

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

1 Human needs in the hospital environment

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



o identity

o autonomy

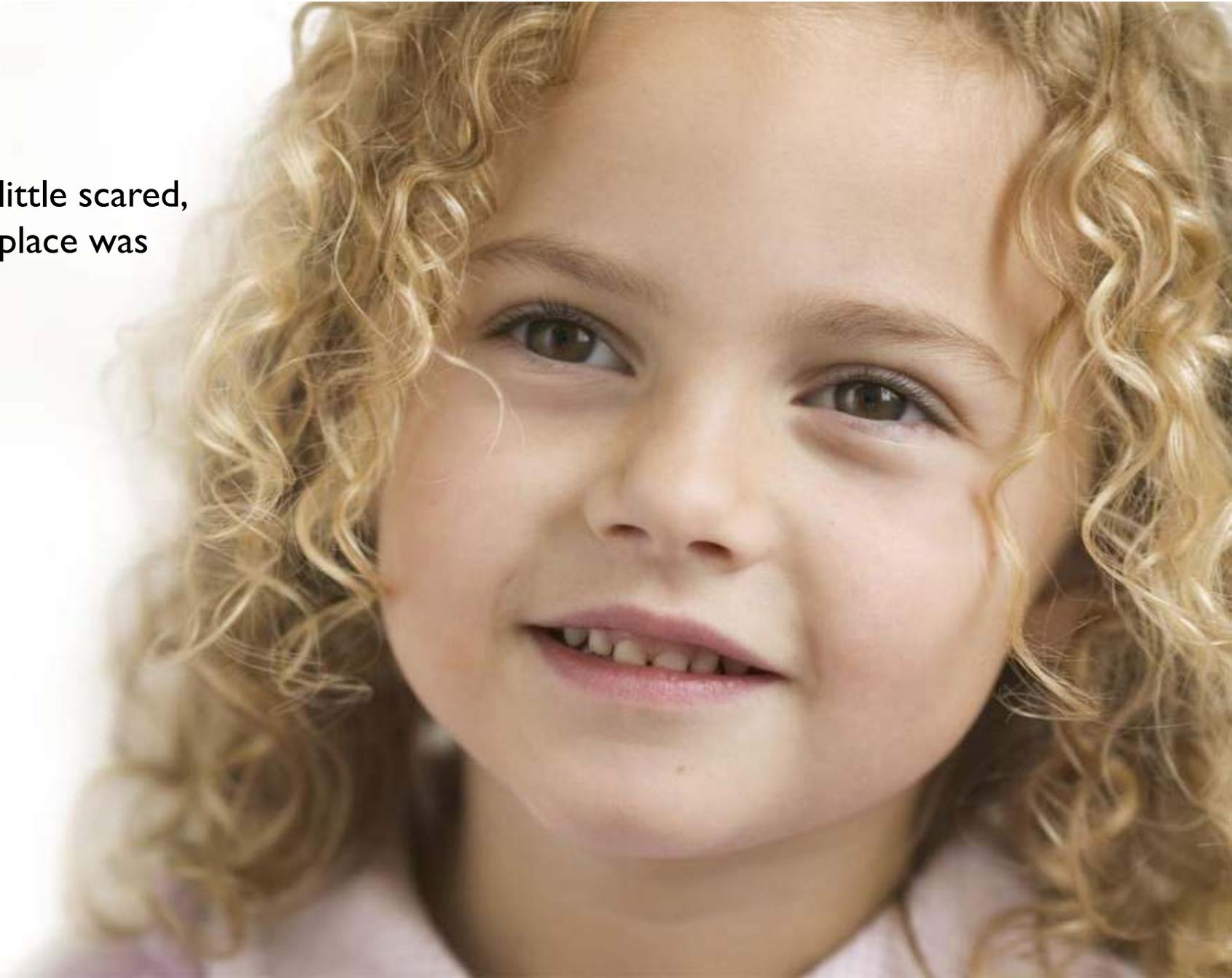


o social contact

o privacy

PHILIPS

“I was a little scared,
but that place was
fun!”



Human needs in the hospital environment

Visitors



o hospitality

Information

o trust

o safety

o orientation

Human needs in the hospital environment

Medical staff



o communication

o functionality

Performance

o Wellbeing

o orientation

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



Patient room turns into hotel 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

Architectural aspects of the hospital environment

General circulation



Maxima Medical Center, MVRDV Architects

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

Architectural aspects of the hospital environment

In-service areas



Matsudai, Japan, MVRDV Architects

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



Atrium Hospital in Heerlen

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)

Architectural aspects of the hospital environment

Examination area



Matuda Dental Clinic

Trends for examination areas

- **Design floor areas around the patient** (not only around professional processes)
- Constant technological **innovation**

Lighting

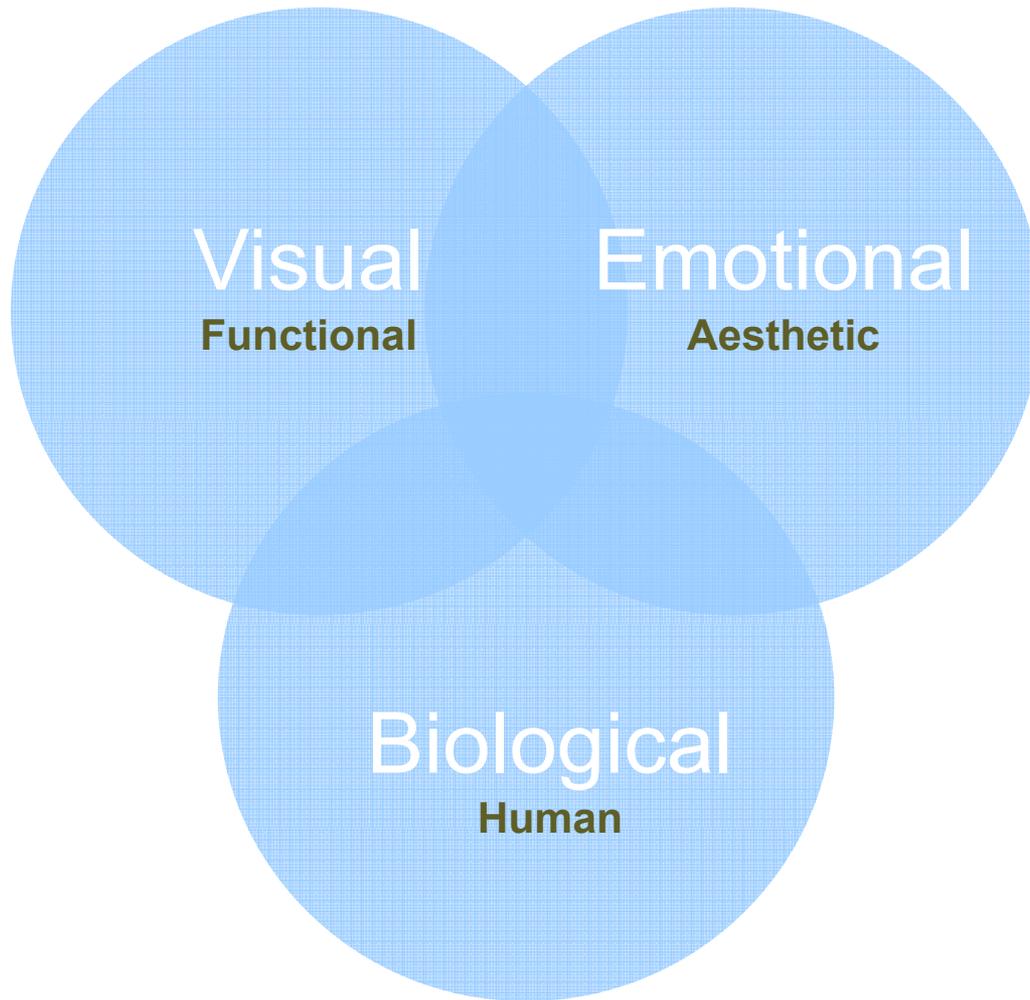
- Use lighting (and other architectural means) to decrease anxiety and fear
- Increase well-being through dynamic lighting (especially in places without access to daylight)
- Better diagnosis possibilities through special lighting
- Lighting to reduce stress

3 Lighting aspects of the hospital environment

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

Lighting aspects of the hospital environment

Biological effects of lighting



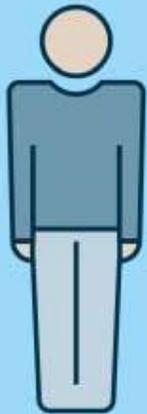
The biological part of light influences body functions and can help people to concentrate better or create relaxing environments.

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

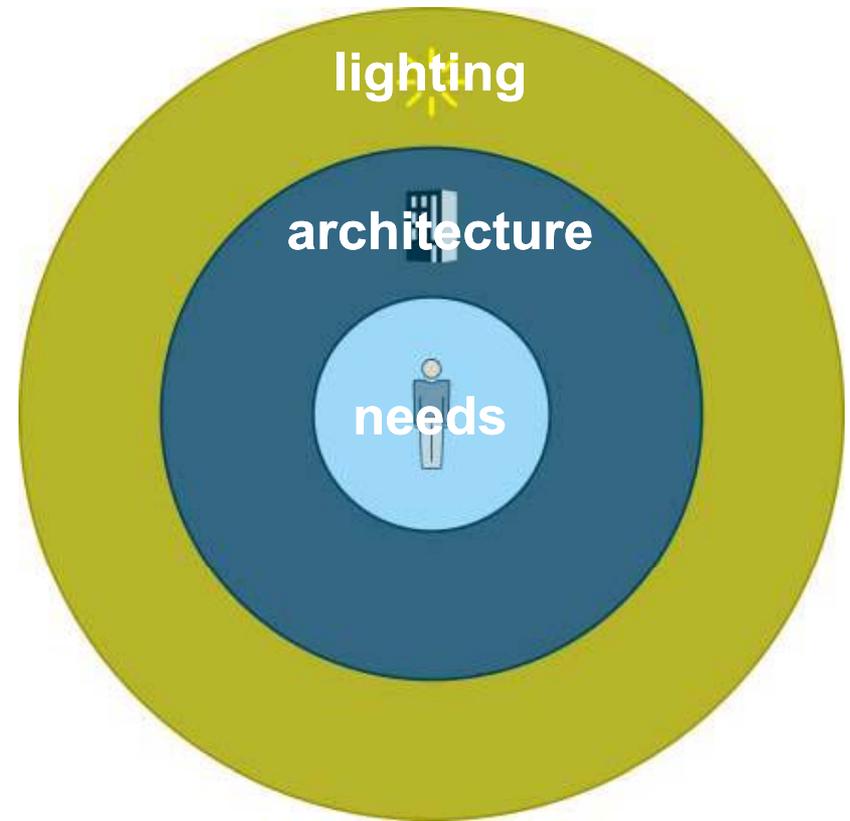
Especially useful for

- Areas without or less direct daylight
- Office areas
- Relaxation areas

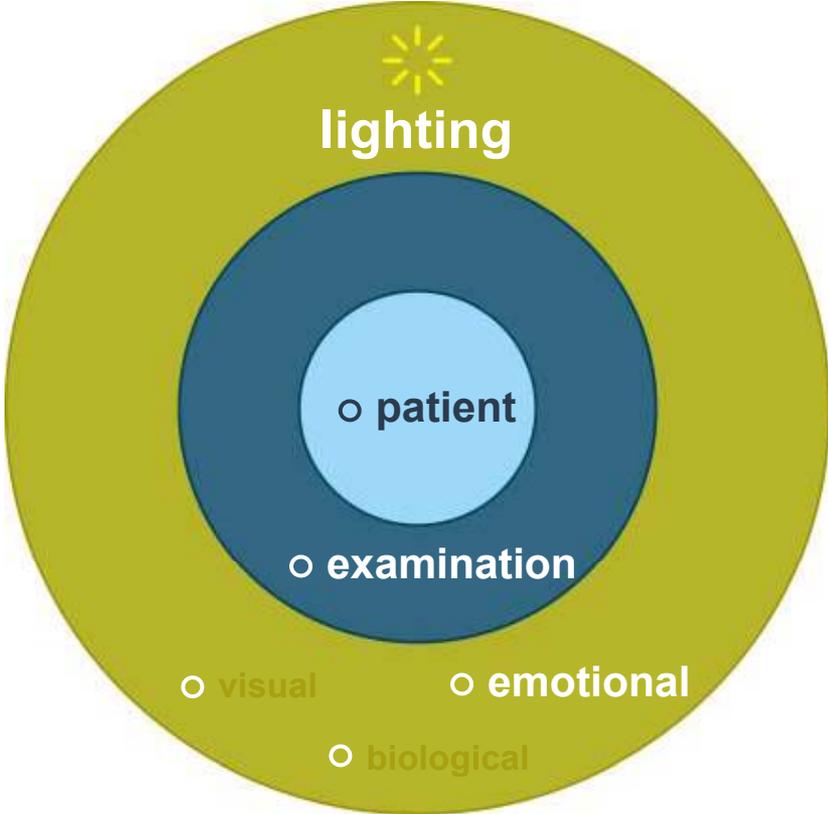
4 Human centric lighting design
Solutions and case studies



4 Human centric design solutions

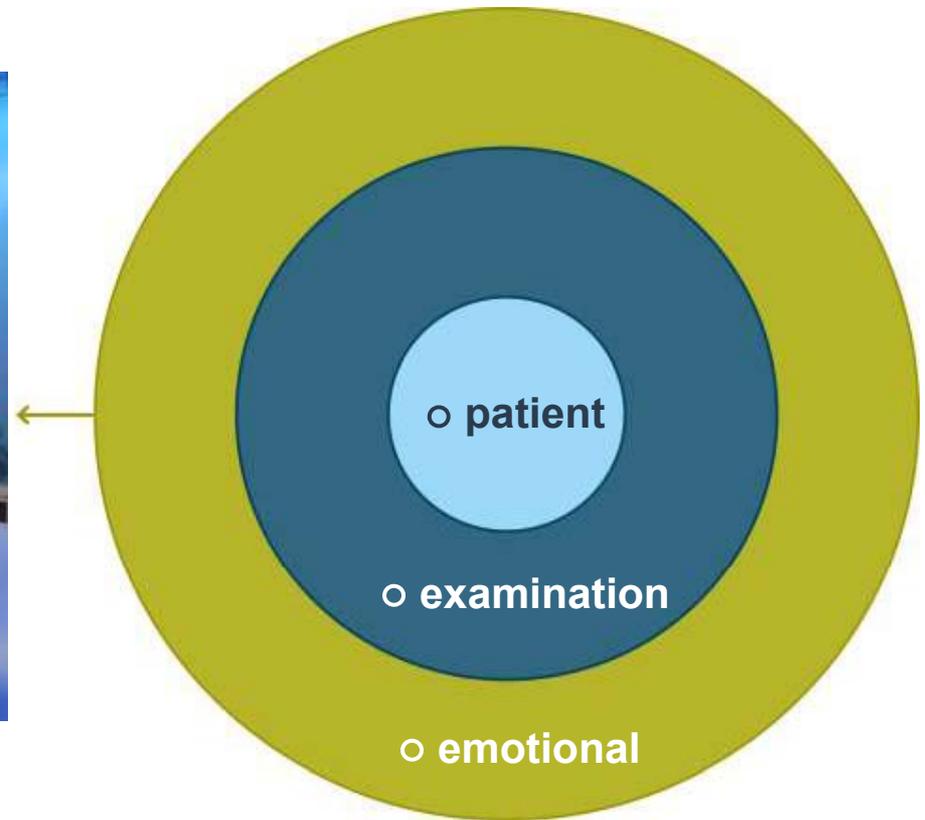


4 Human centric design solutions



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)



Human centric design solutions: AmbiScene-Healthcare Facts till today



Facts till today...

Doctors see great improvement in the accuracy of their test outcomes, when working with relaxed patients.

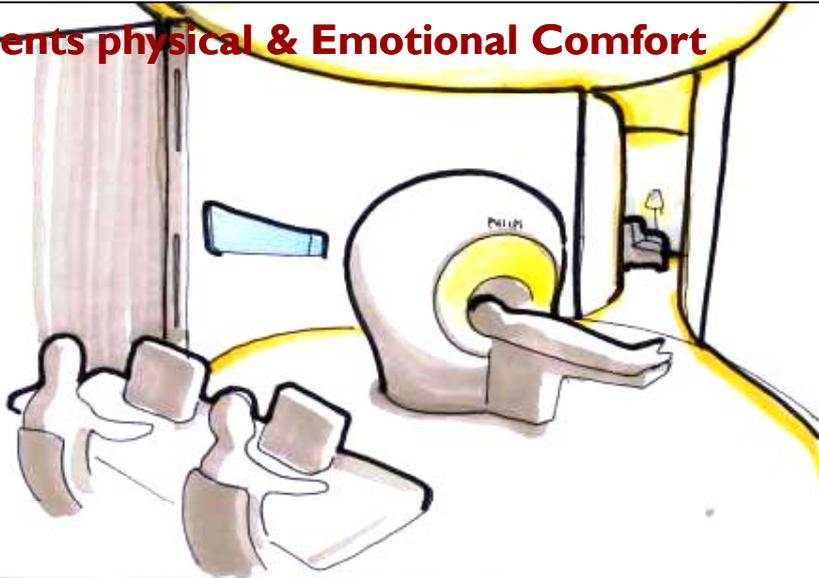
Facts: the repeat rate of examinations

- 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

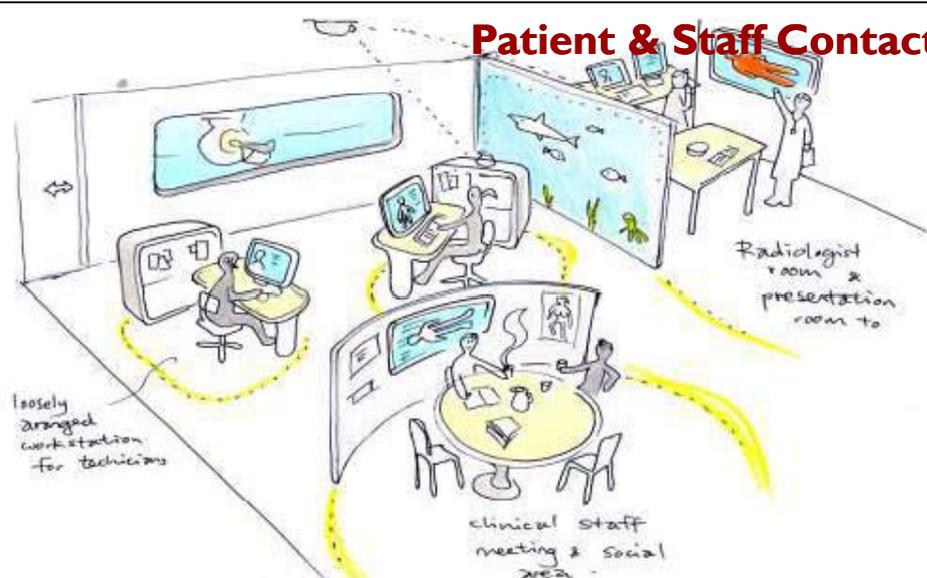
Human centric design solutions: Ambient Experience

4 key pillars

Patients physical & Emotional Comfort



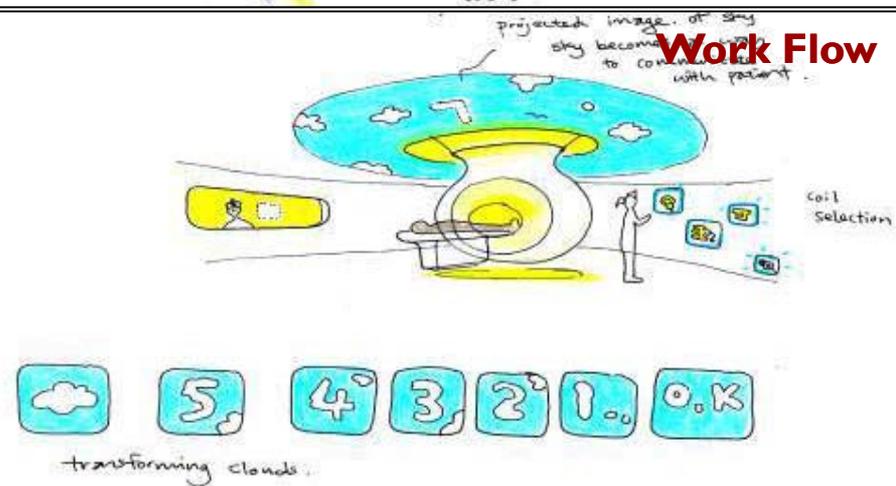
Patient & Staff Contact



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
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Wellbeing

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Sustainability

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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



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Product View



Robust Design

Multiple Lamp options- TL & TL5



Sleek



Easy Maintenance

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



Philips Xtra/Xtreme

The range



MASTER TL-D Xtra ✓



MASTER TL-D Xtreme ✓



MASTER PL-C Xtra ✓



MASTER PL-T Xtra ✓



MASTER TL-D Xtra/Xtreme Secura ✓



MASTER TL-D Xtra/Xtreme Polar ✓



HF-P Xtreme gear ✓



MASTER PL-L Xtra ✓

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

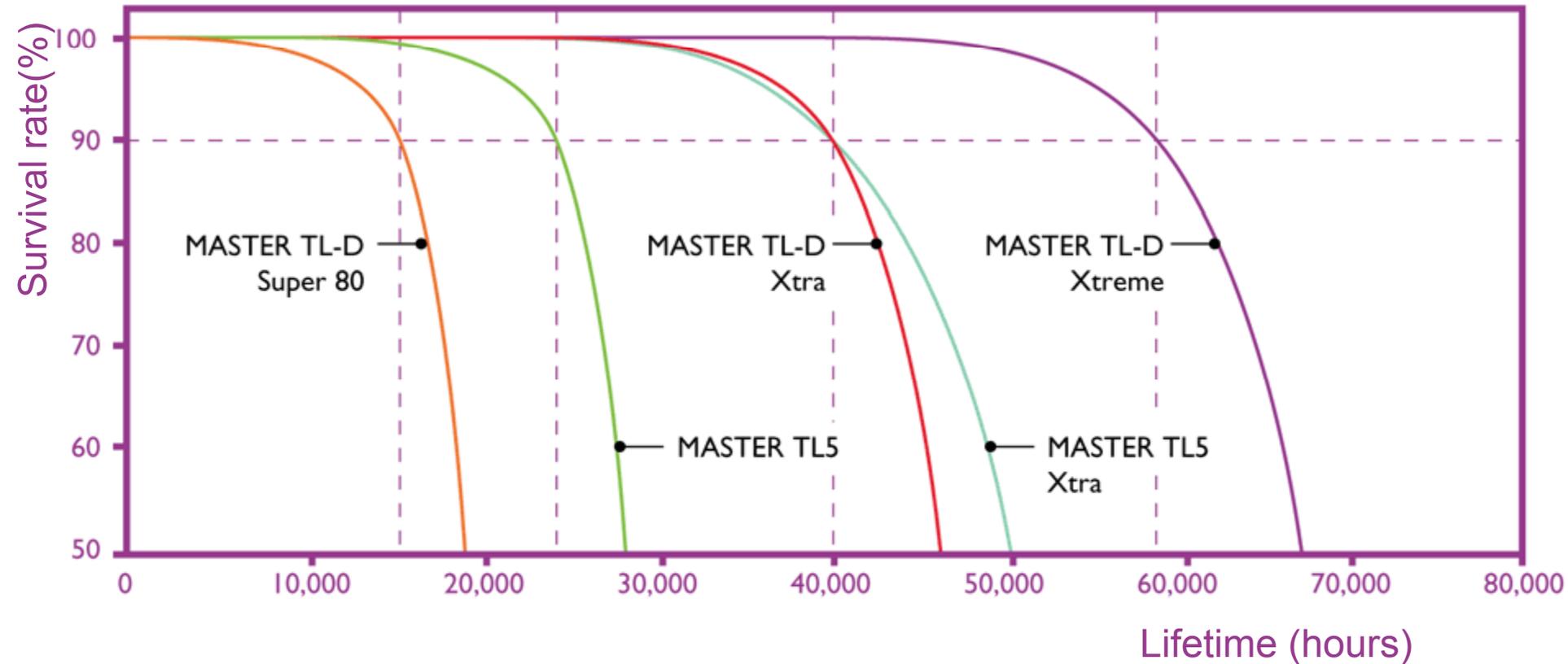
Why Philips long-life lamps & gear?

- 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



Philips Xtra/Xtreme

A complete range



MASTER TL-D Xtra



MASTER TL-D Xtreme



MASTER PL-C Xtra



MASTER PL-T Xtra



MASTER TL5 Xtra



HF-P Xtreme gear
for TL5 and TL-D

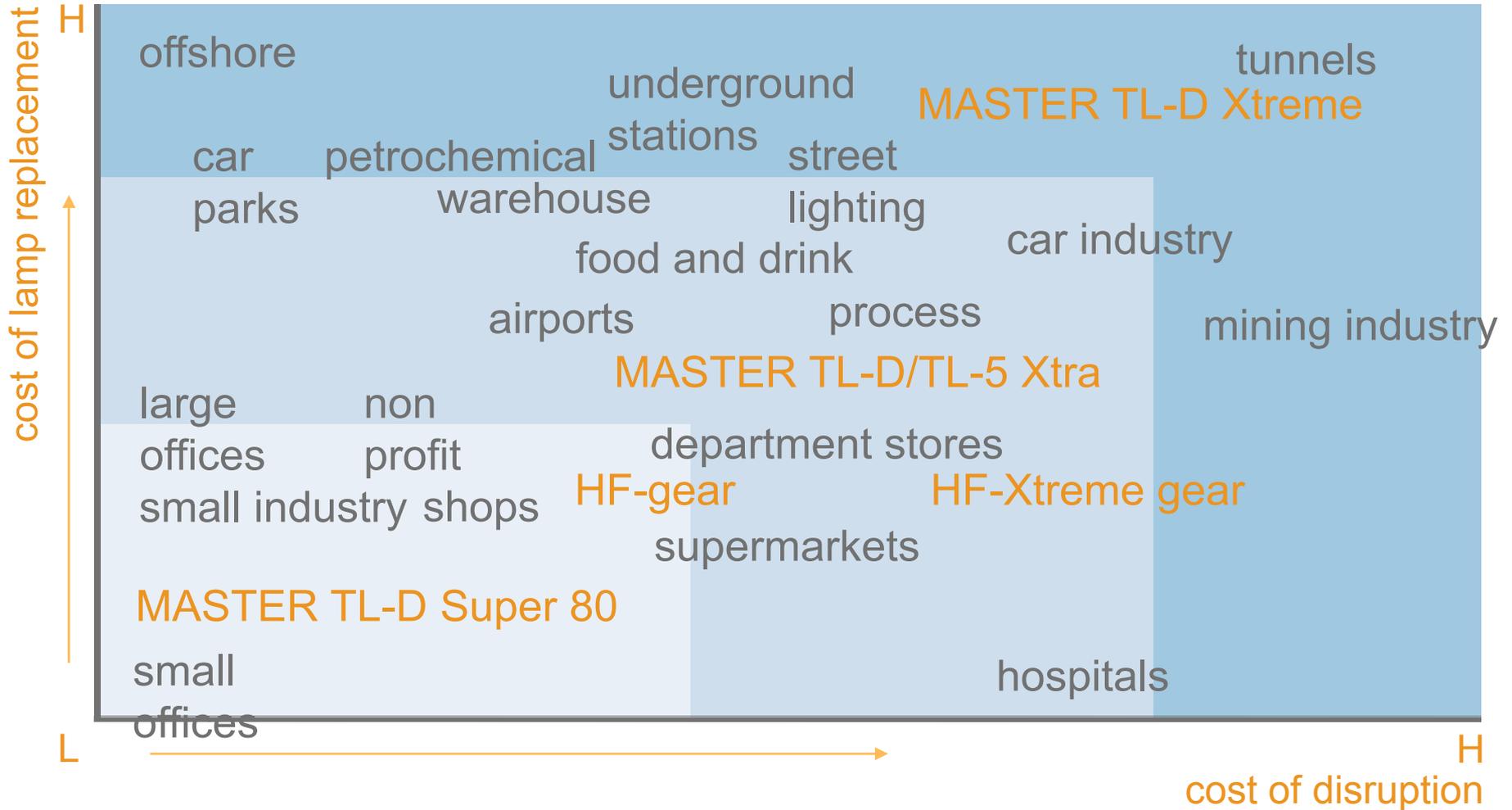


MASTER PL-L Xtra



Philips Xtra/Xtreme

The right lamp and gear for each application



LuxSpace



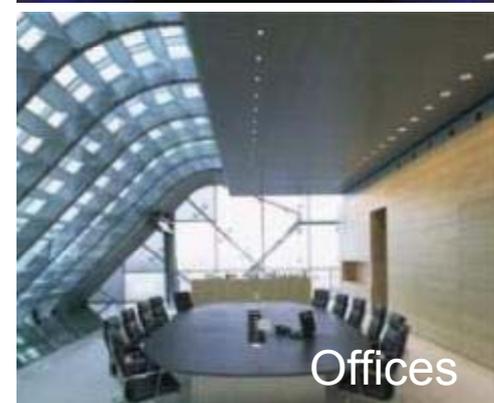
*Why waste energy and money if **green** LED products become the best lighting choice*

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

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Actilume



Where is it for?

- Cell offices
- Open plan offices/areas
- Corridors
- Toilets
- Meeting rooms
- Dedicated Projects
- Labs

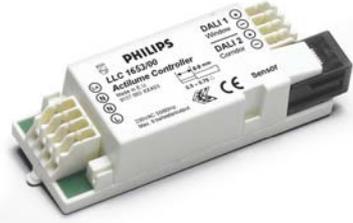


What does ActiLume offer?

- 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:

 <p>New 21 mm TD/DALI gear range</p>	 <p>For use with fluorescent lamps</p>
  <p>New Sensor New Controller</p>	 <p>Optional</p>

