



# HEALTHCARE LIGHTING APPLICATION GUIDE





# THE HEALTHCARE LIGHTING CHALLENGE

The diversity of the healthcare environment makes lighting a complex challenge.

In summary, healthcare lighting must take into account the needs of the following:

**PATIENTS** Appropriate lighting design along with the correct selection of luminaires is essential to provide an environment that will aid the recovery of a patient. The correct ambience can affect mood and perception as well as enabling critical chemical reactions in the body. The design of luminaires also needs to take into account infection control, whether minimising horizontal surfaces to reduce dust collection, or for ease of maintenance and cleaning.

**STAFF** Lighting must enable the performance of visual tasks by hospital staff, from examination to night-time observation. The correct lighting can also enhance the well-being of staff, and help staff appreciate their workplace.

**ENVIRONMENT** Healthcare organisations are committed to being leading sustainable and low carbon organisations. NHS organisations specifically have government set targets for carbon reduction and an additional financial imperative in the form of the Carbon Reduction Commitment (CRC) scheme. It is not just an environmental and financial necessity for healthcare providers to reduce carbon emissions, but also to work with suppliers who have strong sustainability credentials.

**ORGANISATION** The use of energy efficient lighting can play a large role in reducing energy bills, with a typical return on investment of under five years on energy savings alone. Maintenance efficiencies exist through the adoption of LED luminaires and from associated technologies such as wireless luminaire status reporting and replaceable LED Printed Circuit Boards (PCBs)

**VISITORS** Lighting must contribute to an overall ambience of comfort, safety and reassurance for visitors. It can also help to encourage positive feelings from their visit.

## USEFUL REFERENCES

SLL Lighting Guide LG2:2008 Hospital and Health Care Buildings

BS EN 12464-1:2011 Light and Lighting, Lighting of Work Places, Indoor Work Places

BS 5266-1:2016 Emergency Lighting, Code of practice for the emergency lighting of premises

BS EN 60598-2-25:1995 Specification for Luminaires for use in clinical areas of hospitals and health care buildings

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# INTRODUCTION

Thorlux, for over 80 years, has manufactured increasingly sophisticated luminaires in the Birmingham area.

During the last 20 years, the company has focused on high technology products, including the development of its first electronic energy-saving lighting control system in the mid-1990s. Huge investment in design and testing facilities in Worcestershire has now put Thorlux at the forefront of its market sector.

Thorlux luminaires are subject to stringent quality control, as demonstrated by the company's BS EN ISO 9001:2015 (Quality management systems) certification. Additionally, certification of Thorlux to BS EN ISO 14001:2015 (Environmental management systems) gives the customer assurance that the company manufactures its products in the most environmentally friendly manner.



# LATEST LED TECHNOLOGY

Thorlux is able to exploit recent advances in LED technology to help meet customer demand for energy-efficient solutions. The company's considerable technical expertise and its ability to invest position it to maximise the opportunities offered by LED technology.

Backed by the group's modern facilities, Thorlux designers and developers have worked over recent years to create LED luminaires to meet customers' operational and aesthetic requirements. Thorlux has made a huge investment in LED technology, including in house circuit-board design, software development, thermal modelling and optical lens design.

To increase the range and performance of its LED luminaires, Thorlux both designs dedicated LED luminaires from scratch, to optimise optical and thermal performance, and adapts existing conventional products to offer an LED option.

Unlike a traditional light source, a bare LED is a very intense point-source of light which has high glare and emits light in one direction only; therefore optical design is very important. Thorlux takes different approaches to optical design, according to the desired outcome.

Almost all LED products benefit from bespoke LED printed circuit boards (PCBs) designed by the Thorlux electronics team. These PCBs ensure that Thorlux luminaires deliver maximum performance.



LEDs, as with lamps, can sit behind a controller or diffuser which will help to spread the light over a wider area, providing a uniform light



Having multiple LEDs on a luminaire provides the option of having individual optics for each LED

# LED SYSTEM PROTECTION

LEDs are a very efficient light source and are resilient to many conditions that can be detrimental to the lifetime of traditional lamps.

For example, LEDs are largely unaffected by frequent switching, shock or vibration. However, LEDs or their solder joints can infrequently fail. In such circumstances it would be inconvenient if the failure caused significant loss of light, or if the luminaire extinguished completely.

In many luminaires LEDs are linked in series whereby a current flows through each LED in turn. Should an LED or solder joint fail, a whole row of LEDs, or in fact all LEDs may extinguish. Thorlux has designed specific protective measures to prevent such a condition.

There are two methods of LED system protection used by Thorlux

- 1 LED PROTECT**  
For high power LEDs



- 2 LUX GUARD**  
For medium power LEDs

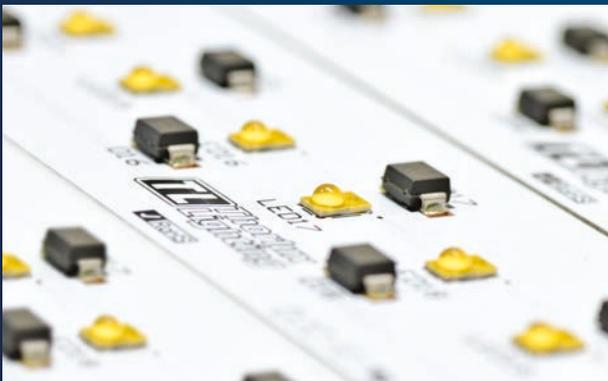


## LED PROTECT

Certain high lumen output Thorlux luminaires use high power LEDs, for example the Starbeam floodlight.

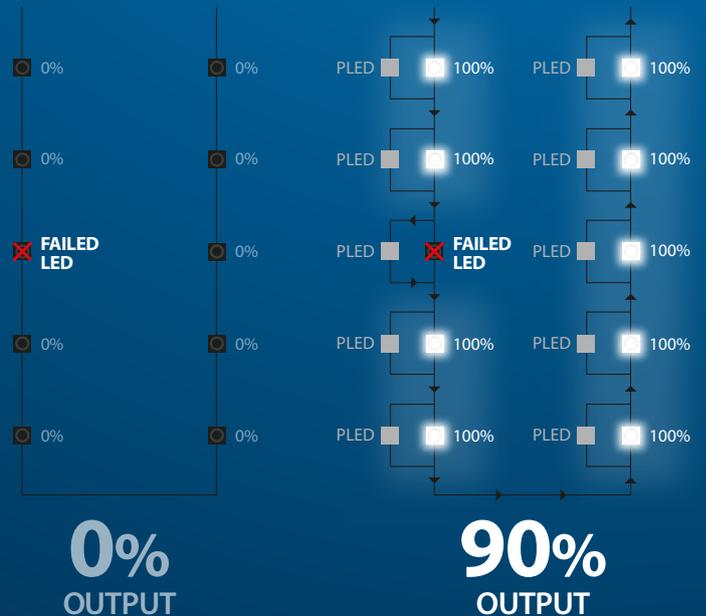
In this type of luminaire LEDs are connected in a series string and failure of an LED or its solder joint can cause an open circuit and all LEDs in the string to extinguish. Thorlux adds PLED protectors to the majority of these luminaire types (see LED Characteristics data on each product page).

PLED protectors provide an electronic alternative path for the current to flow in the case of LED or solder joint failure ensuring all remaining LEDs stay illuminated at the correct power. This is an invaluable feature guaranteeing that a luminaire continues to provide light, even in the case of nuisance LED failures, and reduces the maintenance costs of a project.



### CONVENTIONAL CIRCUIT

### CIRCUIT



★ PATENTED ★

# LUX GUARD

LUX GUARD by Thorlux, is a patented current sharing PCB and circuit design philosophy. If an LED fails then its current is shared via neighbouring circuits, with each LED's brightness increasing slightly to compensate. LUX GUARD ensures that a luminaire continues to provide its designed lumen performance, even in the case of nuisance LED failures, and reduces the maintenance costs of a project.

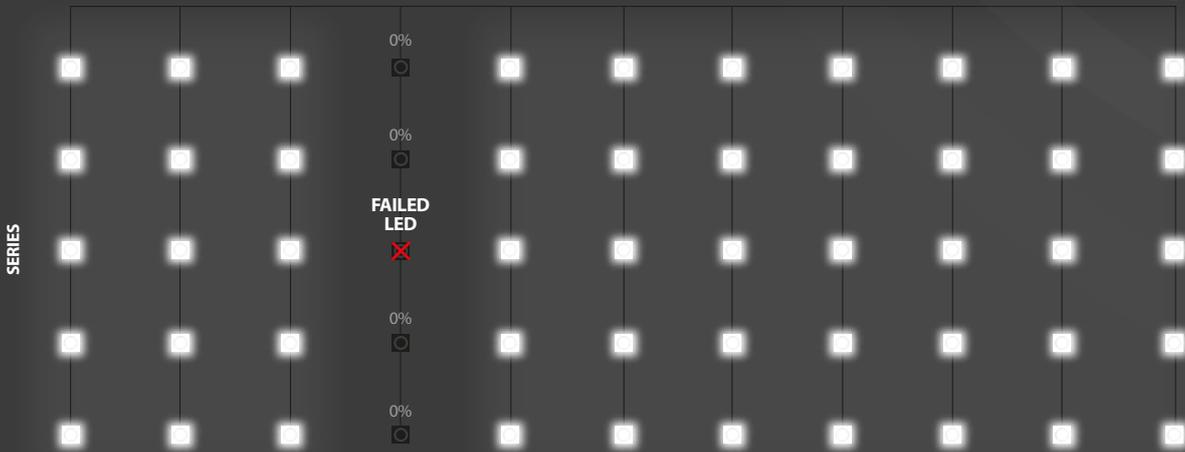


91%  
OUTPUT

## CONVENTIONAL CIRCUIT

5 IN SERIES 11 IN PARALLEL

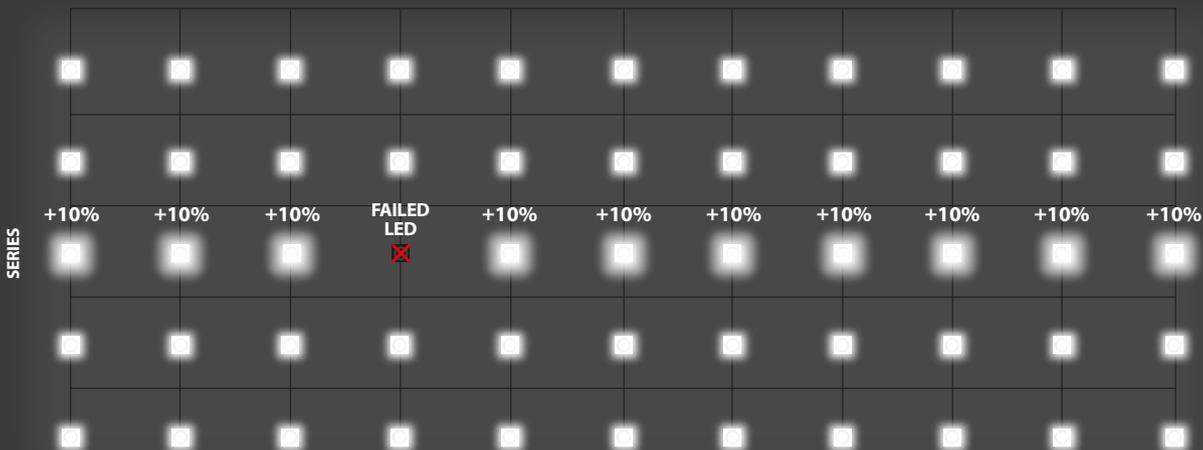
PARALLEL



5 IN SERIES 11 IN PARALLEL

PARALLEL

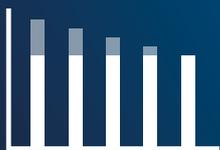
100%  
OUTPUT





## SMART ENERGY SAVING CONTROLS

The Thorlux Smart System exploits the latest 'Digital Technology' to provide a simple, effective method of lighting control which minimises energy consumption whilst retaining high levels of user comfort.



### MAINTAINED ILLUMINANCE

Smart luminaires maintain the desired lighting level throughout the maintenance cycle by automatically increasing LED output as the light source ages, avoiding over lighting new installations.



### DAYLIGHT DIMMING

When daylight enters an area the sensors will take this light into account and gradually dim the LEDs, saving energy whilst maintaining the required light level.



### MOVEMENT DETECTION

Presence sensors in all luminaires ensure excellent detection coverage, so that Smart luminaires switch on when movement is detected and stay on whilst the room is being used.

A discrete sensor integral to the luminaire monitors ambient light and presence, controlling output to the correct level, and ensuring that the area is only illuminated when occupied.

Individual Thorlux Smart luminaires may be linked using a 'Motionline' two wire low voltage bus allowing luminaires to communicate within a group. Upgrading to SmartScan provides the option of full wireless Motionline control between Smart luminaires eliminating the need for additional cabling.

Savings by the installation of automatic lighting control systems often exceed 70%.

## FULL STATUS MONITORING OF YOUR LUMINAIRES FROM THE GROUND

The functional status and energy performance of SmartScan luminaires can be monitored from anywhere via the SmartScan website (SmartScan Gateway required), or from the ground using the SmartScan Programmer.

The website provides an easy to read visual reference highlighting the following:

- Control gear status monitoring
- Light source functionality
- Thermal performance (the luminaire is operating within correct temperature limits)
- Average energy used by the luminaire
- Total hours powered
- Full energy performance monitoring

[www.thorlux.com/smartsan](http://www.thorlux.com/smartsan)

## Example Project

# GUY'S AND ST THOMAS' NHS FOUNDATION TRUST

LONDON, UNITED KINGDOM

Guy's and St Thomas' NHS Foundation Trust runs Guy's Hospital in London Bridge, St Thomas' Hospital in Waterloo, Evelina London Children's Hospital and community services in Lambeth and Southwark. The trust provides a full range of hospital services for the local communities in Lambeth, Southwark and Lewisham. The Trust installed over 3504 luminaires, including 2,235 LED Smart luminaires, achieving savings of 1,263,345 kWh, a reduction in energy of 78%.



# COLOURACTIVE LIGHTING

*Light as nature intended™*

In healthcare environments, optimised lighting can have positive effects on physical health, well-being and also on performance and social behaviour. ColourActive, from Thorlux, can be used not only to control daily rhythms for patients and staff, but also to improve alertness during tasks that require concentration. Put simply, to imitate natural lighting conditions inside the building.



## Example Project

# BELFAST CITY HOSPITAL

BELFAST, NORTHERN IRELAND,  
UNITED KINGDOM

Belfast City Hospital is a 900-bed modern university teaching hospital providing local acute services and key regional specialities. It has a focus on the development of regional cancer and renal services and is the largest general hospital in the United Kingdom. The critical care unit provides intensive care to patients with life threatening illness, after major, complex surgery and following serious accidents. The lighting control system installed is from the Thorlux ColourActive range, which cycles the colour temperature of the light source over a 24 hour period. The colour temperature (CCT) of the luminaires varies from 3000K to 6500K to replicate natural daylight changes. In addition, the system is dimmable providing individual lighting level control within each bed bay, whilst maintaining outstandingly high uniformity and a shadow free working platform for staff. Crash scenes are included at each bedhead, and for the full ward, to give maximum output (1000 lux +) from one fail safe switch.

# FUNDING FOR ENERGY EFFICIENT HEALTHCARE LIGHTING



SmartChoice

## CARBON OFFSETTING

Thorlux operates a carbon offsetting scheme which involves planting trees on 215 acres of Monmouthshire, Wales. This accredited scheme carbon offsets all manufacturing and distribution processes undertaken by the group companies. Thorlux has to date planted 149,849 trees (Spring 2018).



 Woodland Carbon CO<sub>2</sub>de

Smart Choice removes a significant barrier to wider adoption of energy efficient lighting in healthcare establishments by eliminating the need for an upfront capital investment. Costs can be spread over an agreed term allowing for savings in energy to match or exceed payments.

Key Benefits:

- Funding provided directly by Thorlux Lighting or a third party
- No upfront capital payment
- 5 year Thorlux warranty
- No complicated approval process
- Flexible payment profile



## MADE IN THE UK

Thorlux Lighting, the largest company in the FW Thorpe Plc group, is proud that around **97%** of its products are manufactured in the UK.

The FW Thorpe Plc group employs over 700 people.

# Thorlux Warranty

A genuine warranty with genuine value

The Thorlux range of luminaires is designed, manufactured and distributed by Thorlux Lighting, a division of the FW Thorpe Plc group. FW Thorpe is listed on the London Stock Exchange. See the corporate website at [www.fwthorpe.co.uk](http://www.fwthorpe.co.uk)

Thorlux luminaires have been manufactured continuously in the UK since 1936, the year Frederick William Thorpe founded the company.

In 2016-17, the revenue of FW Thorpe Plc was £105m, of which £69m was generated by Thorlux Lighting luminaires and control systems.

The Thorlux product warranty offered to customers covers a period of 5 years, with no get-out clauses concerning the number of burning hours or maintenance requirements, and no convoluted registration process.



## This warranty is enhanced by the following key factors:

- FW Thorpe has a robust balance sheet, with net assets in excess of £100m (2017)
- More than £40m in cash reserves provide the ability for Thorlux to support any future warranty liabilities
- FW Thorpe has a stable ownership structure, with over 60% of the business owned by founding family members and management
- Investment in product research and development is continual - £1.7m invested per annum
- Thorlux product failure rates are consistently below 0.1%, with over 2,000 luminaires individually tested and shipped every day
- Critical components are supplied by market- leading global suppliers
- A dedicated team of our own employed local service engineers respond to any customer issues quickly and effectively, not only in the UK but overseas too
- Products are manufactured in the UK therefore spares are readily available

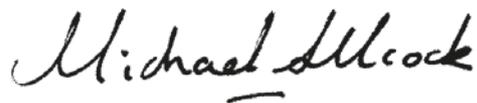
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As Thorlux is a listed company, stringent conditions require it to be fully audited by a third party. In recent years this has been PricewaterhouseCoopers LLP (PwC), one of the top four audit and advisory firms globally. Auditors of listed companies follow rigorous international guidelines, ensuring that the financial details such companies publish (such as those on page 10) are accurate and can be relied upon.

Thorlux must prove that it will be able to pay any claims made according to its warranty conditions during the warranty period. Provision is made in each year's accounts, effectively putting aside profit from current orders for use in the future if required.

This is a key aspect of being a listed company that other smaller businesses are not required, and maybe not capable of doing. Thorlux customers should be reassured that a Thorlux warranty means something: at Thorlux, we are capable of meeting our obligations.

Some other companies offer long warranties but do not have the financial assets to withstand a sizeable warranty claim. Thorlux encourages customers to consider this scenario when purchasing other companies' products with extended warranty offers.



**Michael Allcock**  
Managing Director



# A genuine warranty with genuine value

Please refer to [www.thorlux.co.uk/terms](http://www.thorlux.co.uk/terms) for full details of our terms and conditions of sale.



For a full list of luminaires visit: [www.thorlux.co.uk/products](http://www.thorlux.co.uk/products)

# WARD AREAS

Lighting within ward areas has to be a careful balance between function, aesthetic and energy efficiency. Lighting levels need to be high enough to allow nursing staff to provide care, but not so high as to impact on the comfort of patients trying to rest. SLL LG2 Hospital Lighting Guide : Hospitals and Health Care Buildings provides detailed guidance on the lighting performance required in these applications.

Lighting requirements within ward areas can generally be divided into four parts, general lighting, patient lighting, night lighting and watch lighting. The typical layout on page 16 shows how this might work.

Location	Maintained illuminance (lux)	Notes
General lighting	100	Luminaires to use lamps with a colour rendering capability of RA80
Patient reading	300	To be controlled by the patient and to be provided over the patient activity/reading area
General nursing care	300	To be provided over the general bed area with a uniformity of $\geq 0.5$
Night light	5	To be provided at the general ward area with a maximum of 0.5 lux over the pillow
Watch lighting	15-20	To be provided at the bed head pillow position
Examination or treatment at bed position	1000	It is rare to require this level of lighting but, if required, a portable examination light must be used

Extract from CIBSE: SLL Lighting Guide 2: Hospitals and Health Care Buildings (2008)

## EXAMPLES OF LUMINAIRES:

### RECESSED



SKY-DOME



RADIANCE



PLATEAU



LED NIGHT LIGHT

### SURFACE

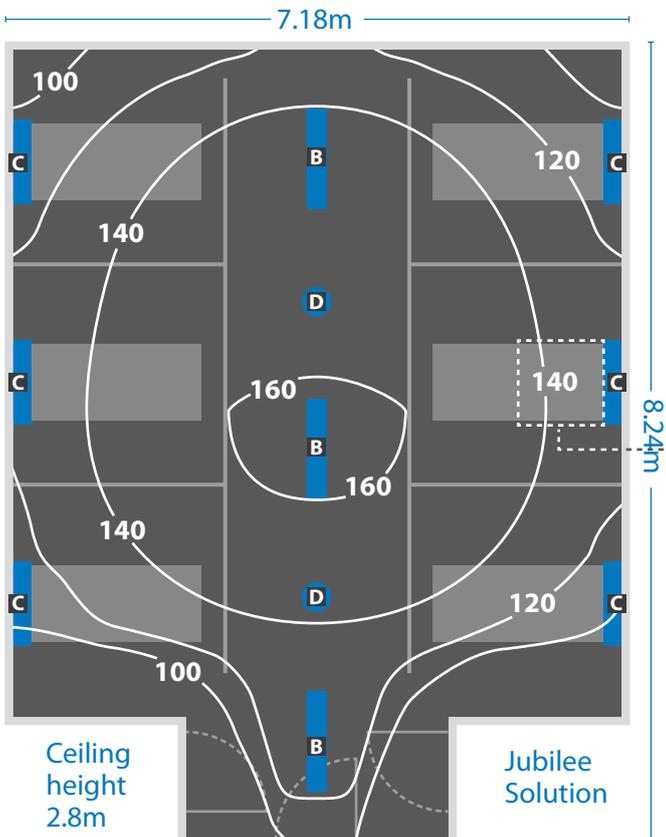
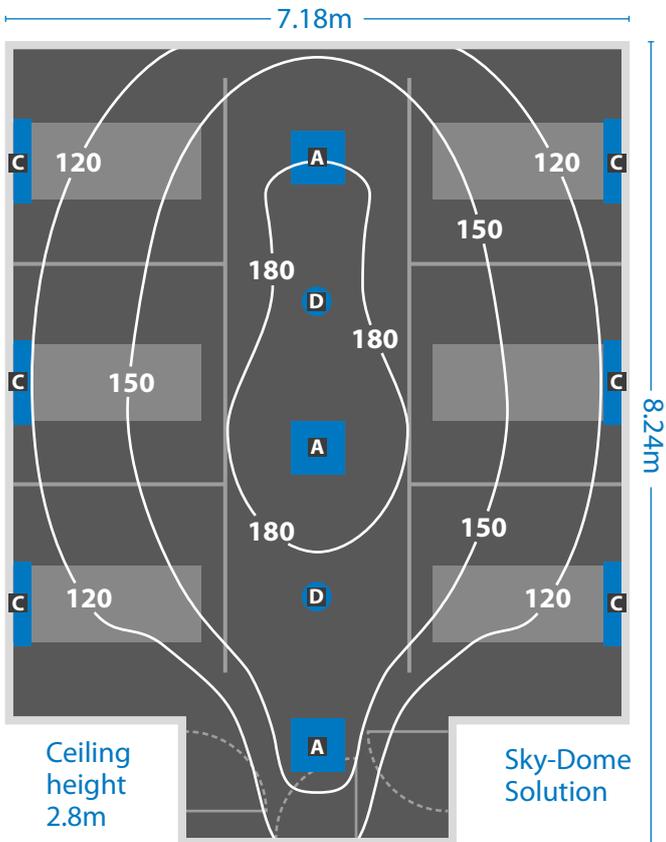


MEDICA



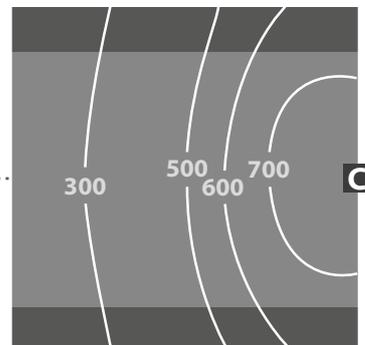
JUBILEE

## Example 6 bed ward layout



### Light Level

General Lighting (Sky-Dome solution)	150 Lux Ave
General Lighting (Jubilee solution)	138 Lux Ave
Patient Lighting	300 Lux Ave
Night Lighting	5.5 Lux Ave
Watch Lighting	16 Lux
Examination Lighting	Up to 1000 Lux Ave



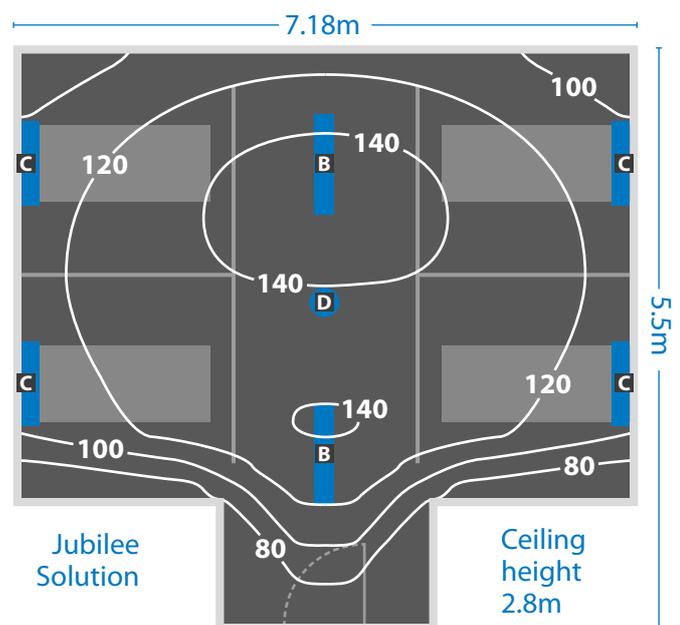
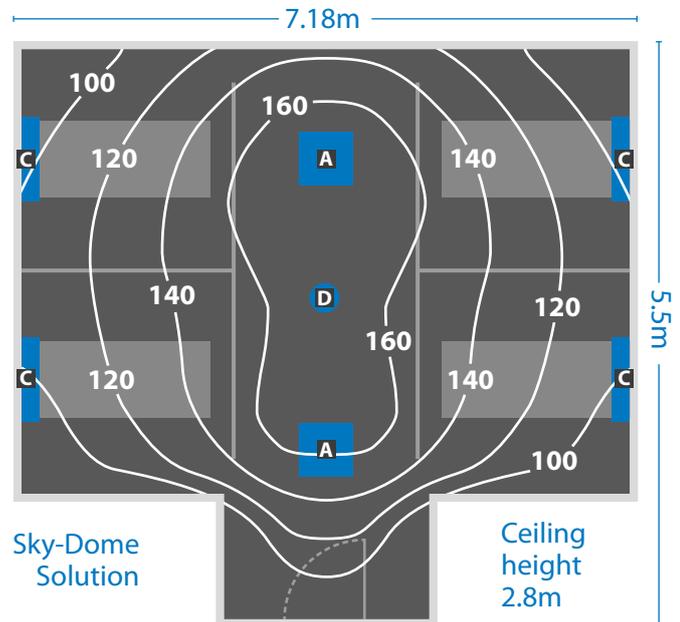
Example of patient lighting from Medica

# WARD LIGHTING SOLUTIONS

## Example 4 bed ward layout

### Light Level

General Lighting (Sky-Dome solution)	132 Lux Ave
General Lighting (Jubilee solution)	125 Lux Ave
Patient Lighting	300 Lux Ave
Night Lighting	5.5 Lux Ave
Watch Lighting	16 Lux
Examination Lighting	Up to 1000 Lux Ave



### How does this solution comply with the SLL LG2 Hospital Lighting Guide?

1. Light levels meet strict requirements
2. Luminaires do not exceed luminance limits
3. Lighting is well diffused and free from distracting glare
4. Colour performance requirements are met
5. Luminaires are highly energy efficient

# HDU/ICU AREAS

In critical care areas such as intensive care units and high dependency units, lighting needs to minimise the disturbance to patients while providing sufficiently high illuminance for close observation and treatment by the staff. Although nursing procedures and the monitoring regime in a high dependency unit or coronary care unit are not as rigorous as in an intensive care unit, adopting similar solutions for these areas satisfy the lighting requirements.

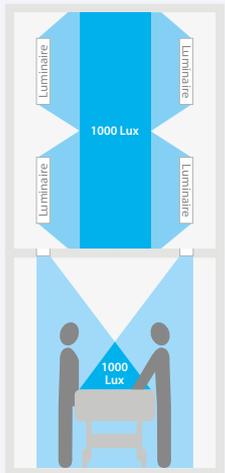
For example, the capability to switch between lighting levels for general use (30-50 lux at the bedhead), clinical use (400 lux average on the bed) and examination use (1000 lux average on the bed). Both the High Dependency Linear and the High Dependency Modular deliver these features, with the unique design of the High Dependency Linear providing an even distribution across the whole bed, and a solution that minimises shadowing when clinical staff are performing their duties.

Location	Maintained illuminance (lux)
Bed head observation (watch)	10 to 20
Bed head	30 to 50

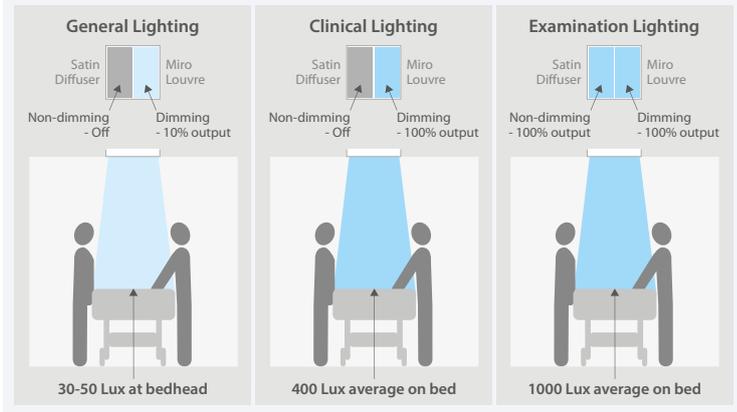
Location	Maintained illuminance (lux)
Bed, clinical	400
Bed, examination	1000

Extract from CIBSE: SLL Lighting Guide 2: Hospitals and Health Care Buildings (2008)

## EXAMPLES OF LUMINAIRES: RECESSED



Double asymmetric distribution avoids shadowing of critical inspection area on the bed





For a full list of luminaires visit: [www.thorlux.co.uk/products](http://www.thorlux.co.uk/products)



# OPERATING THEATRE AND CLEANROOMS

Operating theatres and their associated clinical areas are probably considered the most important and specialised areas within a hospital. The functionality of an operating theatre is clearly understood by the majority of people, but less so the definition of a clinical area. SLL LG2 Hospital Lighting Guide : Hospital and Health Care Buildings, defines clinical areas as areas or rooms in which surgical, clinical or medical procedures are carried out, usually by a surgeon or doctor.

In all areas where an operative procedure is carried out, it will be performed under dedicated surgical LED task lighting, usually ceiling mounted, which will, in itself, provide the full lighting quota required. All other installed luminaires are only needed to provide what is referred to as general or room ambient lighting. This ambient lighting should provide sufficient light for the critical examination of patients, support operative procedures and for the use of life support apparatus. LG2 states that 1000 lux is generally required for the main operating theatre background lighting.

Operative or clinical procedures carried out within the ophthalmic, ear, nose and throat (ENT) areas, and micro-surgery units may require much lower levels of general illuminance because of remote operative procedures. Typically values of between 10 and 50 lux are recommended and this should be provided by the main lighting system operating in a dimmed mode. Dimming also provides a degree of flexibility that is increasingly required in these clinical areas allowing multifunctional use.

It is also important to note that the general lighting is required to provide both horizontal and vertical illuminance. Vertical being required for good visibility of swab count racks and other wall-mounted equipment. Like cleanrooms, clinical areas are controlled environments where medical procedures are carried out. It is therefore very important that the concentration of airborne particles is controlled to within specified limits. Luminaires designed for use within these areas should be IP65 or IP54. Effective IP seals should be employed between the luminaires and the room's internal surface.

Location	Maintained illuminance (lux)	Notes
Operating table (directed locally)	10000 to 160000	Local switching (auto/manual)
Operating theatre (general lighting)	1000	Dimming (auto/manual)
All other places where work is carried out	≥ 500 but ≤ 1000	Dimming (auto/manual)

Extract from CIBSE: SLL Lighting Guide 2: Hospitals and Health Care Buildings (2008)

## EXAMPLES OF LUMINAIRES:

### RECESSED



For a full list of luminaires visit: [www.thorlux.co.uk/products](http://www.thorlux.co.uk/products)

# CORRIDORS AND CIRCULATION AREAS

Hospitals are usually very large and complex. Internal transitory routes form the operational backbone of any hospital. Unfortunately the lighting requirement within these transitory corridors is often not recognised and they are treated purely as functional afterthoughts.

It is essential to light these routes correctly and both the lighting design and luminaire choice must be optimised to reduce glare and visual disturbance experienced by trolley borne patients due to alternating high and low brightness patterns, especially on the ceiling.

LG2 recommends that the installed lighting provides a uniform illumination level of 200 lux at floor level. The lighting design must, further, be capable of providing the distribution characteristics that meet LG2 performance and glare requirements. Dimming or switching systems should be included and capable of operating at reduced levels i.e. 50 lux whilst still maintaining a (min/average) uniformity level of 50% or better. Such systems will also allow reductions in energy consumption at night or during periods of low occupancy. Incorporation of photocells will provide further energy savings in corridors with windows.

Location	Maintained illuminance (lux)	Notes
Hospital street (floor)	150 (day) 50 (night)	Uniform illumination levels should be provided to avoid bright and dark patches to walls and floors. The installation should also be capable of operating at a reduced level (50 lux with 0.5 uniformity) at night for comfort and energy efficiency.
Corridors (floor)	200 (day) 50 (night)	Uniform illumination levels using low glare luminaires, positioned to avoid alternating brightness patterns being viewed by trolley-borne patients. The installation should also be capable of operating at a reduced level (50 lux with 0.5 uniformity) at night for comfort and energy efficiency.
Stairs (landings and treads)	150	

Extract from CIBSE: SLL Lighting Guide 2: Hospitals and Health Care Buildings (2008)



## EXAMPLES OF LUMINAIRES:

### RECESSED



### SURFACE



For a full list of luminaires visit: [www.thorlux.co.uk/products](http://www.thorlux.co.uk/products)





# RECEPTION AND WAITING AREAS

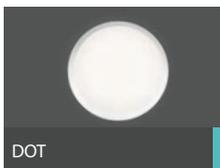
The first impression of a building must give the user a feeling of safety and security. Sharp contrasts should be avoided adjacent to the reception desk and the use of indirect lighting is recommended, to avoid facial shadowing.

Location	Maintained illuminance (lux)	Notes
Floor	200	The lighting while being functional should mirror the efficiency and drama created at the reception areas of major commercial buildings.
Reception (floor)	300	A measure of retail lighting philosophy should be employed to create a welcoming and impressionable ambience.
Enquiry desk (task area)	500	Comfortable accent lighting techniques should be employed to make the desk visually stand out from the general surroundings.

Extract from CIBSE: SLL Lighting Guide 2: Hospitals and Health Care Buildings (2008)

## EXAMPLES OF LUMINAIRES:

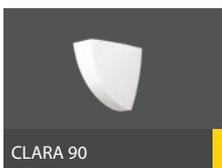
### SURFACE



### RECESSED



### DISPLAY & FEATURE



### SUSPENDED

For a full list of luminaires visit: [www.thorlux.co.uk/products](http://www.thorlux.co.uk/products)

# IMAGING ROOMS

There are many types of imaging room used in hospitals due to the advancements made in imaging technology. Most of these imaging rooms, with the exception of MRI scanner rooms do not require any special type of lighting other than is described within LG2. Patients who use these facilities will almost certainly be feeling anxious or even frightened and so the incumbent lighting should be pleasant and give a reassuring atmosphere.

In X-ray, ultra-sound and fluoroscopy rooms general lighting is required for entry into the area, transferring the patient to the couch, and for the setting up of equipment. Ceiling mounted fluorescent luminaires are usually suitable for this application. The system chosen will be required to have a two way switching system with one switch at the entry door and another within the control room area, preferably on or near the control desk.

The lighting level for imaging rooms is suggested in LG2 at 300 lux for the entry and settling of patients, and for this level to be reduced to around 50 lux for the duration of the scanning procedure. This reduction in light level may be produced by using dimming luminaires or by simple switching of different batches of luminaires installed. The latter should be used where there is a possibility of interference of dimming systems with scanning equipment and a cross-check with equipment suppliers should be made in this regard.

Magnetic Resonating Imaging rooms (MRI scanner rooms) have more onerous requirements and it must be ensured that luminaire and system design does not interfere with medical imaging procedures. Preferably luminaires should be constructed from non-ferrous materials and not employ any induction, wave rectification, signal generating or voltage reducing equipment unless that equipment employs comprehensive radio frequency (RF) suppression.

Location	Maintained illuminance (lux)	Notes
General lighting (1m above floor)	300	To be provided by ceiling fixed or recessed luminaires co-ordinated around any equipment. Two-way switching and control required.

*Extract from CIBSE: SLL Lighting Guide 2: Hospitals and Health Care Buildings (2008)*

## EXAMPLES OF LUMINAIRES:

### RECESSED





For a full list of luminaires visit: [www.thorlux.co.uk/products](http://www.thorlux.co.uk/products)



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# EXAMINATION AND CONSULTING ROOMS

Examination and consulting rooms demand a good colour rendering and a high level of general illuminance to ensure sufficient light is provided for examinations.

Location	Maintained illuminance (lux)	Notes
Working plane	500	Luminaire selection and positioning is important to avoid visual discomfort to patients
Couch or chair (local)	15000 to 30000	To be provided by a local examination luminaire

*Extract from CIBSE: SLL Lighting Guide 2: Hospitals and Health Care Buildings (2008)*

EXAMPLES OF LUMINAIRES:

## RECESSED



## SURFACE



# CANTEENS AND DINING ROOMS

The lighting in the canteen areas should be inviting and comfortable yet at the same time provide the required illuminance for the high level of activity.

Location	Maintained illuminance (lux)	Notes
Whole floor	50	Separately provided and switched will allow for a cleaning, security and maintenance level.
Tables	200	Accented for function and atmosphere and dimmable to cater for the social event and time of day.
Serving counter	300	Comfortable accent lighting techniques should be employed for safety reasons and to provide a focal point for users of the facility.

Extract from CIBSE: SLL Lighting Guide 2: Hospitals and Health Care Buildings (2008)



EXAMPLES OF LUMINAIRES:

## RECESSED



## SURFACE

## DISPLAY & FEATURE



## SUSPENDED



For a full list of luminaires visit: [www.thorlux.co.uk/products](http://www.thorlux.co.uk/products)



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# ANCILLARY AREAS

Lighting of ancillary areas has three objectives: to facilitate quick and accurate work, to contribute to the safety of those doing the work and to create a good visual environment.

EXAMPLES OF LUMINAIRES:

## SURFACE



THOROPROOF



KANBY LED CONTROLLER



A-LINE

# EXTERIOR

External lighting should provide a welcoming appearance to entrances, access routes and car parks but also give a sense of safety for both pedestrians and vehicular users. The lighting designer should also take into consideration colour rendering, installation efficacies and maintenance issues relative to CCTV use and minimal light nuisance.

## EXAMPLES OF LUMINAIRES: EXTERIOR





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# MENTAL HEALTH

The principal requirement for Mental Healthcare lighting has historically been to provide safe and secure, ligature resistant luminaires. The modern need is to combine these elements with a design that provides a domestic quality and an ambiance that promotes rehabilitation and recovery, whilst heeding the need for energy efficiency.

Location	Maintained illuminance (lux)	Notes
Bedrooms	50 to 100	Use switching or dimming to achieve the lighting levels required to suit the various tasks. Decorative (but robust) luminaires should be used to create a domestic atmosphere.
Special/ secure rooms	100 to 150	Use vandal resistant luminaires switched from outside the room.
Circulation (night)	5	Avoid the use of a few high brightness luminaires, aim for a (min) uniformity of 0.2 using low output or dimmed luminaires.

Extract from CIBSE: SLL Lighting Guide 2: Hospitals and Health Care Buildings (2008)

EXAMPLES OF LUMINAIRES:

## RECESSED



## SURFACE

For a full list of luminaires visit: [www.thorlux.co.uk/products](http://www.thorlux.co.uk/products)

# EMERGENCY LIGHTING

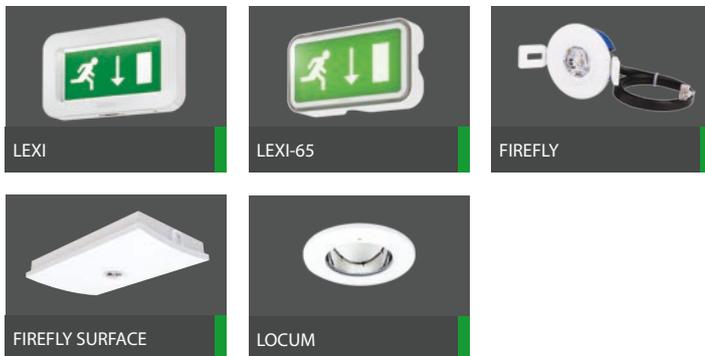
BS 5266-1:2016 Emergency lighting. Code of practice for the emergency lighting of premises is the detailed guidance on the application and practice of emergency lighting. The standard's recommendations have been drawn up to encourage uniformity of application, based on providing adequate safety to people in the event that normal lighting is interrupted.

The persons responsible for control of the hospital and healthcare buildings have a legal obligation to ensure compliance. Legislation covers all aspects of emergency lighting provision, including:

- **Design**
- **Installation**
- **Regular Testing:** All emergency luminaires must be given a short test monthly and a full duration test once a year. Comprehensive test records must be maintained.
- **Maintenance:** Failures must be replaced quickly. Maintenance records must also be maintained. Under the Regulatory Reform (Fire Safety) Order failure to provide a compliant system and failure to regularly test and maintain it can result in prosecution for the employer or building owner who may face fines and imprisonment if convicted.

EXAMPLES OF LUMINAIRES:

## EMERGENCY



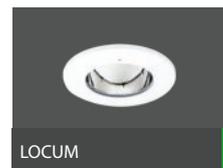
For a full list of luminaires visit: [www.thorlux.co.uk/products](http://www.thorlux.co.uk/products)



# HIGH RISK AREA EMERGENCY

The objective of high risk task area emergency lighting is to contribute to the safety of people involved in a potentially dangerous process or situation and to enable proper shut down procedures to be carried out for the safety of other occupants of the location or the building.

EXAMPLES OF LUMINAIRES:  
**EMERGENCY**



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The information given in this catalogue is typical and must not be interpreted as a guarantee of individual product performance and/or characteristics. We reserve the right to alter specifications and designs without prior notice.

**Thorlux Lighting**  
Merse Road  
North Moons Moat  
Redditch  
Worcestershire  
B98 9HH  
England

**T** +44 (0)1527 583200  
**F** +44 (0)1527 584177  
**E** [thorlux@thorlux.co.uk](mailto:thorlux@thorlux.co.uk)  
**W** [www.thorlux.com](http://www.thorlux.com)

**Direct UK Sales Line: 01527 583222**

**Thorlux Lighting Ireland**  
Unit G6  
Riverview Business Park  
Nangor Road  
Gallanstown  
Dublin 12  
Ireland

**T** +353 (0)1 460 4608  
**F** +353 (0)1 460 4609  
**E** [thorlux@thorlux.ie](mailto:thorlux@thorlux.ie)  
**W** [www.thorlux.ie](http://www.thorlux.ie)

**Thorlux Lighting Deutschland**  
Ernst Gnoß Strasse 7  
40219 Düsseldorf  
Deutschland

**T** +49 (0)211 695 603-10  
**F** +49 (0)211 695 603-11  
**E** [thorlux@thorlux.de](mailto:thorlux@thorlux.de)  
**W** [www.thorlux.de](http://www.thorlux.de)

**Thorlux Lighting Australasia Pty Ltd.**  
31 Cross Street  
Brookvale  
Sydney  
NSW 2100  
Australia

**T** 1300 04 32 32  
**T** +61 (0)2 9907 1261  
**E** [thorlux@thorlux.com.au](mailto:thorlux@thorlux.com.au)  
**W** [www.thorlux.com.au](http://www.thorlux.com.au)

Registered No. ABN 139 400 507

**Thorlux Lighting LLC**  
Office 334  
European Business Centre  
Green Community  
Dubai Investment Park 1  
PO Box 33484  
Dubai  
United Arab Emirates

**T** +971 (0)2 656 5842  
**F** +971 (0)2 622 4149  
**E** [sales@thorlux.ae](mailto:sales@thorlux.ae)  
**W** [www.thorlux.ae](http://www.thorlux.ae)

