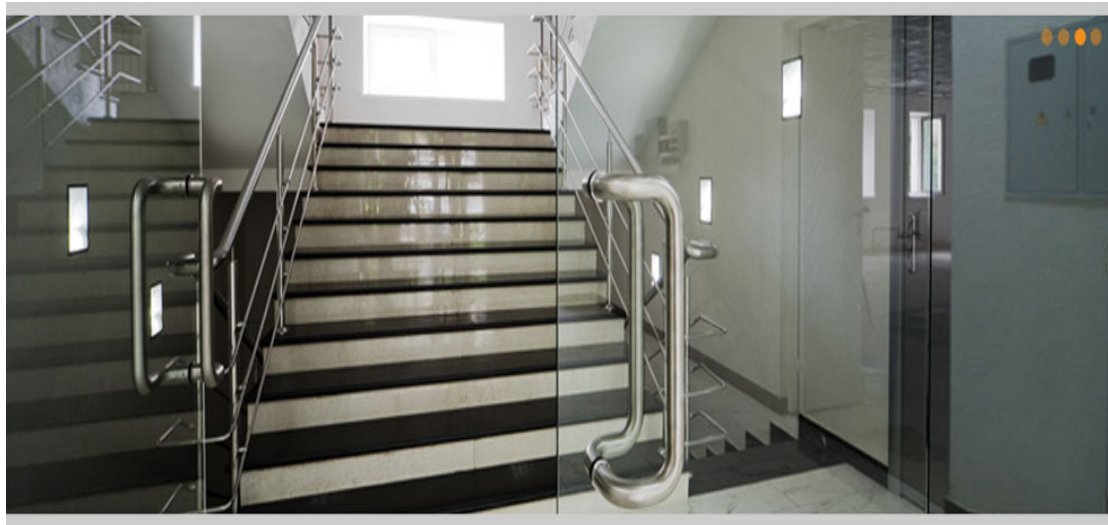




**“Patient safety, privacy and dignity – at the flick of a switch”**

**Electronically switchable glazing for the healthcare sector**



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SmartGlass Medical is the dedicated manufacturer of Electronically Switchable Glass for the medical sector. Also known as privacy glass, switchable glass, intelligent glass and electric glass these technologically advanced medical glass products are particularly focused on bringing privacy and dignity to medical wards, operating theatres, X-Ray suites etc.

Our main products are LC SmartGlass offering Privacy on demand and SPD SmartGlass offering Solar-Control.

SmartGlass Medical is a division of **SmartGlass International** and has its head quarters, manufacturing, finance, marketing and R&D centre in Dublin, Ireland with commercial, sales and technical offices in the UK.

With the intention of concentrating our products and markets we only produce electronically switchable glass products and through continued research and development initiatives we have developed specific medical applicable products with the assistance of the NHS in the UK and various health professionals throughout Ireland, Germany and the Middle East. We have invested heavily in plant and machinery and have the capacity to fulfill large orders on short lead times. Each piece of SmartGlass is bespoke made to meet and exceed our client's needs, always with the client in mind.

Through continued investment we have expanded to become World leader in the manufacture of electronically controlled smart glass products and commit to the continued development of these products. We offer unique and bespoke services including technical, consultancy, design and electronic control systems.

We can offer these services as a supply only option, or through our nominated service and installation network we can provide maintenance through to complete "design & build" turnkey solutions.

## **Healthcare Interior Solutions**

It would be fair to say that widespread and negative publicity has generated a degree of lack of confidence from some people in terms of quality of care and patient wellbeing. Patients' expectations are changing, along with attitudes by other stakeholders to hospital environments. This has been reflected in both the design and fit-out of many new hospitals, and in the refurbishment of others. Modern hospital design is trying to combat the risks associated with the spread of HCAI's as well as trying to improve the patient experience by offering privacy and dignity.

An area that continues to be on the agenda is this biting issue of privacy and patient dignity. The significance of this was highlighted when the Department of Health and Design Council in the UK initiated a 'Design for Patient Dignity' challenge initiative in 2010. Research has shown that patient comfort can also aid recovery time and by offering an improved patient experience thorough privacy on demand this is further aided.

Interior surroundings can be transformed into modern settings which perfectly meet the needs of these particular environments. The use of intelligent SmartGlass provides added value and increased flexibility in new and upgrade hospital designs, reduces HCAI's, improves working environments and building ergonomics, saves energy, and increases the well being of occupants.

### **LC SmartGlass**

Through continued studies it has been proven that sheer, easily cleaned surfaces are essential in hospitals in order to reduce the risks associated with the spread of "super bugs" such as CDIFF and MRSA. LC SmartGlass offers a sheer, easily cleaned (wipeable) surface. This can replace traditional blind systems for example which are difficult and awkward to clean and high risk in terms of harbouring dirt and bugs.

LC SmartGlass offers patient dignity and privacy while allowing hospital staff to safely and efficiently review patient wellbeing. All LC SmartGlass panels are bespoke manufactured using a lamination process which encapsulates a PDLC film between 2 or more glass sheets. Using a minute electrical current, users can immediately switch the LC SmartGlass from clear to private (opaque) and vice versa.

### **SPD SmartGlass**

SPD-SmartGlass can be manually or automatically "tuned" to precisely control the amount of light, glare and heat passing through a window.

The ability to instantly switch the glass to maximize daylight when it's really needed and to provide controllable solar shading during peak light conditions is valuable and unique particularly in a hospital environment where patient comfort and well being is at the forefront. All SPD SmartGlass panels are bespoke manufactured using a lamination process which encapsulates a SPD "Suspended Particle Device" film between 2 or more glass sheets.

Natural day lighting, which can be regulated using SPD SmartGlass, has been shown to improve health and well being, and thus its regulation is considered by many to have a strong influence on patient recovery time.



## UNIVERSITY OF CAMBRIDGE

The University of Cambridge carried out a study on the energy saving potential of SPD smart glass. The main findings were that:

- Solar gain can be reduced by up to 90% in SPD smart glass windows when compared to regular float glazing.
- In all states of transparency the glass rejects over 99% of UV light transmission.
- SPD glass was able to provide a much more uniform and comfortable internal room temperature than regular single float glazing, with fluctuations of only 2°C compared with 8°C.

We have supplied LC & SPD SmartGlass to several NHS and Worldwide hospitals including:

- Blackrock Clinic Dublin
- Birmingham University Hospital
- Kendray Hospital Barnsley
- Saudi Arabian Maternity Hospitals
- Clonmel General Hospital
- Royal Sunderland Hospital
- National Maternity Hospital Dublin
- Southampton University Hospital
- Raigmore Hospital Scotland
- Windsor Knee Clinic

SmartGlass Medical has worked on a number of specialized projects within the healthcare sector. A collection of SmartGlass case studies are available to download from our website [www.smartglassinternational.com](http://www.smartglassinternational.com).

Subscribe to the SmartGlass monthly newsletter or follow us on Twitter, "SmartGlass Int", to receive updates on the latest projects.

Included in this booklet are case studies for St. Mary's Hospital Paddington, The Windsor Knee Clinic and one of our largest medical projects to date, NHS Trust Royal Sunderland Hospital.



## St. Marys Paddington Hospital - London

St Mary's Hospital, located in Paddington, London was founded in 1845 and is operated by Imperial College Healthcare NHS Trust. St Mary's is a general acute hospital that diagnoses and treats a range of adult and paediatric conditions. Renowned for being at the forefront of leading technology, the hospital has pioneered the use of robotic surgery, including the UK's first da Vinci robot for keyhole surgery.

### SmartGlass Medical

Electronically switchable glazing for the healthcare sector. "Patient safety, privacy and dignity – at the flick of a switch".

SmartGlass Medical (SGM) is a division of SmartGlass International and is the dedicated manufacturer of electronically switchable glass for the medical sector. SmartGlass medical products are particularly focused on bringing privacy and dignity to medical wards, operation theatres, and X-Ray suites. Through continued research and development initiatives, SmartGlass Medical has developed specific medical applicable products with the assistance of the NHS in the UK and various health professionals throughout Ireland, Germany and the Middle East. SGM work with hospitals, specifiers and contractors to meet specific project requirements regarding the glass surface, in terms of its composition, certification requirements & aesthetics.

The healthcare industry is seeing a lot of refurbishment work calling for new innovative products as hospital designs improve. Modern hospital design is trying to combat the risks associated with the spread of HCAI's as well as trying to improve the patient experience by offering privacy and dignity.

It would be fair to say that widespread, negative publicity has generated a degree of lack of confidence from some people in terms of quality of care and patient wellbeing. Patients' expectations are changing, along with attitudes by other stakeholders to hospital environments. This has been reflected in both the design and fit-out of many new hospitals, and in the refurbishment of others.

### Healthcare Interiors

Through continued studies it has been proven that sheer, easily cleaned surfaces are essential in hospitals in order to reduce the risks associated with the spread of super bugs such as CDIFF and MRSA. SmartGlass products offer a sheer, easily cleaned surface to replace traditional blind systems which are difficult to clean and high risk in terms of harboring dirt and bugs. Interior surroundings can be transformed into modern settings which perfectly meet the needs of these particular environments. Research has shown that patient comfort can help reduce recovery time and by offering an improved patient experience thorough privacy on demand this is further aided.

### The design brief

St. Mary's hospital prides itself on delivering the best patient experience by continuously improving patient standards and facilities infrastructure. Keith Murray, Facilities Director at St. Mary's hospital, was keen to introduce innovative interior solutions which would help eliminate the threat of in-house infection and provide a comfortable environment where patient privacy and dignity would be protected at all times. The project involved using a series of glazed partition screens to section off clinical treatment rooms from public areas so that the spread of infection could be significantly reduced.

### Patient Privacy & Dignity

The NHS are working to improve privacy and dignity for their patients as a key priority during the coming years; over the past year they have invested over £1.6 billion to improve the 'patient experience' on hospital wards throughout the UK.

LC SmartGlass is the ideal solution for high dependency hospital interiors as it creates a safe environment, protecting patients from HCAI's whilst at the same time preserving a high degree of patient dignity by way of privacy control.

### LC SmartGlass

All LC SmartGlass panels are bespoke manufactured using a lamination process which encapsulates a PDLC film between 2 or more glass sheets. Using a minute electrical current, users can immediately switch the LC SmartGlass from clear to private (opaque) and vice versa.

LC SmartGlass can be manufactured and supplied to suit varying healthcare requirements such as fire rated, x-ray proof and impact resistant. When the electrical supply is switched on, the liquid crystal molecules align and incident light passes through and the LC SmartGlass panel instantly clears.

LC SmartGlass provides a sheer, easy clean surface which can be wiped down with an anti-bacterial agent regularly and efficiently. This greatly facilitates the deep-cleaning process as a considerable amount of time is saved compared to traditional cleaning techniques.



Switched "On"



Switched "Off"

For further information on SmartGlass International projects please visit the case studies section on our website.



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The Windsor Knee Clinic is part of the BMI Princess Margaret Hospital in Windsor, Berkshire. BMI Healthcare is Britain's leading provider of independent healthcare with a nationwide network of hospitals & clinics performing more complex surgery than any other private healthcare provider in the country. BMI are committed to delivering quality and value to their patients, providing facilities for advanced surgical procedures together with friendly, professional care.

**Infection Control**

BMI Healthcare strives to ensure that the risk of infection for their patients is kept as low as possible and a focus on hygiene and infection control is one of their top priorities.

Infection Prevention and Control is taken very seriously within BMI Healthcare hospitals and every hospital has a dedicated infection control team. Because best practice constantly evolves, so too do the policies and procedures within each hospital on infection control. The Corporate Head of Infection Prevention and Control works with each hospital's infection control team on a regular basis to ensure the implementation of evidence based principles and practice.

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**LC SmartGlass**

Using a minute electrical current, users can immediately switch the LC SmartGlass from clear to private (opaque) and vice versa. All LC SmartGlass panels are bespoke manufactured using a lamination process which encapsulates a PDLC film between 2 or more glass sheets. LC SmartGlass can be manufactured and supplied to suit varying healthcare requirements such as fire rated, x-ray proof and impact resistant. When the electrical supply is switched on, the liquid crystal molecules align and incident light passes through and the LC SmartGlass panel instantly clears.

Switched "On"

Switched "Off"



LC SmartGlass Doors – Treatment Room Entrance

**LC SmartGlass for Infection Control**

Through continued studies it has been proven that sheer, easily cleaned surfaces are essential in hospitals in order to reduce the risks associated with the spread of "super bugs" such as CDIFF and MRSA. LC SmartGlass provides the ideal solution offering a sheer, easily cleaned surface to replace traditional blind systems which are often difficult to clean and high risk in terms of harbouring dirt and bugs. This greatly facilitates the deep-cleaning process as a considerable amount of time is saved compared to traditional cleaning techniques.

Infection control is a key priority within the healthcare sector at the moment with a series of challenging targets in place with regular assessment.

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Switched "Off"



LC SmartGlass doors and partition screen  
Consultancy room

**LC SmartGlass for Patient Privacy & Dignity**

The NHS are working to improve privacy and dignity for their patients as a key priority during the coming years; over the past year they have invested over £1.6 billion to improve the 'patient experience' on hospital wards throughout the UK. LC SmartGlass provides instant privacy when switched to its "off" state allowing patient privacy and dignity at all times. This eliminates the need for curtains or blinds thus creating a more aesthetically pleasing finish as well as a low maintenance, easy clean surface.

**Windsor Knee Clinic**

The Windsor Knee Clinic is dedicated to delivering the very best in quality and value to their patients. This was significantly reflected in the design brief with state of the art patient surroundings being the central focus throughout. LC SmartGlass was used in a door system for each consultancy and treatment room within the clinic. Deep-cleaning and infection control preparation can be carried out efficiently and comprehensively within each consultancy and treatment room at the clinic. Patient privacy and dignity is protected at all times within the clinic as each room can be transformed into a confidential space instantly at the flick of a switch.



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In times of heightened awareness surrounding HCAI's across the healthcare sector, it is essential that hospital venues be fitted with the correct professional solutions to provide piece of mind and protection to the people within this environment.

With the ever increasing threat of in-house infection, it is crucial that an answer be provided to combat this hazardous dilemma.

This was promptly recognised by the Royal Sunderland Hospital, which in turn was reflected throughout their project brief with superior healthcare standards at the forefront of every design consideration.



### Project Brief

Extension of the Royal Sunderland Hospital to increase patient capacity from 970 to 1108.

A 138 bed ward extension to provide much needed supplementary care facilities for the hospital. This state of the art Integrated Critical Care Unit (ICCU) separates theatre staff and nursing staff to eradicate the chances of contamination spreading between the two sections.

The primary motive for this project brief is a new scheme being employed by the NHS Foundation Trust throughout the UK, Royal Sunderland Hospital being the first to recognise and develop the new initiative.

SmartGlass Medical specialize in this field where ordinary interior settings are transformed into modern, state of the art settings while at the same time offering a unique environment in which patient care and wellbeing is at the forefront.

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LC SmartGlass™ offers instant privacy at the flick of a switch. Offering patient dignity and privacy while allowing hospital staff to safely and efficiently review patient well being the SmartGlass screen offers a sheer easily cleaned surface to replace traditional blind systems which are difficult to clean and are high risk in terms of harboring dirt and bacteria.

LC SmartGlass can be tailored to suit varying healthcare applications with requirements such as fire rated, x-ray proof and impact resistant glass.

All LC SmartGlass panels are bespoke manufactured using a lamination process which encapsulates a PDLC film between 2 or more glass sheets. Using a minute electrical current, users can immediately switch the LC SmartGlass from clear to private (opaque) and vice versa.

### Principle

When the electrical supply is switched on, the liquid crystal molecules align and incident light passes through and the LC SmartGlass panel instantly clears. When the power is switched off the liquid crystal molecules are randomly oriented scattering light and the LC SmartGlass becomes opaque (private).

### Royal Sunderland Hospital

The Integrated Critical Care Unit (ICCU) includes high dependency single bed units, isolation single bed units and general post-operation single bed units. In such a delicate environment, extra care must be taken to protect those who are most vulnerable to infection, patients and healthcare personnel.

For this reason, state of the art partitioning was required to live up to the health and safety requirements of these particular divisions within the ICCU.



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Switched "Off"

LC SmartGlass toughened panels were used to create a state of the art partitioning system along the corridors of the ICCU. The double doors entering each ward are fitted with LC SmartGlass toughened door panels allowing for patient privacy and dignity at the flick of a switch, while also permitting care staff to effectively monitor patient activity.

For more SmartGlass case studies please visit our website, [www.smartglassinternational.com](http://www.smartglassinternational.com)

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