Alan Tulla Lighting
12 Minden Way
Winchester
SO22 4DS

T +44 (0) 1962 855720
M +44 (0) 771 364 8786
alan@alantullalighting.com
www.alantullalighting.com

Client
Prestige Distribution Ltd

Design report
Exterior lighting design at Bridge Farm Barn, Coolham

Rev

Date 28 May 2025

Background

Appleton Town Planning are handling the retrospective planning application for the redevelopment of an existing haulage yard on a small industrial estate just north of the village of Coolham, West Sussex.

This redevelopment included the expansion of the yard area including parking for distribution vehicles and HGVs.

The development was approved by Horsham DC but one of the approval Conditions was that the lighting scheme should comply with the ILP guidance on Obtrusive Light, GN01, for an E1 Environmental Zone.

Unfortunately, the light distribution data for the existing floodlights was not available and so conformance could not be demonstrated. Photos from site would indicate that they would have been unlikely to conform even if the photometric data were available.

For this reason, Alan Tulla Lighting has been asked to design a compliant scheme which meets HDC's requirements.

Alan Tulla, FSLL, FILP, is a Fellow and Past President of the Society of Light and Lighting and has been awarded the CIBSE/SLL Lighting Diploma. He is also a Fellow of the Institution of Lighting Professionals, ILP and lectures for them on the topic of exterior and amenity lighting. He is author of the Society of Light and Lighting "Guide to the Exterior Environment", LG06.

Executive summary

There is no light emitted upwards.

The floodlights are International Dark sky Association, IDA, accredited.

The LEDS are a Warm 2700K which is the “colour of white light” recommended by the Bat Conservation Trust and environmentalists.

This proposed scheme, therefore, will have less of an impact on the rural environment than the existing scheme especially in regard to upward light.

Calculations and visual impact

To minimise changes to the appearance and disturbance, we have used floodlights in the existing locations and at the same mounting height. However, we have had to add one more floodlight in order to achieve the lighting uniformity required to meet H&S safety standards such as BS EN 12464-2.

The seven existing 100W floodlights have been replaced by eight 60W units which emit no upward light. The three 10W floodlights on the north elevation have been replaced by 13W "wall-pack" type units.

The lighting has been designed to meet the requirements of the ILP guidance on obtrusive light, GN01. This recommends that for an AONB, an E1 Environmental Zone, there should be zero light emitted directly upwards.

A description of the various environmental zones is shown below.

Zone	Surrounding	Lighting environment	Examples
E0	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1	Natural	Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2	Rural	Low district brightness (SQM ~15 to 20)	Sparsely inhabited rural areas, village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4	Urban	High district brightness	Town / City centres with high levels of night-time activity

Table taken from ILP Guidance Note, GN01/2021

Judging from site photographs, it appears that the existing 100W floodlights (mounted at 4.7m above ground) emit a considerable amount of light upwards towards the sky and does not conform to an E1 Environmental Zone.

The proposed design for the west and south elevations, uses "flat glass" 60W floodlights, Kingfisher Viva-City which emit zero upward light. The peak intensity emitted by the floodlight is projected forwards at 70 degrees but emits none above the horizontal. They use 2700K LEDs as recommended by the Bat Conservation Trust.

On the north elevation, the three 10W floodlights (mounted 3.2m above ground) have been replaced three 13W bulkhead units, Kingfisher Semita Arc.

All luminaires are Dark Sky approved.

Illustrations of the equipment are shown below.

Calculated results

As well as conformance to the ILP guidance on Obtrusive Light, we have designed the functional areas to the outdoor workplace standard EN 12464-2 and BS5489.

Note that in order to conform to Dark Sky and Bat Conservation Trust recommendations we have used Warm White 2700K.
From our experience with other industrial/storage sites, this likely to be visibly different in "colour" from the other much Cooler (maybe 4000K or 5000K) lighting on the site.

We have included the range of lux levels as low as 0.2 lux as recommended by the Bat Conservation Trust. As a comparison, the illumination from a full moon is generally taken to be 0.5 – 1.0 lux.

Entrance and parking area

Here, the assumption is made that vehicles entering will have their headlights on since the Coolham Road is unlit. For this reason, lighting is only required for the car parking spaces.

For Medium traffic use, BS 5489 recommends an average of 10 lux with 25% uniformity. We have used compact "Wall-pack" 13W type unit to achieve 16 lux and 35% uniformity.

Loading, turning and HGV parking area.

This area on the west and south has much more stringent lighting requirements. It is expected that HGVs will be turning and possibly reversing. There is also the possibility that staff on foot will also be using the area after dark. Here, EN 12464-2 recommends 50 lux and 40% uniformity.

We have used the existing mounting positions but we have had to add an additional floodlight on the SW corner to achieve the required uniformity.

The proposed floodlight is the 60W Viva-City mounted with a "flat glass" so that no light is emitted upwards.

Consideration should be given to dimming the floodlights, using a DALI system to approximately 10 lux when not in use. I.e. the same level as the car parking.

Equipment from other suppliers may give equally acceptable lighting results but this would have to demonstrated, by calculation, to show compliance with the ILP recommendations.

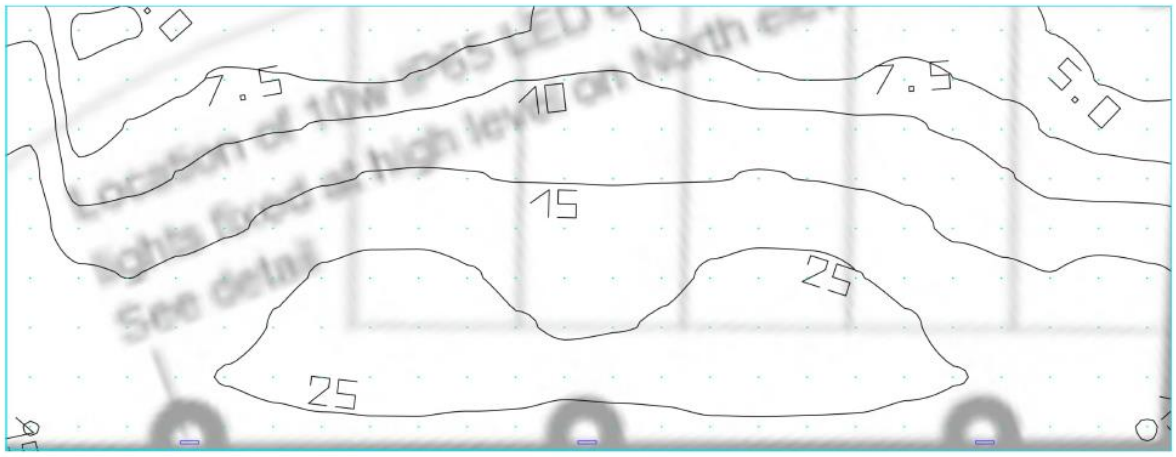
Calculations

Overall calculation area

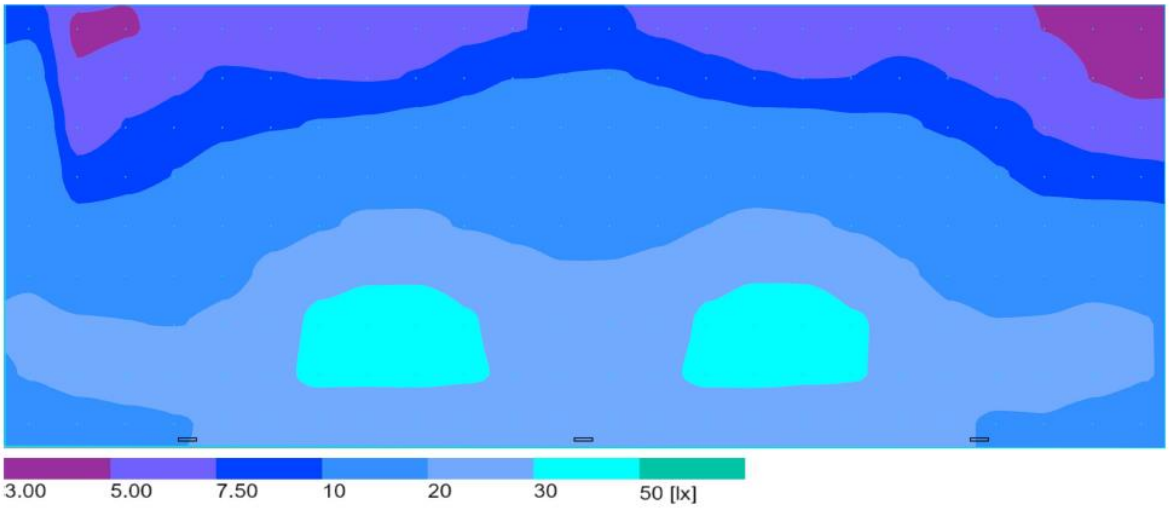


Red units are 60W Viva-City floodlights, yellow are 13W “wall-pack” type units. Details are shown below.

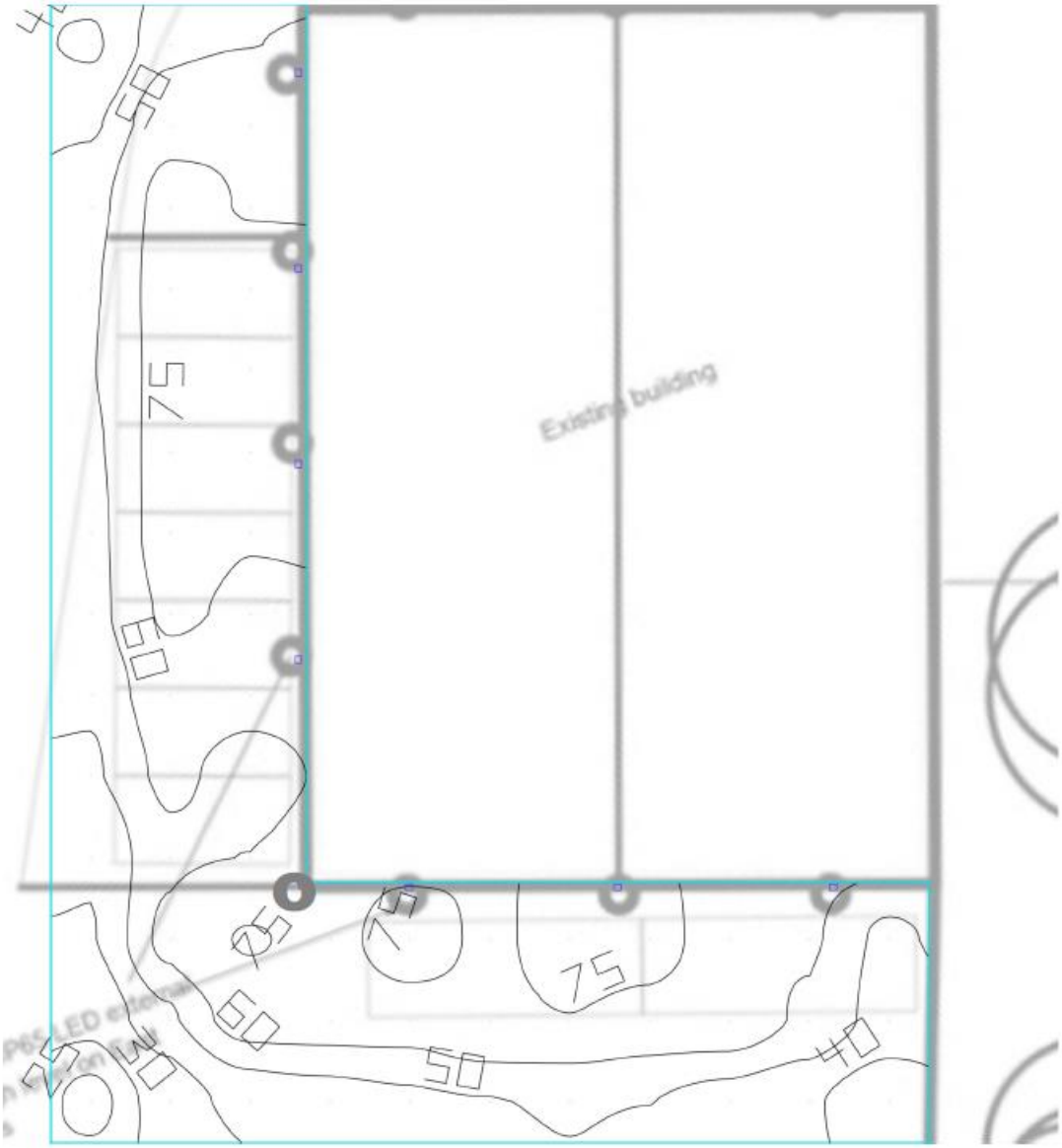
Entrance and car parking area



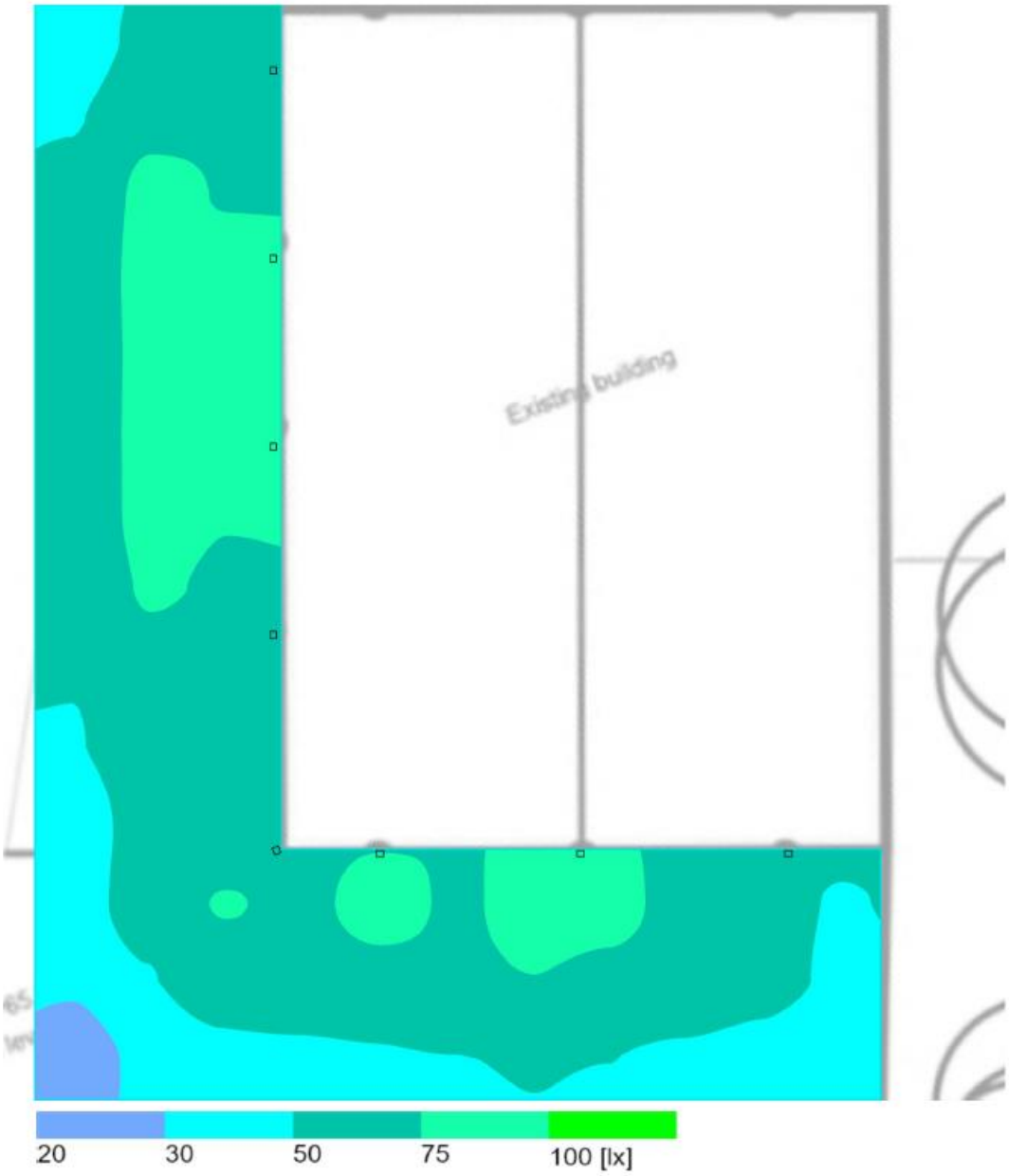
The three wall-pack units, mounted at a height of 3.2m, are at the bottom of the drawing. The five car parking bays can be seen in the upper half of the drawing. This calculation area measures approximately 17m x 6.5m. Coolham Road is to the right.



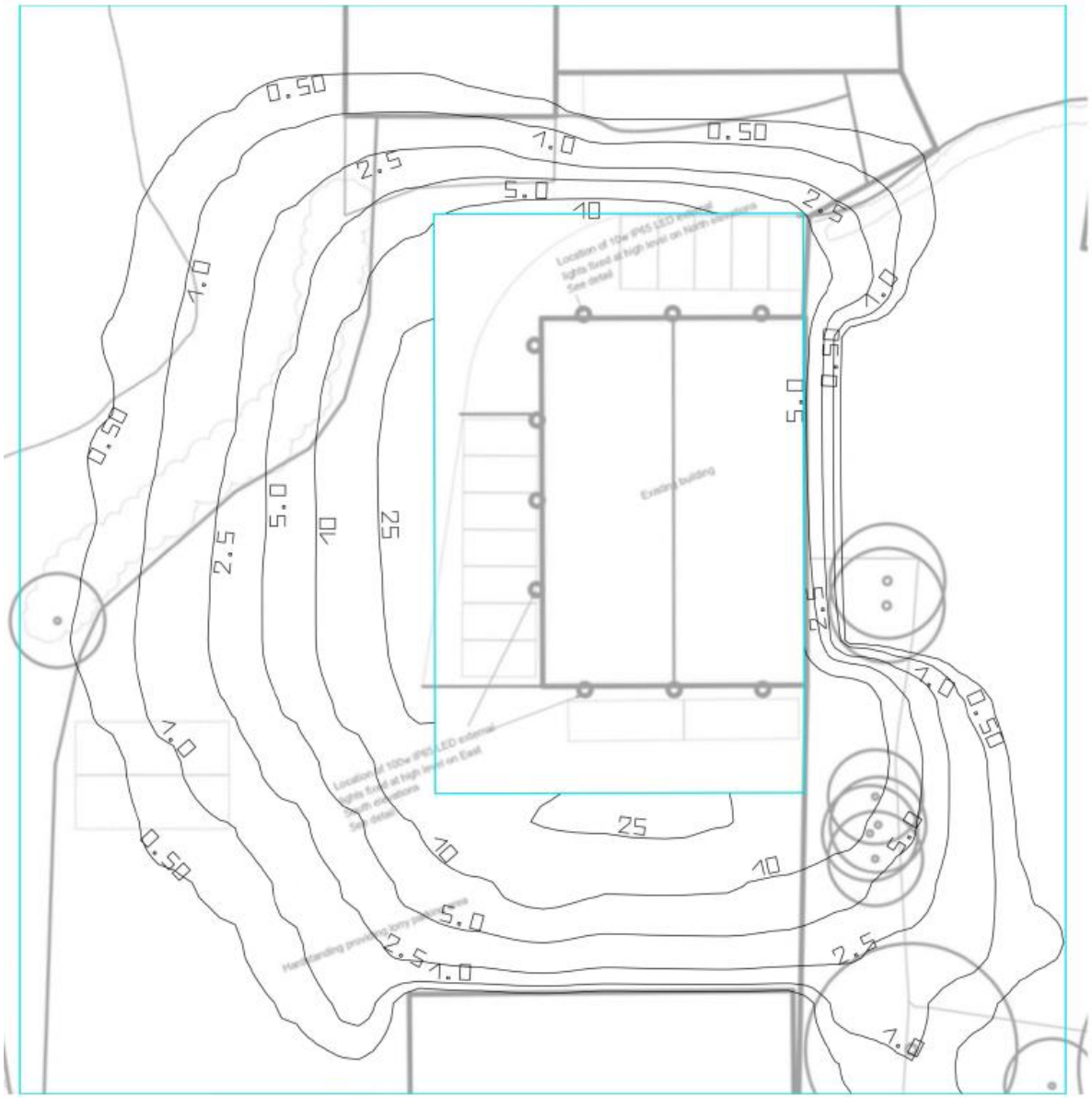
Loading, turning and HGV parking area.



This calculation area extends 7m from the building on both the west and south sides. It achieves an average of 61 lux and a uniformity >40% in all the critical areas. This calculation does not include for any existing lighting from other properties on site.


Existing building
20
30
50
75
100 [lx]

Spill light



These values do not take in to account other lighting that is on site.

Products used

Kingfisher Lighting
Part of the LUCECO group of companies
Datasheet



VIVA-CITY Flood

Specification Text

The VIVA-CITY Flood shall be manufactured from die-cast aluminium and powder coated in RAL 7016 Anthracite Grey Marine Grade Finish. It shall have a power output ranging between 60 - 120W, with an efficacy from 107 - 140lm/W. It shall deliver 6,440 - 16,780 luminaire lumens. It shall have a fully programmable DALI driver. The VIVA-CITY Flood shall have specialised optics to suit pathway, road or open area applications. Available in 2700K or 4000K, the luminaire shall be IK08 and IP66 rated with photocell options available.

For DarkSky Specifications, the luminaire shall produce a CCT of 2700K.

Specification

Weight:	7.5 - 8.08 kg
Windage:	0.03 m^2
Material:	Die-cast Aluminium
Paint Finish:	RAL7016 Anthracite Grey
Embodied Carbon:	96 - 130 kg CO^2e

Product Description

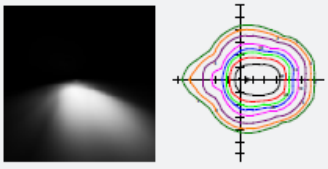
The VIVA-CITY Flood is a sleek, high performance flood light with 0% ULOR with a variety of low glare distributions available.

Kingfisher Lighting
Part of the LUCECO group of companies

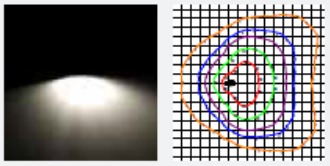
Key Features

- 60.0W - 120.0W
- 6,440 - 16,780 Luminaire Lumens
- Efficacy up to 140.0 lm/W
- 2700K, 4000K, CRI>70
- IP66, IK09
- Lifetime > 100,000hr, L80
- Part Night Dimming
- Photocell Option
- DarkSky Approved

Optics



Flood Optic 50°



Forward Throw Optic 70°

This 60W, 6,440 lm, floodlight has Warm 2700K LEDs and uses the 70 degree optic. The floodlight is fully dimmable using DALI.

Kingfisher Lighting

Part of the Luceco group of companies

Datasheet



SEMITA Arc

Specification Text

The SEMITA Arc shall be manufactured from high pressure die-cast aluminium and powder coated with a RAL 7016 Anthracite Grey marine grade finish. It shall have a power output ranging between 7.5 - 13.2W, with an efficacy from 87 - 122lm/W. It shall deliver 649 - 1,615 luminaire lumens. The SEMITA Arc has a range of different optics to suit narrow, medium and wide paths with a fully programmable DALI driver. Available in 2700K and 4000K, the luminaire shall be IK09 and IP66 rated with 3 hour integral emergency back-up and self-test options available.

For DarkSky Specifications, the luminaire shall produce a CCT of 2700K.

Specification

Weight:	3.4 kg
Material:	Die-cast Aluminium
Paint Finish:	RAL7016 Anthracite Grey
Embodied Carbon:	58 kg CO^2e

Product Description

Stylish yet functional, SEMITA Arc is the unique wall pack joining the SEMITA series.

Kingfisher Lighting

Part of the Luceco group of companies

Key Features

- 7.5W - 13.2W
- 649 - 1,615 Luminaire Lumens
- Efficacy up to 122.0 lm/W
- 2700K, 4000K, CRI>70
- IP66, IK09
- Lifetime > 100,000hr L80
- Toolless Entry
- 3 Hour Integral Emergency
- DALI Driver
- DarkSky Approved

13W, 1,286 lm, 2700K.

Glossary of Lighting Terms

Illuminance: this is the SI term for what is normally referred to as Illumination level. It is measured in lux. It refers to the light falling on a surface. Normally this is a horizontal plane such as the ground or desktop. It can also refer to vertical surfaces such as windows and building facades. Illuminance is measured in lux.

Lumen: is the SI term for luminous flux or quantity of light. A typical 60w tungsten filament lamp emits 700 lumens; a 1.5m fluorescent lamp emits around 5,500 lm.

Lux: is defined as an illuminance of 1 lumen/m^2. A typical tennis court would measure 300 - 500 lux, a major traffic route 20 – 30 lux, a residential road 3 – 10 lux. Note that lux is normally taken to be the horizontal value but the vertical value is often relevant. E.g. vertical illuminance is important in recognising faces or light intrusion on windows.

Luminance: It is a measure of objective brightness and is a function of how much light is reflected off a surface. There are many factors involved but the major one is the reflectance of the surface. For a given level of illuminance, dark surfaces have lower luminance than light coloured surfaces. Its importance is that it is the metric used for classifying traffic routes, signs and advertising hoardings.

Luminaire: is the term for what is usually referred to as a light fitting. A fixture or lantern are other commonly used terms. These terms are used to distinguish them from the light source or lamp.