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Lighting for now
and for generations
to come



Meet the demands for lighting in education

The demands on the education sector are numerous, from providing an engaging learning environment for students to meeting healthy building standards. Educational facilities carry significant responsibility – to ensure the well-being of future generations and their educators – alongside complying with numerous regulations. Student and staff safety remains a high priority, as does improving efficiency and sustainability.

Whether you are making the switch from conventional lighting to LED or upgrading to a connected system that will give you greater

control over your illuminated facility, the right lighting can help you check all these boxes. Smart LED lighting can support the well-being and safety of both students and teachers and create an environment that is conducive to focus and learning. It can help each space to meet its functional requirements, as well as perform a key role in improving operational efficiency and sustainability.

Energy costs are the second largest operational expense for school districts and lighting accounts for up to 50% of those costs.¹ A lighting upgrade could potentially cut energy usage for lighting by as much as 70%,¹ driving your facility's costs down and contributing to your sustainability efforts.

Buildings are responsible for about 40% of the EU's energy consumption, and 36% of greenhouse gas emissions from energy. But only 1% of buildings undergo energy-efficient renovation every year.² Effective action is crucial in making Europe climate-neutral by 2050. The European Commission's Renovation Wave Strategy aims to improve the energy performance of buildings. This strategy prioritizes action in three areas, one of which is the renovation of public buildings such as schools. Upgrading from conventional to connected LED lighting can help your educational facility play its part in meeting climate goals.

¹ <https://energyperformancelighting.com/7-ways-a-lighting-upgrade-will-benefit-your-school/>

² https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1835



Lighting accounts for
up to **50%**
of a school district's
energy costs¹

A lighting upgrade could
cut energy usage by
as much as
70%¹

Connected lighting

Connected lighting provides a reliable backbone for a smart building ecosystem that is upgradeable, adaptable, and flexible. Features like wayfinding and automated notifications can help improve operational efficiency across all your illuminated spaces. With environmental and occupancy sensors, the lighting system can collect actionable data from the lit environment, giving you the insight you need to provide the best conditions for staff and students.

Benefits of connected lighting include:

- ✓ Targeted lighting behaviors
- ✓ Environmental monitoring
- ✓ Wayfinding
- ✓ Automated notifications
- ✓ Space and resource optimization
- ✓ Streamlined lighting system maintenance
- ✓ Energy optimization
- ✓ Support the human circadian rhythm



Advance toward your operational efficiency and sustainability goals

Smart LED lighting can help you optimize your energy usage so you can make progress toward your sustainability targets while cutting costs. By combining energy-efficient LED luminaires with data-collecting sensors and an easy-to-use management and monitoring system, you can enjoy from 50% to 70% savings on lighting-related energy consumption and lower CO₂ emissions.

Scheduling your lighting will allow you to provide the right amount of light when and where it is needed. Sensors can automatically trigger the lights to raise or dim depending on occupancy to avoid wasting energy. Additionally, environmental and presence detection sensors could help further optimize HVAC (heating, ventilation, and air conditioning) systems.










Interact is a fully customizable and scalable connected lighting management system. Through a centralized dashboard, you can manage and monitor individual light points, groups of light points, or your entire system remotely. This includes checking operational status, scheduling, switching on/off and dimming lighting, and troubleshooting from anywhere with an Internet connection, at any time.

Data collected from your luminaires and sensors can be viewed with ease through the Interact dashboard, allowing you to gain insights into how much energy your

lighting system consumes on an hourly, daily, monthly, or yearly basis – whether you’re monitoring a single luminaire or an entire school. You can take advantage of these insights to inform decisions and meet healthy building standards. Setting up alerts can assist with maintenance and help shorten luminaire downtime.

Circular lighting

Circular smart lighting can significantly enhance the sustainability and efficiency of educational facilities by emphasizing the reuse, refurbishment, and recycling of lighting components to minimize waste and environmental impact.

-  LED luminaires
-  Designed and manufactured using circular principles
-  Reduced CO₂ emissions and energy usage
-  Occupancy sensors and dimming
-  Simple monitoring and management
-  Remote control
-  Customizable and scalable
-  Meet lighting-related building standards
-  RTLS-ready

Support the health and well-being of students and staff



Reducing the risk of myopia

Lighting plays a crucial role when it comes to health and well-being, especially for children who are still developing. Approximately 30% of children globally suffer from myopia, or nearsightedness — and its prevalence in East Asia is increasing rapidly, where rates can exceed 80%. Projections suggest that by 2050, nearly 50% of the global population may be myopic if current trends continue.

Smart lighting can play a significant role in mitigating myopia among students in schools and universities. By providing optimal lighting conditions, Interact can help reduce eye strain and improve visual comfort, crucial factors in preventing myopia progression.

Interact uses sensors and automation to adjust light intensity and color temperature based on natural light availability and specific activity needs, ensuring consistent and adequate illumination. Studies have shown that well-lit environments can reduce the risk of myopia by 30-40%.¹

Supporting unique needs

Smart lighting systems can also significantly enhance the learning environment for children with autism and Down syndrome. Interact offers adjustable light intensity and color temperature, which can be tailored to meet the specific sensory needs of these students.

For children with autism, Interact can help create a calming atmosphere, reducing sensory overload and promoting focus. For students with Down syndrome, proper lighting improves visual comfort and aids in their visual processing abilities.

Additionally, Interact can be programmed to support structured routines, providing consistent lighting cues that help these students navigate their day more easily. Research indicates that customized lighting solutions can improve cognitive performance, behavior, and emotional well-being for students with special needs.

¹ Spillmann, L. Stopping the rise of myopia in Asia. *Graefes Arch Clin Exp Ophthalmol* 258, 943–959 (2020). <https://link.springer.com/article/10.1007/s00417-019-04555-0>

NatureConnect

By mimicking natural light patterns, NatureConnect helps regulate circadian rhythms, improving sleep quality and overall well-being. The dynamic lighting adjusts in intensity and color temperature throughout the day, creating a more engaging and comfortable atmosphere. Studies show that exposure to natural light can boost mood, reduce stress, and enhance cognitive function, leading to better academic performance and student health.



Circadian lighting

By simulating natural daylight cycles, Interact circadian lighting helps regulate sleep patterns, improve alertness, and enhance overall well-being. Research indicates that exposure to circadian lighting can improve sleep quality by 25–30%, leading to better academic performance and reduced absenteeism. For staff, Interact can support productivity and reduce stress, contributing to a healthier work environment.

Additionally, circadian lighting has been shown to enhance mood and cognitive function, crucial for both learning and teaching. Implementing circadian lighting in educational settings fosters a supportive atmosphere conducive to optimal performance and health.

Properly managed lighting can help²:



Increase reading speed by 35%



Reduce errors by 45%



Decrease hyperactive behavior by 76%



Improve mood, performance, and overall well-being for students and staff

² https://www.lighting.philips.nl/b-dam/b2b-li/en_AA/systems/SchoolVision/downloads/schoolvision_parents.pdf

Task-adaptable lighting

Staff can use targeted lighting behaviors to fit the lighting to the task or the mood and adjust it accordingly throughout the day. More demanding activities that require more concentration will benefit from cooler light recipes that boost focus, whilst more collaborative tasks are more suited to warmer light recipes. Interact enables all of this – lighting can either be scheduled via a central dashboard or triggered quickly and conveniently via a wall switch or app.



Mental health

Student welfare across the globe is experiencing what can only be described as an ‘educational emergency’. Research indicates that up to 70% of university students are suffering with their mental health³, whilst some studies suggest that more than half of students (51%) suffer from mental health issues such as loneliness, pressure to achieve, stress and sleeping problems⁴.

NatureConnect and circadian lighting help to boost mood, improve sleep patterns, and reduce stress – all factors that can contribute to more positive mental health.

Sensors and comfort

Monitoring environmental parameters such as temperature, humidity, and CO₂ levels in schools and universities can significantly enhance the comfort, health, and performance of students and staff.

Proper CO₂ monitoring ensures adequate ventilation, reducing the risk of cognitive impairment and promoting better concentration and productivity. Studies indicate that optimal indoor air quality can improve cognitive function by up to 15% and reduce absenteeism by 20%. Additionally, smart monitoring systems can optimize HVAC operations, leading to energy savings of 10–30%.

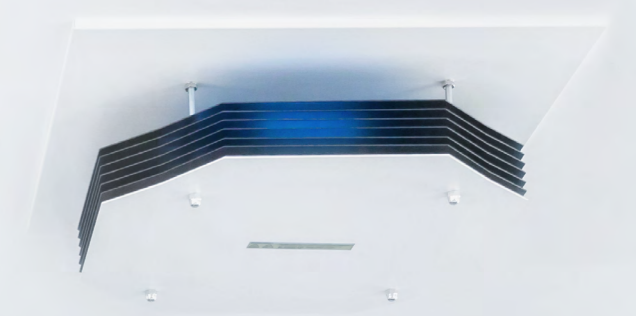
³ <https://amberstudent.com/news/post/70-of-us-college-students-deal-with-mental-health-crisis>

⁴ <https://www.rivm.nl/en/news/concerns-about-mental-health-and-substance-use-among-students-justified>

Air quality

Studies show that optimizing indoor air quality can enhance cognitive performance by up to 15% and reduce absenteeism among students and staff by 20%. Lighting integrated Interact sensors can be connected to the Interact dashboard and send alerts when oxygen levels are low – so staff know they need to open a window in the classroom to ensure sufficient airflow and oxygen levels. By monitoring CO₂ levels, educational institutions can create healthier learning environments that promote academic success and well-being⁵.

⁵ Tess M. Stafford, ‘Indoor Air Quality and Academic Performance’, 2015
<https://www.sciencedirect.com/science/article/abs/pii/S0095069614001016>



UV-C disinfection

Students and staff can be kept safe from viruses and harmful bacteria with the right lighting. Controllable Philips UV-C lighting inactivates 99.99% of bacteria and viruses in minutes—and does so with much greater energy efficiency than its ventilation-based alternatives. What’s more, this effective, easy to use and energy-efficient disinfection solution is safe to use indoors and when there are people present in the room.



Improve safety for occupants and data

It is vital for a school to be a safe space for students and staff. From providing sufficient lighting – lowering the risk of slips and trips – to protecting data in a secure system, Interact has your needs covered.

Bright light levels are not only important for human well-being, but also to prevent avoidable incidents such as stumbles. Outdoors as well, particularly out of school hours or in the winter months when it is dark outside, teachers, students, parents and visitors need to feel safe and welcomed with brightly lit walkways and parking lots.

Developing a healthy and green educational environment depends on gathering and analyzing large sets of data – data that allows schools to better understand how their space is used and create an environment that's perfectly tailored to their staff and students. We offer a safe and secure connected lighting management system.

- ✓ Minimized risk of slips and trips
- ✓ Parking, area, and walkway lighting
- ✓ Secure system and data collection



Do more with Interact

At Signify, we work together with you to design the end-to-end solution that is just right for each of the different areas in your educational facility. We supply a system that consists of Philips connected LED luminaires, Interact connected lighting management software and services from Signify enabling you to create the most efficient and effective facility possible.

An Interact connected lighting system creates a distributed infrastructure that features two-way data communications for both smart illumination behaviors and collecting data from the lit environment. It enables you to remotely manage, monitor and control all the lighting across your educational facility, all from one single dashboard, and is scalable and customizable.



With Interact you can:



Manage, monitor, and control lighting centrally and remotely



Achieve energy savings of up to 70% over conventional lighting



Streamline lighting system maintenance with data-rich, automated alerts



Design targeted lighting behaviors and schedules



Support student and staff well-being with circadian lighting



Collect data from the illuminated environment for insights and informed decision



Override schedules manually in the event of incidents and emergencies



Use data insights to optimize space and resource usage



Help students, staff, and visitors navigate large educational facilities with wayfinding features



Interact lighting for education building blocks



Lighting asset management

- Centralized monitoring and management of all your lighting assets
- Remote diagnostics allow for planned preventive and swift reactive maintenance
- Always stay current with automatic firmware and software updates



Lighting management

- Manage all lighting assets in one building or your entire portfolio
- Improve sustainability with energy savings of up to 70%



Energy optimization

- Set an energy consumption baseline to quantify system energy savings
- Use daylight harvesting and occupancy detection to improve energy efficiency
- Gain detailed insight into energy consumption across your entire portfolio



Indoor navigation

- Allow staff and students to locate resources, colleagues, and available workspaces using mobile app
- Encourage social distancing and other measures designed to support staff and student well-being



Scene management

- Easily switch lighting scenes to create multi-use spaces
- Set lighting schedules to deliver the right light at the right time
- Enhance well-being by supporting personalized lighting control via a mobile app



Circadian lighting

- Use evidence-based lighting recipes to support safety and well-being
- Energize staff and students, and enhance performance by supporting the body's circadian rhythm



Space management

- Use insights into space usage to make space more convenient and user-friendly
- Keep staff and students safe by maintaining social distancing and maximum occupancy levels



Environmental monitoring

- Remotely monitor your educational environment to create ideal working conditions
- Get real-time data on temperature, relative humidity, noise levels, occupancy, people counting, and daylight levels
- Offer appealing and healthy conditions to improve staff and student satisfaction

Transform your environment with Philips Dynalite

Philips Dynalite is the global leader in connected lighting control.

Connected lighting control brings lighting and information technology together to create value beyond illumination. It can collect and share data, adapt intuitively to the evolving needs of users, and drive efficiencies.

Remotely manage, monitor and control all the lighting across your educational facility, all from one single dashboard, and is scalable and customizable.



The Dynalite system is:

Innovative – Make custom lighting scenes to strike the perfect balance between color temperature and luminance to suit the task at hand.

Scalable – Dynalite’s modular architecture can be easily scaled up or down to suit facilities of any size..

Human-centric – Building automation improves the occupant experience by anticipating their needs and responding dynamically to environmental inputs.

Sustainable – A range of thoughtfully designed features help to reduce power consumption, CO₂ emissions, improve sustainability outcomes and financial performance, and ensure adherence to global building certifications such as WELL, LEED, and BREEAM.

Reliable – The Dynalite system utilizes distributed control, which means that each device is empowered to manage its own core functionality.

Our circuitry and components are meticulously designed to provide quality, trouble-free operation and maximize device lifespan.



System Manager

Philips Dynalite's head-end software, System Manager, is an all-in-one platform to monitor, manage, and maintain your facility. The on-premises software is easy to use and packed with valuable functionality.



Simple overviews: See the current state of all lights in real time on the floor plan view. Occupancy heat maps show how often spaces are used.

Integration tools: Convenient integration with third-party systems such as BMS, HVAC, AV, and blinds/curtains means that multiple building systems can work together to achieve a more comfortable and sustainable environment.

Proactive maintenance and alerts: System Manager actively monitors lamp health and lamp life expectancy to enable proactive maintenance.

Energy optimization: Automatically change the behavior of lights, window coverings, and HVAC based on occupancy, natural light levels, and ambient temperature. Schedule shorter sensor timeouts after hours than during trading hours to save energy.

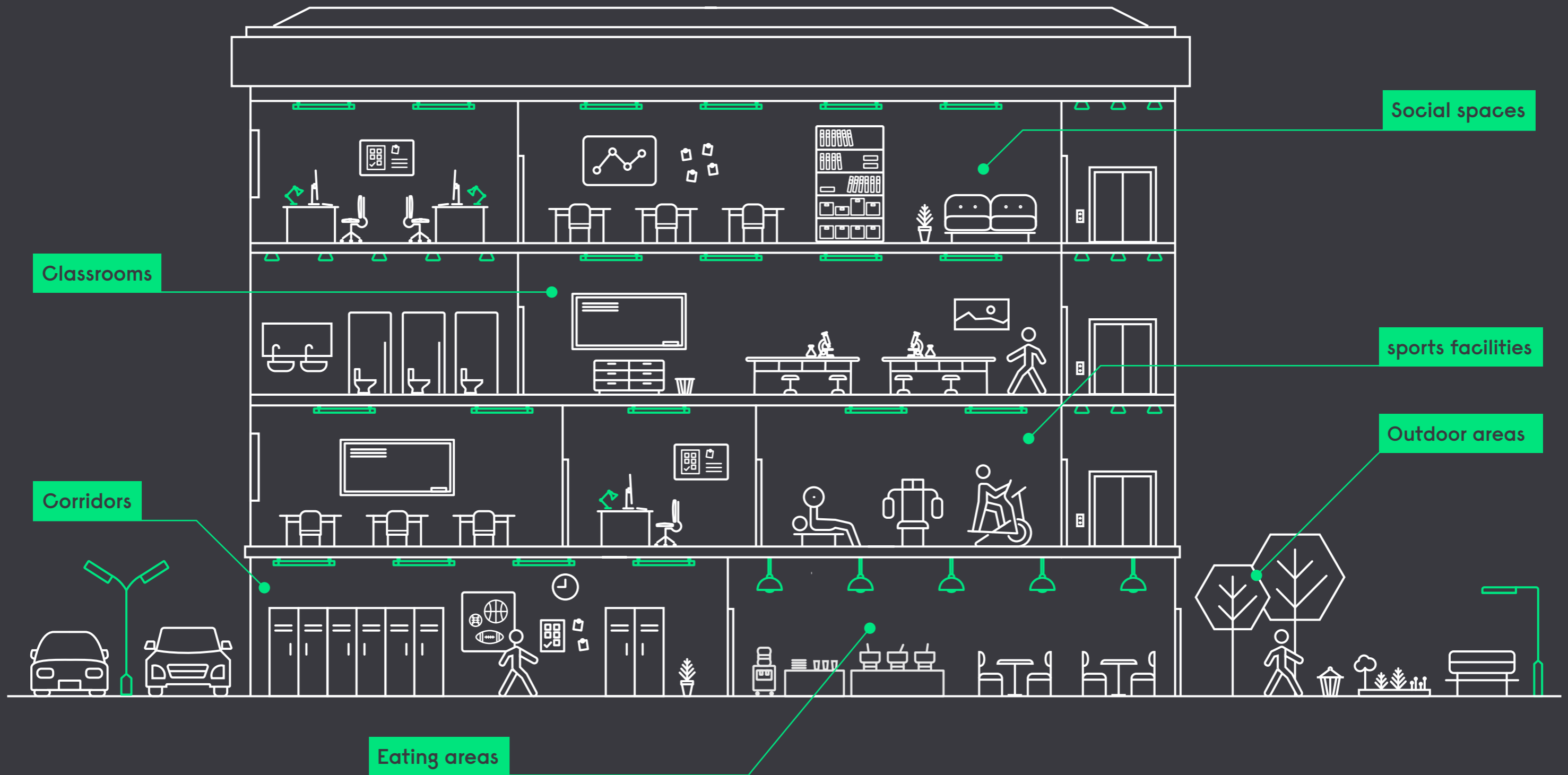
Reporting and analytics: Compare different areas and historical statistics with interactive energy usage graphs. View system health, energy usage, upcoming scheduled events, and recent alerts on the dashboard.

Scheduling: Create scheduled events for the system to execute autonomously such as decorative lighting on special holidays, or customized scenes for after-hours events.

Emergency lighting: Monitor, manage, and automate regular testing of emergency lighting in your facility to ensure the safety for students, faculty, and guests alike.

Reconfigure areas: Change the shape of control zones and regroup fixtures with a few clicks – no technicians needed.

Application areas



The world's most sustainable educational building

Eindhoven, The Netherlands

The vision

Built in 1968, Atlas, one of the main buildings on Eindhoven's University of Technology campus, was in need of an upgrade. The university was looking to modernize the interior while improving the way people used the space, with a focus on sustainability, cost reduction, and comfort for occupants.

The solution

With Interact, University of Technology has taken a green step towards sustainability and health. According to their BREEAM certification, Atlas is now the most sustainable educational building in the world. Their new system comprises connected LED luminaires, each with a unique IP address that allows it to act as an ethernet data point. Half the luminaires are equipped with a daylight and motion sensor. The remaining 2,200 free slots are available for future advanced data generation sensors.

Software applications used



Scene management



Lighting asset management



Energy optimization

Project details

- ✓ 4,400 connected TrueLine LED luminaires with a sensor slot
- ✓ The Atlas building now emits 80% less CO₂ and saves up to 60% on the energy bills
- ✓ Occupants can control the light intensity in their immediate surroundings themselves via an app

A smart future for education

Heerlen, The Netherlands

The vision

Citaverde College is part of a system of secondary schools with multiple locations across the south of the Netherlands. The schools face two major challenges: fluctuating enrollment figures and the need to run the schools efficiently to deliver cost savings. Citaverde wanted a solution that could help it achieve its goal of attracting and retaining students and managing its buildings and spaces as effectively as possible.

The solution

Collecting hard data provides schools with a firm foundation for gaining practical insights and using those insights to make the right choices. That's why Citaverde identified Interact as the ideal solution – the software and system architecture collects data from the connected lighting system and provides unique, actionable insights that improve businesses. They knew that Interact could help facilities managers at the schools to use buildings and classrooms more effectively while reducing energy usage and lowering CO₂ emissions.

Software applications used



Scene management



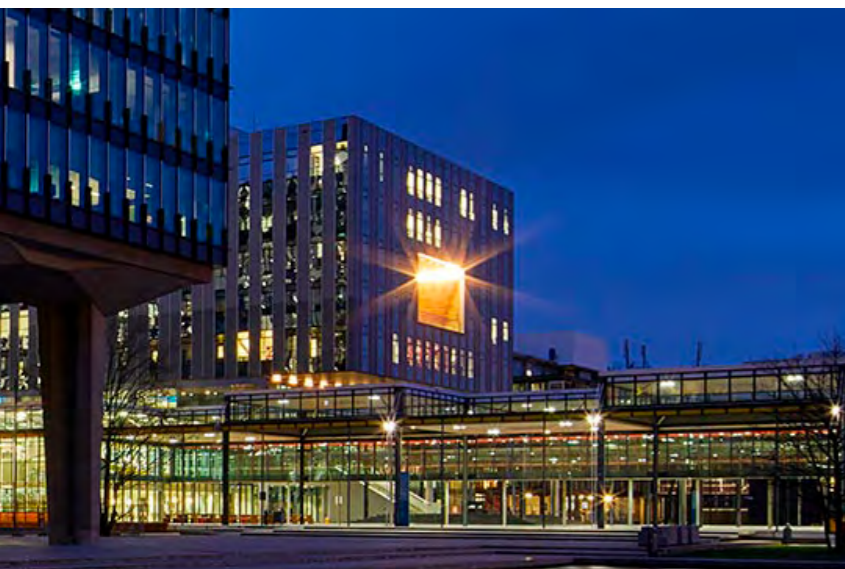
Lighting asset management



Energy optimization

Project details

- ✓ Light points equipped with sensors that detect daylight and presence
- ✓ Real-time data can be viewed through the intuitive dashboard
- ✓ By combining Interact with its LED lighting, Citaverde is now saving more energy than ever before



Light has to learn from the context in which it operates. Interact Office helps us by providing us with data."

Ingrid Heynderickx
Scientific Director, Intelligent Lighting Institute, TU/e



It's often difficult to gain insight into the use of spaces in all your buildings. Interact Office changes all of that. After using it at our location in Heerlen, in the Netherlands, we're ready to roll it out in our other buildings too."

Ivo Dassen
Head of Facilities Management, Citaverde College

Why choose Signify?

Signify is the world leader in connected lighting, with over 125 years of lighting experience, over 126 million connected light points, and thousands of successful projects in more than 70 countries globally. We reduced our greenhouse gas emissions by 22% in 2023, and have been listed as an industry leader on the Dow Jones Sustainability Index for the last seven years in a row.





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