

Light is individual  
Modern office lighting –  
placing people at the centre

Light is OSRAM

Our Brands

**siteco** traxon e:cue

**OSRAM**

# Individual lighting solutions for office environments – with Human Centric Lighting concepts

Human Centric Lighting coordinates the interplay of light, atmosphere and space to correspond to the well-being of people in particular surroundings. HCL has special importance for modern office environments because it places people at the centre.

Lighting not only focusing on tasks and activities contributes verifiably to greater creativity and productivity. It is easier to concentrate with good visual conditions and a positive atmosphere. A light atmosphere felt to be pleasant improves the sense of well-being and motivation. Minimum requirements for professional office lighting are

stipulated via clear normative specifications, for example with the EN 12464-1 standard in Europe. Various quality criteria such as illuminance, uniformity, glare control and contrast sensitivity define the quality of light. In general the following applies: the right light at the right time and in the right location. Also, biologically effective,

dynamic white light with a brightness sequence and light colour sequence according to the course of daylight. This supports the natural biological rhythm for increasing our well-being and improving our capacity to perform. Innovative Human Centric Lighting applications from OSRAM Lighting Solutions function with both artificial and

natural light, or combine both in an intelligent way. Fundamentally, the following applies: natural light is the best light. Our HCL artificial light concepts come as close to this proposal as possible.



# The habitat of offices

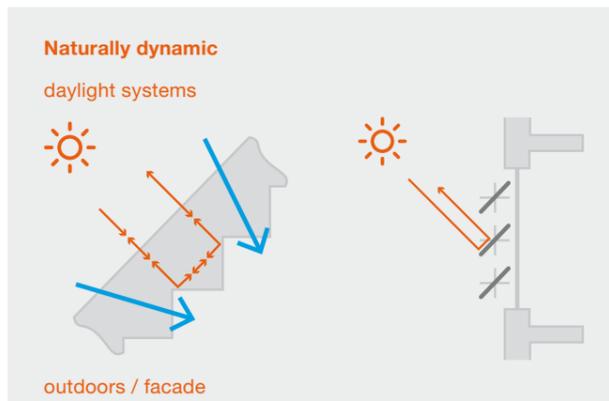
With the transformation in demands placed on people in modern office environments, requirements made on the design and illumination of contemporary office workplaces also change.

The classic image of workers at their desks is now a thing of the past. Today's offices increasingly serve as meeting points and communication centres, as factories of knowledge and as expanded habitats. The trend is departing from single offices and closed doors towards open office solutions with a diversity of zones for work, communication and regeneration. Factors of well-being such as comfort and ergonomic workstations are becoming ever more important with office design as well. Lighting is

an integral component when designing modern offices. The largest challenge in such cases is usually reduced levels of daylight: older buildings often have rooms with little or no windows, and with larger room structures the natural quantity of light becomes less as it recedes into the room depth. The aim of Human Centric Lighting is to significantly improve the lighting situation for greater well-being and performance capability, as well as achieving optimum synchronisation with the outdoor environment.

## Key points of HCL designs

- Wide-area, indirect lighting > creation of an artificial sky
- High vertical illuminances
- Dynamic white colour temperatures
- Dynamic light control
- Large window areas with ideal transmission
- Daylight systems for specific light targeting
- Highly reflective surfaces, spectrally aselective



# Light is more than you see

Human Centric Lighting solutions from OSRAM Lighting Solutions achieve a fine balance between visual comfort, emotional perception and biological impact.

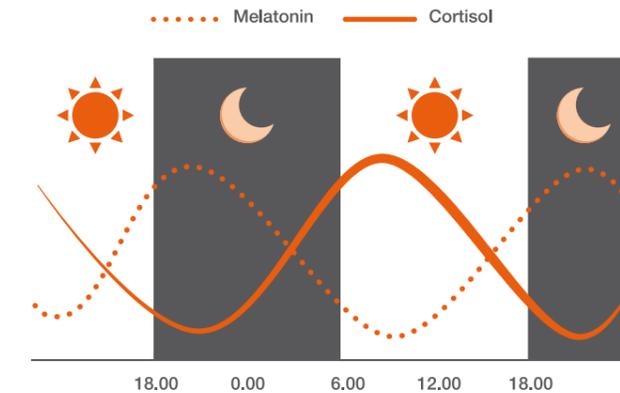
## Effects of light in addition to visual perception

Visual perception	Brightness, colour, contrast, shapes, motion
Psychological effects	Well-being, positive atmosphere, recovery, comfort
Biological effects	Concentration, synchronisation of the inner clock, attention

## Chronobiology and circadian rhythm

Chronobiology analyses the time-based organisation of psychological processes and the repeated behaviour patterns of organisms. Chronobiological research has become increasingly important in past years because our method of living increasingly runs counter productively to our biological clock (the circadian rhythm or sleeping/

waking cycle). The reason for this is that people spend increasing amounts of time indoors where the brightness level is often reduced to 500 lux or less. Outdoors this luminous intensity is between 8,000 lx and up to 100,000 lx. A continuous light deficit can lead to sleeping and eating disorders, lack of energy and depression.



## More concentration and creativity due to biologically effective light

Light impacts on how we feel and act. If it is biologically effective it can also have a stimulating or relaxing effect. Warm light with a higher red component has a relaxing effect. Light with larger blue components or higher colour temperatures is biologically activating.

Compared to warm light, light with a distinct blue component more easily impacts the activating centres in our brain and the control centre for our inner clock. In this way it increases alertness, attention and the ability to concentrate. The biological effect is strongest when light is emitted from a wide-area source and from above, as with sunlight.

## Correct. Individual. Planned.

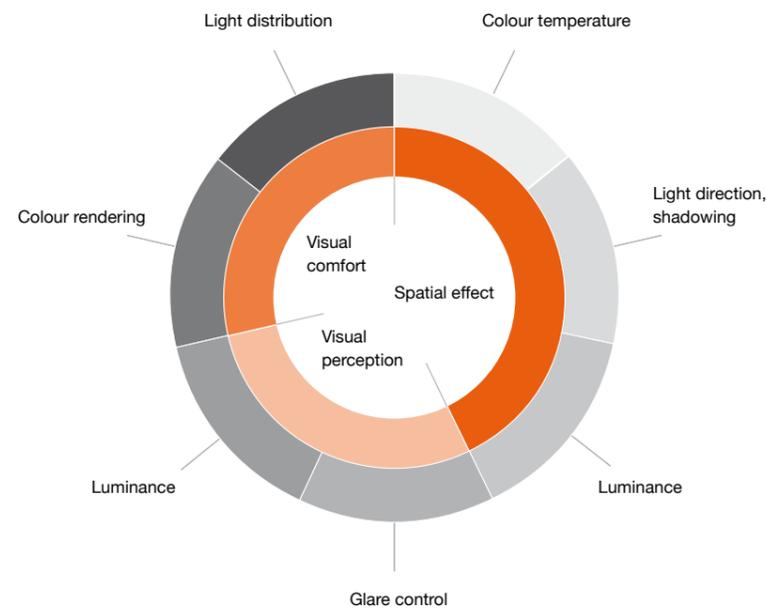
OSRAM Lighting Solutions develops custom-designed Human Centric Lighting concepts based on the existing standards for office lighting.

Our HCL solutions are based on the visual perception and have an activating, relaxing or neutral influence in accordance with daylight. The basis for this biologically emotional effect is the holistic integration into the architectural context. The design and interaction of the luminaire with the room and all its elements is decisive.

### Important quality criteria for functional office lighting

With all HCL lighting concepts a focus is placed on illumination of workplaces in compliance with appropriate standards – relevant regional rules and regulations for lighting provide information about this. Based upon this, additive activating concepts and the interior design of the room are then used. In Europe the EN 12464-1 standard defines minimum requirements for the lighting of indoor

workplaces and forms the basis for planning office lighting. Precise regulations are formulated in accordance with various quality criteria and according to visual tasks. For recommendations about correctly designing with biologically active light, see for example the DIN SPEC 67600 and DIN Spec 5031-100.



For a detailed description see [www.osram.de/lightingsolutions](http://www.osram.de/lightingsolutions)  
 For a detailed description see [www.osram.de/ls](http://www.osram.de/ls)  
 Detailed description: [www.osram.de/ls/licht-fuer/hcl/](http://www.osram.de/ls/licht-fuer/hcl/)

## Nothing's more simple than light

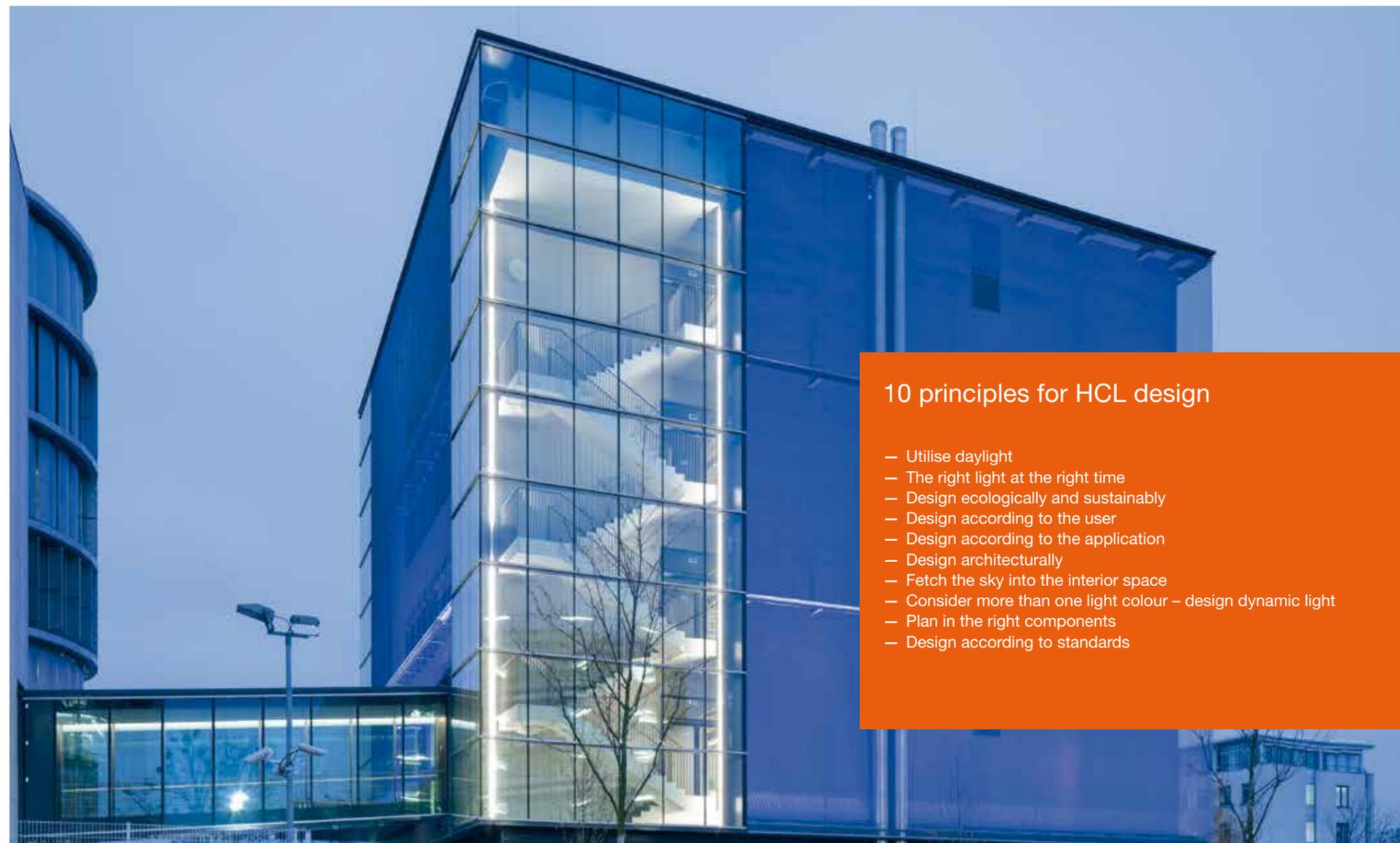
From energy audits, product selection and installation to maintenance and financing – everything from a single source: OSRAM is your complete solution provider.

OSRAM supports you every step of the way. We see our task as not only supplying you with products. Our approach is to offer complete solutions and services precisely matched to your requirements and concepts.

- You'd like to use light management systems to achieve more flexible and efficient utilisation? No problem.
- You wish to define various lighting situations for differing applications? No problem.
- You'd like to remotely monitor your luminaires in the office building or office environment? No problem.
- You're looking for a good installation service? No problem.

Whether you're refurbishing existing lighting or setting up a new system, we support you throughout your project – ranging from determining the savings potential, consultation, product selection, developing own luminaires and optional financing to installation, commissioning and maintenance.

More information: [www.osram.de/lightingsolutions](http://www.osram.de/lightingsolutions)



### 10 principles for HCL design

- Utilise daylight
- The right light at the right time
- Design ecologically and sustainably
- Design according to the user
- Design according to the application
- Design architecturally
- Fetch the sky into the interior space
- Consider more than one light colour – design dynamic light
- Plan in the right components
- Design according to standards

# Complete HCL solutions for office environments

We have developed special **Human Centric Lighting** solutions for modern office lighting using artificial light and natural light. All products not only comply with high photometric requirements and therefore the latest standards, but are also extremely dependable and durable. Such are the high quality standards of OSRAM. High quality, attractive designs as well as diverse mounting and installation options enable harmonious integration into almost any office surroundings.



## Scriptus®

**Progressive design and outstanding quality of light**

**Benefits:**

- Surface-mounted/suspended
- Direct/indirect, separately switchable/controllable
- Direct/indirect Tunable White
- DALI 8.0 / Lightify Pro



## Taris®

**Harmonious light for a diversity of uses**

**Benefits:**

- Recessed/surface-mounted/suspended
- Direct/indirect, separately switchable/controllable
- Indirect Tunable White
- Direct monochrome 4000 K
- DALI 8.0/Lightify Pro



## Arktika® Biolux

**Ultraflat and extremely efficient**

**Benefits:**

- Suspended
- Direct/indirect, separately switchable/controllable
- Indirect monochrome 6500 K
- Direct monochrome 4000 K
- DALI
- Available on request



## Lightify® Surface

**A round solution for walls and ceilings**

**Benefits:**

- Surface-mounted (walls/ceilings)
- Tunable White
- Uniform illumination
- Lightify Pro



## Lunis®

**The modular luminaire with style**

**Benefits:**

- Recessed/surface-mounted/suspended
- Tunable white 3000 - 6500K
- Timeless, discreet design
- Outstanding quality of light with high visual comfort
- Simple mounting with clip system
- Available on request

## Artificial light – as a supplement to daylight

OSRAM Lighting Solutions offers a wide spectrum of innovative LED solutions using OSRAM, Traxon and Siteco brand luminaires for the flexible and individual design of HCL concepts.

## Daylight

### Daylight systems

Natural sunlight can be optimally integrated into lighting concepts by using daylight systems. These use the physical laws of reflection, absorption and refraction to perfectly illuminate rooms efficiently and with a flawless energy balance, while avoiding the build-up of heat. Both movable and stationary prismatic systems are available for glass facades as well as systems integrated into the intermediate spaces between window panes. In all cases the direct ingress of "hot" sunlight is reflected away and only diffuse "cool" daylight enters the room. Energy consumption for artificial lighting and air-conditioning is reduced and room comfort is improved.

## Control

A growing success factor for Human Centric Lighting concepts is the implementation of intuitive light control for the correct handling of light according to usage profiles and the building situation. OSRAM Lighting Solutions offers several light control systems with suitable sensor technology, and thanks to open, non-proprietary standards, such solutions can be simply integrated into common building management systems. Using sensors for motion detection, control can be implemented in combination with daylight and movement. Controlling the light of HCL systems using LIGHTIFY® Pro is especially simple and benefits from highly intuitive implementation.

## Dynamic light

In addition to Human Centric Lighting concepts, light that modifies its colour or intensity creates appealing work surroundings. Osram Lighting Solutions offers an extensive portfolio of accent and ambient lighting for this purpose with products from the Traxon brand. Ranging from facades and entrance areas to exhibition areas, office buildings can be visually upgraded with dynamic light.

# Your light. Our passion.

OSRAM Lighting Solutions sets new standards with innovative, customised and high-performance lighting solutions. Our passion, decades of experience and profound expertise with light enable breath taking, innovative lighting solutions to be designed for a sustainable and future. With our three flagship brands of OSRAM, Siteco and Traxon Technologies along with our global network of experts, we offer intelligent, flexible and future-safe solutions and services precisely where they are needed – directly on-location – worldwide.

## OSRAM

OSRAM has dedicated itself to light for more than 110 years and is the technology leader in the lighting sector. The continuous development of conventional lighting towards LED technology and intelligent lighting solutions underlines the capability of OSRAM to continuously improve the quality of light via optimum products and solutions equipped with state-of-the-art technology.

## siteco

Siteco is one of the leading manufacturers of technical indoor and outdoor lighting. Thanks to many years of expertise, Siteco decisively shapes modern lighting technology and provides premium LED lighting solutions as well as expertise with individual project solutions around the world.

## traxon

Traxon Technologies is the specialist for dynamic LED lighting solutions and has been implementing professional, creative and decorative lighting projects for years – ranging from atmospheric retail lighting and the stylish display of bridges to inspiring stadium facades.

## e:cue

e:cue control is a leading provider of high quality control and automation solutions for dynamic lighting solutions. With an innovative product portfolio in combination with software and hardware products, e:cue develops the right control solution for any lighting installation.



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**Our Brands**

**siteco** **traxon** **e:cue**

**OSRAM**

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