

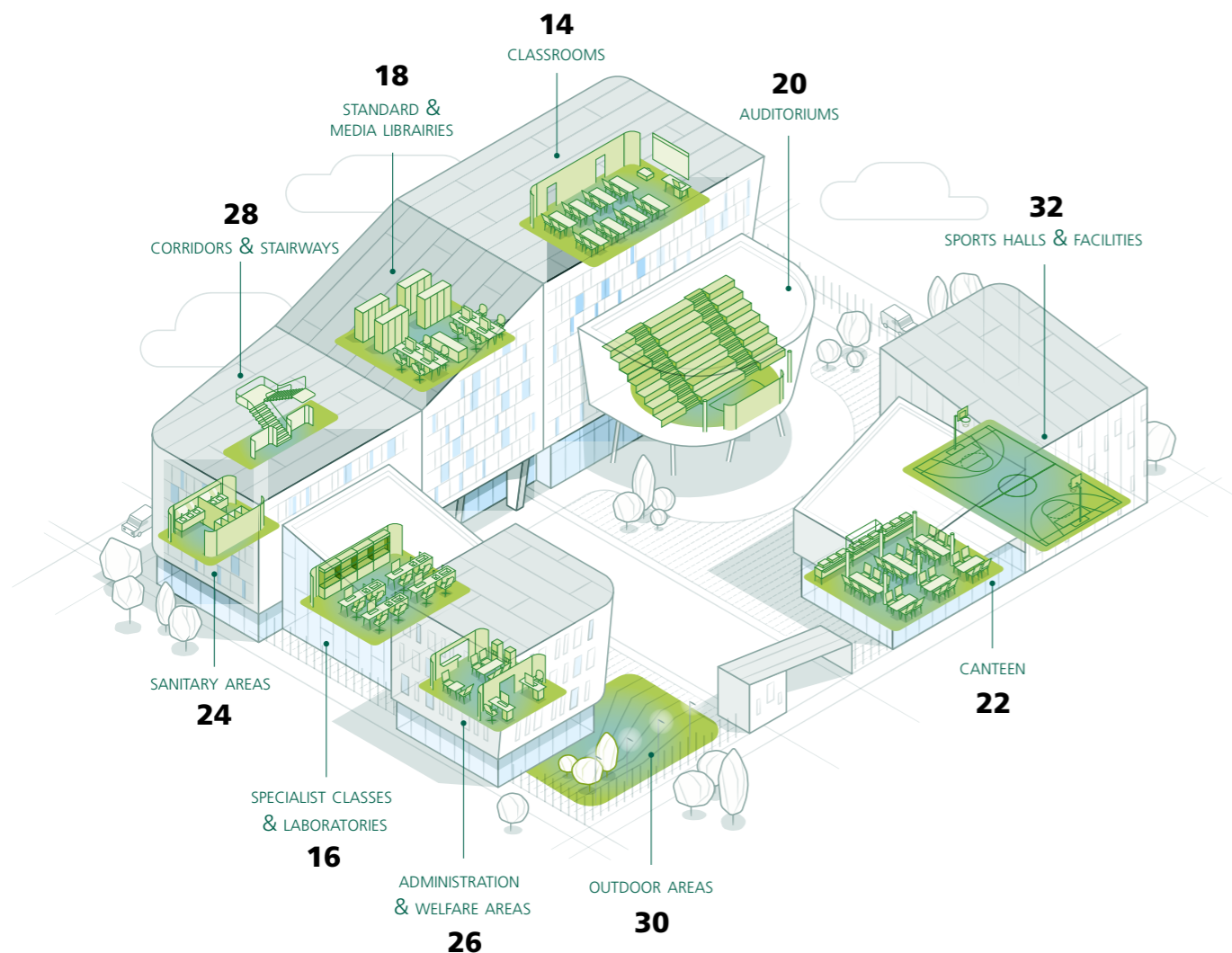
**SYLVANIA**



**Lighting  
inspirations  
and solutions**

**FUTURE EDUCATION**

**Light your world**



## Enlightening people within education

Scientific research shows that the environment around us impacts our mental and physical health and wellbeing. Lighting makes significant contribution to creating a good learning environment by influencing human performance and helping students learn. The requirements for lighting in schools, colleges and universities are diverse and dependent on many factors. The high quality well designed and implemented lighting in education can create great looking spaces that drive energy efficiency and support better learning.

Improved performance, reliability and efficiency provided by LEDs has transformed the capabilities lighting can bring, replacing traditional fluorescent technology. Educational facilities can realize benefits from reduced energy, maintenance costs, while the students and teachers can enjoy enhanced light quality that improves the users' concentration levels and boosts performance. Modern education buildings need to provide an environment where students and teachers can thrive and do their best work.

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Design: magamo – Photo credit: Adobestock, Delphine Poggianti, gorodenkoff, arthurpequin.com, egbertdeboer.com, Studio des plantes (Dreamstime), Sylvania – Illustrations: Antoine Dagan.



Greater emphasis is placed upon engaging in responsible practices as we look to reduce the size of our ecological footprint.

**ENVIRONMENTAL CHALLENGE**

Lighting represents a significant portion of the total electricity consumption in educational facilities and installing efficient lighting contributes to sustainability initiatives and delivers significant energy and cost savings.



IKC Delden, The Netherlands



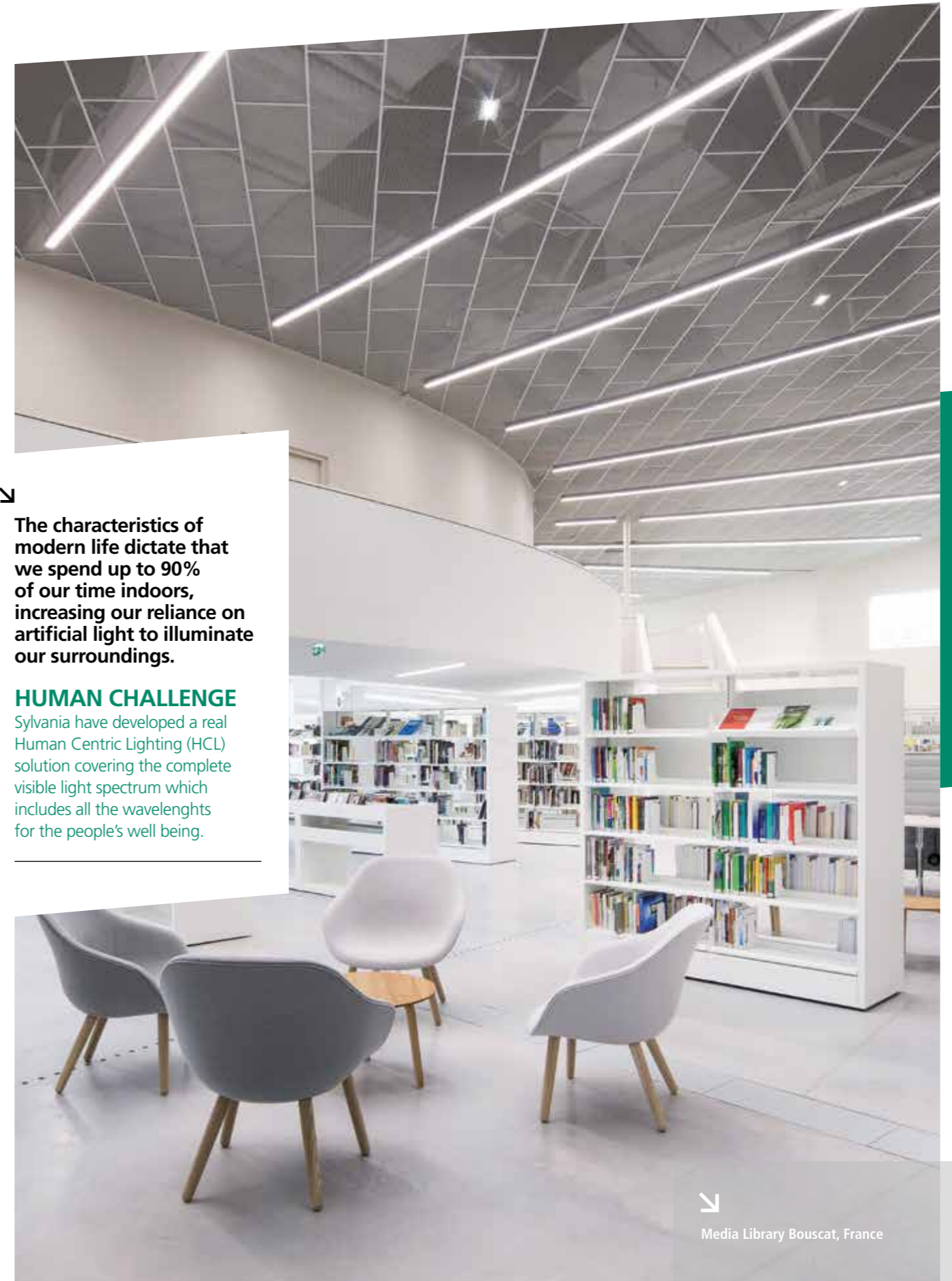
Almende school, Silvolde, The Netherlands



Schools, colleges and universities are more than just environments where people learn and need to respond to a range of functional needs.

**PERFORMANCE CHALLENGE**

Managing operating costs is a major consideration for educational establishments and Sylvania offer a range of energy efficient lighting solutions that combine quality lighting with high levels of functionality to create an environment that boosts performance levels of staff and students.



The characteristics of modern life dictate that we spend up to 90% of our time indoors, increasing our reliance on artificial light to illuminate our surroundings.

**HUMAN CHALLENGE**

Sylvania have developed a real Human Centric Lighting (HCL) solution covering the complete visible light spectrum which includes all the wavelengths for the people's well being.



Media Library Bouscat, France

## Natural light:

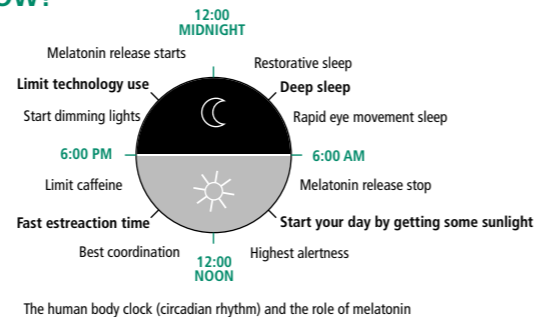
A source of well-being and productivity

We spend up to 90% of our time indoors and reliant on artificial light\*, meaning we are only gaining from the natural benefits of sunlight for approximately 10% of our lives. Natural light controls our circadian rhythms, which are the physical, mental, and behavioural changes that naturally occur throughout a 24-hour cycle and in response to changes in light. It is therefore intrinsically linked to our health and wellbeing and contributes to how productive we are at different time of the day. Sylvania has developed LumiNature, the true Human Centric Lighting (HCL) that creates the full spectrum of natural light visible to the human eye and enables artificial light to replicate the effects of natural daylight.

### The benefits of natural light

The role natural light plays in our everyday lives extends beyond allowing us to see the true colours of objects around us. It also influences how we behave and helps our bodies produce Vitamin D, which helps regulate certain nutrients needed to keep bones, teeth, and muscles healthy. It also controls the quantity and quality of our sleep, which is directly linked to our ability to concentrate and learn. Access to natural light is often limited in schools, colleges, and universities, placing greater emphasis on artificial light that mimics daylight and boosts cognitive function, digestion, and levels of motivation. All these are elements which contribute to our ability to focus and be productive.

### 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 EDUCATION



Sylvania LumiNature marks a new era in human centric lighting by having the capacity to recreate sunlight. Its complete spectral curve which eliminates blue peaks and delivers optimal colour reproduction makes it one of the most natural artificial lights available. LumiNature also gives dynamic lighting control and the ability to effortlessly tailor the lighting to suit the specific needs of individual areas or group of users. The SylSmart Standalone and Connected control options offer further control and optimisation capabilities. LumiNature is the perfect solution for bringing 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.



\*2018- YouGov survey "Indoor Generation" -16,000 people in 14 countries in Europe and North America



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

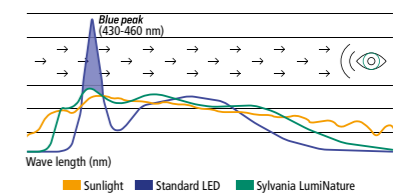
Both natural and artificial light are composed of a spectrum of colours. The spectrum of visible light detectable by the human eye operates between approximate wavelengths of 400 nanometers (violet/blue colours) to 700 nanometers (red colours). LumiNature by Sylvania is a true HCL solution which delivers a complete and balanced spectral distribution with all colours of the visible light spectrum, while eliminating the potentially harmful blue peak. Our wireless SylSmart system also makes it possible to program personalised light controls to enable you to create environments tailored to your specific requirements.

### Natural lighting: many benefits for the occupants

There are three benefits achieved when an educational environment is illuminated with a true HCL solution. First, it promotes eye comfort and visual awareness by perfectly rendering colours. The second benefit is the control of our circadian rhythms and stimulation of good sleep quality, which increases our alertness during waking periods and enhances our concentration levels and performance. Finally, it contributes to the control of melatonin levels in our bodies, which is paramount for our general health and well-being. By perfectly balancing these benefits, Sylvania LumiNature responds to the lighting challenges of today and ensures it's capable of meeting those we face in future.

### 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.

## Light design: from a functional to sensitive approach

How interior spaces are designed and how they are illuminated extends beyond the functional aspects, which address the elements that our eyes need to see. Lighting design must also consider how our eyes experience what they see, as the artificial light in which we work, and study has become an ergonomic and organic parameter in design. It is a focal point in controlling how we feel and how we do things, and a sensitive approach will reveal spaces in different ways at different times and enhance the way light is perceived.

### Light enables us to see

In optics, light is the phenomenon at the source of a visual sensation. The fundamental purpose of lighting design is to deliver enough light for people to see. If we don't have enough light we run the risk of eye strains, headaches, and issues with posture. Conversely, too much light also creates potential issues, so balanced lighting is essential in creating an environment where people can work in comfort. The extensive use of digital screens in schools, colleges, and universities is a further consideration and artificial light cannot contrast too much without posing a risk to eye health.

### Light is a structural element of space

It plays a critical role in interior design in both creating and defining space. In

some environments the motivation is to accentuate beauty and in others the role of lighting is illuminate so occupiers can see clearly and study or work effectively and efficiently.

Light assumes an architectural dimension and allows space to be modulated in both a precise and subtle way. It discriminates the different volumes within a space, gives a clear hierarchy in the zones, and creates a tangible dynamic by playing with different sources, intensities of light, and types of luminaires. A great example of where this approach works is a lecture theatre, where different people occupying different areas have a variety of different lighting needs.

Light is only properly revealed by the presence of shadows. In a lighting design approach, light is not equally distributed,

instead adapting to the specific needs of the areas in which it's installed. This allows to give contrast and to guide the circulation of occupants within a building, but also to structure an open space that perhaps has several usages such as meeting or recreation areas.

### Light is emotional

In addition to providing visibility and the control of space, the third pillar of lighting design focuses on the experiences it creates. It's essential to define the objectives, functions, and the emotions we seek to evoke in each space and striking a balance between these three elements is essential for a successful lighting project. Lighting design gives valuable perspective to the importance of a sensitive approach to designing spaces



↘  
Functionnal lighting

↘  
Warm atmosphere

by actively contributing to the wellbeing and comfort of the people that will use it. Whether you are looking to create a peaceful or energising atmosphere, the setting and choice of luminaires can be tailored to suit your every need. Innovation has enabled lighting design to consider the full visible spectrum to provide a quality of lighting that gets close to replicating natural light. With the use of technical and theatrical photometry, we can create a variety of lighting effects suited to the different needs required in an educational setting. The flexibility and control available through considered lighting design can develop school, college, and university environments beyond their core function and help them become pleasant, productive spaces where individuals can engage in their best work.

### DID YOU KNOW?

Lighting designers work together with architects and interior designers to conceive, structure, or renovate space. Lighting designers are both consultants and technicians, with a thorough approach to all aspects and functions of light.

Sylvania has an integrated research department of lighting designers who can assist you through the full life cycle of your project from design to installation. Expertise in bespoke design and construction, together with high quality raw materials, allows them to create a vast range of configurations suited to any environment. As true masters of light, they can help you create a perfect atmosphere by perfectly harmonising your different spaces.

### WHAT'S PHOTOMETRY?

Photometry is the measurement of the brightness or intensity of visible light as perceived by the human eye. The measuring unit of illuminance is the lux, which indicates the amount of illumination a given surface unit receives.



*"In some design exercises, you need attention to details, and you have many things to take into consideration. Lighting guides and recommendations are there to be used and understood, but certainly not blindly followed. Personal preferences, architecture, decorative elements, etc., are equally important to consider when making a decision whether to abide by or depart from standards."*

Zsolt Bodzay, Head of Lighting Design, Feilo Sylvania International Group Kft

## A smart solution to every need

Ease of installation is a critical factor of lighting design and sits alongside cost and environment impact as key considerations when planning a system for any type of education setting. Whilst the comfort of the many different types of users remains the focus, global attitudes demand sustainable solutions where comfort, simplicity, energy-efficiency, and a respect for the environment are given equal merit in the final decision making.

### A new generation of connected lighting

The integration of intelligent systems into lighting designs can make a significant contribution to the eco-performance of school and university buildings and contribute to meeting cost and carbon reduction targets. The introduction of flexible solutions can help to deliver the desired functionality and aesthetics whilst also offering enhanced energy efficiencies and cost savings. With its wireless technology, sensors, and distributed intelligence, Smart Lighting is fast becoming an integral part of lighting design and the focal point of the digital infrastructure in buildings. The ability to sense occupancy and natural light levels, combined with cutting-edge wireless Bluetooth mesh networking technology, enables SylSmart

luminaires to deliver an optimum lighting experience that's installed with minimal disruption and programmed with intuitive tools. Lighting can now be tailored to different areas across an entire site or campus, with the lighting needs of different types of occupants or activities controlled within the same system. In addition, connected lighting solutions contribute to maximising comfort, increasing productivity, improving the wellbeing of occupants, and delivering significant energy savings. Using data related to energy usage, occupancy information and more allows SylSmart to be utilised within the larger world of IoT to increase the efficiency of other systems and help drive down operational costs and reduce CO<sub>2</sub> emissions.

**30%**

The % of the total electricity consumed in a commercial building attributable to lighting\*

**84%**

The amount of energy that can be saved by replacing conventional lighting with LED\*\*

### SYLSMART BENEFITS

-  Easy Set-Up
-  Reliable & Secure
-  Dynamic & Flexible
-  Abundant Savings

\*Data sources: DG energy, EU energy in figures, 2012. LBNL (Lawrence Berkeley National Laboratory)  
\*\*Atalian project



School, Gujan-Mestras, France

### SylSmart Standalone

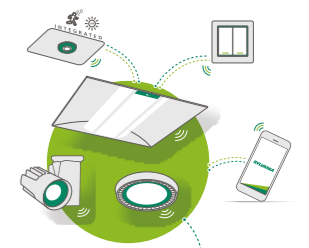
#### Maximum control. Minimum installation.

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 tunable 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. Systems can be scaled to meet the needs of any project size from single offices to complete floors and are secure and efficient. No additional wires or hardware is required, with remote pre-configuration capability via cloud for a personalised lighting experience.



#### DID YOU KNOW?

HCL solutions and automated lighting systems operate exceptionally well when used together. The two combined offer a true-to-life reproduction of the visible light spectrum at any time of the day, making a positive contribution to occupant's circadian cycles and helping optimise their performance.



*"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.

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

The right type and level of lighting enables people to perform visual tasks efficiently and accurately, and in an education setting, that can include those of a repetitive nature and others performed over prolonged periods of time. The biggest challenge facing lighting designers is creating an environment where artificial lighting and lighting controls can seamlessly integrate with natural light and the surrounding architecture to provide comfortable spaces where teachers, students, and other staff can work, rest, and play effectively.

### Adequate and appropriate lighting for Education

When installing lighting in schools, colleges, and universities there are many factors to consider, the principal one being the wellbeing and performance of students and staff. The provision of natural light is actively encouraged, as research strongly points toward this having a positive effect on mood, energy, and concentration. The Committee for European

Standardisation (CEN) has become the de facto standard for lighting regulation across Europe and in the UK, the British Standard Institution (BSI) uses CEN recommendations when summarising standards for the UK market. The BSI has recently published BS EN12464-1:2021, which defines the common standards for lighting planning of indoor workplaces, including classrooms and other educational settings. This most recent version has increased

in scope based on new knowledge of ambient lighting to include lighting in ceilings and on walls and how bright light should be is now defined in greater depth to reflect the needs of different users in different environments undertaking different tasks. The standard essentially sets out parameters for the quality and quantity of light and identifies visual comfort, performance, and safety as the three human needs it seeks to address.

### 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
Classrooms - used by young children	300	0.60	80	19	Lighting should be controllable
Classrooms - General activities	500	0.60	80	19	Lighting should be controllable
Auditorium, lecture hall	500	0.60	80	19	Lighting should be controllable
Attending lecture in seating areas in auditoriums and lecture halls	200	0.60	80	19	DSE-work
Black, green and white boards	500	0.70	80	19	Presenter, teacher shall be illuminated with suitable vertical illuminance
Display board	200	0.60	80	19	
Demonstration table	750	0.70	80	19	
Light on podium area	300	0.70	80	-	
Computer work only	300	0.60	80	19	DSE-work, Lighting should be controllable
Practical rooms & laboratories	500	0.60	80	19	Lighting should be controllable. Ambient light should be considered
Library: bookshelves	200	0.60	80	19	Vertical illuminance
Library: reading areas	500	0.60	80	19	
Sports halls, gymnasium, swimming pools	300	0.60	80	22	
School canteens	200	0.40	80	22	
Cloakrooms, washrooms, bathrooms, toilets	200	0.40	80	25	



© Delphine Poggianti

The main parameters of a lighting environment that must be respected to avoid any detrimental photobiological impacts are:

- **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 throughout a school or university.
- **Glare (UGR):** is the unpleasant sensation caused by bright light within your field of vision. In schools, 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 school or university, where distractions must be minimized, a UGR of <19 is

recommended to maintain concentration and productivity.

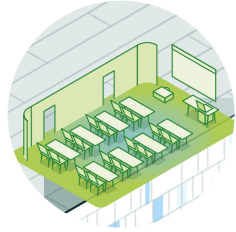
- **Colour rendering (CRI):** this is the ability of a light source to reproduce surface colours as faithfully as possible compared to an ideal or natural light source. It is identified by the colour rendering index (CRI), with the best colour rendering having CRI 100. The standard CRI measurements recommended vary depending on the visual task to be performed, but a minimum of CRI 80 is recommended for the education sector.
- **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 and many are manufactured in France, Germany, and the UK in accordance with European standards to safeguard quality. Our products comply with EN 12464-1:2021 standards and meet the required specifications set out, including glare (UGR<19), the level of luminance (L65 < 3000 cd/m²), CRI (80 min.) or low flickering (<5%).

### The 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.



# Classrooms

In addition to providing consistent and reliable levels of illumination, lighting creates an environment that improves concentration levels and enhances our ability to learn by replicating natural daylight. Developments in lighting technology stimulate creativity and encourage greater collaborations between students, teachers, and staff.

## ISSUES

### Significant amounts of time spent inside

Students spend most of their time at school indoors and away from natural light, which can have a detrimental impact on their health and well-being.

### Need for concentration and creativity

By helping regulate levels of melatonin, lighting plays a major role in stimulating students' concentration throughout the day by ensuring there's sufficient illumination in their surroundings to maintain alertness.

### Maximum visual comfort

The ability to clearly see and be seen is an essential consideration in places where interactions between teachers and pupils represent the bedrock for learning.



**CONCORD OPTIX RECESSED LUMINAIRE**  
Natural light recreated



+ 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/m²

## OTHER LUMINAIRES



**Quadro – Architectural LED Panel**  
+ Excellent visual comfort  
+ Innovative design  
+ Multipower functionality with 8 settings



**OptiClip SylSmart Connected enabled – The competitive smart solution**  
+ Low glare light, ideal in office  
+ Modular design  
+ Replaceable light engines



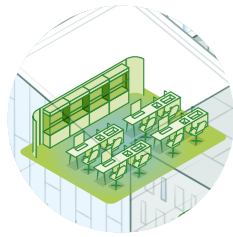
**Concord Optix Asymmetric – Recessed or surface luminaire**  
+ High performance, low glare  
+ Visual comfort  
+ Robust yet light body



**Rana Neo – Recessed, surface or suspended luminaires**  
+ Visual comfort  
+ UGR<18 and luminance <600 cd/m²  
+ Ability to mix-and-match







## Specialist classes & Laboratories

The precise nature of the research and work undertaken in scientific laboratories and other specialist function rooms dictate the installation of reliable, powerful, and efficient lighting solutions. Lighting must not be too bright or too dark and needs to be resistant to fluctuations in temperature and moisture to preserve optimal illumination levels at all times.



**START PANEL IP44**  
Recessed LED Panel



+ High efficacy



+ IP44 rated from the front



+ Slim size



+ Low glare UGR19

### ISSUES

#### Functional lighting

The priority for lighting design is functionality, where efficient lighting allows detailed information to be easily seen without glare.

#### Precision and visual comfort

Engaging in precision work requiring high levels of concentration for prolonged periods means lighting has to be bright, but comfortable.

#### Increased resistance

Luminaires must be robust enough to maintain optimal performance in environments where changes to temperature, moisture and other conditions may be more challenging than normal.

### OTHER LUMINAIRES



**Concord OfficeLyte – Low-glare office lighting**  
+ High performance  
+ Energy efficient  
+ Direct/Indirect light distribution for perfect visual comfort



**Resisto – High-performance waterproof lighting**  
+ Robust & durable  
+ Ease of installation  
+ High efficacy  
+ SylSmart enabled versions

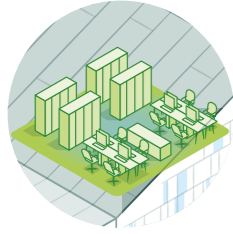


**Concord Optix Surface Mounted (1200) – Efficient surface luminaire**  
+ High efficacy and low glare  
+ Visual comfort UGR<16 and Luminance <200 Cd/m<sup>2</sup>  
+ Quick and easy customisation



**OptiClip – The competitive smart solution**  
+ Low glare light, ideal in education  
+ Modular design  
+ Replaceable light engines





## Standard & Media libraries

The lighting in libraries and multimedia suites needs to reflect the tranquility of the environment and have the flexibility to cater to the needs of different visitors. Lighting designs must provide sufficient illumination to allow visitors to move around safely whilst delivering enough focused lighting to enable learning materials to be easily located and studied in comfort.

### ISSUES

#### Reading comfort

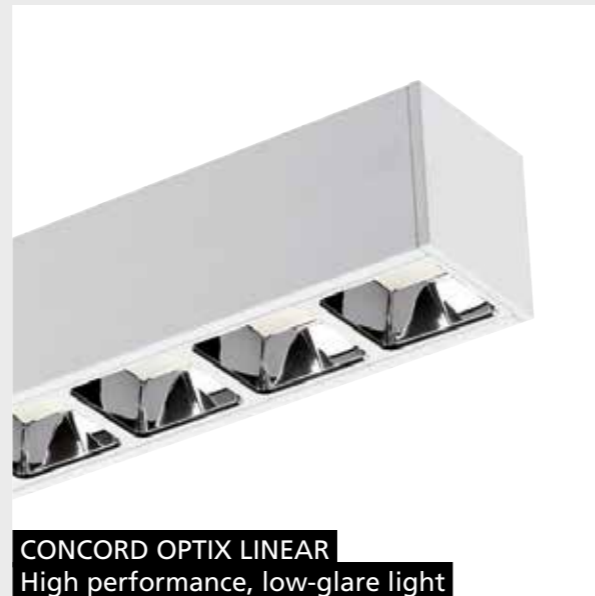
Strong contrasts between two visual planes in close proximity to one another can cause visual fatigue. Delivering calibrated contrasts that combine optimal individual lighting with appropriate ambient lighting and the ability to control its intensity will create the perfect conditions for comfortable reading.

#### Personalized lighting

Lighting directed upwards creates enhanced light distribution with fewer reflections and shadows. Specific areas can be lit using different luminaires suited to varying learning environments, whether focused lighting for individual tasks or ambient lighting for group discussions.

#### Identification and orientation

The ability to navigate safely around narrow aisles using illuminated signage and quickly identify materials with bright focused lighting are crucial elements of lighting design in libraries and multimedia suites. A mixture of independent lighting carefully integrated to illuminate shelves, furniture, and open spaces provides the best solution.



**CONCORD OPTIX LINEAR**  
High performance, low-glare light



+ Continuous lines of seamless light



+ High performance (147 lumens/Watt)



+ Exceptional visual comfort



+ Luminance <math><1.000\text{ cd/m}^2</math> at 65°

### OTHER LUMINAIRES



**Rana Linear – Variety of optical solutions**  
+ Slim and unobtrusive  
+ Possibility to mix-and-match  
+ Several optical options



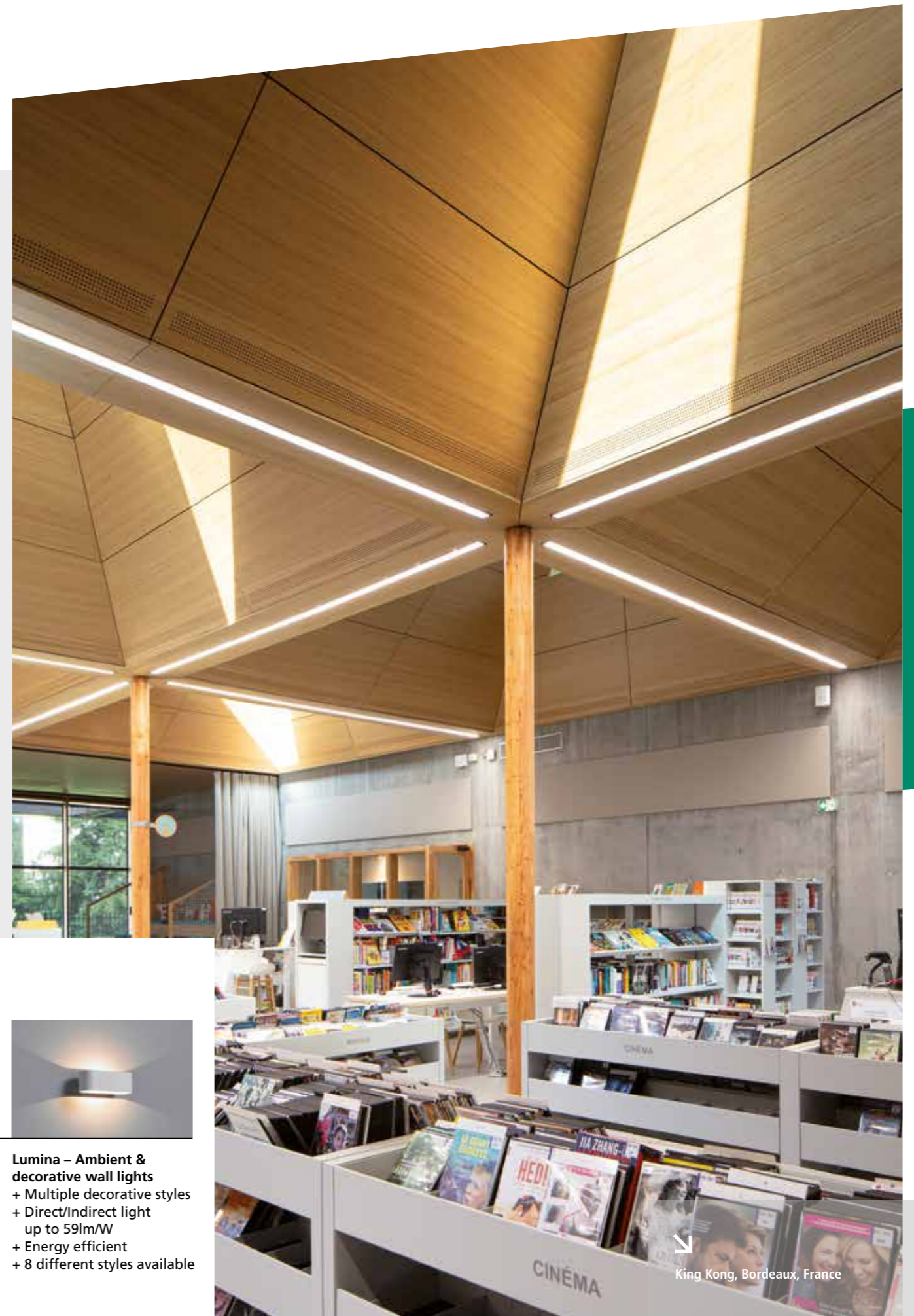
**Concord Ascent 100 – High power LED Downlight**  
+ Visual comfort CRI 95-99  
+ High performance up to 146lm/W for CRI80 versions  
+ 4 different lumen packages  
+ LumiNature version with no blue peak, adapted to the circadian rhythm



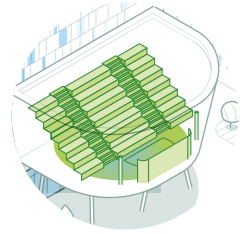
**Concord Beacon Accent – Award winning Spotlight**  
+ Excellent colour rendering (CRI97)  
+ Low glare, dark-light detail for visual control  
+ Optimal heat dissipation



**Lumina – Ambient & decorative wall lights**  
+ Multiple decorative styles  
+ Direct/Indirect light up to 59lm/W  
+ Energy efficient  
+ 8 different styles available



King Kong, Bordeaux, France



## Auditoriums

The characteristics and variety of uses of auditoriums require the installation of specialist lighting solutions. Vast spaces where audiences are often focused on a stage or podium and the distribution of occupants varies significantly, auditorium lighting needs to be flexible so it can adapt to a wide range of different activities that include lectures, presentations, and exams.

### ISSUES

#### A vast space to illuminate

Powerful lighting to highlight presenters and speakers without glare, aligned with subdued audience lighting bright enough to allow note taking is needed to deliver optimal lighting to all occupants.

#### Configuring different scenarios

Smart lighting controls introduce the ability to programme different lighting schemes tailored to different requirements that can be controlled at the touch of a button.

#### Simplified maintenance and energy saving

The style of seating in auditoriums creates variable distances between the floor and ceiling, with some luminaires high and difficult to access, placing great importance on lighting that's energy saving, long-lasting and easy to maintain.



**CONCORD MINI CONTINUUM**  
Lighting system with uniquely clean design



+ Uniform & continuous light lines



+ Direct/Indirect light distribution



+ Minimalist design

### OTHER LUMINAIRES



**Concord Beacon Accent**  
– Award winning Spotlight  
+ Excellent colour rendering (CRI97)  
+ Low glare, dark-light detail for visual control  
+ Optimal heat dissipation



**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



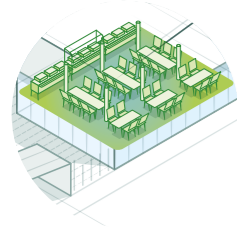
**Insaver Slim** – Small sized Downlight  
+ Glare control  
+ Excellent visual comfort up to 2500lm  
+ Compact design  
+ High efficacy  
+ Several output options from 620lm to 5200lm



**Concord Optix Linear** – High performance, low-glare light  
+ Continuous lines of seamless light  
+ Exceptional visual comfort  
+ High performance 147 lm/W  
+ Luminance <1.000 cd/m<sup>2</sup> at 65°

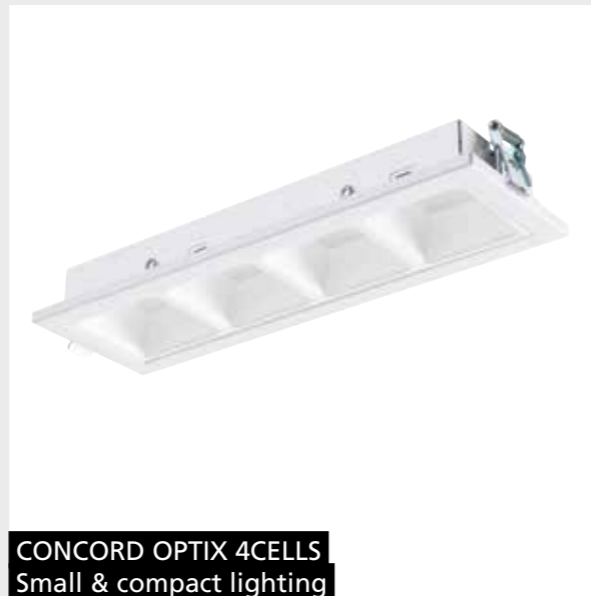


Lecture Theatre in the Design Museum in London, UK



## Canteen

A healthy, balanced diet can contribute to strong concentration levels, ensuring productivity remains at desired levels. Creating a relaxing space where students enjoy spending time outside of classrooms is essential in maintaining mental health and wellbeing throughout the day. Canteens are often busy areas, so it is essential to provide enough light for the occupants. Luminaires need to reflect the different uses of space, with recessed downlights delivering uniform illumination.



**CONCORD OPTIX 4CELLS**  
Small & compact lighting



+ Comfort light



+ Rectangular downlight design



+ High performance

### ISSUES

#### Comforting and relaxing

dining areas can be achieved with creative lighting designs that provide an informal and comfortable space for people to meet and socialise over a meal.

#### A functional lighting solution

is needed in food preparation areas where it's necessary to ensure staff can operate safely.

#### Decorative lighting

can introduce a feeling of home in the places we go to learn, with ambient lighting creating a warmer, more intimate atmosphere.

### OTHER LUMINAIRES



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



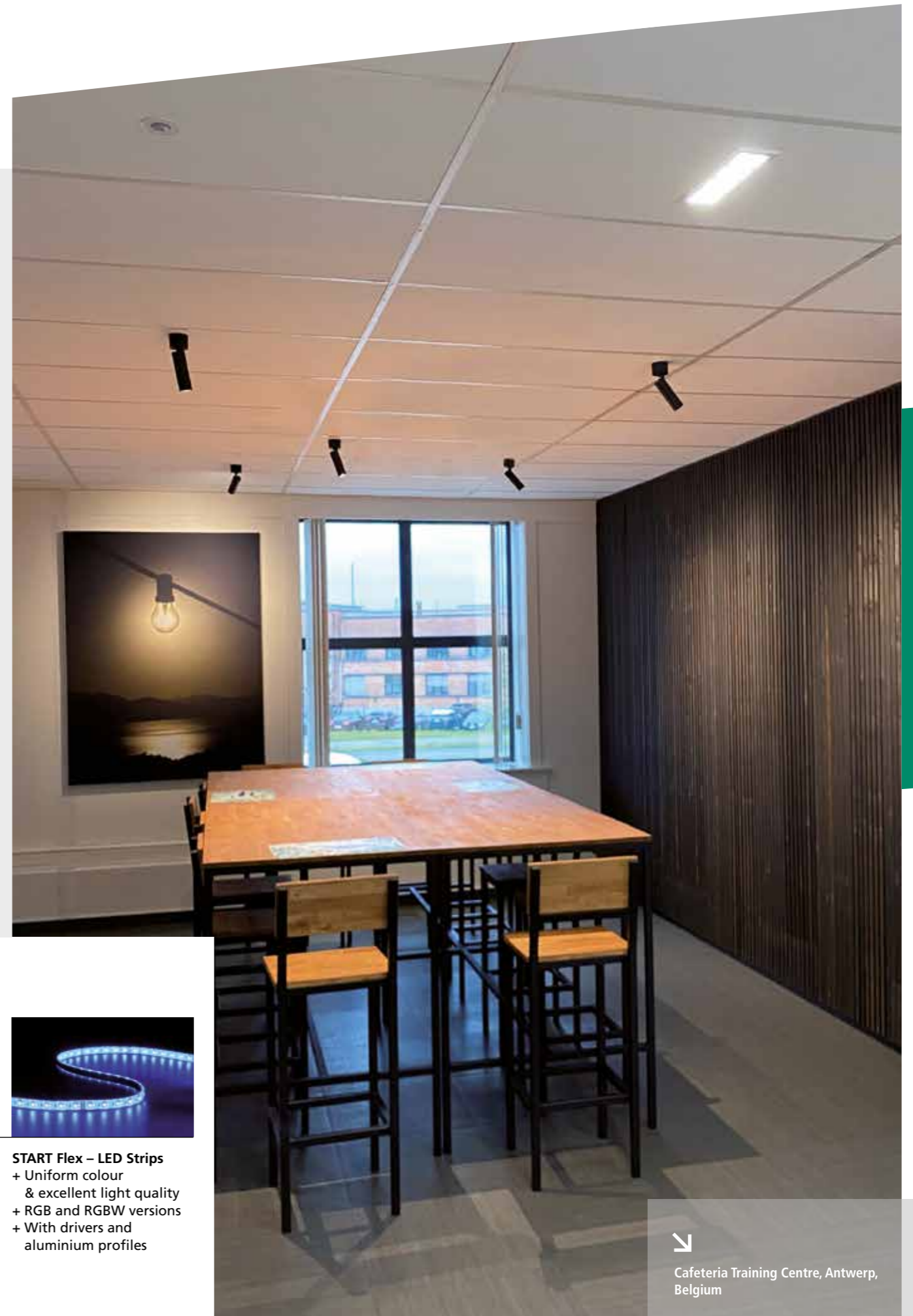
**Insaver Slim – Small sized Downlight**  
+ Glare control  
+ Excellent visual comfort up to 2500lm  
+ Compact design  
+ High efficacy  
+ Several output options from 620lm to 5200lm



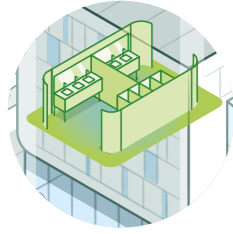
**OptiClip 600 – Recessed modular**  
+ Low glare light, ideal in education  
+ Modular design  
+ Replaceable light engines



**START Flex – LED Strips**  
+ Uniform colour & excellent light quality  
+ RGB and RGBW versions  
+ With drivers and aluminium profiles



Cafeteria Training Centre, Antwerp, Belgium



## Sanitary areas

Lighting in sanitary areas needs to provide a combination of functionality, efficiency, and comfort. Tiled walls and floors can give a sterile look and feel, but the right luminaires can introduce a decorative aspect to create a bright and pleasant environment that minimises the glare from reflective surfaces.

### ISSUES

#### Cost control

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 presence sensors, which can be set so the lighting operation reflects the ad hoc use of sanitary areas.

#### Quick and easy mounting

minimises disruption during maintenance.



**INSAYER SLIM PIR**  
Downlight with PIR sensor included

- + Glare control
- + High efficacy
- + With adjustable time and daylight level
- + Energy savings with integrated PIR
- + Compact design
- + Several output options from 620lm to 5200lm

### OTHER LUMINAIRES



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



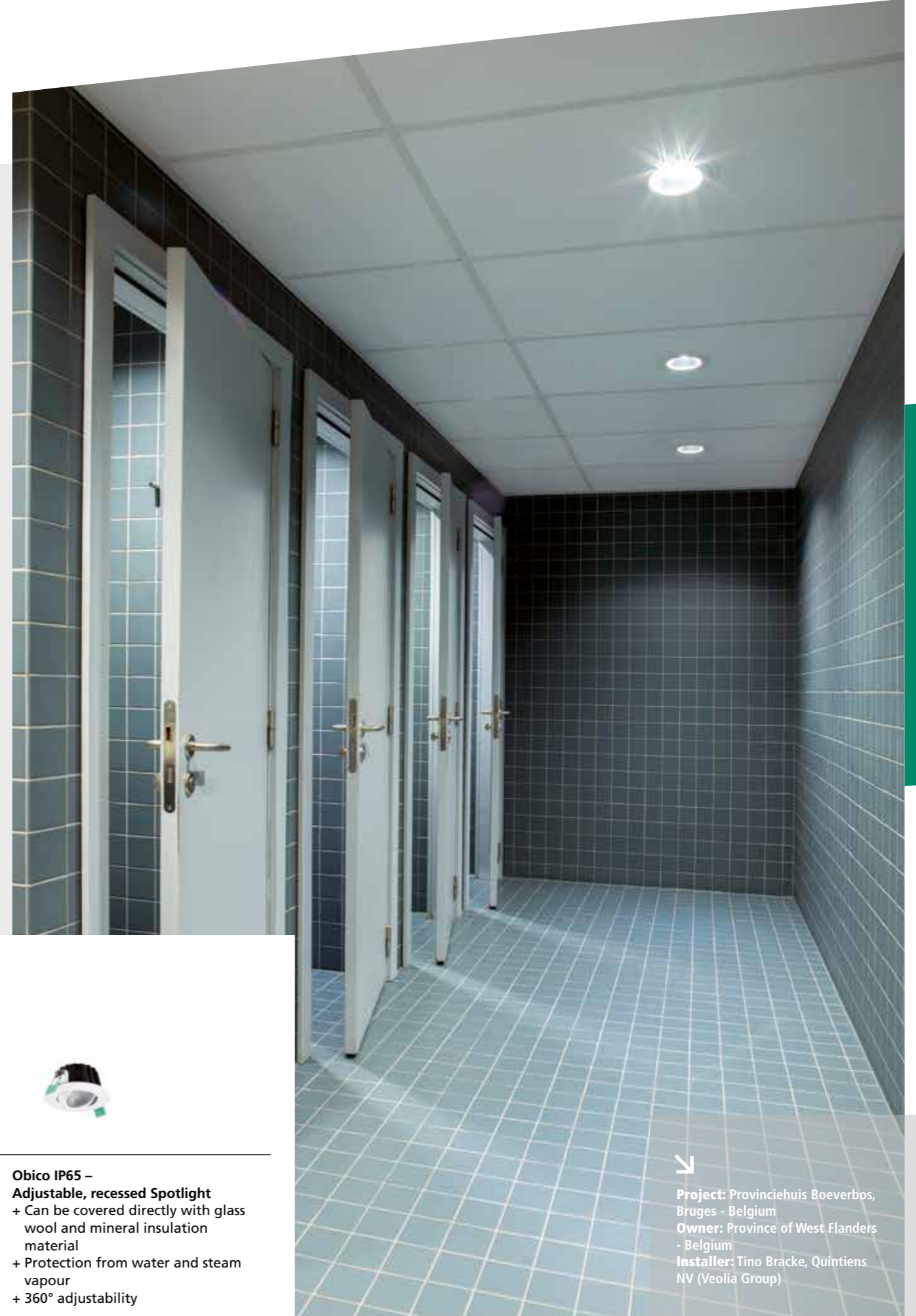
**START Downlight 5in1 PIR – Flexible Downlight**  
+ With adjustable time and daylight level  
+ 3 colour temperatures and 2 mounting methods  
+ Multiple cut-out dimensions



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



**Obico IP65 – Adjustable, recessed Spotlight**  
+ Can be covered directly with glass wool and mineral insulation material  
+ Protection from water and steam vapour  
+ 360° adjustability



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



## Administration & Welfare areas

The administrative areas of educational establishments require high-quality, consistent lighting that is 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 light, with appropriate levels and colour of light, is crucial in maintaining productivity.

### ISSUES

#### Designing

an office to suit multiple uses allows the opportunity to rethink how lighting can be used to align with the space to make it as pleasant an environment for everyone.

#### Functionality

is a key consideration in lighting design and it's important to deliver consistent levels of comfort light in office areas of all sizes.

#### Personalisation

uses light to create different atmospheres that align with the function of different spaces and reflect whether they're used by groups or individuals.



**CONCORD OFFICELYTE**  
Low-glare office lighting



+ High performance



+ Energy efficient



+ Direct and indirect light distribution for perfect visual comfort

### OTHER LUMINAIRES



**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



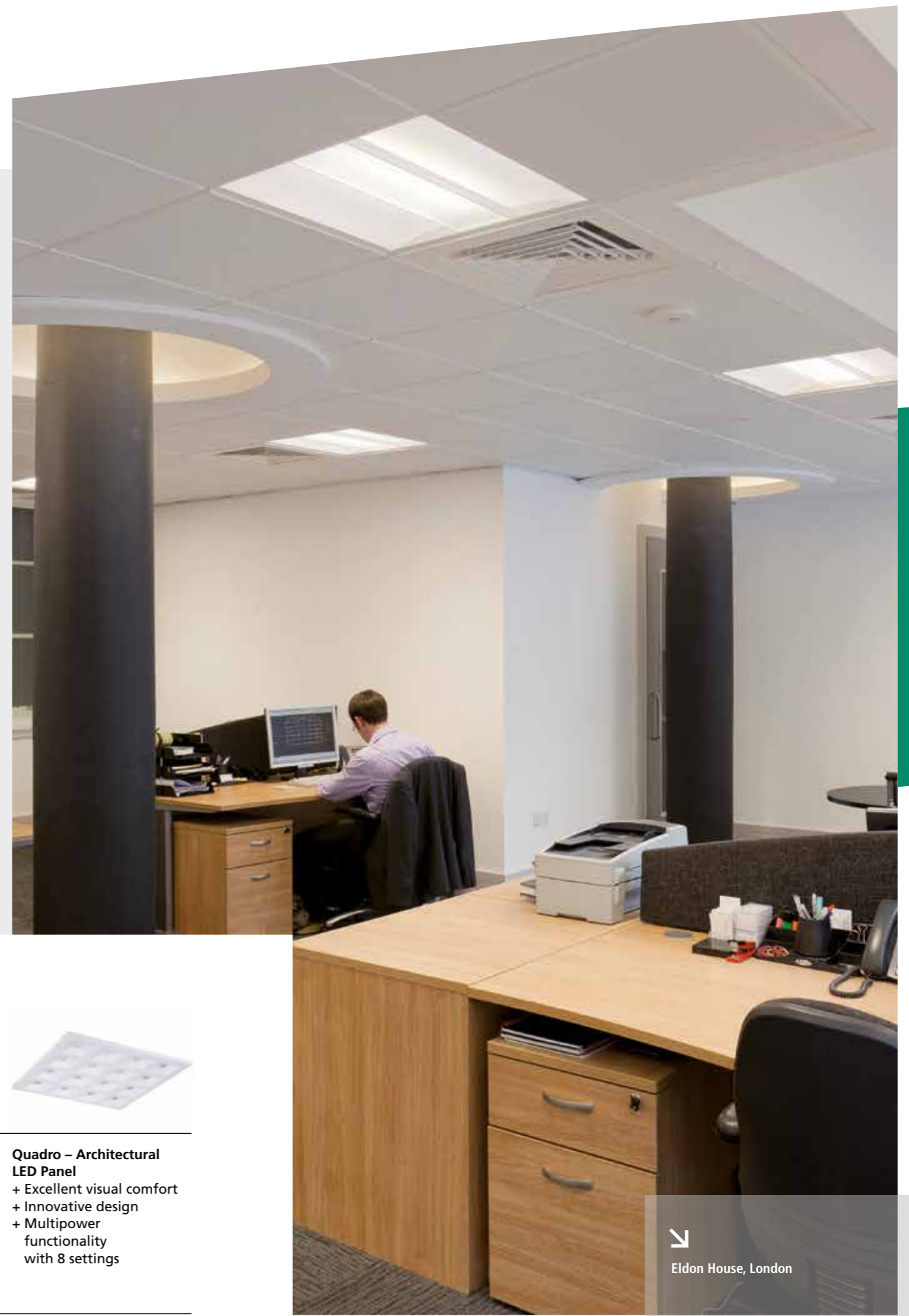
**Concord Optix Recessed LumiNature**  
– Natural light recreated  
+ Human Centric Lighting (HCL) enabled  
+ No blue peak for visual comfort  
+ Dynamic light, adapted to the circadian rhythm  
+ Excellent colour rendering CRI 97  
+ UGR <16 & Luminance <200cd/m<sup>2</sup>



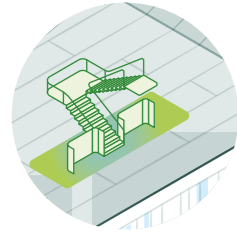
**OptiClip – The competitive smart solution**  
+ Low glare light, ideal in office  
+ Modular design  
+ Replaceable light engines



**Quadro – Architectural LED Panel**  
+ Excellent visual comfort  
+ Innovative design  
+ Multipower functionality with 8 settings



Eldon House, London



## Corridors & Stairways

Lighting needs to perform different functions when used to help students and teachers move around in an education environment. There is often no natural light in corridors and stairways, so the lighting must provide good visibility to allow people to travel around safely whilst retaining a synergy with the aesthetics of the environment.

### ISSUES

#### Accompanying the movements

of students by engaging continuous lighting across walls and ceilings. The light makes the moves easier and more pleasant between classrooms.

#### Safety

in high traffic areas such as corridors and stairways is important and the right lighting provides good visibility to ensure people circulate safely.

#### Cost savings

can be achieved by utilising motion sensors to detect movement and only turn on lighting when it's needed.



**CONCORD ASCENT 100**  
High power LED Downlight



+ Visual comfort  
CRI 95-99



+ 4 different lumen packages



+ High performance up to  
146 lm/W for CRI80 versions



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

### OTHER LUMINAIRES



**Concord Colossal – Minimalist style circular luminaire**  
+ Aesthetic design in compact circular shape  
+ Diffused, soft light distribution  
+ Surface, wall and pendant mounting options  
+ Discrete halo effect for D/I versions



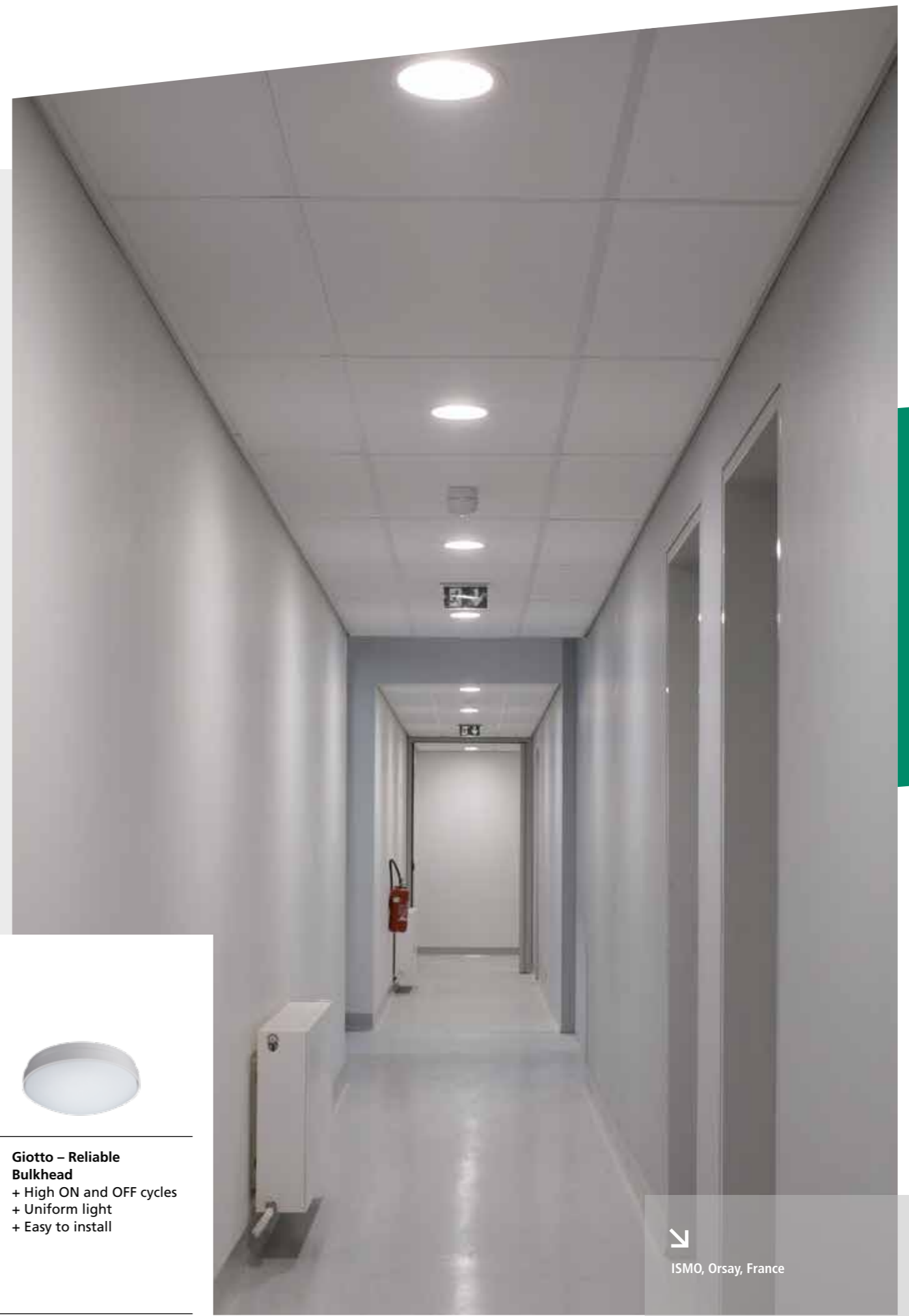
**Concord Optix 4Cells – Small & compact office lighting**  
+ Comfort light  
+ High performance  
+ Rectangular downlight design



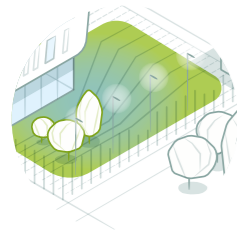
**Insaver Slim – Small sized Downlight**  
+ Glare control  
+ Excellent visual comfort up to 2500lm  
+ Compact design  
+ High efficacy  
+ Several output options from 620lm to 5200lm



**Giotto – Reliable Bulkhead**  
+ High ON and OFF cycles  
+ Uniform light  
+ Easy to install



ISMO, Orsay, France



## Outdoor areas

Educational establishments have a variety of spaces with different lighting needs, but it's imperative each provides a safe environment for everyone by delivering appropriate levels of illumination. Lighting needs to provide good visibility around paths, building entrances, recreational areas, and car parks to reduce the risks of accidents.

### 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



+ Energy efficient



+ High performance and efficacy



+ DALI dimmable

### OTHER LUMINAIRES



**Start Bollard – Landscape lighting**  
+ Contemporary and robust design  
+ High-performance  
+ Ideal for gardens and paths



**Interrata – Buried Uplights**  
+ Robust design for ground lighting  
+ Driver over capability up to 2000kg  
+ Tilttable for fine tuning

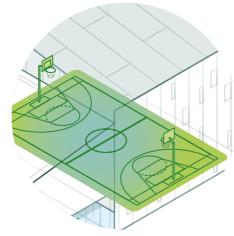


**Kalani – Exterior Floodlight**  
+ Quick and easy to install  
+ Robust  
+ Wide range of lumen output



**Inverto – Surface, wall and ceiling**  
+ Robust and compact  
+ Contemporary cubic design  
+ Corrosion resistant





## Sports halls & Facilities

Lighting in sports halls, gymnasiums and other sporting environments needs to be powerful and flexible to ensure ideal illumination for the variety of different activities and needs of users. Luminaires must also be durable and robust, capable of withstanding impact from balls and other flying objects.



**SYLBAY**  
Tough and intelligent Highbay



+ Ideal for lighting high bay applications



+ SylSmart enabled versions



+ Visual comfort UGR<19



+ Ball proof certified

### ISSUES

#### Resistance and durability

Impact protection of luminaires is a necessity in environments where balls and other projectiles may hit the light sources.

#### Lighting adapted to users

Clear bright light with low glare is essential in sporting environments where prolonged concentration and visual comfort is paramount to ensure fast-moving objects can be tracked and participants can be seen from distance.

#### Energy saving

Often in use for prolonged periods, sports halls and other sports facilities require lighting that maximises energy savings and benefit from the integration of occupancy sensors that switch lights off when the facility is not in use.

### OTHER LUMINAIRES



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

- + High efficacy up to 144lm/W
- + Microwave occupancy sensors
- + SylSmart Standalone twist and lock KIT available



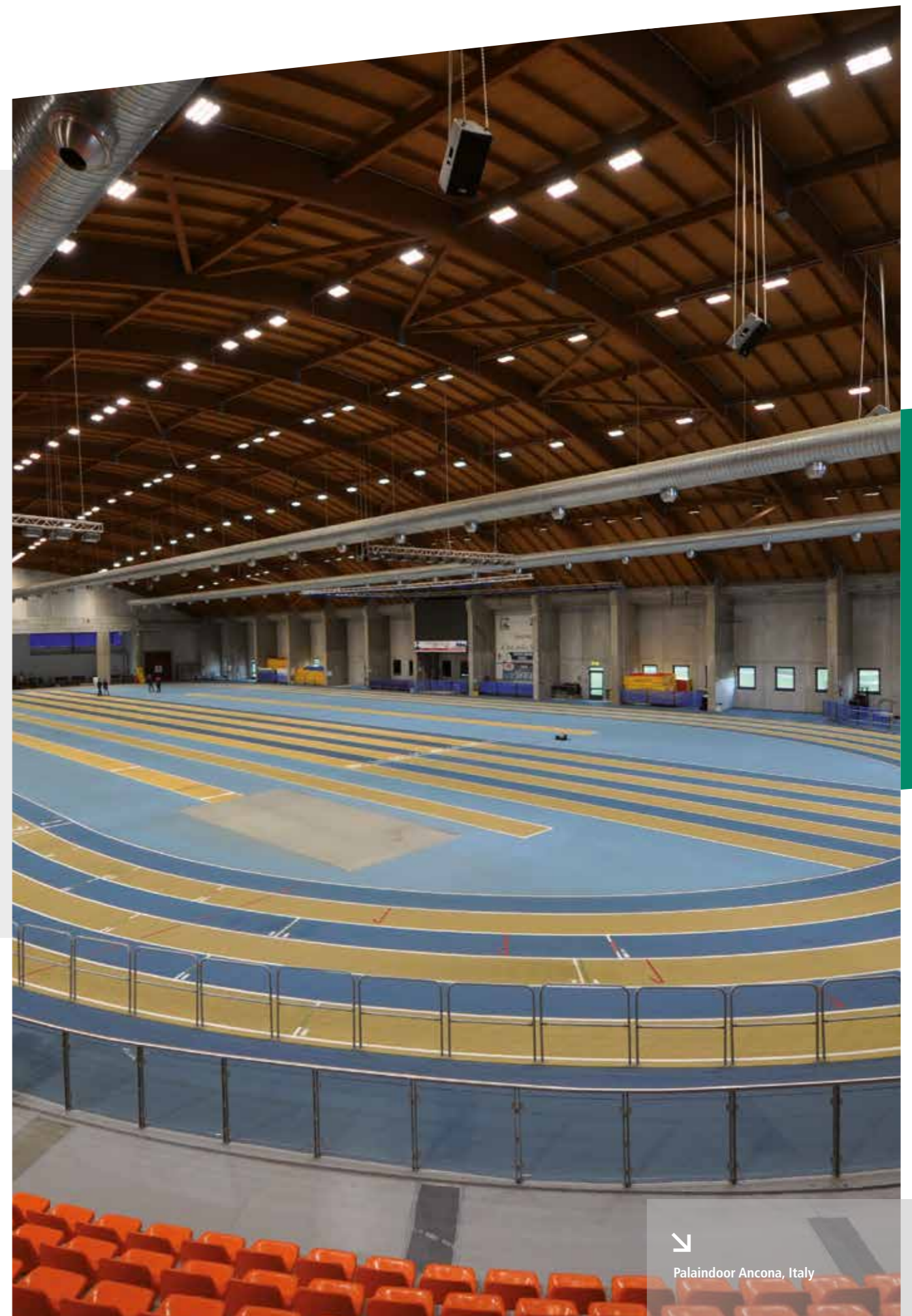
#### Concord Raiden – Versatile Floodlight with unique design

- + 4 sizes and 3 colour temperatures
- + High performance and efficacy
- + Energy efficient
- + DALI dimmable



#### Kalani – Robust & durable Floodlight

- + Quick and easy to install
- + Highly efficient
- + Wide range of lumen output
- + Wire guard for protecting the front glass



Palaindoor Ancona, Italy

## 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 education, 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.

### 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,

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

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

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.



\*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.



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.

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