



PUBLIC & LANDSCAPE
WELLBEING THROUGH LIGHT

energylight
knowledge | solutions



Project: Gateway Memorial Bridge - Christchurch

All life on earth has evolved under a 24-hour day and night cycle. Outdoor lighting at night is essential to human progress, safety, health, and recreation, but uncontrolled it has negative impacts; people lose the ability to observe the night sky, and nocturnal animals are disrupted – often fatally.

Approaching lighting design for the outdoors qualitatively means unnecessary light pollution can be eliminated, providing good outcomes for people and the local environment, with an improved observation of the night sky and less impact on ecology. This approach requires an effective design concept with a luminaire technology tailored to suit. Energylight and our partners worldwide are passionate about lighting for the outdoors and minimising the adverse effects of artificial light at night.

Energylight offers continued professional development with education on; Richard Kelly's "Language of light" and lighting for the outdoors, emphasising dark sky, ecology, and health and well-being. In 2019 I presented "The dark sky – Light pollution and adverse effects on ecology and how to reduce it" at the NZ Starlight (Dark Sky) conference in Tekapo.

We have provided information in this brochure to help you enhance the well-being of all life on earth when lighting the outdoor environment. Contact your local Energylight representative or me about your next outdoor lighting project for additional support.

National Outdoor Lighting Specialist
– Mike Geddis



“The urgent need for greater respect for the environment, coupled with the need for energy conservation and more consideration for people’s mental and physical wellbeing, is guiding us towards a new way of working on architectural design, shifting the focus back to the location’s context and cultural spirit, and refining people’s sensitivity to the quality of the light.”

- Architect Giovanni Traverso

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Project: Glenn Innes to Tamaki Drive Shared Path - Auckland
Photographer: Mark Scowen



Earth at Night: Global Map 2016
(NASA Earth Observatory)

In a case study of skyglow published by Science Advance in the World Atlas of Artificial Night Sky Brightness in 2016, 83% of the world's population live under light-polluted skies, and one in three people cannot see the Milky Way.

DARK SKY

The desire to raise the profile of many sites and spaces using light has led to a development resulting in the relegation of environmental concerns. In many places, there are areas where it is just as bright by night as it is by day. The satellite view of the earth reveals how much light is emitted into the atmosphere due to this.

What defines light pollution?

Glare: uncontrolled intensity and distribution of light.

Visual distraction: bright, confusing groupings of uncontrolled light sources.

Light trespass: light falling where it is not intended or needed.

Skyglow: brightening of the night sky over inhabited areas.

The Dark Sky initiative requires that lighting design for outdoor areas is restricted to only that which is essential. If this is applied, light pollution can be avoided, and for astronomers, observation of the night sky is enhanced. Furthermore, this approach emphasises the effectiveness of the design concept using a luminaire technology suited to the task. Cooperation between lighting designers, electrical engineers, architects, landscape architects, end users, electrical installers and luminaire manufacturers is essential for successfully implementing a Dark Sky concept.

LIGHT POLLUTION IN NZ

Lighting to support ecology

The Westland Petrel is an endemic seabird that breeds during winter in the broadleaf rainforest on coastal hills near Punakaiki on the South Island West Coast. Like most burrow-breeding petrels, they are nocturnal on land, returning to their colony after dark. However, in a phenomenon called “fall-out”, bright lights disorient the birds causing them to crash land on the ground or on roads, which has been a significant cause of mortality of petrels of various species.

The situation worsened when 4000K LED lights were used in a recent street light upgrade. As a result, local residents reported increased “fallout” cases and many raised concerns with the Waka Kotahi NZ Transport Agency. To remediate this issue, the Agency and local council have been working together to switch the lights off during the fledging season, which takes place from November to January.

Scientific studies have shown links between lighting pollution and animal behaviour in areas ranging from courtship and migration to their sense of direction. For most animals, cool tones of artificial lights are the most dangerous, causing the greatest disruption. In contrast, long-wavelength sources with a temperature of 2200K or less are far more tolerable or are even without causing effects.

The threat posed by lights to Westland petrels has been known for decades; however, the lack of appropriate lighting considerations is just one of many that still impacts our ecological life today.



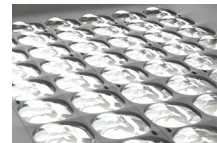
Photographer: Edin Whitehead

INNOVATION

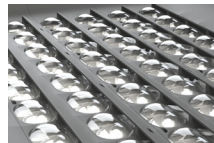
ewo LightLayers

To ewo, mastering the shape of light is the key to product innovation. Lightlayers is a family of clip-on accessories designed to improve aesthetics and reduce the amount of light pollution and glare.

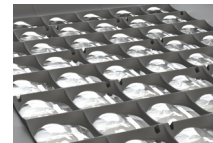
LIGHTLAYER



Standard Cover



Backlight shield (RBL)



Anti-glare shield (AGR)

GLARE SHIELD (AGR)



Without Anti-Glare Shield



Anti-Glare Shield
Up to luminaire class G6
BUG rating up to B3-U0-G1

BACKLIGHT SHIELD (RBL)



ANTI-GLARE SHIELD

An accessory that gives each lens individual shade, preventing glare, for greater visual comfort. Functioning with a clip-on mechanism, this accessory reduces glare by up to 70%.

REDUCED BACKLIGHT SHIELD (RBL)

This cover reduces backlight by up to 65%. It further prevents bright wall spots in the rear of installations in built-up areas by a factor of up to 10. It also uses a simple clip-on mechanism, with a shade running behind each lens row.

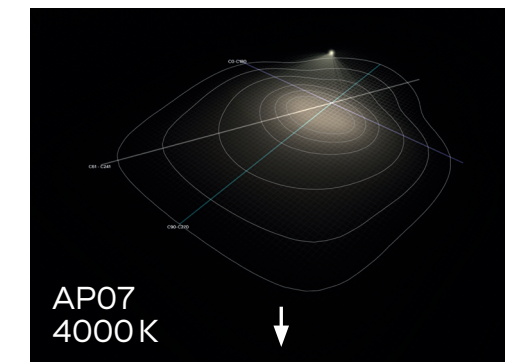
LENS COMBINATION

Versatility through modularity: with countless lens options and colour combinations. Each solution can be tailored to the project, maximising individuality.

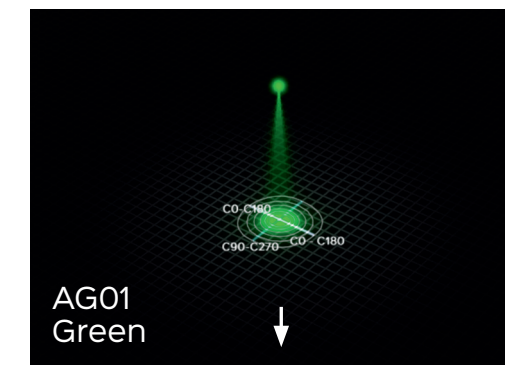
All renders by Mirko Bocsek,
courtesy of ewo srl

Mastering the shape of light

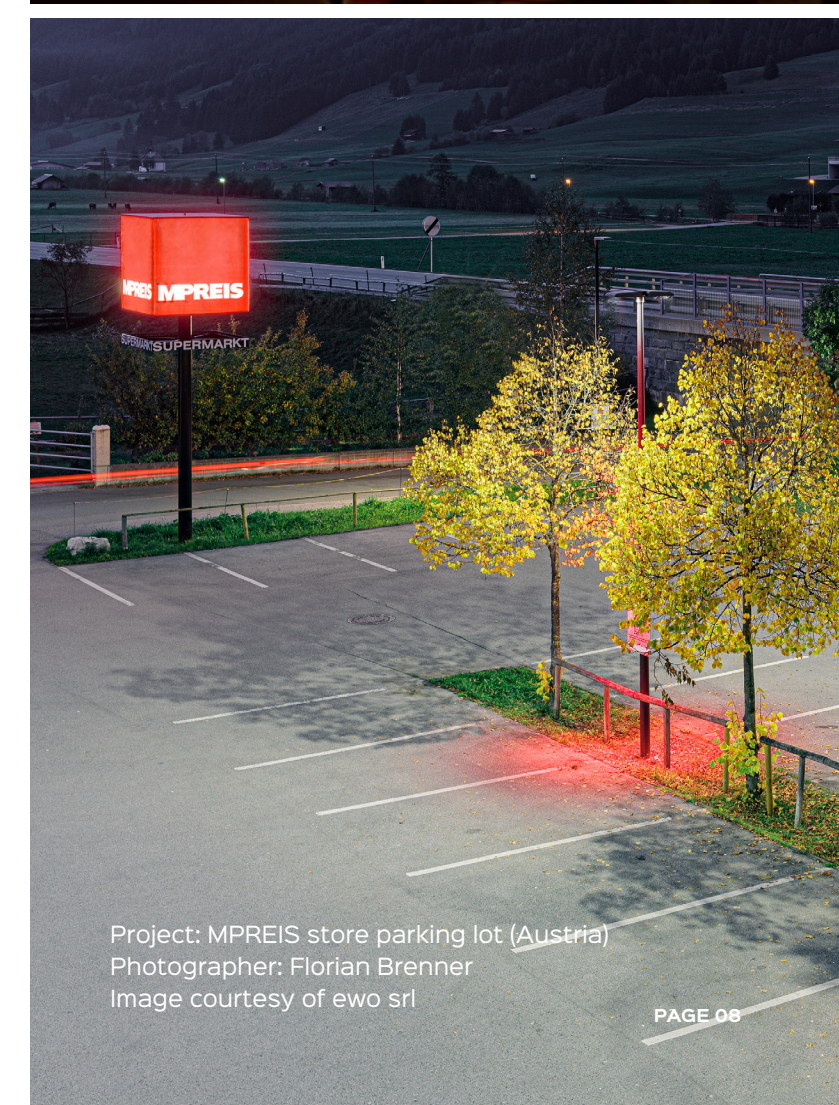
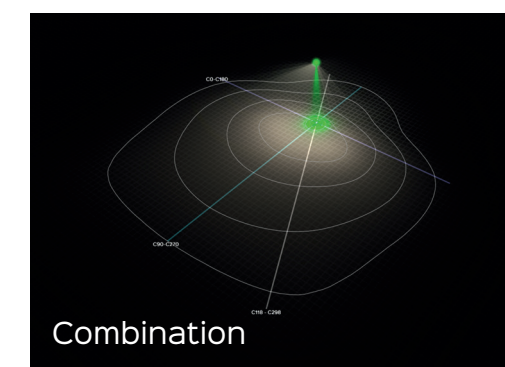
Toolbox of optic and colour distributions for a variety of applications



+



=



Project: MPREIS store parking lot (Austria)
Photographer: Florian Brenner
Image courtesy of ewo srl

Extreme Corrosion Protection

ewo Extreme Corrosion Protection (ewoECP) is a protective treatment developed in-house. It is suitable for projects in extreme weather or difficult conditions, such as New Zealand coastal regions.

The ewoECP is a four-step treatment:

1. Corrosion-resistant alloy: ewo works with quality materials as standard and for die-cast solutions. Luminaries use EN-AB 47100, alloys with low copper content ($<0.08\%$), reducing vulnerabilities for base layer susceptibility to corrosion.
2. A pre-treatment base on the product for the correct adhesion.
3. An ewoProtectiveLayer – a proprietary layer for high-level corrosion resistance.
4. Powder coating.

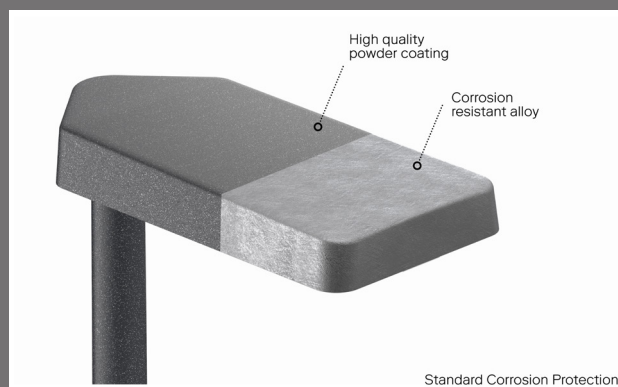
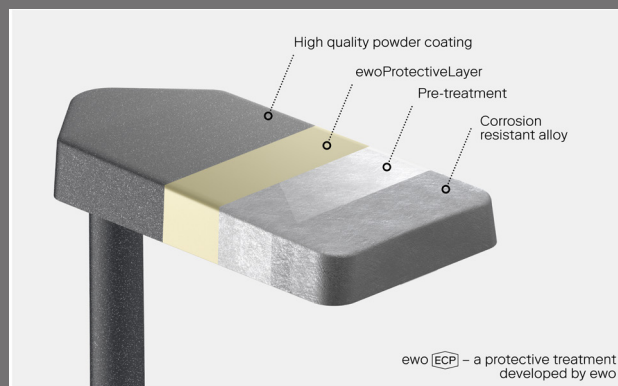


Image courtesy of ewo srl

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ERCO Beamer NEW

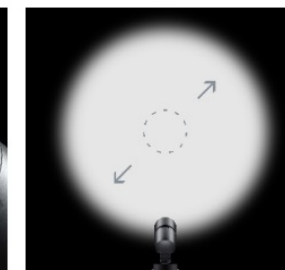
Maximum visual comfort for the highest demands

Adaptable projectors without spill light that master light and darkness in outdoor spaces, Beamer New projectors are precision tools for the most demanding outdoor lighting tasks – technically on par with the best museum spotlights. With compact and corrosion-free housings, they feature exceptional quality of light, adaptivity and digital connectivity.

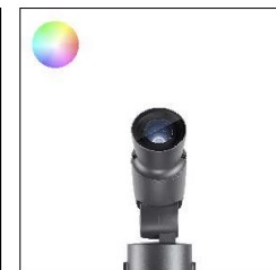
The light emission of their innovative Darklight optics is highly uniform and without spill light. This gives the projectors maximum visual comfort and a magical appearance. If the circumstances change? Interchangeable optics, including zoom and wall-wash, adapt to new requirements and filters and lenses serve as accessories for fine-tuning. Options such as DALI, wireless dimming via Casambi Bluetooth, and Tunable White and RGBW colours transform smart lighting scenarios into reality.



Darklight technology
The Darklight lens not only creates a magical impression with just one light point. It also offers precise, uniform light distribution and maximum visual comfort.



Zoom projector
Adjustable zoom light distributions make it possible to adjust beam angles infinitely. In addition, a choice of round or oval light distribution with zoom optics is available.



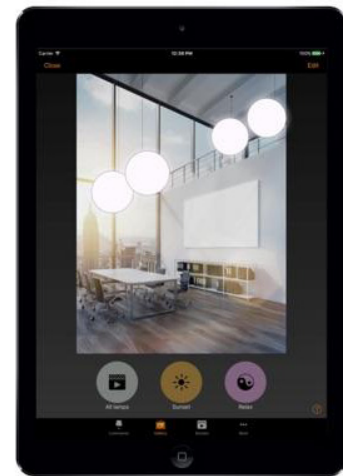
RGBW luminaries
Using coloured light can transform the environment with either subtle or dramatic contrasts. LEDs enable you to generate coloured light very efficiently and flexibly.

Image courtesy of
ERCO Lighting Pte Ltd

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CASAMBI



Better Solution

An effective lighting solution is no longer just about illumination; it is a human-centric approach that can offer the end-user an enhanced experience, flexible control, and limitless possibilities.

What is the Casambi Ecosystem?

An ecosystem of modules, sensors, luminaries, control gear and other Casambi ready products that are 100% compatible with each other. The foundation of Casambi is based on the universal standard for connecting wireless mesh networks; it is interoperable, meaning the technology is compatible with an ever-expanding global network of manufacturers and suppliers.

Why specify with Casambi?

Regardless of a building's original lighting architecture, Casambi can seamlessly integrate with it. Any lighting system produced by a reputable supplier can be coordinated to work alongside Casambi smart lighting. There is continued development effort ensuring the technology stays inline with the industry.

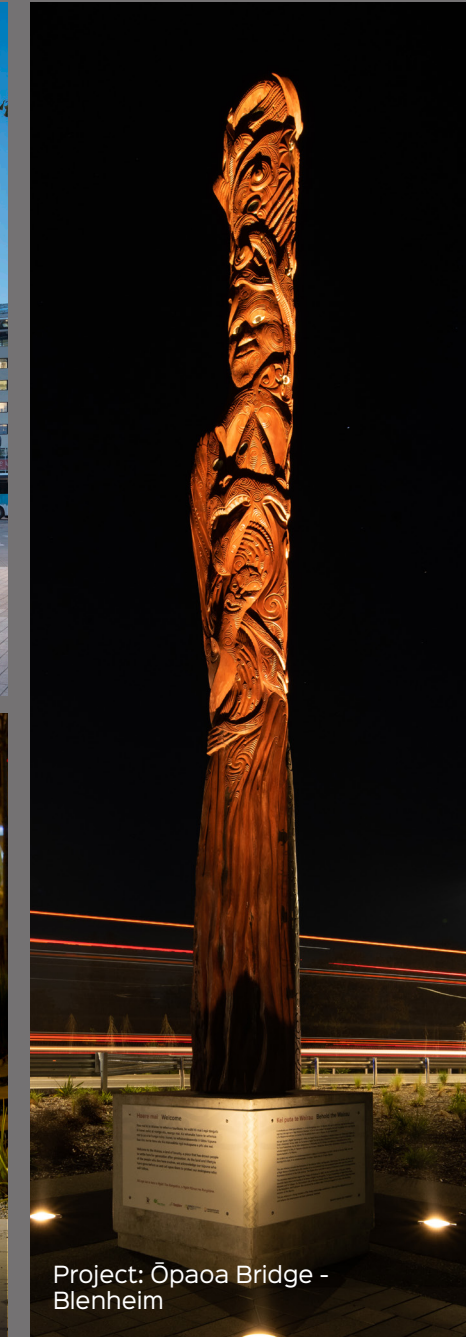
Impressions of landscapes at night



Project: Northern Arterial Bridge - Christchurch



Project: Lyon Place de Francfor



Project: Ōpaoa Bridge - Blenheim



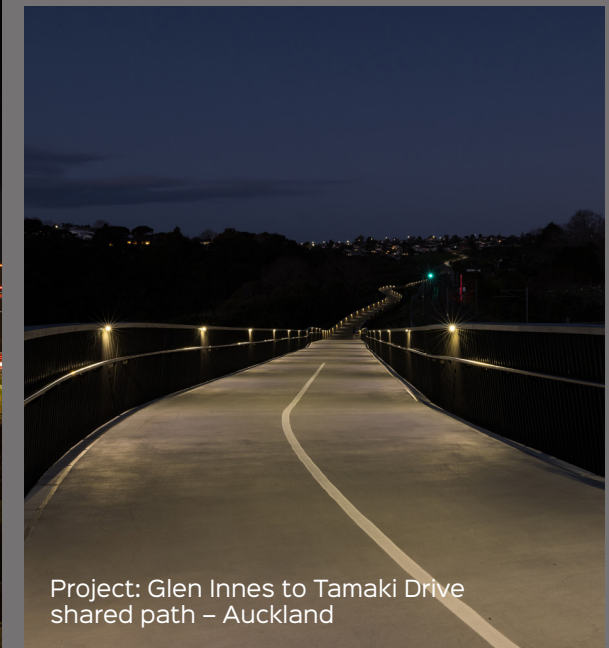
Project: Viaduct - Auckland



Project: Opaoa Bridge - Blenheim



Project: CTV Memorial Site - Christchurch



Project: Glen Innes to Tamaki Drive shared path - Auckland

Visual Comfort

Perception determines lighting efficiency. Irrespective of any technical measure, if light produces glare, it will impair vision and diminish visual comfort; the result is wasted light and energy. The eye is forced to adapt, and the pupils' contract, so even zones of high illuminance will appear relatively dark in comparison with the dazzling source of light. Glare-free, comfortable light, by contrast, creates optimum viewing conditions for the human eye. From the outset, it allows the designer to use an energy-efficient solution with lower illuminance levels and subtle contrasts.



Project: The Sydney Observatory - Australia



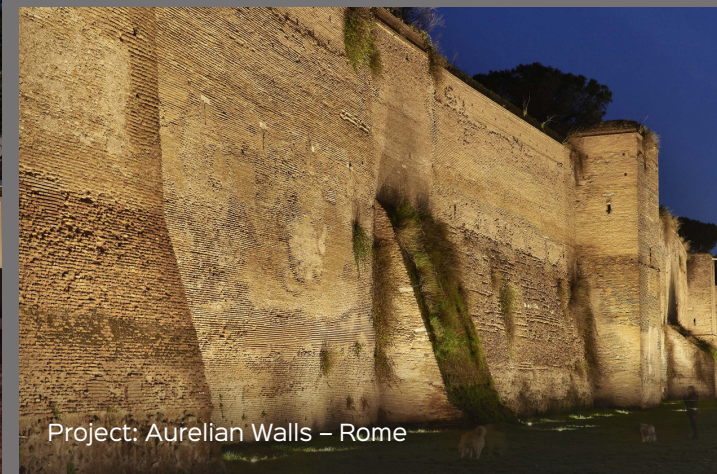
Project: Emersons Brewery - Dunedin



Project: High Court - Auckland



Project: Helsinki Airport - Finland



Project: Aurelian Walls - Rome

PRODUCT CATEGORIES



FAÇADE & CANOPY

Different facades require specific lighting concepts to reveal the qualities of the architecture. In the same way, as buildings look different in daylight, sophisticated lighting solutions give them an entirely different impression at night.

Project: Australian War Memorial – Australia
Image courtesy of ERCO Lighting Pte Ltd



ERCO Quintessence
Outdoor recessed



ERCO Lightscan
Façade Projector



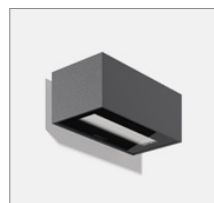
ERCO Kubus
Wall mount



Lumenpulse Nano
Façade



ERCO Beamer NEW
Projector



ewo FA100-WD
Wall mount



ewo FA100-C
Ceiling mount



ERCO Focalflood
Façade

AT Approved



ewo IN Series
Outdoor recessed



ERCO Tesis
In-ground recess



ERCO Site
In-ground recess

Vertical surfaces in an urban setting contribute significantly to the spatial definition of squares, traffic routes and buildings. From the point of view of both perception psychology and design, this makes facade lighting a key element in the night lighting concept for urban areas. The illumination of very tall buildings places high demands on the lighting technology and design planning. Optimum illumination often requires many luminaries with very different light distributions. From a medium lighting distance, wall washers with an asymmetric light distribution are helpful for uniformity, but for very large distances, overlapping the beams from several narrow-beam projectors can prove more effective.

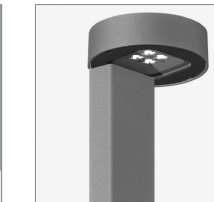
LANDSCAPE

The colour effect of materials can be intensified by choosing the right colour of light. For example, the colour impression of warm-toned materials can heighten by lighting them with an appropriately warm white light colour.

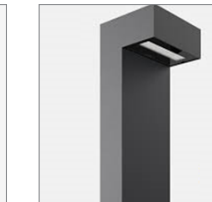
Project: Four Seasons Hotel – Seoul
Photographer: Sebastian Mayer
Image courtesy of ERCO Lighting Pte Ltd



ERCO Castor
Bollard



ewo IF Round
Bollard



ewo FA170
Bollard



ERCO Kona
Projector



ERCO Beamer NEW
Projector



Exenia Wolf
Low voltage projector

AT Approved



ERCO Tesis
In-ground recess



ewo IN Series
Outdoor recessed

Lighting can be used to introduce additional scenic layers in keeping with the situation and application. The colour of the background lighting influences the impression of the spatial dimensions; accents of brightness or colour can shift the hierarchy of perception. In outdoor applications, it is often important to build up spatial depth. The contrast and distribution of brightness for the different planes of foreground and background determines how far away the objects will appear. To provide an effective backdrop for a spatial setting, a judicious use of light is necessary to illuminate feature objects and respect classical perspectives.

COLOUR & ARCHITAINMENT

When and where should colour be used?

LED RGBW technology allows for the creation of different lighting schemes for a wide range of scenarios.

Project: Grand River Penman's Dam
Portage – Paris, Ontario



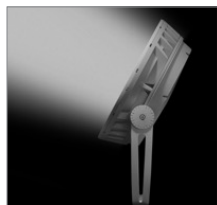
ERCO Beamer NEW
Projector



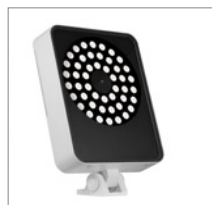
Lumenpulse
LumenBeam
In-ground



Lumenpulse
LumenFaçade
Façade



Lumenpulse
LumenBeam
Projector



Lumenpulse
LumenQuad
Projector



ewo Chameleon
Projector

AT & M30 Approved



ewo F-System
Series
Pole mount



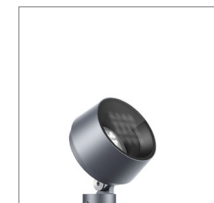
ewo F-System
LightTile
Pole mount

Dynamic lighting can highlight a building's heritage while conserving its historic and ornate architecture. In addition, locations which hold celebrations and events can benefit from such a flexible and dynamic lighting system.

Colour elements should be applied as a diffused or wall-wash effect on light-coloured matt surfaces for a scenic ambient effect. Dark surfaces will adsorb light projected and prevent any colour reflection.

PUBLIC REALM

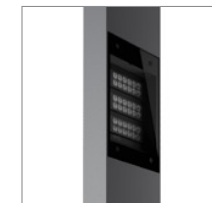
Traditional public realm lighting consists of three general categories: Street lighting, decorative lighting and architectural lighting. The first is typically required for consent and compliance, and the latter categories are adopted to provide an aesthetic element while enhancing safety.



ERCO Kona
Projector



ewo FA series
Column



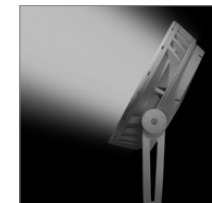
ewo EL series
Column



ERCO Beamer NEW
Projector



ewo Chameleon
Projector



Lumenpulse
LumenBeam
Round

AT & M30 Approved



ewo F-System
Series
Pole mount

A strategic approach to illuminating public spaces should consider both safety and aesthetics. A well-lit space can bring a sense of animation and drama, transforming a functional setting into an area of enjoyment.

We work with a range of clients to deliver public realm and open space lighting schemes, often delivering regeneration programs to transform public spaces, whether it is to improve safety or highlighting landmarks. Our team of lighting specialists can provide well-considered and appropriate solutions to the local community and environment whilst exercising restraint to avoid energy waste and reduce harmful impacts on the local ecology.



ROADWAY & AREA LIGHTING

ewo's wide range of optics allows for infinite light distributions. Depending on the area intended to be lit, planners have all the tools they need and can select from existing optics or create customised distribution as required.



ewo CN series
Pole mount



ewo Chameleon
Projector



ewo IR System
A series
Pole mount



ewo SM Heritage
Pole mount



ewo Vienna
Heritage
Pole mount



ewo AM Heritage
Pole mount

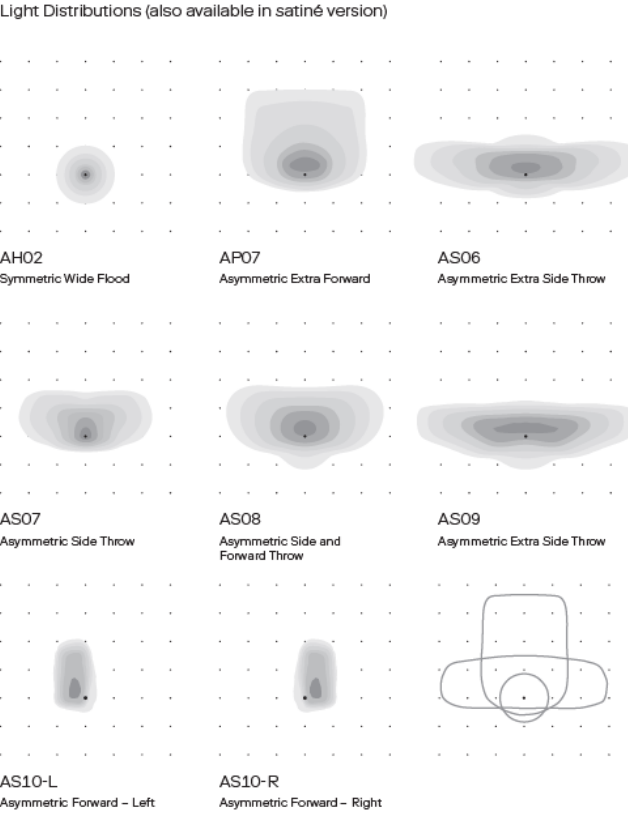
AT & M30 Approved



ewo GO series
Pole mount



ewo F-System
Series
Pole mount



Depending on mounting heights and the roadway geometry, different optics will have vastly different visual results. Optimise with forward throw vs side throw optics and backlight shields which can control and minimise obtrusive light levels, providing visual comfort at the highest level whilst achieving a precise and homogeneous light distribution.



Project: Midgardsormen, Stavanger – Norway
Photography: Johan Elm
Image courtesy of ERCO Lighting Pte Ltd

PATHWAY & CYCLEWAY

One of the basic requirements for pathway lighting is to provide sufficient illuminance for people to see stairs and walk safely. Further aid for orientation is light accents in the middle distance and the background of the landscape, as these direct attention and help guide the way.



ewo IR System
A series
Pole mount



ewo FA170
Bollard



ERCO Castor
Bollard



ewo IF
Bollard

AT & M30 Approved



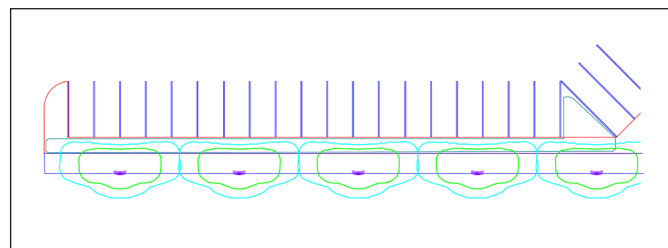
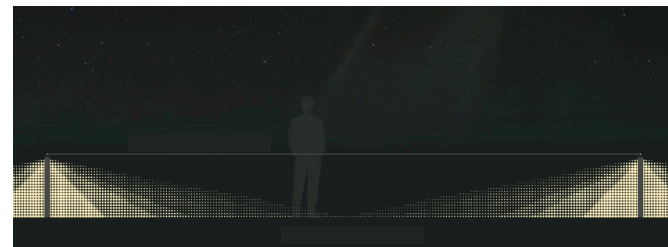
ewo ID
Handrail series



ewo GO series
Pole mount

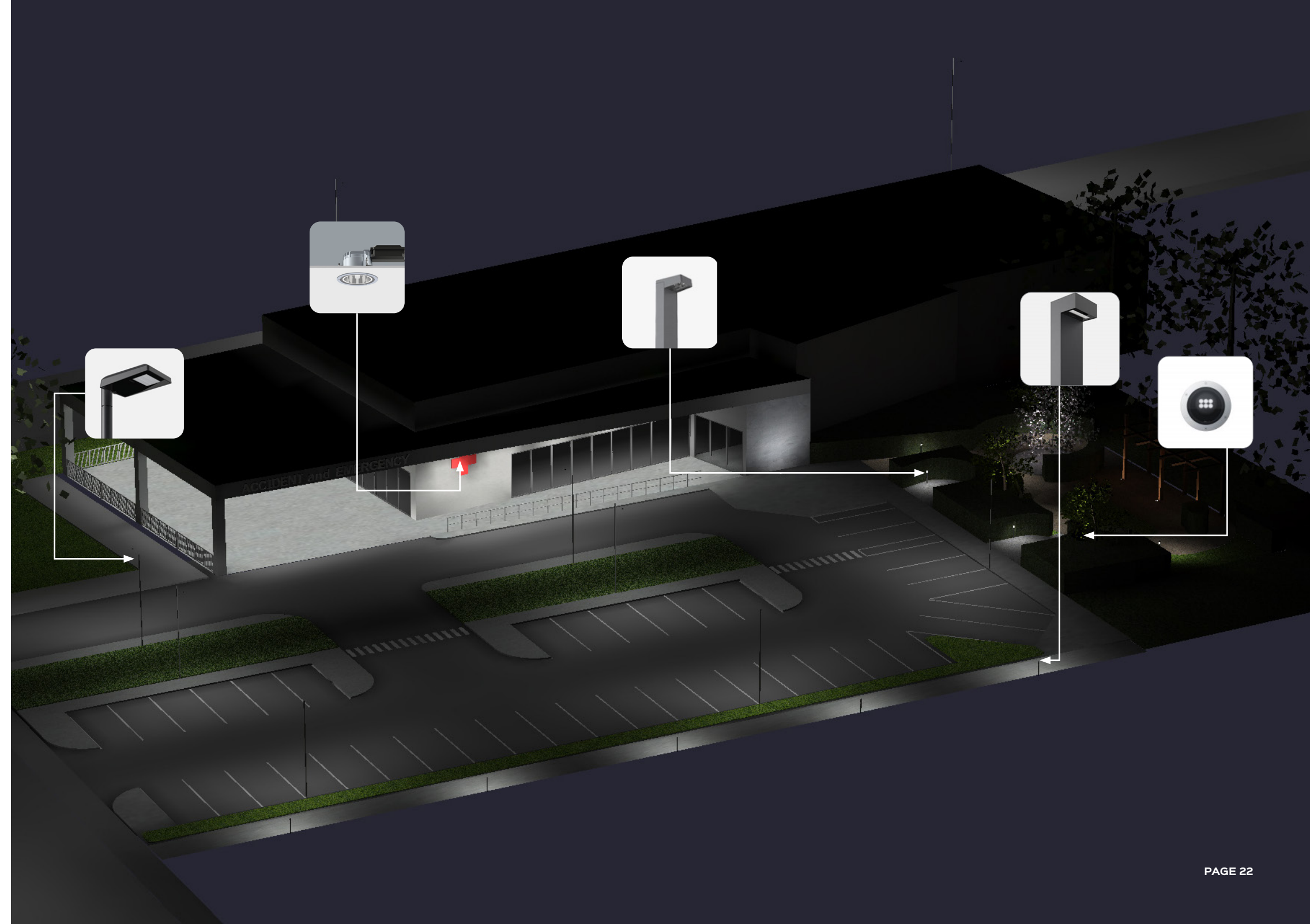


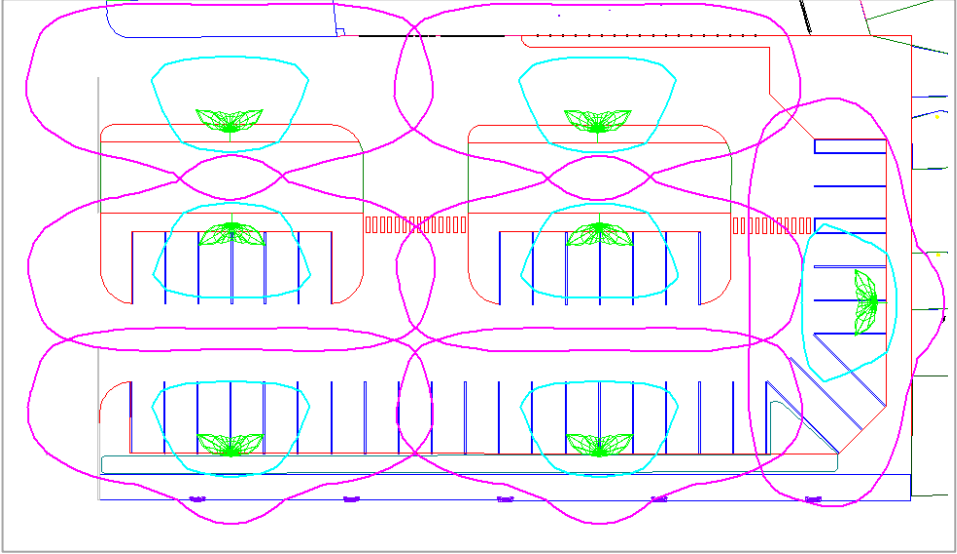
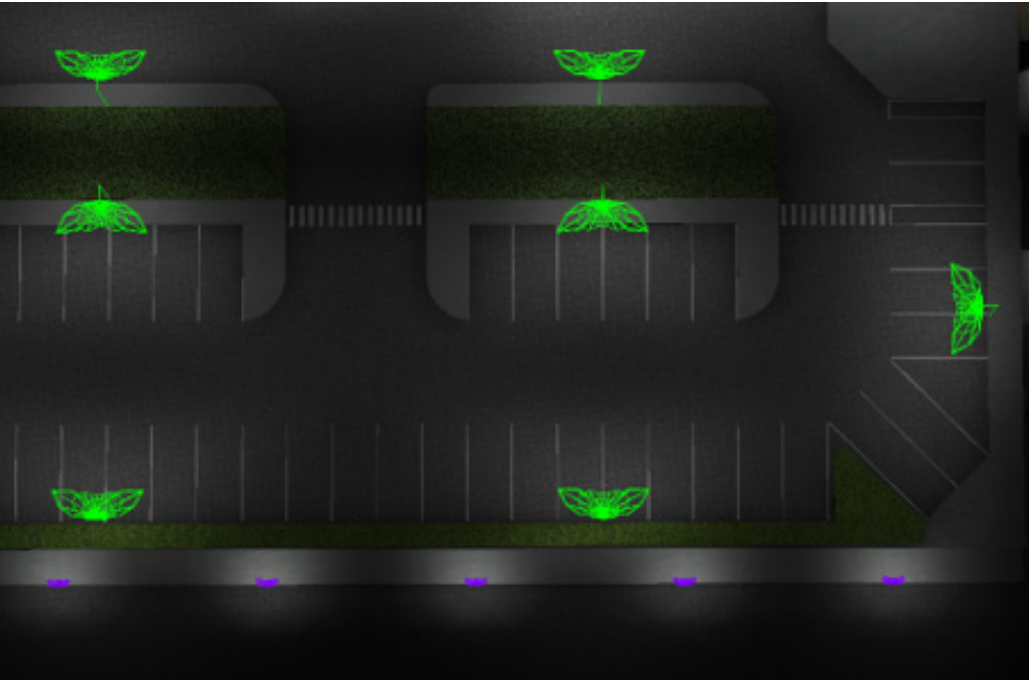
ewo F-System
Pole mount



ewo Bollards prevent light spilling above the horizontal plane. With superior spacing at 12M whilst achieving PP3 pedestrian safety lighting standards.

Lighting of the vegetation along the pathway further adds to the feeling of safety, as it ensures better visibility of the surroundings. Soft-edged beams directed onto the path and low illuminances for the surrounding vegetation help the eye adapt between light and dark zones in the landscape. The Dark Sky technology of bollard luminaires, which prevents light spilling above the horizontal plane, is effective in protecting pedestrians and drivers from glare. Good glare control is also crucial for stair lighting to prevent dazzle resulting from the high luminance of the luminaire.



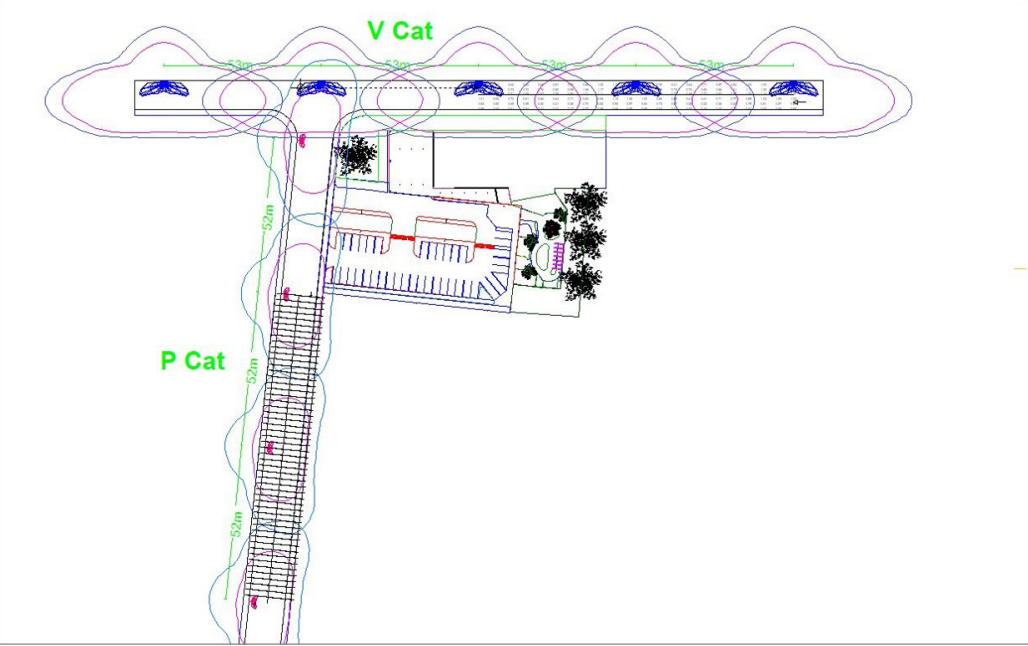
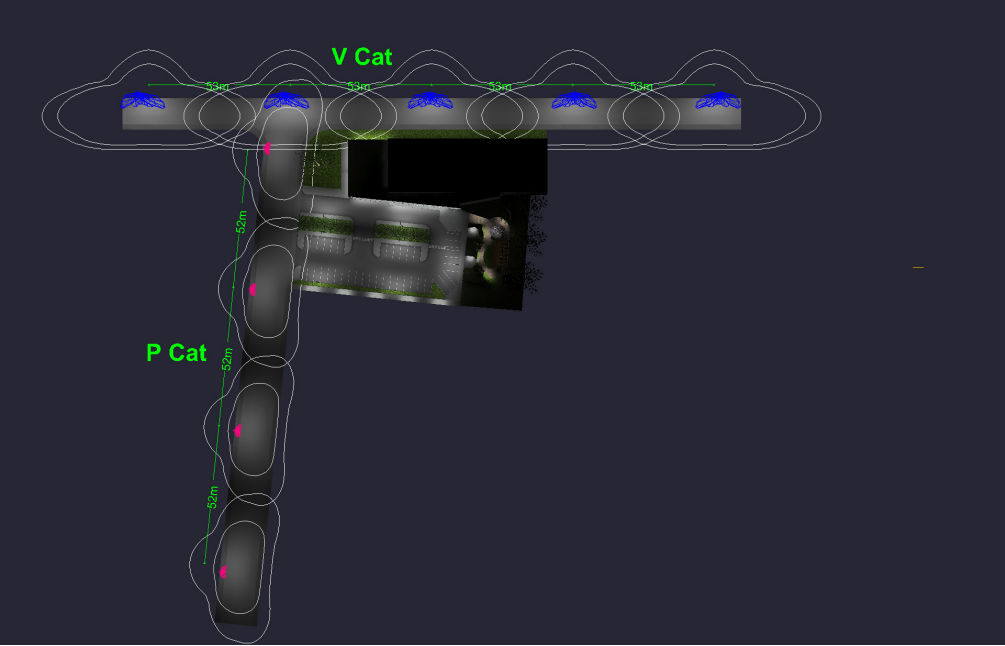
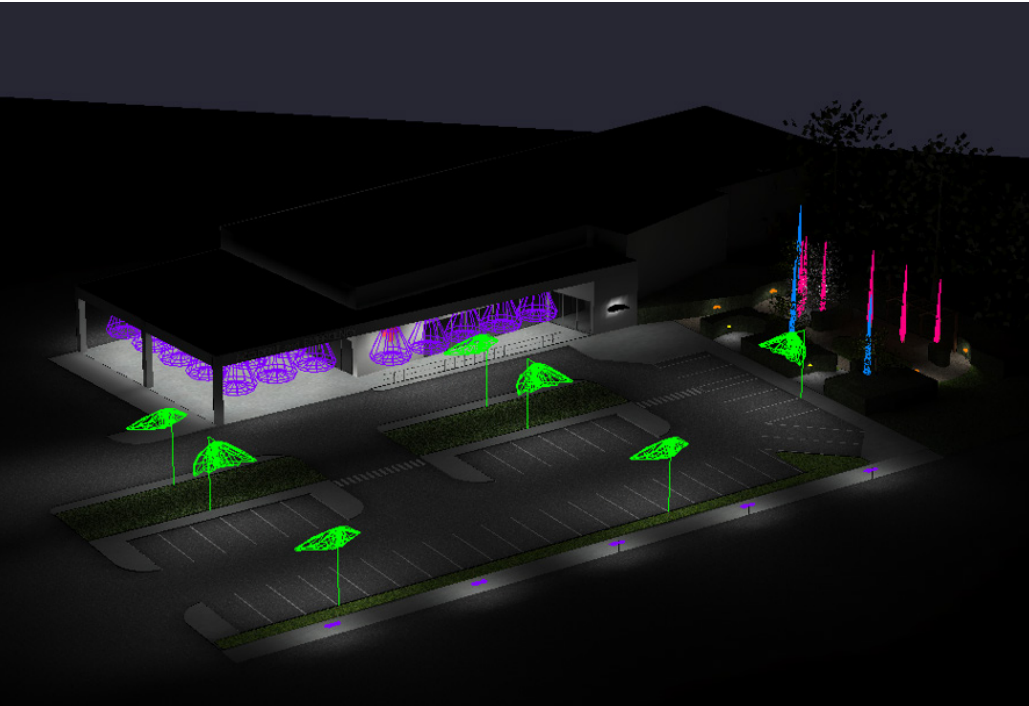


Assessment Category (PC2)	Required	Measured
Average Illuminance	7	7.79
Minimum Illuminance	1.5	1.5
Uniformity	8	2.43

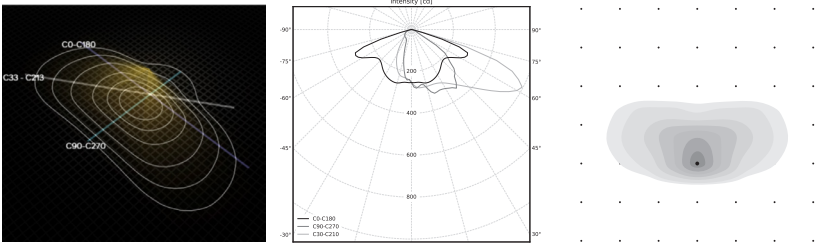
Car Park Calculation Example:

Poles: 6m
Luminaire: ewo F-System 29W

Area coverage is achieved by using the most optimal optic through control, allowing light to present where there is a purpose.
The average level is close to the target requirement, no brighter than what is necessary.



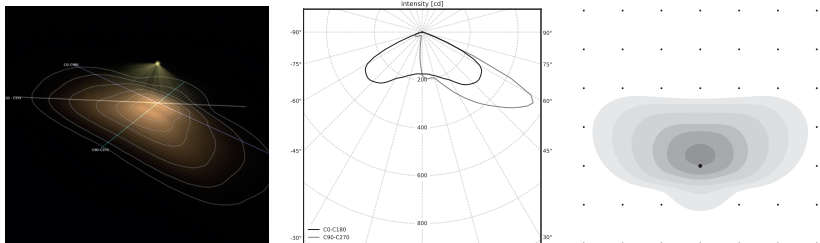
AS07
Asymmetric Side Throw



V3 Road Category Example:
Poles: 10M
Luminaire: ewo F-System 88W

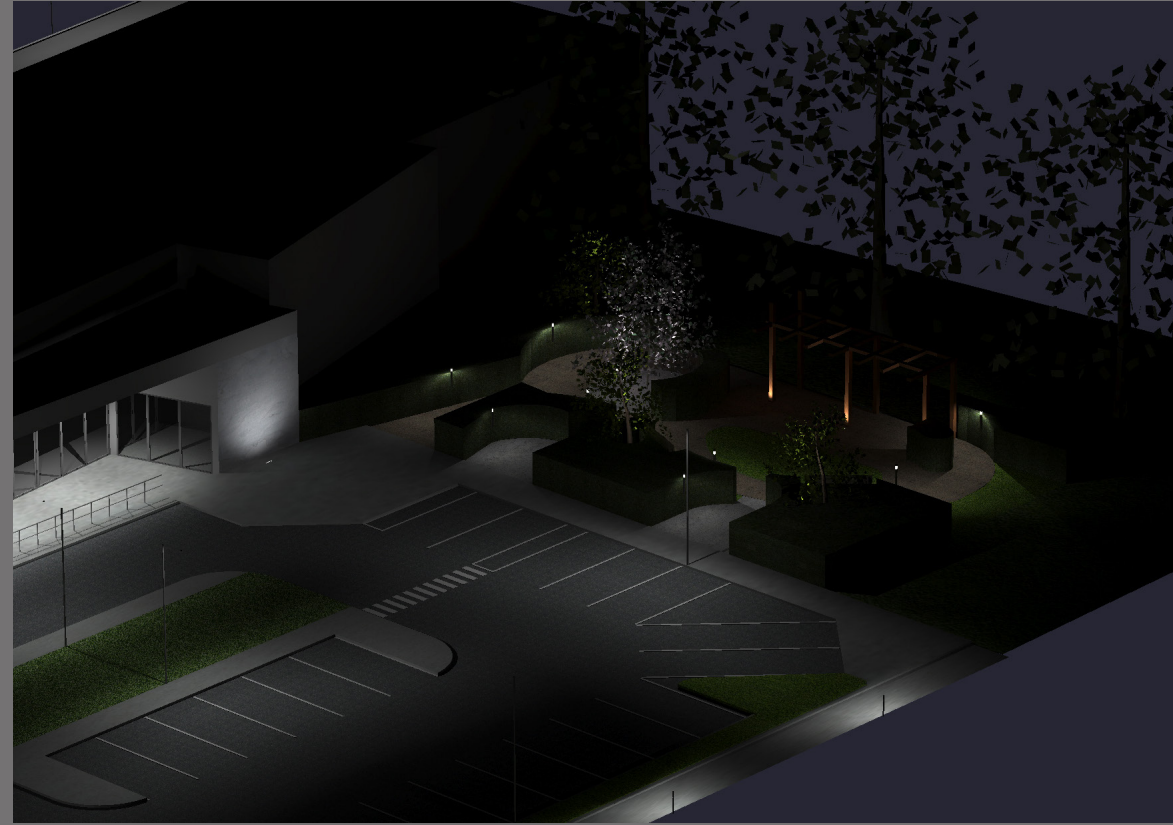
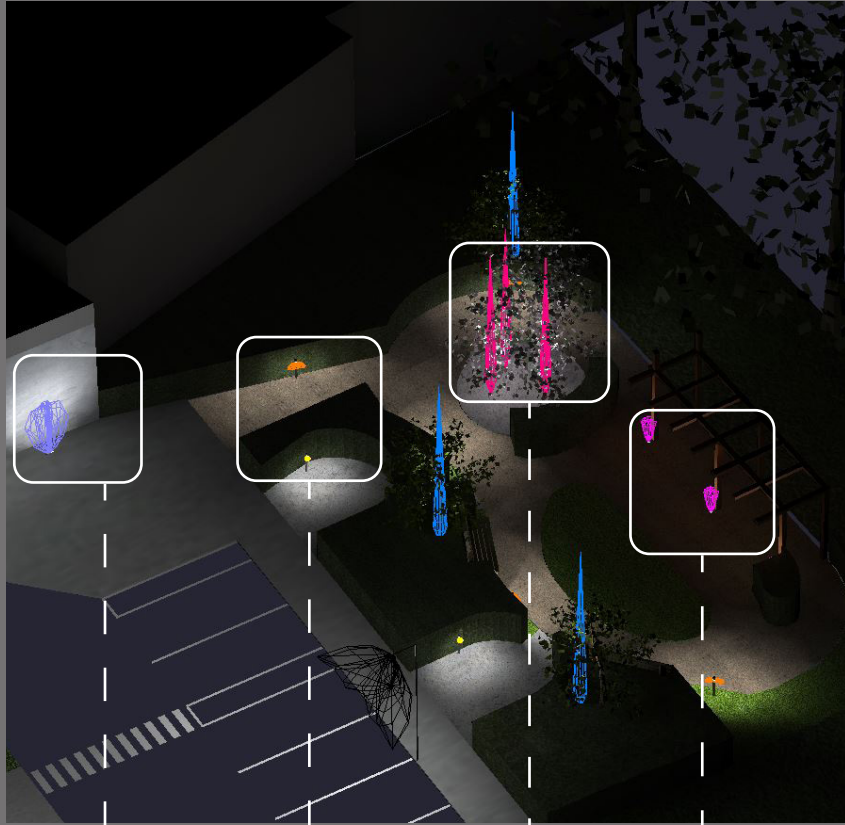
Assessment Category (V3)	Spacing Achieved (M)	Average Illuminance (lx)	Minimum Illuminance (lx)	Overall Uniformity	Surround Illuminance (%)
Measured	53	0.83	0.51	0.54	55
Required	-	>0.75	>0.33	>0.3	>50

AS08
Asymmetric Side and Forward Throw



PR4 Road Category Example:
Poles: 8M
Luminaire: ewo F-System 24W

Assessment Category (PR4)	Spacing Achieved (M)	Average Illuminance (lx)	Minimum Illuminance (lx)	Overall Uniformity
Measured	52	2.62	0.25	3.44
Required	-	>1.3	>0.22	<8



Accent

Where light is given the express task of actively conveying information - allowing brightly lit elements to draw our attention, creating focal points, ERCO spotlights are used to accent greenery in the garden as well as structural elements through uplighting, guiding direction and orientation.

Ambient Luminescence

The element of light provides general illumination to the surroundings and defines the space. Area coverage is achieved by using optimal product and optic, allowing light to present where there is a purpose. ERCO Bollards prevent light spilling above the horizontal plane, protecting pedestrians and drivers from unwanted glare.

SOLAR

Elegant, high performance
& efficient

Highest efficiency within the segment of self-sustaining, solar LED street lighting enables extensive autonomous times and hence service security and reliability in continuous bad weather conditions such as fog, snow falls or smog.



Photinus
Juno
Solar bollard



Photinus
Merkur 150
Solar street light

360° construction of the solar tower

The vertically oriented solar module developed by Photinus is a new and innovative technology that has opened new possibilities in design and functionality. The special construction guarantees uninterrupted absorption since the solar modules cannot be covered by snow, sand or foliage. Furthermore, in poor light conditions, 100% of the light reflecting on the 360° construction will be absorbed, which is a significant advantage over traditional solar lights.

High performance solar modules

Photinus has developed a unique procedure for photovoltaic cells that allows each product to store more electrical energy in batteries than standard solar units. As a result, with an efficiency of 22%, high-performance solar modules can achieve superior performance.

Merkur 150 – Optic T3-L
10w, 2000 Lumens

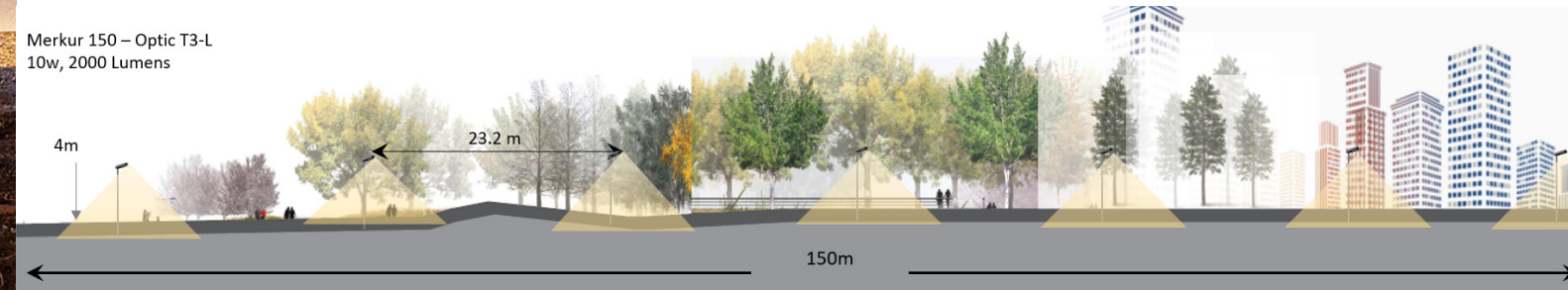


Image courtesy of Photinus GmbH



VANDAL RESISTANT

The vandal resistance of Securlite products is based on resistance to deliberate or accidental impacts as well as design for anti-ligature.

Photographer: Antoine Duhamel



Securlite
Brikette
Recess mount



Securlite
Vauban E
Stainless



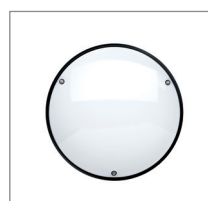
Securlite
Smile and Talk
Stainless



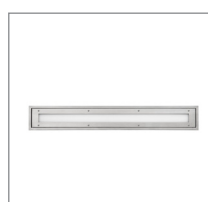
Securlite
Titan Compact
Wall/Corner mount



Securlite
ASL / ESL
Wall/Recess mount



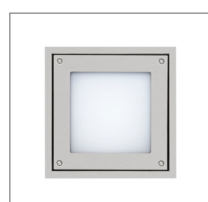
Securlite
Ronda
Wall mount



Securlite
Titan Compact
Stainless



Securlite
Titan S4
Stainless



Securlite
ESL
Stainless

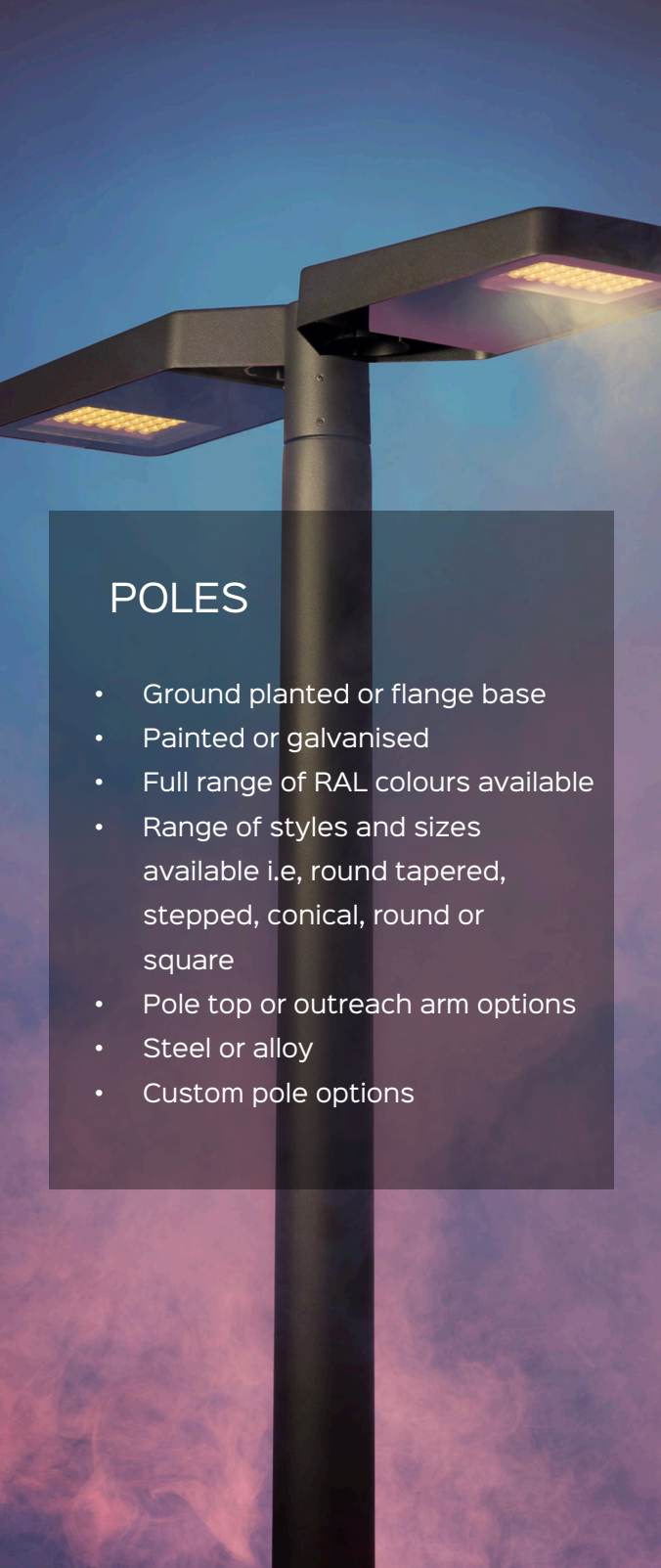


Key features of vandal resistant

- Anti-ligature
- Impact resistant
- Vandal resistant
- Back cable entries
- Recessed solutions
- Ripping-out resistance



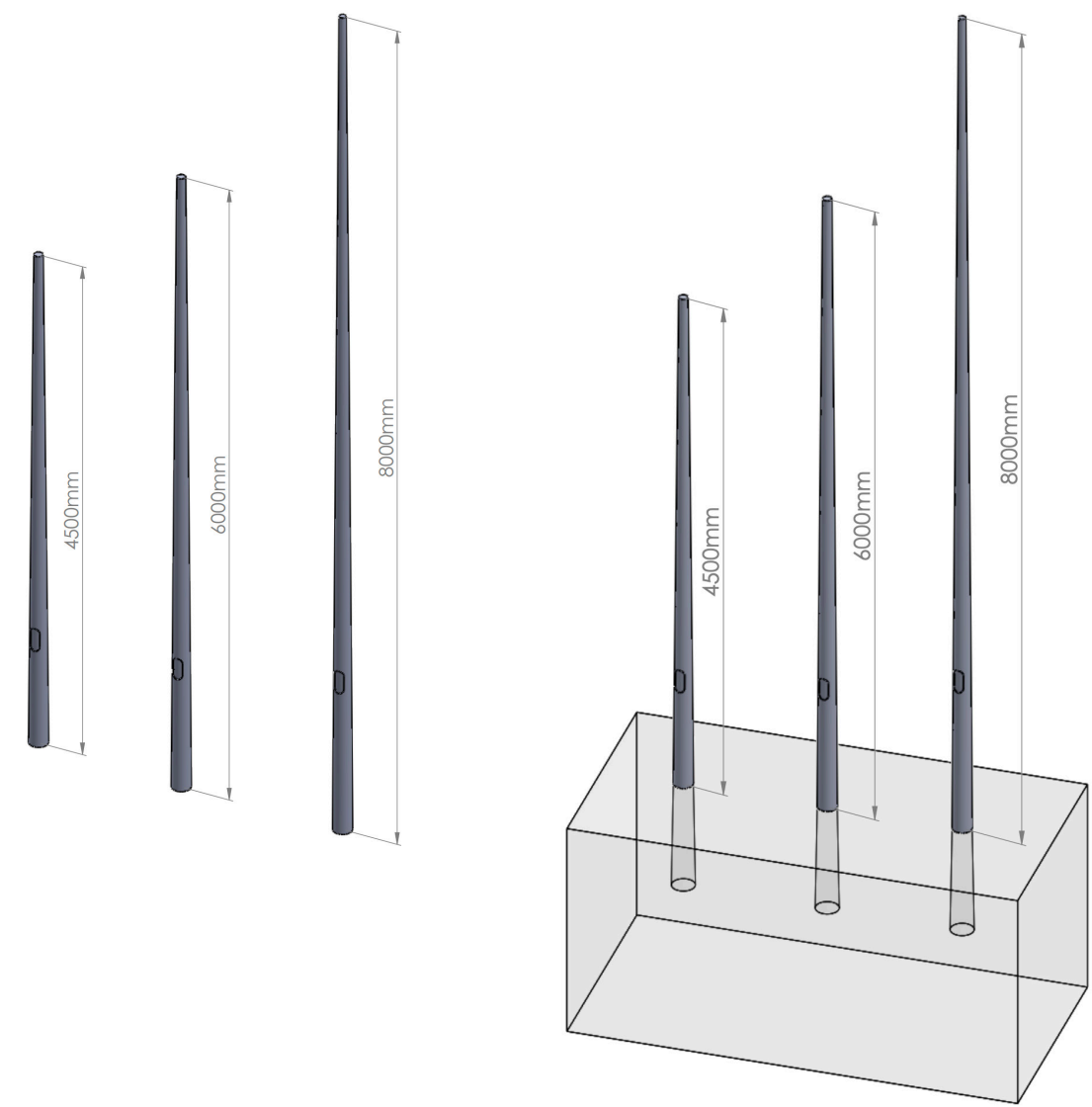
Project: Berges de Seine, image courtesy of Securlite



POLES

- Ground planted or flange base
- Painted or galvanised
- Full range of RAL colours available
- Range of styles and sizes available i.e, round tapered, stepped, conical, round or square
- Pole top or outreach arm options
- Steel or alloy
- Custom pole options

Typical Pole Heights



Project: Glenn Innes to Tamaki Drive Shared Path - Auckland
Photographer: Mark Scowen



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