

**LIGHTING
FOR LEARNING
ENVIRONMENTS.**

A dark, atmospheric night scene of a forested lake. The sky is a deep, dark blue, and the trees are silhouetted against it. A bright, glowing light strip runs horizontally across the water in the foreground, creating a strong contrast with the dark surroundings.

**Lighting innovations.
Born out of darkness.**

THE SWEDISH LIGHT

Swedes have a special bond to light and its impact on human well-being. It has almost become an obsession. For the past 80 years we've honed the art of efficient light precision and visual comfort. We design smart lighting solutions that spark our imagination, enhance our productivity and brighten our spaces.

Enhancing the lit experience and protecting the environment

The Fagerhult story began in 1945 when our founder, an engineer called Bertil Svensson, created a lamp so that his mother could keep knitting during the long, dark, Nordic winter nights.

A simple tale that provided the basis of over 70 years' worth of lighting developments. Embodying the form and function stylings of Scandinavian design with a culture defined by the extremes of darkness and light, we create solutions that help facilitate the everyday with a great lit environment.

The mass adoption of LED technology has resulted in a significant reduction in the amount of power lighting consumes. This can be further enhanced by smart control systems that regulate light levels based upon both occupancy and daylight. This not only minimises energy but also enhances the lit environment by ensuring the right amount of light is used in the right place at the right time.

While conserving energy in usage is requisite, we look at every aspect of how a luminaire is made, from materials and production to end-of-life and its continuation within a circular society.


Equally, we believe light is an essential tool that helps connect us to our built environment. By retaining focus on both elements, we create innovative solutions that benefit both people and the planet.

INCLUSIVE DESIGN

Light For wellbeing

Light is essential in our daily lives, influencing our ability to see, overall well-being and performance. In educational environments, lighting quality can significantly impact students' focus, mood, and energy levels.

Effective lighting design carefully considers brightness, timing, and distribution to support visual clarity and biological functions like mood and alertness. For example, exposure to bright light in the morning helps regulate circadian rhythms, boosting alertness and mitigating the effects of seasonal darkness. Integrative lighting (also referred to as human-centred lighting) combines visual and non-visual benefits (such as emotional effects) to support biological rhythms and psychological well-being. This approach goes beyond traditional lighting solutions by considering how light impacts circadian rhythms and hormonal balance.

 [Read more about Human Centric Lighting](#)

Human-centered design in Universities focuses on creating spaces that support diverse learning styles and human needs. Lighting helps facilitate this due to its visual and non-visual influence. While the specifics of most projects are unique, there are some fundamental guiding principles that provide a framework for creating the optimal lit experience.

The light distribution in the room should offer good visual comfort, in line with the basic principles of light planning and applicable standards, avoiding glare and overly sharp contrasts between horizontal and vertical surfaces.

Human Centric Lighting requires variation, for example in the form of varied intensity and colour, and is aided by the room surfaces. Illuminating the ceiling as well as the vertical surfaces, with accent lighting on selected objects or at certain points, helps create a vivid and inspirational environment.

For our biological system to perceive electric lighting as daylight, higher output levels are required. To achieve the right biological effect, approximately 250 melanopic lux must hit the eye directly. Illumination of the face is also extremely important when it comes to our visual communication and dialogue with others.

Sensor control using daylight sensors and presence detectors make it possible to utilise the daylight and adjust the intensity and colour of the light with consideration for the visual, biological and emotional needs of the users. The illuminance and the colour of the light must be correctly balanced and varied depending on its purpose.

Melanopic Ratio

Light is measured in lux. This unit is used to describe how much light strikes a specific area or is present in a room. Traditionally, lux has always referred to what is known as photopic lux. Photopic lux is the light amount critical for vision, the light required for us to see well and perform our tasks. However, as research has taught us more about the non-visual, biological effects of light, a whole new concept has emerged in lighting design.

Melanopic lux is the unit used to measure how light affects the receptors that control our biological circadian rhythm. The quantity and spectral composition of the light we are exposed to have a significant impact on both our sleep and our well-being when we are awake. It all originates from how humans are influenced by the light from the sky and the sun when outdoors. White light with high colour temperature and intensity increases the release of stress hormones and makes us more alert – just like a clear and sunny morning.

The "melanopic" light created with electric lighting follows the natural light's spectral distribution within the wavelengths that affect our biological system. In this way, it can help support the circadian rhythm.





Melanopic Ratio (Melanopic Daylight Efficacy Ratio – MDER) is a factor used in light planning to calculate the lighting installation's melanopic lux. Since daylight is what regulates the human circadian rhythm, it is also the reference for Melanopic Ratio. The reference is called D65 SPD and is the International Commission on Illumination's "CIE Standard Illuminant." It resembles daylight's colour temperature at 6 500 kelvin and is a cool, white light. Based on the light source, that is the diode's similarity to CIE D65, it is possible to specify the lighting luminaire's Melanopic Ratio. Melanopic Ratio is a comparison between the spectral distributions of the light source and CIE D65.

The general recommendation is that students begin their day in environments with at least 250 melanopic lux for two hours. This aligns with natural biological rhythms, helping to boost concentration and support healthy sleep-wake cycles. This recommendation is grounded in international best practice, including the WELL Building Standard and chronobiological research such as the study published in PLOS Biology (2022), which outlines how morning exposure to at least 250 melanopic lux (also known as melanopic equivalent daylight illuminance) can significantly enhance cognitive function, mood regulation, and circadian rhythm alignment. Especially in educational settings, where mental clarity and alertness are critical, incorporating this biologically effective light level helps create environments that truly support both academic performance and student well-being

 [Read more on melanopic ratio](#)

Visual Perception

Light contributes towards our visual perception of a space. Both the characteristics of the luminaire and the way they are applied are key elements for creating environments that not only enhance the feeling within the room but also promote human connectivity.

COLOUR REPRODUCTION

The ability of a light source to accurately portray colours impacts on visual acuity and the accurate rendering of illuminated objects, such as materials, skin tones and plants. The traditional methodology of measuring colour, General Colour Rendering Index (CRI) Ra, was first introduced during the 1960s fluorescent lamps had emerged and was last revised in the 1970s. With the adoption of LED, the change in technology impacted on the accuracy of colour rendering, especially for those sources with narrow-band spectral components. The CIE has recommended moving towards reporting General Colour Fidelity Index, Rf, which has 99 different colour references (compared to 8) - offering a higher level of colour integrity when illuminated. In 2025, we will be reporting both metrics to help users and designers to make both comparative and more granular choices.

CYLINDRICAL ILLUMINANCE

Good visual communication and recognition requires a sufficient level of brightness on objects and, above all, on people's faces. Therefore, the surfaces and "spaces" in which people move or work have to be sufficiently illuminated. This can be fulfilled by ensuring sufficient levels of average cylindrical illuminance. For surfaces where the demand for visual communication is especially important, for example lecture theatres, the maintained average cylindrical illuminance must not normally be less than 150 lx, with uniformity of $\min/avg \geq 0.1$. If the entire room, excluding the wall zone, is defined as the working area, the cylindrical illuminance should be calculated for the same surface area. If the working area and the immediate and peripheral surrounding areas are defined separately, the requirement for cylindrical illuminance should be met for the area corresponding to the size of the working area and the immediate surrounding area.





Visual Comfort

The principles of visual comfort centre around when the lighting situation optimises the visual capacity, with a primary focus on the removal of glare. This lit environment minimizes eye strain and fatigue, which can lead to increased concentration and focus and more inclusive spaces.

GLARE

Glare occurs when a part of the interior is significantly lighter than the room's luminosity in general. In this position the eyes are exposed to a stronger light than what they are normally adapted to. There are three main types of glare; Vision impairment, Discomfort glare from electric light and Discomfort glare from windows.

HOW GLARE IS MEASURED

The UGR (Unified Glare Rating) method, applied by the CIE, provides a glare number for discomfort glare specified on a scale, which in practice goes from 13 to 28. The highest glare number indicates the strongest glare. Within the standards a table is provided to outline the different minimum requirements depending upon the application. To maximize the use of the table method, Annex A is included in the standard, which describes recommended methods, when there are deviations from the specific conditions. For example, irregular luminaire placement, multiple luminaire types, different-shaped rooms. A common misconception is that glare can be measured on an individual luminaire basis. Every fitting has a defined UGR rating, which can provide a good indication of the glare produced. However, to get an accurate measurement you need to calculate the glare rating of the entire space, using a design software such as DIALux, which provides this figure as part of the standard output.

FLICKER

Flicker refers only to the variations in luminous flux that the eye can perceive, there are other disturbances, collectively known as Temporal Light Artifacts (TLA), which are temporary undesirable disturbance of the light output. In September 2021, the EU Ecodesign Regulation 2019/2020 was implemented. It specifies limits for visible flicker (PstLM) and stroboscopic effect (SVM). This helps provide a quantifiable measure for both flicker and TLA. The levels are as follows

Visual Flicker: the maximum for **PstLM is 1.0**.

TLA: the maximum for **SLV is 0.4**



Lighting fundamentals

Within most applications there are a core selection of luminaires that are most prevalent throughout the building. Depending upon the design intention or building infrastructure, they can be suspended or recessed or a mixture of both. The common characteristics are energy efficiency and visual comfort.

Beyond this basis, additional functionality such as variable distributions, sizes, integrated lighting control, high colour rendering and Tunable White capabilities ensure a consistent solution can be achieved throughout the campus, while still adapting to the specific needs of the individual areas.



Dwide

Recessed, ceiling-mounted and pendant luminaires with different distributions. Dwide contains unique anti-glare technology with dual optics that smooths the contrasts in the luminaire.

 [Dwide ceiling](#)



Time

Linear lighting solution, available for single or continuous installation, surface mounting or suspended with a direct only or direct in-direct distribution. The lit effect can be adapted with a choice of 4 louvre options.

 [Time pendant](#)



Pleiad

Pleiad's unique Fresnel lens channels the light directly downwards, with minimal light loss incurred via the reflector for optimal efficiency. Track, recessed, suspended or surface mounted options available.

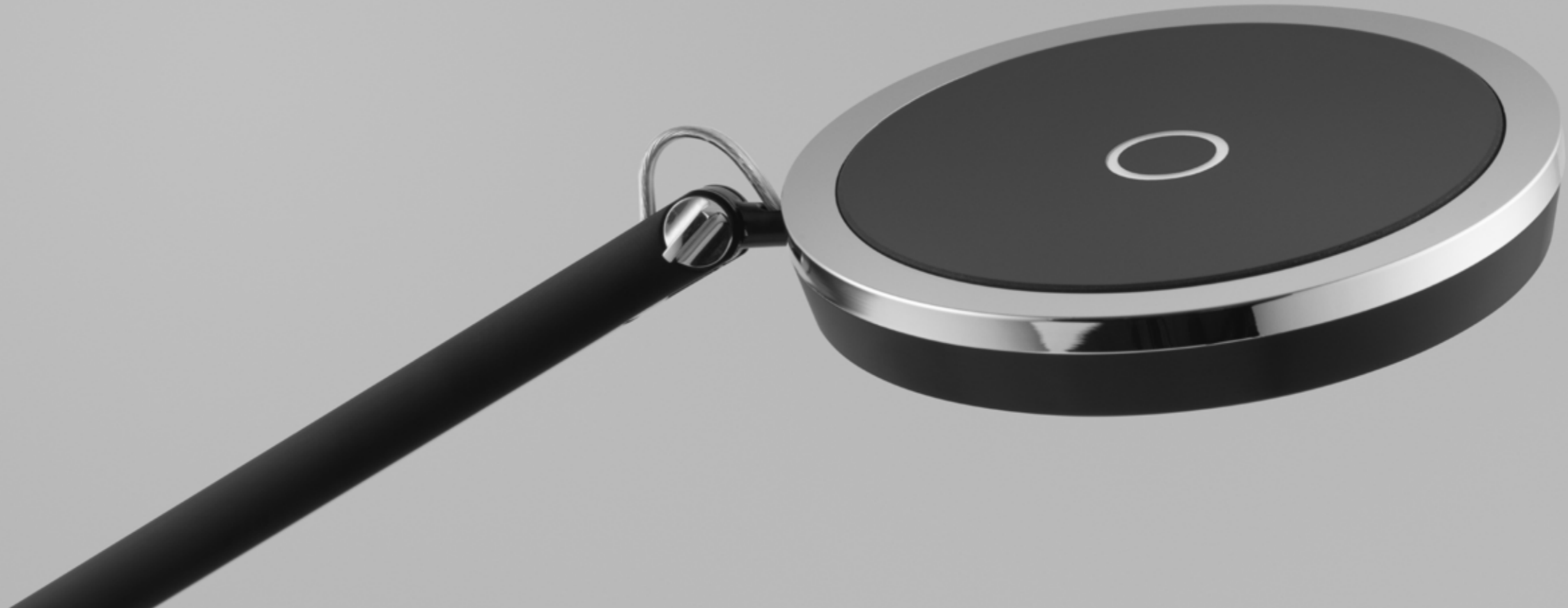
 [Pleiad G4](#)



Pozzo

Pozzo has an adjustable diffuser that can either lay flat with the ceiling or slightly recessed for a light well effect. The Tunable White version lowers the colour temperature down to 1800k for a lower Melanopic Ratio

 [Pozzo](#)



Personalised lit experiences

The ability for users to dictate their own lit environment has been shown to not only significantly enhance user experience but can also minimise the level of energy consumed by only using the amount the user needs on an individual basis.

In spaces with areas dedicated to multiple short-term occupiers and individual work, desk lights offer a simplistic yet effective way of adapting both the direction and levels of light to the activities being undertaken. Easy adjustability of the light source and intuitive dimming are essential characteristics, ideal for supporting studying beyond daylight hours and bringing illumination to difficult to light areas, optimising the available study areas across the building.



Vigg

Developed in collaboration with Arup, Vigg delivers focused illumination while minimizing glare. An intuitive single-button control facilitates smooth dimming, while the auto-off after an hour ensures no light is wasted in unoccupied areas.



Vigg



Simris

First designed in the 1970s, Simris has retained many of the original features, updated with LEDs. The cross joint enables the user to adjust the height and the length of the luminaire while the distinctive grid louvre ensures visual comfort.



Simris



Sparrow

The round-shaped design, in combination with the bevelled, high gloss polished edge, ties in harmoniously with the circular details on the luminaire joints. Sparrow is rotatable and adjustable in both arms and luminaire housing.



Sparrow



Pluggie

Pluggie, with its distinctive illuminated globe, is equipped with two USB ports and easily adjustable light. It's a solution developed for areas where adaptability and charging opportunities are a natural part of the environment.



Pluggie



REFERENCE CASE

Partnership of shared values

QUEEN MARY UNIVERSITY | YEAR 2024

Queen Mary University of London (QMUL) is one of the UK's prestigious Russell Group universities. Situated in East London, QMUL offers a stimulating educational environment that balances academic rigor with a rich cultural experience.

The quality and sustainability of light fixtures varied significantly across the campus buildings, with the inconsistent lighting quality impacting both the university's environmental footprint and its provision of an optimal study environment. The absence of well-defined design standards complicated the procurement process, making it difficult to find a system that would be both efficient and harmonious with the architectural styles on the campus. The disparity in lighting systems at the university presented a host of issues, from inconsistent light quality to varying energy efficiency. The latter had ramifications for the university's carbon footprint and its compliance with external regulations, such as the London Plan.

With open and on-going dialogue the University defined an assortment based on strict criteria. Utilising solutions from across the brand portfolio, simplifying the supply and on-going maintenance of the installations while retaining consistency without needing to compromise on their sustainability values or design principles.

"Fagerhult isn't just a supplier, more an extension of our team, contributing to the overarching goal of maintaining an educational and research setting of the highest calibre. It's rare to find a partner that aligns so closely with one's ethos and that delivers consistently on promises." - Richard Frost, Building Services Engineer at QMUL

Importantly, these standards were not a one-size-fits-all solution but were tailored to meet QMUL's specific needs. Committed to meeting client needs, making quick adjustments to the smart lighting systems based on Richard's feedback to better fit with QMUL's building management systems, showing a dedication to advanced yet bespoke systems.



Specialist lighting

Within the multi-functional nature of educational estates, certain areas have specific requirements for their lighting solutions. In labs, beyond standard additional protection against dust and water, easy cleaning is essential to maintain hygiene levels. Luminaires in sports halls and swimming pools must adhere to their own standards at both a product and illumination level.

Function, easy maintenance and energy efficiency are all essential but equally important is the visual experience. Our range of specialist lighting solutions ensure both compliance and exceptional light quality, with the ability to integrate the same lighting control system to bring all areas within a smart campus eco-system.



Hydro G3

High energy efficiency with a IP65 rating against dust and damp. Robust G3's tempered glass cover is easy to clean and tolerates disinfecting cleaning products, while the microprismatic diffuser ensures visual comfort.



Excis

Engineered to withstand high-impact sports, and with three distribution options, Excis has an integrated optical disc which manages light longitudinally, minimizing glare and meeting the UGR requirements for sports halls.



Kaptur

Kaptur is a durable and reliable encapsulated industrial luminaire. Its durable design, IP 67 rated, is ideal for exposed and temperature-extreme environments, such as parking garages, culverts or large warehouses.



Allfive

AllFive focuses on function and simplicity, each part has been refined to facilitate installation, simplify disassembly and enable future replacement of components, offering a future-proof upgrade on similar fluorescent luminaires.



DE-CARBONISATION

Sustainable Manufacturing

Our approach to sustainability can be characterised by transparency, authenticity, measurability, and a focus on continuously striving for improvements.

POWERED BY RENEWABLES

The choice of energy mix plays a significant role in the reduction of carbon emissions during production. Our main manufacturing site in Habo is 100% powered by renewable energy sources. We have invested in and installed solar panels on the roof of our Swedish factory.

WASTE MANAGEMENT

We recycle all our production waste to the greatest extent possible. In our production, we have more than thirty fractions in which we recycle materials, and at the same time enable it to be recycled in the purest form possible. We work with Stena Recycling, which ensures that our waste is given new life through collection and recycling. About 1% of the total waste are treated as landfill, and as much as 85% is recycled into new useful materials and can live on as something else. The rest of our waste is converted into energy that can heat households and buildings.

SUPPLYCHAIN

We believe it is important that all our companies and partners conduct business according to laws and regulations. Our shared Code of Conduct provides the basis for everything we do and how we act. We work toward a sustainable supply chain with suppliers that meet our requirements. We undertake extensive supplier evaluations using both environmental and social criteria for both existing and new suppliers.

SCIENCE BASED TARGETS

In 2022, we joined the Science Based Targets initiative (SBTi), which as a first step means developing science-based climate targets that are aligned with the Paris Agreement's 1.5° degree target.

Since 2021, we have reduced our impact at a rate that exceeds our targets. Overall, emissions in these scopes have decreased by 41% since our baseline year for scope 1 & 2. Our Scope 3 emissions have reduced every year since 2021, and overall, we have reduced emissions in this scope by 36%.

DE-CARBONISATION

Materials Matter

A detailed lifecycle analysis of the lifetime of our products highlighted that after the energy used in operation the materials used in their construction had the next highest impact on the total carbon impact.

As production becomes cleaner, luminaires become ever more efficient and depending upon the grid, the power used to power them becomes greener, the choice of materials is the next phase of de-carbonising lighting.

It's a careful balancing act. Materials, energy efficiency and visual experience all have to be taken into account to ensure one choice doesn't have a negative impact on another.

Equally, it is essential that you find partners willing to experiment with new ways of using their products. From pendants made of wood, hemp or cardboard, to upcycling reflectors from disused TV sets, we collaborate with a diverse range of suppliers who share our commitment and vision for helping to reduce our environmental impact within the built environment.

For product families manufactured and sold in larger volumes we have adopted extruded aluminium profiles containing 75% recycled material from end users. This initiative reduces our climate footprint by approximately 225 tons of CO₂e per year.





Wrapped

Wrapped is made almost entirely from organic and recycled paper materials and most plastic details are post-consumer recycled. The luminaire is folded together with high precision cut-outs that fit perfectly in just a few easy steps.



Wrapped



Kvisten

Combining energy efficiency, light quality and materiality. Kvisten's profile is made from plywood with a birch veneer, the reflectors have been upcycled from disused TV sets, with 77% of all materials coming from recycled or renewable sources in totality.



Kvisten



Notor

As part of a wider initiative to use recycled aluminium in high volume products, Notor is now made using aluminium that is 75% recycled. This results in around 70% lower climate impact than the average impact from European primary aluminium.



Notor



SuperDuperTube

Superdupertube is a perfect balance between light comfort, aesthetical values and a conscious material choice. The main profile is extruded bio-based polymer, while the distinctive grid louvre is made from injection-molded bio-based polymer.



Superdupertube



Discovery

Discovery is the next step in the mass production of sustainable products. The plastic is based on renewable materials instead of fossil oil, which significantly reduces the product's climate impact, without impacting on the transmission of light through the diffuser



Discovery



Hood

A modular concept that merged lighting, expansive form factor and acoustics into a single solution. The luminaire's shade, originally made from felt, has now been updated to use a climate-smart Swedish produced wool, creating unique textures in the shades.



Hood

CONTROL TRACK VERSA

Long-term flexibility for spaces of the future.

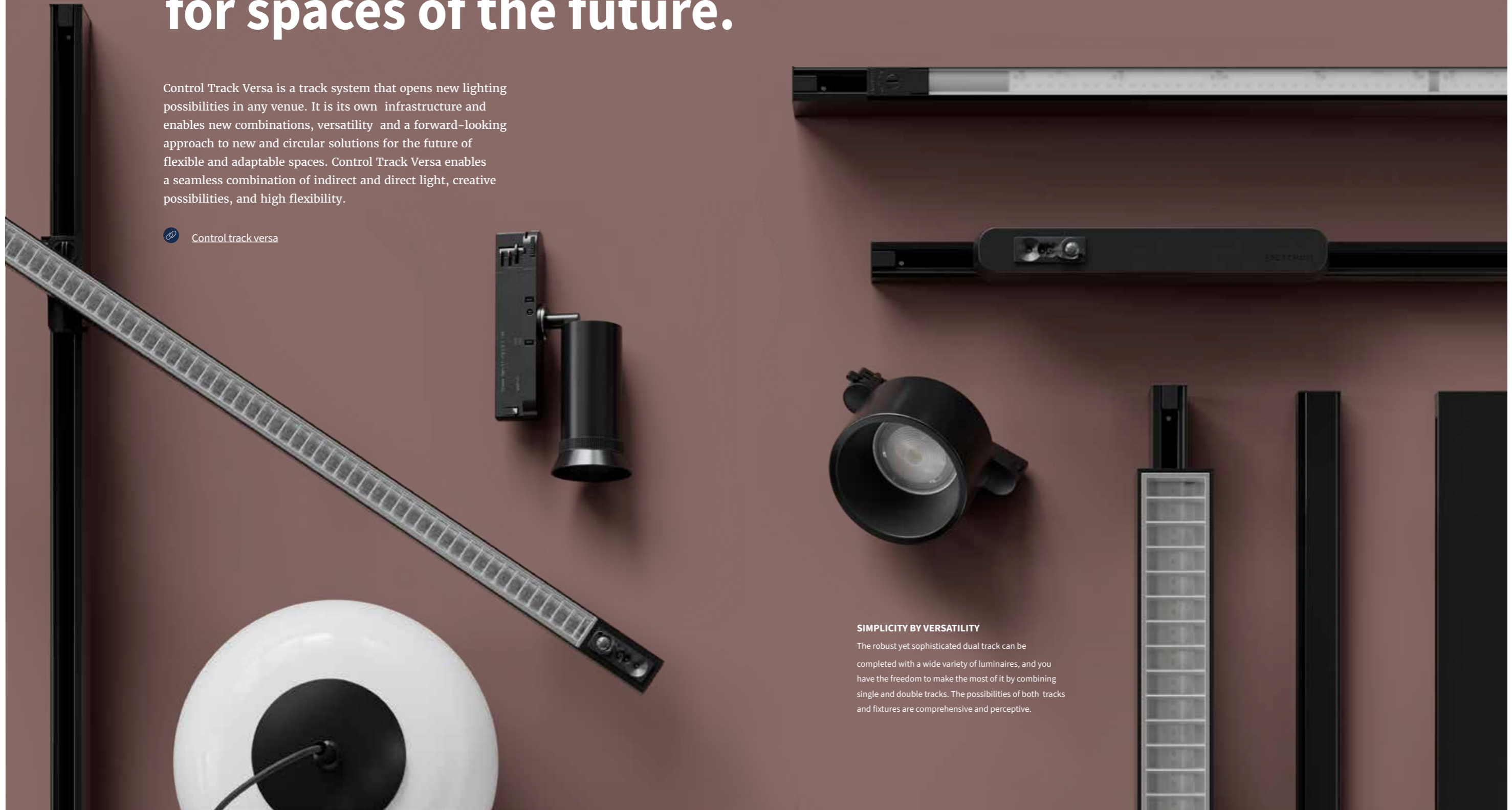
Control Track Versa is a track system that opens new lighting possibilities in any venue. It is its own infrastructure and enables new combinations, versatility and a forward-looking approach to new and circular solutions for the future of flexible and adaptable spaces. Control Track Versa enables a seamless combination of indirect and direct light, creative possibilities, and high flexibility.

 Control track versa



SIMPLICITY BY VERSATILITY

The robust yet sophisticated dual track can be completed with a wide variety of luminaires, and you have the freedom to make the most of it by combining single and double tracks. The possibilities of both tracks and fixtures are comprehensive and perceptive.





REFERENCE CASE

Historic Integrations

LEEDS BECKETT UNIVERSITY | YEAR 2024

A £10m refurbishment of the Grade II-listed Caedmon Hall at Leeds Beckett University, elevated its function and presence within the Headingley campus as part of a wide-reaching regeneration initiative.

Constructed in 1912, Caedmon Hall is a listed building with significant architectural heritage. The transformation delivered state-of-the-art lecture theatres, collaborative teaching spaces, and a drama studio, all while preserving the building's original character.

The university's target of a SKA Gold rating – a leading environmental assessment method for non-domestic fit-outs – guided every design decision, including lighting. Each luminaire was chosen for its high-quality illumination, low-energy consumption, and seamless system integration, helping reduce operational costs while maximising visual comfort and flexibility. Detailed tables and datasheets, along with all the necessary evidence, were also provided by the team to send to the SKA assessor.

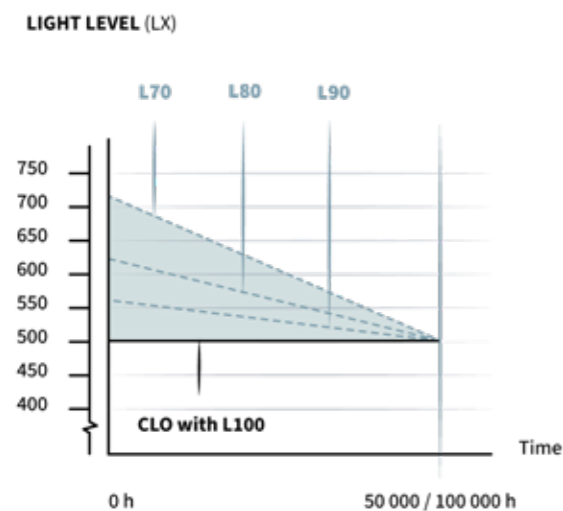
Working within a listed building brought unique constraints, particularly around cabling routes and fixture placement. Due to the high ceilings across large parts of the campus, lighting systems also had to integrate seamlessly with suspended acoustic rafts and panels to ensure both acoustic quality and lighting performance. The ability to provide diverse pendants, linear and specialist fittings under one umbrella simplified procurement and ensured design consistency.

It just meant everything came from the same place, with one point of contact for both us and the contractor. We weren't trying to coordinate with different people or compromise on products. The Fagerhult Group solution worked for everyone and saved a huge amount of time. – Rachel Shaw, Director at Pick Everard

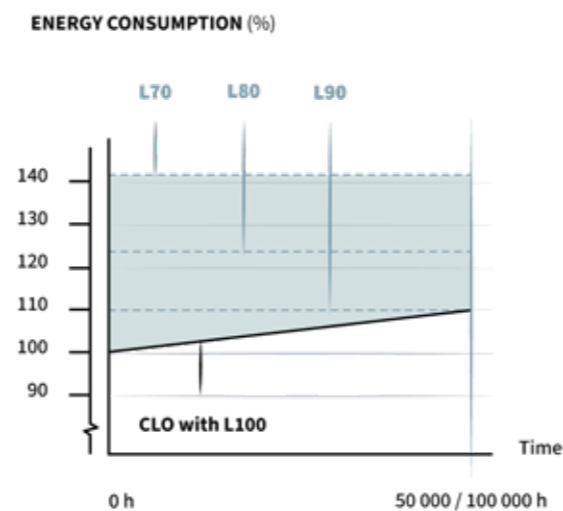
To support the university's existing open technology control system, all luminaires were specified to be compatible with DALI protocols, including DALI emergency lighting. This ensured full integration, real-time monitoring, and cloud-based testing of system performance. Flexibility is essential in academic environments where room usage is dynamic, and requirements shift regularly, and these DALI-compatible solutions provided the future-proof adaptability needed to support long-term facility use.

Energy efficiency and CLO with L100.

A BENEFIT FOR BOTH THE ENVIRONMENT AND YOUR FINANCES



UNNECESSARY LIGHT LOSS



UNNECESSARY ENERGY CONSUMPTION

Energy savings compared to equivalent luminaire without CLO

L70 - 36% L80 - 16% L90 - 6%

With LEDs, the luminous flux decreases over time, as the diodes are used. This light depreciation is more or less linear across the diode's service life. The luminaire itself can compensate for this light depreciation using a programmable driver. This is known as Constant Light Output (CLO).

The L-value describes the light depreciation of diodes over time. Thus, a CLO luminaire with L100 ensures the diodes have the same light level after 50,000 hours of burn time as when they were first installed. By contrast, an L80 luminaire has lost 20% of its original light level.

What are the benefits of Constant Light Output (CLO)?

CLO luminaires with L100 increase the maintenance factor, contributing towards more optimised and sustainable facilities. The optimisation is made possible by reducing over illumination. Less over illumination results in less installed output and, in some cases, can even require fewer luminaires. Ultimately saving energy

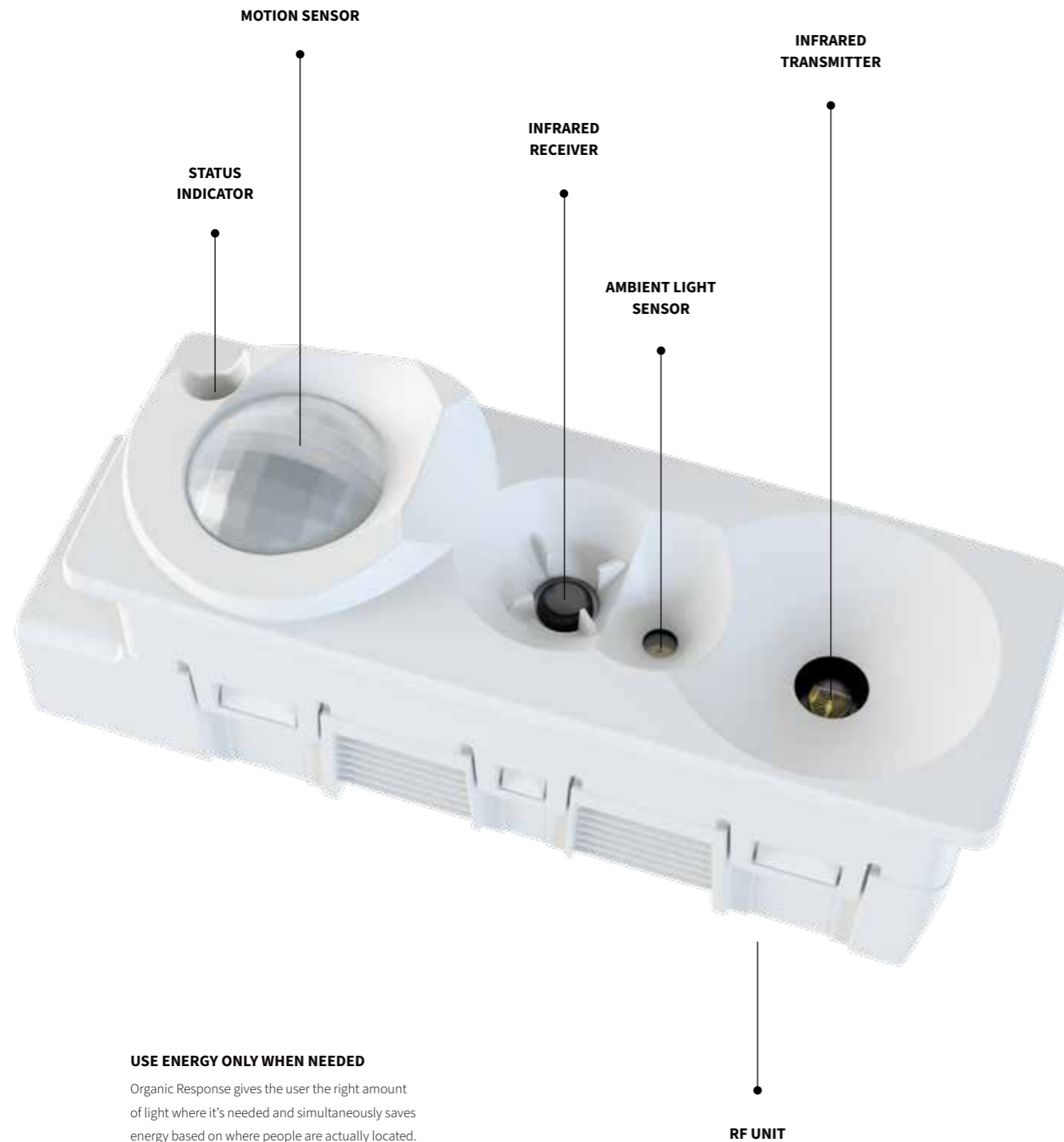
– a benefit for both the environment and your finances.

How is L100 created?

A luminaire receives a constant luminous flux, or L100, by means of pre-programming the power supply to increase over a specified time. By using this arrangement, the increase in power compensates for the diodes' light depreciation. The L-value applies to the luminaire as a whole, although the diodes themselves vary in light level. Since the ballast is set to gradually increase in watts and meet the variation of the diodes, the L-value always remains at 100 for a predetermined time.

[Read more on Constant Light Output](#)

Lighting control that takes care of itself.



USE ENERGY ONLY WHEN NEEDED

Organic Response gives the user the right amount of light where it's needed and simultaneously saves energy based on where people are actually located.

Producing the right light, in the right amount, in the right place at the right time is the basic premise of lighting design. Organic Response is an innovative wireless lighting control system that continuously and precisely automates the light levels according to both occupancy and daylight within the space. Helping to create the perfect blend of efficiency and user experience.

Quick turnaround

Integrated, where possible, in the luminaire, when connected to power, the sensor nodes automatically create a wireless mesh, without the need for additional wiring and cabling. This approach is ideal for point-to-point upgrades, installation in restricted or listed ceiling types or refurbishments to help maximise existing assets.

Reliable connection

The sensors form a self-organising mesh network, allowing for reliable and resilient communication even if one or more devices fail. This ensures consistent performance and coverage across the entire space.

No waste

At its most basic level, when occupancy is no longer detected the lights switch off. Defined at design phase and easily adapted at a later stage, avoid unnecessary energy consumption from lighting empty spaces for any longer than needed.

Reduced energy intensity

The sensor node transmit and receive messages using a proximity limited communication protocol, which allows sensor nodes to understand their position within a space in relation to other sensor nodes. In doing so, they can make intelligent decisions about how much light is required based on movement within the space and amount of natural daylight. By responding granually and in real-time the system only uses the precise amount of energy required to achieve the required lit effect at any given moment.

Enhanced user experience

When motion is detected, the sensors communicate with their neighbours to gradually fade the light levels away from the area of occupancy, avoiding stark contrasts between dark and lit areas. As the person moves through the space the light follows them. Equally, if more than one person is identified, the system coordinates the output across the space, ensuring optimal illumination.

Adaptive to variable occupancy

The lighting behaviour is defined by the settings (scenes, maximum lighting, dwell time, sensor sensitivity), which respond fluidly luminaire-by-luminaire, rather than on a group basis. With this dynamic approach, it doesn't matter how many people are in a space, for how long or which area they are in, the system automatically adapts accordingly.

Smart campus functionality

Organic Response has been developed to be completely scalable. From a single fitting switching on and off in a room, all the way up to SmartScore Platinum buildings. The functionality is in-built within the system, which can be unlocked as the requirements for the space evolves.

User control

Empowering people to control their own environment has been shown to significantly improve their experience within a space. The Organic Response nodes can be easily paired with Bluetooth switches, enabling users to either choose from pre-set lighting conditions or freely scale the light to their requirements.

Remote monitoring

With the latest radio frequency wireless mesh technology integrated inside the sensor node, whole lighting installations can be controlled and monitored from a centralised web-based Portal, including floor plans. Receive instant fault notifications and run functional and durational emergency lighting tests, direct from the system.

Energy management

The system measures the energy consumed by the lighting system both historically and in real-time. The results viewable on an individual, area or total building perspective via a dashboard or in greater detail via the floor map. Based on these data insights, building managers can make adjustments to key lighting

characteristics such as max/min levels and dwell times, helping to fine-tune the operational efficiencies of the lighting system.

Building utilisation

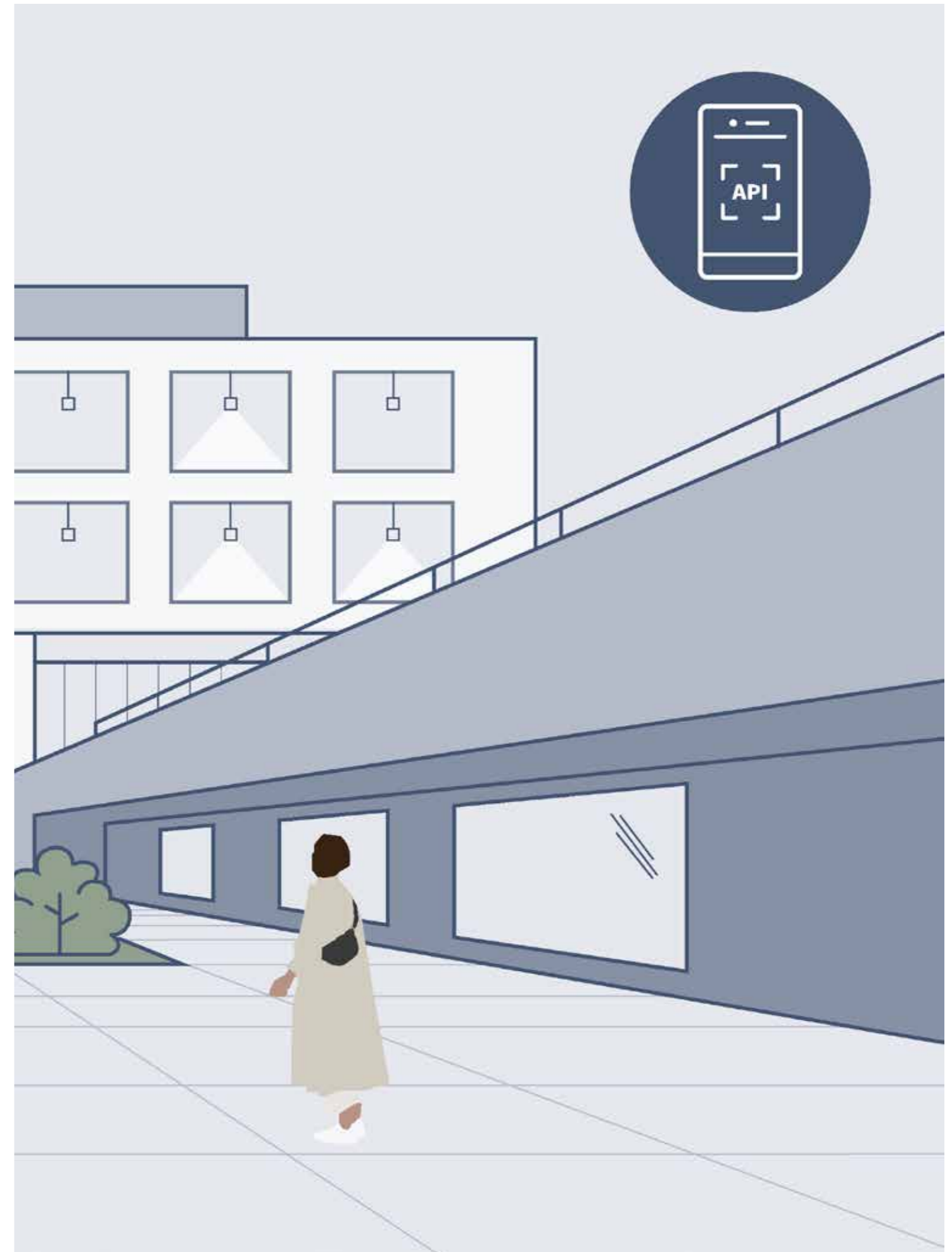
With sensors installed in each luminaire, and market leading data throughput across the mesh, presence triggers provide the basis for occupancy monitoring with high resolution real-time or historical data. The combination of dashboard snap shots and a live heat map, make it easy to identify under-used areas, footfall bottle necks and occupancy trends across a defined data range.

Ready to integrate

All Organic Response installations offer system assimilation via our secure Cloud Application Programming Interface (API). This API enables third parties to access the data held within the Organic Response system, opening up the possibilities for integration with Building Management Systems, Data Analytic platforms or custom developed mobile applications.

Security assured

The system prioritises data security and privacy, employing encryption protocols and secure authentication mechanisms to safeguard sensitive information. Regular security updates and compliance with industry standards, including our ISO 27001:2022 certification, ensure ongoing protection against potential threats.





Connected in all areas

Much like the luminaires that house them, certain applications have different requirements for the design of the sensor or their technical performance. From increased protection and higher installation heights to different installation caveats, our range of different sensor types provide the ability to ensure building wide coverage using the Organic Response system.



Remote

Ideal for areas with products that can't integrate sensors, such as downlights, or spaces where there is not the need for a sensor per fitting. Contains all the same features and functionality in a stand-alone design.



Track

To support the same ease of installation and future flexibility of track lighting systems, the sensor is contained within a housing that simply connects into place and enables all fittings connected to join the Smart eco-system.



Microwave

Using microwave detection technology, this version provides coverage in partitions or obstructed spaces. As it can detect through surfaces, the sensor can be integrated into robust luminaires without impacting on the IP/IK rating.



Highbay

Combining both PIR and Microwave sensing for highly accurate motion detection and maximizing detection coverage. Three installation methods and three lens, designed for high bay applications up to a 15m installation height.

REFERENCE CASE

Reduce, decarbonise, smart.

UNIVERSITY OF WARWICK | YEAR 2024

The University of Warwick, known for its forward-thinking approach to technology and sustainability, embarked on a project to overhaul the lighting system in its main library building.

The library, a six-floor building with a four-storey extension, had been in operation since the 1960s and had undergone various updates and upgrades over the years. Despite these efforts, the lighting system remained inefficient according to modern standards due to increased demand and changes to the area's usage over the years.

The University had a clear vision aligned with their net zero goals, 'Reduce, Decarbonise, Smart' ethos, and their 'low energy, low maintenance' principals. Equally, it was imperative that keeping the library functional throughout the refurbishment was achieved.

The combination of high-efficiency products with Organic Response lighting control were selected for a pilot phase based on the ability to not only minimise energy use but also utilise the real-time occupancy data collected by the system to make informed decisions about space management, optimising the use of their facilities. Additionally, the wireless nature and easy commissioning processes kept disruptions to a minimum, often halving floors to maintain accessibility for students.

Once in place, this pilot phase allowed us to gather three years of data, demonstrating the system's efficacy. We can report savings in the region of half a million kilowatt-hours of electricity over three years, equating to approximately £150,000 annually for just two floors. - Paul Holland, Estates Engineer at Warwick University

Following the success of the pilot phase, the university has now implemented the system across the remaining floors of the main library building and the two-storeys of the extension. The next phase involved utilising the system's occupancy monitoring feature to have a user interface which displays a simple traffic light system (green for quiet, red for busy, amber for moderate) highlighted on monitors at the library entrance, with the aim of helping students find available spaces quickly.





CIRCULARITY

Re:Light

The transition from a linear to circular economy is a key cornerstone of substantially reducing waste generation, achieving sustainable management and the efficient use of natural resources.

From a new product perspective this involves prioritising reparability and recyclability in the design while minimising waste and use of virgin materials where not necessary. Fagerhult are one of the founding partners of the establishment and continued development of CIBSE TM66, which provides a standardised framework for measuring and comparing the circular characteristics of a luminaire.

With the phase-out of traditional fluorescent sources and increased expectation on energy performance, there is an ever-growing demand to repurpose existing luminaires. With our ReLight initiative we offer the opportunity to upgrade the legacy technology in luminaires and extend their life cycle.

Our bespoke lighting engineers will evaluate design, the properties of the materials, and the possibilities for good light comfort and CE marking. Providing a detailed analysis of the environmental impact comparing a refurbished and a new solution, enables a data-driven decision process on the most sustainable route.

Assuming it is the ReLight option, the design team will create drawings and a test for sign off. When the ReLight kit is delivered, it is ready to be installed in the existing luminaire housing. Detailed documentation is provided for each project, along with clear instructions for dismantling and installation. Each new solution is tested, and all luminaires are CE marked and protected by a five-year warranty.

Elevate and navigate

Effective lighting of external areas in universities plays a crucial role in ensuring safety, enhancing accessibility, and fostering a welcoming campus culture. Well-designed outdoor lighting has the dual benefits of supporting nighttime navigation and highlights architectural and landscape features.

NAVIGATING AT NIGHT

A well-lit campus significantly reduces the risk of accidents, such as trips and falls, particularly in areas with uneven surfaces, stairways, or changes in elevation. More importantly, effective lighting acts as a deterrent to crime. Studies have shown that increased visibility in public spaces can reduce the likelihood of theft, vandalism, and assault, making students and staff feel more secure when moving around campus after dark. Beyond safety, outdoor lighting is essential for navigation. Functional lighting ensures that paths and entrances are clearly visible, while accent lighting highlights signage, architectural features, or landscape elements that aid in orientation. Emergency lighting and illuminated signage are also critical, especially in areas where evacuation routes must be clearly marked.

DARK SKIES

Dark Sky compliant lighting is a strategic move that balances safety, sustainability, and regulatory responsibility. Compliance involves using fully shielded luminaires to eliminate upward light spill, selecting warm-colour temperature LEDs (typically 3000K or lower), and ensuring lighting is only as bright and as targeted as necessary. These measures align with guidance from DarkSky International, the Institution of Lighting Professionals (ILP), and CIBSE LG06, helping reduce light pollution, protect biodiversity, and improve energy efficiency. Incorporating motion sensors, dimming controls, and zoned lighting can further optimise performance and reduce operational costs. By prioritising Dark Sky principles, facilities teams not only enhance the nighttime environment but also support the university's environmental goals and compliance with planning and environmental standards.



EXTERIOR

Night- sensitive lighting



Lighting is essential to humans. It extends the day, helps us navigate, and provides us with a sense of security. However, it also affects biodiversity, contributes to light pollution, and can have an adverse impact on human health.

As our understanding of the impact of artificial light has on the wider ecosystem, conservationists have given clear recommendations, for example, in the form of the "five principles for responsible outdoor lighting" from the International Dark-Sky Association (IDA) and the Illuminating Engineering Society (IES). These are

USEFUL: ALL LIGHT SHOULD HAVE A CLEAR PURPOSE

Before any outdoor luminaires are installed or replaced, ask: Is this lighting needed? How will lighting affect the surroundings, what impact will it have on the environment and wildlife? Are retroreflective or self-illuminating markings and signs also an option? How can the need for permanently installed outdoor lighting be reduced?

TARGETED – LIGHT SHOULD BE DIRECTED ONLY TO WHERE NEEDED

Well-shielded luminaires that are carefully directed downwards produce less unnecessary stray light

LOW LIGHT LEVELS – LIGHT SHOULD NOT BE BRIGHTER THAN NECESSARY

Wherever possible, normative specifications should not be exceeded. Illuminated surfaces also play a role: some materials reflect more light back into the night sky than others.

CONTROLLED – LIGHT SHOULD BE USED ONLY WHEN IT IS USEFUL

Controls such as timers or motion detectors ensure that light is available when it is needed, dimmed when possible and turned off when not needed.

LIGHT COLOUR – AS WARM AS POSSIBLE

Limit the amount of shorter wavelength (blue-violet light) to the least amount needed.



Rondo

Rondo G3 is equipped with an active central lens that provides efficient and precise control of the light, which gradually fades out against the reflector. 90 per cent of the light distribution is concentrated on the lens, with soft luminance transitions.



OLV300

OLV300 wall luminaire offers both performance and durability. Designed for applications such as campus walkways, building façades, and entrance areas, delivering uniform, glare-free illumination that enhances safety and visibility.



Robust

Constructed for high-traffic and demanding environments and available in either an eyelid or grill style, Robust combines energy-efficient performance with reliable illumination, withstanding physical wear and environmental stress



KTY

A robust, high-performance bollard designed for pathway and perimeter lighting. The CAD-optimized optics provide glare control and uniform illumination, with multiple light distributions including symmetric and side-throw.



AFL

Engineered for durability and visual comfort, the AFL100 series represents a new generation of sustainable lighting with enhanced connectivity, precise optical control, DarkSky-compliance and a range of different installation options.



Fusion

Combining ultra-slim design with exceptional performance and durability, Fusion features a compact 28 mm profile, making it ideal for discreet yet powerful illumination in exterior spaces such as façades, pathways, and public areas.



Why work with us?

Having market leading products is only one part of the equation, the foundation of our on-going relationships with our university partners is service. Our approach is quite simple, hardwork, expertise and a customer first ethic, with the sole aim of helping deliver inspiring educational environments on time, on budget and on brief.

Initial site audit

If you are looking at revamping a specific building or evaluating options, our team can visit your campus to do an initial evaluation of energy usage, lighting quality, and system performance. By evaluating fixture types, control systems, and occupancy patterns (if made available), we provided actionable recommendations for upgrading to energy-efficient LED solutions and smart controls—helping reduce operational costs, meet decarbonisation goals and optimise building utilisation and maintenance.

Complementary design

Great design starts and ends with the customer. Working with both your in-house and external teams we can align the lighting concept to match the overall design philosophy while adhering to all necessary guidelines and standards. We have a team of 8 design professionals, with over 50 years of lighting experience.

SMART + controls support

Ranging from building the system architecture, defining zones and light settings to managing integrations within

your existing BMS/EMS or smart building eco-system. Our Smart lighting team, with in-house SmartScore Accredited Professionals, take the complexity out of system design, enabling you to focus on the functionality you need and the experience you want to create.

Single source supply

We have access to a wide range of industry leading luminaires and control systems from across different brand within the Group. From exterior, linear and bespoke to integrated and general lighting, the R&D, production methodology, supply and support are all tailored to the application's specific requirements but with shared technology and sustainability commitments. All products are collated in our UK distribution hub, providing a single source of supply, project management and after-sale.

On-site services

To ensure the installed solution matches the design intention, our onsite team verify that all components are correctly installed, configured, and operating efficiently. This includes validating control systems, energy performance, and compliance with relevant standards.

On-going support

From extended warranties to post-supply maintenance, our after-sale services offer a range of support options, tailored to your specific needs.

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