

# Community

## Light for public buildings

Planning principles and design



# Editorial

Forging identity – representing values – creating social locations

What binds our society together, allows it to function and makes it worth living? Not least the communal buildings in which people as visitors, citizens or politicians move, gather and exchange information. Buildings for public administration, educational facilities, theatre, congress centres, railway stations and airports: their architecture, equipment and condition reflect the needs and reality of a society. Creating new features or maintaining existing structures provides both opportunities and responsibilities for planners and designers. Care and quality in all planning aspects are the decisive criteria. Light assumes much more than just functional tasks – it also determines the character and representative symbolic force of public buildings.

### **Inclusive instead of exclusive**

Even buildings as diverse as airports, schools and town halls have something in common. For example the spectrum of users of such buildings is not clearly delineated but consists of many people with highly differing intentions. For this reason lighting concepts are required which are oriented to the fundamentals of human perception, design and communication – light that includes, not excludes, the users. ERCO thinks in just such perception-oriented categories of light and offers appropriately matched lighting systems. In this way light is transformed into a universal language that also spans cultural barriers. Light is an effective medium for designing architecture in accessible and user-friendly ways, for controlling flows of visitors and for defining utilisation areas.

### **Light for rooms with unusual dimensions**

Based on the constant growth of cities, a further common feature of public buildings can be identified: these also expand, in an attempt to get to manage their capacity requirements. As a consequence they are not only highly conspicuous in the urban landscape but interiors with remarkable dimensions are also created such as atria, stairways, assembly halls, reception halls and terminal areas. This is a challenge in terms of design and technology to which ERCO responds with high-performance, precise LED lighting tools – for example with special wallwashers that efficiently and uniformly illuminate 8m high walls.

### **Efficient visual comfort for light with symbolic power**

An ERCO lighting solution creates added value in multiple ways: either directly via low energy and maintenance overheads or indirectly for example the higher levels of acceptance with users reduces vandalism in circulation buildings. An improved feeling of safety and security in well-lit rooms contributes to the quality of stay as well as supporting orientation thanks to a perception-compliant structuring of the architecture via light. With efficient visual comfort ERCO implements a strategy of bringing complex user needs and energy efficiency into compatibility. Positive user experiences serve to support the level of identification with such buildings, in addition to distinctive appearances that gain a high sense of impact via night-time illumination.

### **Indoors and outdoors – from a single cast**

An identity-creating component for communities is added to the inherent purpose of such buildings. Business-oriented complexes such as airports and congress centres can become symbols of public pride just as much as libraries and auditoriums are symbols of collected knowledge. Government buildings in particular, ranging from town halls and regional parliaments to national assemblies almost automatically develop an iconic character via their role and media presence. ERCO lighting tools in such buildings have already contributed worldwide to successfully uniting maximum demands in terms of design with practical and technical requirements – with the display of building structures within the urban environment and with the effective illumination of both everyday and highly unique interiors.



# Architecture for society

## Light as part of public life

In architecture used by many different types of people, lighting is not a matter of individual taste but must comply with the rules of perception and communication. ERCO thinks in such categories of light and makes available a range of luminaires for public buildings oriented to these principles. This enables lighting designers to rationally develop nuanced lighting concepts and reliably implement these – also in projects with extensive size and complexity.



Only flexible lighting technology with digitally controllable components makes conference halls multi-talented – from functional lectures to atmospheric events.



Ideally illuminated, unique architecture can turn a library into the highly respected and intensely used centrepiece of an urban society.

Where committees decide about the future of cities, towns, districts and counties, concise, functional lighting also symbolically represents transparency and social values.



Because buildings for circulation and worlds of shopping are increasingly merging, a clear, concise lighting concept aids orientation for their users.

On the way towards a knowledge society: learning needs the right light that also harmonises with contemporary digital equipment.



# Lighting concepts that bring together

## Designing transitions with light

Light is the fourth dimension of architecture: this means a further level of design that reinterprets the architectural space. A coherent lighting concept is also able to bring together diverse elements and differentiate between these within a common framework. The ERCO luminaire system is ideal for specifically implementing various qualities of light within a concept that is homogenous in terms of design and technology.

Further information:  
[www.erco.com/community](http://www.erco.com/community)



**Historic and modern**  
If traditional and modern architecture come together in the urban environment, lighting is able to forge a bridge and establish a common plane. In the ERCO system of luminaires parameters such as light colours, control options and light distributions are mostly uniform with indoor and outdoor luminaires, thus supporting coherent lighting concepts.



### Insights and views

Looking into and out of transparent architecture depends to a high degree on the lighting contrasts between the interior and exterior space – illuminated elements of the indoor architecture become visible at night from the outside. Conversely, buildings illuminated in a nuanced way ensure that reflections do not dominate the view from the inside to the outside.



### Public and private

Contrasting qualities of light within buildings enable circulation routes and withdrawal areas for example to be defined. Factors such as brightness and focus of the luminaires significantly influence the specific ambience.

# Representing with light

A focus on public life

Public buildings represent the values and attitudes of society. Appropriate lighting not only ensures that such buildings in urban settings are visible and detach themselves from their surroundings, but also highlights the specific character of the architecture and purpose of the building. ERCO supports prominent buildings in achieving an unmistakably striking nocturnal appearance, thereby also supporting the level of identity – they are transformed into landmarks providing orientation for both local citizens and visitors.

For more community projects, see:  
[www.erco.com/community](http://www.erco.com/community)



## The grand appearance

The New York Public Library on 5th Avenue has represented a symbol of education and public spirit within the skyscrapers of Manhattan for more than a century. Behind this historical facade is one of the world's largest libraries. On the occasion of this anniversary, donors enabled new lighting systems with lighting tools from ERCO. Floodlights and projectors installed

at high mounting points around the building efficiently and uniformly illuminate the building structure without causing glare for passers-by. The materials, colours and details of the facade are optimally displayed.

## Transparent communication

Sober and transparent, yet still with a festive touch: a suitable description for the atmosphere in the prestigious plenary hall of the Centre de Conférences Kirchberg in Luxembourg, where the Ministerial Council of the EU for example gathers several times a year. The highly adaptive lighting solution with directional spotlights from ERCO is installed in a suspended ring structure. The direct and indirect light components can be switched and dimmed according to the specific situation based on preprogrammed scenes.



## Learning from each other

Pragmatic, concise architecture such as the auditorium building of the University of Osnabrück also represents values – in this case the sense of neutrality and pioneering orientation with science and research. Within an open structure, architecture and focused lighting via ERCO recessed directional spotlights create individual islands of space. They support students with communicative exchange and common learning.



## Networking people

Expressive gestures are typical elements of airport architecture: wide, high halls can be flexibly used and symbolise the dynamism of aviation. The Carrasco International Airport near Montevideo, Uruguay's capital city, welcomes visitors and flight passengers underneath a bold, pillar-free, arched roof shell. Lighting of the roof area is implemented with asymmetrical distribution ceiling washlights from ERCO mounted discreetly into the supporting structure of the facade. This lends the roof a lightweight, almost floating appearance and the indirect lighting creates uniform, glare-free light.



## A cultural dialogue

Theatres and concert halls adopt an important role in creating identity within communities because they maintain, develop and present the cultural heritage. Demands placed on architectural lighting are high because this should also be at eye-level with activity on the stage. The Linz music theatre in Austria is one of the most modern opera houses in the world. The inherent elegance of the ERCO lighting solution is based on its indiscernible support of the cultural pleasure.



# Lighting functions

Which tasks does light adopt in public buildings?

Illuminating public buildings needs to fulfil a wide variety of needs – in each project lighting designers are faced with the challenge of uniting the spatial programme and contextual and design requirements as well as organisational and financial framework conditions within a single lighting concept. The range of tasks can include a variety of nuanced architectural situations beginning with the facade and lighting of the entrance zone and foyer, circulation zones such as stairs and corridors and multifunctional rooms and peripheral areas required for management, workshops and archives. A theoretical model of lighting functions helps to evaluate the quality of lighting not just according to purely quantitative criteria such as illuminance. It distances lighting from the static room cubature to focus on the utilisation of a spatial situation, both indoors as well as on the facade.

This form of zoning allows individual tasks to be identified: should an area receive visitors, represent particular elements and values, provide orientation, guide through the building or provide space for specific events?

The model enables designers to flexibly respond to a high diversity of public building tasks and architectural situations within an increasingly dynamic world of work, as well as modularly grouping lighting tasks and scaling spatial areas according to needs.

At the start of each lighting project it makes sense for lighting designers to ask the following three questions for each required functional area:

- 1 Which architectural and functional importance does the room or spatial zone have?
- 2 Which tasks in the building can be implemented with lighting to provide all users with a positive, identity-enhancing experience?
- 3 Which individual lighting strategy and methods of lighting are suitable as the basis for lighting design?



## Welcoming

Light delineates points of contact such as reception desks and information desks in a space to guide flows of visitors. A brightness level higher than the surroundings automatically catches the eye. Luminaires with good glare control ensure high visual comfort for visitors and receptionists.

- Islands of light can be created by using higher lumen-output or more compactly arranged recessed luminaires, with use of pendant luminaires or suitably aligned spot-lights.
- Rear walls illuminated with wallwashers generate a bright, friendly backdrop for reception areas. The wall can also become an information carrier via logos, coats of arms or signage.



## Representing

Light is decisive for lending public buildings a representative and unique identity. This includes displaying the facade and building structure with light as well as the design of entrance zones, foyers and halls. Differentiated lighting concepts communicate a sense of value. Premium materials and surfaces are shown to full effect in brilliant light with good colour rendering.

- Vertical lighting emphasises the size and shape of large-scale foyers and entrance halls. It also enables transparent architecture to illuminate from within and transforms buildings into nocturnal landmarks.
- Impressive roof constructions are emphasised with floodlighting to gain a lightweight, almost floating appearance. Roof floodlighting also serves as glare-free, indirect general lighting.



## Guiding

To enable visitors and users to move around buildings in a reliable and safe way, circulation routes and areas such as stairways and lift foyers should be visually emphasised. Linear lighting is highly suitable for marking routes. Vertical lighting delineates the target points of routes in the distance.

- The perception-oriented distinguishing of various utilisation areas with light enables these to be recognised, thus also facilitating orientation.
- Accents of light at the bottom of a stairway or in front of a lift indicate the vertical accessing of a building.



## Orientation

Lighting concepts complying with perceptual needs make public buildings easily accessible and user-friendly. Part of this is to define and structure large rooms via vertically and horizontally zoned lighting. Contrasts in brightness achieve hierarchies of importance in the space that support quick and concise orientation.

- Because of our principal line of vision, vertical surfaces play a particularly important role with orientation. These vertical planes are uniformly and efficiently illuminated with wallwashers.
- Horizontal lighting with good glare control also helps to divide large rooms with high ceilings into zones via light.



## Coming together

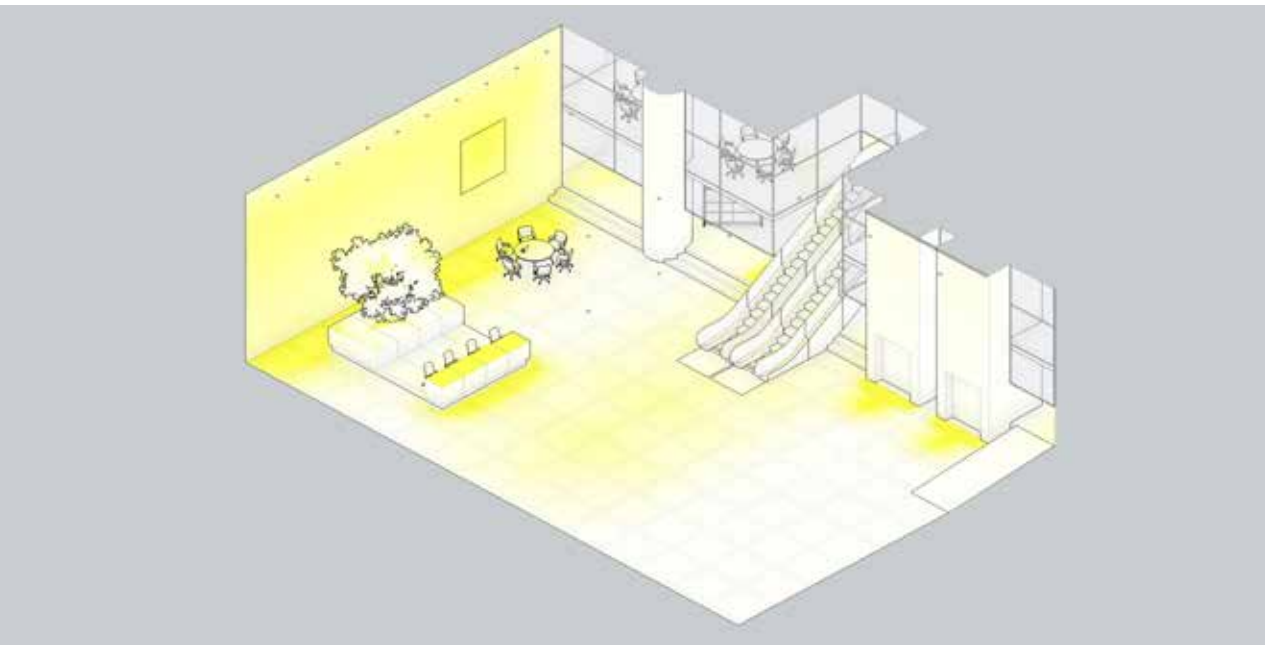
In multifunctional rooms and event halls the atmosphere can be varied with light scenes featuring different components of general lighting, vertical lighting and accent lighting – for applications ranging from a sober negotiating atmosphere to a festive ambience during evening receptions.

- Controllable luminaires, for example with DALI interfaces or phase dimmable control gear, can be integrated into light- and building control systems for scenic lighting purposes.
- Good glare control and flicker-free light guarantees visual comfort and complies with media needs, e.g. video recording.

# Lighting design by comparison

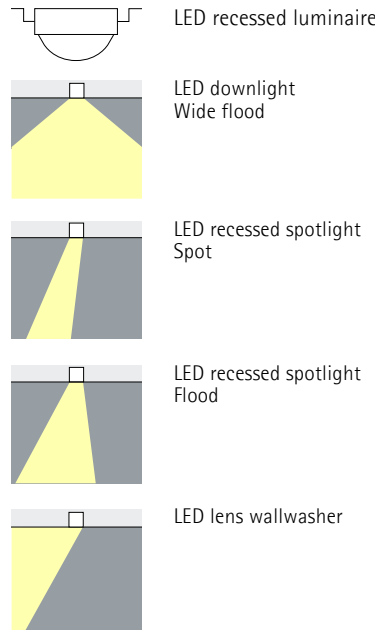
Case study: qualitative instead of quantitative lighting

The foyer of an authority, university or concert hall serves as the business card of the specific institute. Often designed as a generously dimensioned, high entrance space, foyers serve representative purposes and at the same time function as reception and waiting areas as well as providing access to adjacent parts of the building. Striking designs also have an identity-supporting element for visitors and users. This multiplicity of functions requires a nuanced lighting concept that can be economically implemented and operated. Qualitative lighting design approaches make use of the principles of perception psychology to efficiently divide the room into zones. One possibility of creating orientation in large, high rooms is to establish graduated depth in the room: the foreground and background are differentiated by the use of appropriate contrasts in brightness. The specific illumination of elements such as stairs, reception desks and waiting areas structures the space and guides the view of the user. Wallwashing increases the impression of brightness in the room: particularly in public buildings with transparent facades, wallwashing during the day offers an analogy to areas near the facade flooded with daylight, and at night-time establishes a visual reference from the outside to within. Lighting solutions offering high visual comfort via good glare protection allow the eye to adapt, and therefore fulfil their tasks with lower levels of illuminance.



## Qualitative lighting design for foyers

Rapid orientation and a bright spatial impression: perception-oriented lighting divides the room into zones of light. Recessed luminaires with various light distributions enable specific room geometries and user profiles to be responded to.



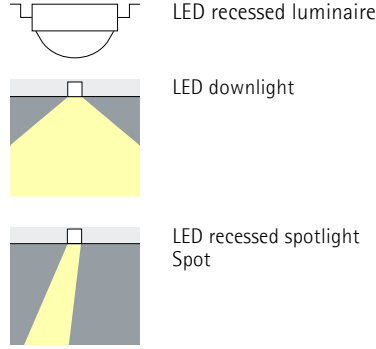
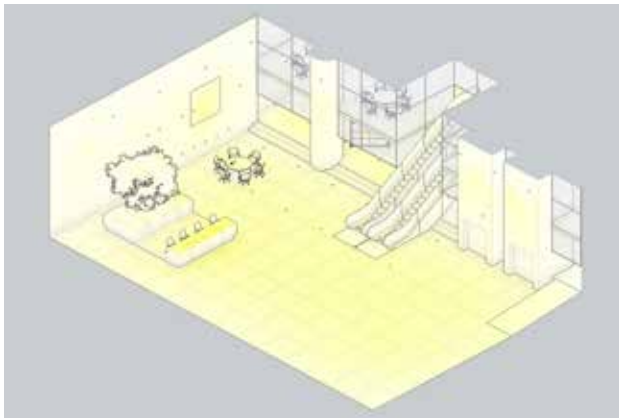
**Key figures**  
With a mean illuminance of at least 300lx at the counter and minimum of 100lx in circulation areas:

No. of luminaires	27
Connected load (W)	822
Wattage per area (W/m <sup>2</sup> )	1.63

## Quantitative lighting design for foyers



Monotonous lighting that does not take the spatial context into account ignores the perception hierarchies offered by the architecture and makes orientation more difficult for users. It also requires more energy to generate a comparable impression of brightness.

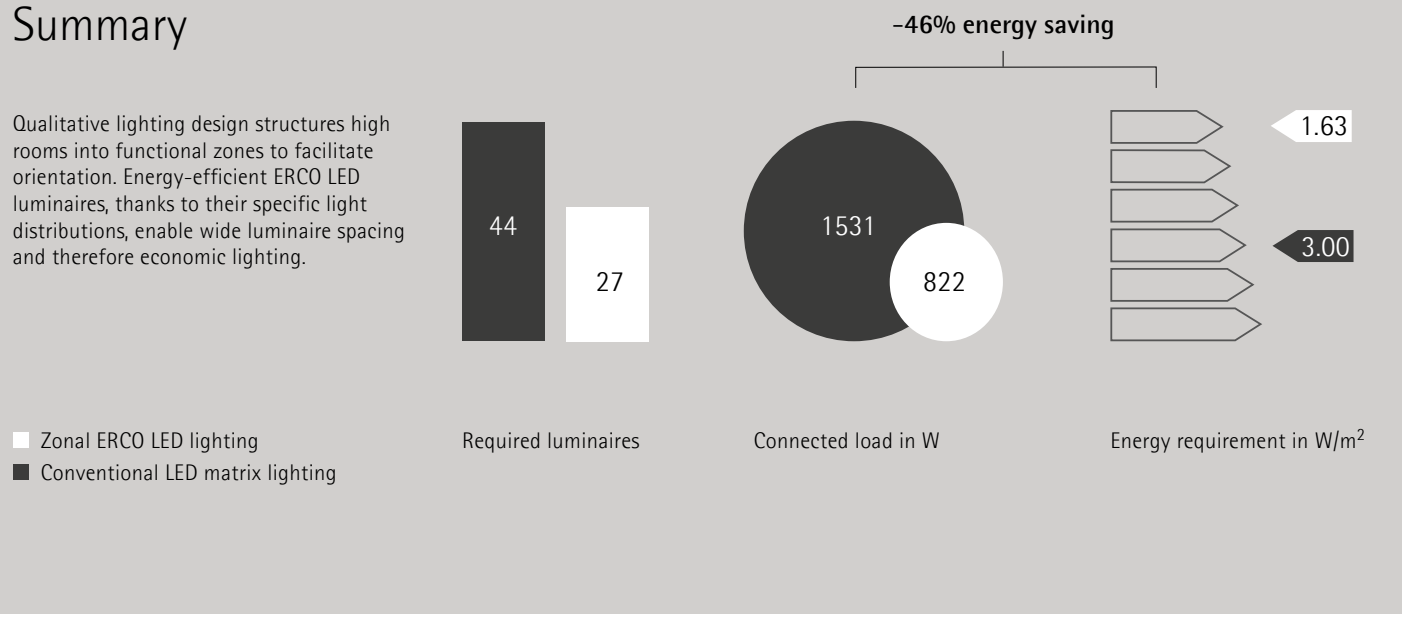


**Key figures**  
With a mean illuminance of at least 300lx at the desk and minimum of 100lx in circulation areas:

No. of luminaires	44
Connected load (W)	1531
Wattage per area (W/m <sup>2</sup> )	3.00

## Summary

Qualitative lighting design structures high rooms into functional zones to facilitate orientation. Energy-efficient ERCO LED luminaires, thanks to their specific light distributions, enable wide luminaire spacing and therefore economic lighting.



# Light is the fourth dimension of architecture

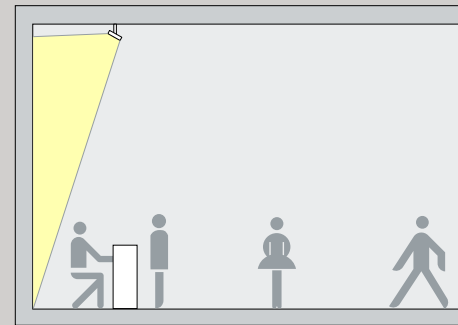
## Efficient visual comfort as a strategy for illuminating public buildings

ERCO comprehends light as the fourth dimension of architecture. Our vision consists of making a positive contribution to society and architecture with our activities. We develop and manufacture lighting solutions for this purpose that create a high quality, authentic environment. 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

With the illumination of public buildings, functional aspects such as orientation, user friendliness and inclusion are on an equal footing with emotional aspects such as quality of stay and representation. Together with the interplay between bright and dark, foreground and background and vertical and horizontal planes, light serves to guide flows of visitors and is a medium for communication. This in turn puts human perception into the focus of the lighting designer and with it lighting design that targets perception-based psychological needs such as vertical lighting and accenting.



### Vertical lighting

Vertical lighting determines 80% of the spatial perception of people – and therefore influences our sensitivity to brightness much more strongly than light on horizontal planes. Vertical lighting also renders architectural elements visible from afar through glass facades. It supports orientation in buildings by defining dimensions and room boundaries, displays artworks, panels and signage installed on walls and gives a more generous and airy appearance to corridors and rooms.



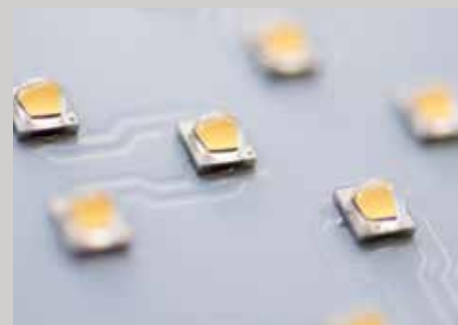
### Effective lighting technology

Only high-performance, precise optical systems enable zonal lighting and also overcome distances in especially large or high rooms. ERCO offers specialised light distributions within a luminaire range to illuminate the surfaces required by people for their perceptual needs. Designers can also select from up to five different characteristics with recessed luminaires. As a consequence, lighting with ERCO is especially efficient and effective.



### Intelligent control

With in-house developed control gear, ERCO provides interfaces for various control technologies such as DALI. This enables ERCO luminaires to also be integrated into universal building control systems that should make public buildings more energy-efficient. Also of relevance is control for multi-functional rooms and event halls for example in which lighting adapts with use of scenes to differing applications or sequences.



### Efficient LED technology

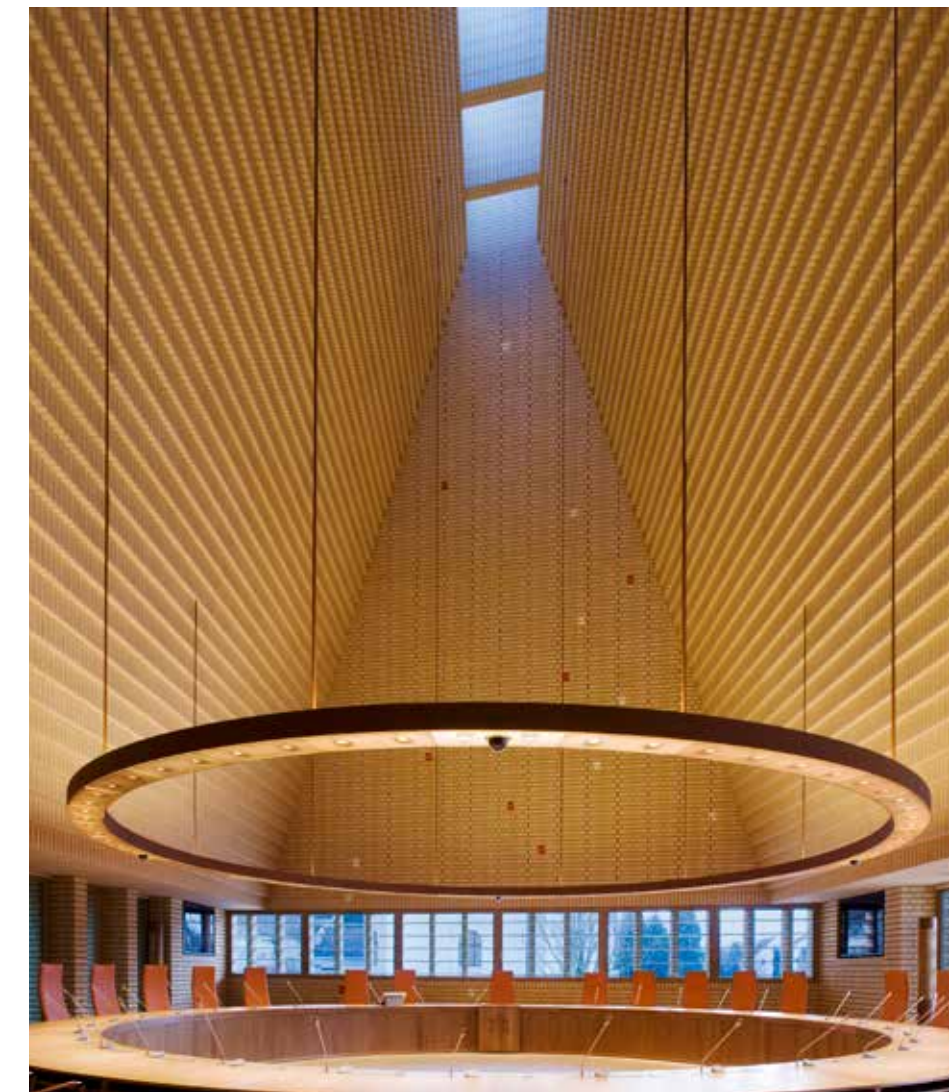
The leading role adopted by ERCO in lighting with LEDs is based on the decision to expand the company's optoelectronics expertise. Due to in-house development ranging from LED PCBs and electronics to thermal management, ERCO always has complete control over the features of its products. In practice this means perfect quality of light, high illuminance levels coupled with low connected loads, and lumen maintenance that exceeds market standards for maximum longevity.

# Summary: Holistic designs with ERCO



ERCO supports architects, lighting designers, public authorities and investors in developing holistic lighting solutions for public buildings. We accompany you in your striving for efficient, functional and prestigious lighting concepts and provide professional advice in technical issues and cost efficiency considerations. Lighting from ERCO in public buildings means:

- 1 Prestigious architectural lighting for a striking, identity-supporting appearance.
- 2 Durable, low-maintenance and efficient lighting technology for advantageous total cost of ownership (TCO).
- 3 Economical luminaire arrangements with use of extra wide rotationally symmetrical and oval light distributions.



### Individual project and product solutions

Iconic architecture, as is typical for large public projects, demands individual technical and design solutions in terms of lighting as well. Thanks to agile processes and flexible production facilities with extensive depth of production, ERCO is able to develop high quality special solutions based on its series products and components – in close cooperation with engineers and lighting designers and with transparently calculated costs.

Possibilities include e.g.:

- spraying in special colours
- LEDs in specific light colours and spectra
- pre-assembled connector systems for electrical connection
- production of complex architectural installations
- special constructions and in-house development

# ERCO lighting tools

A consistent luminaire system for public buildings

Buildings that are literally in the light of public awareness deserve the best-quality equipment. ERCO provides lighting tools for the architects and planners of such projects that allow maximum demands with regard to design and visual comfort to be brought together with factors such as reliability, sustainability and cost-efficiency. To achieve uniform quality and appearance, ERCO implements a consistent system in its luminaire ranges. The most obvious feature of this is the clear, functional design of the product ranges that enables any combination of luminaire ranges and types. The core of the luminaire system however consists of photometric features: various light distributions compliant with the needs of public buildings, brilliant LED light with very good colour rendering, identical light colours and high illuminance levels with low connected load. During commissioning the lighting tools also provide reliable mounting options and predefined control interfaces. Lighting designers can randomly combine ERCO LED lighting tools to also solve complex lighting tasks without needing to compromise in terms of quality of light, flexibility and architectural design.

For an overview of products suitable for public buildings, see: [www.ercos.com/community](http://www.ercos.com/community)

## Flexible infrastructure

ERCO track and light structures represent an economical and flexible lighting infrastructure in public buildings where recessed luminaires frequently dominate: for example in areas accommodating various types of display and presentation or where uses frequently change. The products are available as recessed, surface-mounted and suspended versions, with or without indirect light component.



## Accents at large heights

Lighting concepts installed in high rooms with wide distances between the luminaires and to the target plane or object are highly effective and provide high visual comfort. However, they require particularly high-output and precise lighting tools – for example the spotlights, floodlights and wallwashers in the Stella range.

## A single system for all cases

A spotlight system for track applications in public buildings should combine extreme flexibility and diversity with a timeless design. The Parscan range is the most extensive spotlight series in the ERCO product portfolio, and not only features all photometric options of the ERCO system of luminaires but also high product quality for simple handling and a long lifespan.

## Discreet and precise

Recessed luminaires merge into the background in favour of their light impact in the space. The linear recessed luminaires in the Compar series are available with rotationally symmetrical and oval downlight characteristics and as wallwashers. With wide flood or oval wide flood light distributions, Compar is also suitable for workplace lighting in compliance with standards, for example in reception areas.



## The ideal measure

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



## Robust and diverse

Only a few ground-recessed luminaires bring together high levels of resistance to environmental factors with modern, nuanced lighting technology for sophisticated outdoor lighting concepts. The Tesis range of ground-recessed luminaires not only consists of various construction sizes, shapes and wattages but also offers six light distributions ranging from narrow spot to wide flood, oval flood and wallwash.

## Creating nocturnal landmarks

To ensure that striking buildings are noticed in busy urban environments, lighting designers install high lumen-output projectors and floodlights for night-time display purposes. The projectors and floodlights in the Kona range carry out such tasks with extreme efficiency and precision. The robust housings with modern, neutral design achieve ideal operating conditions for the maintenance-free LED technology.



## A floating appearance for hall ceilings

Ceiling washlighting lends a lightweight, floating appearance to wide hall canopies or cantilever roofs on facades. It also serves as glare-free, indirect general lighting. Ceiling washlights such as Lightscan facade luminaires are available with wide or narrow light distributions matched to the application.



## Specialists for high rooms

Recessed luminaires for high rooms require high luminous flux and precise optics. A lens system consisting of collimator and Spherolit lens transforms Quintessence double focus downlights into specialists for such applications. The innovative lighting technology of the wallwashers enables particularly close distances to the wall. The black anti-glare cone achieves high visual comfort and a discreet appearance.





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