

# FÖS

l i g h t i n g

Transport & Environment

[foslighting.com.au](http://foslighting.com.au)



# FOS Lighting

## THE FOS EXPERIENCE

FOS Lighting has an experienced engineering and design team who understand the architectural landscape of the lighting sector and its clients, while a dedicated manufacturing team brings cutting edge solutions to market. With quality and experience, FOS Lighting manufactures and distributes a complete selection of quality luminaires and lighting control systems to the following sectors:

- Office & Communication
- Science & Education
- Art & Culture
- Industry & Engineering
- Transport & Environment
- Adverse & Custodial
- Living & Lifestyle
- Retail & Presentation
- Care & Health
- Leisure & Entertainment
- Sports & Recreation
- Experience & Advertising
- Urban & Architecture
- Wellness & Hospitality



## FOS QUALITY

FOS Lighting is a proud manufacturer and exclusive distributor of cutting-edge luminaires within Australia and New Zealand. With our integrated distribution and manufacturing facilities in Melbourne and Brisbane, we can provide a lighting solution from concept to delivery. FOS Lighting is known for its outstanding workmanship, quality, and getting the job done - its International ISO 9001:2015 accreditation is testament to this.



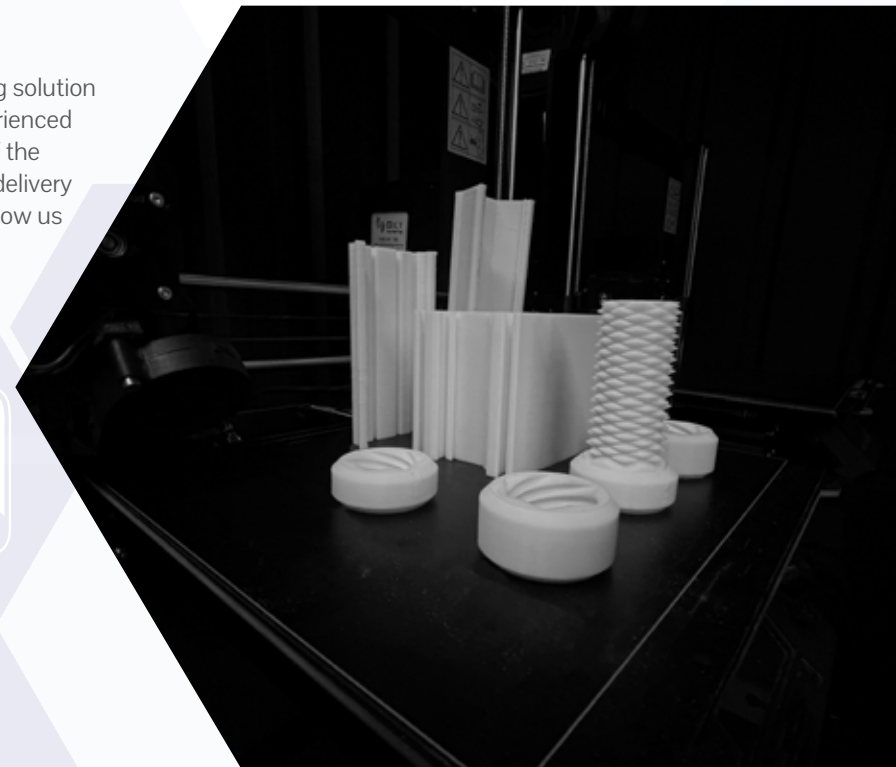
## THE FOS WAY

FOS Lighting is a solutions driven, innovative lighting and controls business using in-house experience and engineering coupled with manufacturing facilities in Australia. Working closely with key account customers, its project lighting solutions business is based on innovative lighting concepts using leading edge technology to generate new levels of impact in both design and function.

FOS Lighting is highly regarded in the market for its knowledge of the lighting industry, this is made possible with its committed, highly talented and motivated team members, that continuously strive to provide the highest quality of product and service in the Australian and New Zealand market.

## FOS - WE DELIVER

FOS Lighting is dedicated to achieving the desired lighting solution for all lighting requirements. The combination of our experienced research and development teams leveraging the power of the latest technology in 3D modelling programs, and reliable delivery of materials from our trusted and dependable suppliers allow us to meet client expectations and deliver on time.







# Contents

FOS Lighting	2
Solution Centre	6
Comparing Light Solutions	8
Light Quality	11
Urban Solutions	12
Data Protocols and Sensors	15
IoT Infrastructure	16
Coastal Lighting	19
Roadway Surface Illuminance	20
Luminaire Spacing	22
Freeway / State Highway	24
Regional Roads	26
Street Lighting Suburban	28
Bridges & Underpasses	30
Outdoors Car Parks	32
Pedestrian Walkways	34
Cycleways	36
Airports	38
Bus Rotundas / Terminus	40
Railway Stations	42
Light Rail / Metro	44
Ferry Terminals	46
Airports Maintenance	48
Railways Depots	50
Truck Bays	52
Container Park Lighting	54
Harbour Lighting	56
FOS Projects	58



# Solution Centre

The Transport and Environment sector covers the roading and mass transport infrastructure lighting requirements. Due to the nature of the sector, luminaires need to have not only high IP ratings but also need to be manufactured from materials that can withstand both purely environmental and industrial challenges. FOS Lighting curates several ranges of products that are designed and manufactured to specifically meet and beat these hurdles. In addition, those luminaires that operate inside structures should provide high CRI and low flicker illumination as a minimum requirement.

## Freeway / State Highway



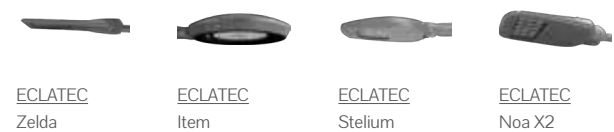
**ECLATEC**  
Zelda

**ECLATEC**  
Noa X2

**ECLATEC**  
Stelium

**ECLATEC**  
Elipt 55 X

## Street Lighting - Suburban



**ECLATEC**  
Zelda

**ECLATEC**  
Item

**ECLATEC**  
Stelium

**ECLATEC**  
Noa X2

## Cycleways



**ECLATEC**  
Link Deep Bowl

**ECLATEC**  
Xeon

**ECLATEC**  
Nismo

**ECLATEC**  
Team Bollard

## Bus Terminus



**FORMALIGHTING**  
Scala

**SECLURITE**  
Rondino

**VEKTA**  
Extreme

**ECLATEC**  
Team Bollard

## Bridges & Underpasses



**ECLATEC**  
Sonata

**SECLURITE**  
Titan S

**SECLURITE**  
ESL Stainless

**SECLURITE**  
Fila 2

## Pedestrian Walkways



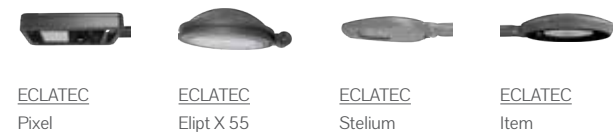
**ECLATEC**  
Item

**ECLATEC**  
Keo

**ECLATEC**  
Team Bollard

**SECLURITE**  
Titan S4 Stainless

## Regional Roads



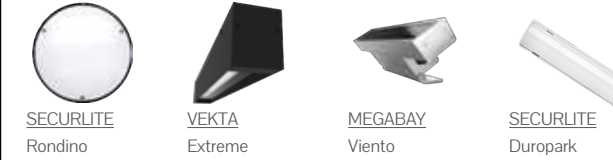
**ECLATEC**  
Pixel

**ECLATEC**  
Elipt X 55

**ECLATEC**  
Stelium

**ECLATEC**  
Item

## Ferry Terminals



**SECLURITE**  
Rondino

**VEKTA**  
Extreme

**MEGABAY**  
Viento

**SECLURITE**  
Duropark

## Light Rail & Metro



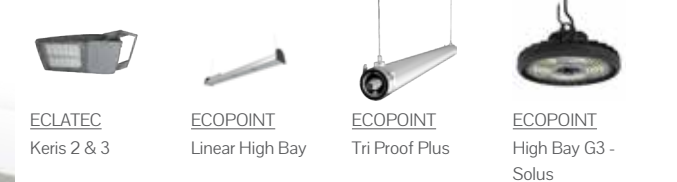
**FORMALIGHTING**  
Rocket Wall

**FORMALIGHTING**  
Rocket Ceiling

**FORMALIGHTING**  
Scala

**FORMALIGHTING**  
Bullet

## Airport Maintenance



**ECLATEC**  
Keris 2 & 3

**ECOPOINT**  
Linear High Bay

**ECOPOINT**  
Tri Proof Plus

**ECOPOINT**  
High Bay G3 - Solus

## Airports



**FORMALIGHTING**  
Bullet

**VEKTA**  
V60100

**FORMALIGHTING**  
Galaxis Pro

**FORMALIGHTING**  
Cobra Pro

## Rail Way Depots



**SECLURITE**  
Fila 2

**FREND LIGHTING**  
SMHF Trojan

**SECLURITE**  
Aleane

**ECOPOINT**  
High Bay G3

## Rail Way Station



**FORMALIGHTING**  
Galileo

**VEKTA**  
Extreme

**SECLURITE**  
Senspot

**SECLURITE**  
Fila 2

## Truck Bays



**ECOPOINT**  
Area Light G2

**ECOPOINT**  
Linear High Bay G2

**FREND LIGHTING**  
Kai 2

**FREND LIGHTING**  
Onyx 2

## Carparks



**ECLATEC**  
Keo

**ECLATEC**  
Item

**ECLATEC**  
Xeon

**ECLATEC**  
Zelda



# Comparing Light Solutions

## Great vs good enough

When designing lighting layouts for roading a number of variables can be used to compare alternatives:

(a) **Lighting performance:** this may be compared in terms of the light technical parameters achieved generally along the route, or by the use of a broad measure of lighting level (ie total flux/spacing vs road width). FOS Lighting provides a range of options.

(b) **Route guidance:** the ability of the lighting layout as seen in perspective, to enhance the driver's appreciation of the run of the road ahead and the location and nature of discontinuity such as sharp curves or changes in cross section, is an important attribute of a road lighting installation.

(c) **Economics:** economic comparisons between the alternative arrangements may be made in terms of one or more of the following:

(i) Capital costs

(ii) Running costs

(iii) Annual costs per kilometre of route lit

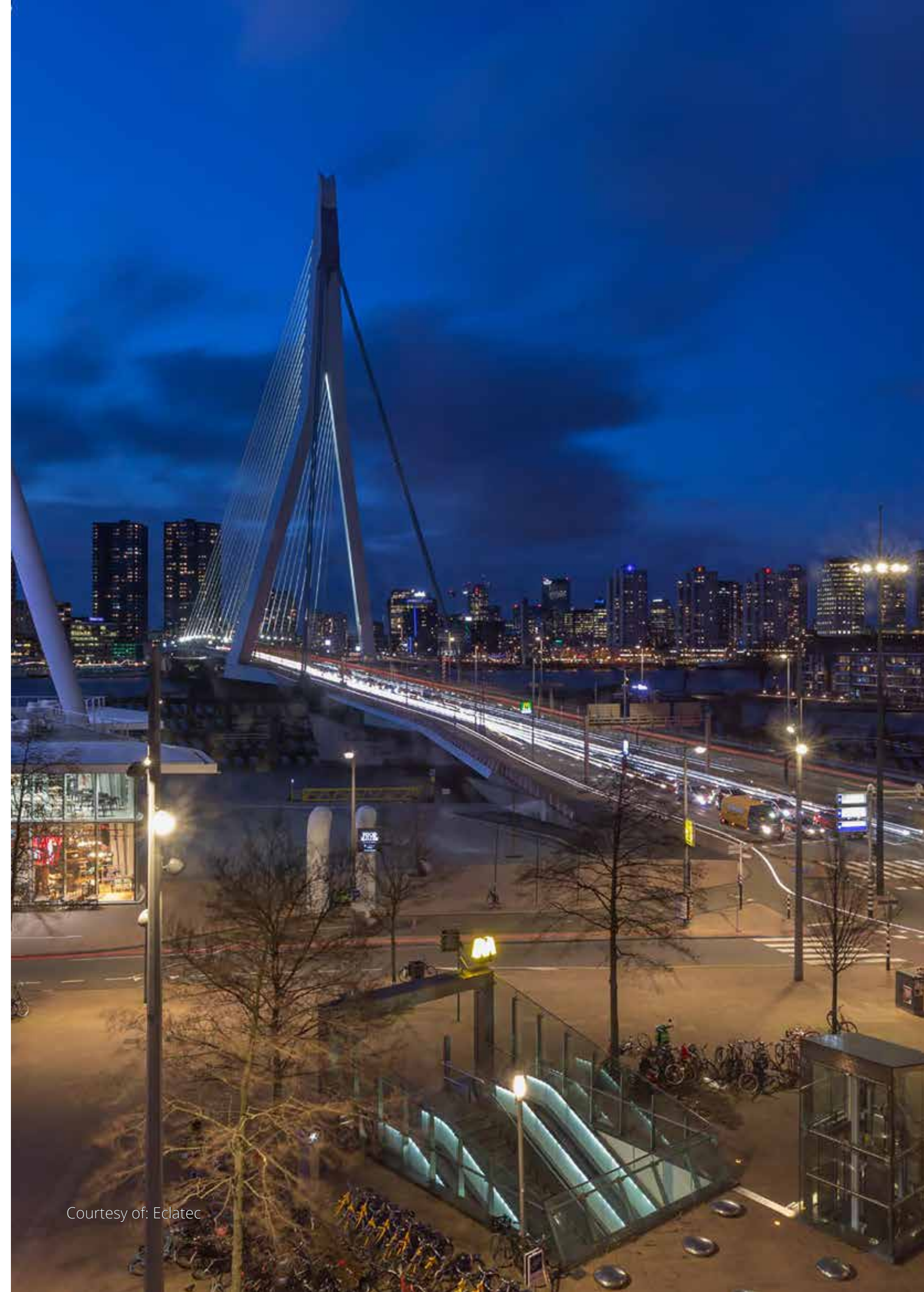
An important issue affecting capital and running costs is the consideration of energy efficiency. For a given situation, this is largely determined by the choices of energy-efficient light sources and luminaires, selection of a light distribution to match the area to be lit, and adaptive lighting technologies which adjust the lighting levels (and therefore power levels) based on varying needs across the day, week and year (activity, daylight, weather etc.)

(d) **Road safety aspects:** The relationship between speed, pedestrian crossings, cycleways and other variables will have on carriageway illumination requirements.

(e) **Environmental considerations:** The impact of roadside foliage on the length of outreach arms, the number of intersections, underpasses and seasonal weather conditions will have on the nature of illumination required (levels, colour, cut-off design, luminaire height hence power requirements etc)

(f) **Aesthetic considerations:** " measures how accurately a light source is able to display or reproduce the colour of the road or objects on the road. The higher the index, the better the visibility, impacting on safety as well as aesthetics. It's recommended CRI  $\geq 70$  for all types of road lighting classes.

FOS Lighting supplies luminaires that meet and beat the requirements of all of these variables.



Courtesy of: Eclatec





Courtesy of: Eclatec

# Light Quality

## User safety

Good quality lighting can:

- \* Relieve eye strain.
- \* Speed up object and people recognition, static and in motion.
- \* Indicate the course of the roadway, kerbs, footpaths, property lines, road furniture and imperfections.
- \* Lengthen visual durability.
- \* Prevent injuries and minimise accidents and resulting damage via materials (frangible poles) and setback from the road. This has implications for the types of luminaires installed on the pole. Joint use poles are recommended for intersections and junctions as it minimises the number of roadside hazards.

Lighting can increase and or decrease users' ability to function. Good quality street luminaires can reduce effects such as eye strain, while improving the speed that an object is recognised, improve the driving quality, and decrease injuries and accidents during dark hours or adverse weather events that affect visibility. In addition to lighting the roads well designed lighting also minimises the impact on the environment in relation to light pollution (skyglow, glare, and light trespass) and the impacts on health and behaviour for both humans and animals.

Requirements:

- \* Meeting the AS/NZS 1158 series: Lighting for roads and public spaces.
- \* Performance criteria for such lighting schemes may include any or all of the following:
  - \* Facilitation of safe movement.
  - \* The discouragement of illegal acts.
  - \* Contributing to the amenity of an area through increased aesthetic appeal.
  - \* Compliance with other relevant and related standards.



# Urban Solutions

## Vandal resistance

A lighting installation subject to vandalism or outdoor influences can cause consequences:

- \* A lack of security for people or property due to interruption in lighting.
- \* Difficulty with wayfinding for pedestrians and other users of public spaces.
- \* The fitting being compromised by the environment or human intervention.
- \* Additional financial cost of additional maintenance and replacing of capital assets.
- \* An environmental impact associated with the reduced life cycle for the products.
- \* Reduced amenity of public spaces discouraging people from utilising resources paid for from the public purse.

## Smart lighting

When it comes to smart lighting for Urban environments, there is a lot to consider. Management of luminaire operational hours, colour temperatures and illumination percentages are some of the points to consider when providing efficient and sufficient light for an urban environment and relevant activities.

## Power management

The choice of drivers for your luminaires can play an important role in the operation of luminaires. Considerations include:

- \* Specific power setting (manufacturer set)
- \* Pre-programming of drivers at the factory (dimming profile)
- \* Programming of drivers on site (via Eclatec's optional POLEDRIVE™ solution or via Bluetooth app interface)
- \* Integration with remote control and monitoring infrastructure

The POLEDRIVE™ solution from Eclatec is a particularly flexible solution, in that it allows simple selection and adjustment of pre-defined operational profiles via a module mounted inside the pole (close to ground level). These modules are easily installed by a qualified electrician, and programming is done via a screw-driver and rotary selection dials. The modules communicate with the luminaires via DALI (Digital Addressable Lighting Interface), simplifying the infrastructural requirements.

Alternatively, the CA2P Bluetooth solution takes the programming from physical adjustments to an in-pole module, and places it in the hands of any operator with a Bluetooth-enabled device and the necessary app and security details.

## Colour Temperature

Natural light is not constant throughout the day and differs greatly depending on the season. These variations strongly influence human behaviour, which can change depending on the quantity and quality of light during the 24 hours of the day, this is the so-called circadian rhythm. Tuneable White technology allows manufacturers to match the geographically determined circadian rhythm, maximising comfort, and user well-being via the smart variation of light colour temperature throughout the lighting cycle, based on local research.



Courtesy of: Eclatec





Courtesy of: Eclatec

# Data Protocols & Sensors

## Centralised and distributed controls

In addition to the DALI protocol some luminaires come equipped with CA2P Bluetooth modules, permit up to 6 reduced power ranges and configuring their associated time slots, while providing real time luminaire control and monitoring of energy consumption. The module permits maintenance and control of the individual, or a group of luminaires via a secured application developed for the task.

Another control option, thanks to the development of the open-sourced ZigBee communications protocol, permits a group of lights interconnected via radio communications to respond to inputs from detector sensors (on board/stand-alone). Different lighting and lighting level configurations can therefore be set up to provide optimum comfort levels and generate potential energy savings. All parameters can be set on site using a wireless PC.

Street and urban lighting needs to have physical flexibility, especially if there is the option of a remote management system being added, which requires additional electronics to be installed. FOS Lighting can supply "Smart-Ready®", which is an Eclatec designed unit allowing communication devices to be connected via a socket that meets ZHAGA standards.

A variety of luminaires have the option of motion detectors that can be combined with dimming calculators to optimise energy saving across the operating period. The detection function allows full power lighting to be switched on for a given time during dimming periods according to a pre-programmed schedule. This then impacts on energy consumption as it reduces the total power usage throughout the night.

Based on open-source technology the CMS system provides management and remote control of your public lighting network. The luminaires communicate with a gateway, which communicates with the Cloud, which can then be accessed by remote staff. Luminaires on this system can run a night dimming programme with 10 time slots associated with variable lighting intensities, plus calendar management. This system can also report possible malfunctions and failures, making maintenance easier. Further, the integrated GPS chip allows for luminaire location to be identified, making it easier to send a maintenance vehicle out.

FOS Lighting has the expertise to ensure that the Management and Control of your street and urban lighting network is optimised for functionality, efficiency, controllability, and reliability. We can provide current state of the art technology in terms of remote configuration and light availability via controllers and a range of associated sensors.

Photometric studies carried out by lighting engineers make it possible to minimise the power of road, urban, or service lighting applications and to define the location, spacing and lighting point settings.





# IoT Infrastructure

## Connecting smart cities

As cities face ever-growing challenges related to population density and related resource management, they per force have to develop technologically. The need for ubiquitous infrastructure to support the Internet of Things (IoT), that serves to operationalise solutions to these challenges becomes increasingly critical. Currently one of the most cost-effective ways to roll out the IoT infrastructure is to link it to pre-existing hardware. The biggest problems related to this is that this infrastructure, mostly in the form of existing street poles, is not primarily designed for these applications. The extended services under consideration include the delivery of electricity and WiFi communication to the general public, as well as supplying secure data communication in real time from various types of sensors that can be used in the management of traffic congestion (vehicle, cycle and pedestrian) as well the management of energy consumption by street lights and other services to provide as needed, where needed, solutions to the public and if required, emergency services.

Existing poles mostly involve a hollow core concept which was developed to meet the needs of street lighting and where needed are designed to minimise damage to passenger vehicles in case of accidental impacts. All this means that a limited number of IoT devices can be attached to a single pole, in addition the standard pole is not designed to host IoT-enabled devices such as cameras, WiFi hubs and power outlets, which means they need to be attached on the exterior of the pole via brackets and in extreme cases, lockable steel or stainless-steel enclosures. This creates vulnerabilities in relation to weather events, the possibility of attracting vandalism and even theft, not to mention the possibility of serious accidental injury to pedestrians, cyclists and vehicle occupants. The hollow core design has no way to separate electromagnetic interference from power cables impacting on nearby IT cables creating onsite technical challenges. The current solution is to run power and data on the exterior of a street pole, which is aesthetically unpleasing and adds further potential hazards.

These issues require a different approach to the provision of Street and Urban lighting infrastructure – one that incorporates new thinking that acknowledges that the lighting role of the poles is now shared with the provision of a range of other services to the public.

iCore is an award winning FOS Lighting brand that has developed bespoke solutions to these challenges for both street and urban pathway illumination.



Courtesy of: pexels.com  
Credit: Mitch Kesler

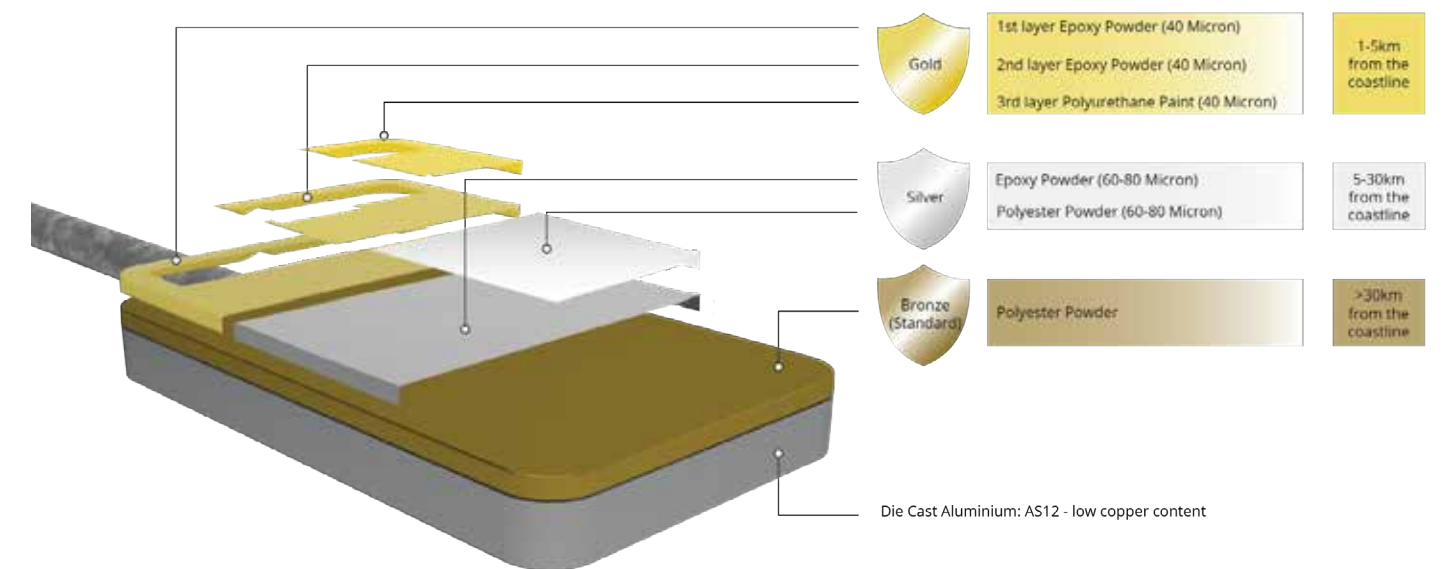




# Coastal Lighting

## Resisting corrosion

When installing luminaires in proximity to the coast (in New Zealand that includes all major centres) it is essential to design with materials that have a high level of corrosion resistance, you require Low Copper Content fittings, treated fixings to prevent galvanic bonding, special coatings to prevent corrosion etc. FOS Eclatec products deal with these challenges by using AS12 Aluminium for die-casting as the basis for the componentry, which, to conform to the alloy standard requires 0.04% copper content, while the AS/NZS standard calls for less than 1%. In addition, the Eclatec designed and FOS supplied products involve no external ribs for the cooling system, providing no crevasses for dirt and moisture to accumulate which would impact on the luminaire lifetime. All screws are treated with the Delta Seal process ensuring no galvanic sealing due to corrosion build-up. Finally all parts are fully painted to one of three levels of finish coating:



All of this attention to detail ensures that the luminaire enclosures will remain functional up to and beyond their life expectancy. Combined with a cradle to cradle design philosophy and ecosystem, it ensures that clients can manage their carbon impact while providing state of the art art Dark Sky compliant illumination on roadways and in other public spaces.

## Managing Ecological Impact

Further considerations when it comes to coastal lighting is the wildlife and ecological communities. Excessive light pollution can effect habitats, food resources, survivorship and reproductive outputs in some cases. To counter act these negative effects on these communities, the National Light Pollution Guidelines for Wildlife was released in 2020. Within these guidelines it puts forward a 6 step best practise lighting design concept, which is the following:

1. Start with natural darkness and only add light for specific purpose.
2. Use adaptive light controls to manage light timing, intensity, and colour.
3. Light only the object or area intended – keep lights close to the ground, directed, and shielded to avoid light spill.
4. Use the lowest intensity lighting appropriate for the task.
5. Use non-reflective, dark coloured surfaces.
6. Use lights with reduced or filtered blue, violet, and ultra-violet wavelengths.

FOS Lighting can help you with these guidelines were necessary for your project, we have the capabilities of supplying shields for supported light fittings and control systems which you can remotely adjust and put on timers to reduce the light impact at certain hours of the night.



# Roadway Surface Illuminance

## Ensuring uniformity

Road lighting is acknowledged to be an effective night-time crash countermeasure. Cost-benefit analysis indicates that the benefits in terms of savings and community benefits far outstrip the cost of implementation and maintenance of street lighting. This achieves a drop in night-time fatal accident rates by as much as 30%. Taken over the road network, the lowering of crash costs will generally justify the investment in optimized road lighting. A secondary objective of road lighting is to facilitate security and amenity for people and property. The carriageway provides the predictable and stable reflective surface that ensures that the light levels that are established are maintained, it is critical as it is where the most and fastest activity occurs. The lighting of the carriageway has to be designed on the basis of the road surface. A road pavement exhibits a combination of specular and diffuse reflection, resulting in preferential reflection towards the eye of the vehicle driver. Coarse textured surfaces produce more diffuse refraction of light, which results in more rounded (i.e. shorter) light patches from individual luminaires. This requires a closer spacing of luminaires to achieve a given average luminance and uniformity.

- \* Making the road surface bright by exploiting its reflection characteristics has the effect of:
- \* Raising the adaption light level of the driver and, by so doing maintaining general visual performance at near optimum.
- \* Emphasizing the condition and run of the road ahead.
- \* Providing an extended luminous background, which provides a frame of reference in judging (subconsciously) relative speed and movement.
- \* Facilitating visibility of the presence and shape of objects on the carriageway by silhouette.

It is essential that illuminance be even and meet certain minimum standards of uniformity dictated by the type of carriageway, the existence of intersections and the need to provide sufficient illumination to permit the identification of options related to the intersection. When looking at road verges the indeterminate nature of the area means that the prescribed light levels are a specified fraction of the average for the carriageway thereby ensuring a defined starting point for pedestrians entering or crossing the carriageway. Glare control is essential for the control of impairment and needs to be considered when determining the spacing between luminaires as determined by cut-offs and their impact on uniformity as well as the economies of the provision of carriageway illuminance. The use of extreme cut-offs and glare management is used in special circumstances such as bridge crossings which requires contracting the distance between luminaires to deliver higher glare management due to contracted cut-offs.

Wet pavements – as a normal pavement changes progressively from a dry state to become damp, then wet and ultimately inundated, the reflecting characteristics change from diffuse reflection, becoming increasingly specular to the point where the surface of the water film reflects like a mirror. The size and shape of the light patches formed by the luminaire initially become larger (when the surface is slightly damp) thereby improving both the level of luminance and uniformity. As further wetness develops the light patches become narrower and brighter (as specular reflection increases) until ultimately the light from each luminaire is reflected as intense bands of light with the width and luminance approximately that of the actual luminaire.

FOS Lighting curates an extensive range of lighting options capable of meeting the requirements of modern carriageway illumination as well as the management and control systems required to optimise performance across all relevant variables.



Courtesy of: pexels.com  
Credit: Artem Saranin





# Luminaire Spacing

## Optical performance

The spacing of luminaires as well as the choice of materials used in Poles and the location of those poles relative to the carriageway are all variables that are controlled by the relevant authority with reference to the standards as laid out in AS/NZS1158. Due to the range of factors the standard indicates relative light levels as opposed to absolute numbers. The target values should be the result of consultation between the authority and lighting professionals based on site assessments. Manufacturers provide spacing tables based on international standards and the performance and tested longevity of the components (LED chips, Optics, drivers) used to manufacture their luminaires. They also provide IES data that permit lighting designers to adapt the performance of the luminaire to the particular required project outcomes.

The height of the pole, outreach, as well as the nature of the carriageway and the lighting cut-off and angle of lighting spread design of the luminaire, impact these choices. The location along the carriageway will also determine the spacing that is most appropriate, bridges, underpasses, blind rises as well as curves all impact on the pole layout as a means of providing guidance, enhanced visibility and security to road users. In addition to the road users the needs of properties that abut the carriageway also need to be taken into account when it comes to glare management.

In addition to geology, economics will also play a role in the determination of spacings (hence the number) and the types of poles used along a stretch of a carriageway, indeed even walkways. LED efficiency and the range of management and control systems available have had a dramatic impact on the Opex of maintaining a lighting array. This combined with the extended lifetime of LED luminaires in turn (most especially those designed incorporating a cradle to cradle design philosophy) has had an impact on the assessment of ROI verses Capex calculations. Once these are compared with the costs of motor vehicle accidents as well as the safety and security of pedestrians the real cost of lighting can be assessed.

FOS Lighting, due to access to state-of-the-art luminaires as well as management and control systems, can help provide lighting solutions that address all the variables that impact on the implementation of a carriageway or walkway lighting solution.





Courtesy of: pexels.com  
Credit: Ivan Siarbolin

# Freeway / State Highway

## Multi lane connections

Freeway or State Highway lighting is determined by a combination of factors that include the width of the road, the speed limit imposed, the nature of the territory that the road is going through, normal weather conditions for the location, and the materials used to construct that section of the freeway. Highway lighting does not normally continue for the entire length of the carriageway but the focus is on bridges, changes in carriageway layout, intersections, underpasses and those parts of the freeway that abut residential/commercial property.

Due to the use of taller poles (generally to deal with the additional width of a double carriageway) freeway lighting requires more powerful luminaires which in turn impacts on glare management and the ideal luminaire spacing. Using good quality LED modules that have a long-life expectancy and can be maintained with a minimum of disruption should be a consideration when deciding on freeway lighting. FOS Lighting represents the ECLATEC brand of luminaires – some of which are designed for toolless entry and include control systems that can be accessed at the base of the pole or via Wireless communications, as part of a CMS, minimising disruption to arterial traffic.



ECLATEC  
Stelium

ECLATEC  
Moana

ECLATEC  
ELIPT

ECLATEC  
Zelda

ECLATEC  
Noa

ECLATEC  
Item Pole Top

ECLATEC  
Pixel

## ECLATEC - Zelda

Zelda is an exterior pole mounted luminaire designed for urban environments to illuminate streets, pathways and other residential zones and walkways.



### Features

- IK 10
- IP 66
- Available in S and X Modules.
- X modules designed for easy maintenance
- Available in three sizes
- Die-cast aluminium for durability
- Colour options
- Extruded silicone seals for added protection

## ECLATEC - Noa X2

Designed to simplify maintenance and preconfigured as Smart ready<sup>(R)</sup> Noa is perfect for large scale roll-outs integrated with remote management.

### Features

- Mounting: top and side entry
- Applications: roads, secondary urban and inter-urban streets
- Body, cover and sleeve in die-cast aluminium
- Bowl in thermally tempered and screen printed glass
- Polyester powder coating, any colour available
- IP 66
- IK 09



## ECLATEC - Stelium

Toolless entry luminaire available in 3 distinct models depending on client needs.



### Features

- Adjustable current
- Dimming via bluetooth or bottom of pole
- DALI protocol
- Smart Ready (R) configuration (ZD4i)
- Remote management via WIZARD CMS system

## ECLATEC - Elipt 55 X

A design of subtle modernism ensures a wide range of applications with a range of mounting options. Applicable to roads, secondary urban and inter-urban streets.

### Features

- Mounting: top, bitop and side entry
- Body and frame in injected die-cast aluminium with spun aluminium dome
- IK08
- CCT: 2400K, 2700K, 3000K or 4000K
- Bowl in thermally tempered glass







Courtesy: Eclatec

# Regional roads

## Connecting suburbs and towns

The lighting levels required on regional roads vary depending on the specific road and its surrounding environment. Generally, lighting on regional roads is designed to provide a minimum level of illumination for safe travel, while also minimizing light pollution and glare. The specific lighting levels required for a particular road are typically determined during the design and planning stages, and are based on factors such as the road's traffic volume, speed limit, and surrounding land use. Additionally, the Australian Standards for Road Lighting (AS1158) provides guidelines for the design, installation and maintenance of road lighting. These standards are intended to ensure that lighting levels are adequate to support safe travel while also minimizing environmental impacts such as light pollution and glare.

In New Zealand, the lighting must be designed and installed in accordance with the NZTA's guidelines, which include requirements for lighting levels, pole spacing, and the type of lighting fixtures used. The NZTA also requires that street lighting on regional roads be maintained regularly to ensure that it continues to provide adequate visibility and safety for road users. FOS Lighting supplies a range of fixtures designed to meet the European standards for exterior illumination. These specifications are the equivalent or higher than what is required by AS/NZS for street lighting across categories.



ECLATEC Pixel    ECLATEC Elipt X55    ECLATEC Stelium    ECLATEC Item    ECLATEC Sonata Pole    ECLATEC Zelda 3    ECLATEC Noa X2

### ECLATEC - Pixel

Eclatec Pixel is a pole mounted luminaire designed for illuminating large open spaces, such as rooftop and outdoor car parks.



#### Features

- IP66
- IK09
- Any colour finish available
- Extruded silicone gaskets

### ECLATEC - Elipt X 55

A design of subtle modernism ensures a wide range of applications with a range of mounting options. Applicable to roads, secondary urban and inter-urban streets.

#### Features

- Mounting: top, bitop and side entry
- Body and frame in injected die-cast aluminium with spun aluminium dome
- IK08
- CCT: 2400 K, 2700 K, 3000 K or 4000 K
- Bowl in thermally tempered glass



### ECLATEC - Stelium

Toolless entry luminaire available in 3 distinct models depending on client needs.

#### Features

- Adjustable current
- Dimming via bluetooth or bottom of pole
- DALI protocol
- Smart Ready (R) configuration (ZD4i)
- Remote management via WIZARD CMS system



### ECLATEC - Item

Item is adaptable to horizontal and vertical pole insertion, extender suspension and wall mounted extension, in addition to being adaptable to pedestrian uses via pole top enclosed bowl options.

#### Features

- 3 plate designs; Triad, Smooth & honeycomb
- Toolless entry
- Regional and Urban routes, pedestrian walkways, cycle paths, squares, parks and pedestrian areas
- IP 66
- IK Flat (VPC): IK 09 / Deep bowl (PHC): IK 10
- Range of dimming options available







Courtesy of: Eclatec

# Street lighting - suburban

## Surround ratio (SR)

The ratio of the average horizontal illuminance in the 5 meters wide area outside the roadway to the average horizontal illuminance on the adjacent 5 meters wide roadway. Road lighting should not only illuminate the road, but also the adjacent area so that motorists can see surrounding objects and anticipate possible road obstacles (eg, pedestrians about to step onto the road). SR is the visibility of the road perimeter relative to the main road itself. According to lighting industry standards, the SR should be at least 0.50, as this is ideal and sufficient for proper eye accommodation.

In addition to the SR the cut-offs should be such that the luminaires do not negatively impact on properties that abutt the carrieway that they provide primary illumination for.



ECLATEC  
Item Suspended

ECLATEC  
Pixel 2

ECLATEC  
Sonata

ECLATEC  
Zelda

ECLATEC  
Noa X2

ECLATEC  
Stelium

ECLATEC  
Elipt X55

## ECLATEC - Zelda

Zelda is an exterior pole mounted luminaire designed for urban environments to illuminate streets, pathways and other residential zones and walkways.



### Features

- IK 10
- IP 66
- Available in S and X Modules
- X modules designed for easy maintenance
- Available in three sizes
- Die-cast aluminium for durability
- Colour options
- Extruded silicone seals for added protection

## ECLATEC - Item

Item is adaptable to horizontal and vertical pole insertion, extender suspension and wall mounted extension, in addition to being adaptable to pedestrian uses via pole top enclosed bowl options.

### Features

- 3 plate designs; Triad, Smooth & Honeycomb
- Toolless entry
- Regional and Urban routes, pedestrian walkways, cycle paths, squares, parks and pedestrian areas
- IP 66
- IK Flat (VPC): IK 09 / Deep bowl (PHC): IK 10
- Range of dimming options available



## ECLATEC - Stelium

Toolless entry luminaire available in 3 distinct models depending on client needs.

### Features

- Adjustable current
- Dimming via bluetooth or bottom of pole
- DALI protocol
- Smart Ready (R) configuration (ZD4i)
- Remote management via WIZARD CMS system



## ECLATEC - Noa X2

Designed to simplify maintenance and preconfigured as Smart ready<sup>®</sup> Noa is perfect for large scale roll-outs integrated with remote management.

### Features

- Mounting: top and side entry
- Applications: roads, secondary urban and inter-urban streets
- Body, cover and sleeve in die-cast aluminium
- Bowl in thermally tempered and screen printed glass
- Polyester powder coating, any colour available
- IP 66
- IK 09







Courtesy of: Securlite  
Project: Charleroi

# Bridges and Underpasses

## Safe access

“When dealing with short bridges <150m length the carriageway and surrounds should be lit to not less than the requirements that apply for the adjoining section of roadway.” when very short <40 m lighting equipment should not be placed on the bridge structure. In extreme cases it may be called for to satisfy requirements.

Where the carriageway is covered forming an underpass, daytime lighting may be required when

A: The length of the underpass is equal to or greater than ten times the minimum roof height

B: Specific situation analysis detailed in AS/NZS1158.5:2007 determines the underpass to be Cat TU3 or TU4.

For underpasses of Cat TU 5 of less than 30m in length, luminaires need not be installed within the underpass if it can be demonstrated that luminaires outside the underpass can deliver the requisite performance, to achieve this it may be required to affect luminaire installation geometry.

FOS Lighting curates a number of products that can fulfil the requirements regarding glare management and spread suitable for use in underpasses. All of the streetlights that FOS stocks are compatible with bridges when suitable poles are installed.



ECLATEC Item Suspended Bowl   ECLATEC Sonata   ECOPOINT Skleros   FRENDR LIGHTING CWP   SECURLITE Fila 2   SECURLITE Titan   SECURLITE Aleane

## ECLATEC - Sonata

Designed for bracket mounting, the discrete luminaire provides modulated light without impacting on pedestrian access to tunnels and underpasses.



### Features

- Polyester powder coating, any colour available
- IP 66
- IK 10
- Convertible wall-mounted plate for guiding cable from above or from below
- CCT: 2400 K, 2700 K, 3000 K or 4000 K
- Narrow or wide beam with ORALENS lenses
- High recyclability rate

## SECURLITE - Titan S

A comprehensive range of compact, high-power vandal-resistant luminaires.

### Features

- Wall- (Titan S3) or corner- (Titan S2) mounting versions: body and frame in ZP steel
- Flush-mounting version (Titan S4): body and frame in painted 304L stainless steel
- CCT 4000 K, CRI min. 80
- Polyester powder-coated finish
- Opal polycarbonate diffuser (for LED version)
- Stainless steel vandal-resistant screws
- Wall- and corner-mounting versions supplied c/w nickel-plated brass cable gland
- Flush-mounting version supplied with cable seal



## SECURLITE - ESL Stainless

A compact stainless steel flush-mounting luminaire for outdoor spaces subject to vandalism and corrosion.

### Features

- Architectural luminaire with flush diffuser
- 316L stainless steel body
- Brushed 316L stainless steel frame
- Opal polycarbonate diffuser
- CCT 4000 K, CRI min. 80
- Stainless steel vandal-resistant screws
- Supplied c/w cable seal



## SECURLITE - Fila 2

A high-efficacy version of the FILA luminaire, resulting from the policy of eco-design and continuous performance improvement.

### Features

- Sealed vandal-resistant striplight
- Two diameters: 66 mm and 98 mm
- Opal or clear diffuser for optics and louvres
- Polycarbonate body, 2 mm thick
- CCT 4000 K
- Decorative internal polyamide trims
- Polished 304L stainless steel end caps







Courtesy of: Eclatec

# Outdoors Car Park

## Ensuring safety after dark

Parking complexes can be an unnerving and difficult environment to navigate, and even worse when at night. A well-designed lighting solution should offer ample light, be efficient thanks to the effective use of onboard or external sensors as well as aim to maximise pedestrian visibility when moving to and from a vehicle.

FOS Lighting offer a range of exterior parking solutions, which are weatherproof, reliable, and efficient.



ECLATEC Keo

ECLATEC Link

ECLATEC Saga

ECLATEC Item Pole Top Bowl

ECLATEC Xeon

ECLATEC Pixel

ECLATEC Zelda

## ECLATEC - Keo

Keo is a decorative urban pole mounted luminaire, designed for high traffic public spaces.

### Features

- IP66
- IK10
- Any colour finish available
- Extruded silicone gaskets



## ECLATEC - Item

Item is adaptable to horizontal and vertical pole insertion, extender suspension and wall mounted extension, in addition to being adaptable to pedestrian uses via pole top enclosed bowl options.

### Features

- 3 body designs; Triad, Smooth & Honeycomb
- Toolless entry
- Pedestrian walkways, cycle paths, squares, parks and pedestrian areas
- IP 66
- Deep bowl (PHC): IK 10
- Range of dimming options available



## ECLATEC - Xeon

Xeon is a family of pole mounted fittings that include LED spotlights, Cameras and Speakers in the same classic form factor.

### Features

- Body done in polyester powder coating, any colour
- IP66
- IK09 / IK10
- CCT: 2700K, 3000K, 4000K
- Adjustable power supply up to 700mA
- Range of mounting options



## ECLATEC - Zelda

Zelda is an exterior pole mounted luminaire designed for urban environments to illuminate streets, pathways and other residential zones and walkways.

### Features

- IK 10
- IP 66
- Available in S and X Modules
- X modules designed for easy maintenance
- Available in three sizes
- Die-cast aluminium for durability
- Extruded silicone seals for added protection







Courtesy of: Eclatec

# Pedestrian Walkways

## Precise wayfinding

Lighting designed for pedestrian walkways is “to assist pedestrians to orientate themselves, detect potential hazards, reduce fear of crime & protect the integrity of the night time environment through control of obtrusive light and glare. The lighting may also be used to enhance the amenity of the location and should be designed to minimize any obtrusive effects.” (AS/NZS 1158.3) The principal design objectives for Category P lighting are to provide the following:

- (a) Illuminance and uniformity of illuminance over the designated area to a specified level.
- (b) Glare control to a specified level.
- (c) Limitation of upward light from luminaires to a specified level.
- (d) Limitation to a specified level of the obtrusive light into properties that abut the lit area.
- (e) A lighting scheme that conforms to this Standard at all times during each maintenance cycle over the life of an installation.
- (f) Minimization of energy consumption.

Included in this category is lighting applicable to Subways, steps, stairways, ramps, footbridges, pedestrian ways – both low and high use.

The levels are relative and it is up to the relevant local authority to specify values. Due to the high standard used in the design of FOS Lighting outdoor luminaires FOS is confident that they will fulfil the most stringent requirements derived from AS/NZS 1158.3.



### ECLATEC - Item

Item is adaptable to horizontal and vertical pole insertion, extender suspension and wall mounted extension, in addition to being adaptable to pedestrian uses via pole top enclosed bowl options.

#### Features

- 3 body designs; Triad, Smooth & Honeycomb
- Toolless entry
- Pedestrian walkways, cycle paths, squares, parks and pedestrian areas
- IP 66
- Deep bowl (PHC): IK 10
- Range of dimming options available

### ECLATEC - Keo

Available to mount on top of a pole as well as with a wall mounted bracket option, the Keo designed by Agence Michel Tortel delivers 3600 lumens from a unique design.

#### Features

- Two-material polycarbonate opal and clear bowl, with Led backlight as an option: white or other colours on request
- Finish: polyester powder coating, any colour available
- IP66, IK10
- Adjustable power supply up to 700mA
- DALI compatible with external sensor support
- Supports WIZARD CMS remote management system



### ECLATEC - Team Bollard

Designed to assist with wayfinding and to prevent vehicular access to cycleways and pedestrian walkways.

#### Features

- Aluminium profile 200 mm tube
- Die-cast aluminium cap, polycarbonate bowl
- Polyester powder coating finish, choice of colours
- IP 66 Module
- IK 10 - 60 joules
- CCT: 3000K, 4000K



### SECURLITE - Titan S4 Stainless

A comprehensive range of steel luminaires designed for premises and pedestrian subways subject to extreme vandalism.

#### Features

- Flush-mounting version (Titan E): body and frame in painted 304L stainless steel or all-stainless steel in brushed 316L stainless steel
- CCT: 4000 K
- Braced opal polycarbonate diffuser
- Stainless steel vandal-resistant screws
- IK11++ 120 J
- IP65







Courtesy of: Eclatec

# Cycleways

## Adaptive illumination

Shared pedestrian/cycle ways are becoming a popular means for local and central government to address their carbon targets related to climate change. LED luminaires are extremely efficient sources of illumination, as well as the fact that they are compatible with multiple sensors, contribute to achieving these goals via programmable and adaptive illumination control systems.

In addition, there is a shift to achieving Dark Sky compatible illumination requiring that European manufactured luminaires are compatible with the requirements of the Paris Protocol going forward. It is inevitable that these requirements will become the norm worldwide, therefore it makes sense that any large-scale implementation should take into account these requirements as part of strategic planning. Eclatec, a leading outdoor lighting manufacturer is at the leading edge of manufacturers incorporating these requirements into their product design. FOS Lighting carries an extended range of luminaires and bollards designed to assist with the unique wayfinding requirements for cycleways and when and how they intersect with, and run parallel to, carriageways.



ECLATEC Keo    ECLATEC Xeon    ECLATEC Item 4 arm bracket    ECLATEC Team Bollard    ECLATEC Zenda    ECLATEC Zen    ECLATEC Scoop

### ECLATEC - Link Deep Bowl (Structured)

Flexible range of modern adaptable pole top luminaires designed to fit into any pedestrian environment.



#### Features

- IP 66 waterproofing
- Breathing system with activated carbon filter
- Base, cover and arm in injected die-cast aluminium
- Choice of four polycarbonate bowls: deep clear, deep structured, shallow clear and shallow opaline
- IK 10 - 50 Joules
- CCT: 3000K & 4000K

### ECLATEC - Xeon

Xeon is a family of pole mounted fittings that include LED spotlights, Cameras and Speakers in the same classic form factor.

#### Features

- Body done in polyester powder coating, any colour
- IP66
- IK09 / IK10
- CCT: 2700K, 3000K, 4000K
- Adjustable power supply up to 700mA
- Range of mounting options



### ECLATEC - Nismo

NISMO is a luminaire designed to be urban and decorative. Nismo is where sculpture meets lighting.



#### Features

- Injection die-cast aluminium body
- Option: deep clear polycarbonate bowl, IK10
- Polyester powder coating, any colour available
- IP66
- IK10
- ORALED module with ORALENS mono lens
- CCT: 4000K and 3000K

### ECLATEC - Team Bollard

Designed to assist with wayfinding and to prevent vehicular access to cycleways and pedestrian walkways.

#### Features

- Aluminium profile 200 mm tube
- Die-cast aluminium cap, polycarbonate bowl
- Polyester powder coating finish, choice of colours
- IP 66 Module
- IK 10 - 60 joules
- CCT: 3000K, 4000K







# Airports

## Passenger and Cargo Terminals

Major airports are open 24/7, this requires lighting both inside the terminal as well as outside to provide wayfinding to services and transport hubs. Traveller service desks require lighting that permits legibility with regards to tickets and passports as well as ensuring that the illumination is flicker-free to minimise interference with barcode scanners. Airports are architectural statement buildings, they deserve high CRI lighting that can be used to focus attention on architectural and design features, both interior, as well as exterior. Due to safety considerations, it is essential that exterior lighting do as little as possible to contribute to disrupting avian life.

The retail element of travel, which focuses on luxury goods, requires exceptional illumination, in terms of colour reproduction, focus and glare control to present those products to their full potential. In addition, restaurants and food emporia also require lighting that is compatible with their market positioning.

Illumination in cargo departments has to be environmentally protected to assist staff with the identification of labels etc on items of cargo, in addition to helping with wayfinding to the relevant luggage rotundas, and bulk cargo storage facilities. All of this whilst providing identification of trip hazards et cetera when engaged with the sorting and stacking of cargo. As a lot of weigh bills and all luggage labelling are now barcode scanner compatible, ensuring flicker-free lighting is critical.

In addition these spaces do not require constant illumination, as such they represent an opportunity to provide control systems that are designed to maximise energy efficiency when combined with suitable sensor technology. FOS Lighting provides several ranges of options that will meet all these various and diverse requirements.



FORMALIGHTING  
Moto Zero Zoom



ECLATEC  
Zelda



LUCEPLAN  
Compendium Plate



VEKTA  
V60/100R



FORMALIGHTING  
Cobra Pro



VEKTA  
Extreme



FORMALIGHTING  
Scala

## FORMALIGHTING - Bullet

Bullet is a versatile recessed, wall or ground mounted luminaire, which allows you to highlight architectural or ground features.



### Features

- IP66
- 140° vertical tilt
- 350° horizontal rotation
- Weatherproof, durable silicone gaskets
- Narrow, medium and wide optic options

## VEKTA - 60100

The most versatile of the Vekta form factors, suitable for multiple applications thanks to the range of accessories compatible with the model type.

### Features

- Emergency options available on request
- Plug and Play
- Welded joints available on request
- IP55 - only on diffused optics on request
- Various CCT options including Tunable White on request



## Formalighting - Galaxis Pro

Round mounting trim in cast aluminium compatible with up to 25 mm thick ceiling. Luminaire body and heat exchanger for passive cooling in cast aluminium. Secondary reflector is precision formed from highly reflective pure aluminium.



### Features

- Available in four different sizes.
- CRI: 90 |
- CCT: 3000K, 4000K.
- Optic: Dark reflector, wide beam angle

## FORMALIGHTING - Cobra Pro

Surface mounted flexible modular system in extruded aluminium. Available in different length configurations based on an 83mm link (2 LED per link).

### Features

- IP 65
- CRI: 90 |  $R_g > 50$
- CCT: 2700K, 3000K, 3500K, 4000K
- Beam angle 17° / 29° / elliptical (15°, 50°)







Courtesy of: ECLATEC

# Bus Rotunda/Terminus

## Near and far

Both long distance and Metro Busses utilise these facilities, as a result, they need to operate 24/7 when maintenance and cleaning schedules are taken into account. Lighting is required for wayfinding, detecting trip hazards, customer services, retail spaces and arguably, most importantly, safety and security of travellers as well as staff moving between structures and vehicles. The mix of passenger and cargo requires task lighting that permits the identification of items of baggage which requires sufficiently high CRI, permitting colour differentiation as well as high power to permit shape differentiation.

FOS Lighting represents and manufactures a range of luminaires suited to all the applications to be found in these facilities.



## FORMALIGHTING - Scala

Scala - recessed outdoor handrail luminaire.



### Features

- Mono elastic clip mount luminaire in a 316 grade stainless steel body
- Simple installation via snap-in catch
- Long life IR and UV free light source
- Optical polymer collimating lens
- IP 67
- Body molded to match lower curve of handrail

## SECURLITE - Rondino

Surface or flush mounted, the most powerful and robust of the architectural luminaires.

### Features

- Architectural luminaire, IK 10, 120-joules resistance
- Available in two sizes
- Die-cast marine-grade aluminium base
- Opal polycarbonate diffuser
- CCT 4000 K
- Stainless steel vandal-resistant screws
- Plug-in gear tray

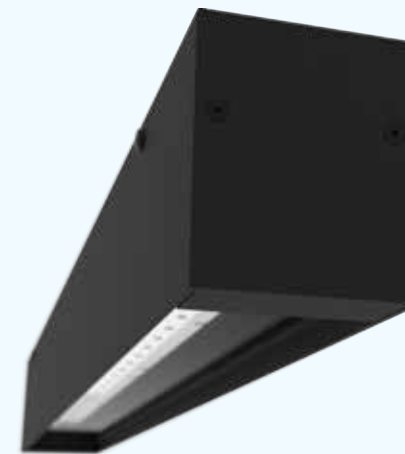


## VEKTA - Extreme (VX)

Vekta Extreme expands high durability/tamper proof fittings into the realm of architectural luminaires with all the flexibility and performance that this implies, making it the link between indoors and outdoors as well as industrial and architectural.

### Features

- IP 66
- IK 10
- Surface, Wire, Wall and Rod mounting
- Exposed components powder coated to protect against environmental and galvanic erosion
- Overlapping external end caps provide extra protection and security
- Vandal Resistant options available



## ECLATEC - Team Bollard

Designed to assist with wayfinding and to prevent vehicular access to cycleways and pedestrian walkways.

### Features

- Aluminium profile 200 mm tube
- Die-cast aluminium cap, polycarbonate bowl
- Polyester powder coating finish, choice of colours
- IP 66 Module
- IK 10 - 60 joules
- CCT: 3000K, 4000K







Courtesy of: SecurLite

# Railway Stations

## Hubs of activity

### Passenger Service

Transport structures in long distance travel are more than just railway stations. They are places that connect people. They are frequently in operation 24/7 and platforms exposed to many environmental factors for example temperature, adverse weather and dust. This demands tough lighting, which also enables creative design concepts to be implemented via sophisticated management and control systems. FOS Lighting luminaires resist the effects of cold and heat, are dust tight and extremely tough. In addition, we provide control systems across a range of protocols for our products. This extensive range of options means that together we can achieve the outcomes you wish within the budget at your disposal.

### Cargo

Illumination in cargo departments has to provide the necessary light to Assist staff with the identification of labels etc on items of cargo, in addition to helping with simple wayfinding and identification of trip hazards et cetera while engaged with the sorting and stacking of small and medium cargo. As a lot of weigh bills are now barcode scanners compatible, ensuring that luminaires have flicker-free drivers becomes a matter of importance in these spaces. Bulk Cargo on the other hand requires exterior flood lighting in depots to facilitate 24/7 material handling, while containerisation has created specialised lighting needs for handling and security. FOS Lighting provides numerous weather resistant alternatives suited to providing creative lighting solutions on platforms, in Cargo spaces and mounted on poles over handling facilities.



FORMALIGHTING Galileo

VEKTA V1910IP

ECOPOINT Floodlight G3

FORMALIGHTING Astra

VEKTA Extreme

FORMALIGHTING Cobra Pro IP 66

SE3CURLITE Fila 2

## FORMALIGHTING - Galileo

Surface floodlight in cast aluminum, with toughened safety glass, weatherproof durable silicone gasket and external screws made of stainless steel.



### Features

- CRI: 80
- CCT: 3000K, 4000K
- Other CRI and CCT options available on request
- Light output can be directed and precisely adjusted and locked to the required angle

## VEKTA - Extreme (VX)

Vekta Extreme expands high durability/tamper proof fittings into the realm of architectural luminaires with all the flexibility and performance that this implies, making it the link between indoors and outdoors as well as industrial and architectural.

### Features

- IP 66
- IK 10
- Surface, Wire, Wall and Rod mounting
- Exposed components powder coated to protect against environmental and galvanic erosion
- Overlapping external end caps provide extra protection and security
- Vandal resistant options available



## SECURLITE - Senspot

Impact-resistant flush-mounting spot



### Features

- Vandal-resistant version IK11 50 J: secure closure through Torx + pin screws
- Clear polycarbonate diffuser
- White polycarbonate reflector
- Clear polycarbonate diffuser
- White polycarbonate reflector
- End entry, through-wireable
- Suitable for outdoor environments (IP65)

## SECURLITE - Fila 2

A high-efficacy version of the FILA luminaire, resulting from the policy of eco-design and continuous performance improvement.

### Features

- Sealed vandal-resistant striplight
- Two diameters: 66 mm and 98 mm
- Opal or clear diffuser for optics and louvres
- Polycarbonate body, 2 mm thick
- CCT 4000 K
- Decorative internal polyamide trims
- Polished 304L stainless steel end caps







Courtesy of: pexels.com INDICE ECLatec  
Credit: Jéshoots

# Light Rail and Metro

## Managing the Rush Hour

Metro transport is subject to variations in user density. As a result, lighting requirements are not necessarily the same throughout the 24-hour cycle as well as on weekends and should be able to adapt to user patterns going into a standby security mode when trains are not scheduled and coming back up to full power once trains are running. They are frequently in operation for extended hours of darkness which vary with seasons and exposed to many environmental factors for example temperature, adverse weather and dust. These demand tough lighting; hard-wearing luminaires which also enable creative architectural lighting design concepts to be implemented. FOS Lighting luminaires defy cold and heat, are dust tight and extremely tough. FOS also provides drivers compatible with a range of different management and control protocols. The range of options means that together we can achieve the creative lighting outcomes you wish within the budget at your disposal.



### FORMALIGHTING - Rocket Wall

Round wall luminaire with trim, light body and ring in cast aluminium.



#### Features

- Central housing in aluminium extrusion, with toughened safety glass, weatherproof durable silicone gasket and external screws made of stainless steel
- CCT: 3000K, 4000K
- Optic: narrow, medium and wide beam angle available

### FORMALIGHTING - Rocket Ceiling

Round ceiling luminaire with trim, light body and ring in cast aluminium. Available as surface mount or pendant.



#### Features

- Central housing in aluminium extrusion, with toughened safety glass, weatherproof durable silicone gasket and external screws made of stainless steel
- CCT: 3000K, 4000K
- Optic: narrow, medium and wide beam angle available
- Available in 2 form factors (111 & 150)

### FORMALIGHTING - Scala

Scala - recessed outdoor handrail luminaire.



#### Features

- Mono elastic clip mount luminaire in a 316 grade stainless steel body
- Simple installation via snap-in catch
- Long life IR and UV free light source
- Optical polymer collimating lens
- IP 67
- Body molded to match lower curve of handrail

### FORMALIGHTING - Bullet

Bullet is a versatile recessed, wall or ground mounted luminaire, which allows you to highlight architectural or ground features.



#### Features

- IP66
- 140° vertical tilt
- 350° horizontal rotation
- Weatherproof, durable silicone gaskets
- Narrow, medium and wide optic options





Courtesy of: FOS Lighting  
Project: West End Ferry Terminal

# Ferry Terminals

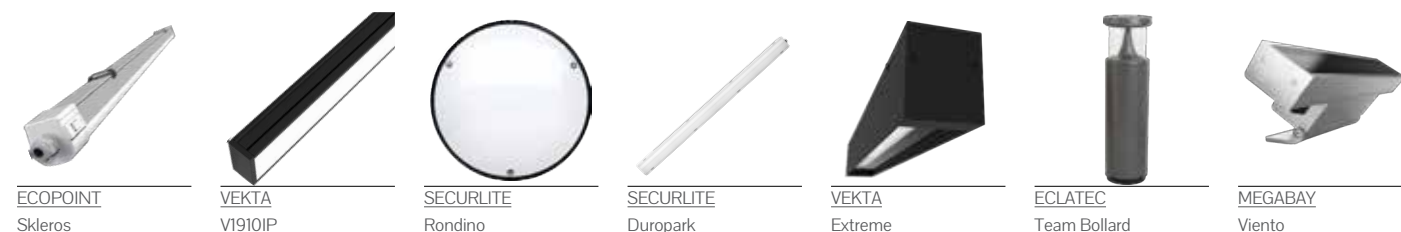
## A watery shortcut

### Passenger Service

Ferry Terminals are frequently in operation exposed to many of the harshest environmental factors for example temperature, adverse weather, salt air and dust. These challenges demand tough lighting, in addition, luminaires which also enable creative lighting design concepts to be implemented via sophisticated management and control systems. FOS Lighting luminaires resist the effects of cold and heat, are dust tight and available in coatings and materials specifically designed for coastal applications. In addition, we provide control systems across a range of protocols for our products. This range of options means that together we can achieve the outcomes you wish within the budget at your disposal.

### Cargo

Illumination in cargo departments has to, in addition to resisting coastal conditions, provide the necessary light to assist staff with the identification of labels etc on items of cargo. In addition luminaires help with simple wayfinding and identification of trip hazards et cetera while engaged with the sorting and stacking of cargo, at times in rough sea states. As a lot of weigh bills are now barcode scanners compatible, ensuring that luminaires have flicker-free drivers becomes a matter of importance in these spaces.



ECOPOINT  
Skleros

VEKTA  
V1910IP

SECURLITE  
Rondino

SECURLITE  
Duropark

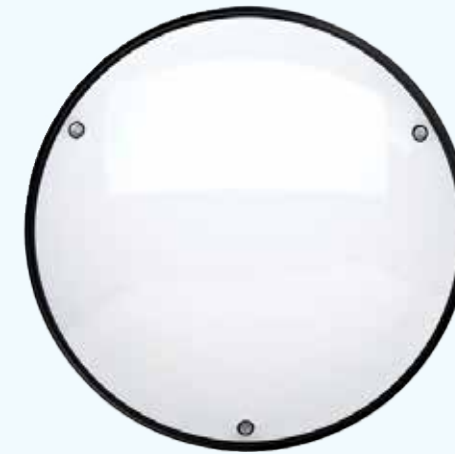
VEKTA  
Extreme

ECLATEC  
Team Bollard

MEGABAY  
Viento

## SECURLITE - Rondino

Surface or flush mounted, the most powerful and robust of the architectural luminaires.



### Features

- Architectural luminaire, IK 10, 120-joules resistance
- Available in two sizes
- Die-cast marine-grade aluminium base
- Opal polycarbonate diffuser
- CCT 4000 K
- Stainless steel vandal-resistant screws
- Plug-in gear tray

## VEKTA EXTREME

Vekta Extreme expands high durability/tamper proof fittings into the realm of architectural luminaires with all the flexibility and performance that this implies, making it the link between indoors and outdoors as well as industrial and architectural.

### Features

- IP 66
- IK 10
- Surface, Wire, Wall and Rod mounting
- Exposed components powder coated to protect against environmental and galvanic erosion
- Overlapping external end caps provide extra protection and security
- Vandal Resistant options available



## MEGABAY - Viento

Viento is a powerful linear system, which emits uniform light. It combines exceptional quality, innovation, and technology.

### Features

- IP68
- Sleek anodised aluminium finish
- Selection of optics
- White or RGBW
- Quick installation



## SECURLITE - Duropark

A sealed strip light for public spaces.

### Features

- IP65
- IK10
- Polycarbonate gray body
- Opal polycarbonate diffuser
- Vandal-resistant locking clips







Courtesy of: pexels.com  
Credit: Michel Rothstein

# Airports Maintenance

## Keeping equipment aloft

Maintenance hangers in Airports are sizable structures used for what can at times be delicate work on electronics and other components. High CRI and lumen requirements combined with the need for high IP ratings mean that the products capable of meeting these specifications are few and far between. FOS Lighting curates a number of exclusive products that are suited to these applications. In addition, FOS also has a selection of High IP products that are ideally suited to providing lighting in workshops and similar environments where repair work is conducted in challenging environmental conditions.



ECOPOINT Highbay G3    FRENZ LIGHTING Onyx 2 Highbay    ECOPOINT Linear Highbay G2    ECOPOINT Skleros    ECOPOINT Long Bay G2    ECOPOINT Highbay G3 SOLUS    ECOPOINT Linear Highbay SOLUS

## ECLATEC - Keris 2&3

Floodlight available in two sizes: Keris 2 and Keris 3



### Features

- IP66 - pneumatic silicone gasket
- IK 09
- Polyester powder coating, any colour available
- CCT: 4000 K and 3000 K
- Bowl made in printed thermally toughened glass

## ECOPOINT - Linear High Bay G2 SOLUS™

A high output LED linear alternative with extremely good colour reproduction, perfect for wiring tracing.

### Features

- 19,400 lumens output
- L90 @ 59,000 hours
- Microlens (various)
- $R_a \geq 95$ ,  $R_g \geq 90$
- Suspended or surface mount

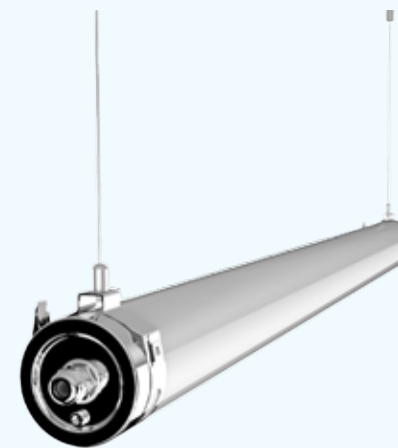


## ECOPOINT - Tri Proof Plus

This special version of Ecopoint's Tri-Proof is intended for use in environments where protection against a range of chemical agents or extra hygiene features are required. A construction of 316-grade stainless steel and PMMA provides resistance to many agents which polycarbonate is susceptible to, such as diesel, petrol, and a range of acids.

### Features

- CCT: 4000K (3000K, 5000K, 6500K opt.)
- -20 to 40° C
- PMMA or PC 'body', 316 SS brackets
- IP67 + IP69
- IK09 (PMMA) / IK10 (PC)



## ECOPOINT - Highbay G3 SOLUS™

The SOLUS High Bay G3 Full-Spectrum provides industrial level lighting of exceptional colour quality.

### Features

- Available in Suspended or Surface Mount
- $R_a$  95,  $R_g$  94 /  $R_i$  93,  $R_g$  104
- 150Watts or 200 Watts (5700K)
- L90 59,000 hrs (B10)







Courtesy of: Securlite  
Project: Maintenance Pits Paris Massena

# Railways Depots

## Keeping the wheels turning

Maintenance Depots related to Railway Networks are sizable structures used for what can at times be delicate work on electrical and other components. High lumen requirements combined with the need for high IP ratings mean that Industrial grade luminaires capable of withstanding challenging environmental factors are essential to ensure that stringent Health and Safety requirements, in addition to task lighting are met in a sustainable fashion. FOS Lighting curates a number of exclusive products that are suited to these applications. In addition, FOS also has a selection of High IP products that are ideally suited to providing lighting inside maintenance pits as well as in workshops and similar environments where repair work is conducted in challenging industrial conditions.



### SECURLITE Fila 2

A high-efficacy version of the FILA luminaire, resulting from the policy of eco-design and continuous performance improvement.

#### Features

- Sealed vandal-resistant striplight
- Two diameters: 66 mm and 98 mm
- Opal or clear diffuser for optics and louvres
- Polycarbonate body, 2 mm thick
- CCT 4000 K
- Decorative internal polyamide trims
- Polished 304L stainless steel end caps

### FREND - SMHF-LED

Surface mount or recessed option available

#### Features

- 120W, 160W or 240W
- CCT: 4000K or 5700K
- CRI: 80
- Gasketed acrylic lens providing a weather and dust proof seal
- Suitable for a variety of application environments (ambient temperature rating of 50°C)



### SECURLITE - Aleane

Extra-low profile vandal-resistant and rip-out-resistant architectural luminaire.

#### Features

- Base in 1 mm thick anticorrosion-treated steel with polyester powder-coated finish
- Cover in 1.5 mm thick anticorrosion-treated steel with polyester powder-coated finish
- Polycarbonate diffuser 3 mm opal
- Symmetrical or asymmetrical reflector
- Anti-vibration pads under the tubes
- Protected cable entries
- CCT: 4000 K
- Stainless steel vandal-resistant screws



### ECOPOINT - Highbay G3

Cost effective Highbay with many of the features of more pricey options.

#### Features

- Smart plug & play system for build-in low voltage sensor (microwave motion sensor or PIR sensor) and a remote controller
- 100W, 150W and 200W versions
- Choice of 90° and 110° optics
- IP 65
- IK 08
- L80 > 125,000 hrs (B10)







Courtesy of: Ecopoint  
Project: Penske Trucking Christchurch

# Truck Bays

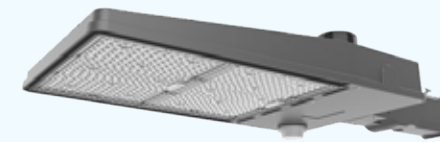
## Maintenance and Service

Maintenance Depots related to Trucking are large structures used for what can at times be delicate work on electronic and other components. High lumen requirements combined with the need for high IP ratings mean that Industrial grade luminaires capable of withstanding challenging environmental factors are essential to ensure that stringent Health and Safety requirements are met. In addition, task lighting, some of which will be in pits giving access to the undercarriage of trucks and trailers must be met in a sustainable fashion.

FOS Lighting curates a number of exclusive products that are suited to these applications. In addition, FOS also has a selection of High IP products that are ideally suited to providing lighting inside maintenance pits as well as in workshops and similar environments where repair work is conducted in challenging industrial conditions.

### ECOPOINT - Area Light G2

Lighting large areas economically is comfortably within reach when using the Area Light G2.



#### Features

- IK08 (Pending)
- IP66
- 7 Wattage options
- Up to 41,900 lumens
- Pole or surface Mounted
- CCT options include 3000K, 4000K, 5000K, 6000K

### ECOPOINT - Linear High Bay G2

A high output LED linear alternative available in a range of power outputs and optics. High quality construction using a lightweight aluminium chassis with an advanced proprietary driver and Lumileds LED packages, the design offers very effective thermal management and performance characteristics.

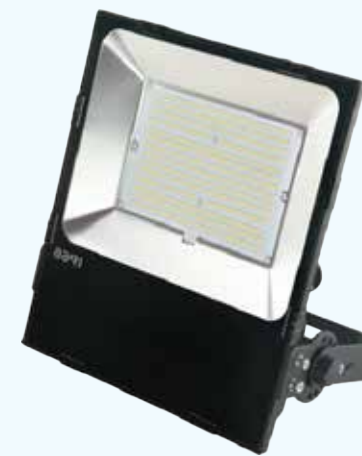
#### Features

- 10,100 to 38,500 lumens output with associated power varying between 80 and 300 Watts
- L80 @ 125,000 hours (B10)
- Microlens (various)
- Operating Temperatures -30° to +50° C
- Suspended or surface mount



### FREND LIGHTING - KAI 2

Adjustable floodlight with die cast aluminium body.



#### Features

- Aluminium reflector
- 110° beam angle
- Adjustable 90° angle of support
- Tempered glass

### FREND LIGHTING - Onyx 2

Multi Watt selectable "UFO" style High Bay luminaire.

#### Features

- CCT: 4000K and 5000K
- 110° Beam Angle
- 1-10V Dimmable





# FOS Projects

## Australia

- ALBANY CREEK SHS
- ALDERLEY STATION
- ALICE SPRINGS AIRPORT
- BOEING WAREHOUSE
- BP SERVICE STATIONS (VARIOUS)
- BRISBANE AIRPORT
- BRISBANE FERRY TERMINALS
- BWPL WALKWAY SOUTHPORT PARKLANDS
- COMM GAMES CIVIC PARK
- CRR CROSS RIVER RAIL
- DARRA STATION
- DEPT OF DEFENCE - DAMASCUS BLDG
- DINMORE STATION
- DOMAIN METRO STATION
- EMERALD AIRPORT
- FLAGSTAFF STATION
- GCCC CHEVRON ISLAND EAST
- GEEBUNG STATION
- GOLD COAST AIRPORT
- HELENSVALE RAIL
- HMAS STIRLING
- IPSWICH RAILWAY STATION
- KEDRON BROOK BRIDGE
- MARIBYRNONG RIVER BRIDGE
- MELBOURNE AIRPORT VIRGIN TERMINAL (MELBOURNE)
- MTMS MASCOT
- NAMBOUR STATION
- NERANG STATION
- NERANGBA STATION
- NEWMARKET STATION
- NEXT DC CARPARK
- NOLAN MEATS CARPARK
- NORTHSIDE HAMILTON FERRY TERMINAL (BRISBANE)
- OXLEY STATION
- PARKVILLE METRO STATION
- PEMBROKE CARPARK
- PERTH AIROPORT
- QLD CHILDRENS HOSPITAL WALKWAY
- QLD RAIL IPSWICH WORKSHOP
- REYNELLA BUS INTERCHANGE
- ROBINA TRAIN STATION
- ROMA STREET PARKLANDS
- SOUTHBANK STATION
- SUNSHINE COAST AIRPORT
- SUNSHINE COVE SOUTHERN BRIDGE
- TENERIFFE FERRY TERMINAL
- TORRENS BOARDWALK SOUTH AUSTRALIA
- VARSITY LAKES PLATFORM
- WACOL TRAINING AND DEVELOPMENT CENTRE CARPARK
- WATERLOO STATION
- WEST END FERRY TERMINAL (BRISBANE)
- WESTCONNEX - ICL
- WESTCONNEX ROZELLE
- WESTERN SYDNEY AIRPORT - CARPARK

## New Zealand

- CMDHB MANUKAU SUPER CLINIC
- KIWIRAIL PEDESTAL BAY ADDINGTON
- KIWIRAIL INVERCARGILL DEPOT
- KIWIRAIL INTERISLANDER TERMINAL
- KIWIRAIL MIDDLETON DEPOT
- KIWIRAIL MOUNT MAUNGANUI PEDESTAL BAY
- KIWIRAIL MAINTENACE DEPOT WELLINGTON
- KIWIRAIL ROLLESTON
- KIWIRAIL TE RAPA
- NZ POST AUCKLAND OPERATIONS CENTRE
- PENSKE TRUCKS CANTERBURY
- TOLL MATIPO ST
- TOLL DUNEDIN
- PAK 'N SAVE LOWER HUTT PARKING
- WATERLOO BUS PARKING
- WHENUAPAI AIRBASE CMDHB MANUKAU SUPER CLINIC







FOS  
lighting

info@foslighting.com.au  
foslighting.com.au  
1300 241 087

FOS Lighting reserves the right to make any changes without prior notification