

HOARE LEA LIGHTING

Queens Walk Courtyard – Reading

Lighting Design

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Lighting Design Concept

Audit Sheet

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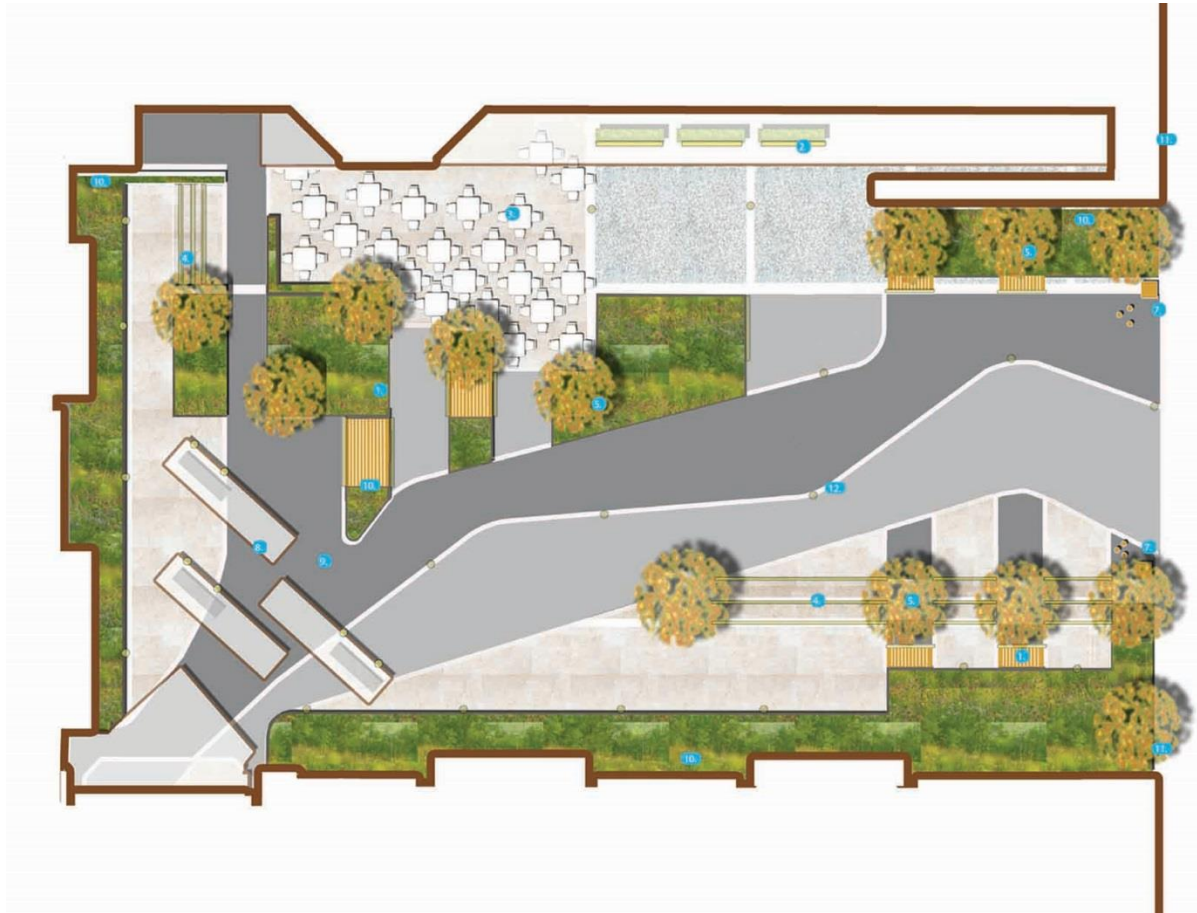
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I.0 Introduction



Document Aim

The purpose of this lighting design report is to demonstrate the lighting design concepts for the Queens Walk Courtyard – Reading and to allow the lighting design analysis to be undertaken.

Within this document areas will be assessed and given levels of illumination in accordance with their 'importance' and their relevant lighting guidance's. This will prevent the site from becoming 'uniformly' floodlit, thus allowing the exterior of the site to have a more 'intimate' feel. The amount of illumination from the buildings (interior lighting) cannot be assessed accurately but should not be underestimated.

2.0 Lighting Principles

2.1 Lighting Principles



Milton Keynes

Exterior Lighting

The social uses of our city centres has developed dramatically over the last few decades. With the extension of the night-time economy and the 24 hour city urban centres have been transformed into vibrant living and leisure spaces after dark. Large areas of towns and cities have been pedestrianised and traditional indoor activities, such as socialising, dining and entertainment, have moved partially outdoors. At the same time, lighting has become a major feature in the competition between towns and cities for both visitors and public funding – and is now a powerful tool in creating a distinctive urban identity.

Good quality lighting not only allows the appreciation of skin tones, facial expression, colours and the surrounding urban fabric it can have strong benefits for wayfinding, city micro and macro identification, public safety and building security.

Better quality lighting is also proven to encourage more pedestrians onto the streets, which in turn leads to greater 'informal surveillance' of antisocial behaviour and less opportunity for crime.

2.1 Lighting Principles



Birmingham New Street

External Lighting

The first question people ask regarding exterior lighting is “*why light at all?*”. Excluding street lighting, most unplanned exterior lighting installations appear as a decorative indulgence which consume valuable energy resources and result in potential glare and light pollution.

By contrast, good exterior lighting can play a positive role in the way people feel about their environment; it can reveal and enhance our buildings aesthetically, improve our sense of local identity, safety and civic pride and make people more willing to use the streets, squares and parks after dark. Used correctly exterior lighting can thus boost an area’s night-time use and commercial viability. For all these reasons it is generally accepted that effective, varied lighting of buildings and townscapes, both public and private, is a sound investment, that well justifies the relatively small capital and energy costs involved.

A badly-designed lighting scheme distributes light where it is not wanted, causing light pollution, while wasting energy unnecessarily and creating poor visual environments. Designed lighting solutions create better exterior schemes and give a new dimension to the urban environment at night rather than, the all too often, so called ‘functional’ lighting approach which adds little to the night scene.

2.1 Lighting Principles



Heathrow Terminal 3



Highbury Square

Visual Interaction

The purpose of landscape lighting is to create external realm spaces which are inviting and can be enjoyed at all hours. For spaces such as this, it is also important to make a environment which is visually interesting as it forms a vital interaction point for visitors to the development.

A textured approach to the lighting should be achieved with a background illuminance, for safety and interaction, balanced with illumination to key landscape features.

The texture of light pattern creates visual interest and excitement through incorporating a number of lighting elements to be interacted with on both a macro and micro level.

Lighting elements can be enjoyed in a human scale, when one moves through the environment and on a wider scale as the site is viewed from above street level or from distances.

The creation of exciting lighting environments can enhance the specification and commercial success of a space by creating a vibrant visual identity for the development within the nightscape.

2.1 Lighting Principles



GMV Village Square



Brunel University

Safety & Orientation

The amount of lighting required for obstacle avoidance and visual orientation is minimal. For example, emergency lighting standards suggest a value of between 0.5 and 1 lux for a person, in a high stress situation, to safely negotiate a safe passage. Often these low levels of illumination are provided by existing light spill and moonlight alone.

In reality the purpose of urban realm pedestrian lighting is not one of obstacle avoidance, but of human subjectivity. Research has shown that the ability to read a person's facial features in external realm environments is a key function in reducing "fear of crime".

Appropriately illuminated pedestrian areas can reduce fear of crime, which is known to encourage footfall – this in turn can increase natural and community surveillance and further deter criminal acts.

A pleasing and visually interesting exterior environment can be further enhanced by creating spaces and zones of interaction which encourage residents to utilise spaces in the evening.

2.1 Lighting Principles



Heathrow Terminal 3, Virgin Executive Drop-off

Illumination & Movement

Lighting can be used to create movement and enhance pedestrian flow without actually being kinetic.

By creating patterns of luminance within a space a rhythm can be formed which facilitates wayfinding and provides intuitive orientation.

The utilisation of illumination to create a sense of transition can be used to enhance the experience and interaction through the spaces.

2.2 Lighting Criteria



Clean Neighbourhoods and Environment Act 2005

CHAPTER 16

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PART 1

CRIME AND DISORDER

1 Crime and disorder reduction strategies

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Guidance Notes for the Reduction of Obtrusive Light QND1:2011



GUIDANCE NOTES FOR THE REDUCTION OF OBTRUSIVE LIGHT

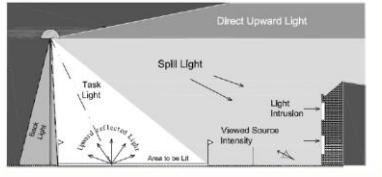
"Think before you light - The right amount of light, where wanted, when wanted."

Man's invention of artificial light has done much to safeguard and enhance our night-time environment but, if not properly controlled, **obtrusive light** (sometimes referred to as light pollution) can present serious physiological and ecological problems.

Obtrusive Light, whether it keeps you awake through a bedroom window or impedes your view of the night sky, is a form of pollution, which may also be a nuisance in law and which can be substantially reduced without detriment to the lighting task.

Sky glow, the brightening of the night sky, **Glare** the uncomfortable brightness of a light source when viewed against a darker background, and **Light Intrusion** ("Trespass"), the spilling of light beyond the boundary of the property or area being lit, are all forms of obtrusive light which may cause nuisance to others and waste money and energy. Think before you light. Is it necessary? What effect will it have on others? Will it cause a nuisance? How can you minimise the problem?

Figure 1 - Types of obtrusive light



Do not "over" light. This is a major cause of obtrusive light and is a waste of energy. There are published standards for most lighting tasks, adherence to which will help minimise upward reflected light. Organisations from which full details of these standards can be obtained are given on the last page of this leaflet.



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COMMISSION INTERNATIONALE DE L'ECLAIRAGE
INTERNATIONAL COMMISSION ON ILLUMINATION
INTERNATIONALE BELEUCHTUNGSKOMMISSION

TECHNICAL REPORT

GUIDE ON THE LIMITATION OF THE EFFECTS OF OBTRUSIVE LIGHT FROM OUTDOOR LIGHTING INSTALLATIONS

CIE 150:2003

UDC: 628.931 628.971 Descriptor: Artificial lighting Design and calculation Exterior lighting

Light "Pollution"

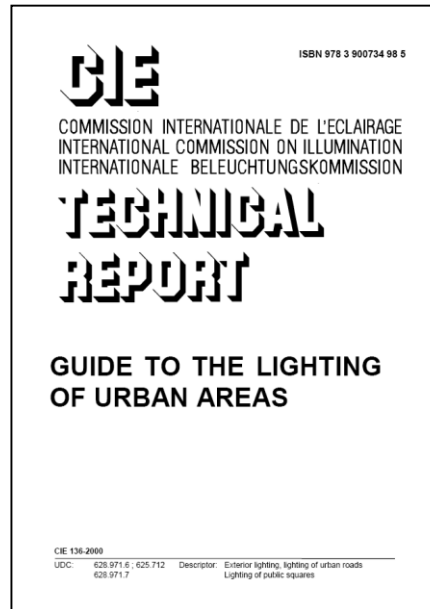
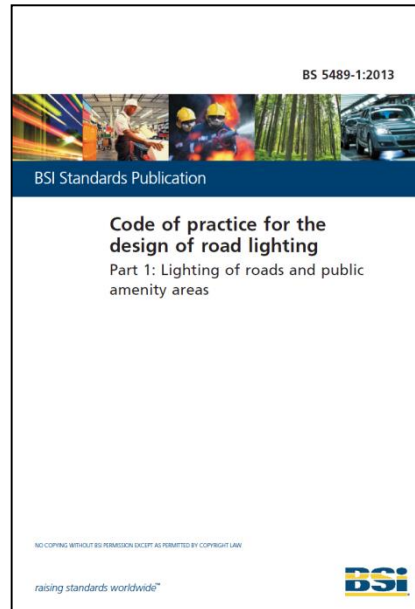
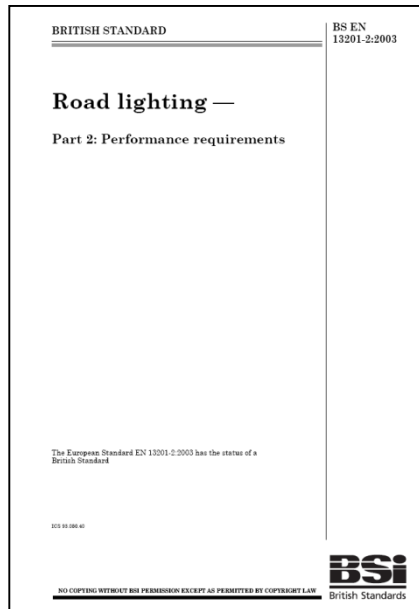
A number of documents lay down the best practice and guidance on reducing the visual and environmental impact of external lighting in relation to light pollution.

These are:

- CIE TECHNICAL REPORT - CIE 150: 2003
- ILE Guidance Notes for the Reduction of Obtrusive Light

The implementation of these standards is vital because of "The Clean Neighbourhoods and Environment Act, 2005" which makes light a statutory nuisance.

2.2 Lighting Criteria



External Realm Lighting

A number of documents lay down the best practice and guidance on providing sufficient and appropriate lighting for pedestrian passage and visual interest.

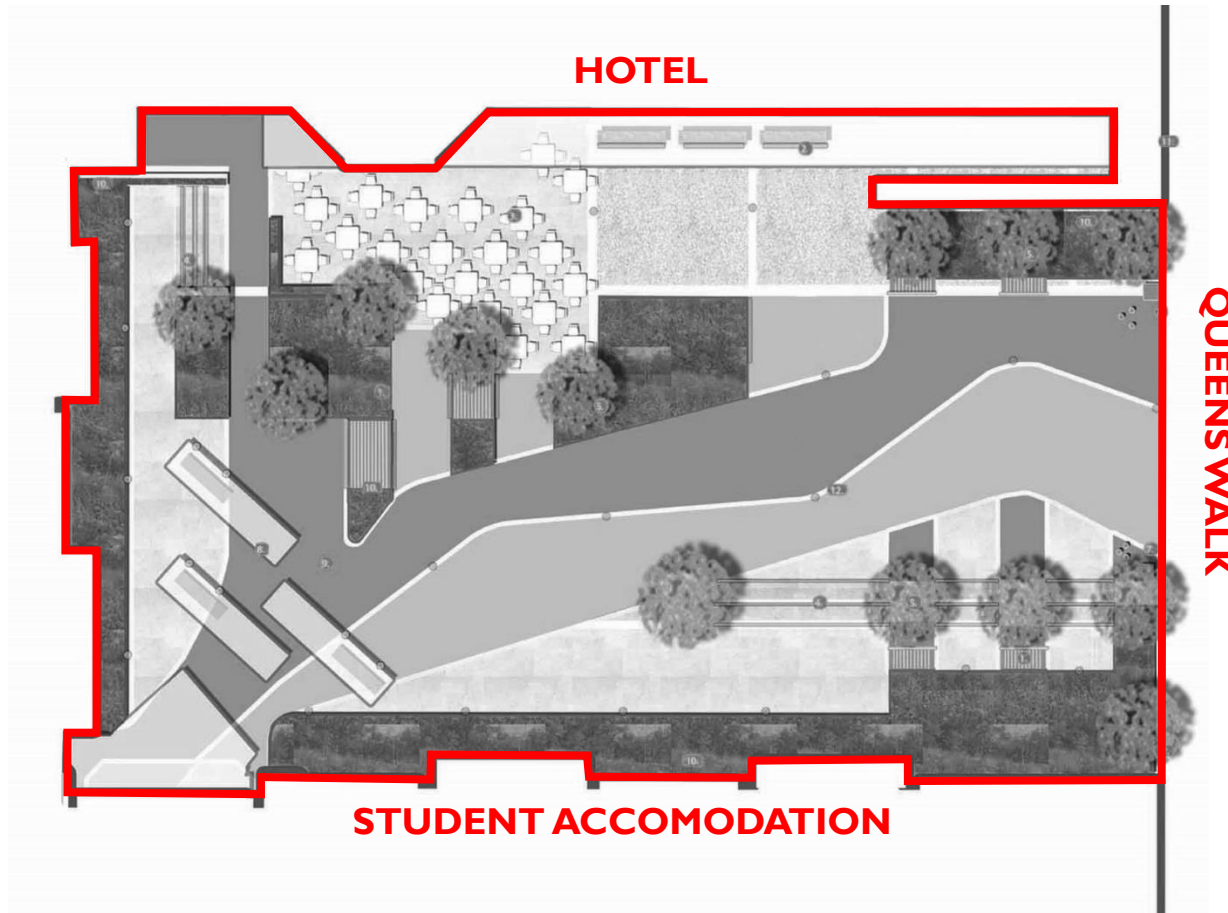
These are:

- BS5489-1:2013
- BS EN13201-2:2003
- CIE136: 2000

And if appropriate:

- CIBSE Lighting Guide 6: The Outdoor Environment 1992
- CIBSE : Lighting the Environment: A guide to good urban lighting

2.3 Scope Area



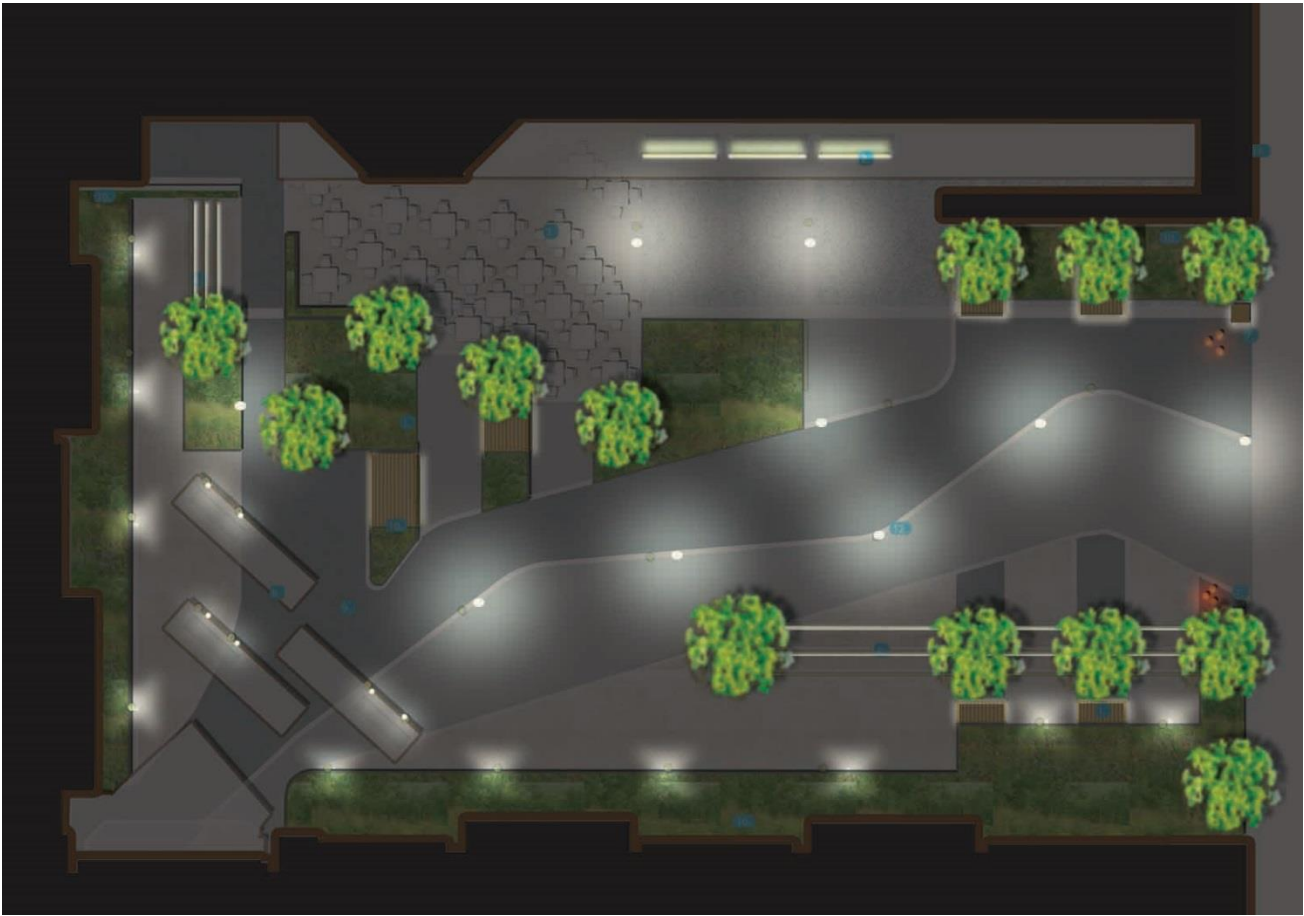
Queens Walk Courtyard

The **Queens Walk Courtyard** site connects a number of multi use buildings and as such will be a key part of the landscape.



3.0 Design Intent

3.1 Illuminance Levels



Pedestrian areas

In pedestrian areas, the lighting should promote easy movement of pedestrians, create a feeling of general security and well-being and encourage people to visit and make use of the facilities. Recognition of the behaviour and intentions of other pedestrians is important, and for this purpose good colour rendering and adequate visual recognition should be provided.

BS EN 13201-2:2003 provides a good guide for the sort of illuminance levels that could be provided in an area such as the courtyard.

The appropriate lighting class should be defined in terms of horizontal illuminance and uniformity, selected from **BS EN 13201-2:2003**, Table 3.

Indicated below is a possible illuminance level for the main pedestrian route, not necessarily the entire courtyard.

Table 3 — S-series of lighting classes

Class	Horizontal illuminance	
	$\overline{E}$ in lx ^a [minimum maintained]	$E_{\min}$ in lx [maintained]
S1	15	5
S2	10	3
S3	7,5	1,5
S4	5	1
S5	3	0,6
S6	2	0,6
S7	performance not determined	performance not determined

^a To provide for uniformity, the actual value of the maintained average illuminance may not exceed 1,5 times the minimum $\overline{E}$ value indicated for the class.

3.2 Treatments Description

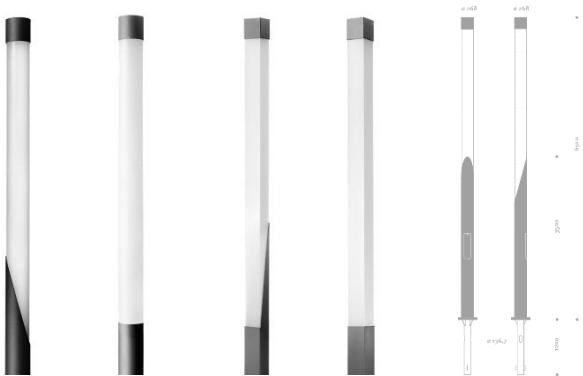


3.3 Breakdown of Treatments



Column Lighting

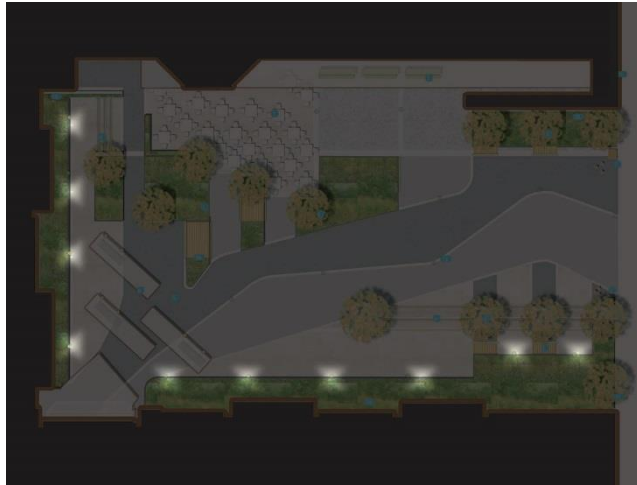
A central circulation path is created with a higher intensity of light provided by a staggered arrangement of columns.



Typical Product:

Architectural Column
Wide distribution
4000K – White
CMH - 1x70W - 5000lms

3.3 Breakdown of Treatments



Bollards

Perimeter lighting provided by bollards assist the boundary notion whilst providing lighting both to the perimeter circulation area and feature landscape.



Typical Product:

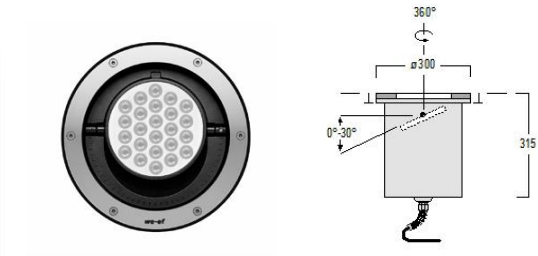
Architectural Bollard
360° distribution
4000K – White
CMH 35W 3400lm

3.3 Breakdown of Treatments



Plant Grazers

In ground wall grazing luminaires will pick up green climbers and structure.



Typical Product:

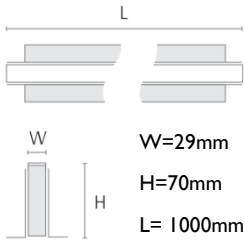
Recessed adjustable uplight
Wide distribution
4000K – White
24W LED - 2832lm

3.3 Breakdown of Treatments



Step Lighting

Integral lighting to steps recessed into tread or raiser to assist circulation on stairs and to highlight them as architectural features.



Typical Product:

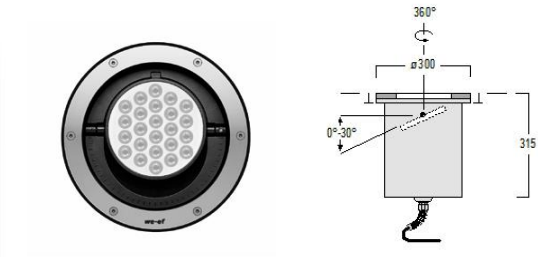
Recessed linear extrusion
Marker light
4000K – White
4.8W LED- 225lm – per metre

3.3 Breakdown of Treatments



Tree Uplight

Feature up-lighting to trees creates drama and brings intimacy to the space.



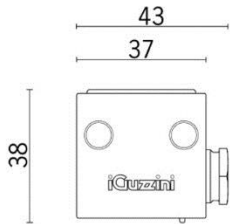
Typical Product:

Recessed adjustable uplight
Wide distribution
4000K – White
24W LED - 2832lm

3.3 Breakdown of Treatments



Bench Lighting
Feature skirting lighting to benches.



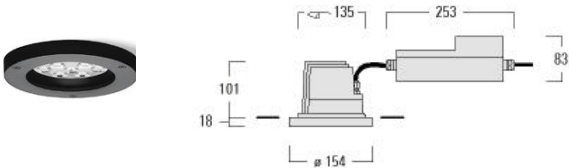
Typical Product:
Surface mounted linear LED
Wide distribution
4000K – White
13W LED- 1200lm – per metre

3.3 Breakdown of Treatments



Seating Under Canopy

Narrow or medium downlights integrated to canopy structure creates a focal point of such a distinctive landscape feature.



Typical Product:

Recessed exterior downlight
Narrow / medium distribution
4000K – White
30W LED - 1872lm

3.3 Breakdown of Treatments



Feature Elements (Bespoke Lighting)

Integral lighting to feature artistic elements, to be determined by artist as part of the budget allowance for art.



3.4 Overview





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