HEALTH & CARE

WELLBEING THROUGH LIGHT

energylight
knowledge | solutions

Cover Image: BIOS SkyBlue™ Tunable Lighting at Gary and Mary West Emergency Department nurse station.

LIGHT & WELLBEING FOR HEALTH & CARE

Contemporary healthcare must go beyond 20th century hospitals and evolve in health, empowering the patient to heal.

Whether working in hospitals, senior care centres, emergency wards, medical centres, dentists, or veterinary practices, Energylight have lighting and control solutions to match your requirements.

Energylight has successfully worked with the Ministry of Health and collaborated closely with architects and engineers to deliver Human Centric Lighting solutions, that provide illumination of the highest medical standards for both staff and patients alike.

Well planned illumination can promote patient healing and efficiency of healthcare staff.

Optimised Human Centric Lighting (HCL) solutions can help to support a natural circadian rhythm and thereby achieve both a sense of comfort and greater caregiver effectiveness right through the day to night cycle.

Energylight's health solutions deliver efficient performance, longevity and superior colour rendition. We offer product solutions that when combined with sky blue tunable technology and good design fundamentals can promote wellbeing and visual comfort in all areas of the healthcare setting.

Project: Energyline and ERCO installed at Hillmorton Hospital, Christchurch
Image: Sarah Rowlands Photography

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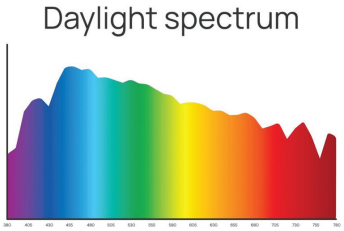
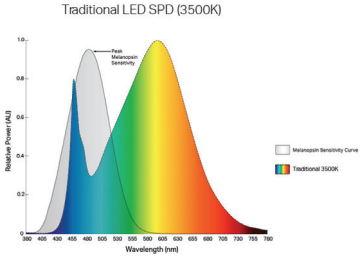
Image: Circadian Lighting at Gary and Mary West Emergency Department corridor.





Graph: Research has proven that our circadian system responds to the 'sky blue' region in the colour spectrum near 490nm. Sky blue tunable spectrum targets this zone and includes a peak at 490nm (the 'sky blue' region), which traditional white and tunable white LEDs do not.

Sky blue tunable spectrum offers a 40% increase in circadian impact compared to traditional white and tunable white LEDs. (source: bioslighting.com)

Understanding how and when light affects us at a biological level is an emerging area of interest. Energylight strives to bring clarity, expertise, and innovation to projects in this space.

WHY IS SKY BLUE LIGHT IMPORTANT?

Sky blue light is the missing cog in 99% of interior lighting today. Sky blue light is crucial at a cellular level. It aids in regulating our circadian rhythm, improving sleep patterns and overall health.

Research has established that adequate circadian lighting should include the sky blue spectrum of light at (490nm) wavelength, which is found in daylight but is missing from most traditional LED lighting systems. This has largely been because LED lighting systems are engineered around efficiency for visual light only and has ignored our biological needs.

This sky blue 490nm wavelength, communicates directly with our biology via non-visual photoreceptors in the eye, known as ipRGCs (photosensitive retinal ganglion cells). ipRGCs contain melanopsin, a protein which, when stimulated by light at 490nm, sends a signal to the body to reset its cycle for the next 24 hours. This triggers various biological processes, including the production of cortisol for morning alertness and melatonin for a good night's sleep.

Light and its effect on our biology have, in recent times, made us evaluate how we use light in the built environment. Traditional standards and practices have been geared toward visual acuity and energy efficiency. While both factors are important, light and its relationship to human health is now better understood and new evidence-based design can improve the human condition in buildings.

How can sky blue tunable lighting technology improve the human condition in your project?

Delivery – To exhibit an accurate biological response from light, we must ensure we deliver the right light to the right place at the right time. New metrics for this sky blue enriched light are crucial to achieving this and understanding what areas within a project make the most sense. Energylight can help identify essential areas and guide how best to implement project-specific solutions.

Technology – Energylight has partnered with leading global LED manufacturers specialising in spectrally optimised LEDs. This technology enables us to deliver high levels of melanopic lux during the day at desirable Colour Temperatures (4000K or 3500K) without compromising colour quality or stability. Furthermore, sky blue tunable spectrum has the added benefit of control, allowing us to remove the sky blue light levels in the evening with virtually no impact on visual light.

Images: BIOS Lighting at Gary and Mary West Emergency Department: nurse station, consultation rooms and corridors.

STAFF & PATIENTS BENEFIT FROM CIRCADIAN LIGHTING

BIOS, pioneers in circadian lighting, have implemented their technology into the Gary & Mary West Emergency Department (UC San Diego Health).

UC San Diego Health has opened a state-of-the-art unit specialised in treating seniors requiring emergency healthcare. The Gary and Mary West Emergency Department at UC San Diego Health in La Jolla, is the first in California to treat qualifying patients over the age of 65 in a dedicated space customised for geriatric emergency care.

The accredited geriatric emergency department features architectural design elements for older patients, such as carefully calibrated lighting and improved acoustics, safety and comfort.

'Although we have been delivering specialised senior emergency care for more than two years, the new physical space allows older adults to be cared for in an environment that better meets their needs than a traditional emergency room setting. We are very excited to provide this unprecedented service to our senior patients and their caregivers'

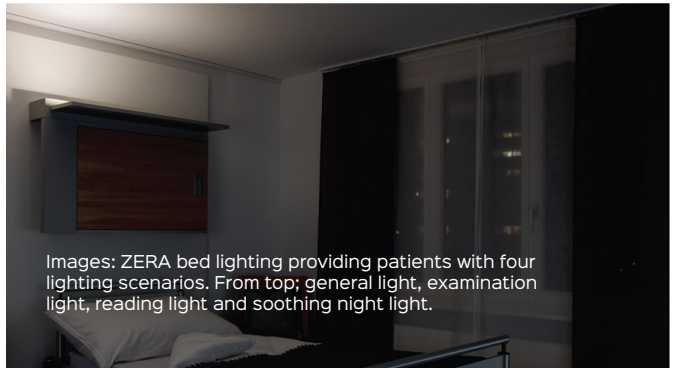
VAISHAL TOLIA
MD, MPH, medical director of the Department of Emergency Medicine at UC San Diego Health.

The BIOS lights implemented have improved patient and staff wellbeing in UC San Diego Health's geriatric emergency department (GED) in two crucial ways... Firstly by adding a heightened amount of circadian signal that not only orients patients to the actual time of day; but provides alertness during the daytime hours to improve mobility and reduce fall risk. Secondly, by providing a unique wavelength of light dedicated to visual assessment of patients in the SECU patient rooms.

'Circadian entrainment is important to the GED staff for health and productivity, especially for those working longer or on overnight shifts. For short-stay, elderly patients, an important aspect of our lighting system is its unique wavelengths that enhance visibility of medical ailments, such as sepsis—a potentially life-threatening condition caused by the body's response to infection.'

ROBERT SOLER
VP of Research at BIOS

bios ILLUMINATED



Images: ZERA bed lighting providing patients with four lighting scenarios. From top; general light, examination light, reading light and soothing night light.

PATIENT ROOMS FOR RECOVERY

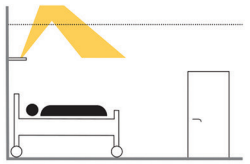
ZERA BED Wall-Mounted Luminaire (Four Lights In One)

The wellbeing of patients and staff is paramount in health facilities across New Zealand, as is the complex demands of hospitals and the need to save energy and costs in this critical environment.

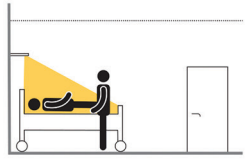
For many patients, hospitals can become their home-away-from-home so thought needs to be given to the design and lighting used in this space, both from a compliance standpoint and that best promotes healing and recovery.

An innovative free-form solution has been developed and tailored to aid in the day-to-day lives of patients, whilst decreasing the excessive need for traditional lighting that creates glare and deters alignment with circadian support for wellbeing. This wall-mounted luminaire is light level compliant with health examination room requirements and delivers a spectrum attuned to the Cyanosis Observation Index. The standard for AS/NZS1680 ensures it is optimal for safe lighting in these situations.

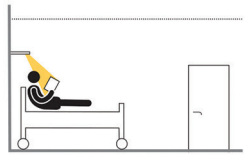
Established in the New Zealand market is the ZERA BED, a four in one solution to provide patients with four distinct luminary settings for their patient rooms that is both compliant whilst in-budget for hospital boards and associations.



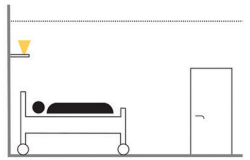
Homogeneous General Light - 3,000K



Rectangular Examination Light - 4,000K

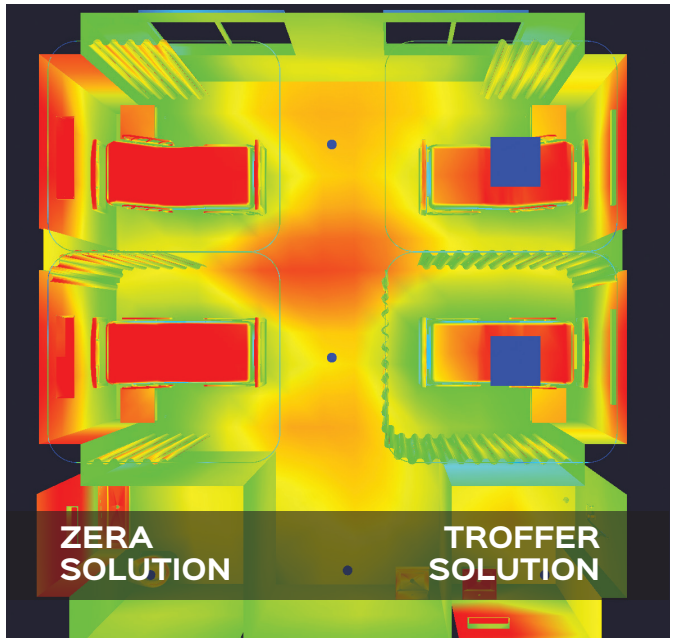


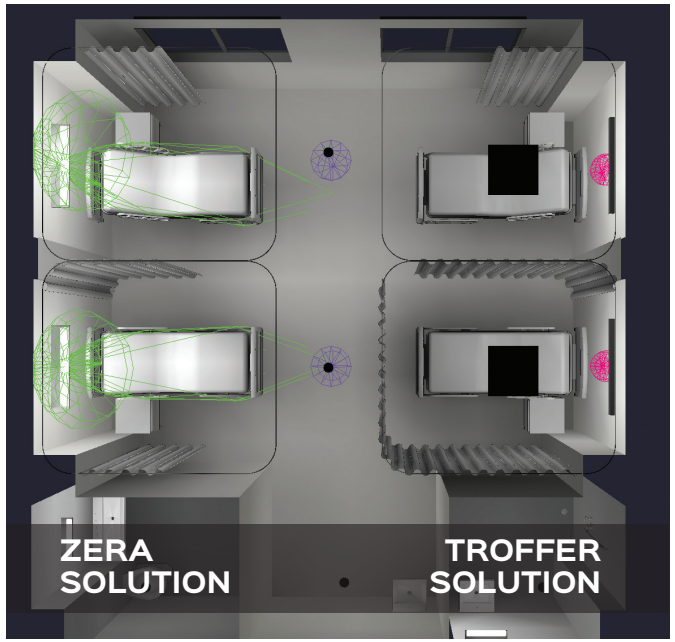
Glare-Free Reading Light - 2,700K



Soothing Night Light - 2,700K

ZERA BED vs Generic Fittings





Patient Room Lighting

Image render top left shows even light distribution under the ZERA BED examination light setting (at 4,000K). The clearly delimited examination light provides uniform illumination from head to toe and avoids dazzling people in neighbouring beds.

Image render top right shows generic lighting currently in hospital settings with a reduced illumination across the bed. The blue squares indicate troffers which tend to give glare to patients as they are regularly positioned in their line of vision daily. These troffers often do not cover the full length of the bed underneath to adequate light levels for examination purposes. The ceiling troffer also comes at an additional cost to the hospital when one multi-function light such as the ZERA BED light would suffice for each patient.

CYANOSIS OBSERVATION INDEX

What is COI?

COI Stands for Cyanosis Observation Index. It is a unit of measure that has been used in Australia and New Zealand since 1997 (with the most current of the lighting standard AS/NZS 1680.2.5:2018) and defines the suitability of a light source in health care environments. In particular the index value describes a light source's suitability for visual detection of cyanosis in a patient. The test evaluates the colour appearance of fully oxygenated blood and oxygen-depleted blood under both a reference light source and then the light source under test.

Interior Lighting Standard AS/NZS 1680.2.5:1997 covers 'Hospital and medical tasks', and it introduces the concept of lighting to support the observation of cyanosis. It also establishes the Cyanosis Observation Index (COI) as a measure of the ability of a light source to aid the detection of cyanosis in a patient.

Full requirements are outlined in Section 7.2 of that standard, which includes: "Where it is decided" that cyanosis observation is necessary, the lighting should have a colour temperature of between 3300K and 5300K and a COI of 3.3 or less.

Comparison Chart

	INSTALLED POINTS PER BED	ENERGY	USER COMFORT	MAINTENANCE	CONTROL	INSTALLED COST	CEILING SERVICE COORDINATION
GENERIC FITTINGS	Up to 4	>30%	Light in line of sight	Complex via ladder	Complex	> 40% ($$$$)	Complex
ZERA BED	Only 1	<30%	No light in line of sight	Easy via steps	Simple	< 40% ($$)	Simple

DEVELOPMENT OF LIGHTING SOLUTIONS FOR PSYCHIATRIC CARE

Introducing Salvalux by Energylight

At Energylight we innovate to solve problems which others have overlooked.

Developed from the need for more robust, modern, secure lighting that would surpass current healthcare codes and regulations; Energylight Salvalux was born.

Through collaboration with an engineering consultant and Energylight's in-house design team, the Salvalux anti-ligature lighting solution was created to pave the way for more welcoming lighting in the mental health sector.

Traditional psychiatric rooms for patients have been kept minimal with poor lighting, and often representative of a prison-like environment, not aligned with the state of the individual in care nor the appropriate setting for active recovery, often providing the basic function of visual light with no warmth, care or appeal.

Salvalux is a combination of two Latin words, Salva (which translates to save or rescue) and Lux (a measurement of light).

Salvalux is designed to provide a feeling of safety, security and comfort, much like someone might feel at home whilst also protecting them from accessing the fitting or causing harm to themselves. The overall mission of Salvalux is to improve that person's wellbeing when they are confined to their rooms and making this space as pleasant both aesthetically and biologically.

This takes us to our next point: Salvalux can be fitted with simple inclusions such as custom colours that work in settling patients through to custom BIOS lighting, providing brighter days and darker biological nights to help circadian entrainment and eliminate circadian disruption, which can lead to mood swings, insomnia and a host of other health issues.

Solving problems like this is part of our culture and we will continue to do so well into the future.

Images: Changes in Energylight Salvalux anti-ligature lighting solution. Transition ability from warm white to calming amber night light, to improve wellbeing for patients.

"The standard is all about making their environment physically better. I think that will drop right down to the bottom line, whether it means less errors at 2 a.m. or the ability to understand how we can recognise a symptom because their cognitive skills are sharper,"

PHIL WILLIAMS
Former VP Of Building &
Human Performance at Delos

WELL CERTIFIED BUILDINGS

Improving Health and Wellbeing Through the Built Environment

What is WELLS?

In October 2014, IWBI launched the WELL Building Standard – a performance-based system for measuring, certifying and monitoring features of the built environment impacting on human health and wellbeing through the concepts of air, water, nourishment, light, fitness, comfort and mind. For a building to be Well Certified, it must receive pass scores in every aspect, indicating that each feature meets the standard's requirements for human wellbeing. There are three levels of certification – silver, gold and platinum.

The standard's criteria are based on medical research exploring connections between buildings and the health and wellbeing of their occupants. Establishing a standard to measure this in commercial buildings mirrors a broader global trend in the notion of wellness or wellbeing. The payback is healthier people and increased business productivity.

WELLS migration into Health and Care

If 2020 has shown the world anything, it's that our health and safety are directly linked to how we design and maintain the great indoors.

90% of our time is estimated to be spent indoors, therefore buildings have an undeniably profound impact on the health, happiness, and wellbeing of its occupants. It is known that medical employees are subjected to some of the worst health-performing criteria, from shift work to high stress.

The Well Standard in building is meeting a set of criteria which is achievable for the healthcare industry. Focus is placed on operational policies, maintenance protocols and emergency plans.

Organisations seeking to navigate the impacts of COVID-19 are faced with important decisions about when and how to restore their operations, how to support the safety of occupants and employees, and how to prepare for the inevitable changes to their facilities over the coming years. The WELL Health-Safety Rating is designed to help guide organisations to evidence-based best practices for operating through this crisis, as well as for long-term preparedness on other critical health and safety issues.

WELL philosophy is inviting people to look for their Health-Safety seal, so they feel confident knowing the space they are entering is putting their health first.

Image: Eastfield Health Medical Centre with RZB Sidelite Eco installed in ceiling. (Content resources: wellcertified.com; healthspacesevent.com)

Image: Parkside Ward in Christchurch Hospital. Trunking system seen either side of the bed bars and Zera Bed Head light.

150V TRUNKING

Customisable Vertical Trunking for Healthcare

Electrical outlets in hospitals are critical to patient room functionality. Developed locally in New Zealand through collaboration with the Canterbury District Health Board and health engineering consultants, Energylight 150V has arrived.

The specified aluminium extrusion uses vertical mounting to ensure effective use of space and safety in accordance with legislation. Compared to horizontally mounted systems, the vertical system allows for a higher density of accessories, be it electrical power sockets, data outlets, nurse calls, or medical gas outlets. The advantage of the Energylight 150V product is that all accessories are within easy reach of the clinical staff and patients when placed vertically.

The trunking system is inherently a second-fix construction item as it is mounted on the surface of the wall. This means that the walls can be completed and painted at an earlier stage of the project before the trunking is mounted, reducing the chance of the trunking being damaged during the final commissioning stage.

Images: Parkside Ward at Christchurch Hospital.
Energylight 150v Trunking in two arrangements; one and three trunking in the system, either side of the bed head.

150V TRUNKING

Improving Health and Wellbeing Through the Built Environment

The Energylight 150V's key features include safety, ease of use, and hassle-free installation. It is also backed by a 10-year warranty.

- Vertical trunking has a customisable height that aligns with the hospital's needs.
- Ease of use for doctors, nurses and patients.
- Light-weight design – (3.3kg per metre)
- Built using locally sourced aluminium
- Utilises unoccupied space between ceiling and floor
- Cost-effective installation and ease of future modification
- Meets electrical and test standards.
- 10-year warranty
- Flexibility for further changes.
- Keeps different outlet services separate and well-located for the patient and the nursing staff.

The 150V trunking system provides a uniform look and can incorporate clinical colour coding (e.g., ports needed for patients and staff use). This gives clinical staff confidence that each service they need is in the same location at each bedhead and not too far from the patient. This reduces the clinical risk and delay of essential emergency services.


LIGHTING PRODUCTS
Level 03 zone B2
Edit
3.E.017 Nurs
3.E.017 100lx
3.E.017 OOB Relay
3.E.017 Relay Anim
3.E.017 OOB Light
3.E.017 OOB Timed
3.E.019 TV
3.E.019 Reading
3.E.019 OOB Relay
3.E.021 Nurs

Image: Control of hospital lighting through Casambi technology (photo: Gavriil Papadiotis)

PRODUCT CATEGORIES

Image: Waiting area at Christchurch Outpatients. Energyline 75S suspended lights with a black finish, creating a statement luminaire in contrast with the natural timber.

LOBBY & WAITING ROOMS

Visual communication is achieved via an illuminance hierarchy, whereby we highlight what we want to see (such as reception seating). Energylight has solutions that help to warm/dim these spaces into the evening, while promoting wellbeing and cosiness linked to the outside ambient conditions.

Something to remember

Long life and glare-free luminaires are critical for lobby spaces due to the heightened operating hours.

	PRODUCT	BRAND
	VIFO	Energylight + Sky Blue
	Microprism	RZB
	SKIM	ERCO
	IKU	ERCO
	Compar Recessed	ERCO
	Linear	Energyline + Sky Blue
	Eclipse	ERCO
	Atrium	ERCO
	Triona	RZB
	Fabricloud	Cooledge

Specific lighting solutions in the categories above can be fitted with sky blue tunable spectrum technology. This is mentioned in the 'BRAND' column.

Image: Nurses' station at Ulster Hospital featuring ERCO Compar low-glare task illumination linear downlights.

NURSES' STATION & RECEPTION AREAS

Healthcare staff are often situated in the core of a building with no benefit from natural daylight. This lack of daylight is the most detrimental impact to circadian entrainment and general wellbeing. Staff require well-lit task areas for reading and good vertical/cylindrical illumination in reception areas is ideal for healthcare staff to maintain a welcoming and approachable atmosphere for patients and visitors. Energylight can assist with providing brighter days and warmer nights.

Something to remember

Sky blue tunable spectrum lighting should be considered for improving impact on circadian entrainment for clinical staff.

	PRODUCT	BRAND
	VIFO	Energylight + Sky Blue
	VLINE	Energylight + Sky Blue
	Linear	Energyline + Sky Blue
	Microprism	RZB
	SKIM Downlight	ERCO
	IKU	ERCO
	Compar	ERCO

Specific lighting solutions in the categories above can be fitted with sky blue tunable spectrum technology. This is mentioned in the 'BRAND' column.

Image: Waldmann Zera Bed situated in Oromairaki community maternity unit at the Selwyn Health Hub.

PATIENT & EXAM ROOMS

Exam and patient rooms require lighting that aids personnel through their work and patients through recovery. Energylight's suite of products include the Waldmann ZERA BED (ideal 4-in-1) lighting solution for patients and doctors, along with lighting from leading brands such as ERCO.

	PRODUCT	BRAND
	ZERA BED	Waldmann
	ZERA BATH	Waldmann
	IKU	ERCO
	Parledo	RZB
	EVALA	Energylight + Sky Blue

Specific lighting solutions in the categories above can be fitted with sky blue tunable spectrum technology. This is mentioned in the 'BRAND' column.

Something to remember

Improve care outcomes with evidence-based lighting that aligns with patients' circadian rhythm and is noted to improve mood plus the duration and quality of sleep.

Image: Sécurlite Senspot vandal-resistant LED light installed in healthcare facility in France.

PSYCHIATRIC CARE

Aesthetic appearance, mechanical strength, anti-rip out and anti-ligature are all critical considerations in psychiatric care. Energylight has developed a tested solution Salvalux, along with VK rated products from Sécurlite.

	PRODUCT	BRAND
	Salvalux	Energylight + Sky Blue
	Soffite	Sécurlite
	Senspot	Sécurlite
	Voila	Sécurlite
	Voila Asymmetric	Sécurlite
	Borgo	Sécurlite
	P600	Sécurlite
	Urbaline	Sécurlite

Specific lighting solutions in the categories above can be fitted with sky blue tunable spectrum technology. This is mentioned in the 'BRAND' column.

Something to remember

Options for lighting in this space call on designers to apply robust logic with competent installation to contribute to a safe environment in common areas, connecting spaces, stairwells and rooms.

Image: Corridor shown at Burwood Hospital Christchurch. Lighting used is Energylight Revalvo 300 which is recessed for a smooth finish.

STAIRS & CORRIDORS

Energylight can deploy a range of NZ made luminaries to guide those using these communal areas. Light fixtures need to provide illumination for a safe passage while avoiding glare for all manners of movement.

Something to remember

Circulation spaces must cater for those walking, in wheelchairs, or in hospital beds. Circadian lighting is less important here due to the transitional nature of these areas.

	PRODUCT	BRAND
	EVALA	Energylight + Sky Blue
	VILINE	Energylight + Sky Blue
	Microprism	RZB
	SKIM	ERCO
	Linear	Energyline + Sky Blue
	Triona Recessed, Surface, Suspended	RZB
	Voila Asymmetric	Sécurlite
	Cylinder	Energylight
	Triona	RZB
	Ring of Fire	RZB

Specific lighting solutions in the categories above can be fitted with sky blue tunable spectrum technology. This is mentioned in the 'BRAND' column.

Image: Laboratory facility with Energyline recessed lighting installed at Middlemore Hospital Harley Gray, Auckland.

LABS, CLEAN ROOMS & THEATRE

Energylight's solutions for clean rooms include the Zeta, ideal for sterile environments as it meets IP54, IP65 ratings and uses antimicrobial treatment on all surfaces of the frontal frame of the luminaire in compliance with international hygenic-antimicrobial standards ASTM E2180 and ISO 22196:2007 against various bacteria, fungi and moulds. The treatment is safe for humans and guaranteed for ten years.

Something to remember

Shadow-free, uniform lighting should be considered here especially for highly focused tasks.

	PRODUCT	BRAND
	VILINE IP44	Energylight + Sky Blue
	Parledo IP65	RZB
	Zeta IP54	Castaldi
	Zeta IP65	Castaldi
	75	Energyline + Sky Blue
	108	Energyline + Sky Blue

Specific lighting solutions in the categories above can be fitted with sky blue tunable spectrum technology. This is mentioned in the 'BRAND' column.

Image: Work consultation station at Christchurch Outpatients building, Christchurch.

CONSULTATION & WORKSTATIONS

A balanced direct and indirect light output from functional but decorative luminaires can provide a harmonious visual impression for the staff. dimming control is important to consider in these spaces along with occupancy sensors to reduce energy when nobody is present in the space. Limited daylight access or night-time operation should consider wellbeing sky blue tunable spectrum technology for brighter days and warmer low blue nights.

Something to remember

Where possible, consider wall washing in meeting rooms and low glare general downlighting.

	PRODUCT	BRAND
	VIFO	Energylight + Sky Blue
	EVALA IP5X	Energylight + Sky Blue
	VILINE	Energylight + Sky Blue
	Microprism	RZB
	SKIM Downlight	ERCO
	IKU	ERCO
	Compar	ERCO
	Linear	Energyline + Sky Blue
	Triona	RZB

Specific lighting solutions in the categories above can be fitted with sky blue tunable spectrum technology. This is mentioned in the 'BRAND' column.

Image: Ulster Hospital Belfast, implemented with ERCO lighting and controlled by Casambi wireless bluetooth-based lighting control system.

EXTERIOR FACADE & CARPARKS

Warm tone, visual comfort and uniformity of light assist with safety and orientation on arrival and departure from health care facilities. Energylight have installed exterior lighting for car parks, pathways that meet PC1 standards. Pathway lighting can be achieved using bollards to allow for comfortable navigation for those checking into or visiting a healthcare space.

Something to remember

Visual comfort and glare control contribute to better orientation safety and security.

	PRODUCT	BRAND
	FA100-W	ewo
	F System	ewo
	IN Series	ewo
	FA170	ewo
	Ledona IP65	RZB
	Castor	ERCO
	Voila	Sécurlite

Image: Christchurch manufacturing facility for Energyline products.

OUR NZ MADE STORY

Energylight strongly believe in brand ‘New Zealand’.

We are well versed in the design and manufacture of quality lighting solutions. The technology has evolved but our values stay the same – support New Zealand.

MADE IN NEW ZEALAND

At Energylight ‘Made in New Zealand’ stands true to our purpose and we aim to support local through varied stages of our production. Our select portfolio of luminaires are built from the ground up in New Zealand, something we are proud of.

These items are comprehensively supplemented by a variety of high-quality products from our exceptional technical and dependable global partners. We are fully engaged with the latest innovations of the world, whilst encouraging ongoing investment in local manufacturing and employment.

The specialist engineering and manufacturing skillsets within our company and our local supply chain add to the vast talent and superb culture that the Energylight Group have exhibited from inception. We are constantly in awe of the brilliant ideas our fellow kiwis put forward to constantly improve efficiencies.

‘We are proud to support the NZ Health and Care market and design teams with robust and efficient solutions’.

CALEB KING
Technical Director, Energylight

Image: Te Nikau Grey Base Hospital and Health Centre in Greymouth, CT screening room with Energylight Evala high-grade lighting.

WHAT WE PROVIDE

Compliant Lighting Solutions

We only offer the best in compliant medical lighting with a focus on the latest ground-breaking human centric technology.

Technical Solution Specialists

Our national team support the healthcare design community with lighting and control solutions.

NZ Local Support

With offices in Christchurch and Auckland, our team provides on-ground support when needed.

Quality & Longevity of Products

Sustainability within our supply chain carries through to the companies we partner with who share these values with a focus on quality recycled products.

Project: Hillmorton Hospital, Christchurch
Image: Sarah Rowlands

Image: Te Nikau Grey Base Hospital and Health Centre in Greymouth, CT screening room with Energylight Evala high-grade lighting.

VIEW OUR OTHER BROCHURES

LARGE AREA & INDUSTRY
WELLBEING THROUGH LIGHT

energylight
knowledge | solutions

PUBLIC & LANDSCAPE
WELLBEING THROUGH LIGHT

energylight
knowledge | solutions

Image: Christchurch Outpatients building, Oxford Terrace, Christchurch CBD.

energylight
knowledge | solutions

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