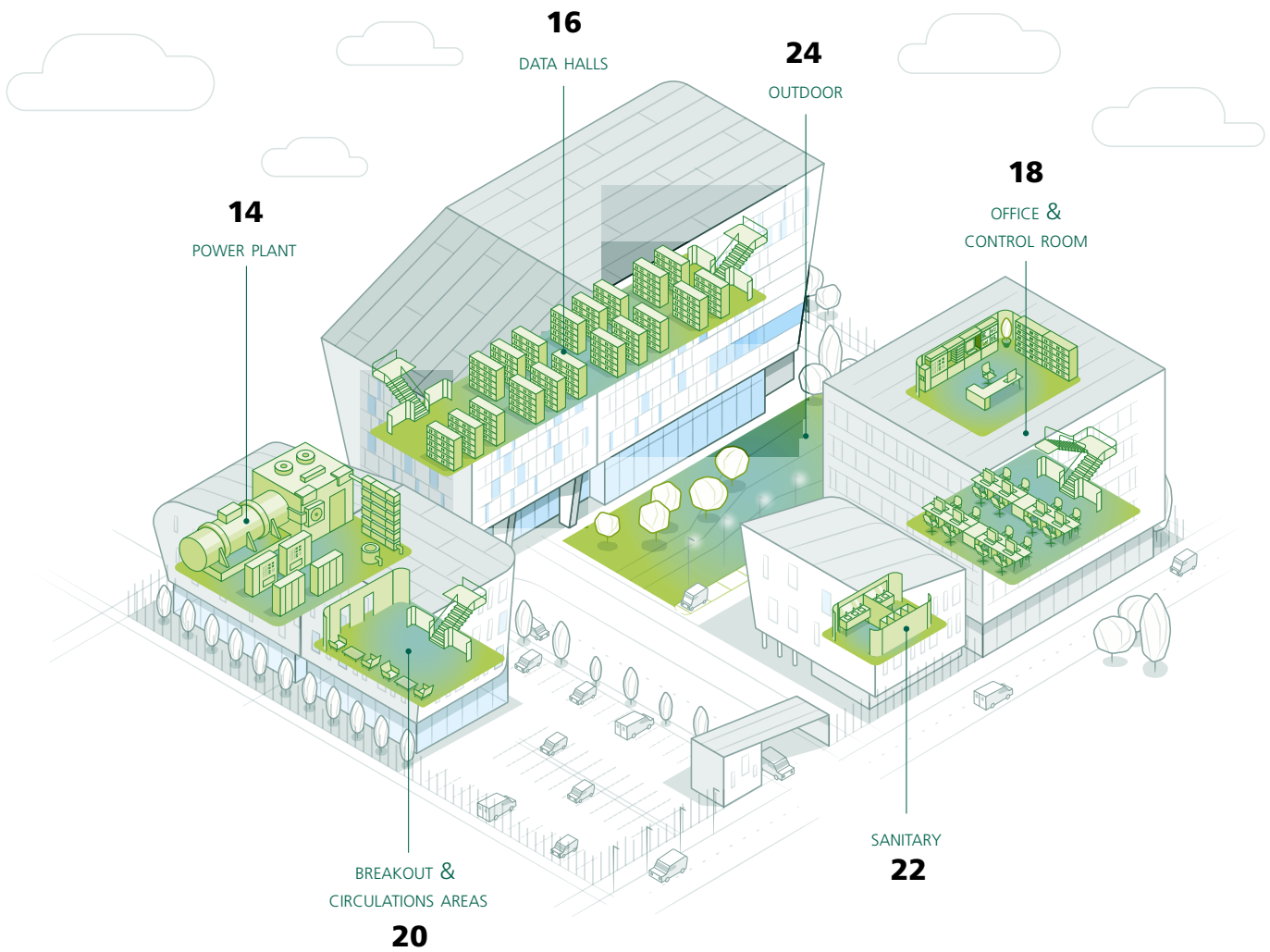


**SYLVANIA**

**Lighting  
inspirations  
and  
solutions**

FUTURE DATA CENTRES

**Light your world**



## Content

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Photo credit: Adobe Stock, Alain Pierot, Arthur Pequin, Delphine Poggianti, Dreamstime

## Efficient lighting for critical spaces

Developments in technology have driven significant changes in the number and size of data centres. Increased use of smart phones, social media, and online shopping are examples of behaviours driving these changes and lighting has had to adapt to ensure data centres are lit with energy-efficient and sustainable solutions.

Data centres are power hungry spaces, consuming lots of electricity and costing businesses millions to operate each year. Most of the energy usage is driven by servers and the HVAC systems needed to keep them cool, with lighting only representing between 3–5%, which is why it's often overlooked as an area that can make a significant contribution to lowering energy consumption.

However, as in most applications, lighting is the simplest way to achieve improved efficiencies and introducing intelligent and efficient LED lighting solutions to replace traditional light sources can drive up to 65% in energy savings as well as significantly lowering the heat generated by a facility's lighting.

Installing efficient, durable and reliable lighting solutions is critically important to ensure these information factories always remain operational. Good lighting in plant rooms helps maintenance staff and computer engineers identify and address issues, whilst improved cable management and inspection can be achieved by ensuring efficient lighting in data halls.

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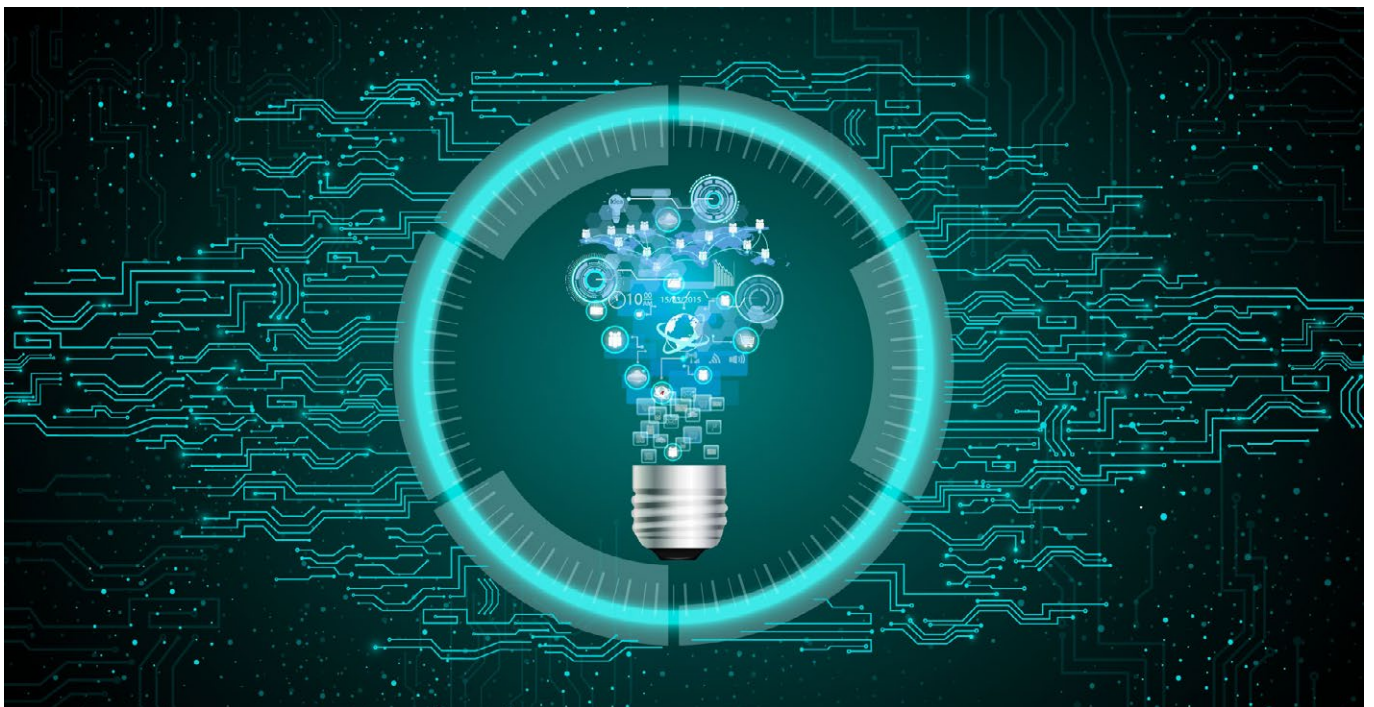
## Challenges



The complexity of their internal infrastructure makes data centres difficult places to operate in, with each presenting unique challenges that impact the safe and efficient implementation of lighting solutions.

### PRACTICAL CHALLENGE

Working around tightly spaced server cages and seemingly endless amounts of fibre optic cables requires absolute precision to ensure sensitive equipment isn't damaged during installation. The confidential nature of the data stored also means data centres have stringent access controls.



As more businesses seek to operate in the data-driven economy and more consumers become connected to the internet, there is an increasing need for data centres to safely store commercial data and IT infrastructures. This growing need is driving increasingly pressing calls to reduce energy consumption and improve efficiencies in these environments that, on a global scale, have the same carbon footprint as the aviation industry.

### ENVIRONMENTAL CHALLENGE

With an electricity consumption higher than some developed countries, the world's data centres consume around 3% of the global electricity supply and account for approximately 2% of total greenhouse gas emissions. Intelligent lighting systems such as Sylvania's SylSmart can drive substantial savings in energy consumption, offering a sustainable solution with high efficiency and outstanding levels of performance.



Despite the fact lighting only represents around 5% of the annual electricity consumption of a data centre, significant savings are available.

### PERFORMANCE CHALLENGE

By installing an effective LED solution that delivers the correct light levels needed in different areas with the controls to optimise efficiency and a design to make maintenance as non-disruptive as possible.

# Human Centric Lighting (HCL)

## Natural light:

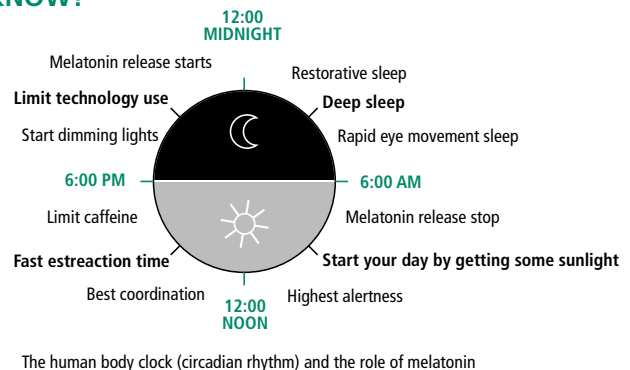
### A source of well-being and productivity

According to the latest studies, people spend approximately 90% of their time indoors\*. This means that we are most often subjected to artificially lit environments and are deprived of the benefits of sunlight. As natural light rules our biological rhythm, it is of the greatest importance for well-being and productivity, at any time of the day. With a real Human Centric Lighting solution, Sylvania brings a game-changing innovation, recreating the full spectrum of natural light.

#### The benefits of natural light

Natural daylight plays a major role in our lives: it enables us to see life with its true colours, but it goes far beyond that and influences our bodies' behavioural patterns. Sunlight helps our body to produce vitamin D, essential to our bone structure and well-being. It regulates our circadian rhythms, which are the patterns that our body uses to coordinate all its activities, from sleep/wake cycles, digestion, cell-regeneration, to cognitive functions, even mood and motivation levels. As a healthy exposure to natural light also governs our quality of sleep, it is strongly linked to performance and productivity during daytime. Benefiting from the natural light is quite easy when working outdoors, but our modern offices are faced with real challenges to keep our body and mind healthy.

#### DID YOU KNOW?



Melatonin is a natural hormone released by our bodies at night which regulates when we sleep, how long we sleep, and how well we sleep. Darkness causes us to produce more melatonin, which signals the body to sleep. Light has the converse effect, and the more we have the less melatonin we produce. Managing melatonin levels is crucial in maintaining wellbeing and a considered lighting solution can replace the benefits of sunlight by delivering the right light at the right time to people indoors at educational establishments.

**LUMINATURE**  
IN YOUR OFFICES



Sylvania LumiNature marks a new era in human centric lighting: it recreates sunlight. Its complete spectral curve with eliminated blue peaks and truest colours makes it one of the most natural artificial lights. LumiNature gives you something that even the sun cannot: dynamic lighting control. The SylSmart Standalone Office and Connected Building control options offer you full optimisation and tunability. LumiNature is the perfect solution to bring sunlight indoors and is ideal for:

- Offices, classrooms, auditoriums, or other areas with no windows
- Areas with extended or 24-hour working hours
- Workshops, studios, or similar areas where highly detailed work takes place

Revolutionary, human-centric light. Designed for better living.





### Recreating the natural light spectrum offered by the sun remains one of the biggest challenges facing the lighting industry.

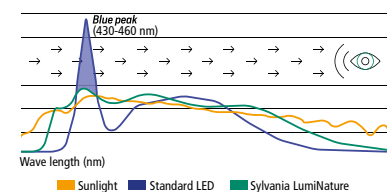
Both natural and artificial lights are composed of a spectrum of colours. With LumiNature by Sylvania, the real Human Centric Lighting solution delivers a complete and balanced spectral distribution with all colours of light while eliminating the blue peak. Thanks to our wireless SylSmart system, it is even possible to program a personalised light control of your environment (more details on page 9).

### Natural lighting: many benefits for the occupants

Three different types of benefits are achieved when a professional environment is lit with a real HCL solution. First, it enables visual eye comfort and visual acuity: it perfectly renders colours which is essential in many fields such as design, fashion, food, etc. The second benefit is the respect of our circadian rhythms: it favours a good sleep quality, and therefore increases alertness during waking periods, enhances performance and productivity. Thirdly, it contributes to the control of melatonin, which is paramount for the general health and well-being. Sylvania LumiNature encompasses these three benefits and perfectly responds to the lighting challenges of today and tomorrow.

### HCL, TUNABLE WHITE: LET'S TAKE STOCK

While many lighting solutions claim to be Human Centric Lighting (HCL), they only focus on the intensity and on the colour of light, from warm to cool. These are Tunable white solutions and do not eliminate the blue peak at 430-460nm level. LumiNature, the real Human Centric Lighting by Sylvania, is the only available solution that provides the most natural artificial light.



*"Light is a biological synchronizer. Its function is not only to see, but also to coordinate living things. LumiNature is the first solution allowing a real action on our biological clock by regulating our melatonin secretion according to the time of day. LumiNature energizes us and offers us a healthy and rich light during the day with a high Melanopic Ratio (>4000K), while for nighttime applications, we can instead make the light soothing with a low MR (<3000K)."*

Yann Chevrier, Deal Manager at Feilo Sylvania France.

## A smart solution to every need

**When creating a lighting design, thought should be given to the ease of installation as well as the financial cost and environmental impact. Whilst the comfort of occupants should remain the core consideration, modern society demands the delivery of sustainable solutions where comfort, simplicity, energy-efficiency, and a respect for the environment can be equally reconciled.**

### A new generation of connected lighting

Intelligent lighting systems make significant contributions to the eco-performance of data centres. Through the abundant flexibility and feature-rich control functionalities, they provide the optimum light in each environment, and thereby secure the highest possible energy efficiency. With its wireless technology, sensors, and distributed intelligence, Smart Lighting is the backbone of the digital infrastructure of buildings.

The ability to sense occupancy and natural light levels, combined with cutting-edge wireless Bluetooth mesh networking technology, enables SylSmart enabled luminaires to deliver an optimum lighting experience with minimal disruption and programmed through intuitive tools. A State-of-the art LED system is not only saving energy, but by activating the correct lighting conditions, will allow it to generate less heat, and contribute to additional savings on HVAC systems.

### Security built-in

Sylvania strives to ensure that the foundations of its' products are robust and deliver the very best quality and service. Security By Design (SBD) is an integral part of Smart Lighting and is maintained as one of the cornerstones of Sylvania's quality ethics supported by an open Vulnerability Discovery and Disclosure Policy.

### Transformation through innovation



Innovation and quality assurance are underpinning everything we do.

Whether it is a new process, a new technology or a new product, we have built Smart Lighting Innovation Centre (SLIC) around an open innovation approach that sees successful collaboration with customers, established IoT companies, new start-ups and leading technology companies as a way to jointly innovate and deliver SylSmart propositions to the market. Over the past few years, we have invested in new test systems, custom software tools, new test methodologies and have expanded to now 4 locations including Newhaven, UK, Guangzhou, China and more recently Tienen, Belgium. The SylSmart Lighting Innovation Centres help to catalyse our vision, to develop state-of-the-art Digital Solutions and Services and new value propositions for our customers.

### SYLSMART BENEFITS



Easy Set-Up



Dynamic & Flexible



Abundant Savings



Reliable & Secure





## SylSmart Standalone

### Maximum control. Minimum installation.

A wireless, plug-and-play lighting control solution perfect for smaller applications where ease of installation is paramount. With low upfront costs and minimal maintenance, SylSmart Standalone allows luminaires to be controlled with precision through its intuitive multifunctional control system. The solution is easy to set-up and offers core functions that include occupancy control, daylight linking, tuneable white and colour control, grouping, scheduling, and wall switch configuration.

## SylSmart Connected

### Unlock the intelligent building.

Using wireless mesh communication technology, SylSmart Connected offers an ideal solution that's easy to install, has low initial costs, and is low maintenance. With integrated multifunctional sensors in each luminaire, the system delivers wireless communication with distributed intelligence and a reliable smart lighting experience.

SylSmart Connected is highly secure from end-to-end and through life. It has been certified by BSI IoT Foundation and has been verified against a wide range of attack vectors using recognised test methods including OWASP IoT Top 10, ETSI EN 303 645, and NIST. Built on a backbone of Qualified Bluetooth mesh, the entire system from the in-luminaire intelligent sensor, through to the mobile and web applications, all the way to the cloud infrastructure including gateway, has passed the latest standard, independent security assessment.

### DID YOU KNOW?

Sylvania's peace-of-mind 360 Services will make your life easier and your projects run smoothly.

Our end-to-end turnkey project management services will allow you to focus on what you do best, providing a total solution from Audit and Lighting design, through to Installation & Commissioning, Measurement & Verification and Aftercare. Need tailored funding? Our Smarter Finance service will assist to get going with your development project and start saving from tomorrow.



*"SylSmart systems and solutions challenge the perceptions of what light can do. Built on foundations of de-centralised controls and distributed intelligence, SylSmart delivers feature-rich experiences with easy installation and programming, built-in flexibility and reliability, underpinned by strong security credentials. It also ensures a future-proof infrastructure that is IOT ready and waiting for you. Sensing and reporting capabilities will take your lighting to the next level. Smarter Lighting. Smart Choice."*

Edward Lees, Head of Technical Product Development - Smart and Beyond, Feilo Sylvania Europe Ltd.

# Emergency

## Keeping the lights on Safety and protection

**Emergency lighting is an integral part of any lighting design to ensure adequate illumination is provided when standard lighting fails and maintain site safety and protection for occupants. In a data centre where efficient operations are critical, sufficient illumination can enable work to continue or allow engineers to repair any issues and get normal power restored as quickly as possible.**

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### **The importance of emergency lighting**

The Regulatory Reform (Fire Safety) Order 2005 requires that all commercial premises have emergency lighting installed by law, with BS EN 1838 specifying escape and standby lighting requirements for businesses should they experience a power failure.

Fundamentally, data centres are critical buildings where in the event of a power outage engineers must be able to work uninterrupted, so emergency lighting becomes a crucial element of safety and security. Certain areas of data centres offer limited natural light so effective lighting is supported with effective emergency lighting keeping exits clearly illuminated, along any possible evacuation routes, ensuring everyone can get outside safely as quickly as possible.

Unexpected outages can also be expensive and without a suitable emergency lighting system, maintenance would take longer with servers perhaps out of action for longer than necessary. A reliable and efficient system is cost-effective, as it reduces downtime and minimises the impact to productivity. To ensure optimal performance at all times, it is important that emergency systems are regularly tested by qualified engineers. A mains power failure needs to be simulated and every emergency fitting checked to ensure each is capable of successfully switching to its battery supply, with each checked again when power is restored to check they are recharging. Results from tests must be logged, underlining the critical nature of an effective emergency lighting system.

### **Emergency lighting in general**

When there is a power outage or a fire and the lights go out, the emergency lighting system retains a level of illuminance to enable people to navigate their way to an exit and leave the facility safely. In complex environments such as data centers, it may take longer to evacuate, making reliable, efficient and quality emergency lighting systems essential.

Emergency luminaires are designed to charge when the lighting system is operating normally and remain active for between 1-3 hours when there is an outage, recharging themselves again when power is restored.

Sylvania offers a range of integrated or stand-alone LED emergency luminaires, emergency exit signs and control and monitoring products that deliver a durable and reliable emergency lighting system perfectly suited to meeting the varied and challenging environments of data centres.



### Types of emergency lighting

Emergency lighting designs need to cater to different areas in a data center and emergency lighting is split into four main categories:

- **Escape route lighting** – illuminating routes to designated fire escapes and emergency exits is essential in ensuring people can leave the building safely.
- **Open areas** – providing sufficient lighting in areas where occupants may travel through when trying to find an exit will help reduce panic and facilitate people exiting the building safely in the event of an emergency.
- **High-risk task areas** – workspaces where employees work with tools or machinery require emergency lighting that performs long enough after an outage to allow for work to stop safely and any tools or equipment to be put down.
- **Standby lighting** – this type of lighting is not required by law and is often powered via a generator. Lighting is restored following an outage and is maintained until mains power is restored.

#### DID YOU KNOW?

Where emergency lighting is placed is a crucial factor in how effective it is and placing it in the wrong areas can cause significant risks. LED illuminated emergency exit signs must clearly signpost a safe route to get out of the building. Emergency LED luminaires in transition areas where people will come into contact with each other as they exit are also important to minimise the risk of accidents.

Specific areas of a building where emergency lighting provision should be incorporated are highlighted via a fire risk assessment, but often include:

- + Stairwells
- + Toilet areas and changing facilities
- + Intersections
- + Reception areas
- + Where there are changes in direction along recognised exit routes
- + Areas where there is a change in floor height

## Lighting standards & regulations: the essentials at a glance

The right light enables people to perform visual tasks efficiently and accurately including tasks performed over a prolonged time period or of a repetitive nature. Creating the right environment, integrating the artificial lighting and lighting controls into a system to provide the optimal office lighting environment for the users is the biggest challenge for the lighting designers. The interior lighting standards and regulations for offices help to identify the right balance and the proper lighting solution. They are a requisite to comply to, both for the health of occupants, and for the sustainability of your buildings and offices. But as these standards may change regularly, Sylvania is committed to answering all your questions, and supporting you in this aspect of your lighting projects. Standards, norms, and labels associated with energy compliance and well-being: we help you retrieve the essential points.

### Adequate and appropriate lighting in offices

European Standard EN 12464-1:2021 for lighting of indoor workplaces defines specific implementation in terms of quality and quantity of light. The lighting requirements are determined by the satisfaction of three human needs such as visual comfort, performance and safety. The main parameters determining the lighting environment to respect in order to avoid any photobiological risk are the:

→ **Illuminance (E):** this describes the quantity of luminous flux falling on a surface. The standard recommends the minimum values of average illuminance to be maintained according to the requirements of the visual task/activity in the work area. Measurement unit is lux (lx) and different lux levels are recommended in a building.

→ **Glare (UGR):** is the unpleasant sensation caused by bright light within your field of vision. In indoor workplaces, uncomfortable glare may arise directly from bright luminaires or from sunlight pouring through windows. The level of discomfort caused by glare is captured in a Unified Glare Rating (UGR) measurement, which sits on a scale between 5-40 and a lower UGR signaling less glare. Different environments have different recommended UGR ratings, but in a data centre, where distractions must be minimized, a UGR of <19 is recommended to maintain concentration and productivity.

### LIGHTING OF INDOOR WORKPLACES

EN 12464-1 (August 2021)

TYPE OF TASK/ACTIVITY AREA	$\bar{E}_m$ (LX) (MIN)	$U_o$ (MIN)	$R_A$ (MIN)	$R_{UGL}$ (MAX)	SPECIFIC REQUIREMENTS
Canteens and break areas	200	0.40	80	22	
Cloakrooms, washrooms, bathrooms, toilets	200	0.40	80	25	
Circulation areas & corridors	100	0.40	80	25	
Stairs	150	0.40	80	25	
Writing, reading, data processing	500	0.60	80	19	DSE-work, Lighting should be controllable
Surveillance station	300	0.60	80	19	DSE-work, Lighting should be controllable
Control rooms	500	0.70	80	19	DSE-work, Lighting should be controllable
Plant rooms, switch gear rooms	200	0.40	80	25	



© Delphine Poggianti

→ **Colour rendering (CRI):** is the ability of a light source to reproduce surface colours as faithfully as possible compared to an ideal or natural light source. It is identified by the colour rendering index (CRI), with the best colour rendering having CRI 100. The standard CRI measurements recommended vary depending on the visual task to be performed, but a minimum of CRI 80 is recommended for offices.

→ **Uniformity (UO):** is the ratio between the minimum lighting level to the average lighting level (U1), or the minimum to maximum (U2), within a specified area. It is a qualitative measurement of how well lighting is distributed, with a higher ratio signifying that an environment has a good light distribution, where people are unlikely to notice different light levels.

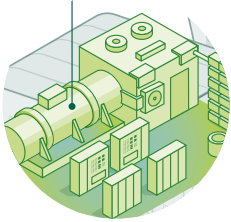
#### SYLVANIA'S COMMITMENT

Our products are 100% compliant with EU and UK standards. Many of them are indeed manufactured in France, Germany, and the United Kingdom to guarantee unparalleled quality, in accordance with European standards, and more specially to comply with the EN 12464-1:2021 standard. They respect the different rates and levels required such as glare (UGR<19), the level of luminance (L65 < 3000 cd/m<sup>2</sup>), CRI (80 min.) or low flickering (<5%), for an example.

#### Control of lighting and energy-efficiency

In any room where lighting controls have been installed, it is the responsibility of the management staff, even during periods of occupancy, to ensure there is the capability for switching on and off the lighting to reduce wasted energy.

The automated control of luminaires is an invaluable help, allowing artificial lighting to synchronise with the level of daylight and dim or switch off as levels of natural lighting dictate it is not needed, or when the room is unoccupied.



## Power Plant

Mechanical plants are critical in keeping server racks cooled and removing particles from the air. They are often housed in large rooms with high ambient temperatures and humidity levels. Luminaires installed in these areas must have a high IP rating and be resistant to temperatures up to 50°C, in addition to delivering reliable and efficient lighting. Featuring a less structured layout than data halls, these rooms often benefit from selected industrial luminaires strategically positioned to illuminate specific areas.

### ISSUES

#### Increased energy savings

are available by controlling the light levels to ensure optimal illumination to suit occupancy and avoid lights being left on constantly.

#### Robust and durable luminaires

that are resistant to chemicals, moisture, and a wide range of temperatures are essential for a reliable lighting system.

#### Ease of installation and maintenance

in mission-critical areas is key to delivering higher uptimes.



**RESISTO**  
High performance waterproof range



High efficacy



SylSmart enabled versions

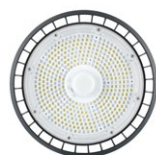


Easy and quick installation



Extreme dust, water and impact protection (IP66/IK08)

### OTHER LUMINAIRE



#### Granit – High-efficient and long-lasting LED Highbay

- + High efficacy up to 144lm/W
- + Microwave occupancy sensors
- + Operating temperature from -30°C to +50°C
- + SylSmart Standalone twist and lock KIT available



#### START Waterproof Slim – Robust and resilient

- + Perfect replacement of fluorescent battens
- + Operating temperature from -25°C to +50°C
- + Easy and quick, tool-free installation



**SylSafe Bay – IP65 rated self-contained  
Emergency luminaire**

- + 3 hours emergency duration
- + High performance
- + Various technology options
- + Deep discharge protection circuit



**SylBay – Tough and intelligent Highbay**

- + High luminous efficacy
- + SylSmart enabled versions
- + Wide range of lumen outputs
- + Operating temperature from  
-40°C to +50°C
- + PIR version detection range up to 16m  
at 15m mounting height



# Data Halls

Lighting in these areas must provide even light distribution that enables safe movement up and down aisles whilst delivering sufficient illumination to allow patch labels and wiring colours to be easily identified and read so maintenance can be carried out with pace and accuracy. Many data halls feature alternate hot and cold aisles, so luminaires must be resistant to corrosion and capable of maintaining optimal performance in a range of temperatures.

## ISSUES

### Reliable and durable overhead lighting

that provides sufficient illumination for maintenance tasks, identity verification, and safe movement is critically important, as the colour of most servers is black which absorbs light instead of reflecting it into the aisles.

### Energy savings

can be achieved by installing LED fixtures that have the additional benefit of cooler running temperatures, which reduces the heat load in the data hall.

### Precise and user-friendly

lighting can be achieved using controls that allow the right level of light to be achieved for specific needs.



**ISOLINE**  
Linear Trunking System



High efficacy



Uniform light distribution



Excellent quality of light



DALI dimming  
with Emergency

## OTHER LUMINAIRES



### RTS – Versatile Trunking System

- + Uniform light distribution
- + Various lumen and optical solutions
- + Energy efficient
- + DALI dimming with Emergency



### START Panel IP44 – Recessed LED Panel

- + High efficacy
- + Slim size
- + IP44 rated from the front
- + Anti-glare UGR19 prismatic diffuser



### Concord Optix Recessed – Modularity at the highest level

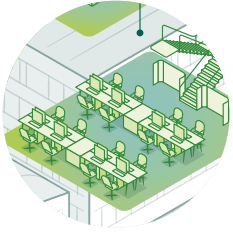
- + High efficacy
- + Maximum visual comfort
- + SylSmart enabled versions
- + Possibility for quick customisation





**Resisto – High performance  
waterproof range**

- + High efficacy
- + Easy and quick installation
- + SylSmart enabled versions
- + Extreme dust, water and impact protection (IP66 / IK08)



# Offices & Control Rooms

Office and control room areas of data centres require high-quality, uniform lighting that is consistent, comfortable, and economical. Natural light has a positive effect on mood, energy, motivation, and concentration, but where it's limited, the right choice of artificial lighting, with appropriate levels and colour of light, is crucial in maintaining productivity and creating a pleasant working environment.



**CONCORD OPTIX RECESSED LUMINAIRE**  
Natural light recreated

## ISSUES

### LED systems

featuring luminaires suited to prolonged periods of concentration are the most appropriate solutions for control rooms where there are often lots of other visual stimuli.

### Lighting design

should reflect the layout of the different working areas to always ensure maximum comfort and avoid illuminating spaces where people are not working.

### Lighting controls

are needed to deliver flexibility in luminaire operation and dimming to reflect occupancy levels and optimise energy efficiency.



Human Centric Lighting (HCL) enabled



No blue peak for visual comfort



Dynamic light, adapted to the circadian rhythm



Excellent colour rendering CRI97



UGR <16 & Luminance <200cd/m<sup>2</sup>

## OTHER LUMINAIRES

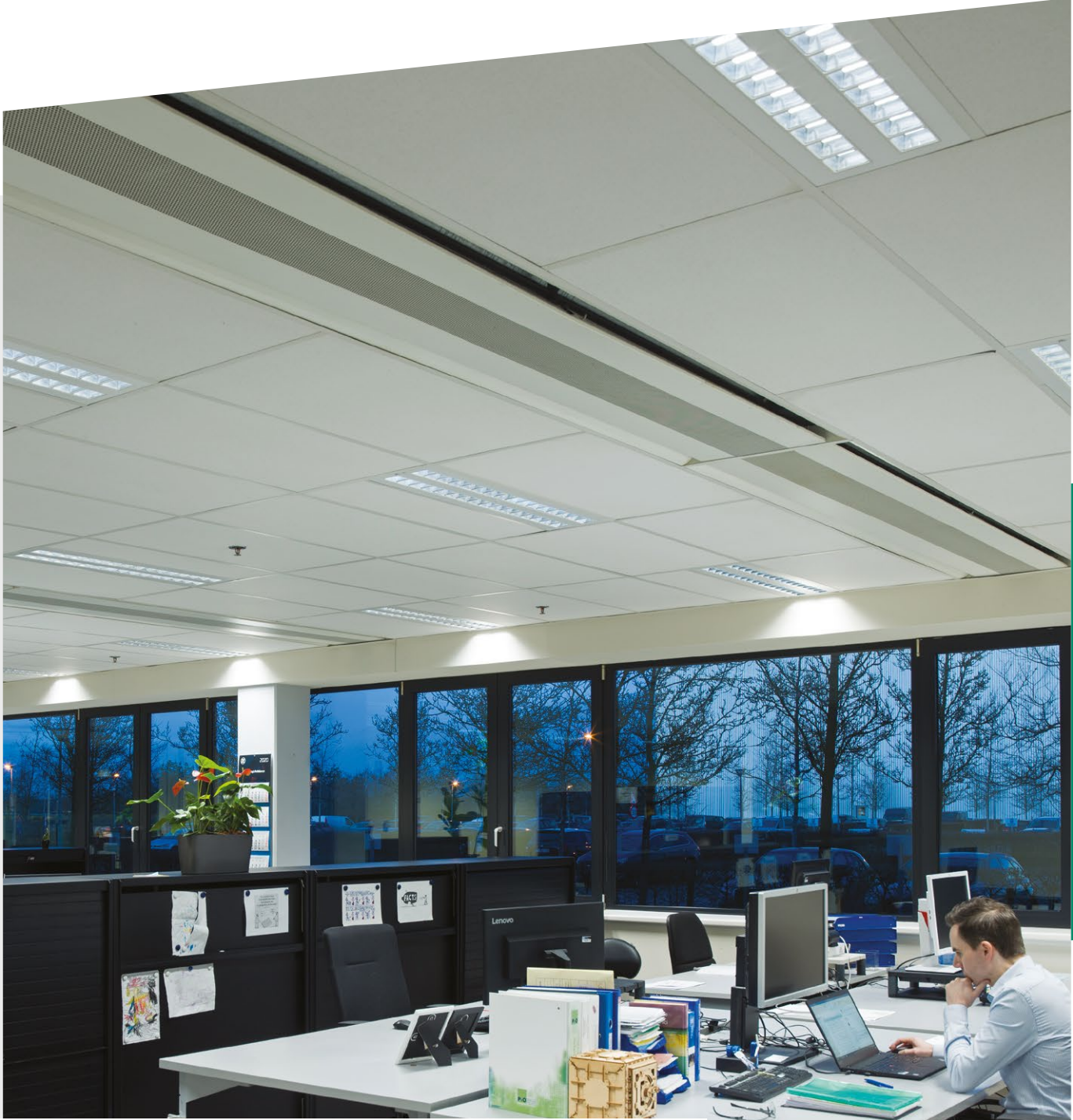


### Concord Ascent 100 LumiNature

- High power LED Downlight
- + Visual comfort CRI 95-99
- + High performance up to 146lm/W for CRI80 versions
- + 4 different lumen packages
- + LumiNature version with no blue peak, adapted to the circadian rhythm

### OptiClip SylSmart Connected enabled

- Modularity & Customisation
- + Removable & interchangeable light engines
- + High efficacy
- + Efficient glare control through reflector design
- + Easy installation and maintenance

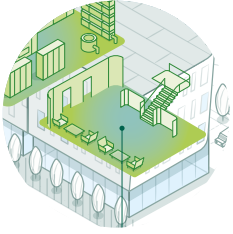


**START Panel SylSmart Connected enabled**  
 – Panels for all applications  
 + High efficacy  
 + Slim design  
 + Low glare of UGR<19  
 + Easy installation and maintenance

**Obico IP65 – Adjustable recessed Spotlight**  
 + High efficacy  
 + High flammable resistance  
 + Protection from water and dust  
 + 360° adjustability



↙  
 ZF Wind Power, Belgium



## Breakout & Circulation Areas

Areas where people congregate for informal meetings or simply get together to talk and relax require flexible lighting that provides good visibility and consistent colour rendering to create a pleasant environment away from the office. Sufficient illumination is needed to allow people to move around safely, with luminaires located on the ceiling or walls to spread light and reduce shadowing.

### ISSUES

#### Visual comfort

between people near one another over prolonged periods can cause visual fatigue, so a mixture of focused and ambient lighting with dimming capability will create the perfect conditions for comfortable interactions.

#### Personalised lighting

in specific areas can be achieved using different luminaires suited to varying needs, such as focused lighting for individual tasks or ambient lighting for group discussions

#### Identification and orientation

in circulation areas such as corridors and entrances benefit from bright lighting with a mixture of independent luminaires carefully positioned to keep open spaces well lit often the best solution.



CONCORD ASCENT 100  
High power LED Downlight



Visual comfort  
CRI 95-99



High performance up to  
146lm/W for CRI80 versions



4 different lumen  
packages



LumiNature version with no  
blue peak, adapted to the  
circadian rhythm

### OTHER LUMINAIRES



#### Insaver Slim – Small sized Downlight

- + Glare control
- + Excellent visual comfort up to 2500lm
- + Compact design
- + High efficacy
- + Wide range of lumen options



#### Concord Optix 4Cells – Small & compact square Downlight

- + Comfort light
- + Optional optical finishing colours
- + Rectangular design



#### START eco Downlight 5in1

- Flexible cut-out solutions
- + Multi-fit flexibility: fits many cut-out sizes
- + Colour temperature adjustment by a 3-way switch
- + Various surface-mount options

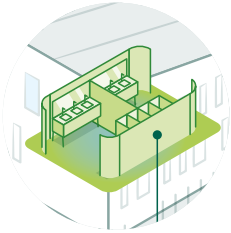


- START Waterproof Slim – Robust and resilient**
- + Perfect replacement of fluorescent battens
  - + Operating temperature from -25°C to 50°C
  - + Easy and quick, tool-free installation



ISMO, Orsay, France





## Sanitary Areas

Sanitary areas need lighting to provide a combination of functionality, efficiency, and comfort. Carefully selected luminaires can introduce a decorative element to an area that can look and feel cold and sterile, creating a bright and pleasant environment that minimises the glare from reflective surfaces.

### ISSUES

#### Cost management

is a major factor in sanitary areas and lighting needs to be functional and long-lasting to minimise maintenance costs.

#### Energy savings

can be achieved with occupancy sensors, which can be set so lighting operation reflects the irregular use of sanitary areas.

#### Quick and easy

mounting allows easy installation and minimises disruption during routine maintenance.



**INSAVER SLIM PIR**  
Downlight with PIR sensor included



Glare control



With adjustable time and daylight level



Compact design



High efficacy



Energy savings with integrated PIR



Several output options

### OTHER LUMINAIRES



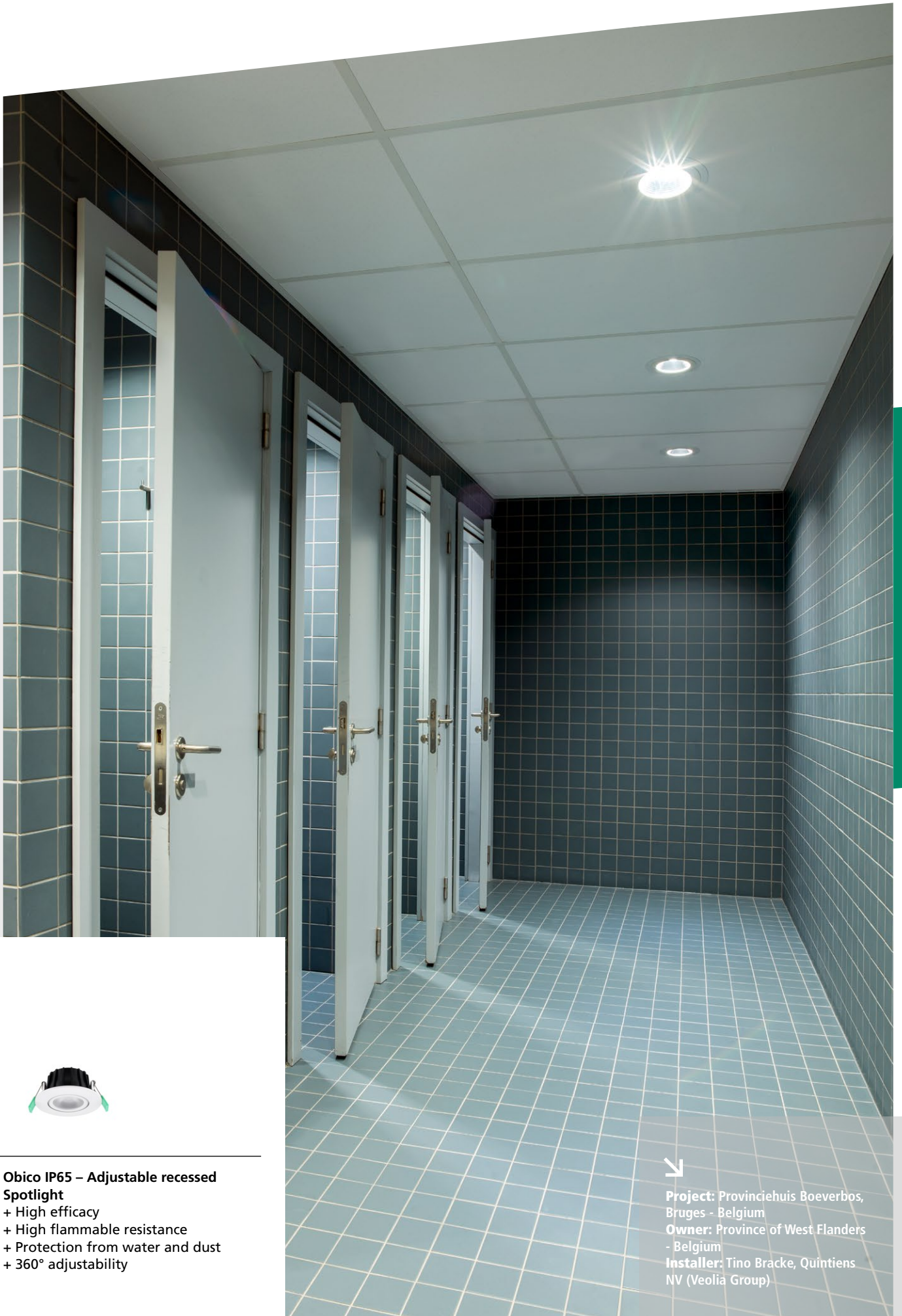
**START Panel IP44 – Recessed LED Panel**  
+ High efficacy  
+ Slim size  
+ IP44 rated from the front



**START Downlight 5in1 PIR – Flexible Downlight**  
+ With adjustable time and daylight level  
+ 3 colour temperatures and 2 mounting methods  
+ Multiple cut-out dimensions



**START Downlight IP44 – Recessed and Surface Downlight**  
+ High efficacy  
+ SylSmart Standalone enabled  
+ Shallow recess depth of <65mm

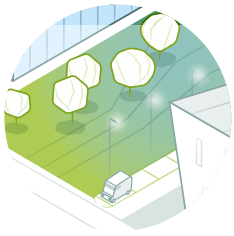


**Obico IP65 – Adjustable recessed  
Spotlight**

- + High efficacy
- + High flammable resistance
- + Protection from water and dust
- + 360° adjustability



**Project:** Provinciehuis Boeverbos,  
Bruges - Belgium  
**Owner:** Province of West Flanders  
- Belgium  
**Installer:** Tino Bracke, Quintiens  
NV (Veolia Group)



## Outdoor Areas

The exterior lighting needs at data centres are wide and varied and must provide a safe environment for everyone by delivering appropriate levels of illumination. Preventing theft and vandalism of large plant and the related infrastructure is imperative, with localised low-level lighting in combination with general floodlighting to avoid creating areas of shadow where light cannot reach from above. Significant amounts of sensitive data are stored at data centres, making access security another crucial factor when considering the right type and quantity of lighting.

Outdoor lighting impacts how safe people feel in and around buildings at night and can be instrumental in illuminating the large areas of open space often found at data centre sites. Paths, building entrances, recreational areas, and car parks all need to be suitably illuminated to reduce the risks of accidents and act as a deterrent against crime.

### ISSUES

#### Sensitivity

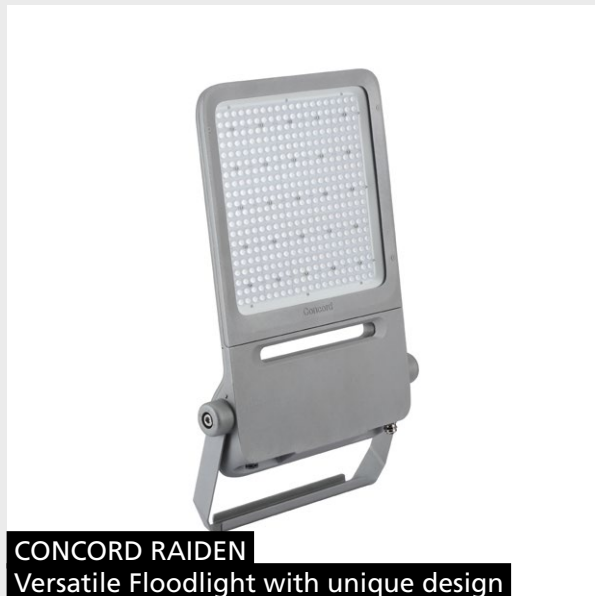
to neighbouring areas and minimising light pollution are major considerations when designing exterior lighting and safeguarding compliance with various regulations.

#### Resistance to changing climatic conditions

must be guaranteed to ensure outdoor lighting installations maintain optimal performance in all weather conditions.

#### Integration

with surrounding areas will allow outdoor lighting to enhance existing environments and add to the aesthetic.



**CONCORD RAIDEN**  
Versatile Floodlight with unique design



4 sizes and 3 colour temperatures



High performance and efficacy



DALI dimmable



Wire guard & other accessories

### OTHER LUMINAIRES



#### START Emergency Bulkhead – Lighting for safety

- + IP65 rating
- + Maintained and non-maintained operation
- + 3-hour emergency & manual test
- + LIAQA approved



#### START Surface IP66 – Robust design & perfect function

- + High efficacy
- + Extreme impact resistance (IK10)
- + Vandal resistant
- + Standard, Standalone Sensor DIM or DALI versions





**Kalani – Robust exterior Floodlight**

- + Quick and easy to install
- + Wide range of lumen outputs
- + High water and dust protection (IP66)
- + Wire guard & other accessories



**Zephyr – High quality LED Lantern**

- + Robust design
- + Extreme dust, water and impact protection (IP66 / IK09)
- + 2 sizes and 3 lumen packages
- + Photocell versions for operation from dusk till dawn

**Made in Europe**

## **A made-in-Europe know-how at your service**

**Sylvania is a leading provider of total solutions for professional and architectural lighting. With nearly 100 years of expertise in luminaires and lamps, Sylvania has an extended offer for the public, private and commercial sectors. For Data Centres, choose our quality guarantee, and as Sylvania is not only a manufacturer, there is also a complete range of services at your disposal. Allow yourself a full serenity with Sylvania's expertise and be assured that all your lighting projects benefit from perfectly mastered solutions.**

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### **The quality of local production**

Our factories and production units are located in France, England and Germany.

Our Research and Development offices are a leading part of our organisation and allow us to be at the forefront of technological innovations, and to be constantly on the lookout for new light-related developments, whether it be emerging uses by occupants, environmental challenges, or compliance with new regulatory standards.

In order to work jointly and efficiently with the production units, our R&D cells are close to the factories and are also located in France, in England and in Germany.

This made-in-Europe structure is a guarantee of quality, and a reflection of our strong social, work-policy and environmental commitments. On this point, the manufacturing process and the European design approach significantly reduce the carbon footprint of our products.

### **Sylvania organisation for a customised support**

With an agile and flexible approach, Sylvania designs bespoke solutions tailored to our clients' individual requirements. Adapting to any 'lighting intention', our job is to create and develop eco-efficient lighting solutions to meet each of your projects. Once your needs are clearly identified,

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**22**  
production units  
in the Newhaven factory (GB)

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**59 000 m<sup>2</sup>**  
of French, English  
and German factories

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Production in our Erlangen factory in Germany.

the coordination with our R&D offices is the key turning point to make sure the best products and solutions are implemented, with the operational support of our production units.

**Our custom-made services**

Sylvania is not just a manufacturer. Whatever your project, benefit from our on-demand services designed to support you from A to Z. From the detailed analysis of your lighting systems, the installation and optimization of your installations and eco-performance, compliance with regulations, and financing solutions, Sylvania is an expert at your side, each step of the way.

**40%**

of the production of the French factory corresponds to special luminaires

**53%**

of the German's production corresponds to lamps

**DID YOU KNOW?**

As the demand for luminaires with integrated HVAC (heating, ventilation, and air-conditioning) is increasing tremendously due to its numerous advantages, Sylvania continues to evolve with your needs and integrates these latest solutions in its offer.



\*With our Logic Smarter Finance offer, no solution is out of reach: no need for an initial investment, you pay back every month with the savings you make.  
\*\*We install your new equipment, ensure its perfect compliance and optimal performance, recycle your old installation, and also provide a maintenance service.

# SYLVANIA

Although every effort has been made to ensure accuracy in the compilation of the technical detail within this publication, specifications and performance data are constantly changing. Current details should therefore be checked with Feilo Sylvania International Group Kft. Copyright Feilo Sylvania International Group Kft. February 2022

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Company



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