



Lighting Aged Care

Everyone involved in Aged Care wants the best for their residents. Lighting is fundamental to providing care and support for well-being.



Changing how the world views lighting.

Unios Toolbox

This digital tool provides you with a platform for configuring, bookmarking and collaborating on luminaires for any project.

unios.com/toolbox

Catalogues

Stay up to date with the latest Unios luminaire releases with our range of product catalogues.

unios.com/catalogues

Education

With contributions from leading experts, Universal Light is dedicated to increasing the awareness of the impact of light and the lighting industry.

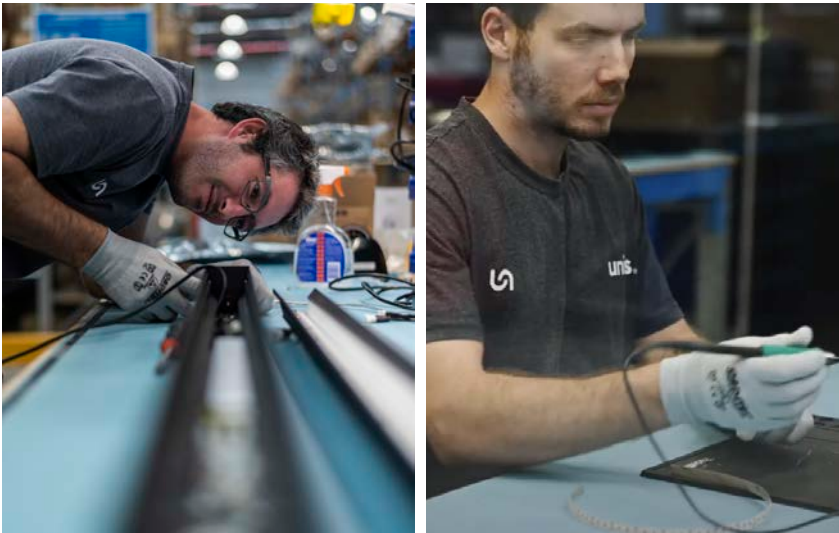
unios.com/universallight

White Papers

Learn about the specifics of new technologies and trending topics in methodically researched white papers.

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Proudly Australian	4	Visible & Non-Visible Flicker	20
Performance & Value	6	Tunable White	22
Government Commitment	8	Supporting Staff	24
Falls in Residential Care	10	Facility & Maintenance	26
Safety & Comfort	12	Whole-of-Life Cost	28
Lighting to Reduce Falls	14	Product Options	30-47
Lighting & Dementia	16	Why Unios	48
Colour Rendering	18		



A quality lighting brand right here in your backyard.

Offices around Australia

Unios understands the importance of being local. So shortly after Unios established in Perth, we set up offices in Melbourne and Sydney. Supporting our team is an experienced state-based distributor network in every capital city.

Quick turnaround

Unios' 6000m² warehouse just north of Perth holds tens of thousands of luminaires ready to ship. On top of that, our dedicated fabrication team can customise your lighting and typically ships in less than 10 business days.

Crafted in Australia

Our Australian design and engineering hub, research and development centre and state-of-the-art fabrication facility mean that our local experts craft your luminaires. It's a labour of love and light from Australia.

Practice what we preach

A building like no other, Unios headquarters is not an office and warehouse in the traditional sense but a holistic vision of lighting best practice — from office, accommodation and cafeteria lighting to retail and outdoor lighting.

Performance & Value



Design, performance and value without compromise.

Exceptional performance

There is a lot packed into one light! Unios luminaires make it easy to support safety, well-being and comfort with low glare, flicker-free, high CRI (colour rendering). We assist in achieving an ideal lighting solution.

A complete project solution

With a luminaire to fulfil every requirement from task, wayfinding, accent, ambient, exterior and landscaping, Unios provides a complete facility solution that caters to the needs of residents and staff.

Balancing performance and cost

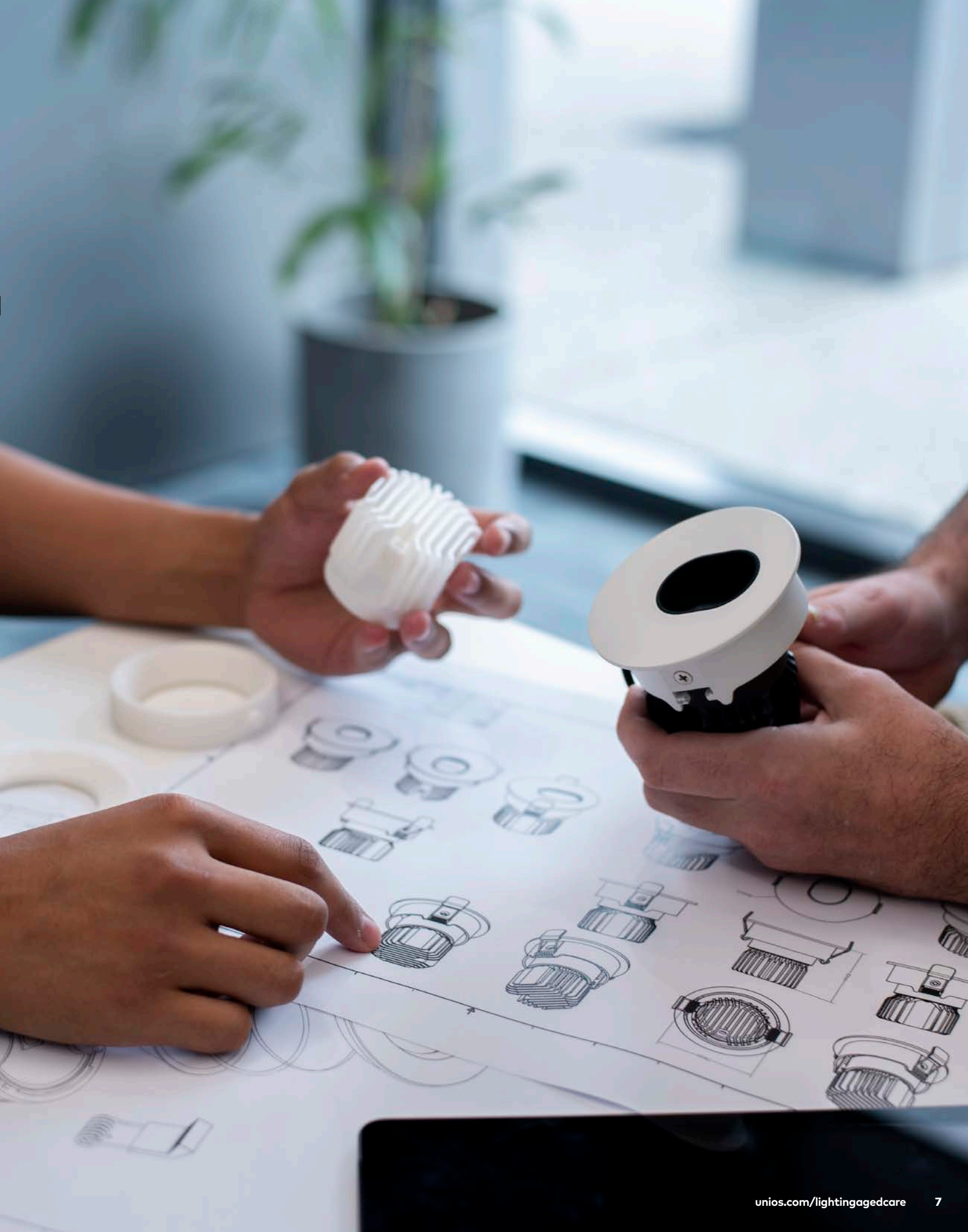
In addition to the confidence of the lighting suitability, Unios luminaires deliver for years to come. The colour stability and long life of our LEDs mean that continual use does not impinge on performance.

A product for all budgets

Whether building a new facility or retrofitting, Unios extensive range of luminaires can suit any budget. Your residents deserve good, comfortable lighting to support their well-being.

Design, performance and value

We started Unios because we couldn't find lighting that fit. They were either too expensive or poorly constructed. From our humble beginnings, our formula has never changed — design, performance and value without compromise.





The Australian Government is committed to supporting high-quality Aged Care.

Individualised care in a group setting

A key outcome of the Government investment is to create more spacious rooms, increase privacy and decrease the need for shared living quarters. In addition, the ability to control lighting levels in different areas and individual rooms assists in delivering personalised care.

Respect and dignity

The Australian community has a commitment to protect and advance the rights of older people receiving care. Fit-for-purpose lighting assists with task, wayfinding, fall prevention and overall illumination. Lighting is critical for a safe and caring environment.

Reporting on falls and fractures

From 1 July 2021, falls are a component of the National Aged Care Mandatory Quality Indicator Program. Falls, which result in fractures, are a major public health problem in older people increasing mortality and the leading cause of non-fatal injury. Adequate lighting reduces risk and is an essential component of fall prevention.

Care plans are essential for quality care

Every aspect of a resident's "being" is included in their Care Plan, including ADLs, mobility, dietary, religious affiliation, activities, hobbies, etc. Although not a Care Plan detail, lighting plays a critical role in supporting an enjoyable and meaningful life.

"To deliver an entitlement to high-quality care and support for older people, and to ensure that they receive it. The care and support must be safe and timely and must assist older people to live an active, self-determined and meaningful life in a safe and caring environment that allows for dignified living in old age."

Royal Commissioners Tony Pagone QC and Lynelle Briggs AO



Falls, fractures and increased morbidity and mortality

In Australia, falls are the leading cause of hospitalised injury (41%) and injury-related deaths (37% of all deaths). Nationally, across all age groups, 10% of falls occurred in residential aged care. Over 50% of those with a hip fracture will experience some degree of functional impairment.

Risk factors associated with falls

Falls are preventable by mitigating risk factors. Medication use can be categorised as either an extrinsic or intrinsic risk. The extrinsic factors, or environmental factors such as lighting, flooring, organisation (e.g. staff) are more easily mitigated. Whereas intrinsic factors such as mobility problems, cognitive impairment and frailty require more complex solutions.

Fractures are commonly associated with falls

Approximately a third of fall-related injuries result in a fracture. Tragically, 93% of hip fractures are a result of a fall-related injury. Hip fractures are associated with decreased mobility and quality of life and a 3-fold higher risk of mortality than in the general population.

Prevalence of falls

A third of older people living in the community, and up to 50% of people in residential aged care, fall at least once yearly. The presence of dementia increases the risk of falling more than 3-fold compared to those without dementia.

Up to 50%

of people in residential aged care fall at least once annually.

10%

of falls across all age groups (nationally) occur in residential aged care.

Over 50%

of those who fall will experience some degree of functional impairment.

93%

of hip fractures are a result of a fall-related injury.





Lighting and the role of comfort and safety in Aged Care.

The physical impact of bad lighting

We feel comfortable in spaces where the lights have low impact on our eyes and visual perception. When confronted with uncomfortable lighting, it is human nature to squint, further reducing our field of vision. The body's reaction to this type of poor lighting can lead to eye strain and headaches.

Considering glare

Unified Glare Rating (UGR) considers many aspects, including the light fitting height and how the beam angle may impact on the occupants of the space. Considering reflection, UGR also accounts for wall, ceiling, floor and other surface colours and materials.

Life in the shadows

Shadows are a consequence of improper lighting. Shadows can contribute to slips, trips and falls that can have huge impact on your residents' well-being. In other respects, shadows obscure vision and make it difficult to recognise caregivers.

Comfortable lighting increases safety

Squinting due to glare can cause improper depth perception as residents transition through the environment, increasing the risk of falls. Using fittings with a UGR of <19 and below, along with indirect lighting, significantly reduces glare, reflection and shadows.

Aging causes a normal loss of peripheral vision with squinting to reduce glare, further reducing the field of vision.

Shadows



Lighting can help create more even illumination of faces and less pronounced shadows. Shadows can often elicit feelings of fear.

Light Uniformity



A more uniform light distribution makes wayfinding unambiguous and allows the residents to more easily navigate.

A well-considered lighting solution ensures that Australians living in our care benefit from comfortable, safe lighting that supports well-being.



Visual clues maintain balance

Balance is maintained through the input of the visual, vestibular and somatosensory systems. The dependence on visual information increases with age due to the changes that occur within the other systems.

Significant benefit of ambient lighting at night

30-40% of accidents occur while transitioning from sitting to standing or vice versa. Using horizontal and vertical ambient light at night demonstrated similar weight transfer time as ceiling lighting. The benefit of the ambient lighting was less disruption of sleep due to bright overhead lights.

New solutions for old problems

Studies have found that a wall-plug nightlight was associated with significantly greater sway in the early phase of the sit-to-stand test than using modern LEDs to provide low-level ambient illumination and enhanced horizontal and vertical visual information.

Lighting innovation

Modern lights offer significant advancements over traditional luminaires. For example, luminaires can be controlled individually, including colour, distribution and intensity on demand. In addition, the overall size of luminaires has decreased, allowing the light source to be integrated into the architecture.

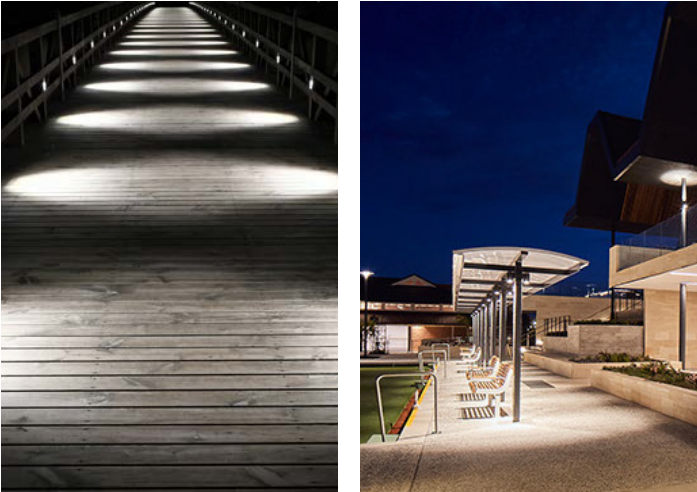
Primordial attraction to light

The brighter the light, the more the sensors in the eye are stimulated. Therefore, using effective lighting assists in identifying spaces. By increasing brightness (not glare), light can assist in wayfinding in corridors and throughout the facility.

The impact of poor lighting

Poor lighting substantially reduces the understanding of our physical environment. In addition, our natural aversions to glare and reduction in seeing contrast when we age can contribute to falls and cause unnecessary stress when trying to understand our surroundings.

Pathway Lighting

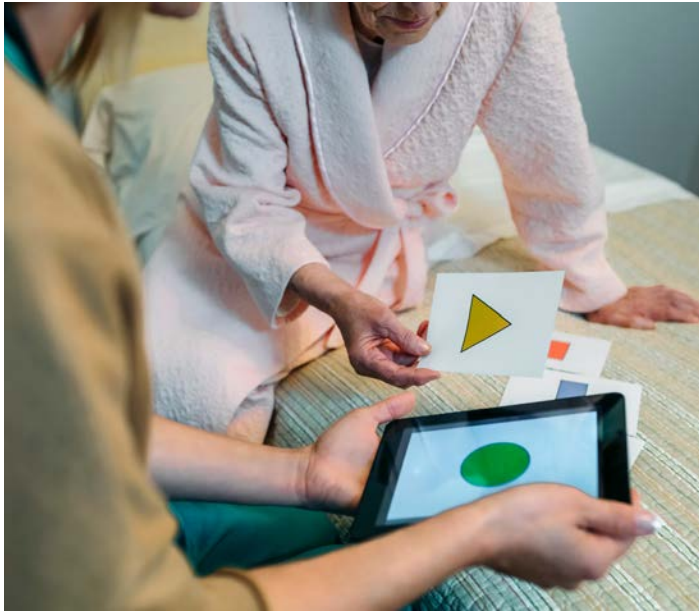


Pathway lighting design that does not consider the occupants of the space can trigger fears or increase the risk of incidents.

Dark Ceilings



By focusing on a more even illumination across surfaces, including ceilings — spaces can feel less confined and threatening.



Supporting those in our care

Sight is incredibly important to people with dementia. With age, peripheral vision is reduced, and therefore comfortable lighting is essential to make the most of the remaining field of vision. A well-planned lighting solution using direct and indirect light enables those living with dementia a better opportunity to make sense of the world around them.

Effective lighting involves a combination of increased light levels, minimising glare, avoiding sudden changes in light levels and good colour definition increasing contrast. Quality lighting is a vital component of good dementia-friendly design.

52%

of all residents in aged care facilities live with some degree of dementia.

30cm

is the field of vision many living with dementia experience (equivalent to wearing binoculars).

Indirect

lighting combined with direct lighting can drastically improve comfort and visibility for those living with dementia.





Project: Karingal Green Health & Aged Care Community

Lighting can mean the difference between life and death.

The importance of high CRI

Rendering colours as close to nature as possible increases the ability for residents to recognise objects. This is important that the colour remains similar during both day and night. For example, eating red tomatoes has been a lifelong norm and reinforcing these colour perceptions supports the cognitive process.

Understanding CRI

CRI (Colour Rendering Index) correlates light to daylight. A light source with a 98 CRI displays colours at nearly the same as daylight at 100. Fluorescent lights, which have traditionally been used in healthcare, have CRIs lower than 63. Poor quality LEDs often have CRI in the low 70s.

Misdiagnosis risks

Accurate colour rendering is critical in healthcare. For example, inaccurate colour rendering of skin changes could lead to a misdiagnosis or not identifying signs of infection, jaundice or reductions in blood oxygen levels. LED lights with colour rating indexes (CRIs) greater than 96 provide the most accurate colour rendering.

Medical diagnosis

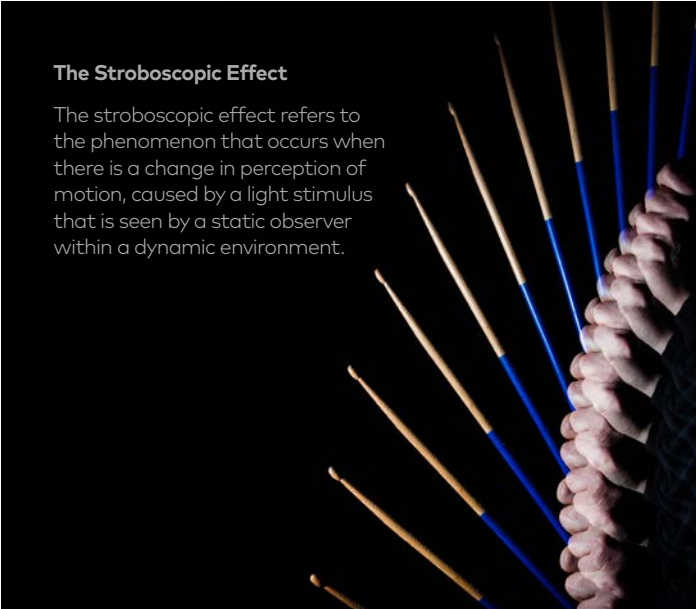


The correct lighting levels, colour rendering and colour temperature can play a large role in accurately diagnosing skin conditions.

Colour comparison



By having high colour rendering in your luminaires, there will be minimal difference between the colours you see during the day and night.



The Stroboscopic Effect

The stroboscopic effect refers to the phenomenon that occurs when there is a change in perception of motion, caused by a light stimulus that is seen by a static observer within a dynamic environment.

Flicker can have significant repercussions in Aged Care.

The adverse effects of invisible flicker

Invisible flicker or "sensed but not perceived" happens above 80 Hz and causes health issues such as eye strain, dizziness, fatigue, headaches, and more seriously, ocular migraines. Those living with photo-sensitive epilepsy or autism spectrum disorder can be extremely debilitated by flicker. In extreme cases, flicker can induce seizures and pose other life-threatening conditions.

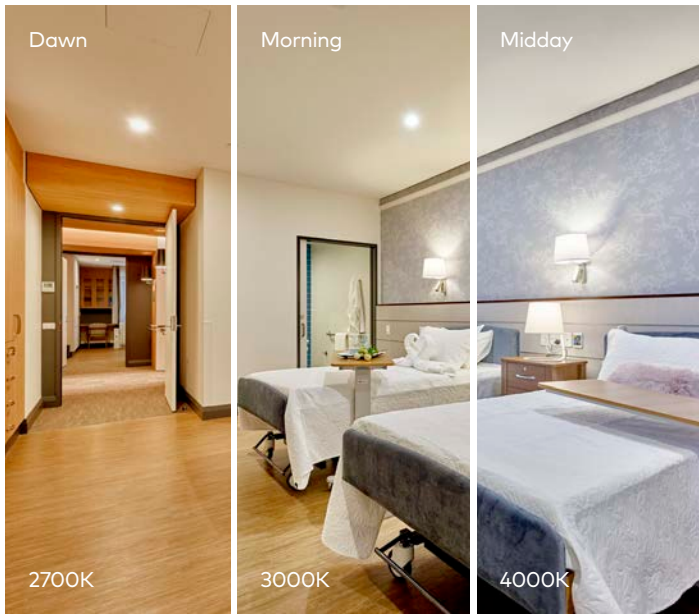
Limit temporal artefacts

The use of flicker-free lights assists in limiting temporal light artefacts, which are undesired effects on a person's visual perception. High-frequency drivers used in Unios luminaires create a much more comfortable and enjoyable environment that supports well-being and safety for our most vulnerable Australians.

Alzheimer support

The flicker found in low-quality lighting has been found to exacerbate Alzheimer's. Although light cannot cure the progressive disease, researchers have discovered that 40 Hz frequency boosts brain activity and chemistry to help fight the disease. It is very early days in the studies, but the researchers remain positive. Unfortunately, 40 Hz frequency flicker is not currently available from LEDs.





The biological effects of lighting on your residents.

Circadian cycle supported by light

Light stimulates the circadian system, whether natural sunlight or artificial light. Our brain's autonomic response to light processes and regulates physiological rhythms throughout the body's tissues and organs, affecting hormone levels and the sleep-wake cycle.

Replicating nature

Renovating a facility to increase natural light is ideal, but the disruption and expense are often too great. Using a lighting solution with colour temperatures that mimic the cycle of daylight is the first step. Smart lighting controls, such as Casambi, can deliver natural light variations across the facility from dawn to dusk.

Use Case

Peacehaven Nursing Home was previously lit by glary compact fluorescent lights, with a high colour temperature of 6000K. Light levels were constant all day and contained a high level of blue. The facility implemented human-centric lighting that subtly changes colour and brightness throughout the day to mimic natural light. Inspiringly, *Peacehaven* has recorded a drop in levels of anxiety and accidents among residents.



Quality staff are essential to provide quality care

Retention remains a challenge

Nearly a quarter of the current Aged Care workforce of 366,000 plan to leave the sector in the next five years. Acknowledging that the current workforce will need to grow to nearly 1 million by 2050, attention needs to be focused on retaining and attracting quality staff.

Workplace design matters

Research from behavioural change company, Empirica, and Hassell Architects, determined that workplace design and facilities influenced the retention and attraction of staff. For 16% of the study participants, their decision to take a job was most influenced by physical workplace conditions.

Lighting supports staff well-being

Lighting has a significant impact on the staff physiologically and psychologically. Many studies link daylight and comparable exposure with sleep, activity, and quality of life. Comfortable lighting that mimics natural lighting supports well-being.

Shift work and lighting

At the beginning of a shift, using higher illumination levels and colour temperatures support alertness. With the use of technology, the areas of illumination and adjustability over the course of the shift provide the best practice in lighting for shift work.

277,671

current Aged Care workers with over two-thirds planning on leaving the sector in the next five years.

16%

of workers stated their decision to take a job was most influenced by physical workplace conditions.

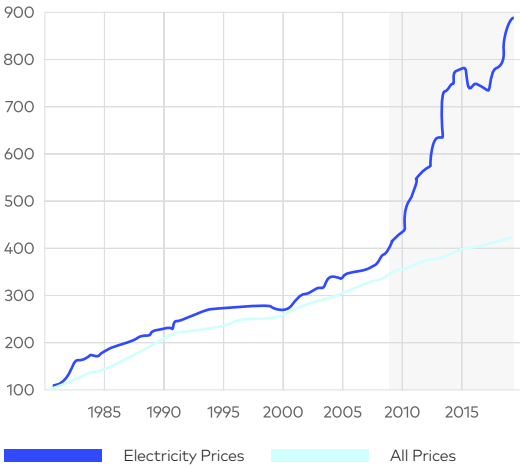
1 million

is the magic number the Aged Care workforce needs to grow to by 2050.





Consumer Price Index of Electricity



Actualising the dollars and cents of facility and maintenance.

Government support for sector-wide reform

The Australian Government's focus on Aged Care Reform aims to provide high-quality and safe care services. There is a commitment to increase control and choice in their care. Across the sector, the fundamental aim is for every resident to be treated with dignity and respect.

Controlling operational costs

Throughout many industries, you often find that with slightly higher capital investment, the operational costs are significantly reduced. Lighting is no exception. With Unios luminaires, the operational cost savings on maintenance and the electrical costs are reduced considerably.

Whole-of-Life (WoL)

Whole-of-Life (WoL) costs are the sum of three costs — the initial cost of the light fitting + the operating costs + maintenance over the lifetime of the lighting installation. Quality luminaires will function years after warranty expiration. Lighting manufacturers specifications inform performance and enable you to compare luminaires and forecast WoL costs.

Whole-of-Life Cost

Lighting Package 1

Item		Totals
Luminaire	Panel Light 300 x 1200	
Wattage	30W	51,000W
Lifetime	60,000hrs L70B50	
Cost	\$80	\$136,000
Required amount of luminaires	1700	
Install per luminaire	\$50	\$85,000
Replacement costs within 12 years	up to 50%	\$59,000
Labour costs within 12 years	\$50	\$42,000
Power costs (12 years)	\$0.30 per KWH	\$938,196
Total Estimate Cost Minimum (over 12 years)		\$1,159,196
Total Estimate Cost Maximum (over 12 years)		\$1,260,196

Lighting Package 2 (Unios)

Item		Totals
Luminaire	Panel Light 300 x 1200	
Wattage	30W	45,000W
Lifetime	60,000hrs L80B10	
Cost	\$150	\$225,000
Required amount of luminaires	1500	
Install per luminaire	\$50	\$75,000
Replacement costs within 12 years	up to 10%	\$22,500
Labour costs within 12 years	\$50	\$7,500
Power costs (12 years)	\$0.30 per KWH	\$827,820
Total Estimate Cost Minimum (over 12 years)		\$1,127,820
Total Estimate Cost Maximum (over 12 years)		\$1,157,820

Real world data

Lifetime metrics are a substantial consideration for Whole-of-Life (WoL) costs. In this comparison, both lighting packages are using 30W panel lights. One's lifetime is 60,000hrs L70B50, where the other lifetime for 60,000hrs L80B10.

Delineating L and B

LED lifetime metrics are defined as Lxx and Byy. Lxx is the primary metric that represents the luminaires output depreciation. The L'xx' denotes the percentage

of initial light output after a nominated number of hours in operation. The 'Byy' is a 'statistical confidence' metric that further defines the LED lifetime. The Byy denotes the percentage of LEDs whose light output is expected to depreciate below the nominated 'L' value at the nominated number of hours.

Understanding L and B

For example, L80B10 60,000hrs means L (light output) is predicted to depreciate 20% to provide 80% of the initial output after 60,000hrs. B (failure data)

represents the proportion of LEDs whose light output doesn't meet the L.

After 60,000 hrs (6.85 years using the luminaire 24 hours every day), you will receive 80% of the original light output, with only 10% not meeting this measure. Therefore, L70B50 60,000 hrs, you will receive 70% of the original light output, with 50% not meeting this measure.

70% of output is when the human eye can start to detect a light level difference, and your areas of light levels might not comply with safety standards.

*Calculations are estimates based on current average Australian labour and electricity costs (AUD).

\$221,000

Initial costs (supply and install)

\$101,000

Potential replacement costs within first 12 years

\$938,196

Total estimated power costs

\$300,000

Initial costs (supply and install)

\$30,000

Potential replacement costs within first 12 years

\$827,820













Total estimated power costs





Resident Rooms
Product Options













	Good	Better	Best
	Lighting for the space — practical, compliant and efficient.	Lighting for occupants and the space providing comfort and visual appeal.	Lighting to highlight architecture as well as for the occupants and the space.
Task Lighting	<div></div> <div>Apex Downlight</div>	<div></div> <div>Scope Spotlight</div>	<div></div> <div>Codex Wall Light</div>
Wayfinding	<div></div> <div>Orbit Wall Light</div>	<div></div> <div>Pilot Handrail Light</div>	<div></div> <div>Eclipse Linear Light</div>
General Lighting	<div></div> <div>Akira Ceiling Light</div>	<div></div> <div>Titanium Downlight</div>	<div></div> <div>Node Dark Light</div>
Ambient/Accent	<div></div> <div>Kobe Spotlight</div>	<div></div> <div>Titanium Starlight</div>	<div></div> <div>Particle Focus Downlight</div>



Bathrooms
Product Options












	Good	Better	Best
	Lighting for the space — practical, compliant and efficient.	Lighting for occupants and the space providing comfort and visual appeal.	Lighting to highlight architecture as well as for the occupants and the space.
Task Lighting	 Echo Wall Light	 Eclipse Linear Light	 Helix Wall Light
Wayfinding	 Eclipse Linear Light	 Orbit Wall Light	 Cuadro Wall Light
General Lighting	 Akira Ceiling Light	 Apex Downlight	 Titanium Downlight
Ambient/Accent			 Eclipse Linear Light



Corridors
Product Options














	Good	Better	Best
	Lighting for the space — practical, compliant and efficient.	Lighting for occupants and the space providing comfort and visual appeal.	Lighting to highlight architecture as well as for the occupants and the space.
Wayfinding	 Pilot Handrail Light	 Eclipse Linear Light	 LX Infinity Wallwasher
General Lighting	 Mirage Wallwasher Downlight	 Diamond G2 Panel Light	 Eclipse Linear Light
Ambient/Accent	 Kobe Track Light	 Various Wall Lights	 Scope Spotlight



Common Areas
Product Options






	Good Lighting for the space — practical, compliant and efficient.	Better Lighting for occupants and the space providing comfort and visual appeal.	Best Lighting to highlight architecture as well as for the occupants and the space.
Task Lighting	 Kobe Track Light	 Akira Ceiling Light	 LX Linear Series
Wayfinding	 Pilot Handrail Light	 Eclipse Linear Light	 LX Infinity Wallwasher
General Lighting	 Diamond G2 Panel Light	 Node Dark Light	 LX Linear Series
Ambient/Accent		 Kobe Track Light	 Scope Track Light



Kitchens & Food Preparation
Product Options












	Good	Better	Best
	Lighting for the space — practical, compliant and efficient.	Lighting for occupants and the space providing comfort and visual appeal.	Lighting to highlight architecture as well as for the occupants and the space.
Task Lighting	 Apex Downlight	 Diamond G2 Panel Light	 LX Infinity (Prismatic) Linear Light



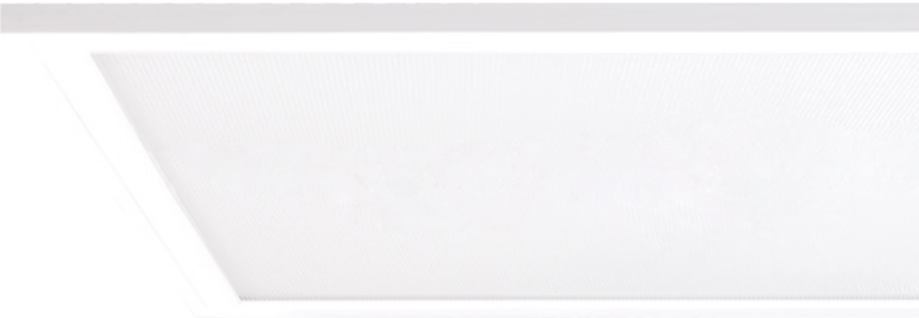
Outdoor
Product Options









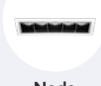

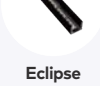



	Good Lighting for the space — practical, compliant and efficient.	Better Lighting for occupants and the space providing comfort and visual appeal.	Best Lighting to highlight architecture as well as for the occupants and the space.
Balcony	 Vega Wall Light	 Bianco Wall Light	 Athena Wall Light
Landscaping	 Emerald Spike Light	 Compass Inground Uplight	 Evio Bollard
Wayfinding	 Link Wall Light	 Pilot Handrail Light	 Eclipse Linear Light



Administration & Offices
Product Options






	Good Lighting for the space — practical, compliant and efficient.	Better Lighting for occupants and the space providing comfort and visual appeal.	Best Lighting to highlight architecture as well as for the occupants and the space.
Entry	 Diamond G2 Panel Light	 Titanium Downlight	 LX Linear Series
Task Lighting	 Diamond G2 Panel Light	 Apex Downlight	 LX Linear Series
General Lighting	 Diamond G2 Panel Light	 Apex Downlight	 Node Dark Light
Ambient/Accent	 Kobe Track Light	 Eclipse Linear Light	 Scope Spotlight



Wayfinding
Product Options






	Good	Better	Best
	Lighting for the space — practical, compliant and efficient.	Lighting for occupants and the space providing comfort and visual appeal.	Lighting to highlight architecture as well as for the occupants and the space.
Wayfinding	<div></div> <p>Link Wall Light</p>	<div></div> <p>Pilot Handrail Light</p>	<div></div> <p>Eclipse Linear Light</p>



Treatment Areas
Product Options



	Good	Better	Best
	Lighting for the space — practical, compliant and efficient.	Lighting for occupants and the space providing comfort and visual appeal.	Lighting to highlight architecture as well as for the occupants and the space.
General Lighting	 Apex Downlight	 Akira Ceiling Light	 Diamond G2 (High Colour) Panel Light

Why Unios?



Giving you back the most important currency – time

Our digital-first approach is designed to win you back the most important currency — time. We know lighting is one of many balls you juggle on a daily basis, so we relentlessly pursue a simpler approach to lighting, from product selection through to customer support.



Transforming complex into an easy to understand, simpler form

How often have you visited a website to find a product image or detail, only to find the wrong colour or a missing number? Our ethos is simple — simplify lighting — everything from the way you configure a product to understanding a new lighting topic with minimal fuss.



The optimal combination of design, performance and value

We started Unios because we couldn't find lighting that fit. They were either too expensive or poorly constructed. From our humble beginnings to one of Australia's leading lighting brands, our formula has never changed — design, performance and value without compromise.



A luminaire for every condition, every environment.

We all know too well the headaches of managing numerous suppliers for landscape lighting, accent wall lighting and general downlighting. What does it mean to be a complete project solution? Simply put, a brand that has the range, design, colour and performance consistency to meet the requirements of an entire project.

Images supplied in this publication provided by:

Karingal Green Health & Aged Care
SwanCare (Peter Bennetts, Greg Hocking)
The Granton Brighton (Emma Cross)

Unios acknowledges the Australian Aboriginal and Torres Strait Islander peoples of this nation. We acknowledge the traditional custodians of the lands on which our company is located, where we conduct our business and where many of these buildings are resting. We pay our respects to ancestors and Elders, past, present and emerging. Unios is committed to honouring Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to the land, waters and seas and their rich contribution to society.

Special Thanks

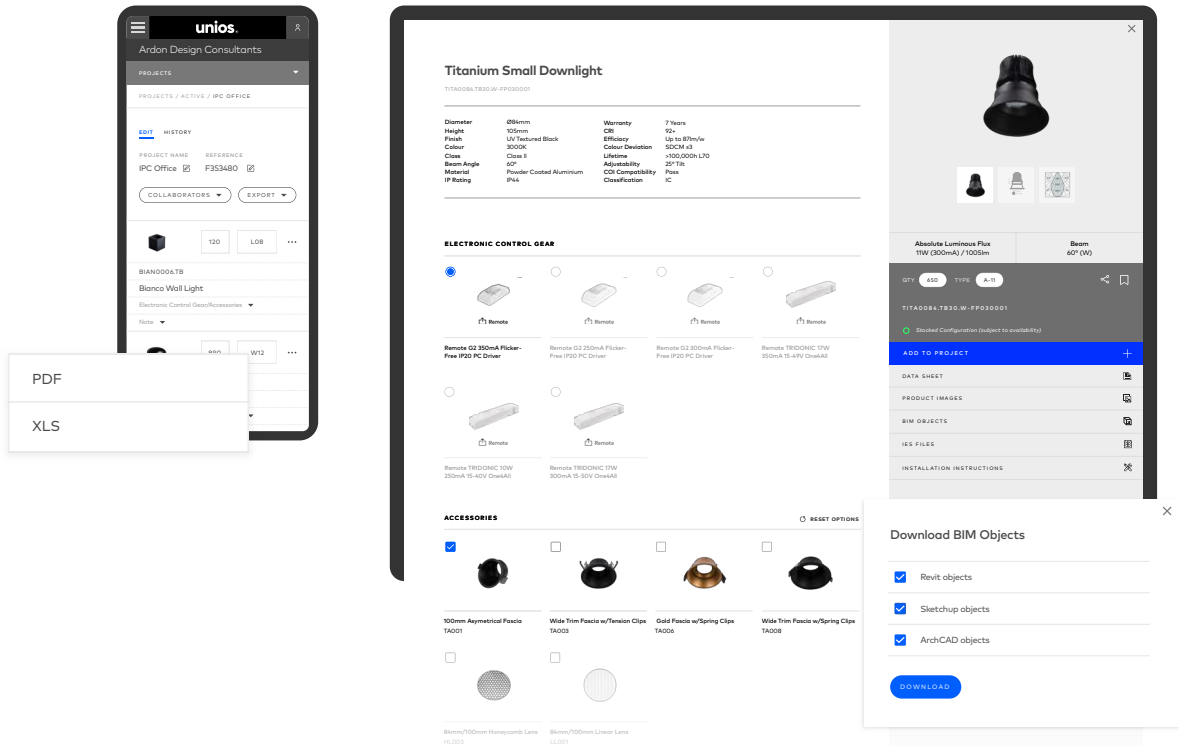
This publication wouldn't be possible without the ongoing support of our project partners, distributors and photographers who have assisted in providing content.

More Information

For additional technical information and to access our full library, visit unios.com. Our library contains a comprehensive database of BIM objects, IES files and product imagery.

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LinkedIn: [linkedin.com/company/unios](https://www.linkedin.com/company/unios)
Youtube: [unios.com/youtube](https://www.youtube.com/unios)
Pinterest: [pinterest.com/unioslight](https://www.pinterest.com/unioslight)





From design to documentation in seconds

Best-in-class product configuration tools

With different design and performance criteria for each and every project, discovering and configuring the right luminaire needs to be a seamless process. With the Unios Toolbox, you can filter through thousands of variations in seconds.

Export customised PDF and Excel lighting schedules

Project lighting can quickly get complex and time-consuming. We've developed a suite of tools to allow you to build a luminaire schedule, export it in PDF or Excel formats and integrate it back into your own project workflow.

More data accessibility than ever before

BIM objects, IES files, customised data sheets and product images are all easily accessible for your project requirements. All product variations are presented with a holistic view of each data point and piece of documentation you may require.

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Unios HQ (Australia)

T +61 8 9248 1888
E sales@unios.com
37 Boom Street,
Gnangara WA 6077

Sydney, Australia

T +61 8 9248 1888
E sydney@unios.com
103/13 Bowden Street,
Alexandria NSW 2015

Melbourne, Australia

T +61 8 9248 1888
E melbourne@unios.com
270-274 Nicholson Street,
Fitzroy VIC 3065

Singapore

T +65 9040 3034
E singapore@unios.com
7030 Ang Mo Kio Ave 5, Unit 08-31
Northstar @ AMK, Singapore 559880

Ho Chi Minh, Vietnam

T +84 28 3821 2927
E vietnam@unios.com
B2, tháp Canary, Đảo Kim
Cương, Quận 2, Hồ Chí Minh

Hanoi, Vietnam

T +84 28 3821 2927
E vietnam@unios.com
E2 - 48 Trần Kim Xuyến, Yên Hòa,
Cầu Giấy, Hà Nội

Seoul, South Korea

T +82 2 426 3922
E southkorea@unios.com
1316Ho, 127, Beobwon-ro, Songpa-gu,
Seoul, Republic of Korea

Zhongshan, China

T +61 8 9248 1888
E china@unios.com
No.3 , FuTian 5 Road, Gangkou
District, ZhongShan City, China