PHILIPS
sense and simplicity

Hospital Lighting

Lighting Applications Support Group, SR
We would like to share our thoughts with you on ...

1. **Human needs** in the hospital environment

2. **Architecture** of the hospital environment

3. **Lighting** of the hospital environment

4. **Human centric lighting design** with innovative lighting solutions & case studies
We take the needs of patients, family and medical staff as the starting point of meaningful innovative lighting solutions.
Human needs in the hospital environment

Patients

- identity
- autonomy
- social contact
- privacy

Wellbeing
“I was a little scared, but that place was fun!”
Human needs in the hospital environment

Visitors

- hospitality
- trust
- safety
- orientation

Information

Maxima Medical Center, MVRDV Architects
Human needs in the hospital environment

Medical staff

- Wellbeing
- Functionality
- Communication
- Orientation

Performance
2 Architectural aspects of the hospital environment

We are the enabling partner to develop meaningful lighting solutions for all areas of healthcare facilities
Architectural aspects of the hospital environment

Patient room

Trends for patient rooms

• Rather more a hotel room than a functional room

• New (and hidden) technology for treatment and entertainment

• Personalisation and patient autonomy

• Functional flexibility

Lighting

• Give people the choice to create individual lighting moods according to moods and situations

• Adapt lighting flexible to working process of a hospital

Patient room turns into hotel room
Architectural aspects of the hospital environment

General circulation

Trends for general circulation areas

- Communication and representation become more important for hospitals
- **Orientation and guidance** especially for patients and visitors
- “Opening up” the institution makes the hospital a 24 hours public space

Lighting

- Create welcoming atmospheres
- Use lighting for guidance and orientation
- Structure spaces through lighting
- Increase safety through lighting
- Safe energy through light management systems and new lamp technology

Maxima Medical Center, MVRDV Architects
Architectural aspects of the hospital environment

In-service areas

Trends for in-service areas

• Open the hospital for new audiences (patient with family, health tourism)
• Offer additional services connected to health (e.g. wellness)
• **New models for health care integrated into hospitals** (e.g. facilities for outpatients)
• Social contact as part of the healing process

**Lighting**

• Apply lighting designs which are known from restaurants or hotels
• Use lighting to create flexible ambiances
• Make use of the biological effects of lighting in wellness areas
• Allow more intuitive orientation through lighting (e.g. for patients)
Architectural aspects of the hospital environment

Office

Trends for office areas

• Dynamic workflows and less hierarchy change the office environment

• Flexible room usage

• **Enhancing well-being of staff**

Lighting

• Increase well-being effect of lighting (especially in places without access to daylight)

• Offer possibilities to adapt light to different working tasks (e.g. communication/concentration)

Atrium Hospital in Heerlen
Architectural aspects of the hospital environment

Examination area

Trends for examination areas

- Design floor areas around the patient (not only around professional processes)

- Constant technological innovation

Lighting

- Use lighting (and other architectural means) to decrease anxiety and fear

- Increase well-being through dynamic lighting (especially in places without access to daylight)

- Better diagnosis possibilities through special lighting

- Lighting to reduce stress
We connect visual, emotional and biological needs of people in integrated, total lighting solutions.
Lighting aspects of the hospital environment

Integrating the different dimensions of lighting
Lighting aspects of the hospital environment

Visual effects of lighting

The visual part of light influences the way we perform in a given environment.

- Glare free environments
- Task recognition
- Even light distribution
- Safety

Especially important for:

- Office areas
- Examination rooms
- Operation theatres
- Guidance and orientation (indoor and outdoor)
Lighting aspects of the hospital environment

Emotional effects of lighting

The emotional part of light influences our mood, wellbeing and the subconscious perception of a space.

- Colours
- Contrast, sparkle
- Dynamics and flexibility
- Playful use of light

Especially important for

- Diagnostic rooms
- Patient rooms
- Public areas
- In-service areas (restaurant and cafés)
- Reception areas
- Facade lighting
The biological part of light influences body functions and can help people to concentrate better or create relaxing environments.

- Ocular light
- Quality of alertness an relaxation
- Dynamics (day/night)
- Colour temperature and wavelength

Especially useful for

- Areas without or less direct daylight
- Office areas
- Relaxation areas
4 Human centric lighting design

Solutions and case studies
4 Human centric design solutions
4 Human centric design solutions

- lighting
  - patient
    - examination
      - visual
      - emotional
      - biological
4 Human centric design solutions

Solution: Concept AmbiScene-Healthcare
Human centric design solutions: AmbiScene-Healthcare

Concept

Objective

Breaking down the barrier that can make a visit to the hospital an intimidating experience

Concept

AmbiScene-Healthcare is a lighting concept that enables the creation of dynamic spaces with lighting

Lighting can change almost endlessly in color, contrast, tones of white light, direction, time, intensity. Variation in these lighting elements makes it possible to create inspiring and meaningful experiences
Human centric design solutions: AmbiScene-Healthcare
Case – Teknon Hospital, Barcelona (Spain)
Human centric design solutions: AmbiScene-Healthcare
Case – Marian Hospital, Hamburg (Germany)
Doctors see great improvement in the accuracy of their test outcomes, when working with relaxed patients.

Facts: the repeat rate of examinations

- An average repeat rate in standard MRI examinations of about 4%,

- **AmbiScene-Healthcare** shows rates of 0.5% only.

- This leads to higher workflow efficiency for the hospitals and surgeries and especially in CT rooms to less radiation exposure for the patients.
Human centric design solutions: Ambient Experience

4 key pillars

- Patients physical & Emotional Comfort
- Patient & Staff Contact
- Experience Personalization
- Work Flow
Human centric design solutions: Dynamic Lighting
Bringing daylight inside
Human centric design solutions: Dynamic Lighting
Bringing daylight inside

**Objective**

Bring daylight scenarios into an office building
Enhance well-being and performance of staff

**Concept**

Following the rhythm of daylight, Dynamic Lighting creates a stimulating, ‘natural’ lighting ambience and enables individuals to control the lighting according to their personal preference

Adapt lighting to different needs, moods, working tasks and events
Human centric design solutions: Dynamic Lighting
Case Jeroen Bosch Hospital, The Netherlands

64% of medical staff can concentrate better
46% of medical staff feels more fit
The three main themes of Philips Lighting

Ambiance
- Enable end-users to create own flexible atmospheres
- Built in expertise of lighting designers

Wellbeing
- Enable people to look, feel and perform better
- Better light quality
- Biological effects of light

Sustainability
- Good for the environment
- Lower total cost of ownership (energy efficiency and life-time)
Sustainability

Ambiance

• Enable end-users to create own flexible atmospheres
• Built in expertise of lighting designers

Wellbeing

• Enable people to look, feel and perform better
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Sustainability

• Good for the environment
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PRODUCTS
Claria
Cleanroom Luminaires
Healthcare

• Healthcare segment requires special protection for highest degree of hygiene and safety
• Operation theatres, patient rooms, ICUs and pathological laboratories require special Cleanroom luminaires to maintain the safest environment
• Luminaires must also be sterile, non-corrosive and should be cleanable by disinfectant solutions
• Effective lighting also plays a key role in patient diagnosis and treatment
Cleanroom Luminaire - Range overview

2x36 TL-D Recessed - TO

2x36 TL-D Recessed - BO

3x36 PL-L Recessed - TO

3x36 PL-L Recessed - BO

3x36 PL-L Surface - BO
Direct – Indirect Luminaire - TBS 440

Key Features & Applications:

1. Available in CFL & T5 Options.
2. High LOR
3. Patient Rooms
4. Examination Rooms
Water Proof Luminaire - TCW 450
Product View

Robust Design

Multiple Lamp options - TL & TL5

Sleek

Easy Maintenance
<table>
<thead>
<tr>
<th><strong>Feature</strong></th>
<th><strong>Benefit To Customer</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>PC housing and Cover</td>
<td>Protection against corrosion- Long Lasting</td>
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<tr>
<td>Ingress protection IP 65</td>
<td>Maintenance friendly- Longer Cleaning intervals- less Interruptions</td>
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<tr>
<td>High Wattage version</td>
<td>For High height applications/ high Light output requirements – lower number of luminaires needed</td>
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<tr>
<td>Electronic Gear</td>
<td>Flicker free &amp; low operating costs</td>
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<tr>
<td>PC toggles</td>
<td>Less time In Maintainace</td>
</tr>
<tr>
<td>Option of fitment</td>
<td>Easy Installation</td>
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Philips Xtra/Xtreme
The range

Have a lifetime of 3 (Xtra) to 5 (Xtreme) times longer compared to “normal” TL-D lamps
Philips Xtra/Xtreme

Why Philips long-life lamps & gear?
Philips Xtra/Xtreme

Why Philips long-life lamps & gear?

• The unique X-technology from Philips guarantees the highest lifetime reliability for lamps and gear in the market.

• Lowest mercury content per burning hour in the market.

• Philips offers the optimal lighting solution for various applications with a lifetime of 3 (Xtra) to 5 (Xtreme) times longer compared to “normal” fluorescent lamps.

• Philips HF-P Xtreme gear enables an extra long and reliable HF system life.

• Market leader in Lighting (since 1891), reliable and sustainable partner.
Philips Xtra/Xtreme

Lifetime comparison

![Graph showing lifetime comparison between different models of Philips Xtra/Xtreme lamps. The graph plots survival rate (%) against lifetime (hours). The models compared are MASTER TL-D Super 80, MASTER TL-D Xtra, and MASTER TL-D Xtreme.]
Philips Xtra/Xtreme
A complete range

MASTER TL-D Xtra
MASTER TL-D Xtreme

MASTER TL5 Xtra

HF-P Xtreme gear for TL5 and TL-D

MASTER PL-C Xtra

MASTER PL-T Xtra

MASTER PL-L Xtra
Philips Xtra/Xtreme

The right lamp and gear for each application
LuxSpace
Why waste energy and money if green LED products become the best lighting choice

LuxSpace is the best proposition for you Downlight Application
LuxSpace Applications

• Offices
  – circulation areas, corridors, staircase, lobbies, reception, canteens, meeting rooms, rest rooms

• Retail
  – Sales areas (300-500lux), corridors, dress rooms

• Hospitality & Cruise ships
  – Corridors, service areas, reception, lobbies, lounges, restaurants, cabins

• Healthcare
  – Corridors, reception areas, waiting areas

• Airports
  – Arrival/departure halls, corridors, waiting areas, service desks, shops
Movement Sensors - Occuswitch

Application:

1. Corridors
2. Toilets
3. Cabins
Actilume
Where is it for?

- Cell offices
- Open plan offices/areas
- Corridors
- Toilets
- Meeting rooms
- Dedicated Projects
- Labs
What does ActiLume offer?

• A new luminaire based automatic dimming system
• Gives automatic energy savings whilst keeping maximum comfort
• Plug and Play easy to install, no programming which allows ‘state of the art’ dimming for small projects
• Future-proof for upcoming legislation and for any office changes
• Value for money, good TCO.
A new luminaire based automatic dimming system

Components:

- **New 21 mm TD/DALI gear range**
- **For use with fluorescent lamps**
- **New Sensor**
- **New Controller**
- **Optional**