We unlock the extraordinary potential of light

Lighting applications catalogue

Signify

Bridge, Płock, Poland

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Signify

The importance of lighting

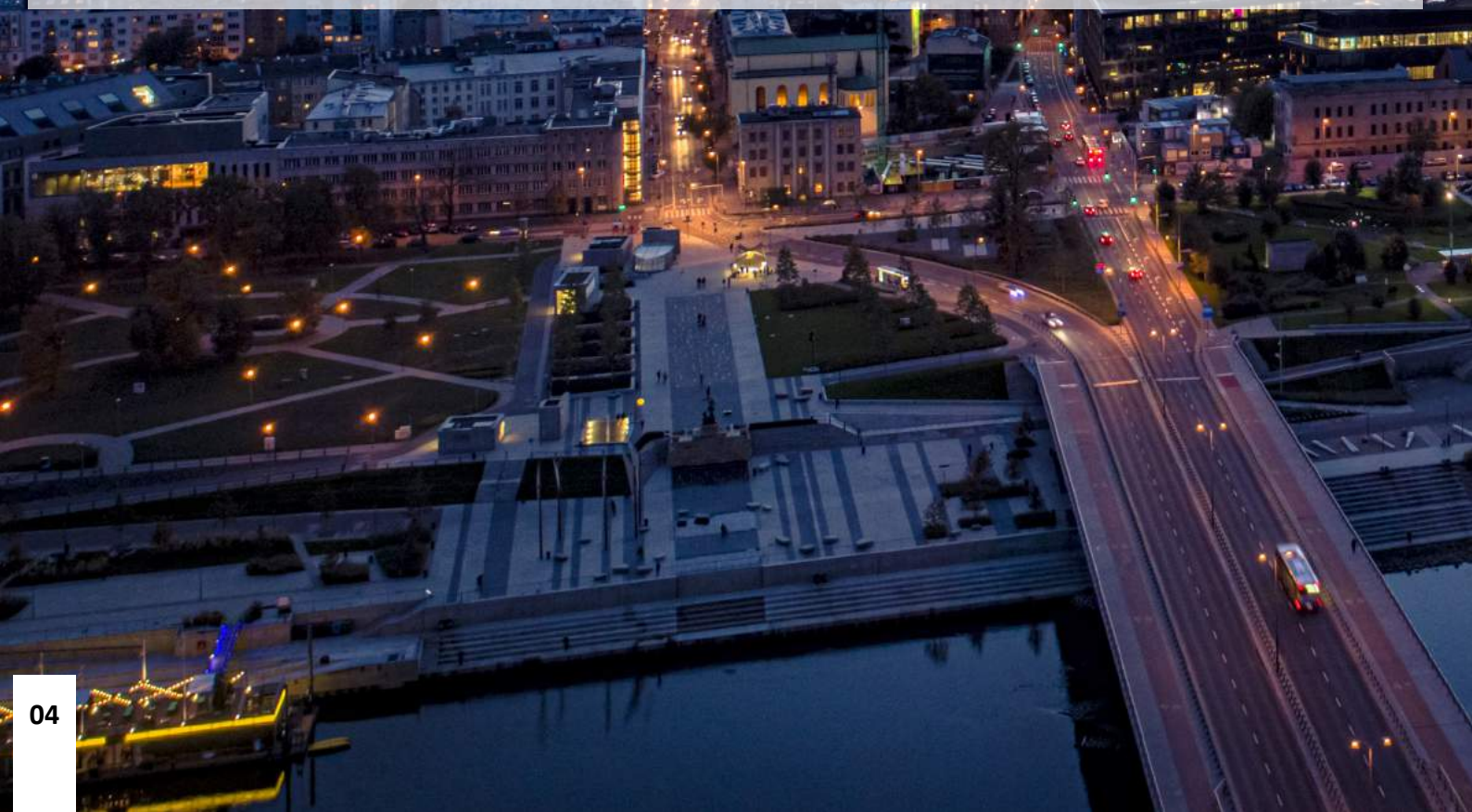
Lighting is a field on the borderline of art and engineering - it is able to respond to basic human needs related to living comfort, quality of work, health or sense of aesthetics. However, just as good lighting can have a positive impact on the world that surrounds us on a daily basis, inadequate lighting will destroy even the best architectural design and make it difficult to work even in the most comfortable environment.

Since the advent of the LED age, lighting technology has entered the digital sphere and engineering competence has become even more crucial than before. In the era of control systems and integration of intelligent building solutions, lighting becomes more a part of the IT system and not only a functional element of the electrical installation.

Since the beginning of the LED age we are convinced that good lighting is much more than just top quality products. For decades, as a **market leader**, we have been gaining knowledge and experience creating solutions that have repeatedly become breakthroughs in many areas of our lives. Today we are presenting you with our **application catalogue**, the aim of which is to support the design process - both in terms of selecting the best visual effects and technical solutions.

More than a hundred years of experience in the industry and the entire complexity of lighting technology cannot be included in the pages of this general catalogue. Being aware that projects are becoming more and more complex every day, we offer you one more tool: **ourselves**. Our team of specialists will be happy to help you choose the best lighting effects and solutions that will really become the fourth dimension of architecture in your projects.

The Signify Team



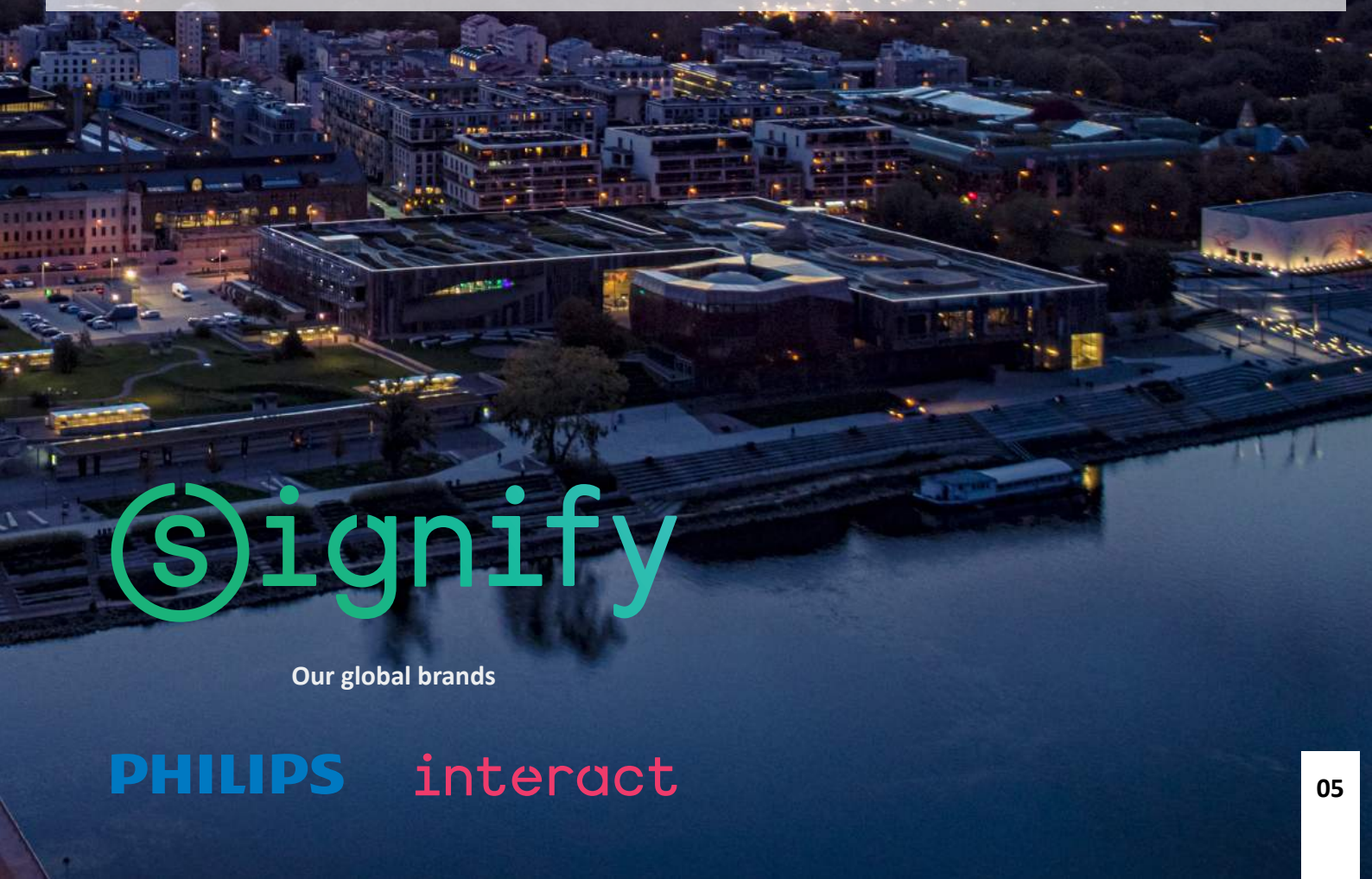
About Signify

Signify (formerly Philips Lighting) is the **world leader in lighting** for professionals and consumers - including in the area of lighting for the Internet of Things. In our offer you will find **Philips** products, **Interact integrated lighting systems** and services based on collected data. These are innovative solutions for offices, shopping centers, shops, hotels, warehouses, industrial plants, parks and squares. Additionally, we provide external illumination of buildings, roads, sports facilities, which helps in beautifying, and improving safety and gives a unique and individual character to public spaces.

We are constantly investing in the development of lighting. Every year, we allocate almost 5% of our sales on R&D. Our latest innovations for the professional market are **Trulifi** (internet connection through lighting), the **IoT Interact** platform and the possibility of printing luminaires in 3D.

Another important element of our business is sustainable development. We achieved **carbon neutrality** in 2020, have been in **the Dow Jones Sustainability World Index** since our IPO for five consecutive years and were named **Industry Leader** in 2017, 2018 and 2019.

In 2021 we recorded **sales of 6.9 billion euros**. We have approximately 37,000 employees in 70 countries. Locally we are firmly established in the CEE region, where we have 19 offices, 4 production plants and the employment level is close to five and a half thousand people. We are the only one in the region to have created a **Lighting Application Center**, located in Piła, Poland (for more information see page 83 of the catalogue), which is a place of education and inspiration in the field of lighting.



Our global brands

PHILIPS interact

Signify Climate Action Report

In 2022, the world continues to warm at an alarming rate. There is a widespread sense of unrest that **calls for action**, not words, to minimize and avert the damage that humans have caused to the planet.

For Signify, this means we need to amplify our efforts, not only in our operations, but across our entire value chain, and help our stakeholders play their role **inminimizing the impacts of climate change.**

Signify was built on the foundation of 130 years of heritage in sustainability and innovation. Our story as an independent company started in 2016, and in the same year, we launched our first **sustainability program, Brighter Lives, Better World**. By the end of 2020, we had achieved all our commitments, including **becoming carbon neutral and using 100% renewable electricity in our operations.**

Our climate action journey continues with the second edition of our sustainability program: **Brighter Lives, Better World 2025**, which goes further to ensure we play our part in **limiting global warming to less than 1.5 °C in line with the Paris Agreement.**

Each of us plays a role in creating positive impact, but those roles are not of equal weight. What is required now is coordinated international planning and fundamental changes in governmental and business thinking. As a global company, we are ready to do our part for meaningful action and lasting change. In that quest, **we are responsible for sharing the knowledge we develop on our climate journey in our operations, supply chain and product use with consumers, suppliers, fellow businesses, and other stakeholders**. With this goal in mind, I am proud to invite you to join us in exploring our first **Climate Action Report.**

Eric Rondolat
CEO Signify

For more details on our Climate action performance, download the report from our website: **www.signify.com**

Better World

SDGs

CLIMATE ACTION

CIRCULAR ECONOMY

Our 2025 commitments

- Double the pace we achieve the 1.5°C scenario of the Paris Agreement
- Double our Circular revenues to 32%
- Carbon neutral operations & 100% renewable electricity
- Increase Climate action revenues to 72%
- Zero waste to landfill and sustainable packaging

Bright Lives

FOOD AVAILABILITY

SAFETY & SECURITY

HEALTH & WELLBEING

GREAT PLACE TO WORK

- Double our Brighter Lives revenues to 32%
- Double our percentage of wome in leadership to 34%
- 10 million lives lit through Signify Foundation
- Safe & healthy workplace with a TRC less than 0.30
- Supplier sustainability performance of 95%

Posnania, Poznań, Poland

Shopping centers

Light to attract customers

Today, shopping malls are much more than just a space where we shop. They are meeting venues, and entertainment and relaxation centers. In order to make the time spent in the gallery more pleasant for customers, it is necessary to ensure an inviting and friendly atmosphere - that is why appropriate lighting is essential. From a façade that attracts visitors' attention to perfectly illuminated public areas and good navigation.

A shopping center's atrium makes it possible to attract customers, provide them with information and enhance the visibility of brands. Flexible general lighting and recess lighting create a pleasant atmosphere. In turn, spotlight, projection light and lighting of entertainment facilities can accentuate special events. Lighting corridors in shopping centers are essential for guiding customers and displaying individual retail stores. The right combination of accent lighting and other effects can make bright and safe corridors part of an inviting shopping center environment.

Well-thought-out lighting designs create an atmosphere, while at the same time indicating to customers the most important features of a shopping center. Optimum lighting for a shopping mall is a cost effective and sustainable solution with a positive impact on both customers and employees.

Main entrance - enticement

A good first impression

By using unique lighting solutions, which can be part of the architecture, we can distinguish a given shopping center from all the others. By adding a dynamic or interactive effect, we can make the customer build their own experience, which they will remember and want to share on social networking sites. Lighting sculpture can also become a recognizable point in a city, where people can arrange to meet up.

Multifunctionality

The main entrance area, atrium or central square can have different functions depending on the occasion. Therefore, the lighting of this zone should be able to flexibly change the lighting effect (e.g. different levels of light intensity, different optics, change of light colour, introduction of coloured light accents, etc.). Fountains or concert stages may appear in these areas, which gives additional possibilities for the use of light and integration with the control system.

Foodcourt - lighting with taste

Food and drinks zone

Good lighting of the *food court* zone creates the right atmosphere in the evening and during the daytime harmonizes with daylight. Large glazing introduces a significant amount of sunlight, which should be compensated for by the appropriate arrangement of luminaires and the use of a control system.

Different customers

Every customer in a shopping center is looking for something different. They would like to do shopping, eat, work or make an appointment in different atmospheres. Through lighting, we can separate zones with different effects (light colour, light intensity levels, distribution angles and types of luminaires) so that everyone can find their favourite place to go back to.

Underground car park - safety and comfort

An entrance should be clearly visible from every parking space. The ease of finding your way increases a customer's sense of comfort. The introduction of a coloured accent - a light corresponding to a parking area - further improves visual guidance.

Roads

An evenly lit roadway means safety and driving comfort. Luminaires should be arranged on the axis of the roadway, below all the other installations.

Vertical surfaces

A well-lit car park is not only about horizontal planes (roadway/parking spaces/pathways), but also about vertical planes (pillars/walls/graphics). Soft, dispersed light falling on vertical elements optically enlarges a car park and improves the feeling of customer comfort.

Parking spaces

Dedicated lighting above parking spaces makes it much easier to park and find your car after the shopping is over. Parking spaces should be illuminated at a level lower than the roadway.

Pedestrian routes and paths

A customer in a car park should feel safe both in and out of the car. A person at a illuminated pedestrian crossing is much more visible to drivers. Illuminated footpaths also determine the direction of a customer's movement to the entrance.

Shopping arcade - additional lighting to create an effect

The lighting of a shopping passage should be consistent for the entire shopping centre and should not limit the visibility of tenants' window displays. To ensure that the lighting is not monotonous, different light accents should be introduced in specific areas of a passage, e.g. entrances, atrium, meeting places, rest places, greenery, etc.

Skylight

During the day, skylights serve as a way to distribute natural light. In the evening, skylights should be illuminated with artificial light to expose its architecture and increase the space of the passageway optically.

Stairs

Clearly visible, illuminated walkways determine the direction of a customer's movement inside a shopping centre. Lighting these areas also improves the feeling of security.

Window displays

Thanks to well chosen optics and the power of luminaires we can avoid the effect of "littering" the lease area with light. In addition, the introduction of a standard for the lighting of tenants' window displays will improve the consistency of lighting effects for the entire passage.

Products recommended for shopping centers

General lighting:

- LuxSpace Accent
- GreenSpace Accent
- GreenSpace Accent Gridlight
- StoreFlux

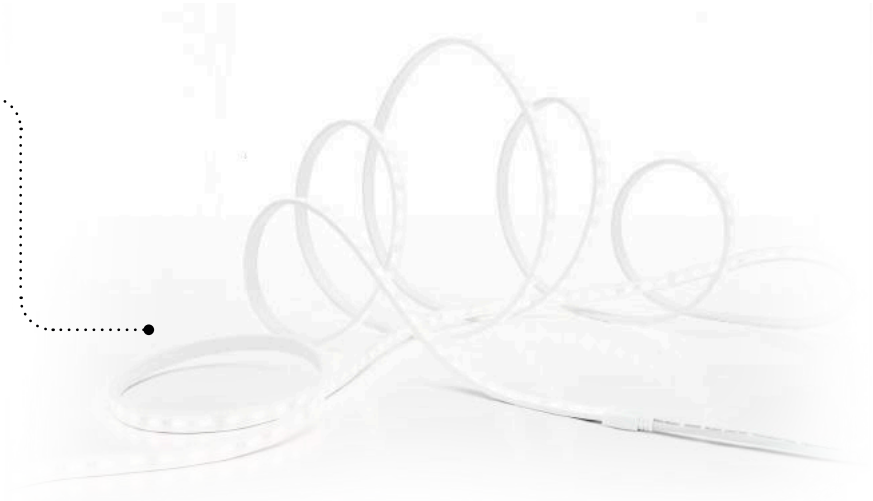
65%
housing made out of 65% recycled polycarbonate

Accent lighting:

- 3D Telecaster
- GreenSpace Accent Projector
- StyliD Evo projector

Cove lighting:

- Vaya Free Form ColorKinetics
- Vaya Cove ColorKinetics
- eW Cove ColorKinetics



Products recommended for shopping centers

Decorative lighting:

- Modular Placebo

Technical lighting:

- Pacific LED
- CoreLine Waterproof

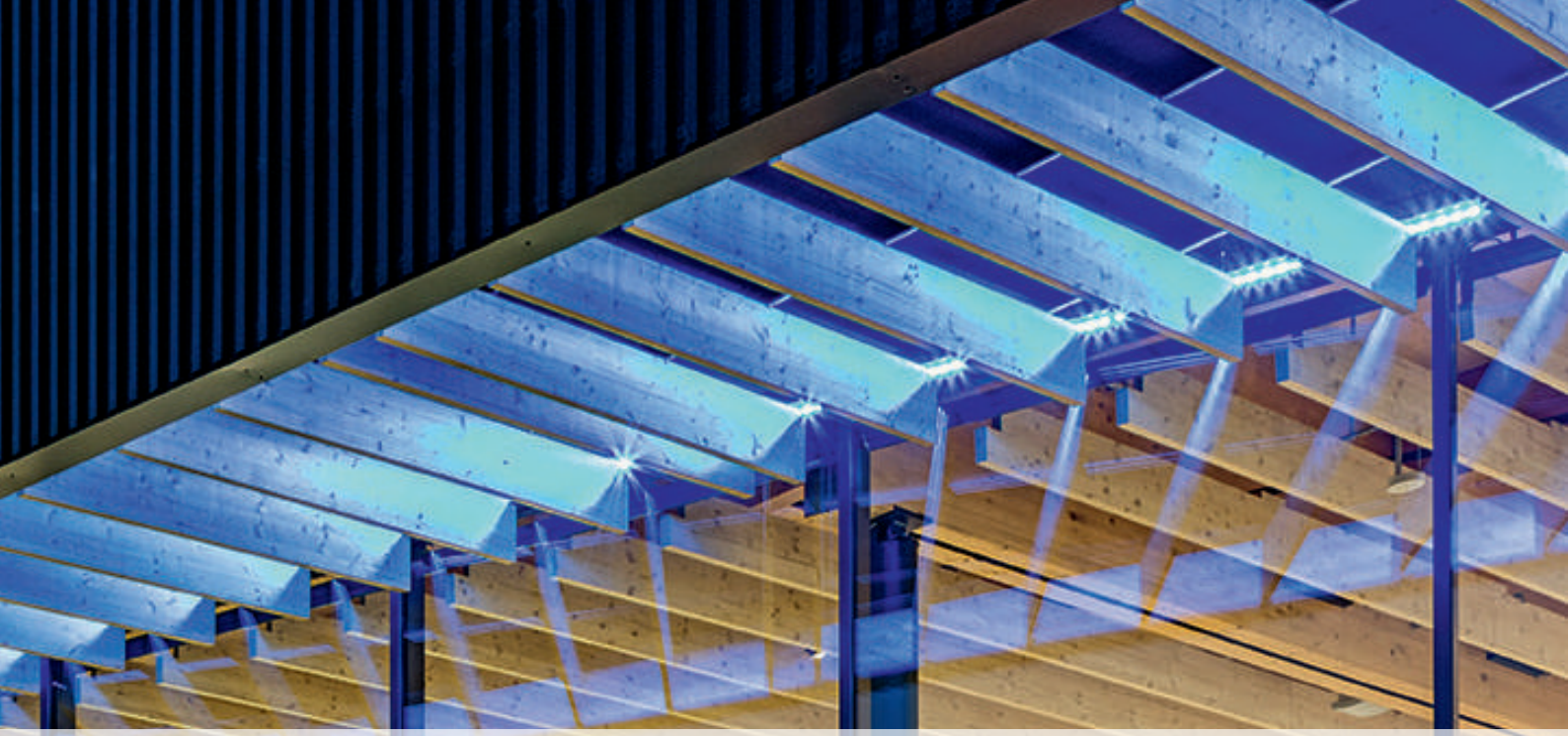
Outdoor lighting:

- TownTune Asymmetric
- Metronomis
- Classic Street

Illumination light:

- Color Kinetics

Edeka, Germany



Shops

Shopping in the best light

Shop owners are looking for new ways to build the best customer experience. This can be helped by appropriately selected lighting that enhances a product's qualities and helps create an atmosphere conducive to shopping.

A full range of luminaires and control systems provide the flexibility needed to create the right atmosphere and allow you to highlight individual products or zones to attract customers' attention. Lighting allows products to be displayed in the best possible way - even in such demanding places as freezers, refrigerators or fresh food departments. The lighting range includes a variety of solutions from decorative lighting of shops to accenting elements which make display stands look exceptionally attractive. Adjustable and dynamic lighting systems create the right atmosphere, accentuating different product categories according to the time of day. Each department needs different, individualised lighting to enhance customer comfort and highlight key product features. LED lighting does not emit heat or UV radiation, which can affect product freshness or colour loss. The use of fresh white light allows customer's attention to be directed to fresh products.

Easy-to-use control tools make lighting an added value and make a shop more attractive.

Entering the shop - first impressions

Additional lighting for communication routes and correct customer guidance is the main task of the entrance area of both a free-standing shop and a shopping arcade. In the case of free-standing shops, edge, linear or illumination of the structure of finishing materials and roof structure is common. Additionally, decorative elements and background lighting can be used.

In the case of shops situated in shopping arcades, their open spaces naturally intertwine with the common areas. To distinguish the entrance to a store, it is worth using an increased level of light intensity, for example, exceeding 1000 lux.

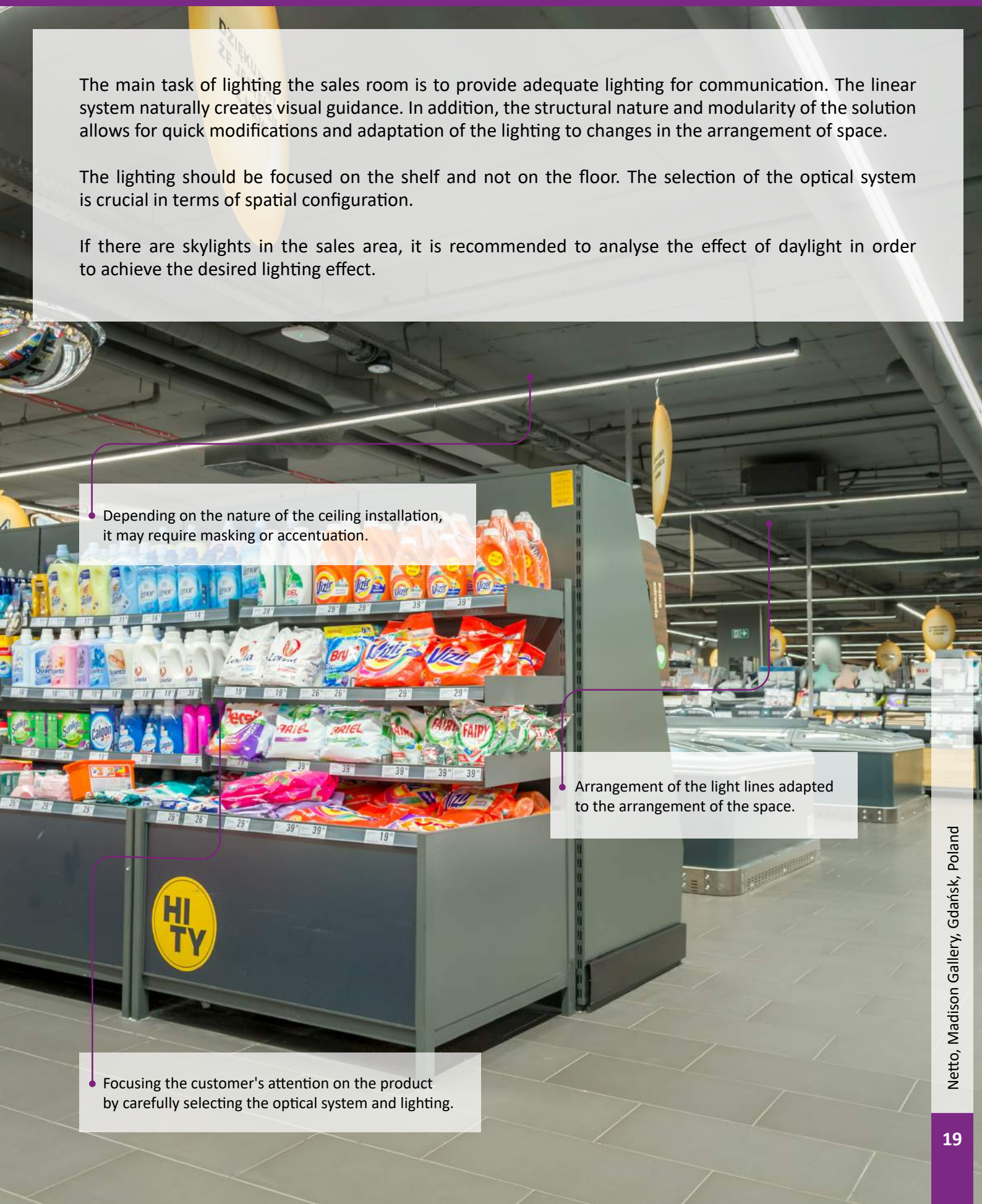
An additional magnet to encourage customers to visit a store is an eye-catching window display. The use of a flexible rail lighting system supports frequent changes to the lighting arrangement. It also allows for quick modification of the luminaire arrangement and its replacement.

Sales floor - functional design

The main task of lighting the sales room is to provide adequate lighting for communication. The linear system naturally creates visual guidance. In addition, the structural nature and modularity of the solution allows for quick modifications and adaptation of the lighting to changes in the arrangement of space.

The lighting should be focused on the shelf and not on the floor. The selection of the optical system is crucial in terms of spatial configuration.

If there are skylights in the sales area, it is recommended to analyse the effect of daylight in order to achieve the desired lighting effect.



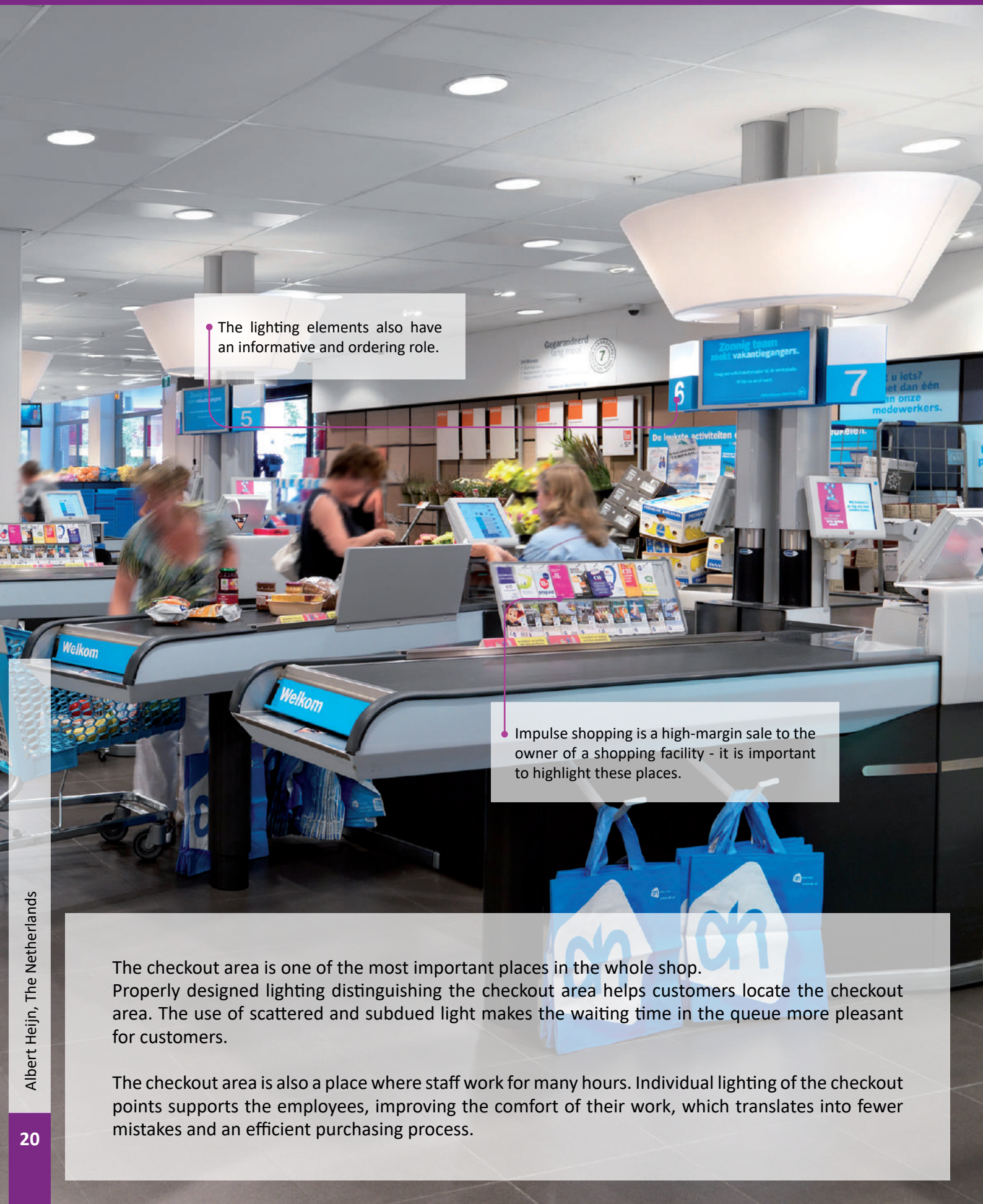
Depending on the nature of the ceiling installation, it may require masking or accentuation.

Arrangement of the light lines adapted to the arrangement of the space.

Focusing the customer's attention on the product by carefully selecting the optical system and lighting.

Netto, Madison Gallery, Gdańsk, Poland

Checkout area - clearly visible



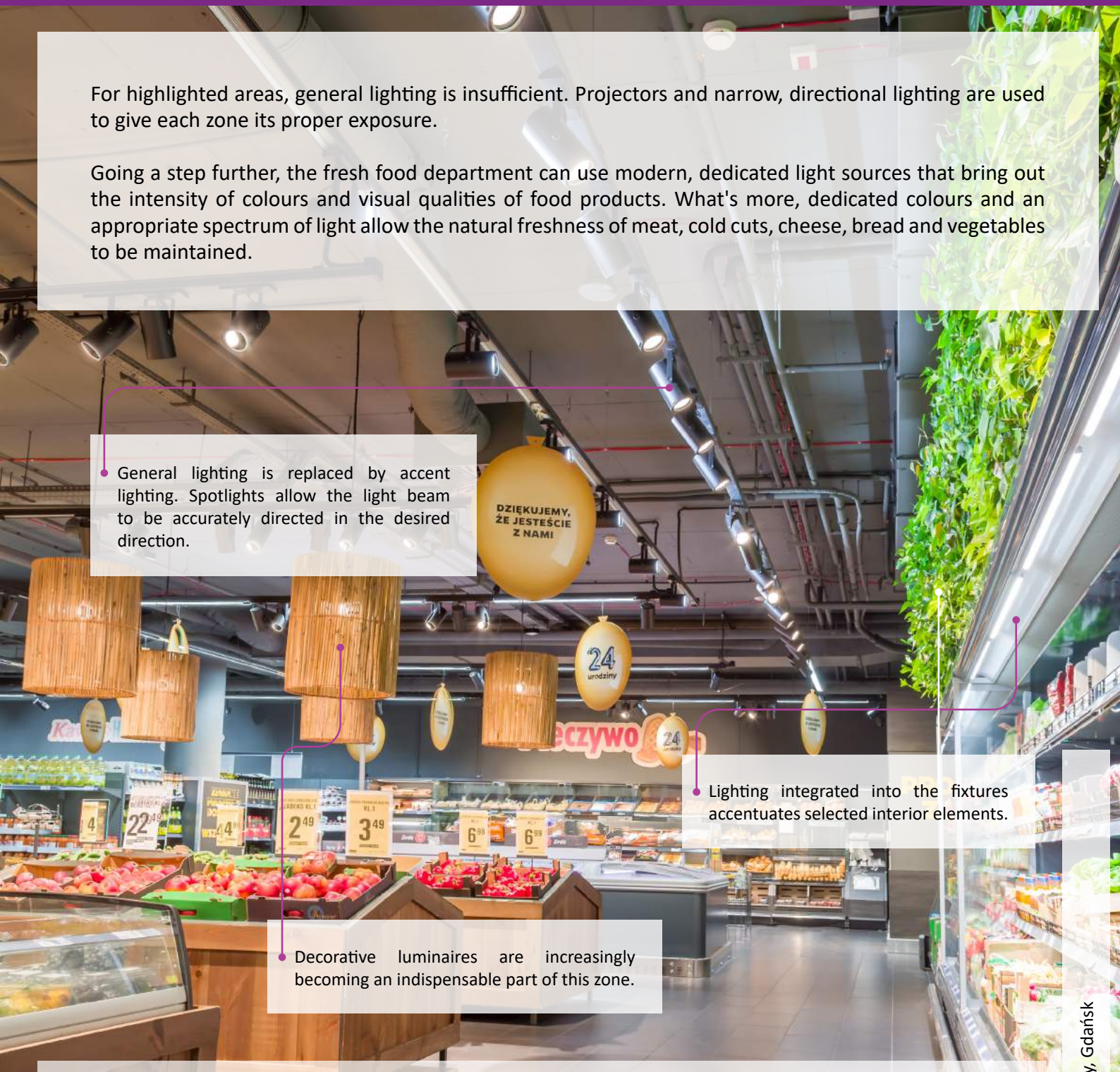
The checkout area is one of the most important places in the whole shop.
Properly designed lighting distinguishing the checkout area helps customers locate the checkout area. The use of scattered and subdued light makes the waiting time in the queue more pleasant for customers.

The checkout area is also a place where staff work for many hours. Individual lighting of the checkout points supports the employees, improving the comfort of their work, which translates into fewer mistakes and an efficient purchasing process.

Important zones – highlighted

For highlighted areas, general lighting is insufficient. Projectors and narrow, directional lighting are used to give each zone its proper exposure.

Going a step further, the fresh food department can use modern, dedicated light sources that bring out the intensity of colours and visual qualities of food products. What's more, dedicated colours and an appropriate spectrum of light allow the natural freshness of meat, cold cuts, cheese, bread and vegetables to be maintained.



General lighting is replaced by accent lighting. Spotlights allow the light beam to be accurately directed in the desired direction.

Lighting integrated into the fixtures accentuates selected interior elements.

Decorative luminaires are increasingly becoming an indispensable part of this zone.

Dedicated patented light recipies and flavors for better true color representative accent lightning

MEAT | CHEESE | FISH | POTATOES | VEGETABLES AND FRUITS | HERBS | BREAD AND PASTRIES

Netto, Madison Gallery, Gdańsk

Products recommended for commercial facilities

General systems - linear and surface:

- StoreSet
- Maxos fusion
- CoreLine Trunking

65% housing made out of 65% recycled polycarbonate

Accent lighting:

- CoreLine Projector
- StylID Evo
- GreenSpace Accent

Maxos fusion backbone structure

65% housing made out of 65% recycled polycarbonate

Decorative lighting:

- 3D printed luminaires
- Modular

65% housing made out of 65% recycled polycarbonate

Products recommended for commercial facilities

Office lighting:

- SmartBalance
- CoreLine Panel
- CoreLine Downlight
- CoreLine Wall-mounted
- Trueline suspended
- Trueline recessed
- Trueline surface mounted
- Keyline

65%
housing made out of 65% recycled polycarbonate

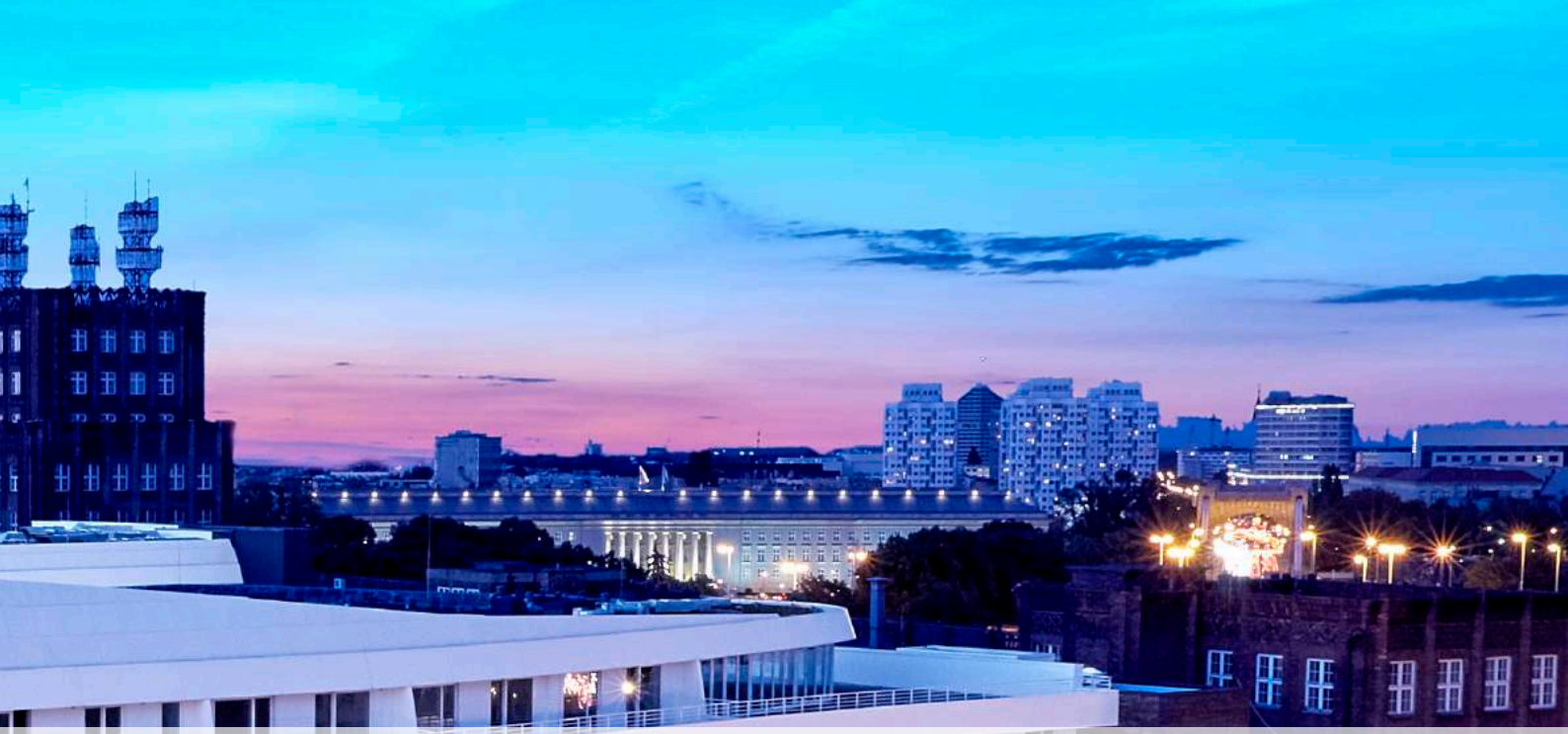
Technical lighting:

- Pacific GEN5
- CoreLine Waterproof

Outdoor lighting:

- ClearFlood
- Graze ColorKinetics
- UniStreet

Ovo, DoubleTree by Hilton, Wrocław, Poland



Hotels

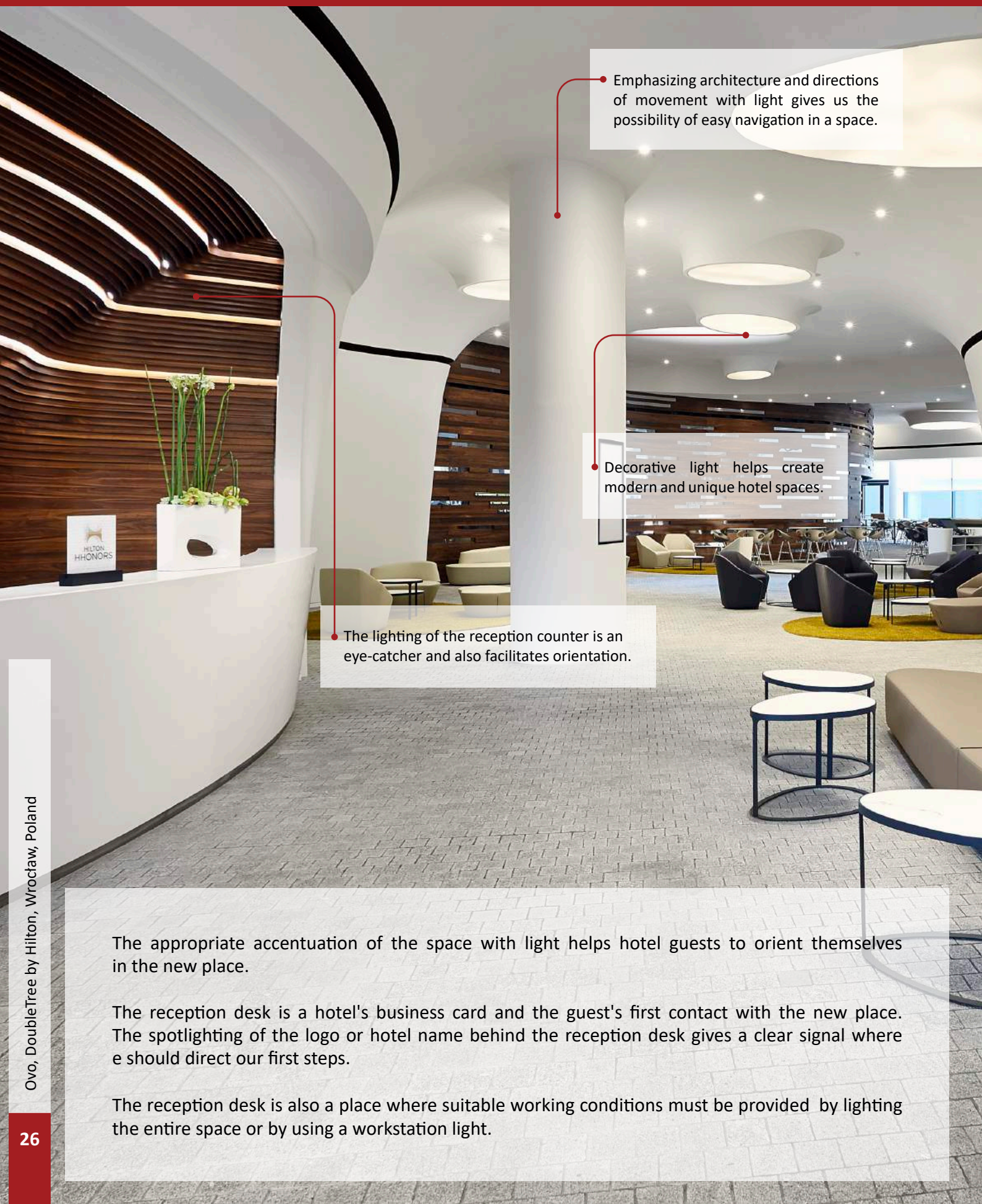
Impressions worth remembering

A hotel should stand out and make an unforgettable impression on guests, so that they would like to come back to it and recommend it to others.

Well-chosen lighting plays an important role here. On the outside, architectural lighting can transform a hotel into a distinctive landmark, reinforcing the brand identity. It helps to make a positive first impression by attracting attention to the reception area and arousing interest in lobby elements. Moreover, light can act as a good but discreet guide to a hotel. It can guide guests in the right direction and in the right zones leading to rooms, lifts, bars and restaurants. On the other hand, lighting control systems in a hotel room allow guests to personalize the space around them, to adjust their surroundings to their current mood or activity (work, relaxation, an infusion of energy, etc.).

It is also possible to change the appearance of a hotel by means of lighting and create the ideal atmosphere for every occasion. Pre-programmed settings allow you to adjust the light to the event, e.g. to create a festive Christmas atmosphere, giving your guests an experience and emotion they will never forget.

Reception and lobby - welcome



Emphasizing architecture and directions of movement with light gives us the possibility of easy navigation in a space.

Decorative light helps create modern and unique hotel spaces.

The lighting of the reception counter is an eye-catcher and also facilitates orientation.

The appropriate accentuation of the space with light helps hotel guests to orient themselves in the new place.

The reception desk is a hotel's business card and the guest's first contact with the new place. The spotlighting of the logo or hotel name behind the reception desk gives a clear signal where e should direct our first steps.

The reception desk is also a place where suitable working conditions must be provided by lighting the entire space or by using a workstation light.

Hotel room - comfort

Most hotels, from three stars and above, use an integrated lighting control system that makes it easy to manage the entire facility.

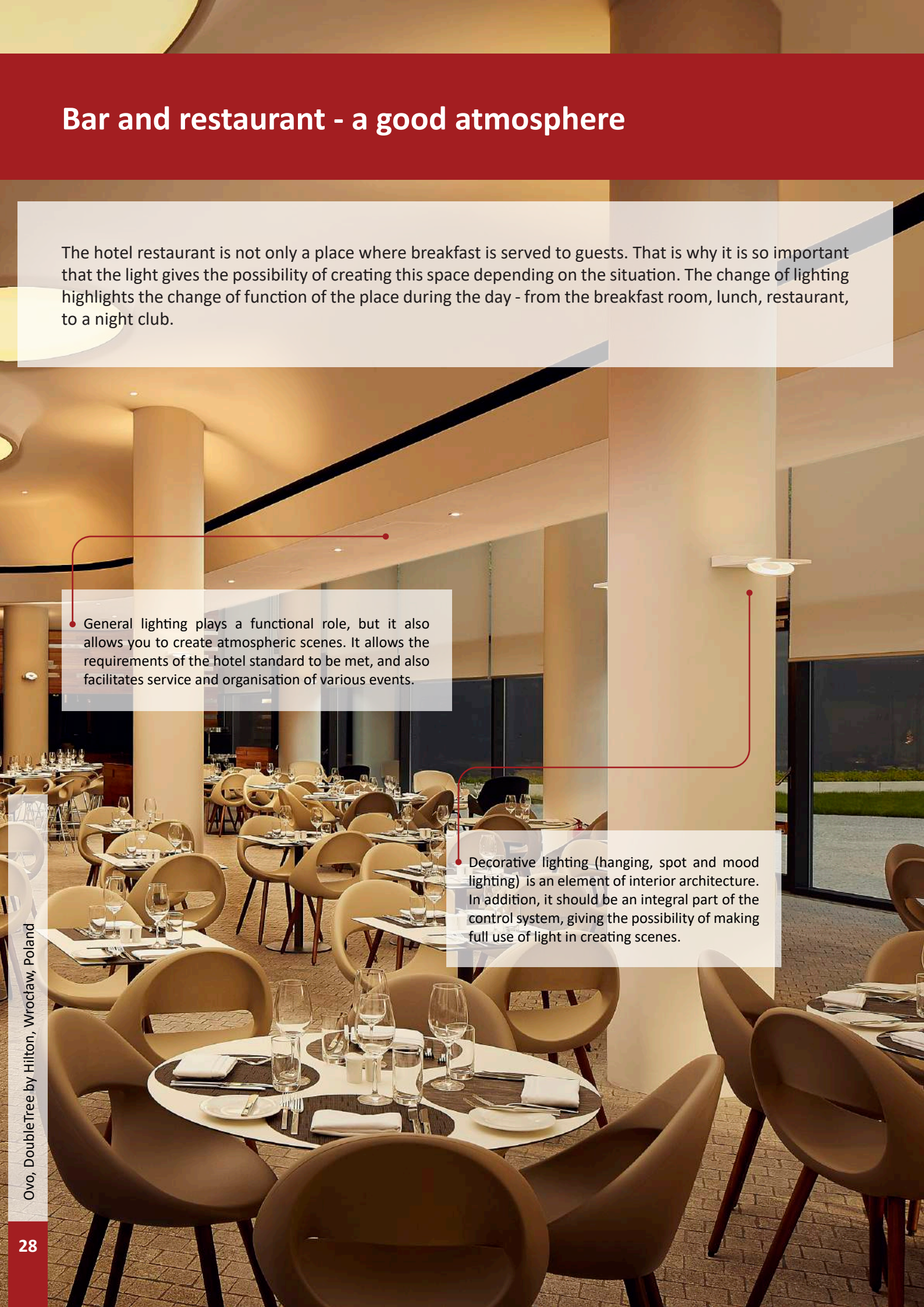
Lighting ensuring comfortable work at a desk is the standard in all hotel rooms belonging to hotel chains. Likewise, lighting to ensure comfortable reading (wall lights/*reading lights*) and a main standing lamp are standard.

The lighting of hotel bathrooms is usually based on spotlights built into the ceiling. In addition, wall lights or a backlit mirror are used to provide the right conditions for personal care.

Seaside Park Hotel, Kołobrzeg, Poland

Bar and restaurant - a good atmosphere

The hotel restaurant is not only a place where breakfast is served to guests. That is why it is so important that the light gives the possibility of creating this space depending on the situation. The change of lighting highlights the change of function of the place during the day - from the breakfast room, lunch, restaurant, to a night club.



General lighting plays a functional role, but it also allows you to create atmospheric scenes. It allows the requirements of the hotel standard to be met, and also facilitates service and organisation of various events.

Decorative lighting (hanging, spot and mood lighting) is an element of interior architecture. In addition, it should be an integral part of the control system, giving the possibility of making full use of light in creating scenes.

Ovo, DoubleTree by Hilton, Wrocław, Poland

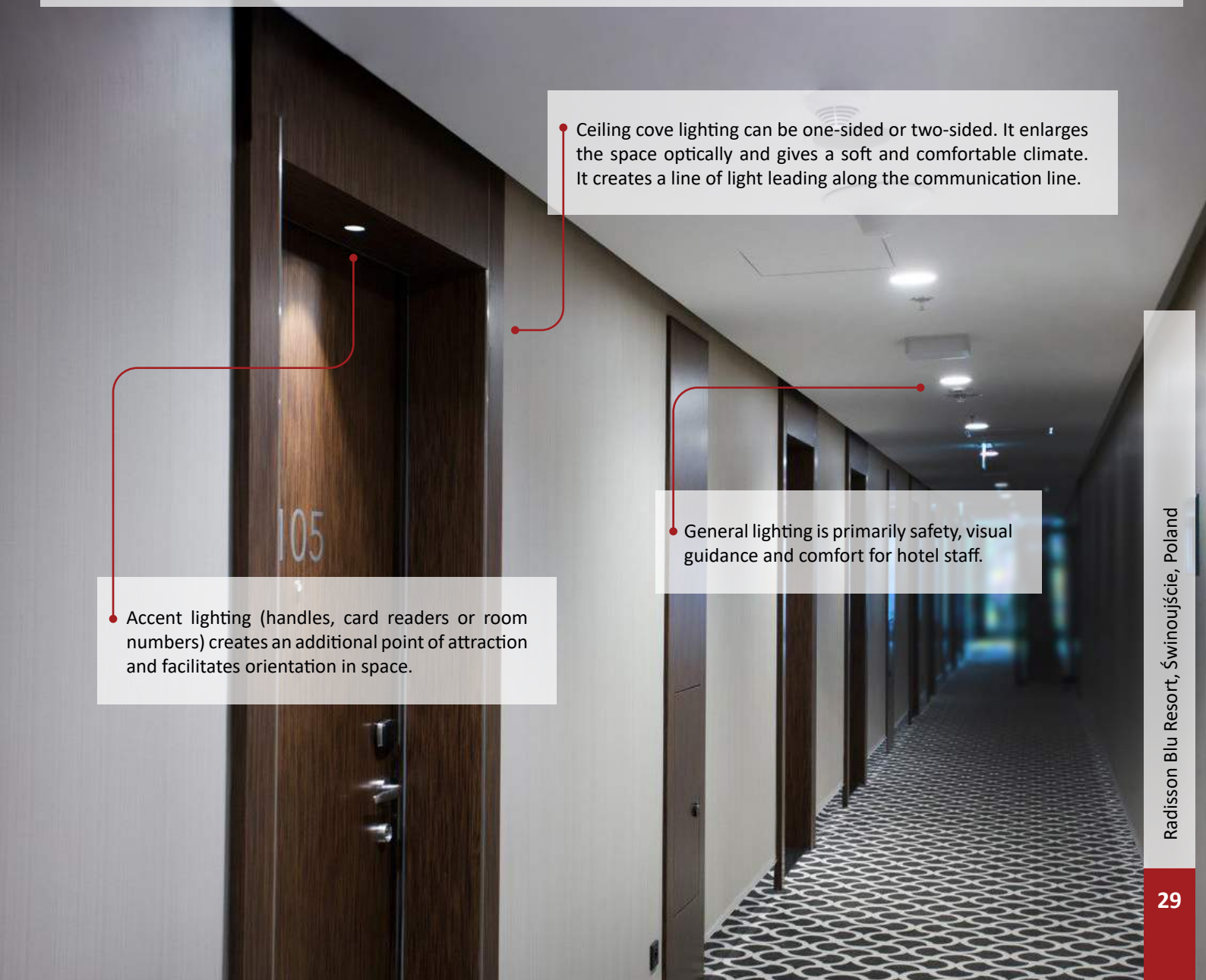
Corridors - communication

The hotel corridor is a place which is supposed to enable communication and orientation in the building and give a sense of security. The space in front of the lifts should have additional light to facilitate recognition of the direction to take. It is a good custom to highlight and illuminate walls or orientation signs with the room numbering.

Linear lighting above the door makes orientation in space even easier.

Wall lighting and downlighting, depending on the type, can sharpen or enlarge a space optically, giving it a warm homely atmosphere.

Floorlighting and lighting for communication routes (so-called safety lighting) increases a guest's sense of comfort. It illuminates the floor space, giving time for the control systems to operate, i.e. to detect the presence of people and movement.



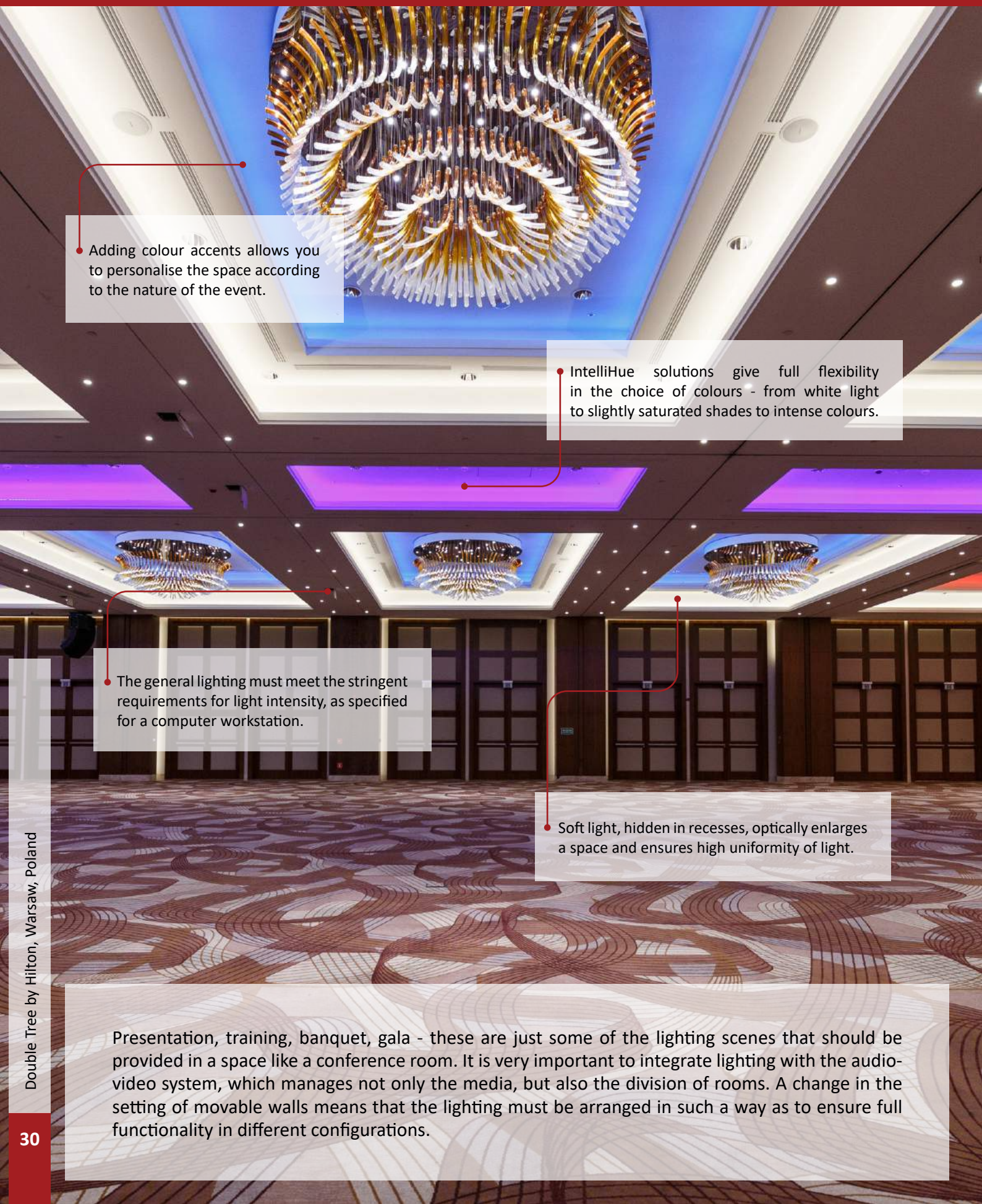
Ceiling cove lighting can be one-sided or two-sided. It enlarges the space optically and gives a soft and comfortable climate. It creates a line of light leading along the communication line.

General lighting is primarily safety, visual guidance and comfort for hotel staff.

Accent lighting (handles, card readers or room numbers) creates an additional point of attraction and facilitates orientation in space.

Radisson Blu Resort, Świnoujście, Poland

Conference rooms - multifunctionality



Adding colour accents allows you to personalise the space according to the nature of the event.

IntelliHue solutions give full flexibility in the choice of colours - from white light to slightly saturated shades to intense colours.

The general lighting must meet the stringent requirements for light intensity, as specified for a computer workstation.

Soft light, hidden in recesses, optically enlarges a space and ensures high uniformity of light.

Presentation, training, banquet, gala - these are just some of the lighting scenes that should be provided in a space like a conference room. It is very important to integrate lighting with the audio-video system, which manages not only the media, but also the division of rooms. A change in the setting of movable walls means that the lighting must be arranged in such a way as to ensure full functionality in different configurations.

External area - attractiveness

Lighting the surrounding greenery creates a pleasant atmosphere. It is important to place the luminaires at the right distance from the plants, as they increase their volume when growing.

Lighting from three sides gives a three-dimensional effect.

We recommend using colour only on modern or glass facades.

On classic objects, subdued colours are used, emphasizing the structure and material of the facade. In this case, amber colouring is also allowed, which is particularly attractive when highlighting natural brick.

In the case of hotels, floodlights should be avoided so that light does not fall into the guest rooms.

The illumination of the outdoor area is an integral part of a hotel illumination project.

It is important to remember to mark the entrance to the building with light, taking into account that it is not the amount of light on the floor but well lit vertical planes that are most visible to visitors.

Grand Hotel Tiffi, Iława, Poland

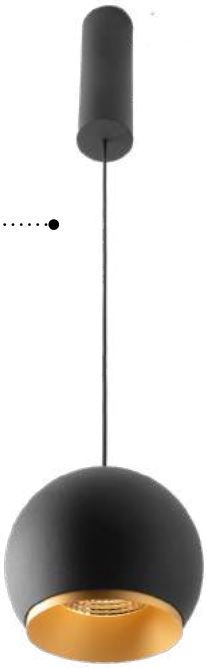
Products recommended for hotels

General lighting:

- Modular Smart Downlight (Lotis, Kup, Cake)
- LuxSpace Downlight
- GreenSpace Downlight
- CoreLine Downlight

Accent lighting:

- Modular Medard
- LuxSpace Accent
- GreenSpace Accent
- StylID Evo
- TrueFashion Projector
- CoreLine Spot



Decorative lighting:

- Modular Smart ball
- Modular Pista Placebo
- Modular Thimble

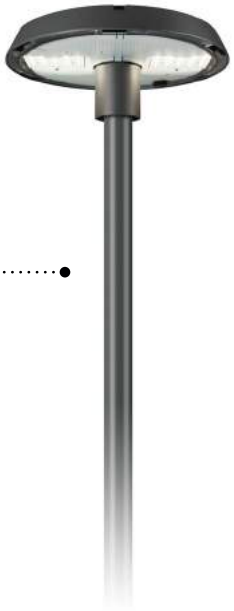
Products recommended for hotels

Technical and specialist lighting:

- Cleanroom
- Pacific LED
- CoreLine Waterproof

Outdoor lighting:

- Metronomis
- CitySoul
- TownTune
- Graze Compact
- ReachElite



Skanska, Spark, Warsaw, Poland

Offices

An office where work is a pleasure

Suitable lighting is one of the most important elements in determining a comfortable working environment for an office. The main purpose is to ensure the efficient use of space, improve the quality of work, have a positive impact on the health and well-being of employees, as well as ensure energy efficiency.

Lighting in a modern office is increasingly taking on interesting and surprising forms - it is moving away from its purely functional purpose and moving towards becoming an element of interior design. The possibility of personalisation, i.e. adjusting the intensity and colour of light to current needs, helps workers concentrate in their personal workspaces.

In turn, one of the most multifunctional spaces in the office, i.e. the conference room, can be a place for teamwork, presentations or virtual meetings. Lighting should be conducive to each of the above functions, as well as provide integration with the video conferencing system.
In turn, unique lighting for creative zones will make it possible to work and exchange ideas in a less official way. The integration of lighting with architectural elements, as well as the use of multimedia solutions, such as screens or dynamic lighting, allows for attractive visual effects.

The lighting control system should be part of an intelligent building, enabling communication with, for example, BMS, HVAC or access control. An analysis of the data collected by the sensors will help to effectively manage the space and adjust it to the needs of users.

Office space - conducive to work

Sensors

- Measurement of the effect of natural light
- Verification of zone occupation
- Measurement of noise levels, humidity, temperature

Control panels

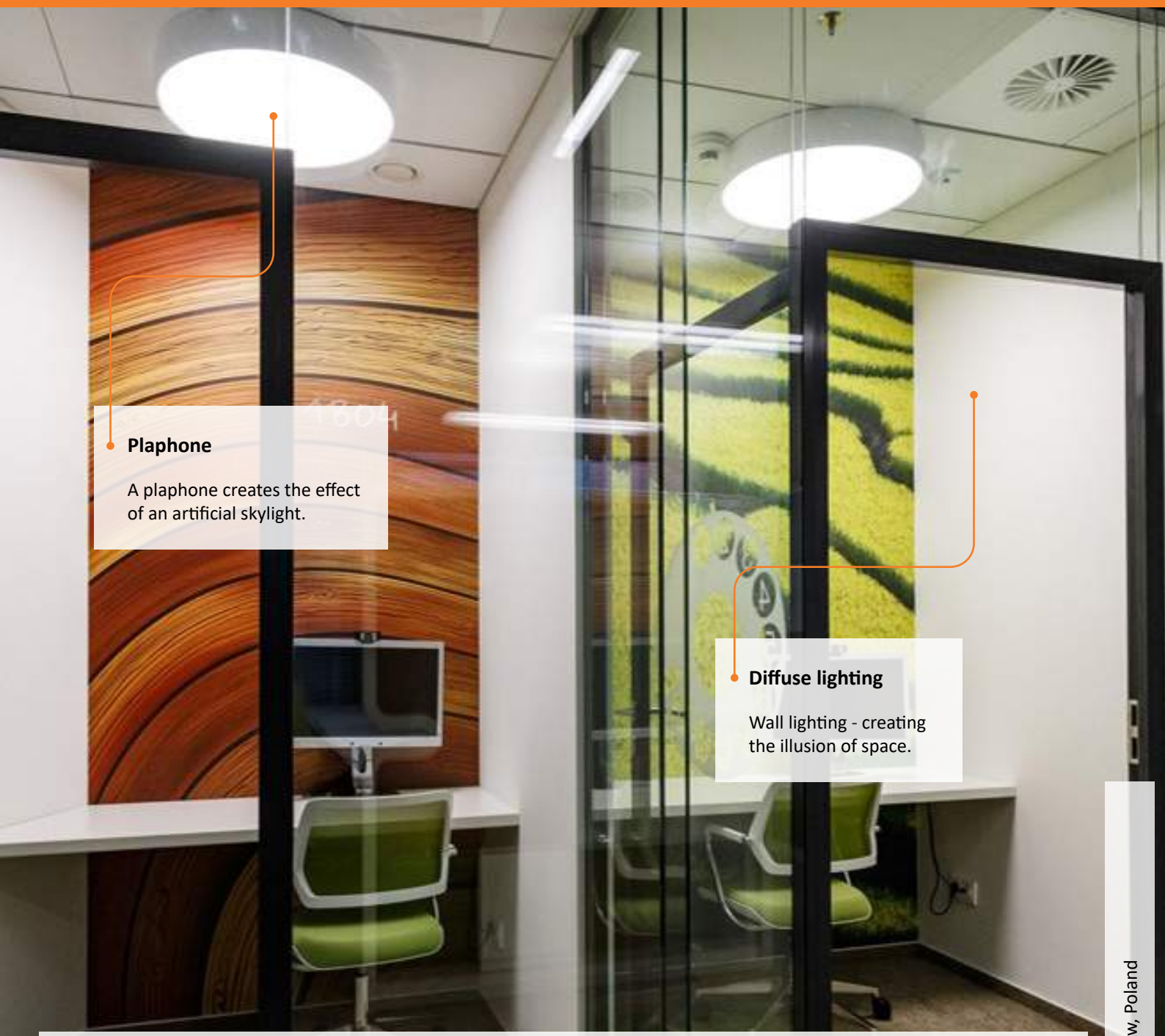
- Intuitive environmental lighting control
- Selecting pre-set scenes

Office space should, above all, guarantee a comfortable environment for work. The basis is to meet the boundary technical requirements **in terms of average light intensity, uniformity, glare limitation, and colour rendering**. Care should be taken to eliminate the **stroboscopic effect** and the appropriate distribution of luminance in the environment.

The control system plays an important role in this case. Recommendation: use of natural light, motion detection, the option to adjust lighting to individual requirements. Essential functionality: the central analysis of data collected by sensors, integration with BMS to manage temperature, sound, and blinds.

Light can improve the efficiency of office work (in accordance with the idea of Human Centric Lighting) through the recommended function of **variable colour temperature (Tunable White)**, increased **colour rendering index** or excess **light intensity** to stimulate human sight.

Personal workspaces - employee-friendly



A personal workspace must allow you to concentrate and work effectively on your own. The personalisation of the working environment will be ensured by controlling the light intensity, depending on the individual needs of employees.

In such a room, appropriate lighting parameters are very important - all deficiencies in terms of glare or light flicker will be more strongly perceived in a small space.

Diffuse lighting and plafond-type luminaires make a room feel more spacious.

Recommendation: controlled colour effects to stimulate the sense of sight.

Signify, Company House I, Warsaw, Poland

Conference rooms - multifunctional

General lighting

Built-in or hanging. Using indirect lighting depending on the interior architecture.
We recommend: varia`ble colour temperature and the use of artificial skylights - surface lighting.

Local lighting

It only lights up a workspace allowing work to be focused on the task at hand.

Background lighting

It builds a feeling of space and improves aesthetics. We recommend: using colour and accent lighting effects to highlight interior design.

It is one of the most multifunctional spaces in the modern office. Depending on requirements, it can be a place for teamwork, a meeting room, a place for presentations or virtual meetings. The lighting should be conducive to all of the above functions. General, diffuse lighting illuminates the entire interior - including vertical planes - and exposes facial features. Local lighting allows only the conference table to be illuminated, allow people to focus on the task. Background lighting builds the background - it creates the effect of a spacious interior. Accent lighting exposes interior design or decorative elements, improving well-being and stimulating creativity.

Regardless of the scenario or the architecture of the interior, the lighting must meet the rigorous requirements of the office and the requirements for displaying or transmitting images.

The control system should enable integration with the teleconference system and intuitive management of effects. Recommendation: use mobile applications for remote management and use data collected by sensors to manage the room reservation system.

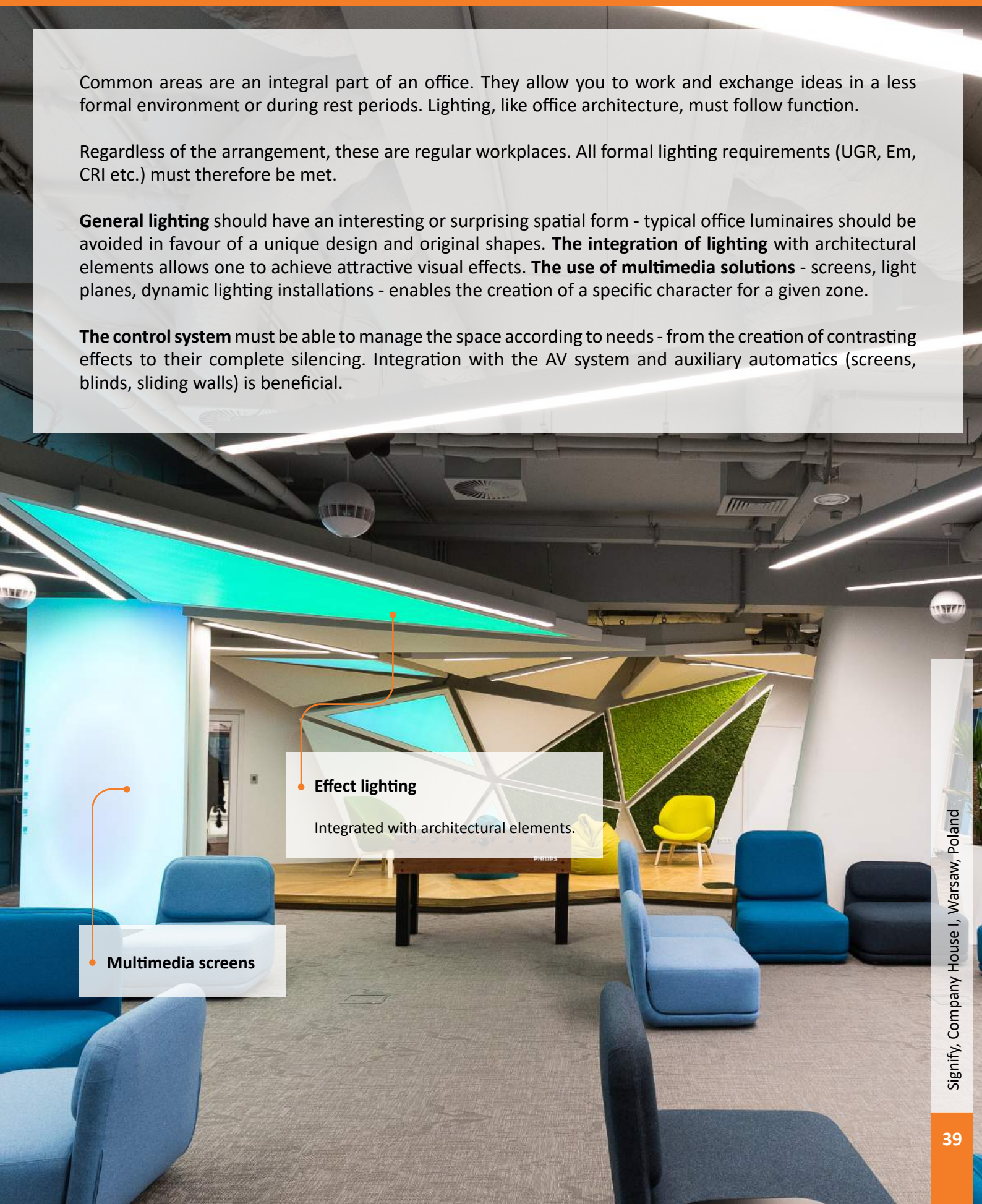
Common areas - a place of inspiration and relaxation

Common areas are an integral part of an office. They allow you to work and exchange ideas in a less formal environment or during rest periods. Lighting, like office architecture, must follow function.

Regardless of the arrangement, these are regular workplaces. All formal lighting requirements (UGR, Em, CRI etc.) must therefore be met.

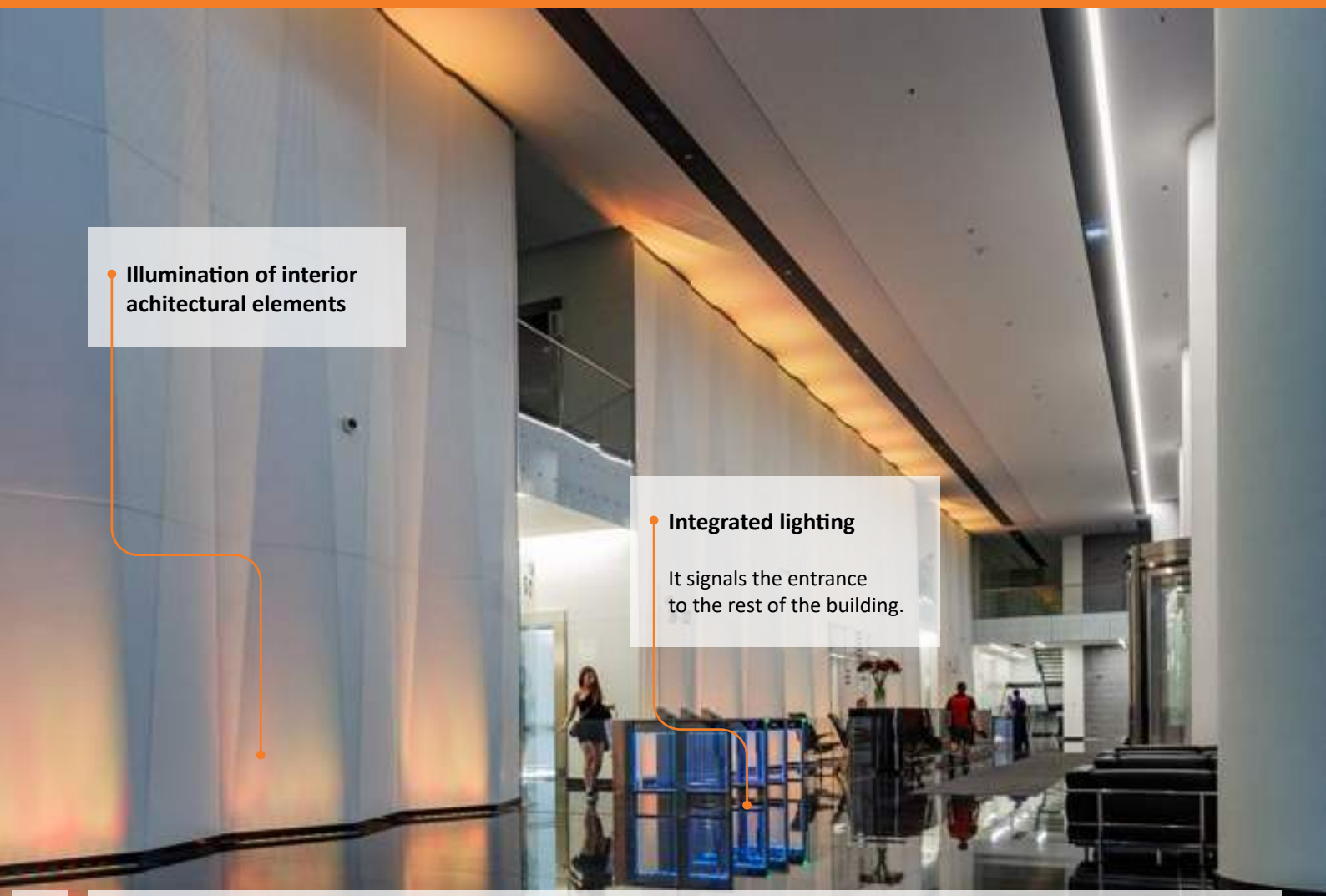
General lighting should have an interesting or surprising spatial form - typical office luminaires should be avoided in favour of a unique design and original shapes. **The integration of lighting** with architectural elements allows one to achieve attractive visual effects. **The use of multimedia solutions** - screens, light planes, dynamic lighting installations - enables the creation of a specific character for a given zone.

The control system must be able to manage the space according to needs - from the creation of contrasting effects to their complete silencing. Integration with the AV system and auxiliary automatics (screens, blinds, sliding walls) is beneficial.



Signify, Company House I, Warsaw, Poland

Entrance hall - a good first impression



The hall is the showcase of the building and the most important zone in its common area. It is both a welcome zone, a place where the interior meets the surroundings and an integral part of the lighting to illuminate the building at night.

The lighting should support these functions by being integrated with the architecture.

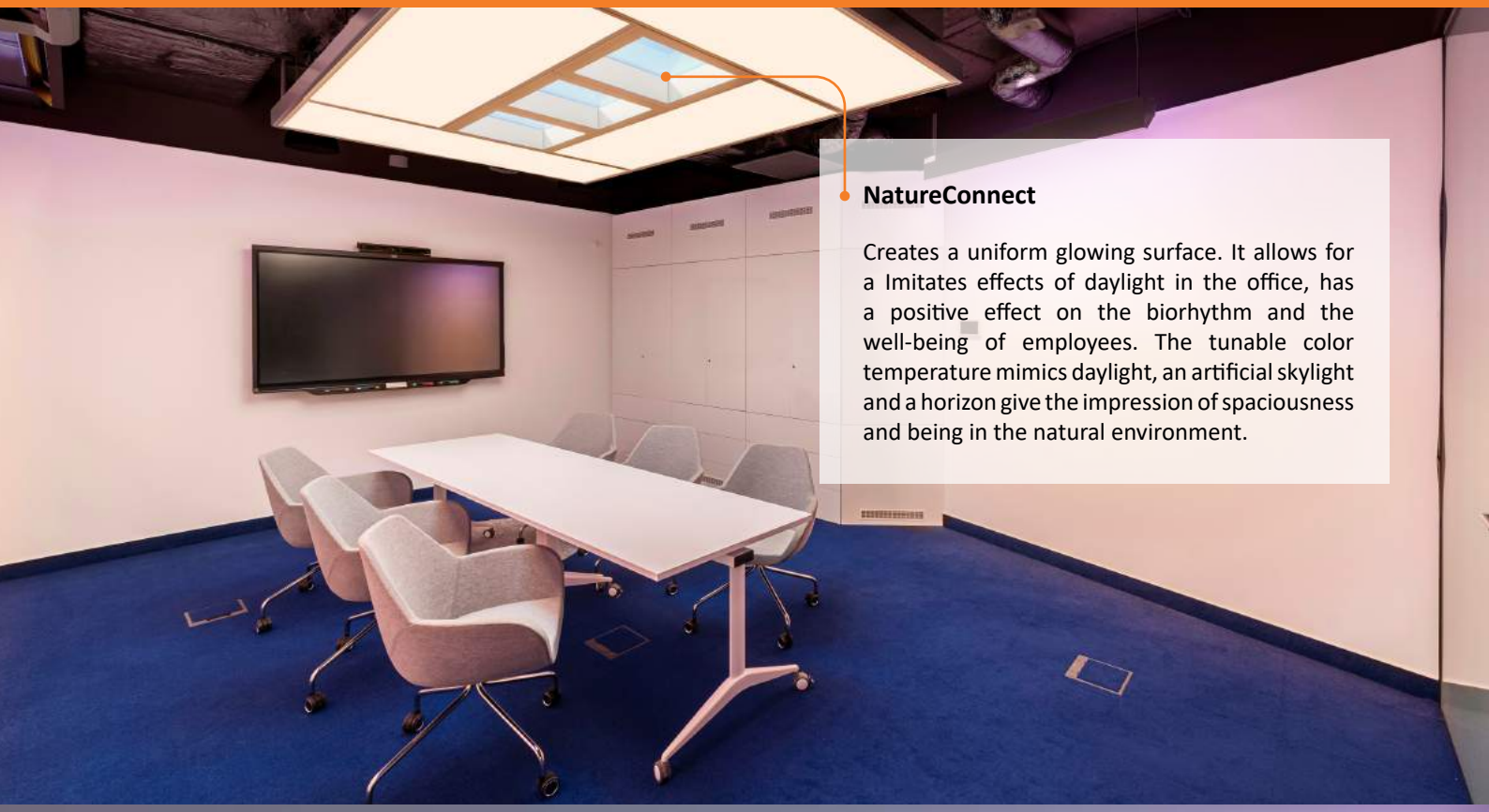
It is recommended to have higher than standard levels of utility lighting in order to highlight this part of the communication zone.

It is important to light up permanent workspaces (e.g. the reception desk) and seating areas with the possibility of work or occasional meetings. It is also important to emphasise the lines of communication from the hall (lift lobbies, corridors) in order to ensure proper visual guidance.

The use of luminaires with a minimalist design promotes the integration of light into the interior architecture. An alternative solution is to place decorative luminaires as additional decorative elements.

Recommendation: emphasize the interior architecture and strongly highlight vertical elements visible from the outside.

More than just a light



NatureConnect

Creates a uniform glowing surface. It allows for a Imitates effects of daylight in the office, has a positive effect on the biorhythm and the well-being of employees. The tunable color temperature mimics daylight, an artificial skylight and a horizon give the impression of spaciousness and being in the natural environment.

Luminous Textiles

Light or ceiling panels allow for dynamic lighting effects. Their covers are made of sound-absorbing materials, in a wide range of colours and textures. It is possible to build the panel into a wall or suspended ceiling, or to suspend it or add it on as a superstructure.

Light, temperature and noise are the factors most often mentioned as determining the feeling of comfort in an office space. Appropriately designed lighting can also improve comfort in terms of acoustics. Light sources can be integrated with acoustic elements, while luminaires can be made of sound-absorbing materials. Signify offers uniform lighting surfaces - both artificial skylights (OneSpace), acoustic multimedia panels (Luminous Textiles) and noise-damping decorative luminaires.

Products recommended for offices

Recessed luminaires
for a modular ceiling:

- SlimBlend
- PowerBalance
- FlexBlend
- CoreLine Panel

Downlights:

- GreenSpace Downlight
- LuxSpace
- LuxSpace Surface
- Modular Lotis

Accent lighting:

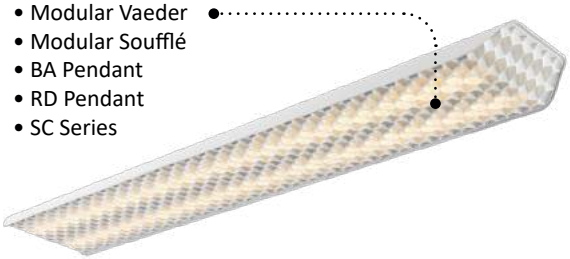
- StoreFlux
- GreenSpace Accent
- StylID Evo
- Modular Smart ball

Pendant luminaires:

- Keyline
- SmartBalance

Decorative luminaires:

- Modular Vaeder
- Modular Soufflé
- BA Pendant
- RD Pendant
- SC Series



Plafonds:

- CoreLine Wall-mounted
- Modular Flat Moon

Products recommended for offices

A unique technology offered by Signify is the production of luminaires based on 3D printing, which is part of the **Circular Economy** strategy. The material used for their production can be reused.

3D printing allows frames of any shape, the use of different colours and transparency of materials and the use of a wide range of textures. All with the highest quality lighting parameters - thanks to the integration of Philips components dedicated to professional solutions.

Luminaires can be configured based on an existing base shape or developed from scratch as an individual architectural concept.

BA Pendant

65%
housing made out of 65% recycled polycarbonate

Original

KT Series

65%
housing made out of 65% recycled polycarbonate

Industrial

ArcelorMittal, Świętochłowice, Poland

Industry

Better lighting - improving performance

The basic task of proper lighting in industry is to support the continuity of the production process. Moreover, it is also a very important objective to ensure the safety of employees by providing the required level of lighting in work areas and communication routes.

The lighting should be adapted to the space in use in terms of functionality and operation. An additional option is the use of a control system which makes it possible to use daylight, motion detection and automation. Ensuring long-term and trouble-free operation is a key issue from a process and maintenance perspective. For more demanding facilities, in addition to the automatic function, a system with manual control and remote supervision with visualization of the current state will also prove its worth. The integration of the lighting control system into the production process can bring additional benefits.

By integrating luminaires with advanced building control and management systems, production operations can be simplified while saving energy and ensuring employee satisfaction.

Warehouse - clearly visible

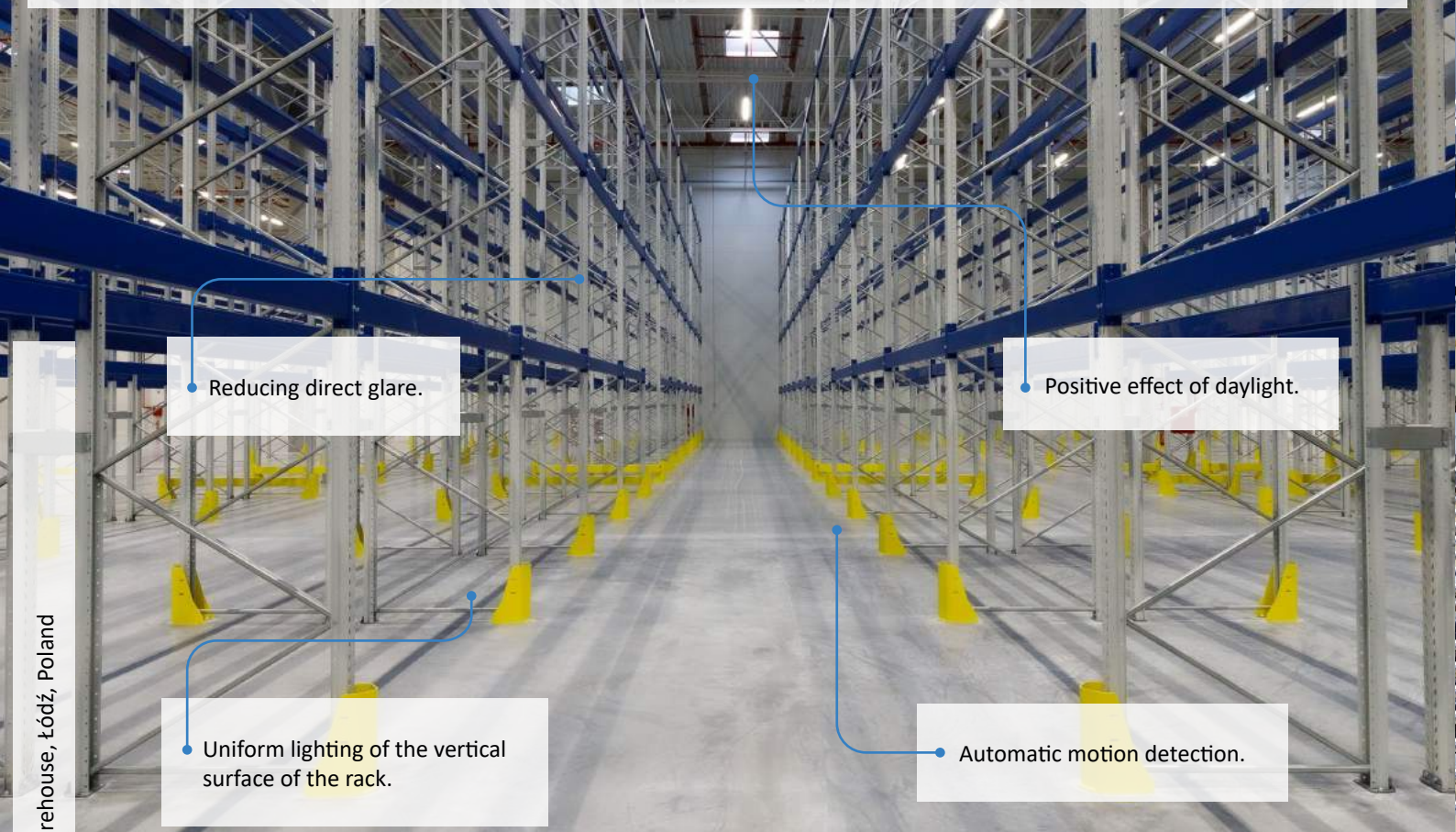
The primary purpose of lighting, in the case of high-bay and open-type warehouses, is to ensure the safety of employees. Providing the required level of illumination in work areas and communication routes.

It should be remembered that the lighting should be adjusted to the arrangement of the usable space in terms of its functionality and optimization of its operation and maintenance.

The simplest solution in open storage areas will be High-Bay spotlights, while for arrangements with high storage racks - linear system solutions.

An important element is the flexibility of the selected system in the event of a change of purpose during operation. In this case, linear rail systems with controllability are ideal.

An additional possibility is the use of a lighting control system, thanks to which it is possible to use daylight, motion detection and automation.



Prooving high efficacy and long life time:

PLUS EN EC

Support Green Building standards:

LEED

BREEAM

WELL2

MLP Group Warehouse, Łódź, Poland

Production area – precise lighting

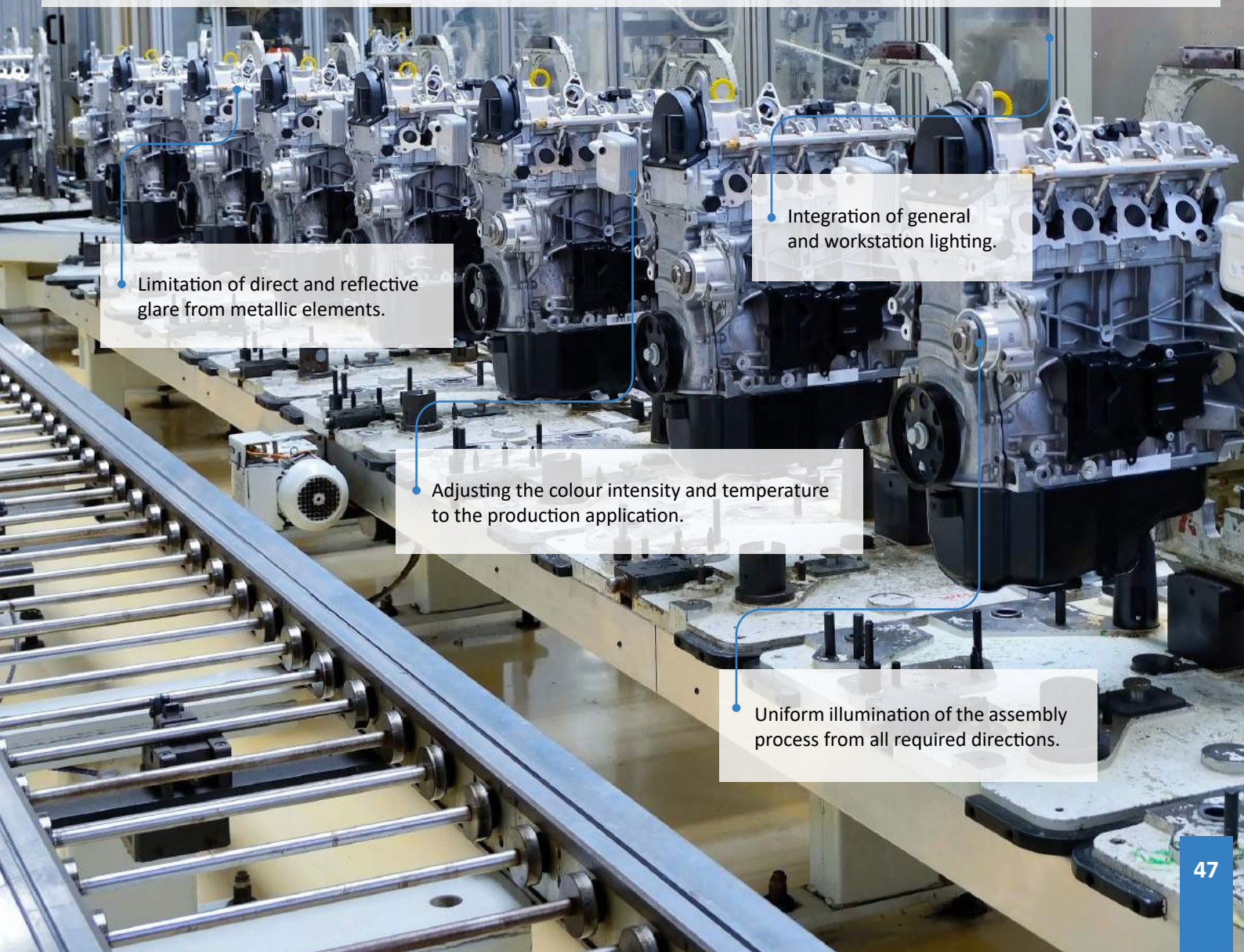
Normative requirements for a lighting system vary according to the type of production.

The basic task of proper lighting is to support the continuity of the production process. This is possible by providing the required level of light intensity at the workstation and in its immediate surroundings. This has an impact on work safety and prevents production downtime.

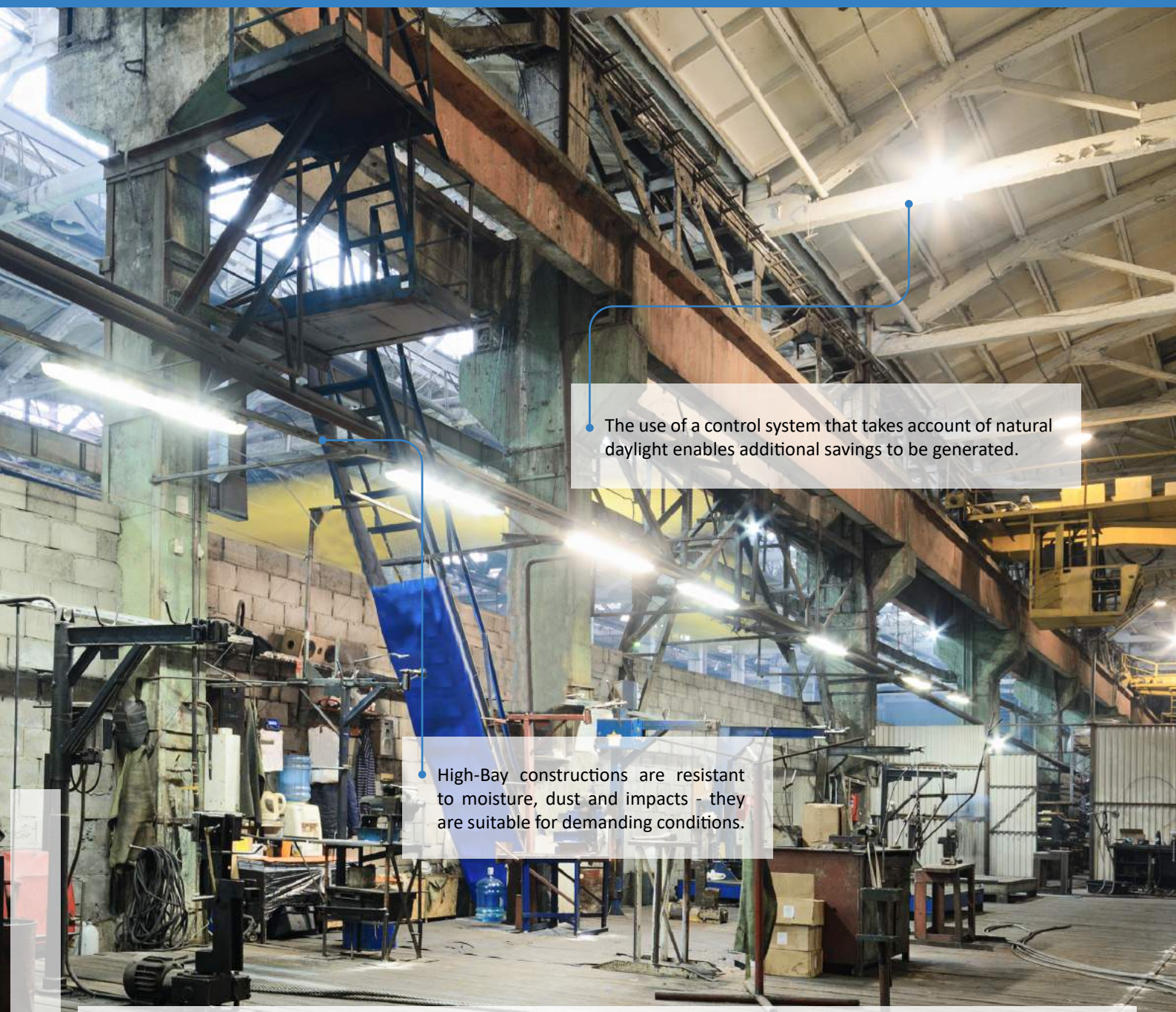
Along the production lines, linear solutions with an optical system that ensures glare reduction prove effective. For individual workstations - autonomous lighting, mounted directly above them, with the possibility of manual control.

If the technological process requires it, it will be crucial to provide components that are compliant with PZH or HACCP requirements - especially in the food industry.

An additional advantage will be the analysis of motion detection within the automatic lighting control system.



Machine hall - functionality



The use of a control system that takes account of natural daylight enables additional savings to be generated.

High-Bay constructions are resistant to moisture, dust and impacts - they are suitable for demanding conditions.

Ensuring long-term and trouble-free operation is a key issue from a process and maintenance perspective.

The most popular high power LED luminaires will provide the required amount of light while being easy to install, allowing for ongoing maintenance and regular cleaning.

A lighting management system, tailored to the individual needs of the user, will be key to achieving satisfaction during operation. For simple facilities, a stand-alone option - motion detection or daylight detection - will work. For more demanding customers, in addition to the automatic function, a system with manual control and remote supervision with visualisation of the current status will be more appropriate.

High risk areas - safety

The most important aspect in the proper selection of a lighting system is to take into account all unusual environmental conditions affecting the way it operates.

For food industry production zones, it is important to design a solution that allows the space clean to be kept clean - e.g. a PZH certificate and statement of conformity with the HACCP standard. Sealed luminaires with a streamlined shape will be effective here.

In inaccessible places, due to the reduction of maintenance work, the robust construction and extended product life is a major advantage. High-power luminaires, enclosed in a moulded housing, with optical elements made of glass, are perfect for this purpose.

The integration of the lighting control system into the production process can bring additional benefits.

In any case, the declared parameters should be confirmed by an independent ENEC or ENEC+ quality certificate.

Additional lighting of dangerous places increases visibility and comfort of work.

The choice of product (High-Bay HT luminaires up to 70 degrees Celsius) is dictated by specific ambient conditions - high temperature.

Improved safety in the environment of rotating machine elements. Elimination of the stroboscopic effect. Care for high quality power systems.

Outdoor areas - efficiency

In the process of designing the lighting for outdoor areas, a key element is the proper planning and arrangement of installation points. The current land use, arrangement and intended use of the area (zone) must be taken into account.

It is also important to use the available power, lumen and optics ranges of the luminaires to optimise the number of system points and limit the expansion of the electrical infrastructure.

It is good practice to use the elements such as a building's structure and existing surfaces for the assembly of lighting points. Preference is given to road luminaires, mounted on pole and mast booms, or floodlights for mounting on building brackets or facades.

We recommend using the control system in the automatic schedule option based on the astronomical clock or twilight sensor function. We can also use an advanced system with wireless connectivity and the possibility of remote monitoring and a continuous control system.

Reducing direct glare.

Lighting of vertical surfaces to improve legibility of transport markings.

Determination of the height and spacing of lighting points for uniformity of lighting.

The correct level of intensity in communication routes to increase work safety.

Prooving high efficacy and long life time:

PLUS EN EC

Support Green Building standards:

LEED

BREEAM

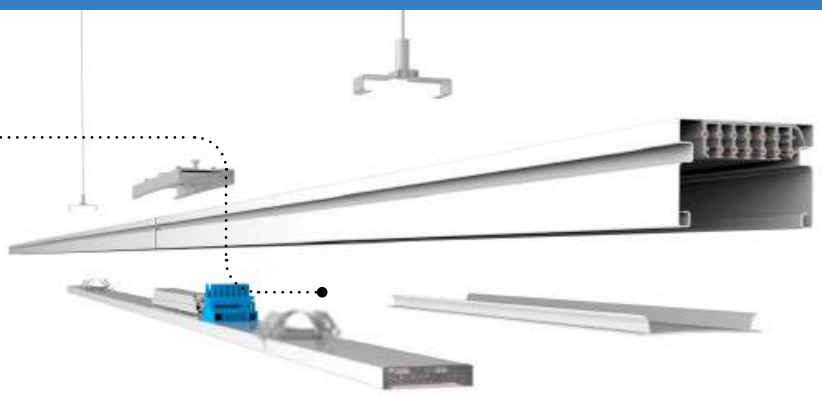
WELL2

STS Logistic, Swarzędz, Poland

Products recommended for industrial facilities

Linear systems:

- Maxos fusion
- Maxos Industry
- CoreLine Trunking



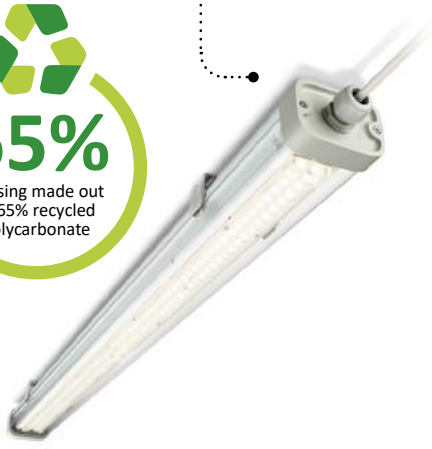
Spotlighting:

- GentleSpace
- CoreLine Highbay

Technical lighting:

- Pacific LED
- CoreLine Waterproof

65%
housing made out of 65% recycled polycarbonate



Outdoor lighting:

- CoreLine Tempo
- OptiVision LED
- ClearFlood Large
- UniStreet

Manufaktura, Łódź, Poland

Public spaces

Friendly cities

Professional lighting of urban spaces is a very important aspect of any agglomeration. Modern road and street lighting systems guarantee the safety of the inhabitants, and the illumination of urban open spaces has a positive impact on the development of culture, tourism and economy in a region.

The image of a city is largely shaped by the illumination of buildings with historic or contemporary architecture. Often these are buildings of symbolic significance for the place and its community.

The lighting of sports facilities is also an integral part of creating the image of cities. It should create perfect conditions for athletes, but should also be dynamic and impressive, while simultaneously allowing communication with residents.

An important element of a city's panorama are green spaces, such as parks and squares - appropriate lighting can turn them into truly unique places. Diversity in the architecture of public spaces means the need for different lighting measures, which should not only satisfy the sense of aesthetics, but also strengthen the sense of security and community of residents.

A monument - decorated with light

Illumination of the top of a tower - elliptical beam luminaires

- Avoiding "burn out" at the installation site.
- Evenly illuminate the entire surface of the tops of towers with the help of elliptical beam luminaires.

Accent lighting - mounted under a characteristic architectural detail

- It highlights this element and its role against the background of the illuminated silhouette of the object.
- Typically, luminaires with a narrow, rotationally symmetrical light distribution.

Accented lighting of the central element of the façade - illumination of a stained glass rosette

- Luminaires with sufficiently wide optics located in front of the object (e.g. on a pole).
- It is recommended illuminating stained-glass windows from the inside to ensure the image is discernible.

Floodlighting

- Exposing the monumental silhouette of a building, so that it is visible even from afar.
- Luminaires should surround the building, and their optics should be appropriately selected, depending on whether they are used to illuminate soaring towers (narrow optics) or sloping nave bodies (wide-angle optics).

Basilica Panewniki, Poland

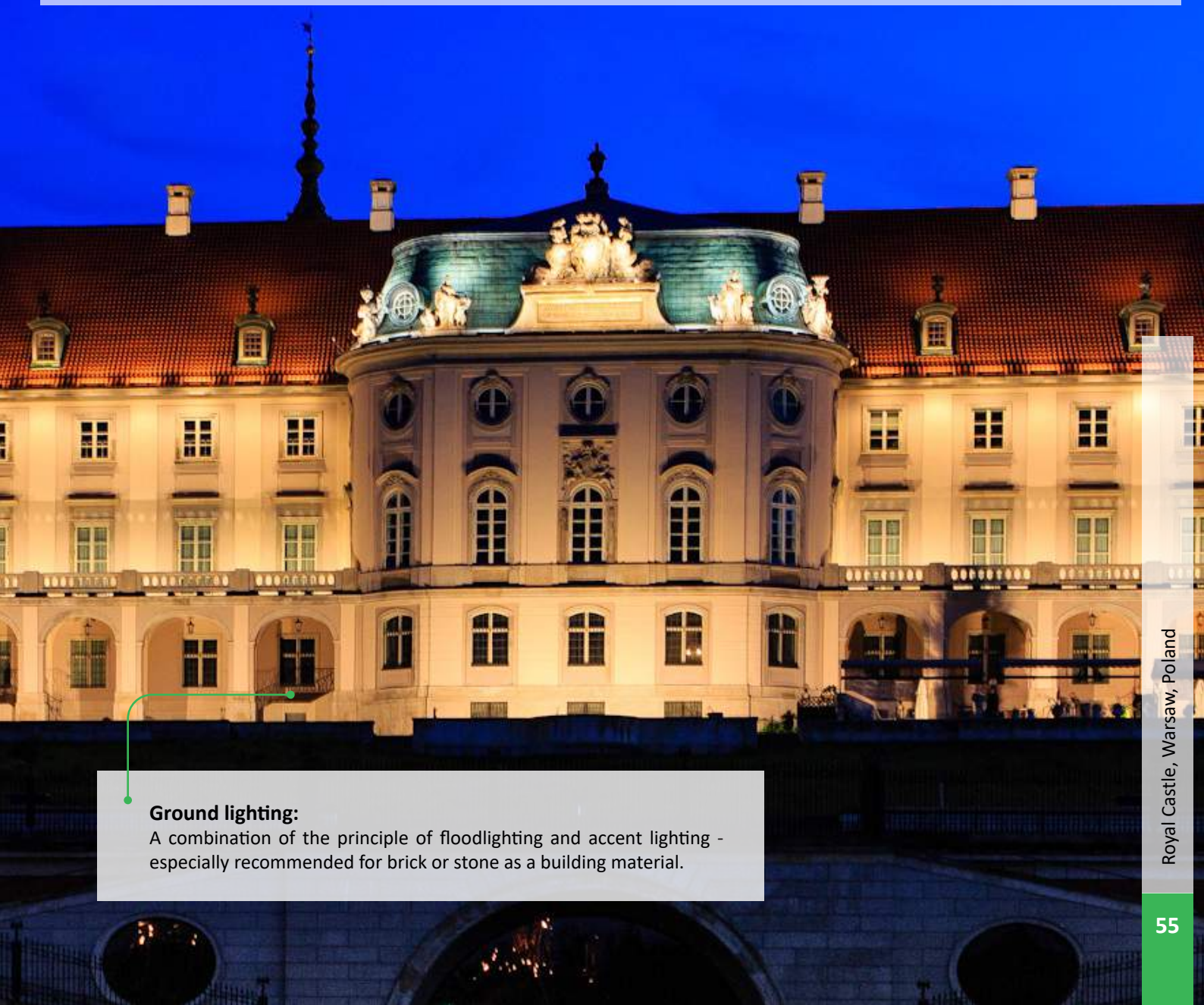
Historic object - properly illuminated

The illumination of monuments should highlight the characteristics of the objects at night, showing their unique character, which is easily seen in daylight.

An important element is the representation of both the shapes of buildings visible from afar and the details or decorations seen from close up.

A very important aspect is to choose the colour of light according to the material used - brick, wood, plastered or painted facades should be emphasized with light of a colour similar to the natural colour of the building material.

Multi-planar, spatial buildings require the installation of luminaires on the facade, ground lighting and luminaires mounted on columns surrounding the building.



Ground lighting:
A combination of the principle of floodlighting and accent lighting - especially recommended for brick or stone as a building material.

Royal Castle, Warsaw, Poland

A modern building - innovative lighting

Spire illumination

- Narrow-beam high-power floodlights located at the bottom of the illuminated spire.
- The recommended RGB version of lighting allows for the creation of dynamic lighting scenarios.

Light screen

The non-reflective glass façade, thanks to the construction elements of the window openings, becomes a large surface which can be turned into a light screen or even a multimedia façade using Direct View luminaires.

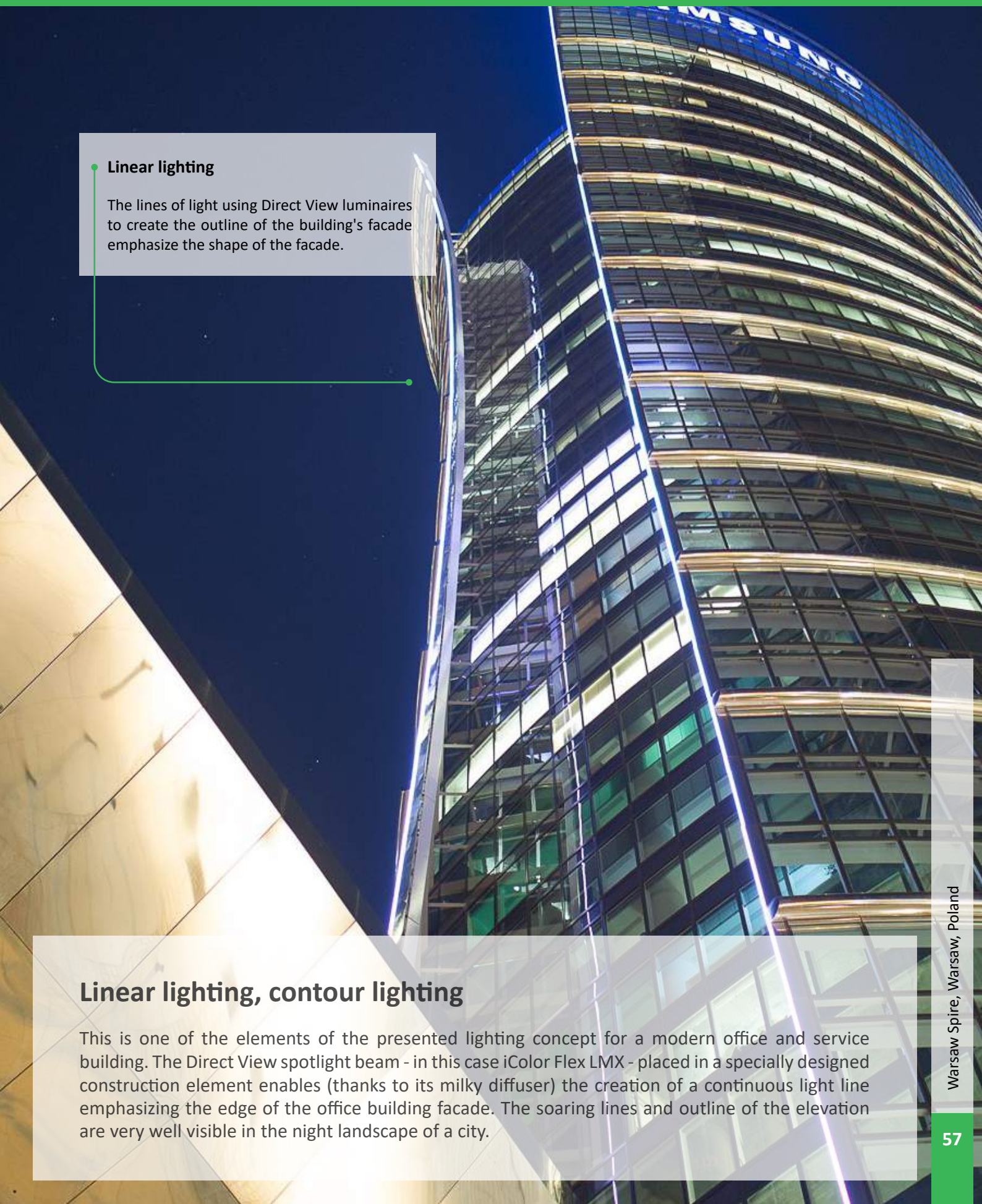
Contemporary office and service architecture

This is a challenge because of the dominant facade finishing material, which is non-reflective glass, divided only by narrow metal elements.

A good solution is Direct View luminaires which are elements whose arrangement on the facade gives a combination of changing patterns and light lines. RGB technology introduces colour, and digital control - the dynamics are controlled by automatically switching on and off the illumination or changing the colour or intensity of light. The combination of these factors makes it possible to create light screens.

For illumination purposes, we recommend using all technical elements usually located on the roofs of buildings, such as spires or technical floors.

A modern building - innovative lighting



Linear lighting

The lines of light using Direct View luminaires to create the outline of the building's facade emphasize the shape of the facade.

Linear lighting, contour lighting

This is one of the elements of the presented lighting concept for a modern office and service building. The Direct View spotlight beam - in this case iColor Flex LMX - placed in a specially designed construction element enables (thanks to its milky diffuser) the creation of a continuous light line emphasizing the edge of the office building facade. The soaring lines and outline of the elevation are very well visible in the night landscape of a city.

Warsaw Spire, Warsaw, Poland

Industrial facility - highlighting the construction

Dynamic illumination

Emphasizing of the structure of the hyperboloid and creating the effect of moving structural elements can be done with dynamic RGBW light.

Torus lighting

The illumination is to highlight the entire surface of the torus, which is the main part of the object seen from a long distance. Thanks to that it attracts the observer's attention even more.

Lighting up of the structure

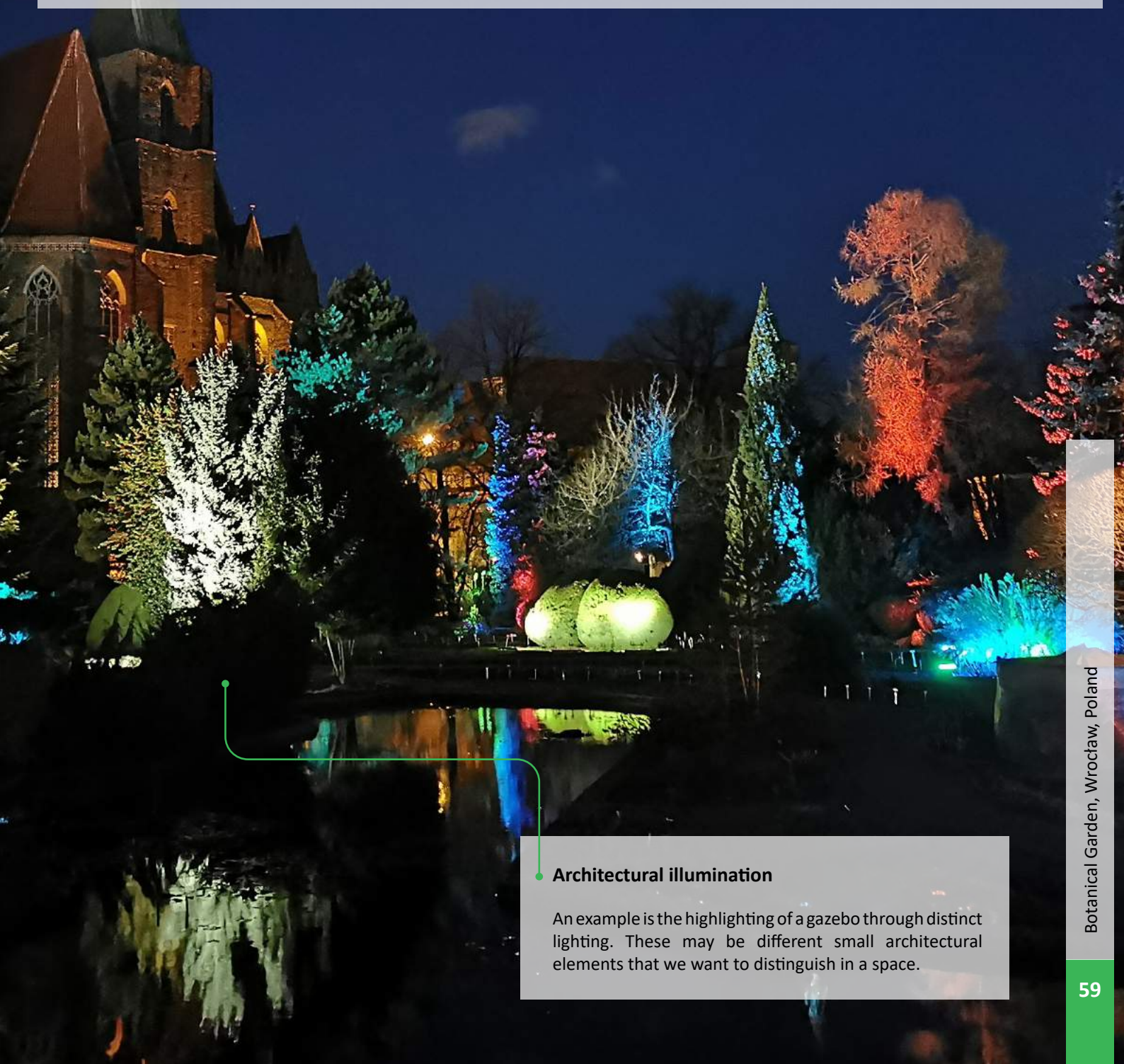
Highlighting the openwork structure presents the spaciousness of the entire building

Water Tower, Ceichanów, Poland

Green areas - immersed in light

The functional lighting of green spaces focuses mainly on alleys. The realisation of such lighting can be done by means of luminaires installed on low poles or low lighting poles - i.e. so-called bollards.

Decorative and accent lighting is used to illuminate trees, benches or small architectural elements located in urban squares or parks. The elements that stand out in such a space are worth distinguishing with contrasting light - white with a different tone of white than the surroundings, static coloured light, and even dynamic coloured light - RGB.

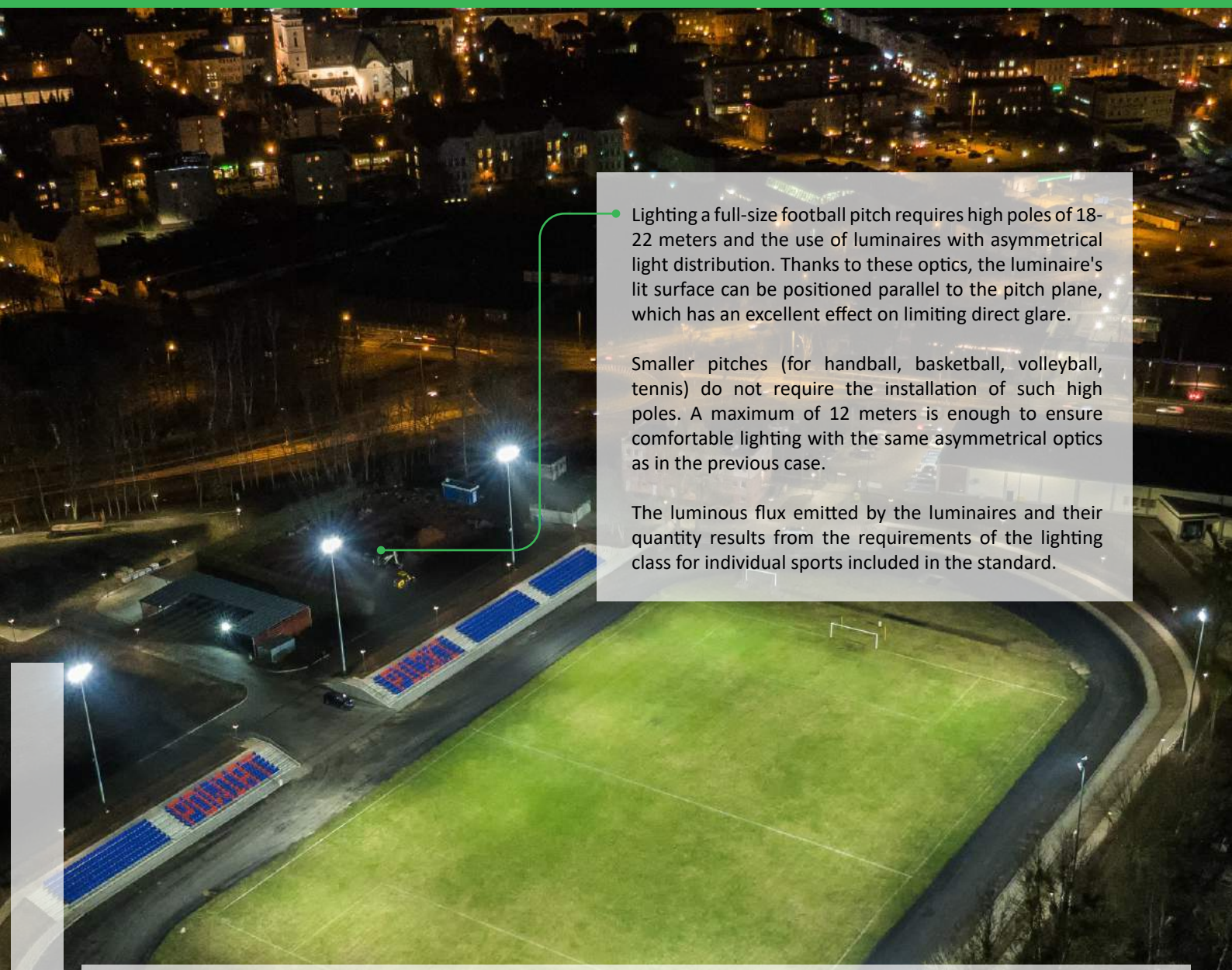


Architectural illumination

An example is the highlighting of a gazebo through distinct lighting. These may be different small architectural elements that we want to distinguish in a space.

Botanical Garden, Wrocław, Poland

Outdoor recreational sports areas



Lighting a full-size football pitch requires high poles of 18-22 meters and the use of luminaires with asymmetrical light distribution. Thanks to these optics, the luminaire's lit surface can be positioned parallel to the pitch plane, which has an excellent effect on limiting direct glare.

Smaller pitches (for handball, basketball, volleyball, tennis) do not require the installation of such high poles. A maximum of 12 meters is enough to ensure comfortable lighting with the same asymmetrical optics as in the previous case.

The luminous flux emitted by the luminaires and their quantity results from the requirements of the lighting class for individual sports included in the standard.

Designing the lighting of a football pitch requires taking into account the complexity of the requirements of PN-EN: 12193. In addition, in the case of stadiums that are an arena for events broadcast by television stations, very strict requirements set by the broadcasters must be applied. In objects of a non-recreational nature it is necessary to implement lighting in Class I, that is 500 lx. Due to the presence of the stands, the use of higher columns and luminaires with rotational-symmetrical distributions may be considered.

Facilities designed as professional arenas subject to the requirements of television broadcasters should always be implemented with the use of rotational-symmetrical distribution luminaires. Outdoor venues - arenas for events that are not broadcast allow for a colour rendering index Ra - minimum 70. The use of light sources with the colour code 740 or even 757 is acceptable, but the use of light sources with the colour code 840 will be a great advantage for the object. In the case of TV transmissions, it is necessary to use fittings with the colour code 857 or 957.

Stadium, Piła, Poland

Indoor recreational sports areas

Swimming pools, gymnasiums and multifunctional halls require lighting that reduces the risk of direct glare to a minimum.

The placement of luminaires above the playing field or pool basin should be avoided in order to reduce glare. This is particularly important when sight follows the ball, or when swimming backstroke, and it may occur more often than with normal, less dynamic activity. In this case, asymmetrical optics are particularly recommended.

When designing the lighting of indoor venues, the requirements of PN-EN: 12193 should be taken into account, and in the situation of broadcast events - the requirements of television broadcasters should also be taken into account.

In interiors there is a need to meet higher requirements for light colour and colour rendering indexes than in the case of open venues. In this case, a value of Ra - 80 is the minimum requirement. Sources emitting light with colour code 840 are the best choice. As in the case of open-air facilities, the halls associated with events broadcast by TV stations require the use of luminaires with the colour code 857 or 957.

Municipal Sports Centre for Recreation and Rehabilitation, Szczecin, Poland

Streets - safe brightness

To ensure the safety and functionality of roads and streets, it is necessary to meet the requirements set out in the European Standard EN13201:2016 series "Road lighting".

The first stage of a street lighting project is to clarify the conditions that will prevail on a given road. This process requires the determination of, inter alia, speed limits and the primary road users. Once you have a specific lighting situation, you can proceed to the next stage, which is the choice of lighting class. The class determines what values of luminance, uniformity, glare indicators and side-lighting should be achieved in the design.

Another important part of road lighting is pavements, cycle paths and the roadside. The lighting of pavements and paths improves visual comfort for pedestrians and cyclists and their safety and visibility. The illumination of these passageways can be realized by means of roadway lighting or luminaires specially designed for these zones.

The illumination of the roadside is achieved at the same time as the lighting for the road. The amount of light is determined by the illumination indicator for the roadside.

Luminaire arrangement

Road lighting is usually provided by lighting poles and masts on one or two sides of the roadway - depending on its width. In special cases, overhead lights are used.

Węzeł Antoninek, Poznań, Poland

Conflict zones - additional lighting

Visual guidance

This is an important aspect for drivers who, seeing the changing lighting system, receive information about the change of the road layout.

Places where lanes intersect require special attention. The basic lighting of this zone must be more intensive than on standard street sections. A large amount of light allows a driver to become alerted to the potential danger associated with the collision zone.

Lighting zones near collision sites also requires a higher level of intensity. However, it is important to remember to graduate the amount of light, increasing its intensity as you approach an intersection, roundabout or other dangerous place.

ul. Jana z Kolna, Szczecin, Poland

Pedestrian crossings - clear safety

The right lighting and contrast are the effects that allow drivers to see pedestrians early. Such an effect can be achieved by means of luminaires which are always mounted before a pedestrian crossing in the direction of the traffic. The positive contrast allows drivers to see a bright silhouette against the background of the road, which significantly improves the visibility of person approaching a crossing.

When designing the lighting for pedestrian crossings, it is also important to take into account the area where the pedestrian is waiting to safely cross the road. This place is defined about 2 meters from the edge of the road and is a so-called pedestrian waiting area.

Lighting of vertical and horizontal surfaces

Thanks to dedicated luminaires, the lighting of horizontal and vertical surfaces gives a warning to drivers about a pedestrian crossing and any approaching pedestrian.

Attracting attention

A driver can also be warned by pulsed light points installed in front of a pedestrian crossing and yellow poles and luminaires that draw attention to waiting areas.

ul. Adama Mickiewicza, Lublin, Poland

Plazas and squares - a special ambiance

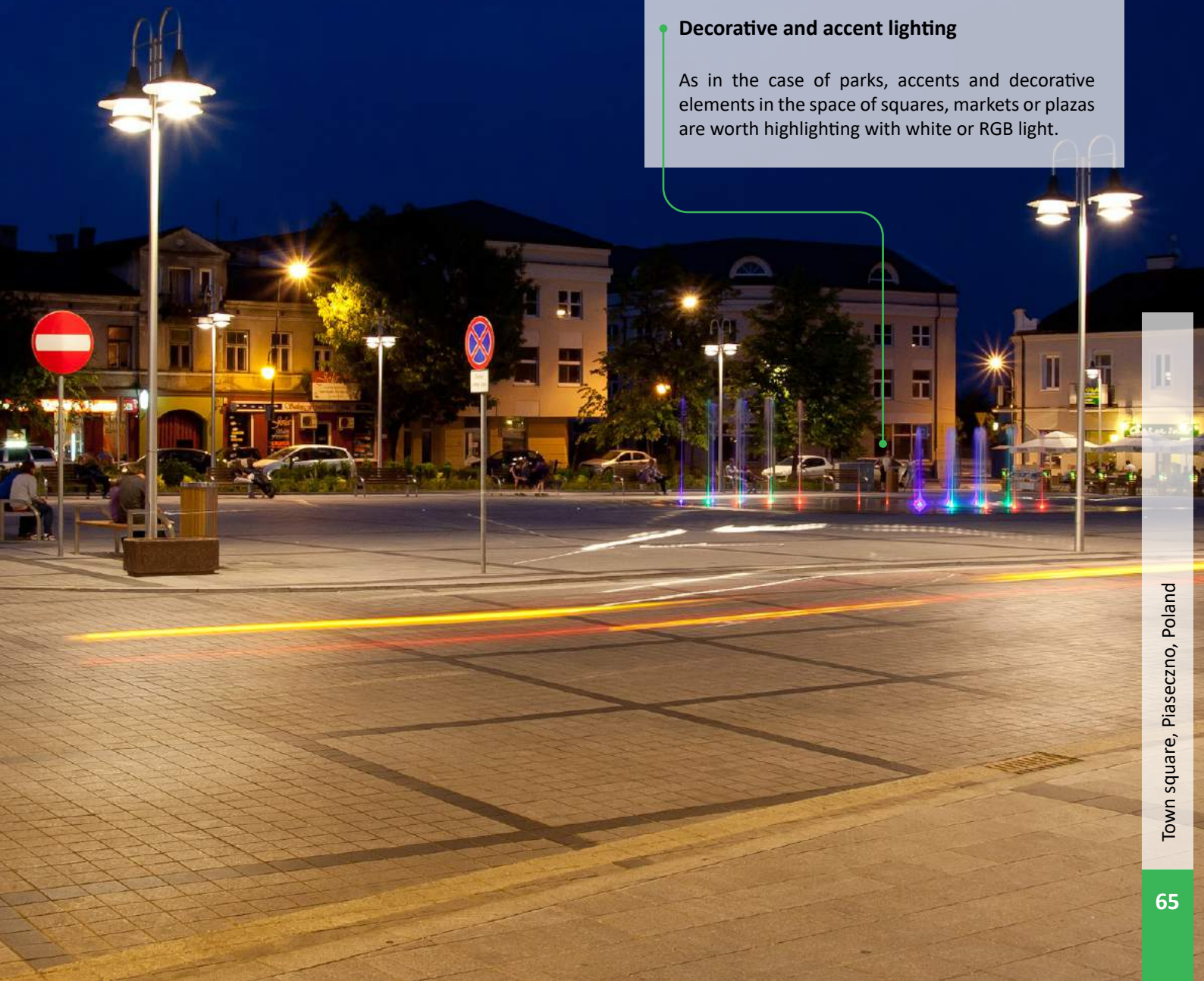
Urban space can be just as attractive and safe both at night and during the day with the right lighting. In an open area, it is worth ensuring uniform lighting for the whole area to ensure the safety and visual comfort of users.

This lighting effect can be achieved by means of luminaires installed on posts.

In addition to general lighting as a background, decorative and accent lighting should also be used. Depending on the type of object to be illuminated, this can be an intense highlight of an entire architectural element, such as sculptures or a gentle accent in the form of coloured lighting of a fountain.

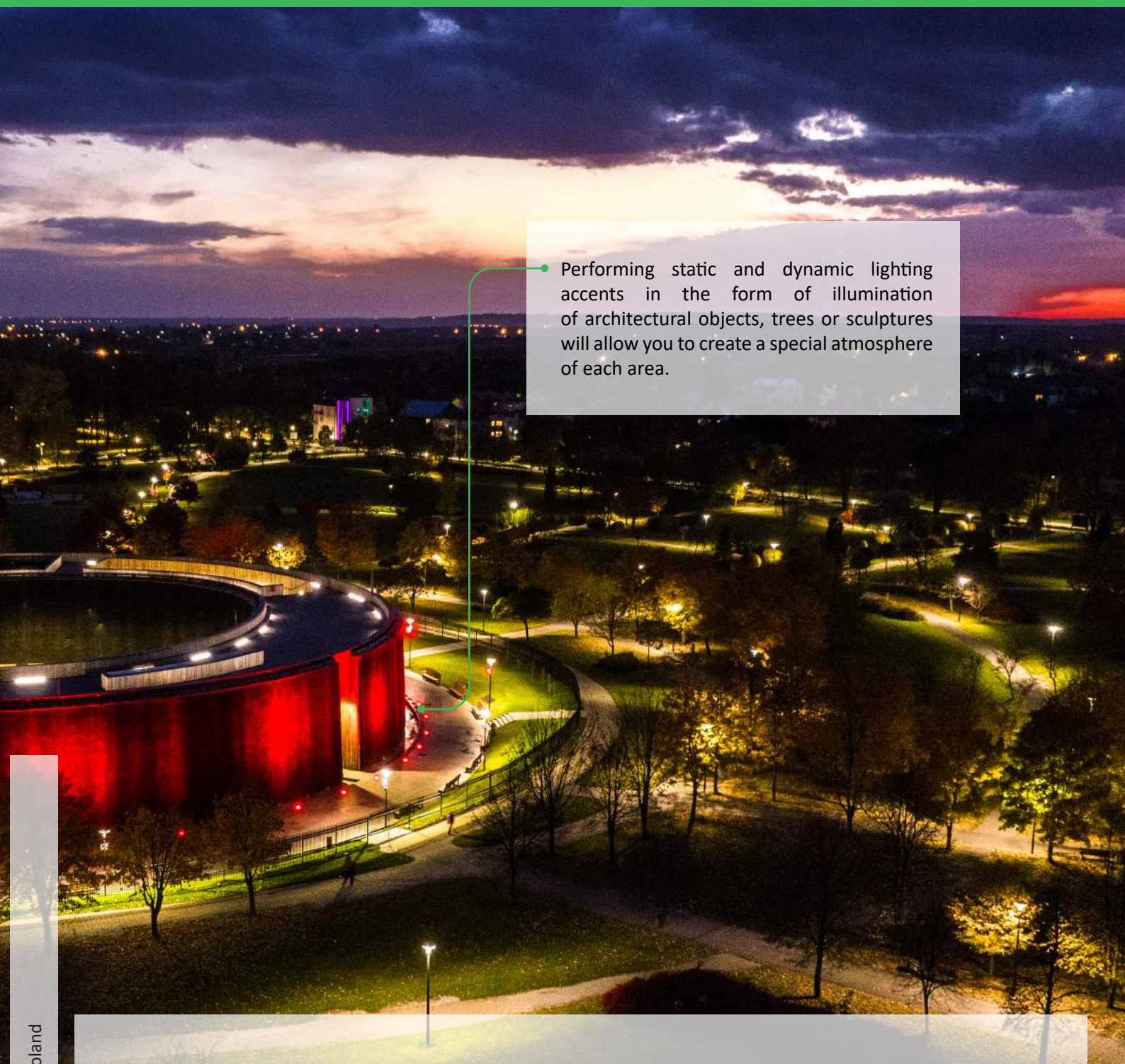
Decorative and accent lighting

As in the case of parks, accents and decorative elements in the space of squares, markets or plazas are worth highlighting with white or RGB light.



Town square, Piaseczno, Poland

Parks and relaxation zones



Performing static and dynamic lighting accents in the form of illumination of architectural objects, trees or sculptures will allow you to create a special atmosphere of each area.

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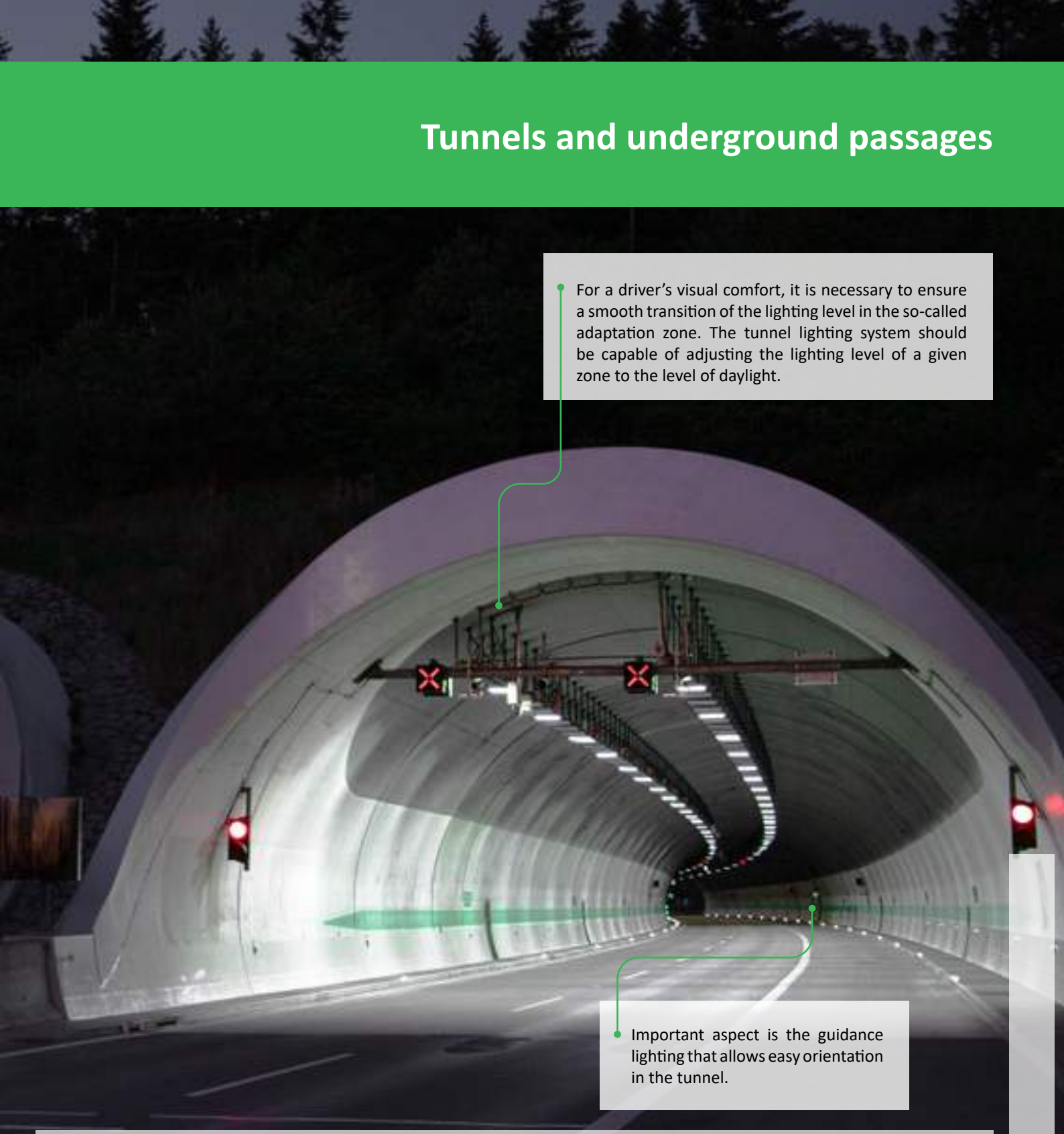
Spa Park, Busku Zdrój, Poland

Tunnels and underground passages



For a driver's visual comfort, it is necessary to ensure a smooth transition of the lighting level in the so-called adaptation zone. The tunnel lighting system should be capable of adjusting the lighting level of a given zone to the level of daylight.

Important aspect is the guidance lighting that allows easy orientation in the tunnel.

A special part of the road infrastructure in terms of lighting are tunnels underground passages. For this type of facility, an important aspect is to ensure adequate lighting both at night and during the day.

The tunnel lighting system should ensure appropriate adaptation of the driver's eyesight from the level of daylight through the entrance to the tunnel, adapting the eyesight to the lighting in the middle zone of the tunnel. Short passages and underground passages must also be illuminated during the day and at night, based on the PN-EN12464-2 lighting standard or, as in the case of long tunnels, based on the requirements of CIE088 2004.

Valik Tunnel, Czech Republic

Car parks - clearly easier

In a car park we adjust the amount of light intensity to ensure proper visual guidance for drivers and improve safety for pedestrians.

Depending on the location of the car park, the lighting can be implemented on poles, masts or overhead luminaires. Its purpose is to adequately illuminate the parking spaces, access roads and roadside car parks.

Additional lighting

For large car parks or places where street lighting is insufficient, additional lighting should be used. This effect can be achieved by installing poles or tall masts in the middle of a car park or at its edges.

Nowe Żerniki housing estate, Wrocław, Poland

Products recommended for public spaces

Lighting of large car parks:

- ClearFlood
- Luma
- CoreLine Tempo

Basic car park lighting:

- DigiStreet
- ClearWay
- UniStreet
- TownTune Asymmetric
- Urban Flex

Products recommended for public spaces

Lighting of motorway interchanges and large conflict zones:

- Luma
- Unistreet
- DigiStreet

Street lighting:

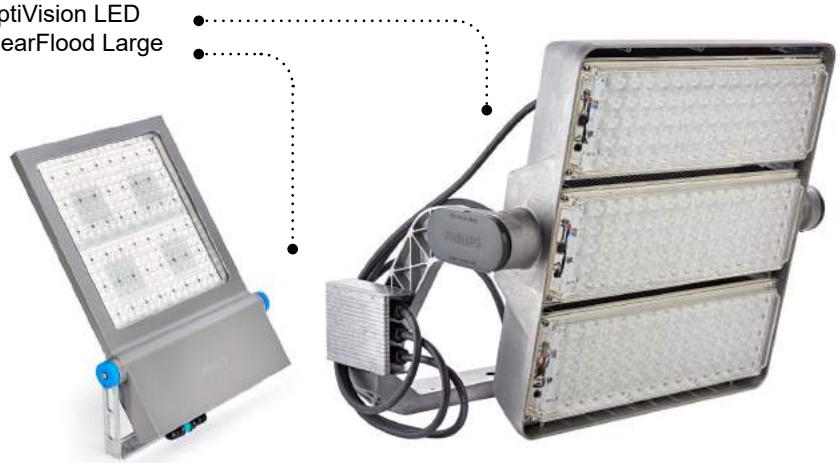
- DigiStreet
- UniStreet
- Iridium LED
- ClearWay

Lighting of pedestrian crossings:

- Luma
- DigiStreet
- UniStreet
- ClearWay

Lighting of outdoor recreation facilities:

- CoreLine Tempo XL
- OptiVision LED
- ClearFlood Large



Lighting of indoor recreation facilities:

- ClearFlood Large
- Ledinaire Floodlight

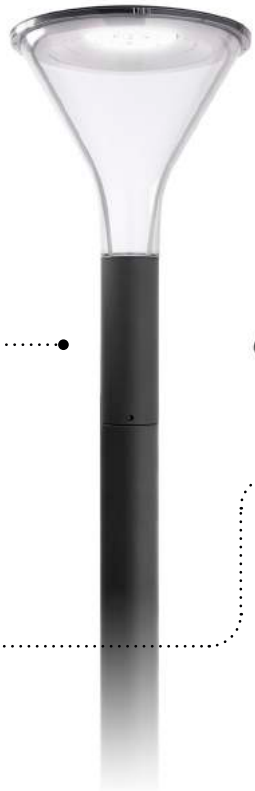
Products recommended for public spaces

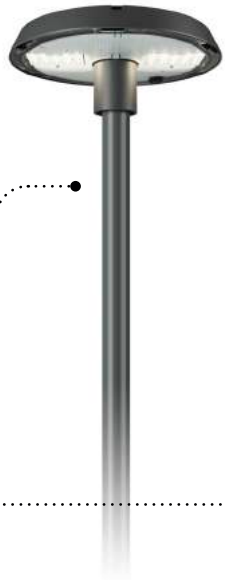
Functional illumination on low posts:

- OptiSpace

Functional lighting from poles:

- Metronomis
- TownTune
- Villa LED
- CitySoul





Decorative and accent lighting:

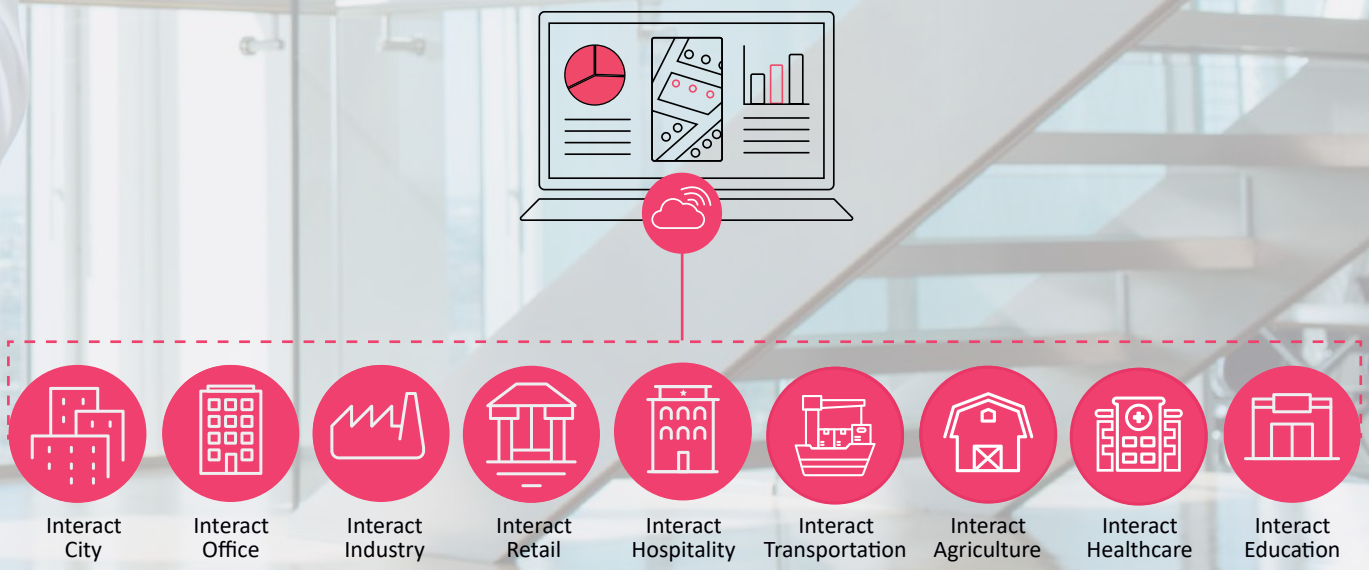
- Uniground
- iColor Flex Color Kinetics
- Vaya Free Form
- Burst Color Kinetics
- Graze Compact

Interact

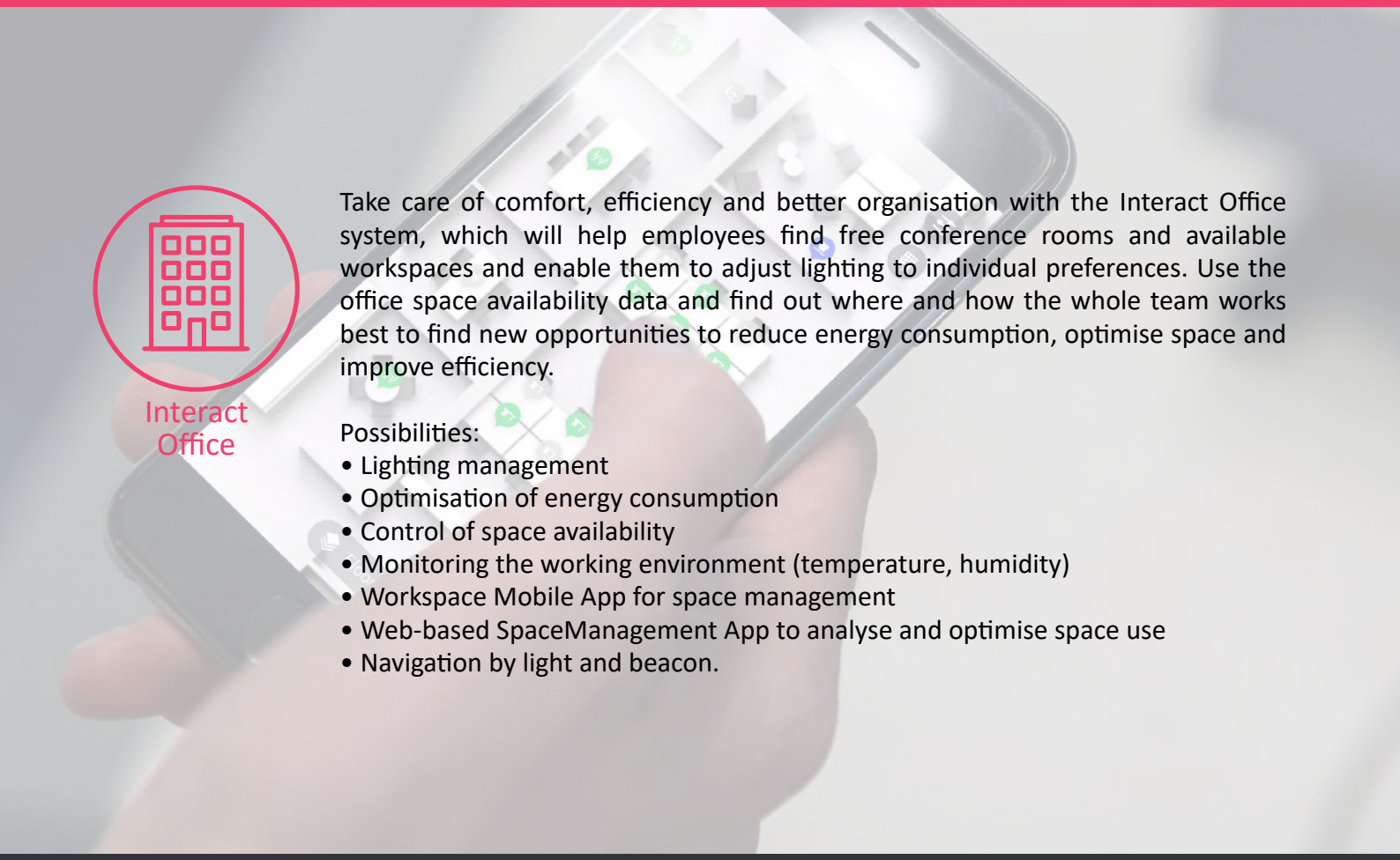
The Interact IoT platform is designed to handle data collected from an increasing number of integrated light points, sensors and systems. It is a highly secure, scalable system that is cloud based. Interact uses advanced, modern data management and processing functions. It creates data-based services for customers, providing benefits that go beyond lighting itself.

Interact is also the name of integrated lighting systems. They support customers in improving their lighting experience and generate and transmit data to the Interact IoT platform. Interact systems available:

Interact City for streets, roadways, area lighting, landmarks and smart parking
Interact Office for office and municipal buildings
Interact Industry for warehouses and manufacturing
Interact Retail for food & large retail, high street, fashion, shopping malls, convenience stores and automotive
Interact Hospitality for hotels,resorts, food, beverage, venues, events, managed residential and places of worship
Interact Transportation for public transport stations, ports, airports and highways
Interact Agriculture for horticulture, husbandry and vertical farming
Interact Healthcare for healthcare and facilities
Interact Education for educational buildings



Interact - lighting control system



Interact Office

Take care of comfort, efficiency and better organisation with the Interact Office system, which will help employees find free conference rooms and available workspaces and enable them to adjust lighting to individual preferences. Use the office space availability data and find out where and how the whole team works best to find new opportunities to reduce energy consumption, optimise space and improve efficiency.

Possibilities:
- Lighting management
- Optimisation of energy consumption
- Control of space availability
- Monitoring the working environment (temperature, humidity)
- Workspace Mobile App for space management
- Web-based SpaceManagement App to analyse and optimise space use
- Navigation by light and beacon.

Interact Industry

Interact Industry is an innovative platform that allows you to optimise the efficiency of your facility, reduce electricity consumption and increase safety. The lighting management system significantly extends the functionality of integrated industrial lighting by adding the possibility of collecting and analysing data. Centralised management of all lighting in your warehouse or industrial facility additionally allows you to reduce operating costs, monitor system operation and plan maintenance work accordingly. No more guessing. Only accurate decisions made on the basis of data analysed in real time.

Interact - lighting control system

Interact Retail

What if a shop's lighting could improve operational efficiency, ensure customers have an unforgettable shopping experience and collect the data necessary for a detailed sales analysis? This is how Interact Retail software works in combination with integrated LED lighting. It allows you to create impressive trading spaces, meet customers' expectations and inspire them to specific behaviors. Interact Retail allows you to manage separate zones and layers of lighting in a store, as well as to present customers with special offers that they will receive on their smartphones depending on their location. This is what a smart shop should look like.

Possibilities:
- Scene management
- Internal navigation
- Optimisation of energy consumption.

Interact Hospitality

With Interct Hospitality you can guarantee your guests an exceptional experience, while improving staff efficiency and reducing energy consumption. Integrated LED lighting allows you to create a variety of lighting scenes in the lobby, restaurant, ballroom and guest rooms that will improve the mood of your guests while saving energy. The Interact Hospitality software connects to other systems, including the HVAC management system and the PMS hotel system, displaying all data in real time in one intuitive administration panel, which helps to better organise work and improve the quality of service for guests.

Possibilities:
- Scene management
- Optimisation of energy consumption.
- Bioadaptive lighting
- Monitoring room conditions.

Interact – lighting control system

Interact Healthcare

Lighting system can play an important part in reducing cost and carbon emissions, while at the same time improving both patient and staff experience. Innovative system solutions reduce costs by saving energy without compromising comfort and light quality, thus enhancing your care environment and the reputation of your hospital. Manage hospital areas with interact Hospital software and reduce maintenance costs.

Interact – lighting control system

Interact Sports

Intelligent stadiums and excellent fan experiences are the main tasks of Interact Sports. With Interact Sports software, all lighting can be managed - including the pitch, entertainment points, stadium facade and guest areas. Adding IoT sensors will help to improve maintenance or marketing activities. Prepare a customised light show for the fans that starts before, during and after the main event. Encourage sponsors to work with us using new, unique advertising opportunities. Interact Sports enables comprehensive service of sports facilities, bringing new sources of income, attracting organisers of various events and creating new business opportunities.

Interact City

How to make a city smarter and more friendly for its residents? The integrated LED lighting system and Interact City software create a stable infrastructure to improve the performance of municipal services, improve residents' safety, improve the appearance of public spaces, work with people and make them proud of their city. Create an attractive image of the city, strengthen local pride and attract tourists by illuminating buildings, monuments and bridges in your city. Monitor, manage and program dynamic architectural lighting with the Interact City software. Interact City also reduces energy consumption and improves efficiency, so that the money saved can be invested in new urban projects.

Possibilities:
- Infrastructure management
- Scene control
- Optimization of energy consumption
- Environmental monitoring
- Mobile applications for management
- Incident detection.

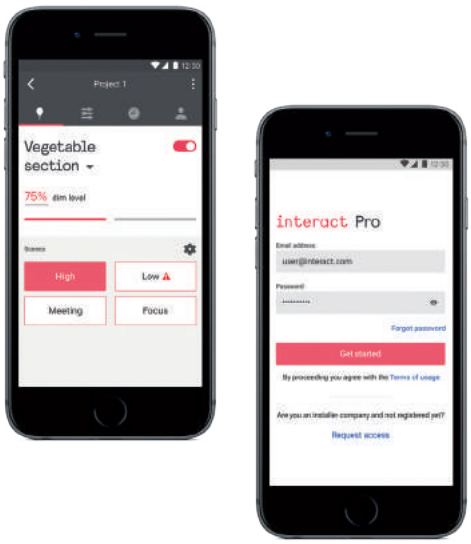
Interact Pro

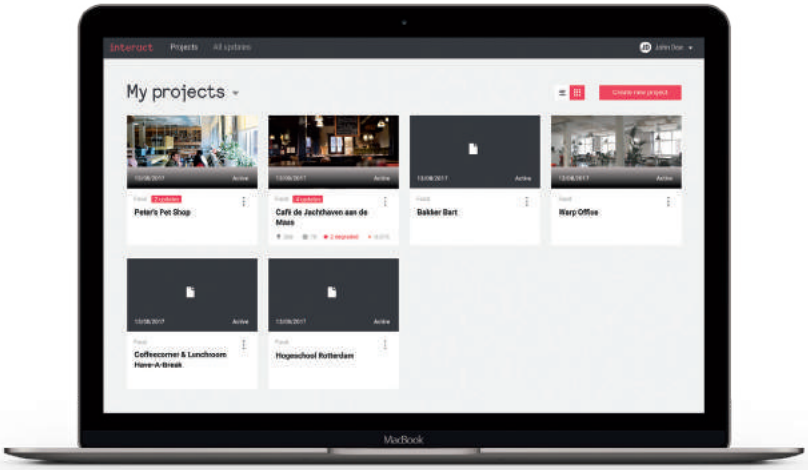
Interact Pro is a system that enables remote management of professional lighting and its monitoring. It consists of wireless switches and sensors, an online navigation panel and an intuitive application. The system components work wirelessly with Philips Interact Ready luminaires and light sources, bringing the innovation of the Internet of Things (IoT) into the space of professional lighting.

The use of Interact Pro brings concrete benefits to customers:

- The proven Philips Coreline luminaire portfolio
- Customise the lighting to your preferences and tasks without getting up from your desk directly from your phone
- Energy savings through automatic lighting control with daylight & movement sensors
- Quick and easy installation and start-up with the free app available on Google Play and Appstore
- Reporting on an ongoing basis and statistics on energy consumption levels, light settings and faults in the lighting system.

Interact Pro – lighting control system





Interact Pro – lighting control system

Interact Pro application

Benefits for the installer:

- Project management and setting user access
- Easy connection of system components
- Information about connected light sources and accessories
- Create rooms, zones, turn on/off/dimmable and customise a light to individual requirements.

Benefits for the business owner:

- Managing lighting arrangements using applications on your smartphone or mobile device
- The option to adjust lighting schedules
- Feedback on energy consumption
- The option to set user rights.

Interact Pro control panel

The Interact Pro navigation panel offers a number of helpful features:

- Clear overview of all customer installations in the field
- System condition and alarms in real time
- Comprehensive product information for each installed device available from the Interact Pro application and administration panel
- Remote project management (including lighting settings)
- Real-time energy consumption data for lighting.

Installers:

- Saves time and money thanks to the knowledge provided by system components and fewer unnecessary service trips
- Warranty and professional customer service
- Improving customer relationships through proactive, data-based advice
- Identifying and responding to problems, including connected with efficiency, and anticipating equipment failure in good time
- Identify and order the relevant parts as soon as they are needed.

Business owners:

- Constant access to the information contained in the cloud via the mobile application and Interact Pro control panel
- Adjusting lighting, setting up scenes and scheduling the operation of the system
- Management of user rights
- Monitoring of energy consumption.

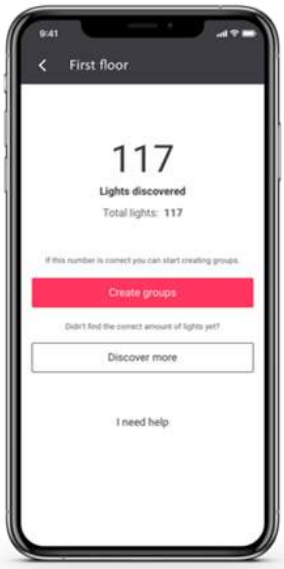
interact

Interact Pro Foundation

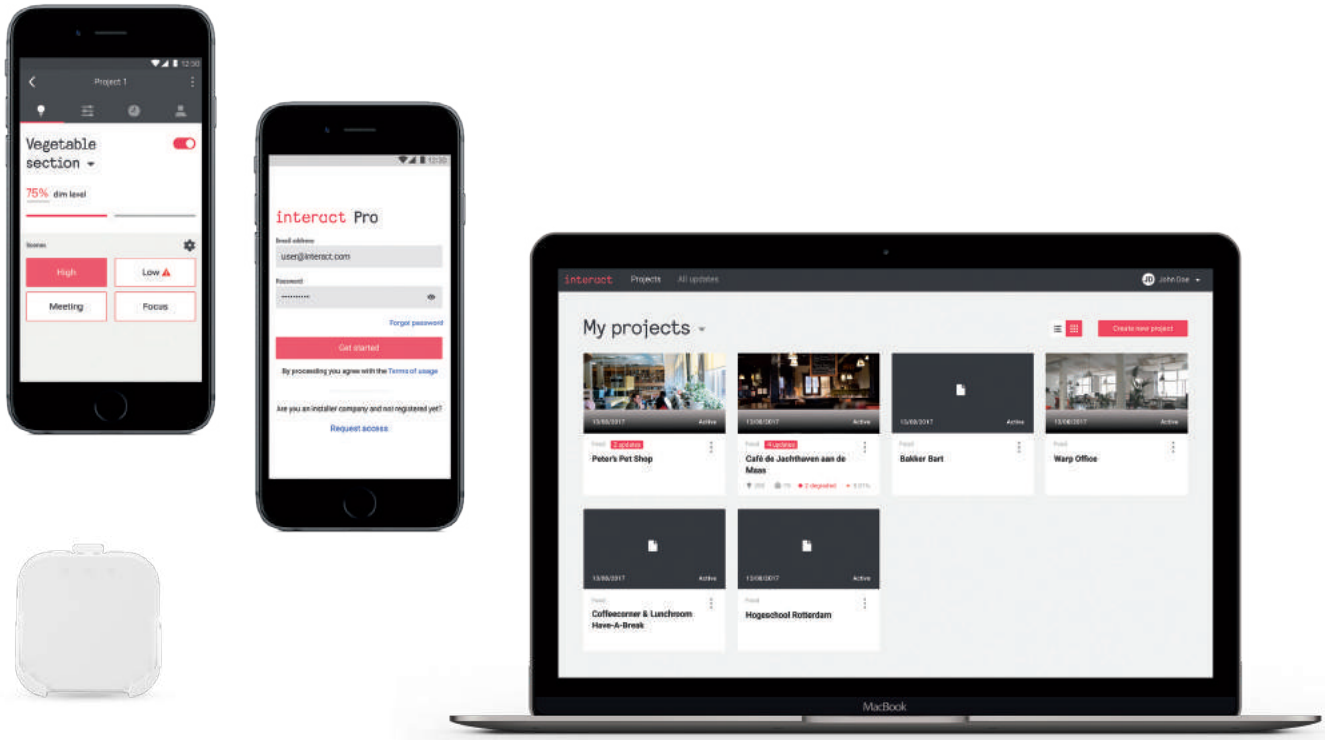
To use interact Pro Foundation system you need only iA luminaires and application. Easy commissioning with interact Pro app via Bluetooth/Zigbee communication.

Value we bring:
- Energy saving capabilities beyond ledification
- Fast and simple (re)commissioning and operation
- Upgradeable to unlock more value

Key features:
- Easy (re)commissioning and light control with intuitive App
- Sensor for movement detection and daylight regulation
- Switch control



Interact Pro Advanced



Add gateway and connect interact Pro system to interact cloud. You will get remote access to manage your installation, set user accounts & rights, setting up scenes and scheduling.

Value we bring:

- Additional energy savings
- Comfort and well-being for occupants
- Remote control, monitoring and management for improved business operations

Key features:

- Scheduling / Energy reporting / Off-site control / Diagnostics / Automatic feature updates
- App for personal control

interact

PHILIPS

dynalite

Dynalite

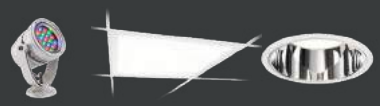
Philips Dynalite is an advanced, reliable and energy-efficient lighting control solution.

The strength of the Dynalite network control system has been proven across a wide range of sectors, from residential to retail, hospitality to healthcare, sports arenas to large venues, and industry to outdoor applications.

The system combines wide functionality with the aesthetic design of the products. Dynalite solutions blend advanced high-level functionality with aesthetic and sustainable lighting control that enhances economic return, productivity and user comfort. A wide portfolio of hardware and software provides great flexibility in building dedicated solutions.

Dynalite – lighting control system

Lighting systems



Multi-sensors

User interface

Controllers

PHILIPS
dynalite

Integration devices

Software

Third-party systems

Dynalite – lighting control system

Advantages and possibilities of the system:

- Saving energy
- Occupancy detection & daylight regulation
- Day rhythm functionality with tunable white technology
- Lighting control with mobile applications
- Central monitoring, reporting and control of large and complex lighting systems
- Reducing operating and maintenance costs
- Advanced integration into other systems
- Use of lighting scenes
- Building calendar events using real time and astronomical clock
- Flexibility in design
- Increase lamp life

Manufaktura, Łódź, Poland

Design services offered

In addition to excellent product quality and innovative lighting systems, we offer you our knowledge and engineering experience. Depending on requirements, our experts can support the design process and implementation of the investment to the specified extent. We are ready to take responsibility for the lighting effect for each type of object. We propose:

Lighting audits
Full support for the modernisation of lighting infrastructure.
• Analysis of the condition of an existing lighting system
• Recommendation for modernisation
• Return on investment analysis.

Conceptual designs
Creating a lighting concept that defines key lighting effects, control system functionality, and the customer experience to satisfy the expected users.
• Lighting strategy
• Design guidelines
• Creative Workshops
• Visualizations and virtual reality.

Project implementation
Development of comprehensive technical documentation, in accordance with the adopted assumptions, allowing for the implementation of an investment.
• Compliant with normative and specific requirements
• Control systems
• Special solutions
• Daylight simulations.

Certification
Supporting the certification process for lighting credits and control systems.
• LEED, BREEAM, WELL
• Solution selection and technical design
• Report in accordance with the requirements of the certification body
• Substantive dialogue with the assessor and auditor of the project.

Supervision and start-up
A guarantee that the project will be carried out according to the assumptions and that the expected effects and functionality will be achieved.
• Coordination of installation work or supervision
• Aiming luminaires
• Start-up of control systems
• Verification of the results obtained.

Mock ups, field trials, light shows
Implementation of test installations, events and light festivals, inspirational shows or workshops.

Training courses
For those interested, we organise group or individual training sessions in the field of lighting technology, computer tools supporting design and advanced automation and lighting control applications.
• Basics of lighting technology
• Lighting design
• Intelligent control systems.

We approach each project individually. We strive to achieve the goals of the investor, designer, facility owner or end user through lighting solutions. As a market leader we always offer solutions based on innovative technologies or innovative concepts. We are convinced that based on successful projects, both in Poland and worldwide, we will be able to meet even the most complex requirements.

We look forward to working with you in the future.


mola
Surf

Lighting Application Center

We decided to create a place where visitors will be able to see how light works and what can be achieved with it. The Lighting Application Center in Piła, Poland is a unique project and the only such place on the map of Central and Eastern Europe. It is divided into several zones, each of which presents different lighting possibilities:

• **Architectural lighting zone** - shows the play between light and shadow and ways to achieve artistic lighting effects

• **Basics of light** - helps visitors understand the complexity of lighting. This space has been arranged to help you to get closer to the most important lighting parameters and to show their impact on your well-being.

• **Office zone** - presents the impact of lighting on overall work comfort and well-being by supporting the daily work cycle of employees.

• **Industrial zone** - shows how to reduce the maintenance costs of large halls by reducing energy consumption. It's also a place where the impact of light on health and safety is highlighted.

• **Hotel Zone** - presents how light increases comfort and creates an atmosphere for guests and how, thanks to integrated lighting systems, a hotel can easily integrate light management, thermal comfort, roller shutters and information for hotel staff.

• **Retail zone** - the last of the displays, where you can see how to attract customers to a store using light.

See you at the Lighting Application Center

Glossary of lighting terminology

Accomodation

The process by which the eye changes curve and optical power to maintain a clear image or focus on an object as its distance varies.

API (Application Programming Interface)

A communication protocol that serves as an interface when programming apps. It provides standardised communication between an application and the system. It is most commonly used as an interface in cloud communication.

Colour of light

The colour of light determines what colour the light emitted by a luminaire will have. In the case of the white spectrum, there is also ‚Colour Temperature' which is expressed in Kelvin degrees. The higher the Kelvin value, the ‚colder' and whiter the light is. The lower the Kelvin value, the ‚warmer' and more yellow the light will be.

Biophilic design

A concept used within the building industry to increase occupant connectivity to the natural environment through the use of direct nature, indirect nature, and space and place conditions.

Circadian rhythms

It is a natural and internal process that regulates the sleep–wake cycle and repeats every 24 hours. These are physical, mental and behavioural changes which are part of the body's inner biological clock. These natural processes respond primarily to light and affect most living organisms. One example of a light-induced rhythm is sleeping at night and being awake during the day. The related area of science is called chronobiology.

CLO (Constant Lumen Output)

A feature of LED power supply units designed to compensate for the loss of luminous flux of light sources by gradually increasing the value of the supply current.

Sensor

Multi-sensor is a light control device that can be installed independently or integrated into a luminaire. Depending on the model its functions can include: motion analysis, light measurement, IR signal reception, humidity measurement, temperature measurement, BLE beacon, people counting, etc.

DALI

A digital light control protocol allowing luminaires to be controlled via peripherals or a computer. Using a two-wire control cable, the communication bus gives each connected controller a short address from 0 to 63. This allows 64 devices or 16 lamp groups to be controlled in one line. The transmission is bi-directional.

Pulse of light

It is also called flickering or stroboscopic effect – a rapid and repetitive variation in the luminous flux of a light source due to interference and or characteristics of the power supply equipment. It can cause visual discomfort when working, deteriorated workplace conditions, migraines, and even epileptic seizures. The effect will not be noticeable to the human eye when 80 Hz.

MacAdam ellipse

A colour consistency measurement system. It is used extensively in LED lighting. The system measures deviation in colour from a given reference in terms of its perception by the human eye

Embedded CO_2

Total greenhouse gas emissions associated with the production stage, including logistics of components and the finished product.

ENEC

Registered mark for certification of electrical products in Europe. It confirms that a marked product complies with the requirements of relevant European standards (EN), mainly in terms of safety (electric shock protection, photobiological safety*).

*photobiological safety - hazardous radiation contained in the visible light spectrum that is harmful to humans.

Photobiological safety

As defined in EN 62471, the absence of harmful radiation (that causes adverse effect on living organisms) in visible light emitted by light sources and luminaires.

IK

It is a numerical classification that indicates the degree of protection provided by an electrical device housing against external mechanical impacts. The marking consists of letters 'IK' and two digits from 00 to 10, where the higher the value of IK, the better the level of mechanical resistance.

InteliHue

A breakthrough colour mixing system that allows the same luminaire to shine with high-quality white light and coloured light.

IP

It is a numerical classification that indicates the degree of protection provided by an electrical device housing against solid bodies: dust and particles (the first digit) and against humidity and water (the second digit). The higher the IP rating, the better the resistance of the electrical device to moisture and water.

IEC class

Safety class, a conventional rating of electrotechnical and electrical devices for their electric shock protection.

There are four classes: 0, I, II, III

Glossary of lighting terminology

Luminance contrast

It is the difference in luminance between an object and the background on which the object is located. It can be a negative value when an object has a lower luminance than its background or positive when an object has a higher luminance than its background.

Luminous flux distribution curve

Iα = f(α) represents the luminous intensity in the vertical plane passing through the optical centre of the source or luminaire as a function of the plane angle calculated with respect to the vertical. If the photometric solid is symmetrically rotatable, the light distribution curve fully characterises the spatial distribution of the luminous flux. By rotating the light distribution curve by 360° around the adopted axis, a photometric solid of light will be obtained. For asymmetrical luminaires or luminaires with a more complex way of emitting light, it is necessary to determine the luminous flux distribution curve for more planes. In more practical language, the photometric solid illustrates how the luminaire shines.

LiFi

Technology enables data transmission via light. It is like a wireless link with two-way data transmission at the speed of 150 Mbps. LiFi offers a wide variety of applications, ranging from device connectivity in manufacturing plants to large file transmission in hospitals. LiFi is a very secure way to connect due to the physical ability to control signal coverage and easy control of user access.

Luminance

The amount of light that passes through or falls on a given surface as seen by an observer from a particular point in space. To put it more simply, it is a measure of how ‚bright' the surface is. Its value depends on the direction, the intensity of illumination on the observed object, the reflective properties of the object's surface (colour, degree of roughness) and its apparent luminous surface area.

The unit of measure is candela per square metre (cd/m2). Symbol: L

Intensity

Intensity of light is the surface density of the luminous flux falling on the illuminated surface. The unit of measure for an elementary surface is the quotient of the elementary flux falling on that surface to its size.

Glare reduction (UGR, GR)

It is obtained by appropriate positioning of luminaires and light sources, reduction of luminance or luminous area of light sources, increasing of luminance of the background.

Disruptive glare

Visual discomfort caused increased intensity in the plane of the observer's eye. This type of glare is caused by light sources or luminaires emitting an excessively large luminous flux directly towards the observer.

Discomforting glare

A type of glare in which visual work is disrupted by higher contrast between adjacent objects being observed. The reason for such uncomfortable glare is luminance differences in the observer's field of view.

Operational CO_2

Total greenhouse gas emissions associated with the operation of a product over the defined life cycle.

Dynamic lighting

Light that changes the colour or intensity according to a predefined scheme uploaded to the control unit. It can be purely decorative or practical, or support the human work indoors (see Circadian Rhythms).

PowerCore

Technology that integrates the control cable and the power cable to simplify installation of a LED system.

Uniformity

A standard parameter that describes the performance of workplace light system. It is defined by the ratio of the minimum and average illuminance values in a defined area, measured on a predefined area grid.

SDCM (Standard Deviation Colour Matching)

The official unit of colour deviation in a LED light system, based on the size of MacAdam ellipses. SDCM helps assess the level of LED colour variation of given light sources, luminaires or individual LEDs when the human eye cannot perceive the difference.

SDK

Software Development Kit is a set of tools provided as part of a software solution and necessary for the development of applications. Usually, it is a ready-made functional engine for embedding in a given app. It contains a set of necessary files and documentation for its use in its development process. SDK is most often a licensed product.

Luminous efficacy

The ratio of the total usable luminous flux emitted from a light source or luminaire to the light to energy it consumes.

Unit of measure: lumen/watt (lm/W)

Luminaire efficiency

The ratio of the usable luminous flux emitted from the luminaire to the total flux of the light sources installed in it.

Luminous flux

Luminous flux refers to the total light output emitted by a light source. Its value is calculated based on energy flux by measuring the effect of radiation on a standardised photometric observer.

Unit of measure: lumen (lm). Symbol: ϕ

Glossary of lighting terminology

Luminous intensity

Angular density of the luminous flux of light in a specific direction. It describes the distribution of luminous flux in space, i.e. the amount of luminous flux emitted by a light source in a solid angle surrounding a given direction.

Unit: candela (cd = lm/sr, where: sr - steradian is the unit of solid angle), symbol: I

Colour temperature

Temperature of Planckian radiator whose radiation has the same chromaticity as that of a given colour stimulus at the same brightness and under fixed viewing conditions.

Unit of measure: Kelvin, symbol: K.

Useful/service life

The period after which a light source will retain certain parameters, mainly the value of the emitted luminous flux. The useful life is calculated as an average for a given light source group, taking into account the drop in luminous flux and burnout effect. For example, 80% useful life at 16,000 hours means that, in a given group of light sources, the total drop in luminous power after 16,000 hours of lighting will be no greater than 20% of the initial luminous power. The drop is caused by both burnout and decrease in luminous flux over the time of using each source. This period defines the time after which a group replacement should take place in order to maintain the luminous performance of the entire lighting system as assumed in its design. In the case of LED sources and luminaires, the useful life is based on the time during which an adequate value of the original luminous flux can be retained, most often at 80%. This level is marked using symbol L80.

For example: L80 50,000h means that after 50,000h the luminaires or sources will emit a minimum of 80% of the initial luminous flux.

Colour rendering index (Ra, CRI)

A quantitative measure of the ability of a light source to reproduce the colour of different objects faithfully in comparison with a natural light source. It can be anywhere from 0 (no colour rendering) to 100 (faithful colour rendering in daylight). Certain applications and design guidelines require additional colour rendering parameters, for example R9 component of red colour rendering in healthcare facilities.

Maintenance Factor

It indicates how much of the initial luminous flux remains available at the end of its useful life, and it is the inverse of the depreciation factor. The depreciation factor is determined by in the design documentation. Its value should be selected in consultation with the facility user based on the maintenance plan adopted in the documentation.

MF = LLMF*LSF*LMF*RSMF(*NRF)

LLMF (lamp lumen maintenance factor) - drop in lumen output of a light source during its life cycle;
LSF (lamp survival factor) - the ratio of the total number of luminaries that continue to operate;
LMF (luminaire maintenance factor) - the drop in luminous flux resulting from the luminaire's operation, e.g. from contamination;
RSMF (room surface maintenance factor) - a room-dependent factor, for example contamination of walls causing a reduction in reflection factors.

Power factor (cosf)

The ratio between the value of active power and apparent power. For sinusoidal waveforms, it corresponds to the cosine value of the angle between the current and voltage vectors. The power factor changes with the dimming of the luminaire, which must be taken into account in the design assumptions.

Reflection factor

The ratio of the reflected luminous flux to the incident luminous flux. It describes as percentage the amount of light reflected from the surface, with the difference being absorbed or transmitted through the surface. Depending on the type of surface, there can be directional and diffuse reflections.

Depreciation ratio

The inverse of the maintenance factor.

Warsaw Spire, Warsaw, Poland

Signify

Our global brands

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More information available at:

www.signify.com
www.lighting.philips.com
www.interact-lighting.com