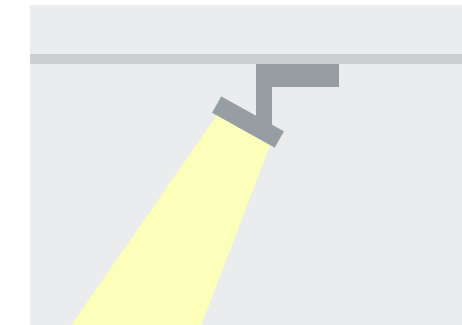
Project support from the start of construction

ERCO provides holistic support – from abstract concepts to specific lighting. Our lighting consultants offer extensive support with individual project analysis, project management and consideration of overall costs and long-term use.



Solving lighting tasks in a perception-orientated way

ERCO helps to identify lighting tasks and explains the benefits of qualitative lighting design from design-related, technical and economic points of view.



The efficient planning of lighting tools

During detailed planning, ERCO supports lighting designers when selecting the luminaire, in specific design and technology aspects and when commissioning the lighting installation.

Added value for creative and technical designers:

Qualitative lighting design for indoors and outdoors

Museum expertise: from illuminating the exhibits to experiencing the building

Sustainable product quality

Innovative technology and dependable operation for maximum service life

From building concept to operation

Diverse inspirations at the concept phase and extensive guarantee coverage and service to ensure perfect operation

Impressive exhibitions

Lighting solutions with consistent quality and flexibility for all forms of architecture – for individual storytelling with light

Museum-compliant lighting technology

LED luminaires with low-damage spectrums for long-term, conservation-compliant art displays

Extensive planning aids

Recommendations for correct luminaire arrangements and light simulation data for design safety

Outstanding product quality

In-house produced LED modules, in-house developed lenses and control gear for maximum precision

Consistent luminaire system

Excellent product design and compatibility throughout for aesthetic added value and flexibility

Detailed luminaire information

Photometric data and diagrams for planning certainty and reliable implementation

ERCO lighting tools

Consistent luminaire systems for art and architecture

Successful cultural institutions provide visitors with narratively-based access to art and create lasting impressions with inspiring exhibitions. To achieve this, ERCO develops lighting tools that provide exhibition organisers with the precision and flexibility they need to tell their story.

This should not be limited to the exhibition rooms – the stage is the complete building, ranging from outdoor facilities and the foyer to browsing in the museum shop and relaxing in the café at the end of a visit.

ERCO LED luminaires are therefore integrated into the consistent luminaire system of the complete program. The most obvious component of this is the clear, functional design of the product ranges that enables any combination of products and types. The core of the luminaire system however consists of photometric features: various light distributions compliant with museum needs, brilliant LED light with authentic colour rendering, identical light colours and high colour fidelity over a long operating time.

During commissioning the lighting tools provide further benefits such as reliable mounting possibilities, for example on ERCO track, and predefined control interfaces. Lighting designers can combine any ERCO LED lighting tools to also solve complex lighting tasks without needing to compromise in terms of quality of light, flexibility and exhibition design.

For an overview of products suitable for museums and galleries, see: www.erco.com/culture

An optimum infrastructure

Recessed, surface-mounted or suspended and with or without an indirect light component, the ERCO track is the basis for variable and flexible lighting design in museums. Track enables luminaires to be optimally positioned and quickly exchanged without tools for new exhibitions. Accessories such as picture hooks and sockets can also be added.



Vertical lighting

Lens wallwashers such as Pantrac enable perfectly uniform vertical lighting even with wide spacing between the luminaires. In addition to a high illuminance, wallwashing displays artworks in a realistic and unemotional way. As well as switchable versions, ERCO also offers phase dimmable (100-1%) and DALI dimmable (100-0.1%) control gear for all track-mounted luminaires.

Flexibility in the space

Track mounted spotlights enable high levels of flexibility in all architectural situations – their accent light emphasises works of art and creates perception hierarchies. Phase dimmable luminaires also have potentiometer dimmers, enabling brightness to be set directly on the spotlights. Interchangeable lenses offer exhibition organisers the freedom needed to achieve optimum presentations of art.

Sharp-edged illumination

Framing attachments, as for example with the Pollux and Optec contour spotlight ranges, allow light beams to be precisely limited to the dimensions of the picture. A slider enables the light to sharply follow the outline of the rectangular exhibits. The effect – pictures seem to illuminate from within. In contrast to darker exhibition rooms, this creates a concentrated and mysterious atmosphere.



Illuminating from the ceiling

In spaces with suspended ceilings, recessed spotlights combine the flexibility of adjustable luminaires with the elegance of downlights. Flush-fitting or with a covered mounting detail, Quintessence luminaires blend elegantly into the architecture and guide the view of observers onto the exhibits.



The ideal solution

For all prestigious areas: with recessed, surface-mounted or pendant luminaires, extensive product ranges such as Quintessence offer designers flexibility for any architectural situation with consistently high visual comfort. ERCO uses constant current dimming technology (CCR) with phase dimmable control gear and DALI dimmable control gear and in the dimming range to 10%. Dimmed LED light is therefore flicker-free and suitable for



General lighting for high rooms

Good glare control and precise light beams are characteristics not only relevant for exhibitions. Light should be qualitative and therefore provide a prestigious setting in public areas as well – for example the Quintessence double focus downlights with black anti-glare cone specifically designed for high rooms and lighting technology adapted from spotlights.



Discreet and precise

Recessed luminaires merge into the background in favour of their light impact in the space. In combination with special light distributions such as the oval wide flood of Compar, modern, minimalist ceiling designs are possible not only in prestigious areas but also above office workstations.

Lighting effects for buildings

Robust spotlights such as Kona XS enable a high level of design flexibility for facades and outdoor artworks due to diverse light distributions, lumen values and mounting options. Precise accents guide the view and transform museums into landmarks at night.



Providing orientation

Bollard luminaires ensure the glare-free illumination of paths, steps and open areas. They thus provide visitors and employees with a sense of safety and security on their way into a museum. Thanks to Dark Sky technology, lighting tools such as Midipoll prevent light being emitted above the horizontal line. This ensures high visual comfort even during hours of darkness.



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of architecture

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