



Howorth
Air Tech

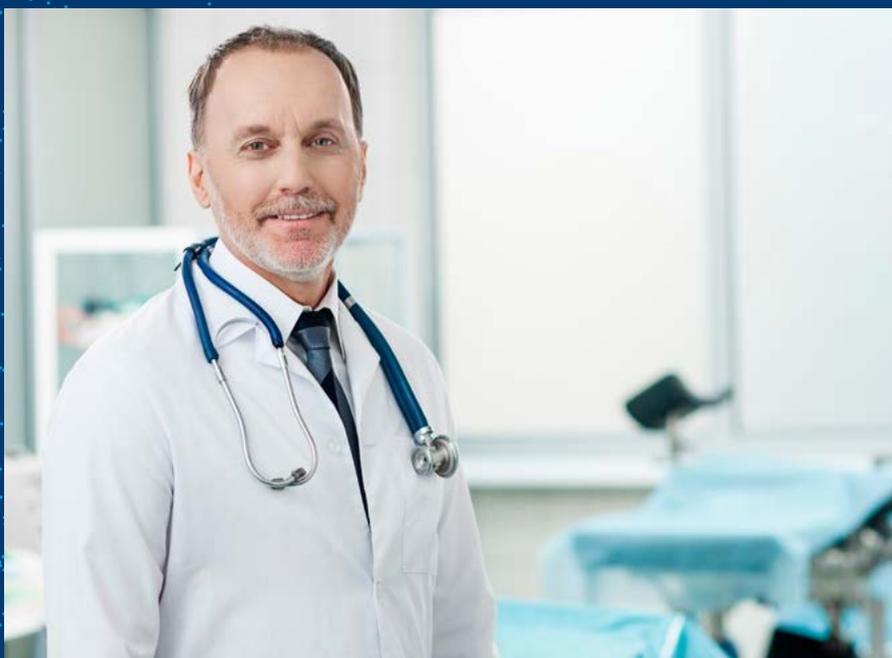
Healthcare

Reducing risk.
Improving outcomes.

Clean air pioneers since 1858

**From operating theatres
to critical care,
we take care of it.**

Clearer thinking on healthcare



We're not just focused on saving lives, but on improving the working lives of everyone in the health profession.

From providing turnkey solutions to supplying specialised equipment, medical service pendants, surgical lights and digital connectivity, we're continually looking to the future with an air of inspiration and pioneering pragmatism.

**Making the healthcare workplace,
a better place to be.**

Helping healthcare
environments

flow better

From pioneering advances in airflow engineering to the way we are shaping optimised workflow efficiency, our technology has been instrumental in reducing risk and improving patient outcomes.



The clean air revolution begins in

1858

Our passion for air quality began in poorly ventilated cotton mills in 1858. To protect workers from inhaling cotton dust, James Howorth developed a visionary approach to humidifying and ventilating which would drastically improve air quality and transform

the lives and working conditions in the textile industry.

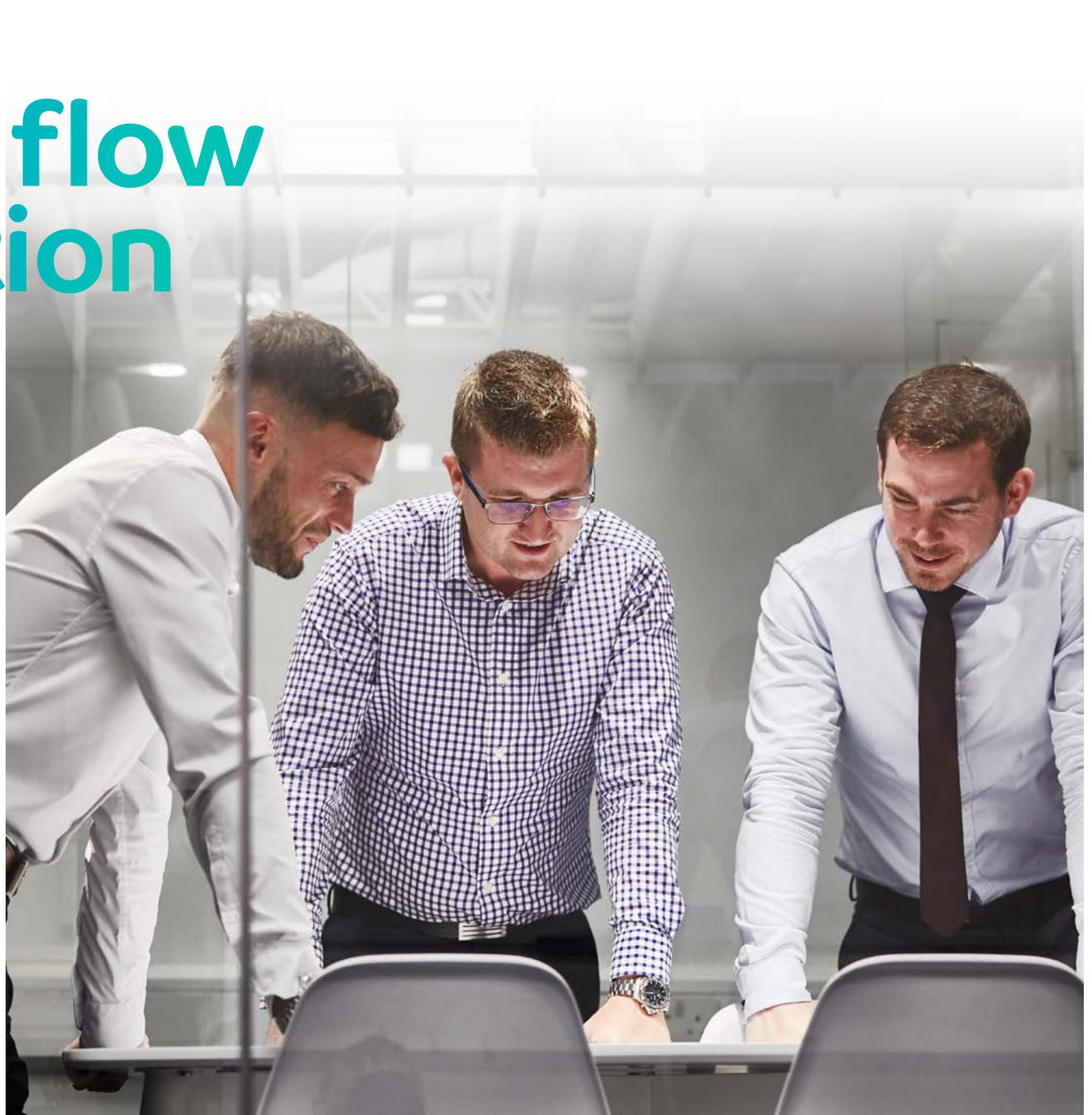
This pioneering work led to a specialisation in airflow engineering which would transform patient outcomes around the world.

Pure air flow innovation

For Howorth, innovation is something we live and breathe every day.

Our expertise in developing ground-breaking technologies and advanced clean air engineering solutions has been pivotal in the creation of our world-class air flow solutions.

Our world class experience and passion for what we do means that every time you talk to Howorth will be a moment of clarity, informed by insight and a reassuring grasp of your technical challenges.



Collaboration

is at the heart of
everything we do



Ever since we engaged with renowned surgeon Sir John Charnley to create the microbiologically clean surgical zones which reduced airborne contamination, our collaborative approach has been our defining difference.

By working closely with you to understand your needs, we create outstanding solutions.

Our flexible approach to designing, constructing and equipping operating theatres and critical care areas is the reason why our name is now trusted across the globe.

The logo for EXFLOW, featuring the word "EXFLOW" in a bold, blue, sans-serif font with a trademark symbol. It is positioned in the upper left corner of the image, which depicts a surgical suite with a white ceiling-mounted ventilation system and a blue operating table.

EXFLOW™

Exceptional AIR QUALITY

pure and simple

Since 1962, the Howorth **EXFLOW™** UCV system has set the standard for Ultra Clean Ventilation systems.

It has been installed in over 4,500 operating theatres world wide, transforming post-procedure recovery by protecting the wound site from Surgical Site Infections (SSI), by creating an ultra clean air

zone around the patient and surgical team.

And today, our ventilation innovation goes on...

EXFLOW™ UCV Canopy

The use of Howorth's **EXFLOW™** UCV systems have been proven continuously to reduce the occurrence of SSI in operating theatres.

The Howorth **EXFLOW™** UCV canopy is available in two sizes, **EXFLOW™** 28 (2.8m) and **EXFLOW™** 32 (3.2m).

Both models provide microbiological cleanliness and airflow results exceeding all current healthcare guidelines.

The **EXFLOW™** Evolution screenless UCV canopy incorporates a patented Coanda air containment system to maximise the open sided clean area and minimise the risk of contamination in the clean zone without the need for side screens, low-level vents or mechanical extract.

- Unique exponential airflow pattern
- No entrainment, even without full side walls
- Up to 500 air changes an hour
- Larger clean zone protects instruments
- Graded air flow, higher central velocity overcomes thermal plumes
- Completely self contained
- No need for any secondary recirculation ductwork



Theatre Control Panels

Theatre Control Panels (TCP) are a key part of any ultra clean operating theatre. Howorth's TCP is clear, easy to use and can be fully integrated with the **EXFLOW™** UCV system, surgical lights and other operating theatre equipment.

Our range of theatre control panels provides the surgical team with their environmental controls and equipment monitoring alarms, together with clocks and many optional extra facilities, including PACS workstations.

The panels are fully HTM 03-01 compliant and feature;

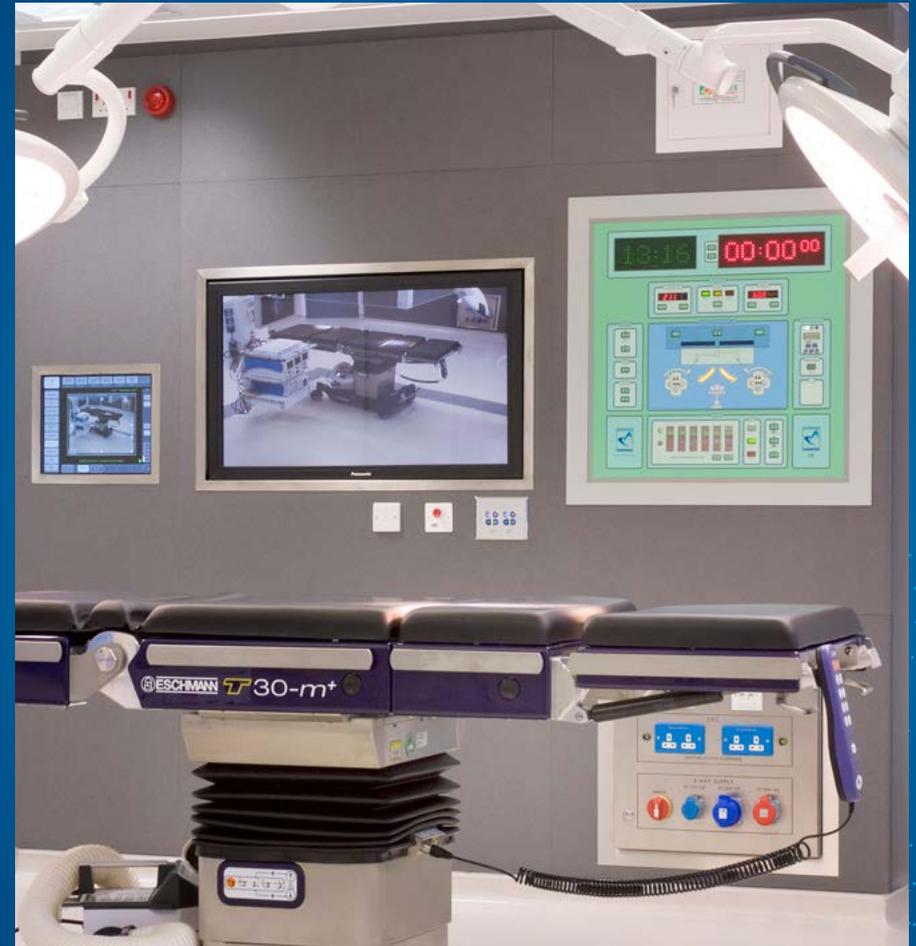
- A display of all theatre environmental factors
- Integrated PACS workstations
- Monitors to view digital images
- Easy wipe clean stainless-steel or membrane fascia
- Touch screen option
- "Laser In Use" and "X-Ray In Use" options available

These systems can be mounted into either a stainless-steel fascia or behind a polycarbonate membrane.

The membrane option offers the advantage that all switches and lamps are mounted behind the flush, easy clean membrane.

Powered Siemens PLC controllers provide robust operation using "machine logic" for continuous performance.

Also exclusive to the Howorth theatre control panel is the graphic visual representation of the **EXFLOW™** UCV unit and the operating lamps for ease of recognition, monitoring performance and control switching.





A BRIGHTER vision for the future

marLED® X. Lighting at its most versatile. And most precise

With hospitals under pressure to achieve more while spending less, reducing the time it takes to switch to the right theatre lighting for each operation is key. Because every situation, every tissue and every user is different, having the correct lighting is essential to ensure a successful procedure.

Enter the new **marLED® X.** Lighting so versatile, it's suitable for every situation and everyone who operates it, keeping operation set-up time to a minimum.

Besides its long service life, it also features the latest LED technology, which ensures that the surgical site is always in brilliant, homogeneous light.

While its innovative beam path offers a wider light field which can be matched to surgeon preference, making it the most versatile operating light on the market.

Adaptable solutions brought to light

Latest LED technology

Warm white/cold white LEDs combined with unique high-tech lenses provide brilliant, homogeneous light.

A special feature: every single LED of the **marLED® X** can be controlled separately.

Active shadow management

Where there is light, there is also shadow. But not with **marLED® X**.

Active Shadow Management is a fully automatic system for ensuring that light is always available exactly where it is needed.

Perfect and even illumination

96 powerful LEDs ensure that the surgical site always appears in the best light, literally.

The conditions for a successful procedure are always ideal.



X-beam path for maximum variability

Every operation is unique. And that particularly applies to the surgical field and how it is illuminated.

The optical-only system can be used to adjust the light field precisely to match the personal preferences of the surgeon – totally without mechanical parts.

With its innovative beam path concept the **marLED® X** offers you a previously unattainable light field size from 14cm to 35cm.

The variable light geometry will also impress – it can be selected to round or oval.

INDEPENDANT®



Adaptable SOLUTIONS for operating theatres and ICU's

By combining Howorth's **EXFLOW™** range of medical pendants with the KLS Martin **INDEPENDANT®** range, we can provide a solution to adapt to all healthcare areas.

From simple rigid box units mounted on the **EXFLOW™** UCV system to complex multi-functional pendants for digitally integrated theatres or ICU settings.

Howorth **EXFLOW™** pendants are mounted on the **EXFLOW™** UCV canopy and can be used within non-UCV theatres if required:

EX100

Simple rigid box pendant with basic gas, electric and data connections. Can be supported entirely from **EXFLOW™** UCV.

EX170

EXFLOW™ mounted slim-line electrical & data services pendant supported entirely from the **EXFLOW™** UCV.

EX300

Horizontal rotation and vertical movement pendant with medical gas and electrical/data connections to provide flexibility in smaller theatres.

KLS Martin **INDEPENDANT®** pendants for use in all critical care and theatre environments. Varied range of movement and load carrying capabilities for the most demanding uses:

INDEPENDANT® FLEX

Comprehensive range of articulated pendants with vertical height adjustment and monitor carrying capabilities. Articulated pendants for critical care facilities.

INDEPENDANT® FIX

Innovative fixed position pendant systems for critical care and recovery areas. Beams with movable consoles, columns and bedhead units for bedrooms and recovery.





Clean air **THINKING** from start to finish

Our forward-thinking turnkey solutions are setting new standards in next generation healthcare.

From project feasibility, and throughout the whole product life cycle, our focus on excellence ensures smooth progress from concept to completion across operating theatres, critical care and isolation facilities.

The unrivalled experience we bring to design, construction and commissioning makes us a more proactive and helpful partner, listening to your needs

and minimising disruption with robust, safety-focused solutions.

We operate with integrity, caring about every detail, micro-managing each step of the process and applying innovative thinking to achieve successful outcomes.

And when everything is complete, we also offer complete servicing, validation and maintenance support.

Stage 1

Concept

Without obligation, we will undertake an initial feasibility study, develop a layout proposal and produce budgetary pricing.

Stage 2

Construction

New build theatres and suites

Our highly experienced team of project managers and engineers have successfully undertaken a variety of turnkey healthcare construction projects.



Stage 3

Completion

Installation and commissioning

We are totally focused on minimising downtime and disruption, delivering you a theatre that operates as quickly as possible.





A breath of fresh air for healthcare area design

Theatre refurbishments

We have refurbished hundreds of operating theatres, literally transforming them in just a few weeks into state-of-the-art, ultra clean, fully HTM compliant facilities.

Whether you are looking to extend an existing structure, convert a redundant area into a new operating department or upgrade an old facility, we have the experience and expertise to make your plans a reality.

Modular building solutions

Configured to your specific requirements and site conditions, our modular healthcare buildings are factory built and brought to site in rapidly assembled sections.

Whether your capacity issues are short-term or permanent, our modular buildings offer you a flexible solution.

- Whole life cost savings
- Rapid deployment
- Reduced site disruption
- Strict production quality control
- Permanent or relocatable
- M&E plant rooms fully fitted off-site
- Reduced maintenance
- No wet trades



Next generation DIGITAL INTEGRATION

As medical technology evolves, everything changes. New possibilities arise. Greater visibility and connectivity can be achieved. And at the forefront of this digital revolution, is Howorth. Helping you to make the changes essential to your future.

Integrating the latest developments to support the surgical team to deliver improved patient outcomes, it is now possible to utilise high resolution video and data efficiently over hospital wide IP networks.

Providing open architecture systems capable of interfacing with all brands of equipment to provide the backbone of the operating theatre integration system. With flexibility to design around your requirements and

capable of upgrading at a later date to include enhancements. Using fibre optic cabling and VoIP communication protocols to provide future proofing of your systems.

4K and above imaging for clarity of view to reduce strain on the surgeon and provides better outcomes for the patient. This use of imagery for reports and planning is invaluable to the surgical team. And we're here to provide a seamless installation.



Welcome to a more secure, more shareable operating theatre future

Who benefits?

Clinicians

Images from endoscopes, surgical microscopes and room cameras can be routed, recorded and viewed from anywhere over hospital wide IP networks.

Allowing clinicians to view images and medical records in the surgical field, whilst also being able to broadcast for training on and off campus.

An end-to-end IP workflow solution allows surgeons in the OR to capture and share high-resolution video and patient data with other doctors and medical students across the hospital campus and beyond.

Medical Staff

Today's hospitals are characterised by many isolated AV systems and processes.

This complexity has an impact on efficiency and reliability, forcing medical staff to spend valuable time on non-care related tasks.

Installing an integrated IP solution will streamline the modern clinical AV workflow, replacing incompatible data formats and connectors with the simplicity, cost efficiency and resilience of a single LAN based connection between all system elements for quick configuration and simplified support.



Hospital Managers

Adding new medical devices and systems requires costly, time consuming installation and training for hospital staff.

What's more, extra hardware and file formats can mean headaches over the security and integrity of valuable clinical data.

Our IP workflow solutions make it easier to add extra hardware and functionality as your needs grow.

Moreover, they provide a safe and secure data management suite where you can review, edit and annotate recordings with all digital assets stored on a secure server.

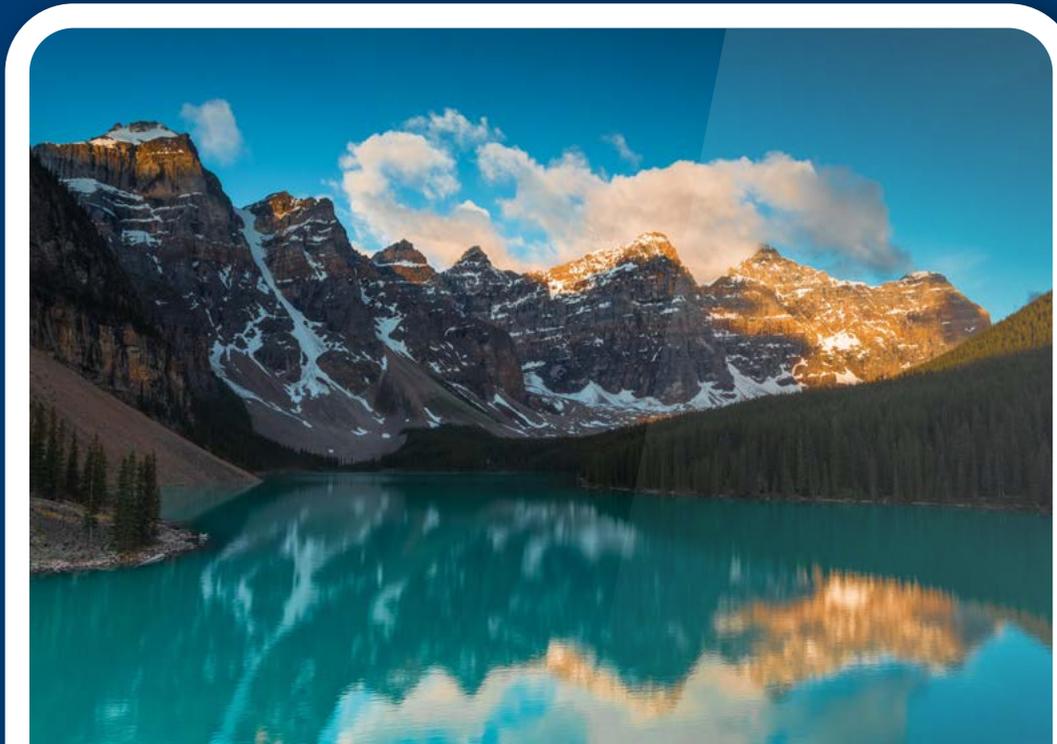
System Integrators

With video over IP, medical system integrators can offer hospitals a powerful, highly flexible video workflow solution with the capacity and versatility to meet the needs of today and tomorrow.

It offers low total cost of ownership and enables easy system integration and maintenance. An all IP architecture provides a seamless upgrade path

from HD to 4K, while open API's simplify rapid customisation of OR controllers and integration with other hospital systems.

A better outlook guaranteed



In the medical world, the ability to see the outside world is known to have a therapeutic effect.

So what happens when the outside, can't be seen?

SKY INSIDE™ Ceilings are skylights that recreate views of the natural world, giving the appearance of a real window in the ceiling.

SKY INSIDE™

Our validated full-spectrum daylight balanced system and circadian products have the colour temperature of real daylight at 6500K.

When accompanied with real world digital imagery, this gives the patient the impression that they are looking outside.

The world-class research facilities we've collaborated with confirm that the specific lighting balance we create, instantly interacts with the pineal gland in the hypothalamus to start the release of melatonin in the bloodstream, reducing anxiety by making every medical space, a relaxing place.



Discover how we're saving lives and transforming working lives in the medical world.

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