The Brighter Choice

LIGHTING THE WAY TO **BETTER HEALTH**

CONTENTS

WHAT'S SPECIAL ABOUT HEALTHCARE LIGHTING

Hospitals and clinics are complex. They are used by many different people – patients, visitors and healthcare professionals – carrying out many different activities.

A patient recuperating from a recent operation needs different lighting from a consultant performing a diagnosis, a pharmacist dispensing drugs or a nurse trying to de-stress in the middle of a long shift.

To design the correct lighting for each area and activity, we deploy our specialist knowledge in five key areas:

01 LIGHTING CONTROLS

Lighting controls are necessary in hospitals for several reasons:

- Wards need daytime and night-time lighting to reinforce our natural sleeping patterns and assist patient recovery
- Daylight should be harvested wherever possible to reduce energy costs
- Sensor based dimming is a practical way to save energy, especially in areas with intermittent occupancy.

02 EMERGENCY LIGHTING

This starts with emergency lighting design – a service we offer – deciding the legal and practical requirements for each area of a hospital.

In a building as complex as a hospital, emergency lighting testing is an onerous and expensive monthly task. We have a range of automated solutions available.

03 COLOUR RENDERING

The need to be able to discern subtle differences in skin tone, for example, varies across a hospital. In most areas, a colour rendering index (CRI) of >80 is perfectly adequate, but where diagnoses and examinations are carried out a CRI>90 is a requirement.

In this brochure we highlight the areas where a high CRI is required, and we propose practical solutions.

04 COLOUR TEMPERATURE

4000K will be suitable in many working areas, but lower, more relaxing colour temperatures will be appreciated in areas where a more calming ambience is required.

05 GLARE

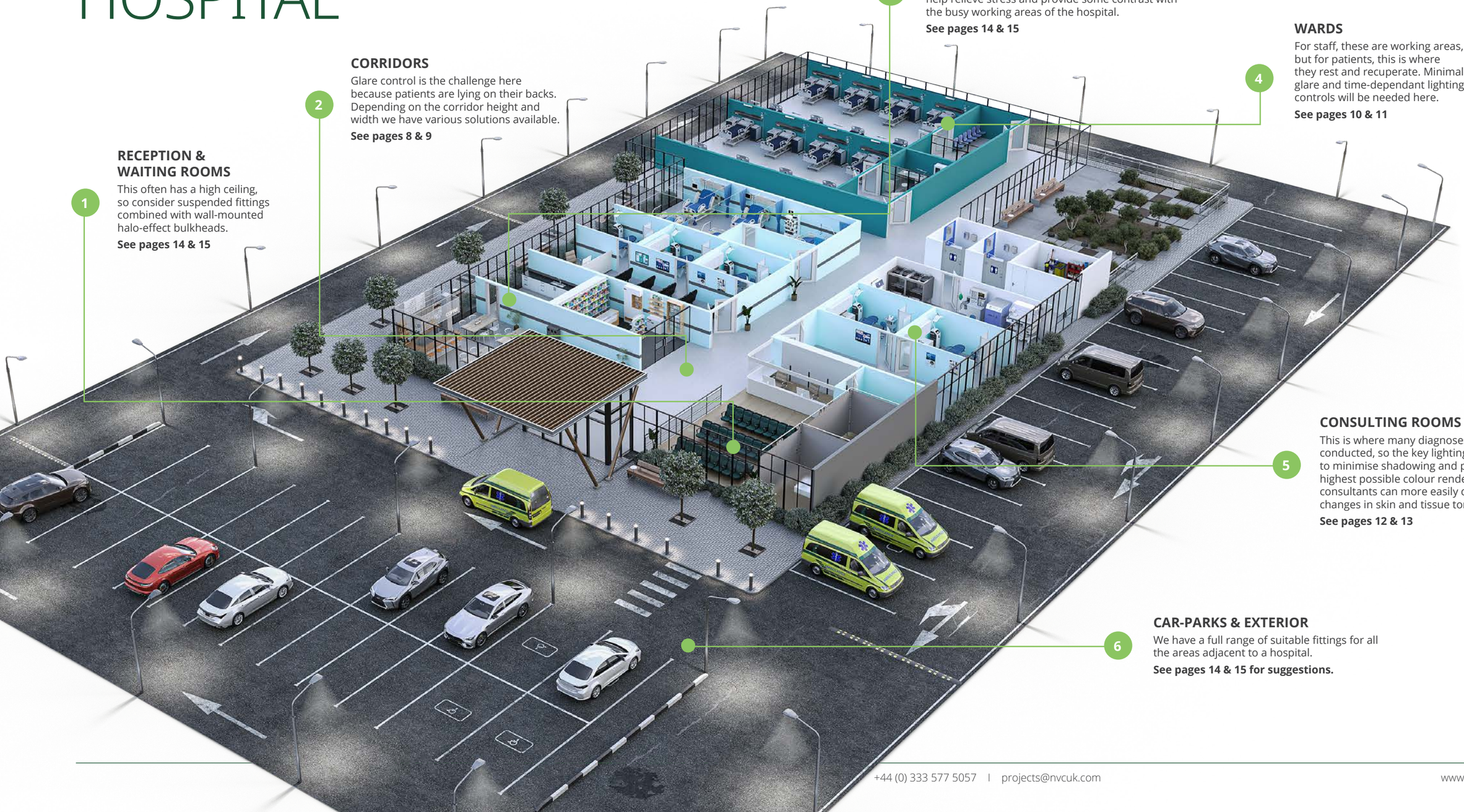
Glare occurs in a hospital where it would not occur in most other buildings.

Glare is calculated using **UGR - the Unified Glare Rating**. This takes account of the line of site of people in a space. In a hospital corridor or ward many of the occupants are horizontal, facing up, so the UGR will be unacceptably high if we don't take steps in our lighting design and luminaire selection to mitigate this.

We highlight those areas where hospitals present particular challenges, and we propose solutions.

LIGHTING SOLUTIONS FOR ALL AREAS IN AND AROUND A HOSPITAL

Hospitals are complex facilities comprised of many areas where activities change through the course of a day. With many years of experience, a wide product range and a suite of technologies available to us, NVC can offer solutions for all areas.



1 RECEPTION & WAITING ROOMS

This often has a high ceiling, so consider suspended fittings combined with wall-mounted halo-effect bulkheads.

See pages 14 & 15

2 CORRIDORS

Glare control is the challenge here because patients are lying on their backs. Depending on the corridor height and width we have various solutions available.

See pages 8 & 9

3 CANTEEN & STAFF BREAK-OUT AREA

Lower colour temperatures will be suitable here to help relieve stress and provide some contrast with the busy working areas of the hospital.

See pages 14 & 15

4 WARDS

For staff, these are working areas, but for patients, this is where they rest and recuperate. Minimal glare and time-dependant lighting controls will be needed here.

See pages 10 & 11

5 CONSULTING ROOMS

This is where many diagnoses are conducted, so the key lighting issues are to minimise shadowing and provide the highest possible colour rendering so that consultants can more easily detect subtle changes in skin and tissue tone.

See pages 12 & 13

6 CAR-PARKS & EXTERIOR

We have a full range of suitable fittings for all the areas adjacent to a hospital.

See pages 14 & 15 for suggestions.

HOSPITAL CORRIDORS

Lighting hospital corridors is more challenging than lighting corridors in most other buildings.

First, they are often wider than corridors elsewhere. A single line of fittings down the centre might be suitable in a narrow corridor, but in wider corridors different solutions are required.

Second, the users of the corridor are often patients on a trolley, looking upwards, so direct overhead lighting can cause unacceptable levels of glare.

In a narrower corridor a central line of fittings can be appropriate, if, like our YALE PRO fitting, they have a suitable light distribution.

YALE PRO

This can be an excellent choice, especially if the corridor is relatively narrow or high.

- **Low-glare light distribution**. With 12% uplight, YALE PRO reduces the contrast between the luminaire and the ceiling, and this reduces glare.
- **IK10 rated** – suitable for busy areas with a risk of impact
- **Wipe-clean cover** – simplifies cleaning and infection control
- **Available with built-in sensors** – in low-traffic corridors sensors are a way to save energy

STERLING PRO

For wider corridors we suggest our new STERLING PRO 1200 x 300. Arranged centrally, or in twin parallel rows along the sides of the corridor, this creates a low-glare effect with high levels of uniformity.

- **IP44** – suitable for deep-cleaning infection control procedures
- **Wide range of outputs** – low, standard and high-output options make this a versatile fitting for various corridor widths and heights
- **TP(a) rated** – can be installed in any configuration without infringing building regulations
- **Choice of optics** - Opal diffuser or UGR<19 controller

HOSPITAL WARDS

The lighting in a hospital ward must be designed to meet several different needs.

- **Lighting to work by.** For nurses and doctors, the ward is a working space. Light levels must be high enough to enable accurate work.
- **Lighting to live by.** For patients, during the daytime, this is their living space. Avoiding glare, providing a relaxing environment and exploiting natural daylight when it's available all assist recovery.
- **Lighting for rest.** At night, the lighting needs to be dimmed to a low level to facilitate healthy sleep patterns, while still enabling staff to monitor their patients.
- **Infection control.** Lighting with simple lines, high IP ratings and wipe-clean surfaces will assist intense cleaning routines.

Out of our wide product range, several fittings stand out:

WASHINGTON & WESTMINSTER

These two downlight options can be used on their own, or in combination with other fittings, to provide a relaxing ambience for patients.

- **Available in 4000K and 3000K colour temperature**. Lower colour temperatures deliver a more home-like feeling to a ward.
- With a choice of medium **(WESTMINSTER)** and wide **(WASHINGTON)** light distribution, the optimal lighting effect can be selected, depending on the bed location and ward dimensions.
- **IP54 & IP65 rated**, these fittings can be spray cleaned without any risk to their performance

WASHINGTON

WESTMINSTER

YALE PRO

This has been a popular choice in hospital wards for many years.

- It's combined **up/down light distribution** helps reduce glare.
- It is available with a **wide range if control options** for daylight harvesting and night-time dimming.
- As a surface mounted luminaire, retro fitted installation can be completed with minimal disturbance to the ceiling.

STERLING

Our STERLING LED panel is another popular choice for ward lighting for several reasons

- **Available with a choice of optics** (prismatic controller or opal diffuser) to deliver low glare lighting with minimal shadowing
- **Available in CRI>90**, assisting clinical staff to distinguish subtle variations in skin tone
- **IP44 rated**, so it is suitable for all cleaning regimes
- Available for lay-in grid and recessed mounting in plasterboard ceiling

CONSULTING ROOMS

The chief requirement here is to provide lighting that helps a consultant to make accurate diagnoses, quickly and efficiently. Our focus should therefore be on:

- Diffuse lighting that minimises shadowing, so that as a consultant leans over to examine a patient, their vision is not obscured by their own shadow.
- High colour rendering, so that subtle differences in the colour of skin, other tissues or even blood can be discerned as easily as possible with the naked eye.

Minimising shadows

To minimise shadowing while a consultant is working we need to use fittings with a wide beam angle, installed close enough together so that the beams overlap generously at the working plane. At the same time, we need to avoid over-lighting the space, so fittings with a relatively low individual output may be suitable.

High colour rendering for accurate medical diagnoses

To detect small differences in the shade of a patient's skin or the colour of their tongue, for example, lighting with a high colour rendering index (CRI) is required.

A CRI of >80 is perfectly adequate in most areas of a hospital, but wherever diagnoses are being carried out, CRI>90 is an absolute requirement.

Light with a CRI>90 has almost every wavelength (colour) in the visible spectrum within it. This means that the smallest differences in skin tone, for example, are visible. Light with a lower CRI will have some wavelengths missing, so subtle differences in some colours will not be visible.

STERLING – THE STAND-OUT SOLUTION FOR CONSULTING ROOMS

- **Eliminate shadowing**
  - o With a beam angle of 120 deg and a choice of low, standard and high output, **STERLING** panels can be installed to eliminate shadowing without over-lighting a consulting room.
- **Distinguish between subtle colour changes**
  - o **STERLING** is available in high CRI>90 versions – just what's needed in a consulting room.
- **Maintain cleanliness**
  - o IP44 means that **STERLING** can be sprayed with disinfectant from below as/when required
  - o The smooth surface gives few opportunities for dirt and bacteria to gather

SOLUTIONS FOR OUTSIDE THE CLINICAL AREAS

At NVC we pride ourselves on delivering complete solutions – not just for the clinical areas, but for all the other areas in and around a hospital.

Here are some suggestions for just a few of those areas:

1

CANTEEN & STAFF BREAK-OUT AREAS

Consider a lower colour temperature, say 3000K, to create a more relaxing ambience.

- **WESTMINSTER**, with its low-glare design, narrow beam and warm 3000K output will help to create a visual contrast with the working areas of a hospital

2

RECEPTION

Often with a high ceiling, this area is an opportunity to create an uplifting and hopeful aesthetic.

- **DALLAS** is a versatile suspended fitting, available in multiple colours and with the option of both upward and downward light distribution
- **PRESTON** works well in combination with DALLAS, lighting the walls with its halo effect

3

CAR-PARKS & EXTERIOR

Robust and economical to run are the chief requirements here.

- **GREENLAND** is a great solution for multi-storey and underground car-parks
- **BROOKLYN** is an aluminium die-cast wall pack – ideal for lighting the approach to a building
- **REBUS** would be a good choice to light a path

EMERGENCY LIGHTING

Emergency lighting is mandatory throughout a hospital.

LITHIUM only

7-YEAR WARRANTY

ICEL CERTIFIED

INTERMITTENT CHARGE CYCLE

ENVIRONMENTAL PRODUCT DECLARATIONS (EPDs)

We have dedicated emergency luminaires and signage to cover every eventuality.

We also have plug-in kits that enable any of our panels and downlights to be converted to emergency operation on site.

The most challenging, but often overlooked, aspect of emergency lighting in hospitals is testing, and recording and reporting the test results.

By law, every emergency luminaire must be tested each month, with the results recorded and reported to a “responsible person”. We offer 4 test solutions:

MANUAL TESTING

Using key-switches, this is still widely used, but in hospitals it has many drawbacks:

- High cost of monthly testing
- Onerous manual record keeping
- Testing is often skipped during holidays
- Access may be hard to arrange for restricted areas

SELF-TEST

Each emergency luminaire performs its own test and reports the results with a flashing LED or buzzer:

- Zero testing cost – it’s automatic, but…
- Record keeping and reporting is still manual

This can be a great solution for surgeries and small clinics.

HubSense WIRELESS ADDRESSABLE TEST

Using an app and Bluetooth technology, each emergency fitting tests itself to a pre-arranged schedule and reports the results back to the responsible person.

- Zero testing cost – it’s automatic
- Zero recording and reporting costs – they are automatic too
- Full records kept for 5 years
- Testing is scheduled to avoid disruption to wards and theatres

HubSense is a great solution for hospitals. It ensures complete compliance and, because it is wireless, the installation cost is low.

DALI WIRED ADDRESSABLE TEST

Using a DALI wired network rather than Bluetooth, this solution shares many of the HubSense features:

- Zero testing cost – it’s automatic
- Zero recording and reporting costs – they are automatic too
- Full records kept for 5 years
- Testing is scheduled to avoid disruption to wards and theatres

This is a great solution for hospitals, especially if a DALI network is already in place or connectivity between multiple buildings is required.

18

LIGHTING CONTROL

HubSense

Effortless Wireless Lighting Control. Seamlessly manage individual or grouped luminaires without the need for additional wiring.

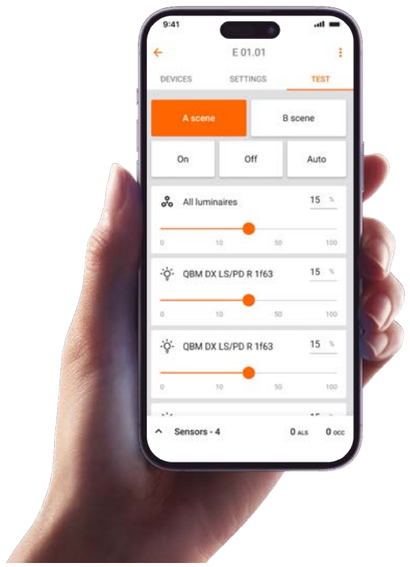
More control. More sustainable. More cost effective.

Achieve up to **60% in energy savings** on automated emergency lighting test.

Full control of your lighting 24/7 for seamless monitoring to ensure optimal energy efficiency.

Simple to install with no complicated wiring and effortlessly integrates with your current 3 wire set up. With the elimination of hard wiring you will end up **reducing waste**.

Reduction in waste and energy optimisation can help you achieve upto 90% reduction in carbon **emissions**.



For further details on the Hubsense technology contact: technical@nvcuk.com

HubSense

Two solutions in one system

HubSense can deliver both lighting control and emergency lighting testing

QBM / DALI
EMERGENCY CONVERTOR

CONTROL

- **Three Dimming Modes:**
  Easily set three distinct dimming modes - Occupied, Prolonged, and Vacant, for optimal control and energy savings.
- **Intuitive App Control:**
  Effortlessly manage your system. Easily manage your lighting, including the set-up of daylight sensing and PIR control with our user-friendly app.
- **Customisable Grouped Operation:**
  Enjoy complete flexibility with the ability to group and control devices individually or together, all fully customisable via the app.
- **Multiple Customisable Scenes:**
  Trigger various lighting scenes using timeclock or wall switch, with easy on-site adjustments via the app. Ideal for creating night-time settings for ward lighting.

EMERGENCY LIGHTING

- **Automated Monthly & Yearly Testing:**
  The system performs and reports on both monthly functionality tests and annual full duration tests automatically, ensuring your lighting system is always ready.
- **Flexible Reporting:**
  Collect test results directly through the app or via the on-site gateway, with all data easily accessible on the online platform.
- **Customisable Testing Schedule:**
  Tests can be scheduled to avoid disruption to clinical operations or the sleep pattern of patients in a ward.
- **Cost Effective Solution:**
  No ongoing costs, automated testing, reporting and record keeping - HubSense is the most cost-effective emergency testing solution for hospitals

The Brighter Choice

NVC LIGHTING LTD
NVC Park 201, Hollymoor Way, Rubery, Birmingham, B31 5HE UK
+44 (0) 333 577 5057 I projects@nvcuk.com I www.nvcuk.com