



# Designing people-centric hospitals using Philips lighting solutions

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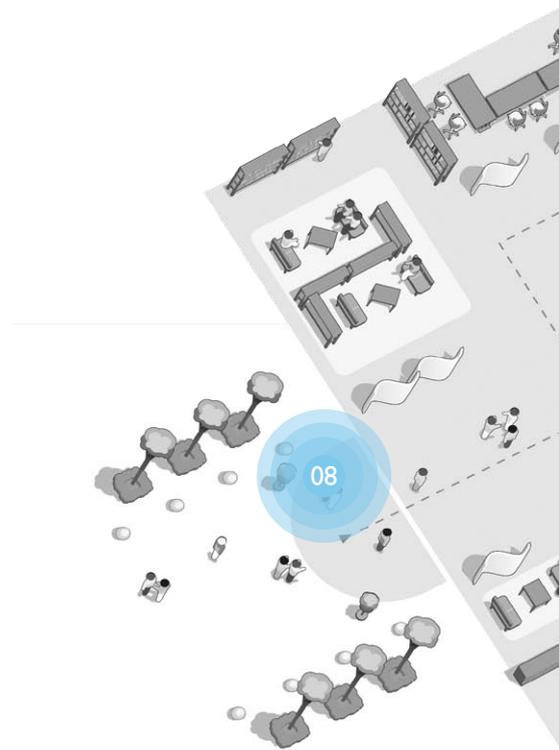
Inspiration for healthcare environments



**PHILIPS**

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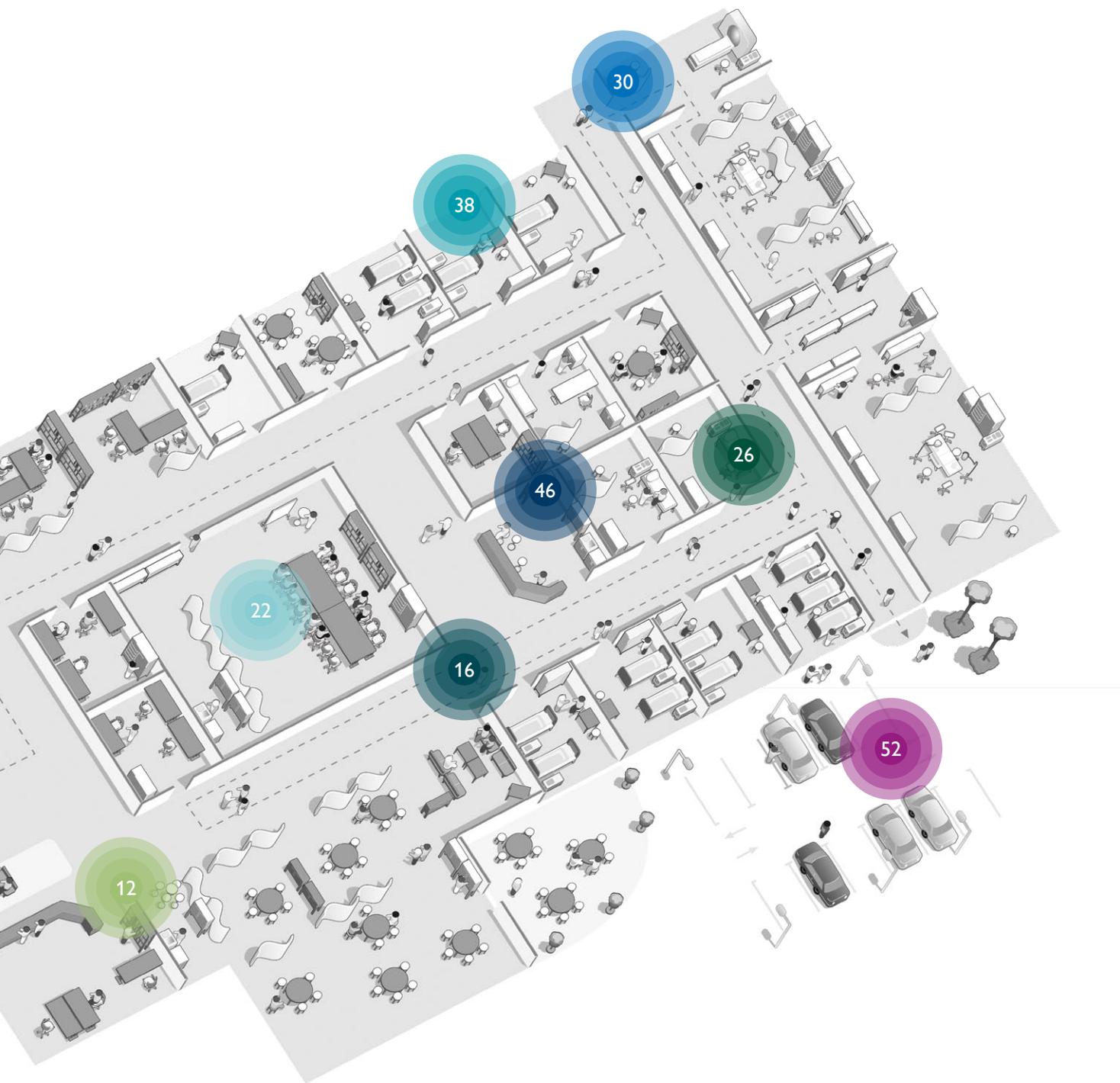


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# Helping you balance quality of care with cost-efficiency

Our world is continuously changing. The number of people globally requiring healthcare continues to grow – and healthcare as a sector needs to change and adapt.

## Understanding the challenges

The challenges are significant. Controlling costs and improving operational efficiency are essential – to maintain both access to healthcare and the level of care that is required. Patients expect more and with hospitals increasingly adopting a patient-centric model, it's important to have partners who understand this and can work with you to fulfill your specific needs.

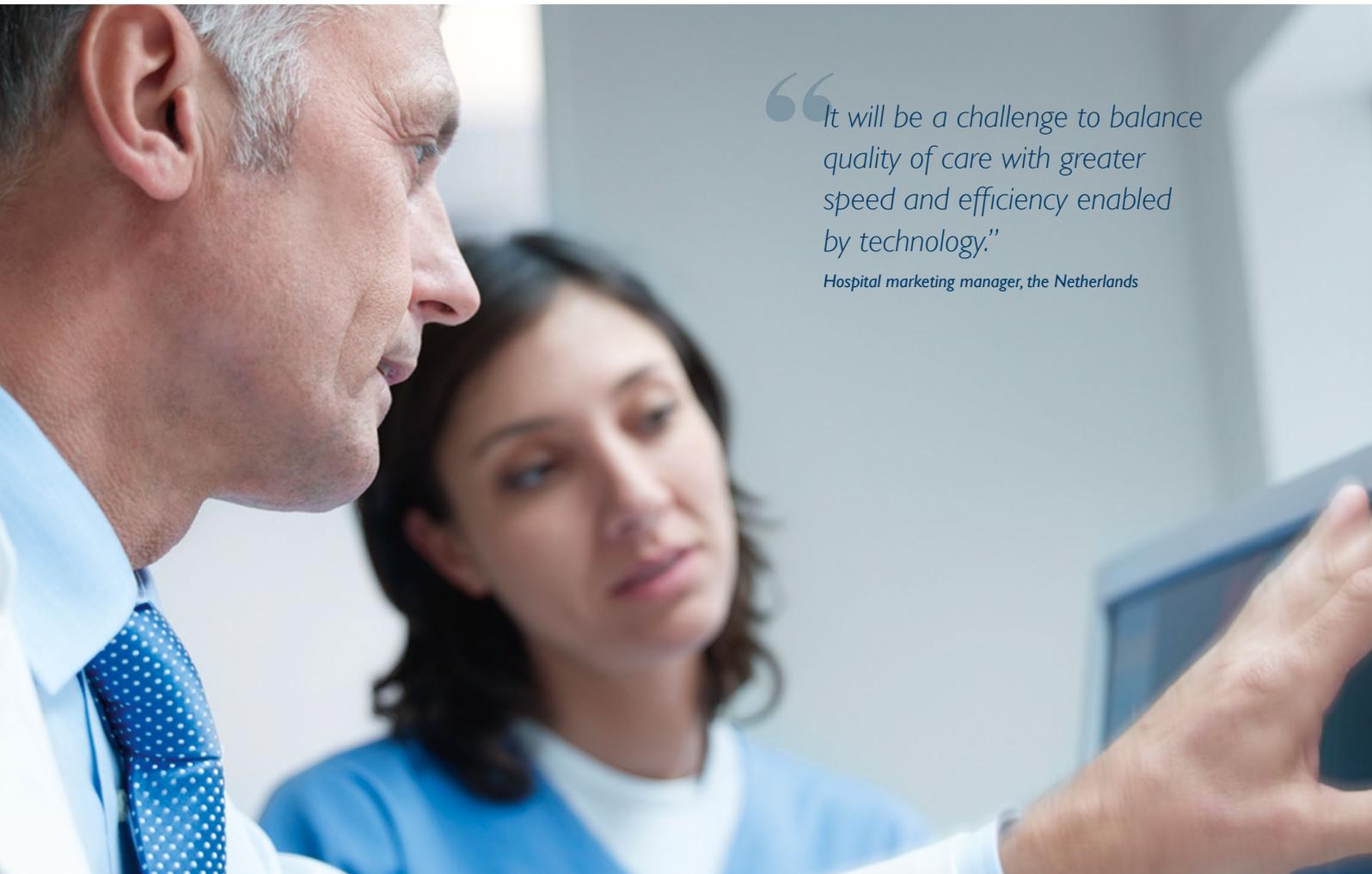
## How lighting can help

Lighting can play an important part in reducing cost and carbon emissions, while at the same time improving both patient and staff experience. Modern lighting solutions reduce costs by saving energy without compromising

comfort and light quality, thus enhancing your care environment and the reputation of your hospital. State-of-the-art LED technology and control systems can also reduce installation and ongoing maintenance costs.

## Sustainability is key

Hospitals typically consume twice the energy per square meter compared to commercial office buildings. As a result, sustainable procurement criteria and 'green' building certifications for hospitals are emerging. Philips Lighting can help you to meet these, while also meeting patient and staff needs – by creating sustainable solutions for environments that support everyone's wellbeing and performance.



“It will be a challenge to balance quality of care with greater speed and efficiency enabled by technology.”

*Hospital marketing manager, the Netherlands*



“You see super-specialization of hospitals, meaning that rare treatments will only be possible in specific, specialized hospitals. This may change the patient population.”

*Nurse practitioner*

## Be ready for the patients of tomorrow

Today's consumers of healthcare are well informed and expect better choices. They want hospitals to be welcoming and efficient places to go for treatment. They expect to be offered customized care and high levels of service.

With increased access to healthcare information, patients are becoming increasingly demanding. They expect more from treatment and they also demand a better experience in their healthcare environment.

### **How lighting can improve patient experience**

Light has an amazing effect on people – visually, biologically and emotionally. Used effectively in healthcare facilities it can enhance the patients' experience and play a key role in promoting the wellbeing of patients. Our people-centric lighting solutions can really make a difference – creating an enhanced healing environment, that combines effective, functional light with a more pleasant ambience.

### **Improved staff wellbeing through better lighting**

We are facing a growing global deficit of healthcare professionals, so the need to create pleasant and efficient working environments is essential, especially for staff who may work for long periods without access to natural daylight. Lighting solutions that mimic the effect of daylight are effective and proven ways to increase feelings of wellbeing, improve efficiency and help with staff retention.



“I am involved in quality improvement; researching, reading up on and stimulating new developments. In this we generate best practices which go beyond protocol.”  
*Nurse practitioner*

## Creating a true healing environment

Concepts like Healing Environment and Planetree have influenced ways of working in care facilities, based around a ‘patient-centric’ model. Design, lighting, styling, sound, air quality and materials all contribute to the atmosphere in a hospital – which directly relates to the way patients, visitors and staff feel when they are in the building.

### The natural power of light

Recent research has shown that light can have many beneficial effects in healing environments. Not only does it improve the ambience in patient rooms, but also their satisfaction and wellbeing.

### Experience solutions

Philips has developed solutions that address people’s visual, emotional and biological responses to light. HealWell for instance is the world’s first total lighting concept for patient rooms. Developed by Philips Lighting, it is a unique solution that is designed to support the healing environment, by improving sleep duration, mood and satisfaction of patients.

### The importance of replacing lost daylight

We typically spend between 50-80% of our time in an indoor environment, whether at home, school, office, or in a hospital. Light is an essential element in creating good healing environments. It can improve our mood, concentration, relaxation, alertness and sleep. Scientific studies have shown that the light levels required to support our biological clock are much higher than we normally get in an indoor environment, even in spaces where there are windows. Using modern, sustainable lighting solutions to recreate the beneficial effects of daylight helps both staff and patients alike to function as they should, naturally.

# See what light can do for your staff and patients

There are many business challenges facing hospital management. Healthcare environments need to focus on the physical and emotional comfort of patients, staff wellbeing and motivation and visitor experience.

## People-centric, flexible solutions

The lighting needs of patients and medical professionals are very different. The customization possible with modern lighting helps provide an optimal lighting solution for each audience. For a patient it can be very important to create a calm and relaxing environment that they can personalize to suit their mood. By contrast, in examination environments there's often a need for bright and functional light, to support diagnosis and help professionals to perform more effectively.

## Philips Green Healthcare

We can help you reach sustainability targets by creating options for minimizing energy use and carbon emissions. In our Green Healthcare approach we jointly assess the current situation in your hospital and subsequently propose solution scenarios using state-of-the-art lighting technology. We take ownership in optimizing the return on investment for your facility, with options on performance contracting and turn-key services, that can lead to energy use and cost reductions of up to 80% per year.

## Our solutions based approach

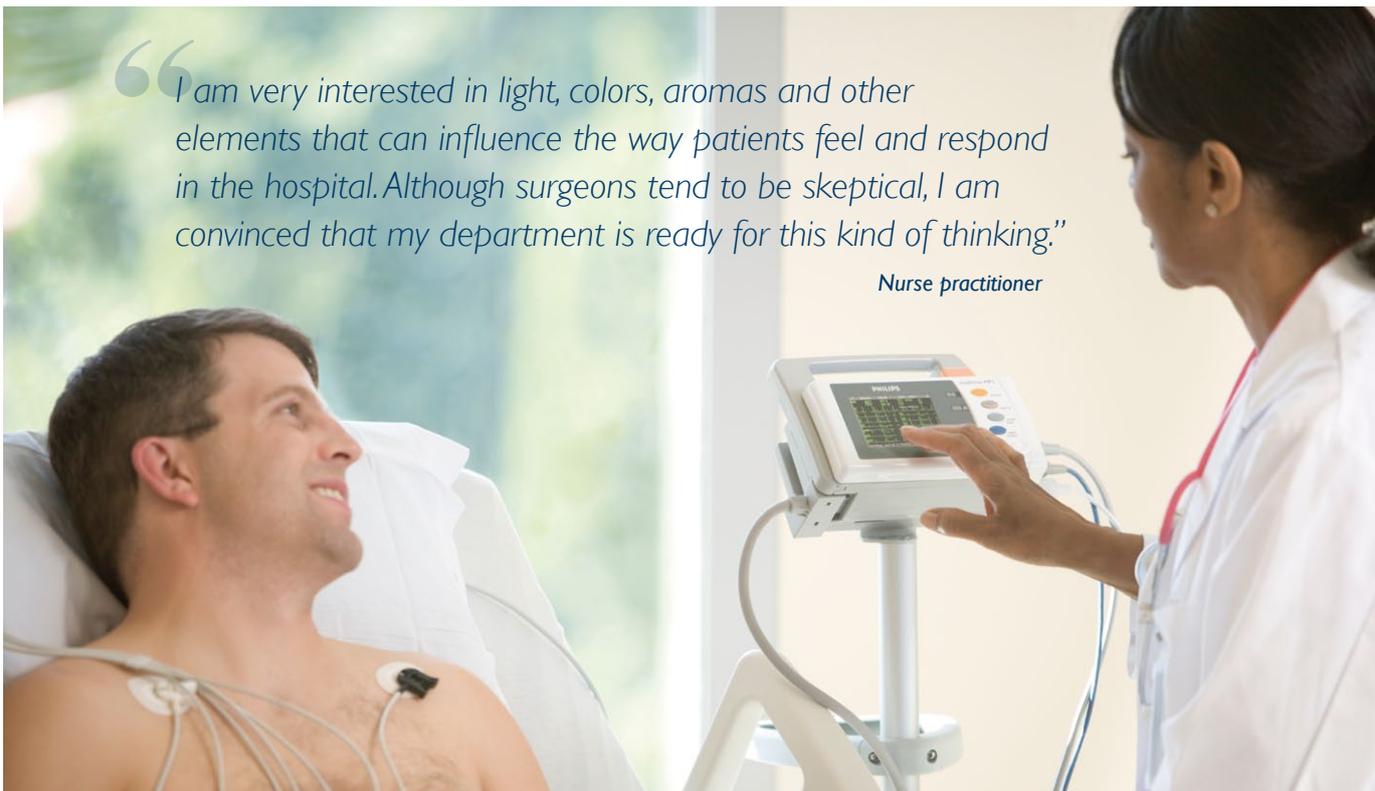
We're also aware that adopting today's innovative, networked solutions can seem somewhat challenging to hospitals and other care facilities. Philips Lighting supports healthcare customers in this process by reducing the complexity of solution implementations.

We can implement comprehensive lighting solutions for you, including installation, project management and maintenance services. When you choose Philips Lighting as a partner, you're assured of acquiring high-quality, high-impact lighting solutions that lead to truly enhanced healing environments with a minimum of hassle and risk.

The product examples shown over the following pages are a selection of what is available. We aim to work as a lighting partner, to help create customized solutions that meet the needs of your individual application environments.

*“I am very interested in light, colors, aromas and other elements that can influence the way patients feel and respond in the hospital. Although surgeons tend to be skeptical, I am convinced that my department is ready for this kind of thinking.”*

*Nurse practitioner*





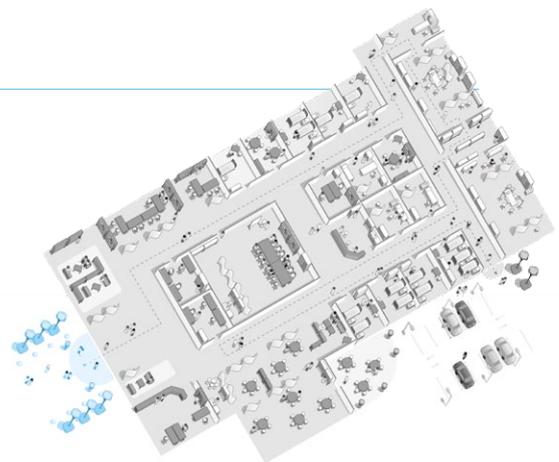
Imperial College London Diabetes Centre, Al-Ain, United Arab Emirates

# Your building, your vision

## Façades

Factors like service, atmosphere and accessibility play an increasingly important role, but there is also the general image and reputation of a healthcare facility to consider too. You can make your mark with the look and feel of the building that you design, and even create an architectural icon.

LED lighting offers unprecedented design freedom in terms of color, dynamics, miniaturization, architectural integration and energy efficiency – opening up new possibilities in brand building and ambience creation, for instance by dynamically changing the lighting, using various highlighting and color effects. Architectural outdoor lighting can effectively turn your building into a prominent landmark, a living symbol of care and hospitality.



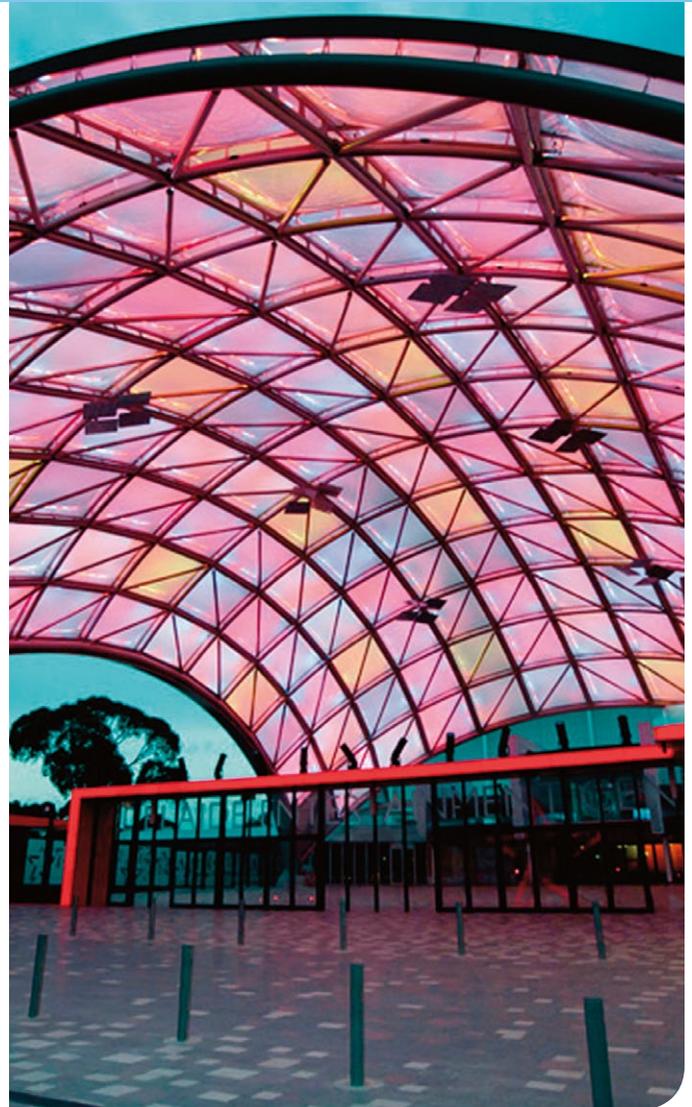
# Façades

## Direct view



**Phoenix Children's Hospital:** The iColor Accent MX is used to enhanced 3-dimensional outlines of the building without disturbing light pollution affecting the interior.

## Graze lighting



**Adelaide Entertainment Centre:** ColorGraze Powercore is used to enhanced the 3-dimensional shape and also the quality of the textures of the materials used.

### Direct view



iColor / eW Flex



iColor / eW Accent MX



ArchiPoint iColor

### Graze lighting



Vaya Linear LP / White & Mono / RGB



Color / eW / iW Graze PC

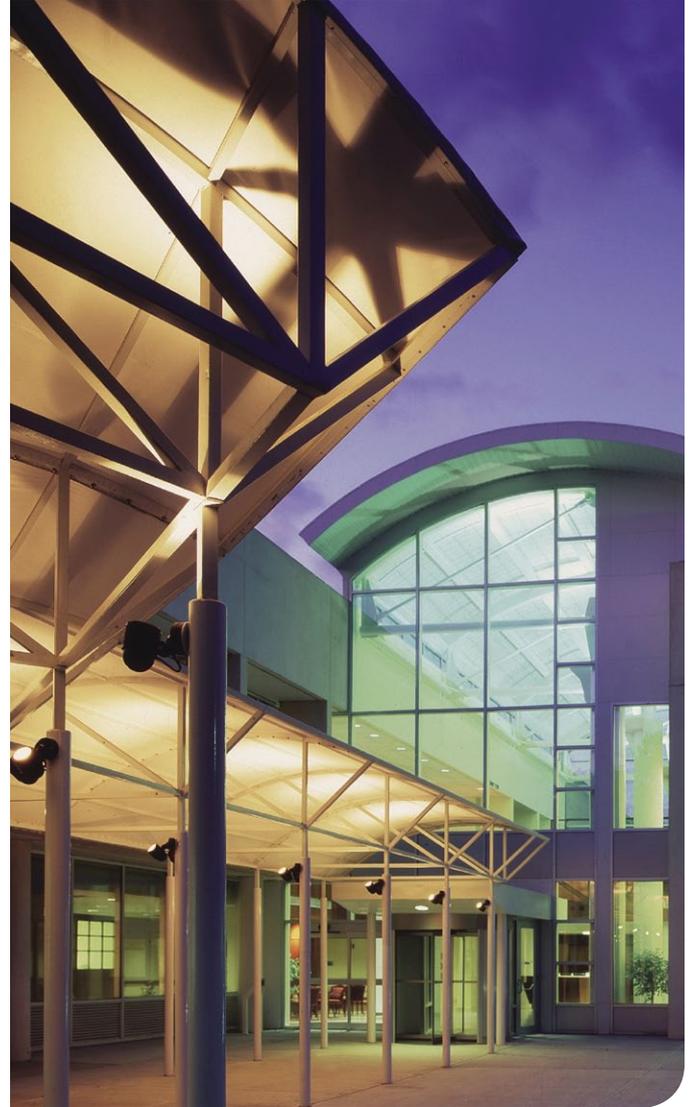
# Façades

## Flood lighting



Imperial College London Diabetes center: ColorReach Powercore has been placed here at a distance to light the façade in a diffused way. The artificial light takes over the modeling of the sun and accentuates the architecture of the building.

## Flood lighting



By using white floodlighting on the ceiling, projected from the inside of the building, a very open and inviting ambience is created. The lighting effect generates a safe and friendly feeling for staff and visitors.

### Flood



Color / eW / iW Burst PC



Color / eW Blast PC



Color / eW / iW Reach PC



Color / eW / iW Reach Compact PC

### Controls

Light system manager



Video system manager



iColor Player





Entrance Phoenix Children's Hospital, Arizona, USA

# A warm welcome

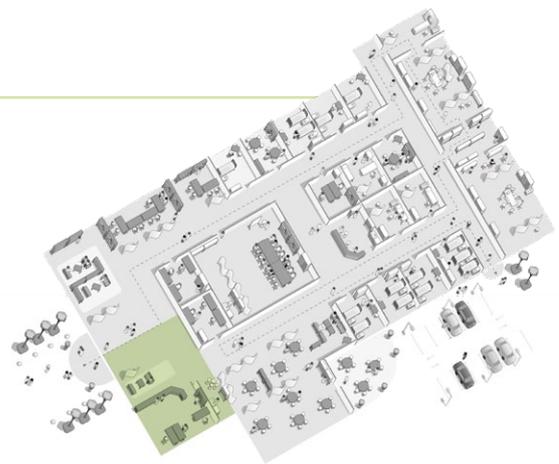
## Entrance and shops

First impressions count, so here's the perfect opportunity to create a great first impression with a welcoming ambience. Attractive lighting in the entrance area can make a hospital more inviting.

A harmonious lighting atmosphere makes people less apprehensive, inspires confidence and makes the surroundings appear friendlier. What's more, patients and visitors are less likely to feel intimidated if they can find their way around easily. This is where lighting can support wayfinding and orientation.

Entrance halls generally consist of four distinct zones – the entrance area, the reception desk, the waiting area and the area that leads people into the rest of the building. The entrance hall almost always connects to a restaurant and a shop. The reception desk also needs to be the 'eye catcher' in the space, so that visitors will be drawn to it straight away.

Combining functionality and decorative aspects, solutions could include local task lighting for desk work and more creative light settings using slow dynamics and soft colors, to provide a harmonious lighting atmosphere that makes people feel more at ease.



# Reception Standard (single height 4 meters)

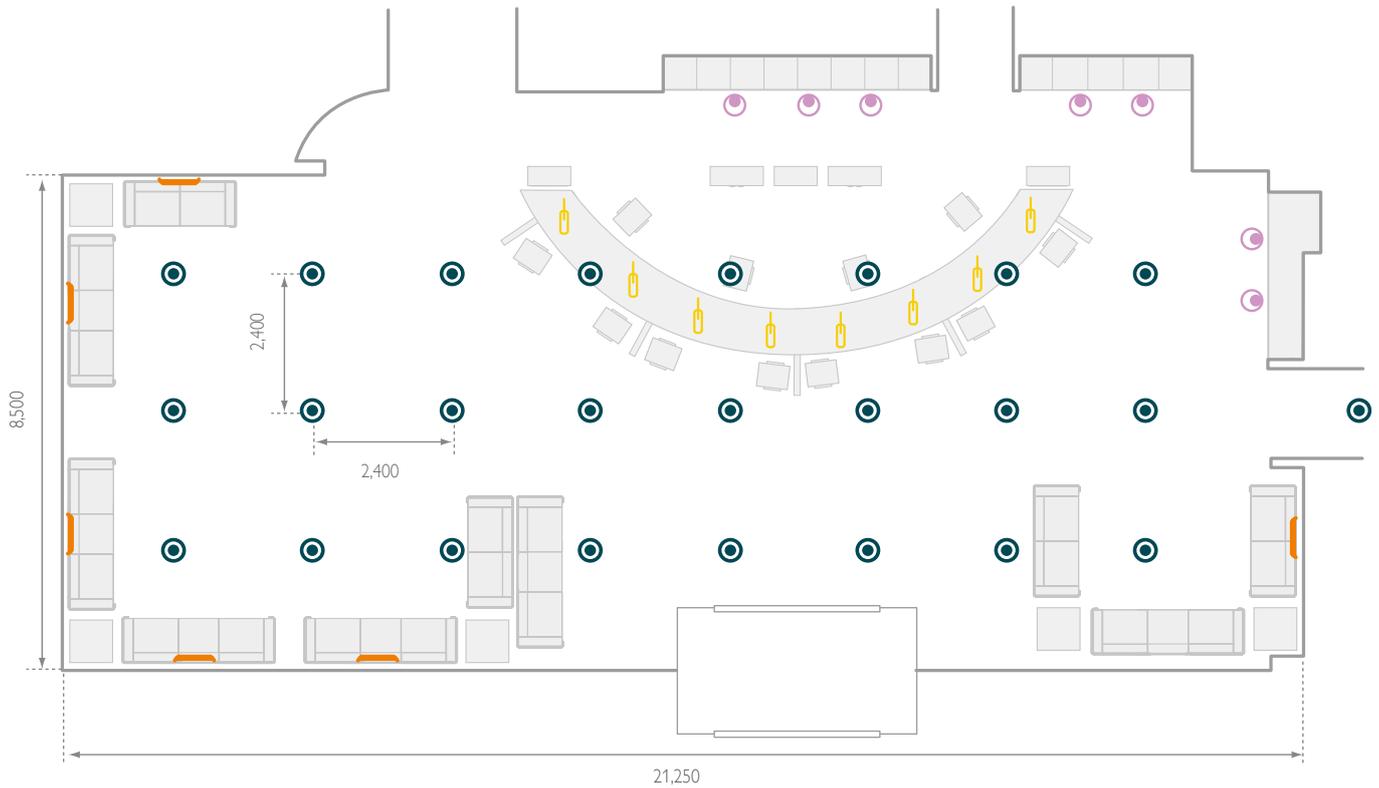
Fixed downlights are used for general lighting. To guide the visitors to the reception area, accent lighting is used to illuminate the back wall, whilst suspended luminaires are used for task lighting above the reception desk. In daylight areas, daylight regulation is used to save energy by using a daylight sensor.



## Plan view of a typical scheme

All dimensions in millimeters

Example project: Asklepios, Barmbek, Hamburg, Germany



## Luminaires used

### LuxSpace



#### General lighting

- Energy savings of up to 50% compared with conventional CFL downlights
- Latest LED technology for consistent light output, stable color performance and good color rendering
- Easy installation and a long lifetime

#### Alternatives:

Fugato, GreenSpace, CoreLine

### Lirio Tubuled



#### Suspended above the counter

- Graceful slim pendant with a shiny mirror coating to add a stylish accent
- Adjustable in height and available in 1, 2, or 3 tubular shuttles
- Energy-efficient LED technology helps save energy

#### Alternatives:

Lirio Tubound, Rotaris, SmartBalance

### LuxSpace Accent



#### Accent lighting backwall

- High-quality accent light due to dedicated LED reflector system
- Good color consistency and high color rendering for extra sparkle
- Low maintenance costs thanks to long lifetime, and low energy consumption

#### Alternatives:

StoreFlux

### Luceplan Strip



#### Wall mounted

- A family of wall, ceiling and suspension lamps of extremely reduced thickness
- Latest LED technology allows the thickness to be reduced to the minimum making Strip particularly suitable for places requiring unobtrusive lighting
- The opaline polycarbonate diffuser screens allow modular lighting units of different dimensions and brightness

#### Alternatives:

Luceplan Screen, Luceplan Lane, CoreLine, Efix, Unicone

# Reception Advanced (single height 4 meters)

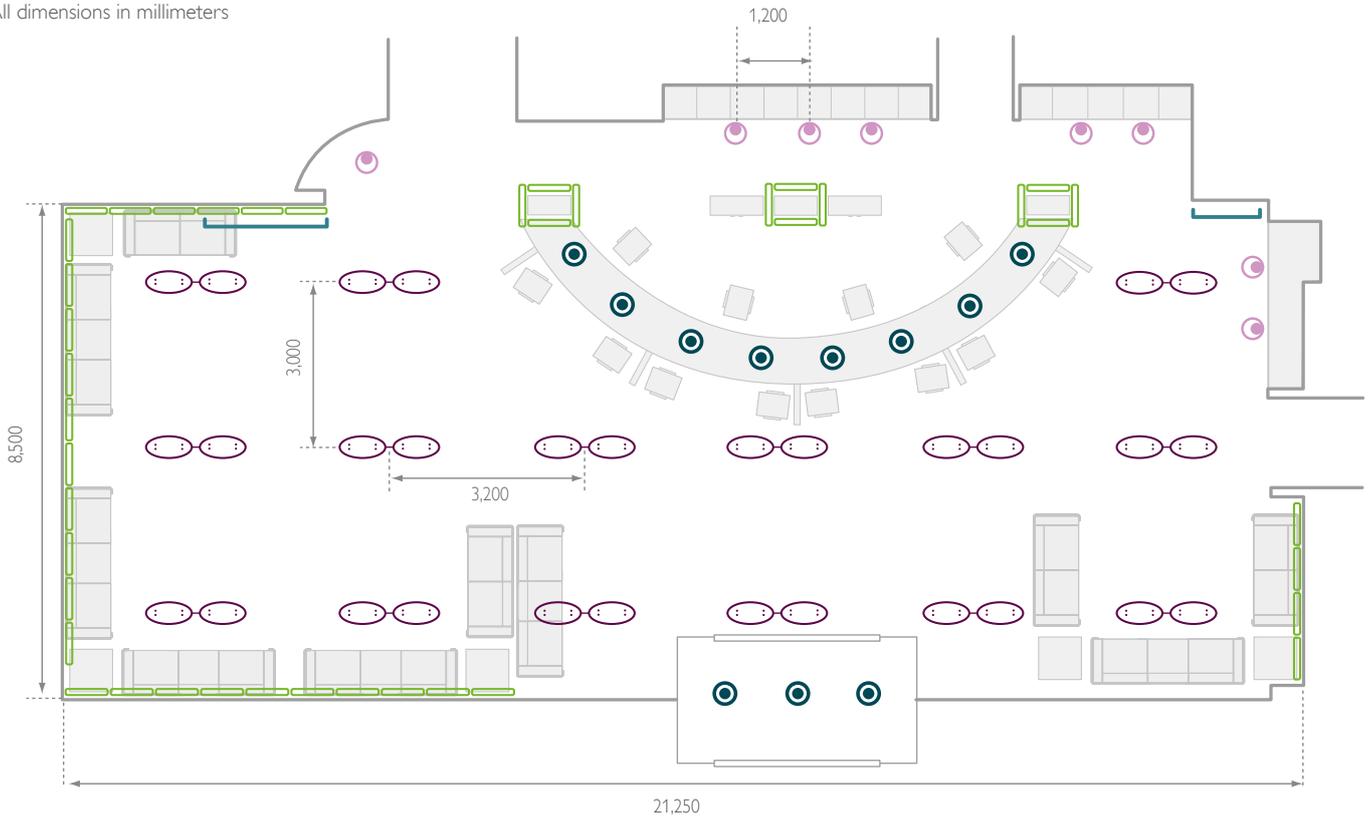
Inspirational suspended luminaires are used for general lighting. Well placed downlights above the reception desk provide good quality task lighting for staff and good visibility for visitors. Through the use of direct lighting, in combination with the color changing wall grazing products, the space is made more welcoming and spacious. The Large Luminous Surfaces panels placed on the wall provide a pleasant and comforting ambience.



## Plan view of a typical scheme

All dimensions in millimeters

Example project: Klinika Dr. Pirka, Czech Republic



## Luminaires used

### LumiStone



#### General lighting

- Creates a truly inspiring environment with appealing design and indirect lighting
- LED luminaire with over 50% energy savings compared to a functional luminaire, and even more compared to decorative solutions
- Many variations thanks to innovative mounting options

#### Alternatives:

SmartBalance, CoreView Panel, SmartForm LED, Savio, Cellino, Rotaris

### LuxSpace



#### General lighting

- Energy savings of up to 50% compared with conventional CFL downlights
- Latest LED technology for consistent light output, stable color performance and good color rendering
- Easy installation and a long lifetime

#### Alternatives:

Fugato, GreenSpace, CoreLine

### LuxSpace Accent



#### Accent lighting backwall

- High-quality accent light due to dedicated LED reflector system
- Good color consistency and high color rendering for extra sparkle
- Low maintenance costs thanks to long lifetime, and low energy consumption

#### Alternatives:

StoreFlux

### ColorFuse PC



#### Alcove / Grazing light

- Advanced color mixing and superior color consistency
- Light output of 380 lumens per fixture
- Rotation in 10° increments through full 180° for precise aiming and color mixing
- Works with complete Philips line of controllers, and third-party DMX controllers
- Integrated LED Powercore technology and Philips Data Enabler Pro

### Large Luminous Surfaces



#### Dynamic panels

- Multi-colored LEDs integrate seamlessly within luminous textile panels which come in both standard and custom sizes and can be arranged in numerous ways to bring spaces alive
- Flexible, dynamic content sets the luminous textile experience apart by offering the opportunity to create a wide range of moods
- An online content database helps you to create the desired atmosphere or experience

For more information please see pages 66/67



Asklepios klinik, Barmbek, Hamburg, Germany

# Well connected

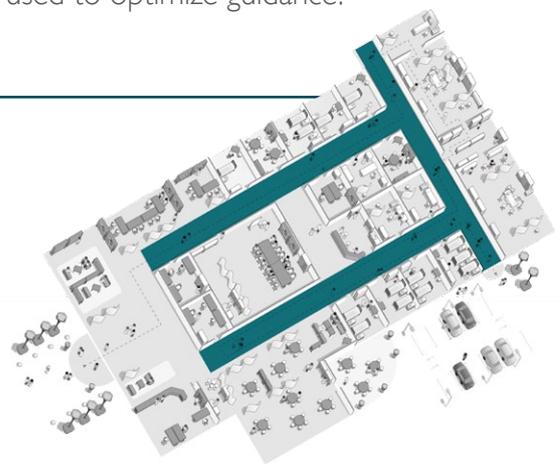
## Corridors

For a hospital, which is often open 24 hours a day, corridors and circulation areas are the arteries of the building. They link the different areas together logistically. Patients and visitors who are on their way to a doctor or specific department will naturally benefit from a brightly illuminated corridor rather than a dark one and specific lighting can be used to optimize guidance.

In areas where patients and visitors circulate, factors of key importance are guidance, safety and re-assurance, which can be supported by using diffused homogeneous lighting and avoiding dark spots. For corridors where patients are wheeled along on trolleys, it must be taken into consideration that sharp contrasts can be extremely uncomfortable when they are looking upwards.

### Smarter corridors – daylight regulation

Corridors provide a perfect opportunity for energy saving: At daytime when the corridors are in full use, lighting can be complemented with daylight integration using sensing technology, saving energy while maintaining a comfortable ambience. After-hours, when corridors are less frequently used, the lighting can be dimmed to a lower, but comfortable level for orientation, and when a person is detected it will fade up to normal levels unnoticeably. For internal corridors that are part of patient wards, daylight rhythms can improve the perception and wellbeing of users, by using dynamic lighting to bring in the positive effects of natural daylight, and create a sense of wellbeing.



# Corridors Standard (hospitality areas)

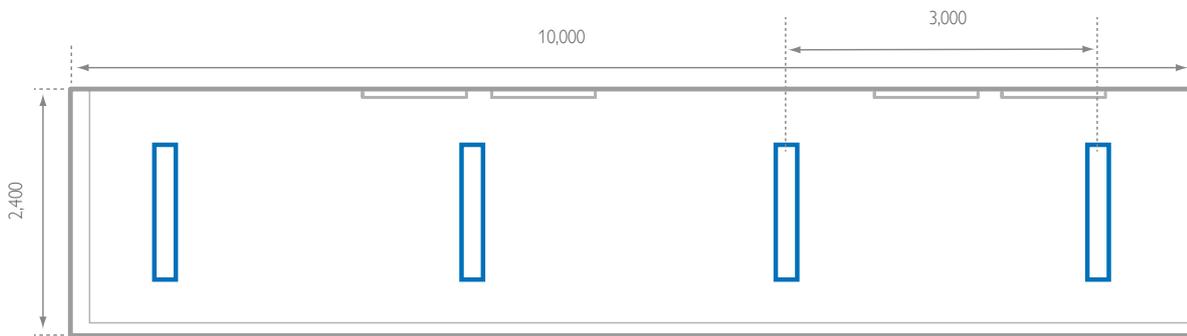
A space where patients often meet each other and talk while navigating their way through different parts of the hospital, this solution for corridors in hospitality areas features LED lighting. It ensures that lighting brings high efficacy in terms of guidance, safety and comfort, while at the same time having diffused lighting without glare.



## Plan view of a typical scheme

All dimensions in millimeters

Example project: Asklepios Klinik, Barmbek, Hamburg, Germany



## Luminaires used

### SmartForm LED



#### General lighting

- State-of-the-art LED lighting
- High luminaire efficiency
- Choice of optics
- Designed to fit in a wide range of ceiling types

#### Alternatives:

Fural LED, CoreView Panel, SmartForm, CoreLine

### OccuSwitch Dali BMS



#### Sensor

- Advanced occupancy control and daylight regulation with separate window and corridor algorithms
- Retractable shield that can be used to shield off areas, e.g. corridors, adjacent to the area the OccuSwitch DALI is controlling
- Push-button interface for the use of standard wired switches
- Energy indicator shows relative energy usage
- BMS version interacts with almost any building management system via the DALI interface

### Alternatives



Fural LED Panel



CoreView Panel



CoreLine

# Corridors **Advanced** (hospitality areas)

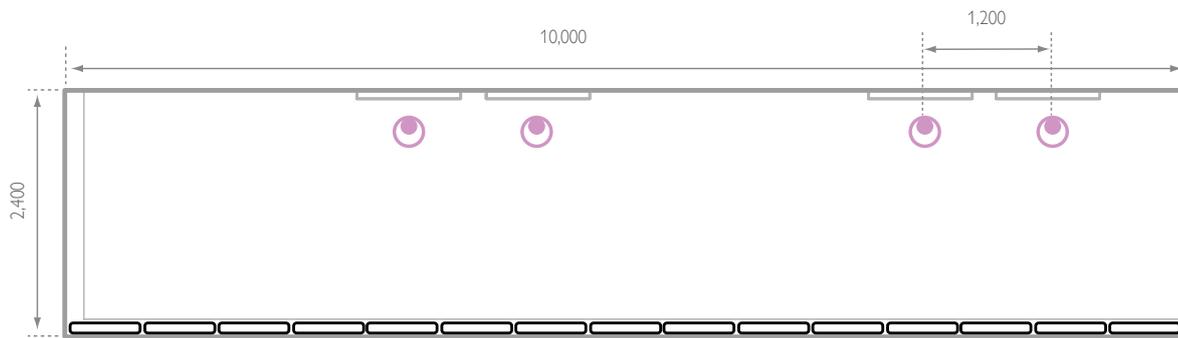
Designed to create an inviting and relaxing ambience, this advanced lighting design is inspired by hospitality lighting. Ambience can be achieved simply by installing a combination of two lighting systems – an LED cove along the wall and accent spots on objects. Multi-purpose sensors help to reduce energy use over a 24 hour period.



## Plan view of a typical scheme

All dimensions in millimeters

Example projects: 1 – Altona Children's hospital, Hamburg Germany. 2 – Oberhausen psychiatry, Germany



## Luminaires used

### LuxSpace Accent



#### Accent lighting wall

- High-quality accent light due to dedicated LED reflector system
- Good color consistency and high color rendering; extra sparkle
- Low maintenance costs thanks to long lifetime, and low energy consumption

**Alternatives:**  
StoreFlux

### eW Cove QLX



#### Alcove

- Excellent output of white or solid-color light
- Multiple options for design flexibility
- LED system means energy-efficiency, easy installation, and a long lifetime

**Alternatives:**  
MiniFlux HP

### Multi-purpose sensor



#### Sensor

The corridor can be stand alone regulated via an OccuSwitch DALI controller or can be connected with a light management system. In this scenario you need a multi purpose sensor; a 360° ceiling mount sensor that combines motion detection (PIR), infrared remote control reception (IR) and ambient light level detection (PE) in a single device.

### Alternative



CoreLine ProSet

# Corridors Standard (medical areas)

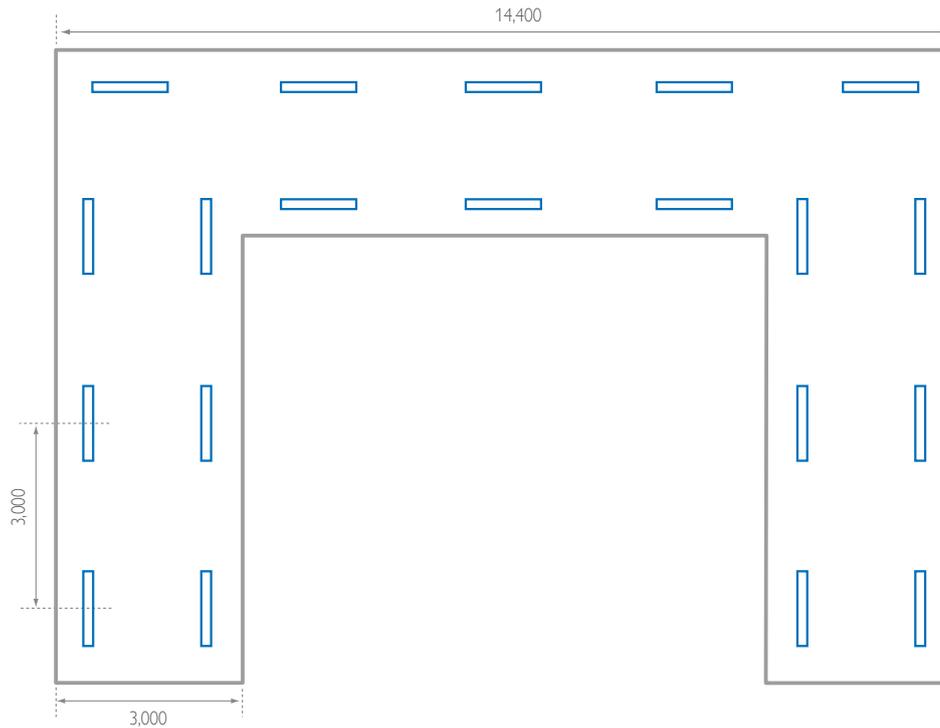
To prevent glare in patients' eyes, two rows of slim linear LED fixtures are placed close to the walls, providing a soft light. With this solution, the walls are bright – resulting in a more spacious ambience. By using a control system with presence detection, energy use can be reduced by up to 35%.



## Plan view of a typical scheme

All dimensions in millimeters

Example project: Holbæk Hospital Holbæk, Denmark



## Luminaires used

### SmartForm LED



#### General lighting

- State-of-the-art LED lighting
- High luminaire efficiency
- Choice of optics
- Designed to fit in a wide range of ceiling types

#### Alternatives:

Fural LED, CoreView Panel, SmartForm, CoreLine

### Dynalite Sensor DUS 804Ct



#### Sensor

- Available with ultrasonic option
- Only in recessed / surface ceiling mount.
- Digital motion sensor
- Available in slight motion version (-SM)
- Detection area: 7,4 x 5,6m at 2,5m
- Rectangular detection area
- Segmented click-up bezel
- Upgraded for light level detection by adding camera photo optics

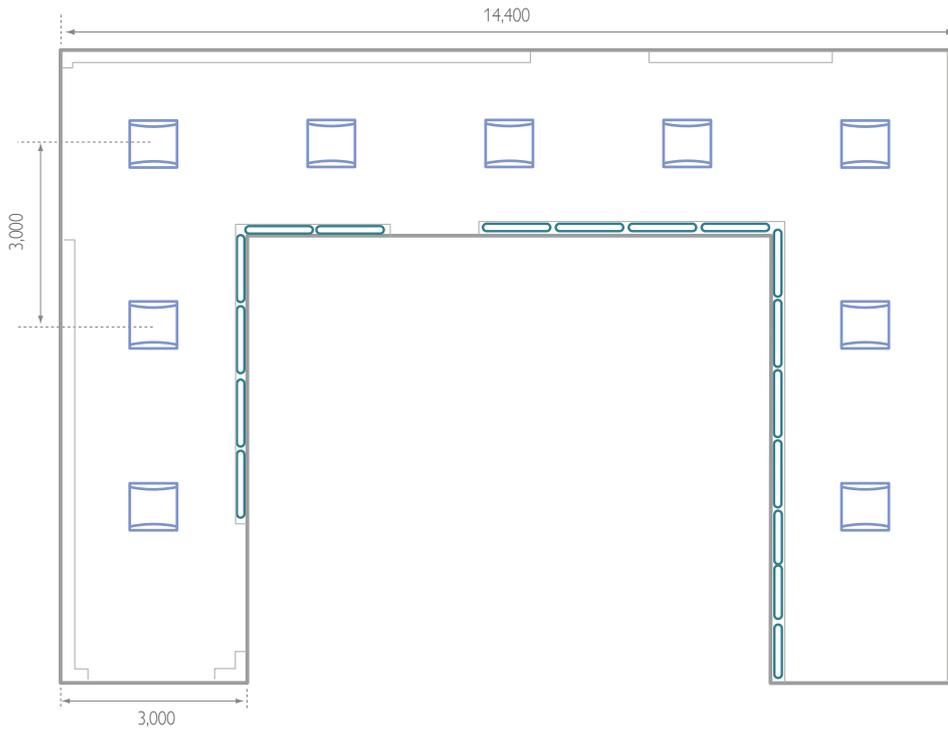
# Corridors **Advanced** (medical areas)

Corridors in areas of the hospital where an immediate or high level of care is provided, require lighting to be very specific and it should be designed to diminish stress to the patient. The glare free light provided from this luminaire solution gives uniquely uniform lighting, maximizing visual comfort. In addition, the placing of elegant handrail lighting creates a pleasant ambience during the evening and at night.



## Plan view of a typical scheme

All dimensions in millimeters



## Luminaires used

### ArcForm



#### General lighting

- Soft and comfortable lighting, with full luminous surface
- Wide beam shape allows for high uniformity and high vertical illuminance
- Compliant with glare norms
- Appealing design
- State-of-the-art LED technology for higher energy efficiency compared to similar conventional solutions

#### Alternatives

SmartForm LED, CoreView Panel

### MiniFlux HP



#### Cove lighting around wall panels

- Modular LED system for interior / outdoor use
- Aluminum profile
- Clear polycarbonate diffuser
- Transparent polycarbonate brackets for fixation

#### Alternatives:

Vaya Cove

### Alternatives



CoreView Panel



SmartForm LED



Soundlight Comfort Ceiling  
For more information please see pages 60-61



*Altona Children's hospital, Hamburg, Germany*

# Feel at ease

## Waiting rooms

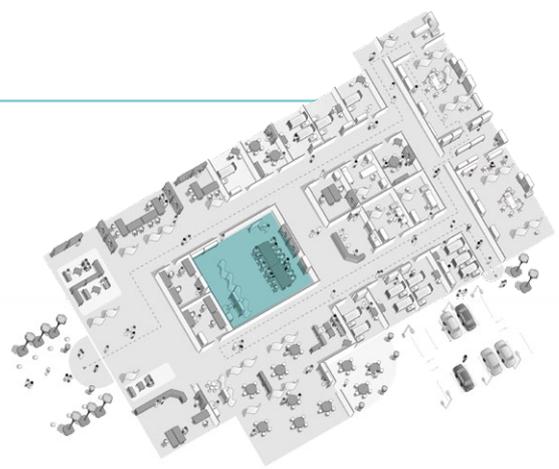
Waiting always seems to take longer than we expect. Especially when you are in a waiting room in hospital, where you may feel anxious, be in pain, or feel insecure about what will happen next. Our solutions can help to create an environment where patients feel more comfortable and at ease.

### Improving the waiting experience

In many cases, the waiting room could offer patients and visitors a far more pleasant experience. A soft, homely atmosphere has a welcoming, calming effect, while the impression of hygiene and cleanliness fosters a sense of trust.

### Designed for relaxation

Lighting solutions for waiting rooms can be designed to create a more familiar feeling, for example dimmable wall lighting and table luminaires will radiate a relaxing, domestic ambience. Additionally, a positive feeling can be created with indirect lighting in warm white light, illuminating each area in the room differently. Dynamic lighting that mimics the course of natural daylight, can connect people to the outside world, and support their wellbeing.



# Waiting room Standard

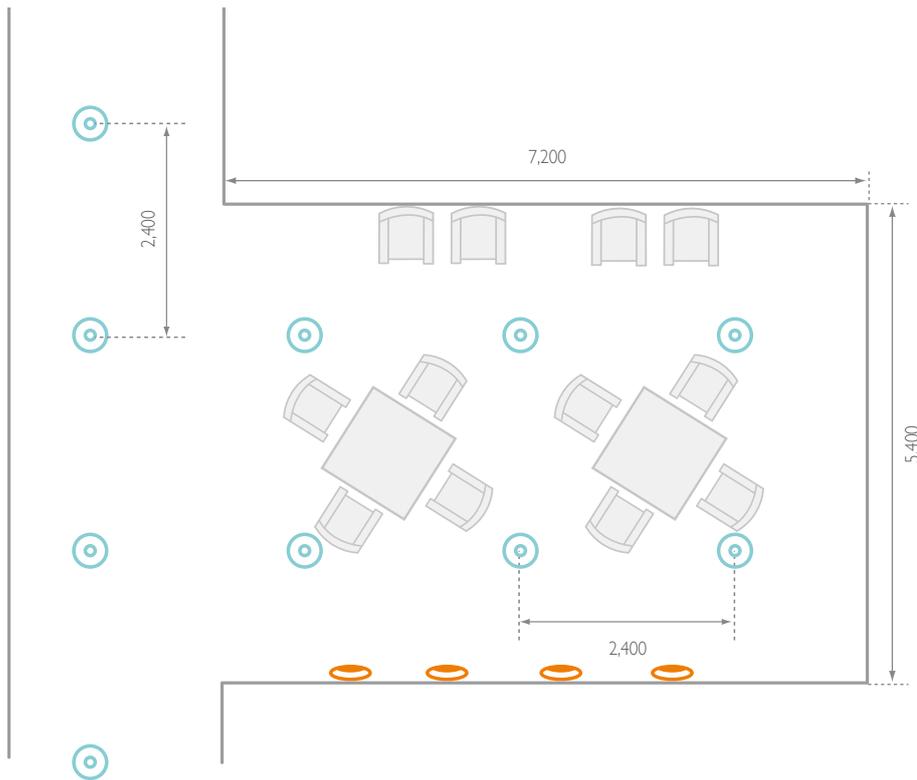
In this standard lighting solution, contrasts are created to stimulate interaction between people and to give the waiting area a friendly dynamic. This has been achieved by the use of downlights. Where the luminaires are placed near the wall, a pleasing play of light beams is visible.



## Plan view of a typical scheme

All dimensions in millimeters

Example projects: 1 – Fano Health Centre, Nordby, Denmark.  
2 – Project Apator – Ostaszewo near Toruń, Poland



Luminaires used

### GreenSpace



#### General lighting

- Cost-efficient and sustainable downlight
- Can be used to replace conventional CFL downlights
- Features the latest LED technology
- Extreme low power consumption
- Stable color performance and high color rendering
- Long lifetime of 50,000 hours L80

#### Alternatives:

LuxSpace, CoreLine Downlight

### Goggle Luceplan



#### Wall mounted

- An elliptical lamp in opaline polycarbonate that can be fixed to the wall at a normal or tilted angle, singly or in rows, to create a lively cluster of lights
- The color variation of Goggle's flat surface is created solely by the different angle from which it is observed
- The lamp's color changes are caused by an iridescent film that exploits in-mould decoration technology to become an integral part of the diffuser
- LED technology for high efficiency long lifetime

#### Alternatives:

Luceplan Ecran, Arana, Celino, Efix, Savio

### Alternatives



PowerBalance



CoreLine Recessed



CoreLine downlight



LuxSpace



CoreView panel



Soundlight Comfort Ceiling

For more information please see pages 60-61

# Waiting room Advanced

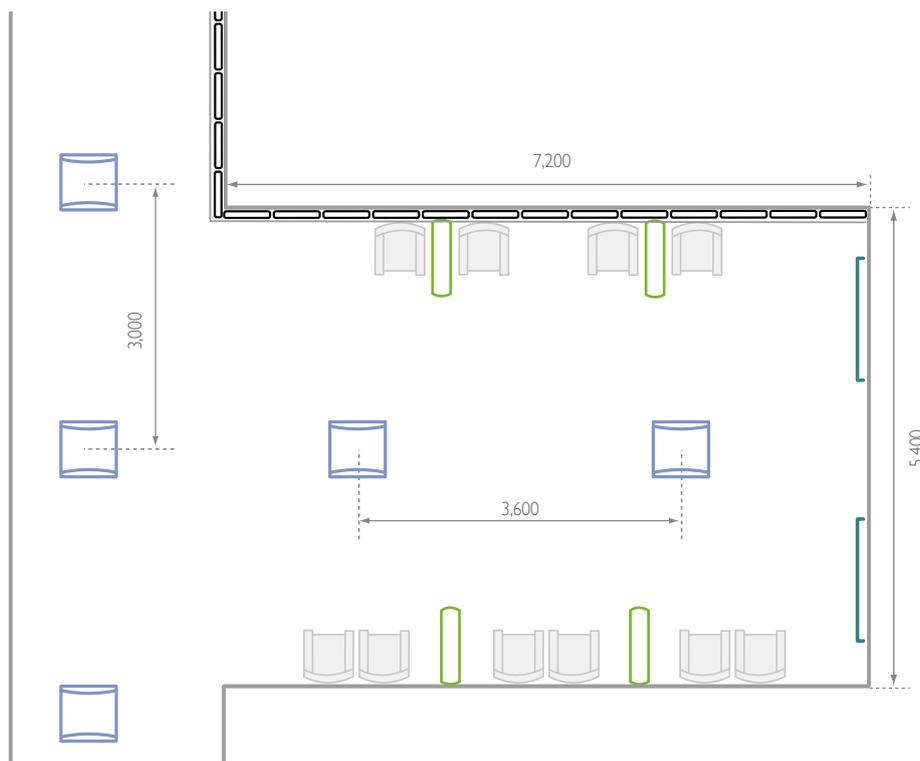
This advanced solution is designed to create less of a 'hospital' and more of a 'domestic' experience. The tuned home-like lighting ambience that can be created has a settling, calming effect on waiting patients. This has been achieved by the use of soft and glare-free lighting, in combination with indirect wall lighting above the waiting seats and freestanding luminaires in the opposite area. The white cove lighting gives the impression of natural daylight to make the area more spacious.



## Plan view of a typical scheme

All dimensions in millimeters

Example project: Greifswald Radiology, Rostock, Germany



## Luminaires used

### FFS SmartBalance



#### Free floor standing

- Direct and indirect light, can be dimmed up or down separately
- Possibility to integrate a sensor for presence detection and daylight sensing
- Available in 3000 and 4000 K
- Available in silver and fresh white
- Comfortable lighting with excellent glare control complying to latest regulations on office lighting (EN 12464-1)
- LED technology offers over 55% energy saving compared to fluorescent luminaires

#### Alternatives:

Lirio Posado, Savio, Arano

### ArcForm



#### General lighting

- Soft and comfortable lighting, with full luminous surface
- Wide beam shape allows for high uniformity and high vertical illuminance
- Compliant with glare norms
- Appealing design
- State-of-the-art LED technology for higher energy efficiency compared to similar conventional solutions

#### Alternatives:

SmartForm LED, CoreView Panel

### eW Cove EC



#### Alcove

- A dimmable, linear LED fixture that provides an affordable, energy-efficient alternative to traditional cove lighting in applications requiring white or solid-color light
- Warm 2700 K fixtures for intimate, open environments, cool 4000 K fixtures for lighting clean and efficient spaces
- Use of standard mounting and wiring dramatically simplifies installation

#### Alternatives:

Vaya Cove LP

### Large Luminous Surfaces



#### Dynamic panels

- Multi-colored LEDs integrate seamlessly within luminous textile panels, which come in both standard and custom sizes and can be arranged in numerous ways to bring spaces alive
- Flexible, dynamic content sets the luminous textile experience apart by offering the opportunity to create a wide range of moods
- An online content database helps you to create the desired atmosphere or experience

For more information please see pages 66/67



*Ruber Dental Clinic, Madrid, Spain*

# Feel cared for

## Examination rooms

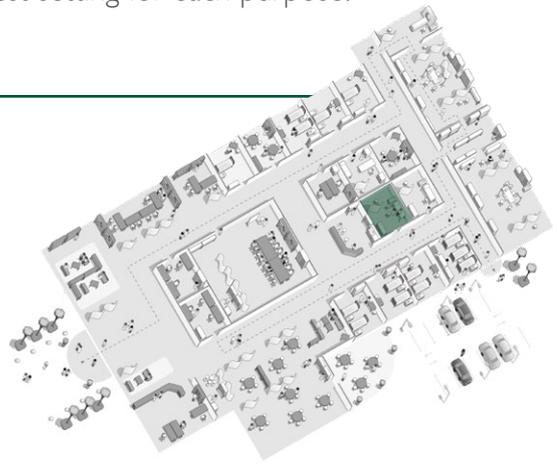
To support people in their working environment, our solutions make it possible to switch lighting to different presets that create a variety of atmospheres, using light to suit the relevant patient engagements and medical procedures, thereby creating the best setting for each purpose.

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### A more pleasant atmosphere

Before and after treatment, the general lighting can be switched to a soothing and reassuring warm light, to create a comfortable environment for the patient. This makes the patient feel more at ease and allows staff to work more efficiently.

Optimal light color and high quality color rendering assist in examinations and diagnosis, helping staff perform better. So you can differentiate your hospital with a healthcare environment that truly puts patients and staff first.



# Examination room Standard

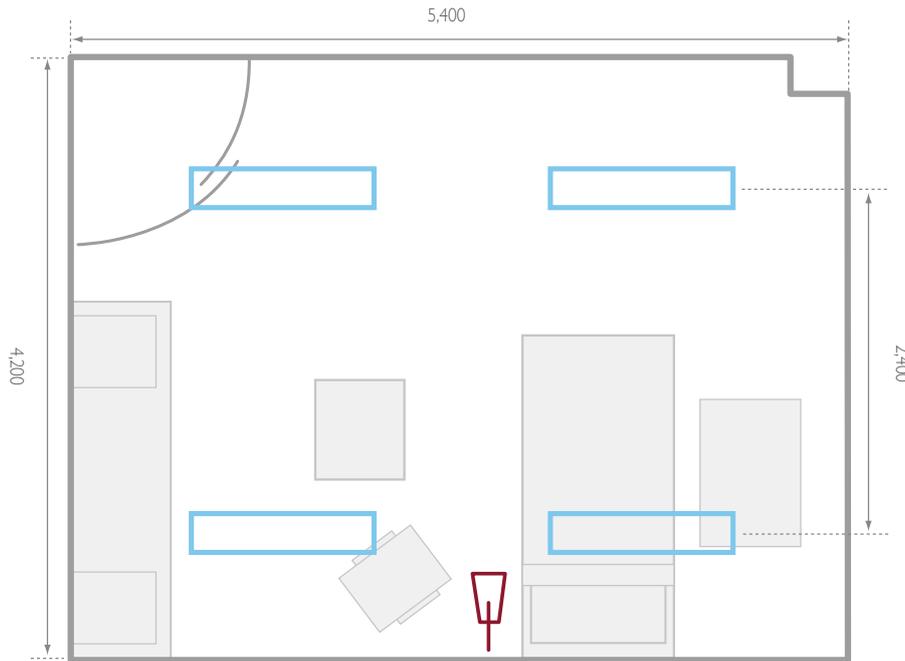
In an examination room accurate color rendering in the lighting is of vital importance. This standard lighting system can be adjusted to suit the activity – whether calming, to assist with patient conversations or brighter task lighting for examinations. Different presets for different lighting levels can be pre-programmed and this scheme includes an additional LED examination light, featuring high color rendering with no heat output.



## Plan view of a typical scheme

All dimensions in millimeters

Example project: University Medical Centre, Groningen



## Luminaires used

### CleanRoom LED



#### General lighting

- Latest LED engine IP65
- ISO class 2-9 Fraunhofer-certified
- Push-in connector: connection without opening the luminaire

**Alternatives:**  
TBS424, CR200B

### ToBeTouched



#### User interface

- Glowing light ring provides feedback with light
- DMX- DALI and RC5- IR-compliant
- Comprehensive product portfolio: currently four models: simple on/off, dimming, cool/warm-white controller and full color model
- For the UID8520 (ToBeTouched DALI) there are presets in the ring that are compatible with presence detection (ActiLume extension sensor; OccuSwitch DALI)

### Nova Exam LED



#### Examination light

- Higher performance: value for the practitioner, enhanced comfort for the patient
- Illuminance, Low Level: 25,000 lux (2323 fc) at 18" (46 cm)
- Illuminance, High Level: 50,000 lux (4645 fc) at 18" (46 cm)
- 4600 K color temperature
- CRI (Color Rendering Index) of 93
- Two LED light modules with a 40,000-hour life each
- Maximum arm reach of 45" (114.3 cm)
- Wall, floor, ceiling and table mount configurations

**Alternatives:**  
DuraCare LED

### DuraCare LED



#### Alternative examination light

- Intense light
- Illuminates large working area of 17 cm diameter
- Five-step dimming, three color temperatures and high color rendering
- LED technology means no heat in the beam and energy savings
- Durable construction compliant with all medical norms such as EN 60601

# Examination room Advanced

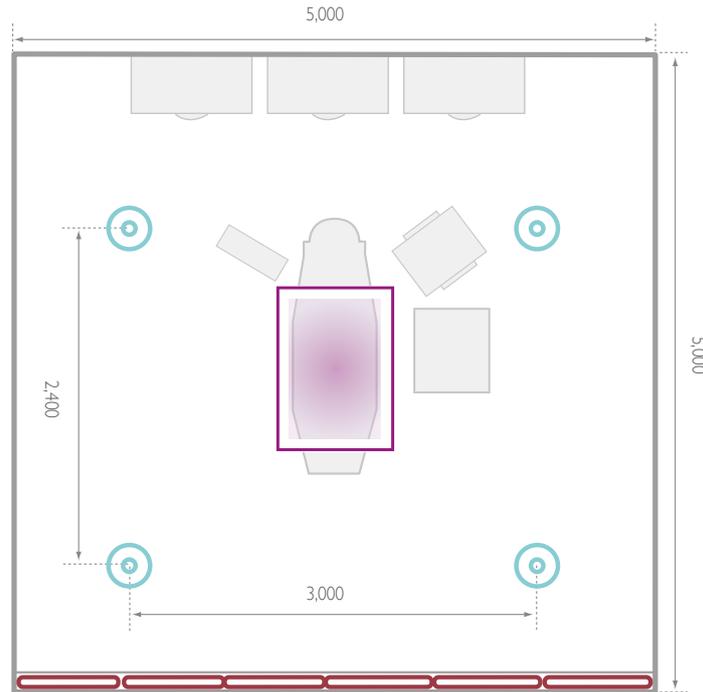
This advanced solution features optimal task lighting for medical staff and dynamic emotional lighting to enhance patient wellbeing. Above the examination chair or bed, a system is placed which is a combination of dynamic white light and a large luminous surface. On the screen a variety of content can be shown to create a relaxing mood and soothe the patient. Additional downlights are installed to create an optimal lighting level in the whole room.



## Plan view of a typical scheme

All dimensions in millimeters

Example project: Dentist X, Hamburg, Germany



## Luminaires used

### GreenSpace



#### General lighting

- Cost-efficient and sustainable downlight
- Can be used to replace conventional CFL downlights
- Features the latest LED technology
- Extremely low power consumption
- Stable color performance and high color rendering
- Long lifetime of 50,000 hours L80

#### Alternatives:

Fugato, CoreLine

### iColorCove MX PC



#### Alcove

- Limitless choice of colors and full-color dynamic effects
- Flexible mounting and positioning
- Compatible with industry leading controls

### Exam / mood panel



#### Examination light / dynamic panel

- Recessed unit consisting of general lighting needed for examination and treatment in combination with a mood panel to show dynamic content
- Integrated mood panel offering a wide variety of dynamic content
- Plug and play solution
- Easy to clean, IP40
- Non-standard product, designed for examination rooms, offering a user friendly way to create scenes. Information and options available on request

### Alternatives



Savio

### Controls



ActiLume DALI

- ActiLume is a plug and play control system which offers energy saving by daylight harvesting and automatic switching
- The system consists of three state-of-the-art miniature sensors combined with a controller containing a series of pre-programmed modes



# Feel calm and comfortable

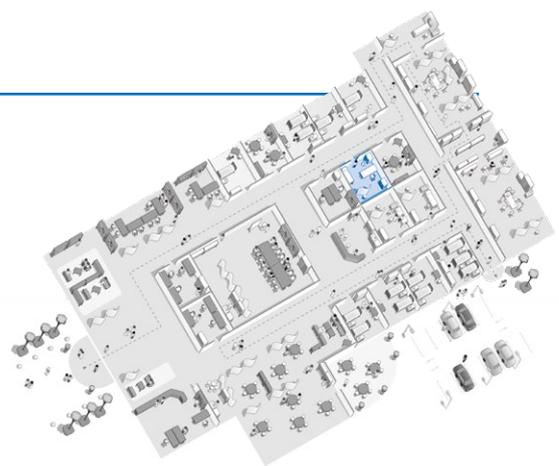
## Imaging rooms

Going to hospital is something people often find unsettling – it's a time when they feel concerned and vulnerable. Lighting can help to create a calming environment. Solutions range from simple and effective white light to colored lighting and even projections selected by the patient during examination and diagnosis, which can help them to feel more in control, more at ease and create a positive distraction.

### Creating a better patient experience

Philips imaging room options range from effective White Light, to AmbiScene Lighting, which adds the possibility of a soft-colored ambient glow created through indirect cove lighting, with music as an option. Ambient Experience solutions allow you to further enhance the mood of the imaging room in different ways using multi-media.

Whatever option you choose, you can be sure of creating an atmosphere that will help to relax patients and act as a sympathetic environment for staff to carry out diagnostic imaging. Due to the nature of imaging equipment, we have especially designed luminaires that remain unaffected by magnetic fields.

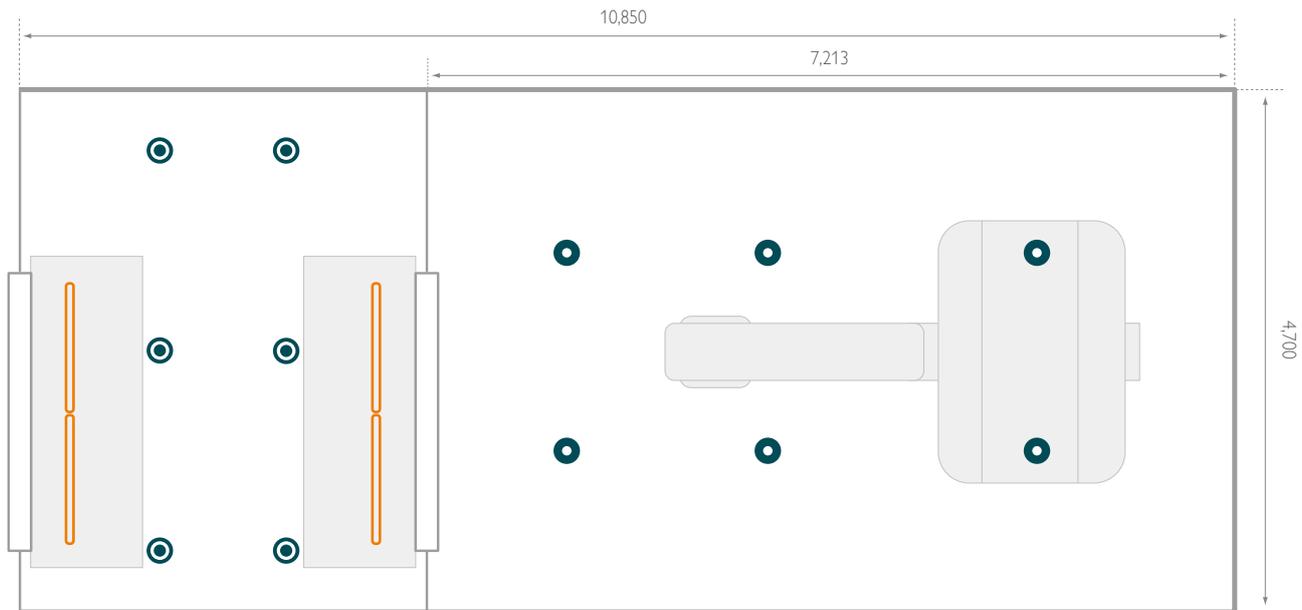


# Imaging room standard

Your MRI room can now have best in class LED downlights that provide effective general white light with very low energy consumption, very low maintenance and up to 15 times longer lifetime than traditional halogen systems. In addition, the system is fully dimmable using DALI controls and this solution provides a very comfortable feeling in the imaging room.

## Plan view of a typical scheme

All dimensions in millimeters



## Luminaires used

### Celino LED pendant



#### Suspended task light above counter

- Complete luminaire range that reflects the trend to miniaturization and architectural integration
- Excellent optical performance using LED technology with optical covers for optimum visual comfort and efficiency

#### Alternatives:

SmartBalance pendant, Arano LED, DayWave

### LuxSpace



#### General lighting

- Energy savings of up to 50% compared with conventional CFL down lights
- Latest LED technology for consistent light output, stable color performance and good color rendering
- Easy installation and a long lifetime

#### Alternatives:

Fugato, GreenSpace, CoreLine

### LuxSpace KIT



#### General lighting

- 6x LuxSpace LEDs included, 10m shielded cable with TYCO 9 pins male connector
- 1x MR wall mounting plate
- 1x RF-Cage Unit
- 1x Plate included mains distribution unit and electronic gears (6x) and 10m shielded cable with TYCO 25 pins female connector



#### User interface

- The ToBeTouched range consists of intuitive user interfaces designed to promote user interactivity with the system and luminaires. Changing intensity of lighting is simple, via the iconic style and ease of interaction of the ring ToBeTouched system.



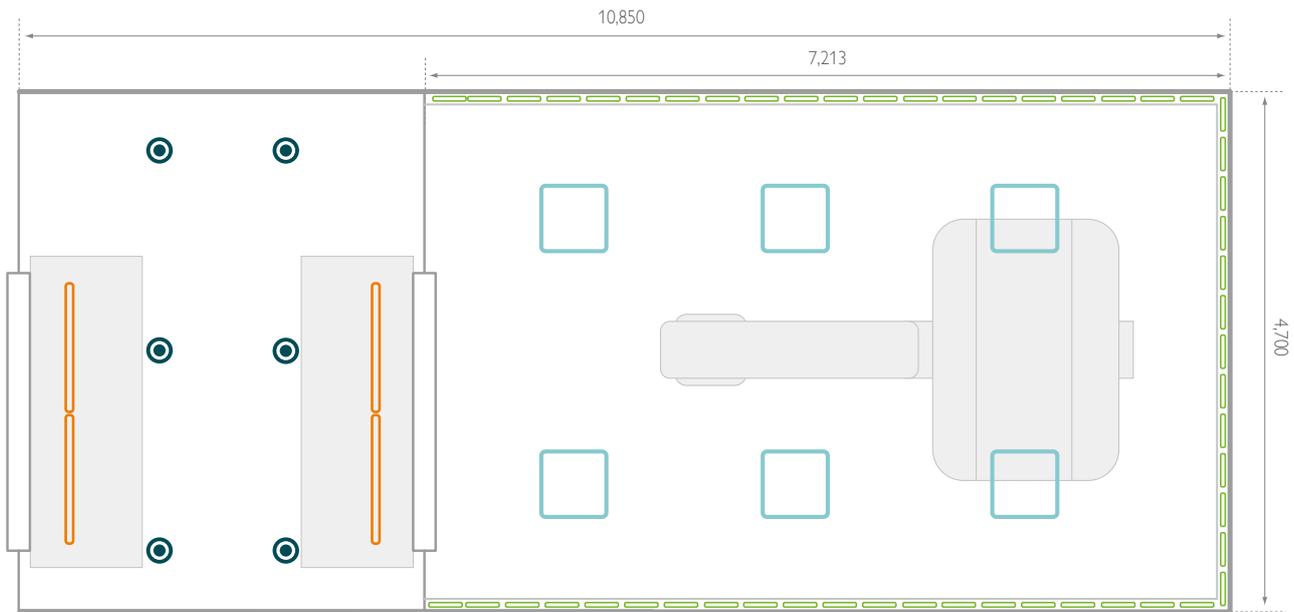
Example project: Interlaken fmi Hospital Unterseen, Switzerland.

# Imaging room AmbiScene Lighting

Philips AmbiScene Lighting brightens the lives of patients and staff alike. By offering a dynamic lighting environment, AmbiScene Lighting neutralizes the harsh glare of institutional lighting while encouraging a sense of wellbeing. The whole experience is friendly and accessible, helping your patients feel less intimidated and your staff to achieve their tasks efficiently. Dynamic LED lights along the ceiling perimeter wash the walls in inviting colors. Intensity and color choice are controlled via a simple wall dimmer or touchscreen. Softening the negative effect of harsh overhead lighting benefits both patient and staff.

## Plan view of a typical scheme

All dimensions in millimeters



## Luminaires used

### CoreView Panel



#### General lighting

- Pleasing surface of light
- Slim, attractive form factor
- LED technology
- Energy-efficient
- Suitable for recessed and suspended mounting

**Alternatives:**  
LuxSpace

### LuxSpace



#### General lighting

- Energy savings of up to 50% compared with conventional CFL down lights
- Latest LED technology for consistent light output, stable color performance and good color rendering
- Easy installation and a long lifetime

**Alternatives:**  
Fugato, GreenSpace, CoreLine

### Celino LED pendant



#### Suspended task light above counter

- Complete luminaire range that reflects the trend to miniaturization and architectural integration
- Excellent optical performance using LED technology with optical covers for optimum visual comfort and efficiency

**Alternatives:**  
SmartBalance pendant, Arano LED, DayWave

### ColorFuse PC



#### Alcove / Grazing light

- Advanced color mixing and superior color consistency
- Light output of 380 lumens per fixture
- Rotation in 10° increments through full 180° for precise aiming and color mixing
- Works with complete Philips line of controllers and third-party DMX controllers
- Integrated LED Powercore technology and Philips Data Enabler Pro



Example project: Princess Alexandra Hospital Harlow, UK.

# Imaging room

## Ambient Experience Premium

A unique total room solution for imaging rooms

### What is Ambient Experience?

Ambient Experience is a purposefully designed healthcare environment. With a refreshingly creative eye, Ambient Experience integrates technology, spatial design, and workflow improvements to create a comfortable, stress-reducing environment. Patients and staff experience a renewed sense of wellbeing.

### Ambient Experience Premium

Ambient Experience Premium is our whole room solution. When your situation requires a unique answer, we can customize one. Work with us to tailor any of the Ambient Experience elements to bring maximum benefit to your space. These can include colored lighting, projections, video and music – the choice is yours.

### Ambient Experience Select

Ambient Experience Select comprises a selection of Ambient Experience Premium elements. Thematic video and dynamic Ambient lighting combine to enhance the imaging suite. Patients can activate themes using a touchscreen control. The room is immediately transformed into a multi-sensorial experience. Calming sounds and accompanying thematic video wrap the patient in a relaxing ambience.



## The Ambient Experience solution can include the following elements:

- 1 A ceiling projector displays videos or animations chosen by the patient from a library of themes, distracting them from the equipment and procedure
- 2 Rounded corners suggest additional space and discourage clutter
- 3 Soothing audio is added to create a relaxing ambience
- 4 Colored LED spotlights neutralise the harsh glare of institutional lighting, while encouraging a sense of wellbeing
- 5 Integrated cabinets provide easy access to coils and accessories, freeing the room from clutter
- 6 To complete the transformation, a halo of colored light illuminates the examination room





*CVC, Best, the Netherlands*

# Feel more at home

## Patient rooms

A stay in hospital is never pleasant, especially if you are worried or in pain. There is often little privacy. But what if we could make the patient feel more at home? The challenge for hospital designers is to create flexible rooms that accommodate patients needs, but also make them work for staff.

### The natural power of light

Light influences our health and wellbeing much more than we realize. Independent research has shown that there is a clear and positive relation between exposing patients to sufficient light during the day and their health and wellbeing. It has been proven that light can improve parameters like sleep, mood, depression and length of stay in a hospital environment. Light can help by creating a pleasant ambience for patients and visitors, and in addition it can support the biological clock, thereby supporting the healing environment.

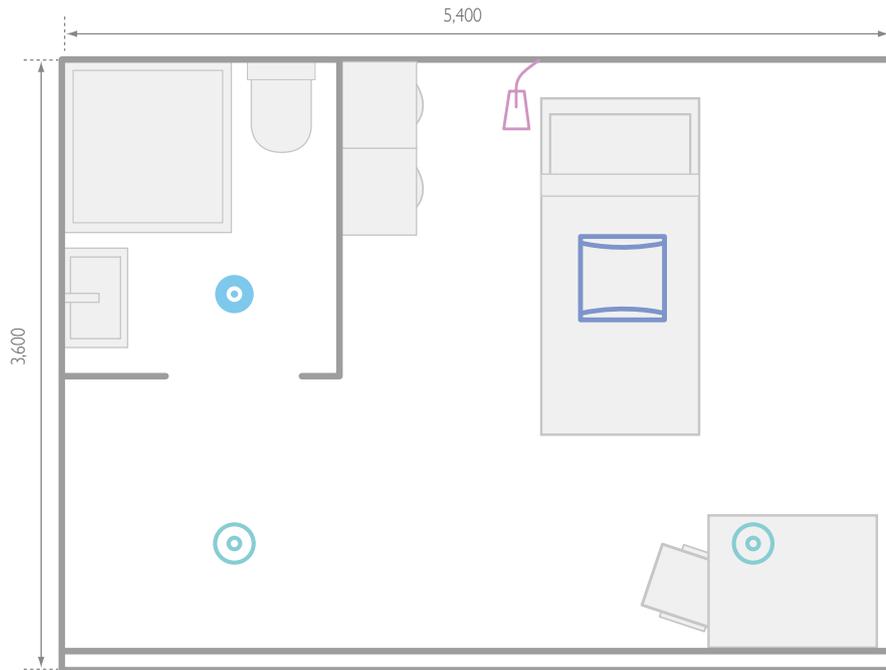


# Patient room Standard

To create a comfortable and warm ambience, a luminaire with a gentle light and soft appearance has been selected to meet the needs of patients and comply with requirements for patient rooms. In addition, there is a wall-mounted reading light which can be controlled by the patient. In the evening, a downlight above the table makes the space more open and inviting for visitors, plus an additional task light is provided above the table.

## Plan view of a typical scheme

All dimensions in millimeters



## Luminaires used

### ArcForm



#### General lighting

- Soft and comfortable lighting, with full luminous surface
- Wide beam shape allows for high uniformity and high vertical illuminance
- Compliant with glare norms
- Appealing design
- State-of-the-art LED technology for higher energy efficiency compared to similar conventional solutions

#### Alternatives:

SmartForm LED, CoreView Panel

### DuraCare BGS610



#### Reading light

- Shielded low-voltage LED lamp
- Glare-free light for visual comfort
- Robust, compact design and easy to clean
- Minimized heat emission due to twin-wall housing
- Durable construction

#### Alternatives:

Otto Watt

### GreenSpace



#### General lighting

- Cost-efficient and sustainable downlight
- Can be used to replace conventional CFL downlights
- Features the latest LED technology
- Extremely low power consumption
- Stable color performance and high color rendering
- Long lifetime of 50,000 hours L80

#### Alternatives:

Fugato, CoreLine

### CoreLine Ceiling/wall



#### Bathroom light

- A very versatile luminaire, combining good value for money with excellent performance
- Low energy use (including automatic turning off the light when nobody's present)
- Elegant, timeless design
- Warmer/cooler color temperatures available

#### Alternatives:

Care wall lamp chrome

### Alternatives

#### Bedhead lighting



DuraCare



SmartBalance Wallmount



Example project: Asklepios Klinik Barmbek, Brücke Neonatologie

# Patient room

## HealWell

A unique total lighting solution for patient rooms

### A new approach to wellbeing

Developed specifically to contribute to people's visual, emotional and biological response to light, HealWell creates a unique environment that supports patient wellbeing. It is designed to support the biological clock of patients. In a field study we tested this solution, and the result was that patients in HealWell rooms actually sleep 8% longer; and need a shorter time to fall asleep. In addition, the ambient light is personalized through the use of predefined settings that can be controlled by the patient themselves.

### The natural power of light

The HealWell lighting system addresses the needs of patients and medical staff. Dynamic light is used to provide an automated day-rhythm, which mimics the varying patterns of natural daylight. At the same time, it provides medical staff the opportunity to overrule light settings, to have good working light conditions when the situation requires so, for example with examinations or emergencies.

### A total room solution

The HealWell Advanced lighting system offers a complete patient room solution. We can work with you to customize this solution for your hospital, using Philips Lighting innovations and technologies to create a unique patient room environment – for example through the use of Large Luminous Surfaces (see pages 66-67).

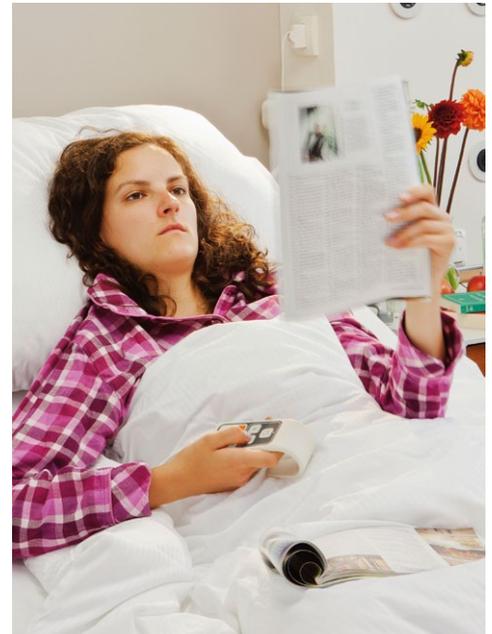


## Key benefits:

- A new and unique total lighting solution for patient rooms
- Addresses the different needs of its users at all times, day and night (functional, emotional, biological), using an intelligent networked control system
- Provides a pleasant atmosphere, that can be controlled by patients
- Provides excellent working light for staff
- Proven solution, with evidence of improved satisfaction, improved sleep duration and sleep on-set latency and enhanced mood
- Implemented as a turn-key solution, including lighting design, installation and training for staff

## The HealWell solution can include the following elements:

- 1 Dynamic white light: ceiling modules that provide daylight rhythm with varying light levels and warmer or cooler light, as well as simple examination light for staff.
- 2 Ambient light: LED based colored light line in cove opposite the bed, that can also provide orientation light at night.
- 3 Reading light.
- 4 Patient control: providing choice for the patients of 3 pre-set light colors for the cove, as well as reading light dimming control.



[www.philips.com/healwell](http://www.philips.com/healwell)

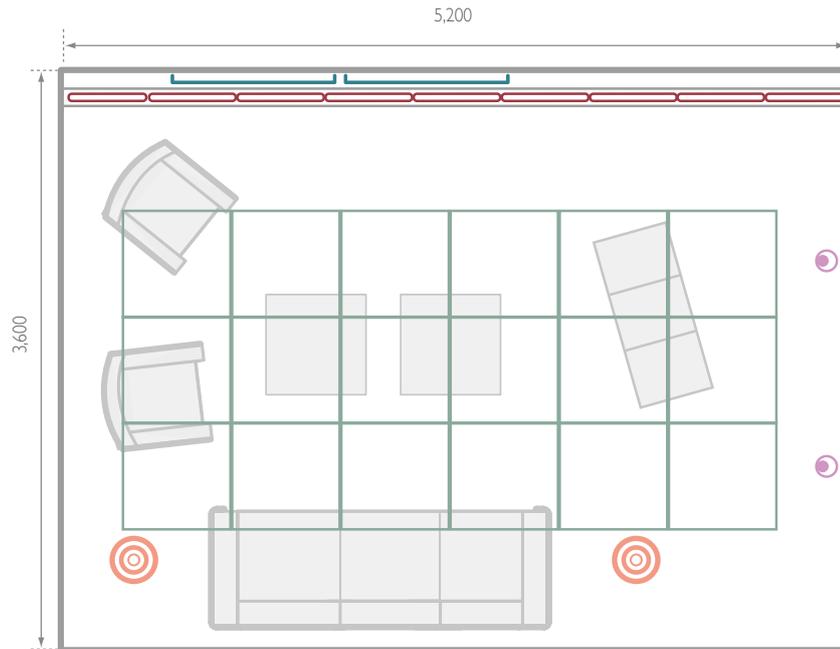


# Family lounge Advanced

To create an indoor environment where sound and light behave in a more natural way, the general lighting has been created with Soundlight Comfort ceiling. Beside creating a glare-free, comfortable ambience, the system contributes to good room acoustics and healthy indoor spaces. A pleasant ambience is created by the use of a table lamp and alcove lighting which can be programmed in different colors. To help welcome and reassure visitors and patients, two luminous textile panels are integrated into the walls.

## Plan view of a typical scheme

All dimensions in millimeters



## Luminaires used

### Soundlight Comfort Ceiling



#### LED Tiles

- Provides a sound absorbing and light emitting functionality
- Offer reduced sound propagation with Articulation Class = 200
- Features a robust metal frame
- Available in two color temperatures, 3000K and 4000K
- The LED light sources are completely embedded in the LED Tile and are invisible when the LED Tile is both on and off

For more information please see pages 60/61

### LuxSpace Accent



#### Accent lighting backwall

- High-quality accent light due to dedicated LED reflector system
- Good color consistency and high color rendering for extra sparkle
- Low maintenance costs thanks to long lifetime, and low energy consumption

Alternatives:  
StoreFlux

### iColorCove MX PC



#### Alcove

- Limitless choice of colors and full-color dynamic effects
- Flexible mounting and positioning
- Compatible with industry leading controls

Alternatives:  
MiniFlux HP RGB

### Lirio Tulmis



#### Free floor standing

- Constructed from chromed metal and glass, the interior diffuser is made of satined glass. This floor standing lamp provides a diffused light that can be controlled by a touch dimmer

### Large Luminous Surfaces



#### Dynamic panels

- Multi-colored LEDs integrate seamlessly within luminous textile panels, which come in both standard and custom sizes and can be arranged in numerous ways to bring spaces alive
- Flexible, dynamic content sets the luminous textile experience apart by offering the opportunity to create a wide range of moods
- An online content database helps you to create the desired atmosphere or experience

For more information please see pages 66/67



Example project: Asklepios Klinik Barmbek, Brücke Neonatologie



Audi Offices, Neckarsulm, Germany

# Stay productive

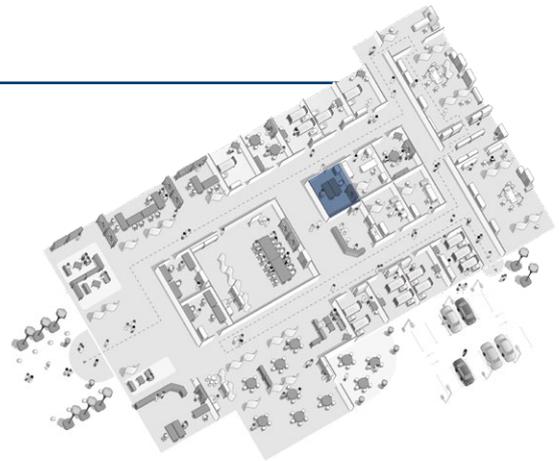
## Offices

Good office lighting design addresses different aspects of light. Artificial lighting can play a significant role in improving the work environment by creating a relaxed or uplifting ambience.

Rooms with windows can be designed to have two dimmable zones, one close to the windows and the second one inside. This provides flexibility for multiple desks and daylight harvesting. Photosensor input maintains lighting at target levels. Controls at the entry allow for independent control of the two zones, with manual-on and dimming capability (to dim below the photosensor setting). In offices and staff rooms, the light settings can be tuned – for example by providing higher light levels for more difficult tasks, and lower, softer light for personal comfort or relaxation, providing a valuable sense of control of the environment.

### Creating 'natural' hospital office lighting

Daylight is never constant. It changes in intensity over the course of the day and the seasons, affecting our emotions, moods, perception and performance. Most of these changes are gradual transitions that we only perceive at a subconscious level, but they influence our biological rhythms and the patterns of our daily lives. Bringing these dynamics indoors creates 'natural' lighting that stimulates and inspires those working there.



# Office Standard

The PowerBalance luminaire provides light with a high level of visual comfort in offices. It offers the possibility of dimming for a calming ambience. The use of controls can contribute to additional savings of 50% energy.



## Plan view of a typical scheme

All dimensions in millimeters

Example project: Audi Offices, Neckarsulm, Germany



## Luminaires used

### PowerBalance



#### General lighting

- Most efficient office norm-compliant LED luminaire (up to ~115 lm/W)
- Good-quality lighting solution for direct replacement of most T5 luminaires
- Covering visible T-bar (lay-in), concealed, plaster and bandrastrer ceilings (modular / semi-modular)
- Significantly lowering operational costs, resulting in attractive payback time
- Additional energy saving up to 50% in combination with controls

#### Alternatives:

SmartForm LED, DayZone, Savio, SmartForm

### OccuSwitch DALI LMS



#### Sensor

- Advanced occupancy control and daylight regulation with separate window and corridor algorithms
- Retractable shield that can be used to shield off areas, e.g. corridors, adjacent to the area the OccuSwitch DALI is controlling
- Push-button interface for the use of standard wired switches
- Energy indicator shows relative energy usage
- BMS version interacts with almost any building management system via the DALI interface

### Alternatives



DayZone



Savio



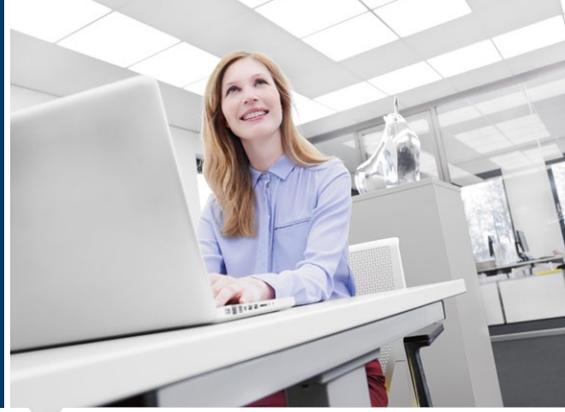
SmartForm LED



SmartForm

# Office Advanced

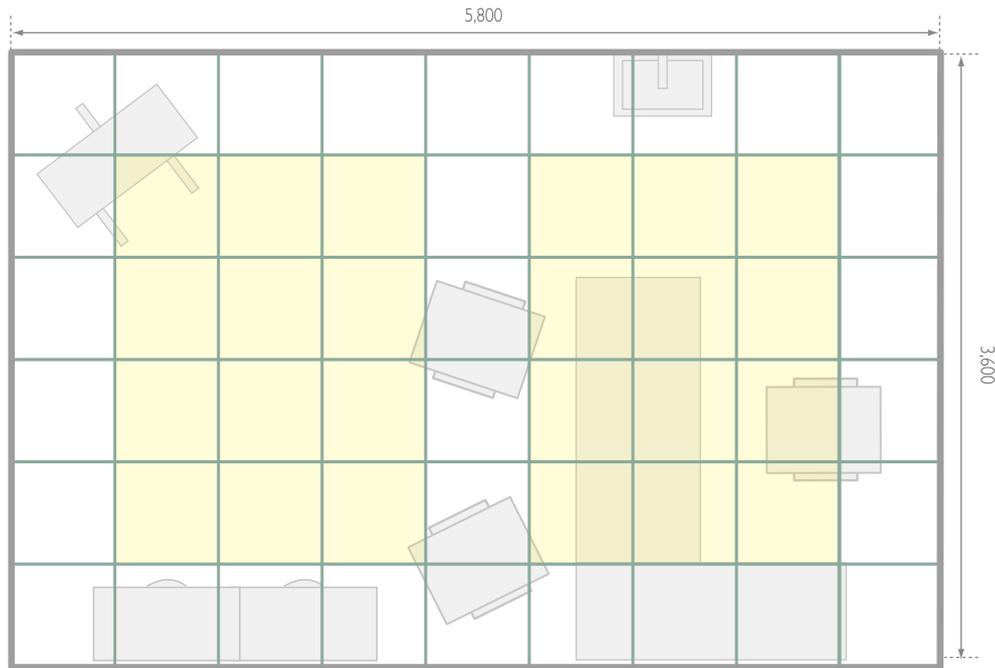
This advanced office solution combines sound absorption and lighting into one ceiling panel – Soundlight Comfort Ceiling. By superimposing both functions into one panel, it truly fills the room with light in a much more pleasant way than traditional solutions. Light generation and sound absorption happen beneath the visible surface of each tile. The smooth, soft, matt surface of each panel has a discrete pattern that diffuses light in every direction, creating a rich and tranquil experience with high vertical light levels.



## Plan view of a typical scheme

All dimensions in millimeters

Example project: Haworth Vianen, the Netherlands



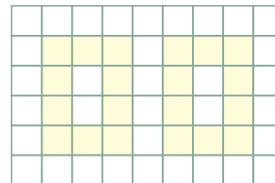
## Luminaires used

### Soundlight Comfort Ceiling – LED tiles

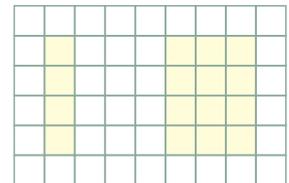


- Provides a sound absorbing and light emitting functionality
- The LED light sources are completely embedded in the LED Tile and are invisible when the LED Tile is in both on and off state
- Available in two color temperatures, 3000K and 4000K
- Offer reduced sound propagation with Articulation Class =200
- Consists of a 15mm glass wool absorber; 45mm air cavity and a surface, which gives a total thickness of 60mm. The three components work together with specified technical properties to imitate a 40mm homogenous sound absorber
- Features a robust metal frame
- The LED Tile must retain its original dimensions and cannot be cut

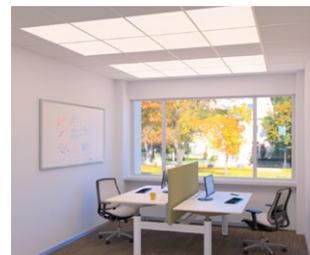
### Luminaire arrangement



Flexible arrangement



Activity based arrangement



Soundlight Comfort Ceiling suits both a flexible, identical layout throughout the office, and a more activity based lighting design mirroring room characteristics and specific room functions with required lighting levels.

For more information please see pages 60/61.

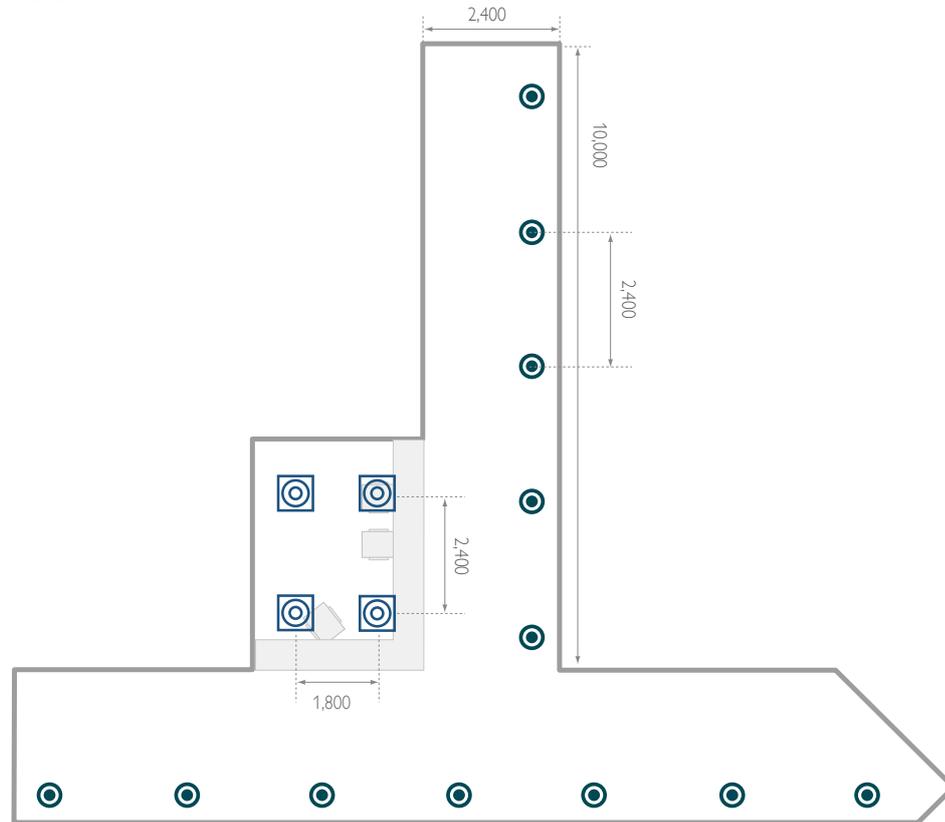
# Nurse station Standard

From the moment patients and visitors approach a nurse station area it is important that they feel comfortable and at ease. The luminaires placed in this area of the hospital provide good task lighting for the staff and create a welcoming ambience.



## Plan view of a typical scheme

All dimensions in millimeters



Example project: Asklepios St George, Hamburg, Germany

## Luminaires used

### DayZone



#### General lighting

- Lumen packages for both 500 and 300 lux environments
- Dedicated MLO optic design
- Special patented light-mixing chamber
- Round housing available for plaster ceiling applications

#### Alternatives:

PowerBalance, SmartForm LED, CoreView Panel, Rotaris, Savio, SmartForm

### LuxSpace



#### General lighting

- Energy savings of up to 50% compared with conventional CFL down lights
- Latest LED technology for consistent light output, stable color performance and good color rendering
- Easy installation and a long lifetime

#### Alternatives:

Fugato, GreenSpace, CoreLine

### Alternatives



PowerBalance



Savio



SmartForm LED



SmartForm

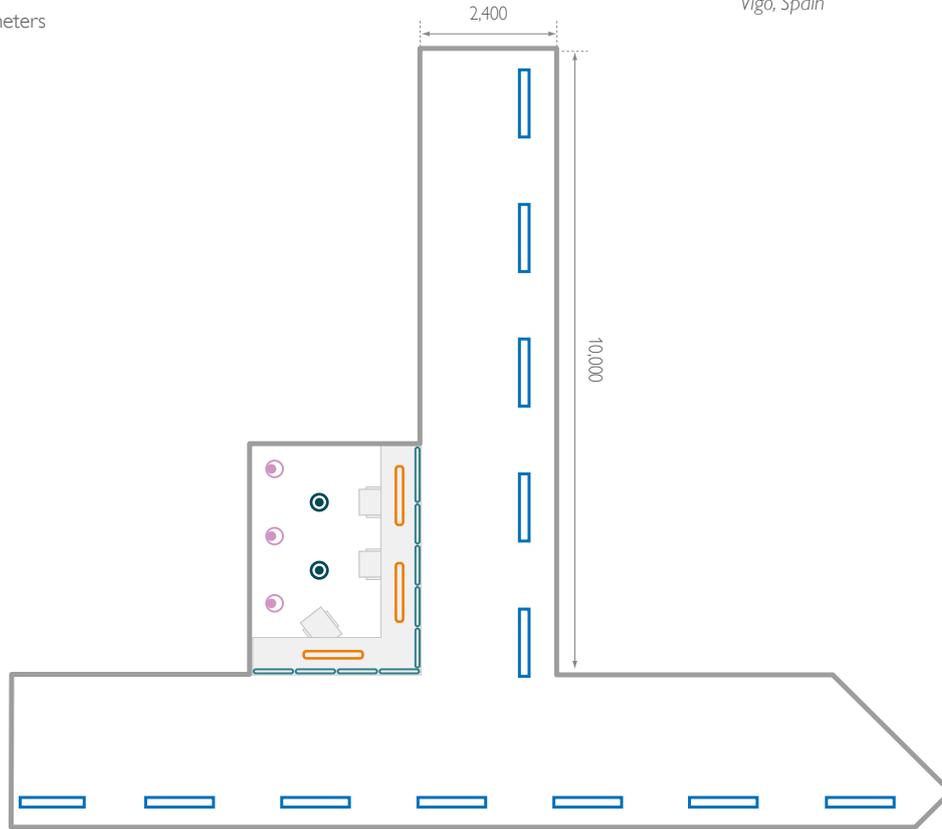
# Nurse station Advanced

Above the desk, effective task lighting has been provided by the use of suspended luminaires. By the use of controls the light can be set to meet the personal needs of staff. This, in combination with a bright back wall, creates a pleasant working atmosphere. Integration of light into the counter makes the entire area feel more spacious and accessible.



## Plan view of a typical scheme

All dimensions in millimeters



Example project: Nuestra Señora de Fátima hospital, Vigo, Spain

## Luminaires used

### LuxSpace



#### General lighting

- Energy savings of up to 50% compared with conventional CFL down lights
- Latest LED technology for consistent light output, stable color performance and good color rendering
- Easy installation and a long lifetime

#### Alternatives:

Fugato, GreenSpace, CoreLine

### LuxSpace Accent



#### Accent lighting backwall

- High-quality accent light due to dedicated LED reflector system
- Good color consistency and high color rendering for extra sparkle
- Low maintenance costs thanks to long lifetime, and low energy consumption

#### Alternatives:

StoreFlux

### MiniFlux HP



#### Cove lighting around counter

- Modular LED system for interior / outdoor use
- Aluminum profile
- Clear polycarbonate diffuser
- Transparent polycarbonate brackets for fixation

#### Alternatives:

Vaya Cove

### Celino LED pendant



#### Suspended task light above counter

- Complete luminaire range that reflects the trend to miniaturization and architectural integration
- Excellent optical performance using LED technology with optical covers for optimum visual comfort and efficiency

#### Alternatives:

SmartBalance pendant, Arano LED, DayWave

### SmartForm LED



#### General lighting

- State-of-the-art LED lighting
- High luminaire efficiency
- Choice of optics
- Designed to fit in a wide range of ceiling types

#### Alternatives:

Fural LED, CoreView Panel, SmartForm, CoreLine



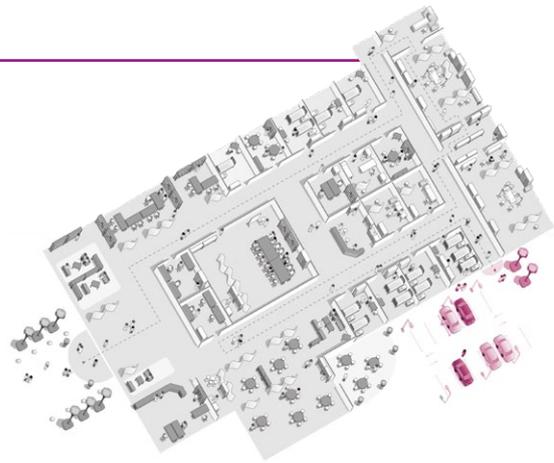
Montpellier Hospital, Montpellier, France

# Feel safe

## Outdoor areas and parking

The walk from the car park to the hospital entrance often takes visitors along a path or walkway across a piece of open ground such as a small park or garden. Good quality lighting can help to make people feel safe and comfortable. Additionally, marker lights can provide guidance, while subtle illumination of trees and other features can help to create a pleasant and inviting ambience.

The outdoor area around your hospital helps to form the first impression that patients and visitors get on arrival. In the evening and at night, outdoor lighting is essential for safety and security reasons, which means that lighting is usually left on during the night. In view of sustainability and energy saving, it makes sense to have lighting only where and when it's needed. Our special solution for car parks, Pacific LED Green Parking, allows the LED lighting to be put into 'zones', that are illuminated only when there is activity – achieving 80% energy savings compared with a traditional covered parking lighting solution, whilst maintaining safety and security requirements.



# Outdoor area

## Post-top



## Post-top



Post-top lighting placed in the pedestrian area provides a general illumination during darker moments of the day, creating a safe feeling for staff and visitors. Various designs are available, which can be used to integrate with the corporate identity of the hospital. The latest LED technology substantially reduces energy consumption.

### Post-top



Metronomus



CitySpirit



Urbanstar



Linea creation

# Outdoor area

## Bollards



This type of lighting accentuates the pedestrian area by enhancing the architecture of the urban landscape. It also helps visitors to find their way to the main hospital entrance. These low-level light points create contrast and a relaxing ambience while maintaining a safe environment.

### Bollards

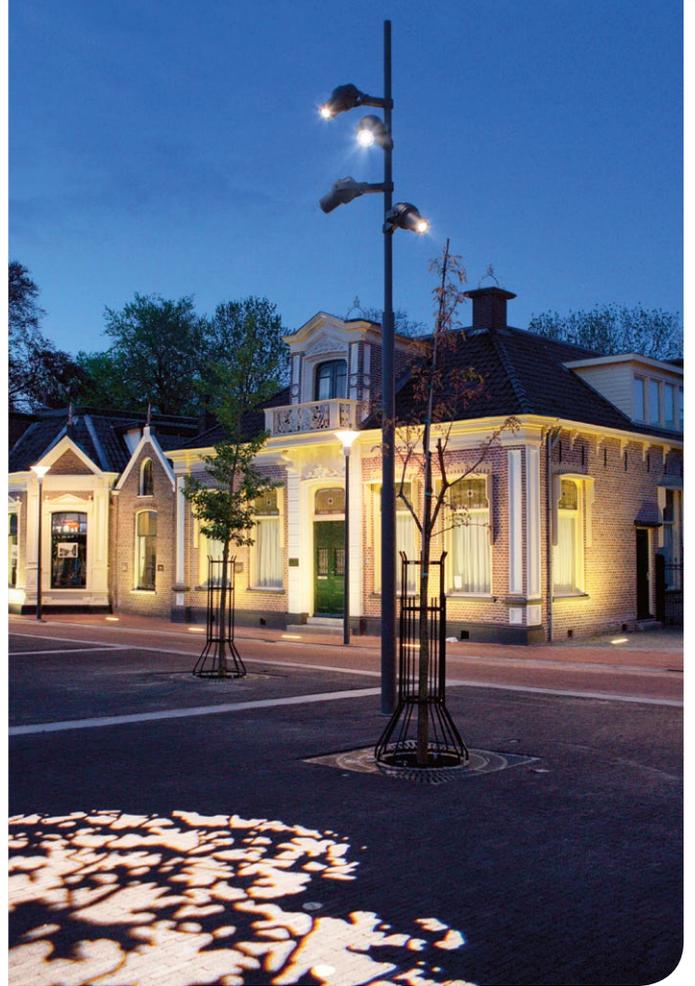


Ocean LED



Element LED

## Projection



Close to the busy main entrance of a hospital, it is always essential to have good illumination to give a safe and welcoming feeling. This can be provided by a combination of post-tops and bollards. Additional emphasis can be created in this area by the use of GOBO projection, to provide a welcoming ambience for visitors and patients. It can also be used to highlight architectural and natural elements in the outdoor hospital area.

### Projection



C-Splash 2 (Underwater)  
Alternatives: Amphilux



PRO Flood (GOBO projection)  
Alternative: UrbanScene

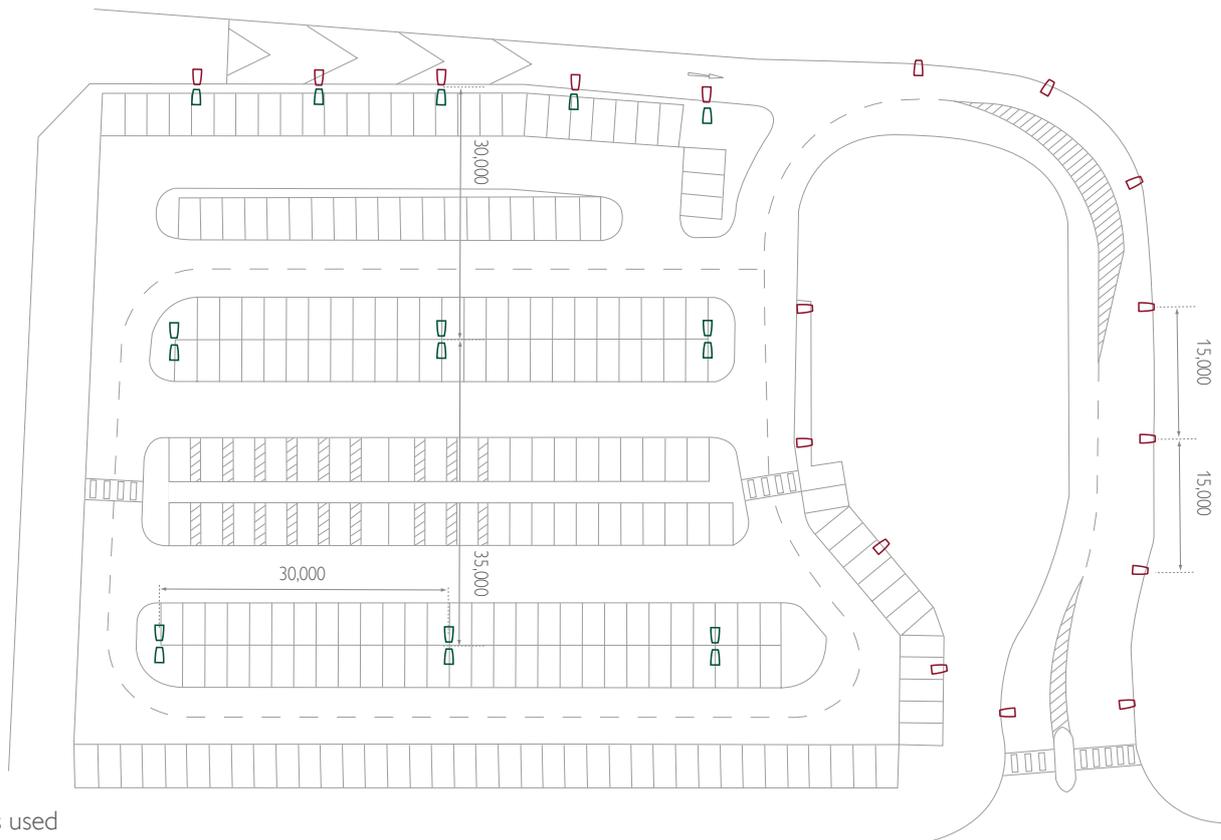
# Outdoor parking

During hours of reduced daylight or at night, good lighting is key. Sufficient light is needed for both drivers and pedestrians. Light levels should be functionally high enough to allow easy tracking of the parked vehicle and bright enough to allow pedestrians to feel safe in their nearby surroundings. Through the use of a smart motion sensing technology control system, more energy can be saved without compromising on safety.



## Plan view of a typical scheme

All dimensions in millimeters



### Luminaires used

#### SpeedStar



#### Mounting height 6m

- Incorporates LEDGINE for leading-edge performance and lifetime reliability
- Flexible system – compatible with all lighting control solutions for even greater energy savings
- Dedicated design for LEDGINE
- Long life with low maintenance
- Total solution with masts and brackets

#### Indal Luma lite



#### Mounting height 8m

- Fit and forget: 100,000 hr solutions for all traffic and residential areas
- Full range of luminaires & optics
- For all S-CE-ME classes
- In one style and quality
- LED technology offers outstanding energy savings, up to 70% versus conventional solutions

#### LumiMotion



#### Sensor

- Motion-sensing technology
- Wireless communication
- Stand-alone solution
- Flexible dim down level (down to 20% of initial flux level) as well as dimming delay
- Dimming delay
- Detection area can be set according to requirements

#### Alternatives



Iridium 2 LED



CitySoul LED

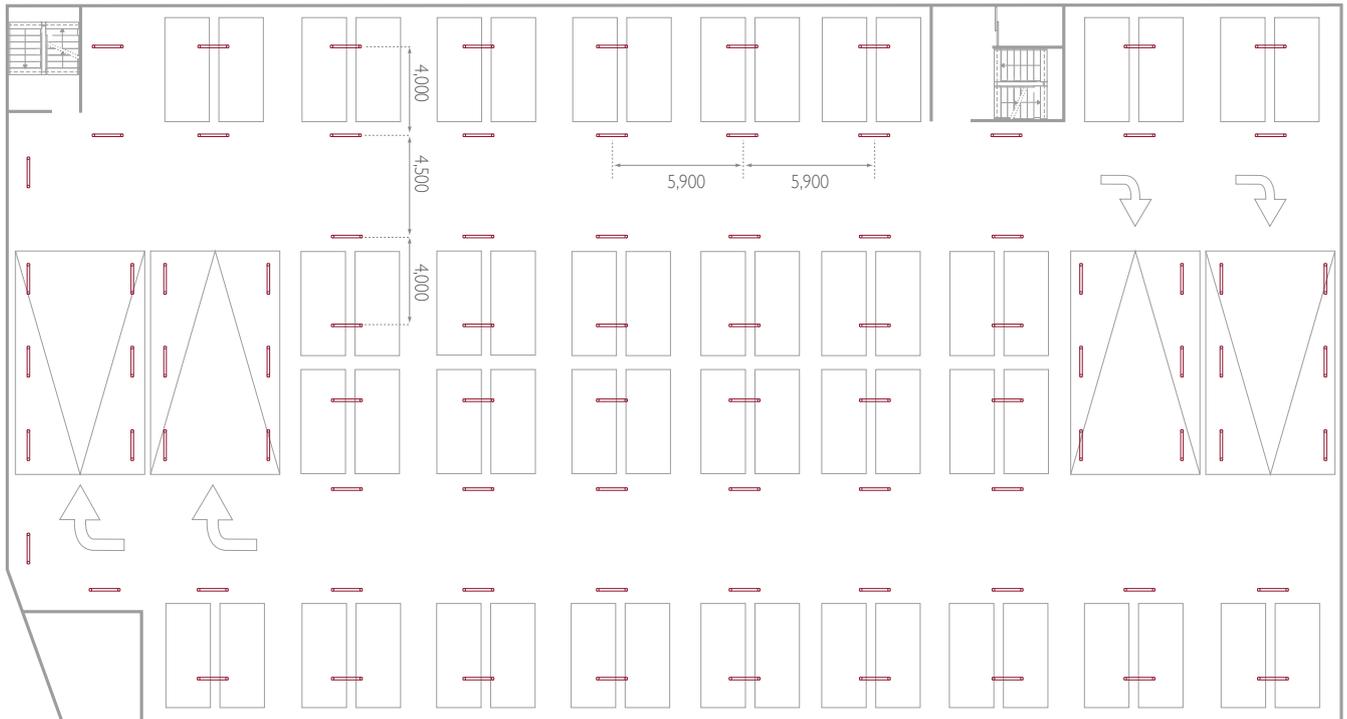
# Indoor parking

In indoor parking places, good visibility is key to avoid accidents involving both vehicles and pedestrians. Light levels should also be functionally high enough to allow easy tracking of a parked vehicle and give good facial recognition to help pedestrians feel secure. Our robust, low maintenance solutions combined with presence detection offer a complete solution for indoor spaces.



## Plan view of a typical scheme

All dimensions in millimeters



## Luminaires used

### Pacific LED GEN3



#### General lighting

- Comfortable light thanks to new optical system
- 45% energy saving compared with fluorescent solutions with electronic ballast up to 2 x 58W
- Low maintenance costs due to long lifetime of LEDs
- Light source is serviceable / upgradeable

#### Alternatives:

TCW060 C, Pacific TCW216, TMW076

### Dynalite Sensor DUS 704C



#### Sensor

- Analogue motion sensor which allow configurable sensitivity
- Detection area: 9x6 detection area at 2,4m (ceiling mount version)
- Eclipse shaped detection area
- Available in wallmount
- No segmented click-up bezel
- Interacts with any Building Management system via Gateway

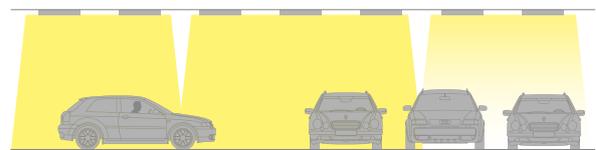


### Pacific LED Green Parking

Example zone of light: **Pedestrian**



Example zone of light: **Vehicle**



Your parking space can be broken down into specified 'zones of light' by carefully siting presence detectors that are wirelessly linked to the luminaires nearby, so your lighting is effectively 'one step ahead' of pedestrian and vehicle traffic. As sensors detect movement and increase lighting only where it's needed, visitors are always 'moving into the light' and can feel safe and certain whilst travelling to and from their cars or navigating their way around the car park.





## See what else light can do

When it comes to creating better healthcare environments and enhanced experiences for people in hospitals, we are constantly innovating. In this section we highlight some of our lighting concepts in more detail, to explain how they are relevant for improving hospital spaces further, by using the positive effects of light in all its aspects.

# Soundlight Comfort Ceiling

Inspiring tranquility



*Haworth Vianen, the Netherlands*



### The comfort effect

Soundlight Comfort Ceiling can turn an open plan office into an inspiring space that works, by combining comfortable lighting with superior sound absorption. Until recently, incorporating light into acoustic panels always compromised acoustics. Now, with our innovative layered approach, 100% of the panel surface absorbs sound. Soundlight Comfort Ceiling softens sound to low levels, provides good speech clarity and low sound propagation all around the office. The result is less disruption, a longer attention span and effortless concentration. So whatever people are working on, business is a pleasure.

### Inspiring spacious design

By illuminating broad areas of the ceiling, visual and spacial continuity improves. The space is filled with light, with high illumination levels on walls and a uniform light distribution across the office, which create the perception of a bigger space. And because light is now truly part of the overall architecture of the office, rather than an add-on, like traditional luminaires, the clutter in the ceiling is decreased as well. It results in a much more tranquil and comfortable overall office look and feel, that helps people in their job performance.

### Comfortable ambience

Soundlight Comfort Ceiling provides a wide illumination that expands the view of the office surroundings. Light feels like it comes from everywhere. It's diffuse and multi-directional, with the ceiling above the only light source. The soft light reduces unwanted shadows and provides a comfortable, practical ambience. It feels like being outdoors in natural daylight, which people find fresh and energizing – and it helps workers to stay active throughout the day.

# ArcForm

Creating a comfortable light atmosphere





### **A new dimension in LED lighting**

More and more hospitals are looking for lighting solutions that support the architecture of their building and the types of activity taking place in certain zones. Suitable for any general hospital lighting application, ArcForm can help turn any space in your healthcare facility into a sympathetically lit environment. A luminaire with soft light and a gentle appearance – ArcForm is perfect for those places where additional quality of light adds value.

### **Beautifully designed to save energy**

Clean, crisp and free of clutter, ArcForm's optical system uses MesoOptics technology that creates soft, comfortable lighting, with a full luminous surface. The luminaire's wide beam shape means that the light distribution is uniform throughout the entire space, rather than directional. And the LED boards and optics offer significant energy savings – using 50% less energy than similar conventional solutions.

### **Gentle soft light**

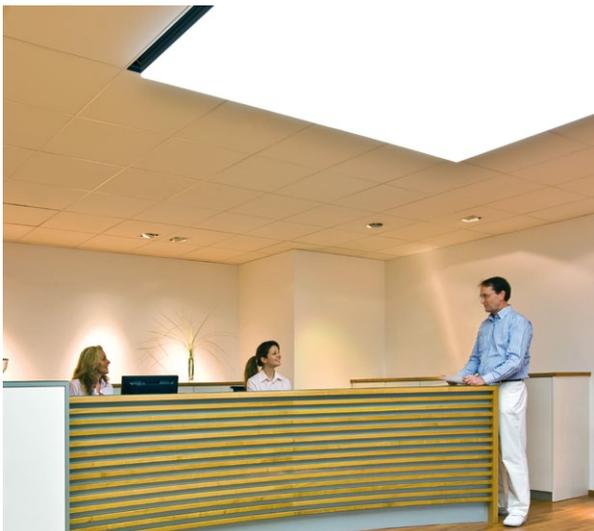
ArcForm's soft, comfortable light can help to improve staff and patient experience too – for example in corridors, where traditional lighting can be dazzling, causing discomfort for patients being wheeled through from department to ward. In contrast, ArcForm's evenly distributed light enables you to create well lit spaces, while the light remains soft and gentle to the eye, even when you look at it directly.

# Dynamic Lighting

How lighting can make a difference for patients and staff



*Elderly Care Home, Solingen, Germany*



### The natural power of light

Light plays an important role in the indoor environment. For people who have to stay or work indoors for substantial time of the day, it is crucial to provide an environment that strengthens the connection to the outdoor environment and enhances their sense of well-being. Light influences our health and well-being much more than we realize. It is important for people's health, since it helps in regulating important processes in our body, via the biological clock.

### Dynamic Lighting solutions

Dynamic Lighting brings the dynamics of daylight indoors. With seamless changes in brightness and warmth it creates a stimulating 'natural' light that can support people's activities and relaxation throughout the day.

Our Dynamic Lighting solutions can be programmed to mimic natural daylight, to design flexible and dynamic spaces and to create more comfortable and relaxing healthcare environments. The solutions include a daily cycle of light, which can be adapted to the different needs of patients, visitors and staff, or specific department schedules.

### Benefits for patients and elderly residents

In Healthcare environments, Dynamic Lighting can help to create an environment that supports the sleep-wake rhythm of patients in hospitals, a principle we also use in our HealWell solution, but it is equally important for elderly residents in nursing homes.

### Benefits for staff

It's not just patients who can benefit from Dynamic Lighting. It makes a difference to your staff too. Using Dynamic Lighting in healthcare facilities, can help doctors, nurses and other staff, to enhance their energy levels, concentrate better and stay alert. With the ever-changing lighting effects, the space becomes a more inspiring, comfortable and vibrant working environment.

# Large Luminous Surfaces

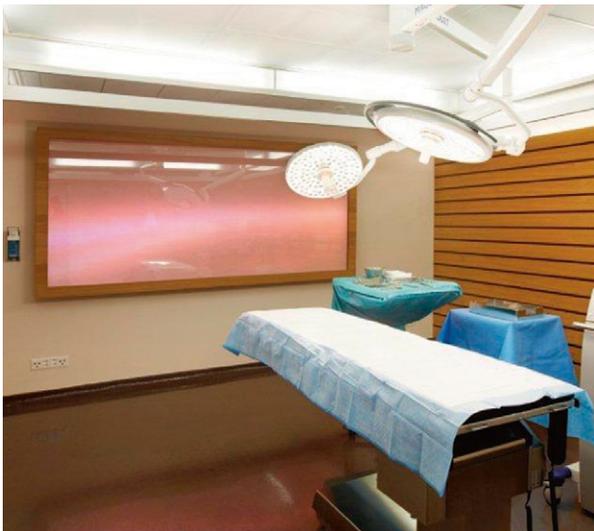
## Bring spaces alive

Philips luminous textile with Kvadrat Soft Cells is an easy-fit system that integrates multi-colored LED modules within acoustic textile panels to show dynamic content and soften sound. Within healthcare environments, luminous textile panels can help create supportive healing environments, influencing the wellbeing of patients, staff and visitors in a positive way. Dedicated nature content has been developed for applications in healthcare, which include waiting rooms, examination rooms, imaging rooms and patient rooms.

Luminous textile can be especially effective in a delivery room, where relevant digital content can help support the different stages of the labor and delivery process.



*Delivery room, Nordsjællands hospital at Hillerød, Denmark*



#### Luminous Textile Panels – an overview

- Freedom of design
- Maximum of 18 modules, standard or customized
- Pixel pitch: 60 mm
- Panel thickness: 127 mm
- Size per standard panel: Min. size 0.72m (increasing with steps 0.60m) to max. size 1.20m x 6.48m
- Weight per panel: Min. weight 15kg for smallest panel to max. weight 67kg for biggest panel
- Power usage: 55 W m<sup>2</sup>
- Front fabric: Kvadrat textile (8 textures, up to 8 colors per texture)
- Mountable with bolts and magnets for precise mounting per panel. Number of mounting points depends on panel size
- Number of panels connected: Unlimited number of panels. Master > slaves, connected via router
- IP rating: Indoor only (IP20)
- Operating temperature range: 5-35°C / 41-95 °F
- Operating max relative humidity range: 95% (non condensing)
- Input voltage: 100-240V AC 50/60 Hz
- Acoustic properties: Depending on textile, from ISO 11654 Category D and above
- Light output: 170 cd / m<sup>2</sup>
- Content: Access to standard content included. Premium content subscriptions and customized content possible
- Content management: Content management software included in price
- System integration: Via HTTP commands, onboard player, Kinet

[www.largeluminoussurfaces.com](http://www.largeluminoussurfaces.com)

# Top tips for specifying LEDs

The rise of LED lighting is driving a significant transformation of our lighting industry – offering flexibility, creativity, programmability and energy efficiency.

But standards vary tremendously. In recent years the lighting market has been flooded by a vast number of new and unproven entrants. Some making claims about their products' performance that don't stand up to scrutiny, while established manufacturers stand by their track records. Who to believe? As things stand, it can be difficult to know whom to trust to deliver on their promises, which potentially undermines the whole LED lighting industry.

A CELMA guiding paper published in November 2011 aimed to help bring clarity by introducing a universal set of quality criteria described in two IEC/ PAS documents.

As a user of LED luminaires it is important to apply the same set of standardised, comparable quality criteria when evaluating manufacturers' claims. LED luminaire specifications should always be measured against these.

There are three elements that can be standardised: technical definitions, measurement methods and limiting values. The IEC/PAS performance requirement documents describe the definition of quality criteria and the way to measure them. This means you will now be able to judge claims on an equal, like-for-like basis – creating a 'level playing field' that truly serves the interests of end-users, specifiers, designers and manufacturers.



**The IEC/PAS documents suggest the following list of quality criteria to be considered when evaluating manufacturer's claims:**

- a) Rated input power.
- b) Rated luminous flux.
- c) LED luminaire efficacy.
- d) Luminous intensity distribution.
- e) Photometric code.
- f) Correlated Color Temperature (CCT).
- g) Rated Color Rendering Index (CRI).
- h) Rated chromaticity co-ordinate values both initial and maintained.
- i) Lumen maintenance code.
- j) Rated life (in h) of the LED module and the associated rated lumen maintenance (Lx).
- k) Failure fraction (Fy), corresponding to the rated life of the LED module in the luminaire.
- l) Ambient temperature (tq) for a luminaire.

**A brief summary of the different quality criteria:**

- a) **Rated input power**  
The rated input power shows the amount of energy consumed by a luminaire, including its power supply. It is expressed in watts.
- b) **Rated luminous flux**  
It corresponds to the light emitted by the luminaire which is expressed in lumen (unit of light output). It is expressed in lumens.
- c) **LED luminaire efficacy**  
The measured initial luminous flux divided by the measured initial input power of the same individual LED luminaire. It is expressed in lumens per watt.
- d) **Luminous intensity distribution**  
The spatial distribution of the luminous flux graphically depicted in a luminous intensity distribution curve, which is usually expressed in a polar coordinate diagram representing the light intensity as a function of angle about a light source.  
It is expressed in  $\text{cd} = \text{lm} \times \text{sr}^{-1}$ .
- e) **Photometric code**  
A six digit photometric code that displays the important 'quality of light' parameters: CRI, CCT, chromaticity co-ordinates and luminous flux.
- f) **Rated Color Rendering Index (CRI)**  
The colour rendering of an LED module giving white light is the effect on the color appearance of objects

by conscious or subconscious comparison with their color appearance under a reference illuminant.

**g) Correlated Color Temperature (CCT)**

The colour temperature of a LED module giving white light is determined by comparing the light emitted by the LED module with light of an ideal black-body radiator at the given temperature. It is expressed in Kelvin.

**h) Rated chromaticity co-ordinate values**

Both initial and maintained. The behaviour of the chromaticity co-ordinates of a LED module expressed in two measurement results of both initial and maintained chromaticity co-ordinates.

**i) Lumen maintenance code**

The measured initial luminous flux (initial value) is normalised to 100% and used as the first data point for determining the LED module life. The maintained luminous flux (maintained value) is measured at 25% of rated life time up to a maximum of 6.000 hours and expressed as percentage of the initial value. The maintained value determines the lumen maintenance code.

**j) Rated life** of the LED module and the associated rated lumen maintenance (Lx). The length of time during which a population of LED modules provides more than the claimed percentage (x) of the initial luminous flux always published in combination with the failure fraction. It is expressed in hours.

**k) Failure fraction (Fy)**, corresponding to the rated life of the LED module in the luminaire. The percentage (y) of a number of LED modules of the same type at their rated life designates the percentage (fraction) of failures. This failure fraction expresses the combined effect of all components of a module including mechanical, as far as the light output is concerned. The effect of the LED could either be less light than claimed or no light at all.

**l) Ambient temperature (tq) for a luminaire.**

The ambient temperature around the luminaire related to the specified performance. For a given performance claim the ambient temperature (tq) is a fixed value. It is possible to specify performance claims at different ambient temperatures. It is expressed in degrees Celsius.

Note: please be aware that you have to make sure that the tq shall be in accordance with the actual application where the LED luminaire will be used.

For more information see: 'Apples and pears – a CELMA guiding paper: why standardisation of performance criteria for LED luminaries is important'.

# Connected lighting – an intelligent approach

We understand the importance of getting your lighting right. You need the right lighting that works for you in every situation to maximise the potential for positive change.

By switching to an intelligent lighting system that applies the correct level of light as required, you can move to a sustainable, low impact lighting solution that helps you meet energy consumption, carbon emissions targets and legislation requirements and can substantially reduce your expenditure, while improving the comfort for patients and staff in hospitals.

The success of any intelligent lighting system depends on three principal factors: system design, proper commissioning and providing adequate user comfort. All three factors affect user experience as well as estimated energy savings. Overall, combining several controls strategies can generate energy savings of 30-55% for a complete building, depending on the application.





## Options for energy saving

### Limit the use of lighting

Energy usage patterns for a building should reflect the facility occupancy time profile. When traffic in common and circulation areas is reducing in the evening and at night, light levels may be lowered to levels that still provide a safe and comfortable working environment and reassuring illuminance of an egress path. Time-based switches are used for after-hours circulation spaces – lighting that is not required can be automatically switched off or dimmed.

### Daylight integration

Natural light has an important bearing on the wellbeing of occupants and is accompanied by their need to be connected to the world outside. Lighting control solutions enable us to strategically substitute artificial light with natural light, slowly dimming lights parallel to daylight entry and achieving considerable energy savings.

### Low circulation areas

These areas in a hospital are a common source of unnecessary energy usage. Occupancy detection can help to save energy, by providing light only when and where it is required.

## Options for improving comfort and flexibility

### Scene setting

Multi-scene controls can be applied in various rooms, for example in examination and treatment rooms, meeting rooms or other areas where multiple activities and the needs of different users have to be combined in the shared space.

### Dynamic lighting recipes

Automated controls are for instance used in spaces where day-rhythms are desired, to mimic the course of natural light outside. Examples of applications are dynamic lighting in staff rooms and corridors, but this can also be of benefit in, for example Intensive Care Units where patients, after severe or critical treatment, are often in need of extra support and orientation during extended recovery times.

## Benefits of central control networks

The above-mentioned possibilities can be used locally, on room or department level. Higher levels of networking are also available, allowing integration of controls on multi-department level or with other building management systems, and even extended to multiple buildings. Control networks on building management level can connect the data from all luminaires and thus provide valuable data – like intelligent energy calculation and shared occupancy information. These networks can also monitor maintenance requirements, based on lamp values, burning hours and error reporting. And they can be coupled to other systems, like HVAC and blinds, making one interface possible. Centralized control networks can provide optimal building performance to ensure maximal comfort, easier maintenance and minimum energy usage. They can also help to maximise flexibility for building owners to enable future expansion or restructuring.



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