HOARE LEA LIGHTING

81 Chancery Lane

Stage D Design Document

DOC-16002121-130724-CHANCERY LANE-STAGE E-P5

November 2014

STAGE E DESIGN DOCUMENT

Audit Sheet

Rev.	Description	Prepared and checked by	Reviewed by	Date by
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P1	Stage D design development	CF	DDM	28.06.2013
P	Stage E design document	MSC	DDM	23.07.2013
P1	Stage E design document revised	MSC	DDM	24.07.2013
P2	Stage E design document revised	MSC	CF	26.07.2013
P3	Renders revised	CF	JR	30.07.2013
P4	Heritage facade lighting removed	EB	CF	17.10.2014
P5	New pedestrian link lighting arrangement revised	CF	DDM	18.11.2014

Contents

1.0 Introduction

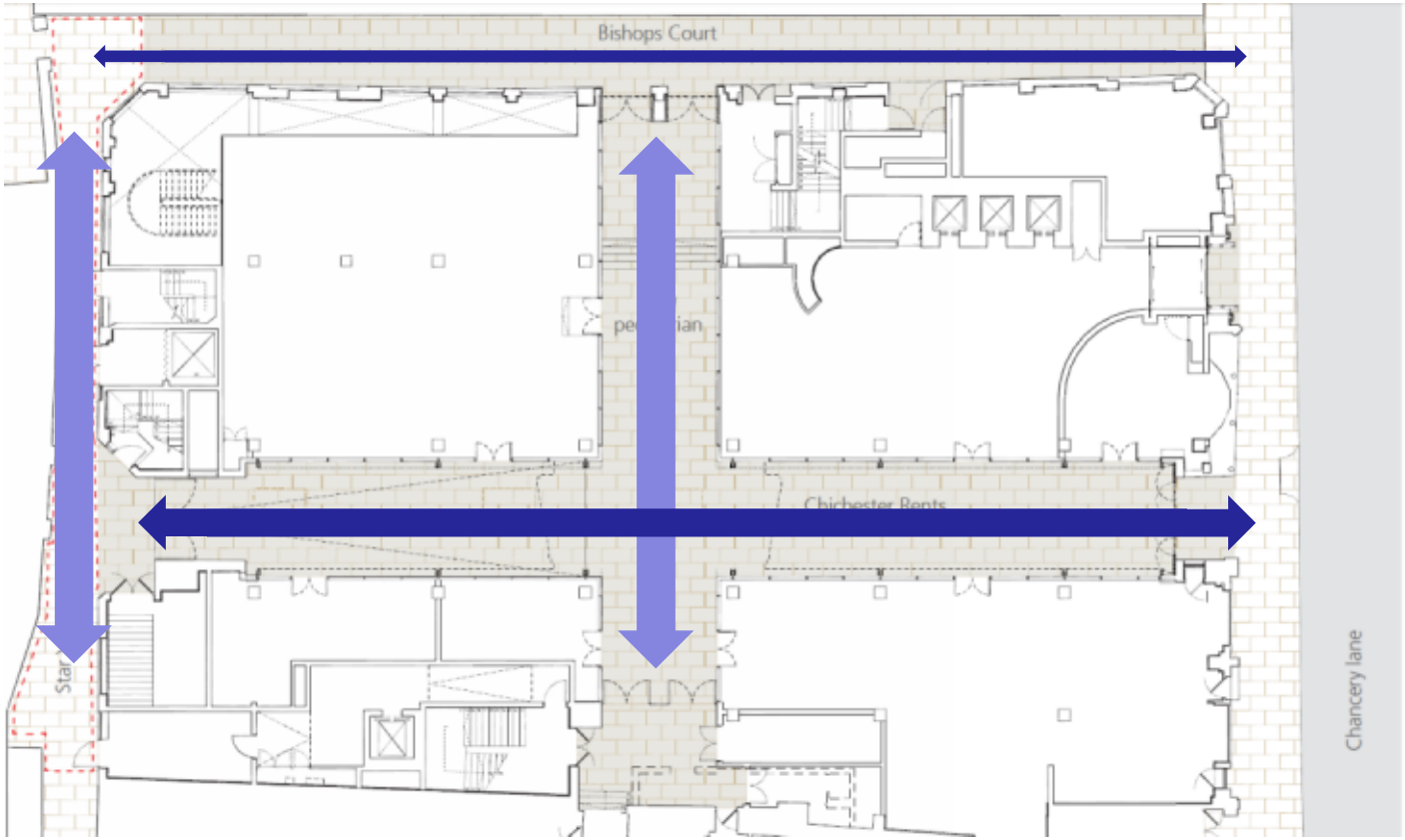
1.1 Introduction

Executive Summary

The purpose of this stage D lighting design report is to demonstrate key lighting proposals for 81 Chancery Lane facades, ambient and feature lighting to circulation spaces.

The document will discuss proposals to each zone, demonstrating typical product and typical locations, with visual intent, also providing supplementary design information.

1.2 Introduction – Design Intent

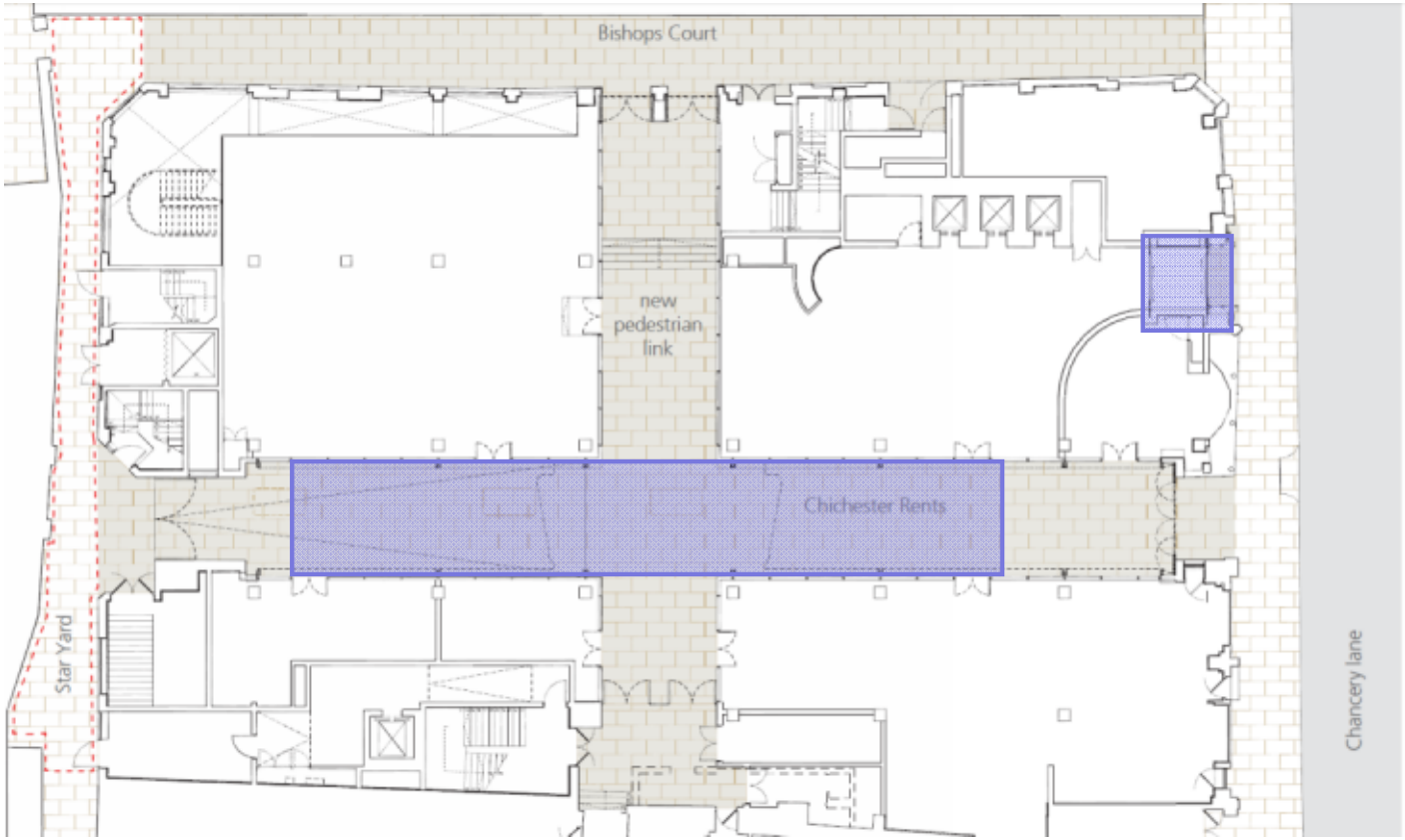


Circulation

The works involved intend to make Chichester Rents a primary local destination, rather than a secondary or 'cut-through'. It is in intended the lighting design will help draw footfall through Chichester Rents between Chancery Lane and New Square Chambers, Bishops Court and Star Yard.

The lighting design will aim achieve this through the creation visual interest as well as a visual hierarch, aiding phototropic wayfinding.

1.2 Introduction – Design Intent



Structural Lighting

This document will make lighting proposals to:

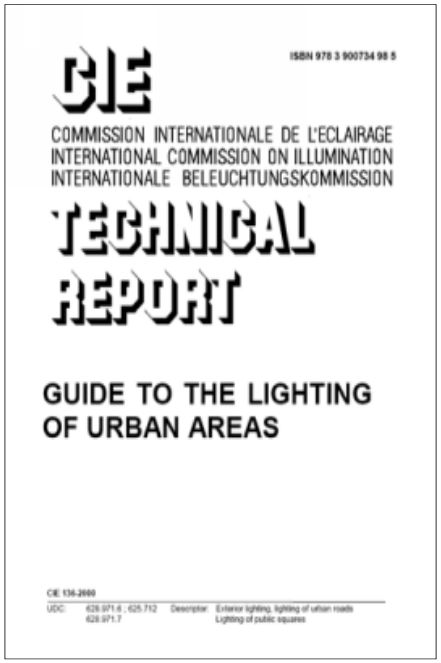
1 The Jewel linking feature across Chichester Rents
2 The office entrance façade space

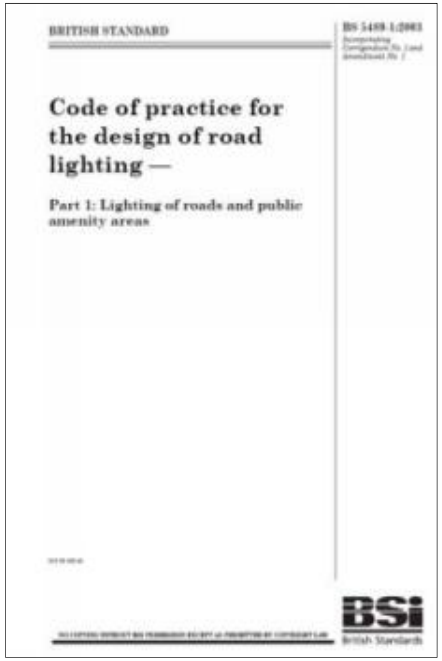
1.2 Introduction – Design Intent

Public Realm Lighting Hierarchy

A lighting hierarchy will be established throughout the space by varying lighting illuminance and visual brightness, with Chichester Rents being the peak draw for interest and phototropic wayfinding.

- Primary : Chichester Rents
- Secondary : New Pedestrian Link
- Tertiary : Bishop's Court & Star Yard





External Realm Lighting Criteria

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:

- BS5489-1:2003
- BS EN 12464-2-2007
- CIE136: 2000
- CIE TECHNICAL REPORT - CIE 150: 2003
- ILE Guidance Notes for the Reduction of Obtrusive Light

And if appropriate:

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

Table 5.1 — General circulation areas at outdoor work places

Ref. no.	Type of area, task or activity	$\bar{E}_m$ lx	U_o –	GR_L –	R_a –	Remarks
5.1.1	Walkways exclusively for pedestrians	5	0,25	50	20	
5.1.2	Traffic areas for slowly moving vehicles (max. 10 km/h), e.g. bicycles, trucks and excavators	10	0,40	50	20	
5.1.3	Regular vehicle traffic (max. 40 km/h)	20	0,40	45	20	At shipyards and in docks, GR_L may be 50
5.1.4	Pedestrian passages, vehicle turning, loading and unloading points	50	0,40	50	20	

Projected lighting criteria subject to council stipulation, design changes and design intent.

4.1 Shopping precincts and pedestrian areas

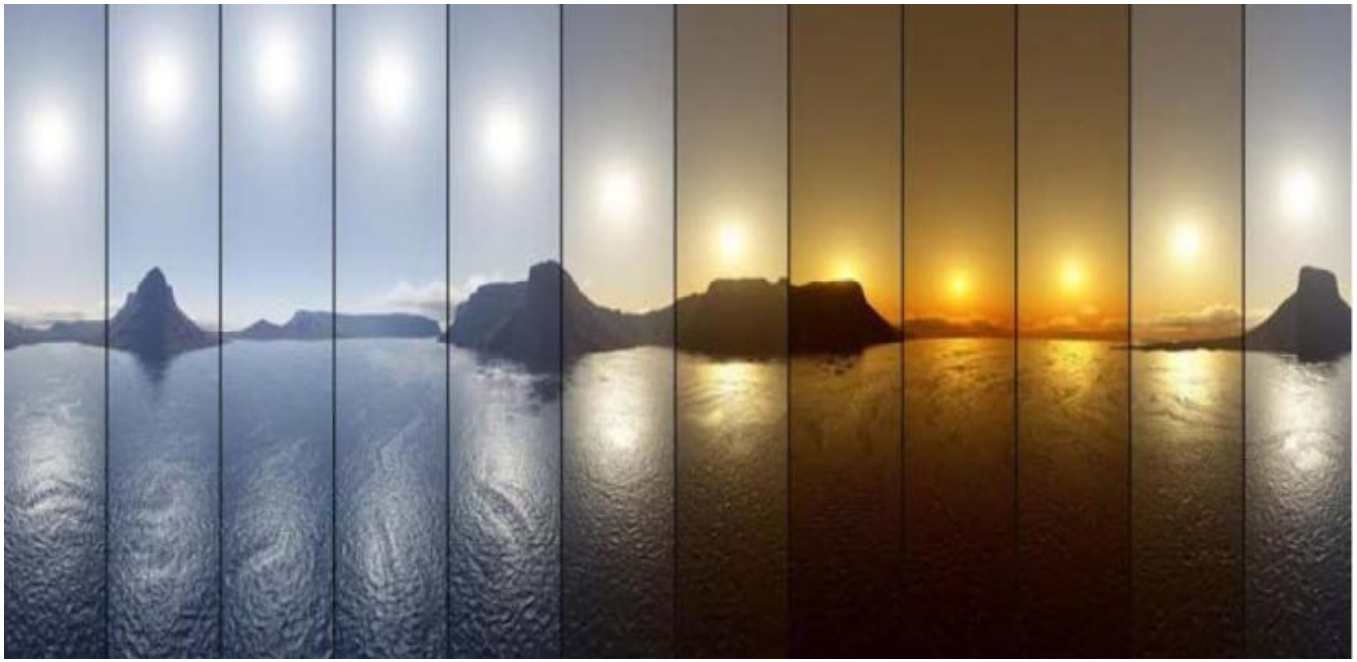
Area, location, or task	Maintained illuminance (lux)	Notes
Open pavement	20	1.5 m above ground (min/ave >0.3). Vertical illuminance 15 lux.
Covered pavements, overhangs and steps	75	Vertical 1.5 m above ground.

The table of illuminances recommends both vertical and horizontal illuminances at 1.5 m to ensure that facial expressions are easily recognised so that pedestrians feel secure.

Thoroughfares & Circulation Spaces Lighting Criteria

Thoroughfares through Chichester Rents and the new pedestrian link will be of a higher illuminance criteria, where as the surrounding passages will be of a lower lighting criteria, maintain a lighting hierarchy.

Where uniformity is concerned, there my be a drop-off in order to maintain an atmosphere, particularly among the café and boutique space of Chichester Rents.



Colour Temperature

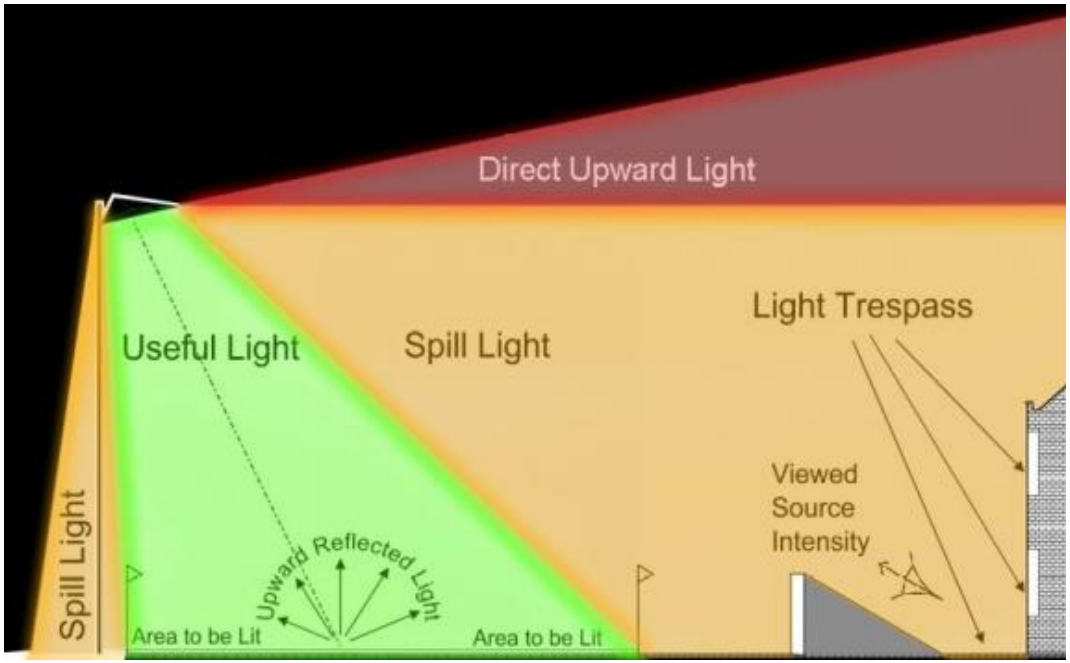
Lamp colour temperature can be used to create different moods and impressions within the space. A warm 3000K temperature would create a softer more comfortable atmosphere whilst a cooler 4200K is crisper.

Using a warmer colour temperature across the developments should create a more relaxed interactive external environment. A warmer white would also be in keeping with the surrounding environments.

Colour Rendering

One of the fundamental requirements to achieve a pleasant lit environment is to use luminaires equipped with lamps that have a good colour rendering (Ra). These lamps allow colours to be seen more naturally and can create more comfortable environment.

1.3 Introduction – Design Principals



Light Pollution Control

The general heading for the negative effects of light at night is Light Pollution but this heading actually covers four key factors. These are:

Glare: Glare occurs when the site user sees light directly from the fixture (or lamp) and contrast ratios are high.

Light Trespass/Encroachment: Poor outdoor lighting shines onto neighbourhood properties and into bedroom windows, reducing privacy and hindering sleep.

Energy Waste: Much outdoor lighting wastes energy because it is not well-designed with light not directed where it is required.

Sky Glow: A large fraction of poor lighting shines directly upwards, creating the adverse sky glow above towns and cities that washes out views of the dark night sky, taking away an important natural resource.

There is new legislation as part of the 'Clean Neighbourhoods and Environment Bill' which will covers lighting as a social nuisance, although there are many exclusions, it does start to highlight the importance of well designed external lighting as an integral part of the modern urban landscape.

2.0 Façade Illumination

2.1 Design Intents

Key Façade Illumination

There is significant value in bringing a façade lighting scheme to the key facades facing onto Chancery Lane now that the office façade and Chichester Rents are to be lit.

The facades will announce the redevelopment of the building, which at the moment will not be particularly visible until one is almost directly outside 81 Chancery Lane.

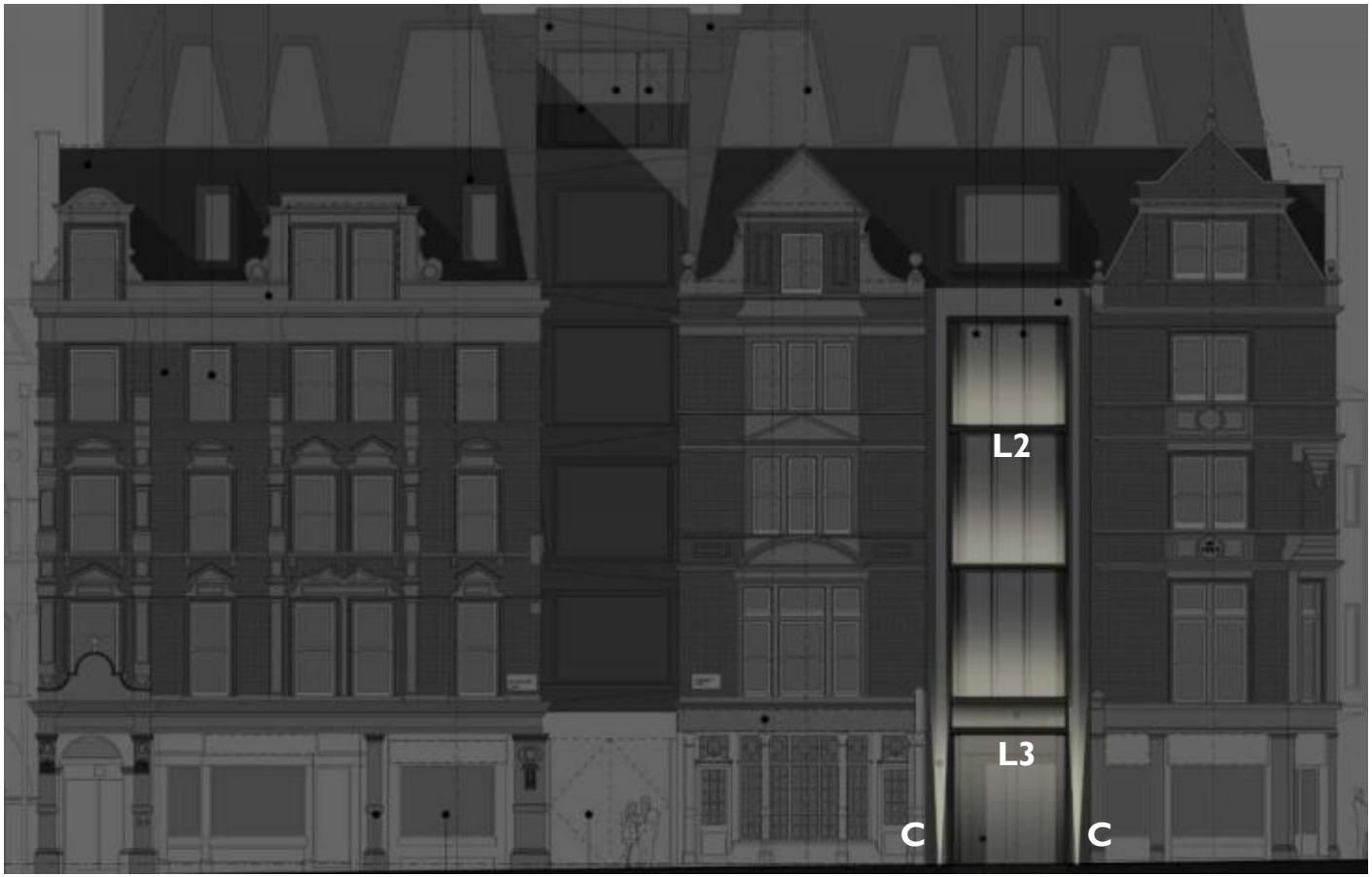
2.1 Design Intents

Key Views

This is the key view of Chichester Rents and the office façade, it is important that this view is illuminated and enhanced to attract attention to the new development and create a visual identity for the redevelopment in conjunction with the surrounding area.

2.2 Inspiration – Office Entrance Facade

2.3 Design Concept

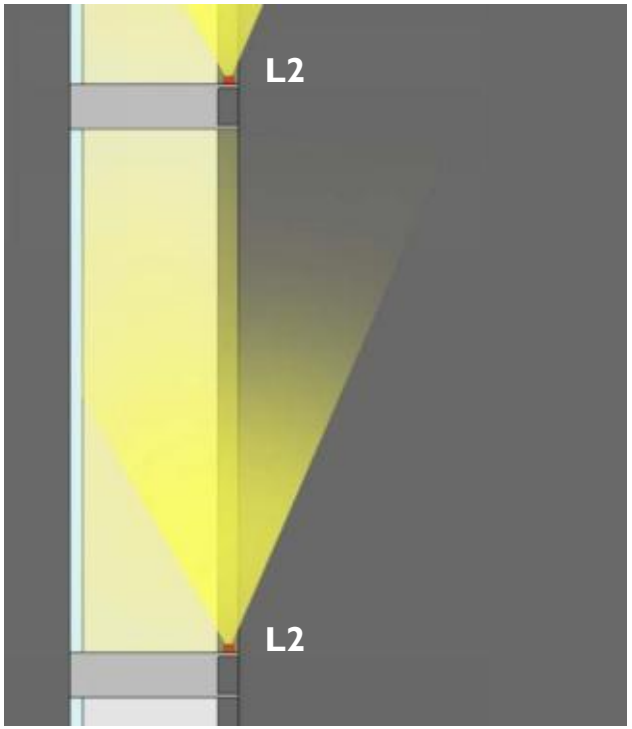


Linear wash light within office façade C channels

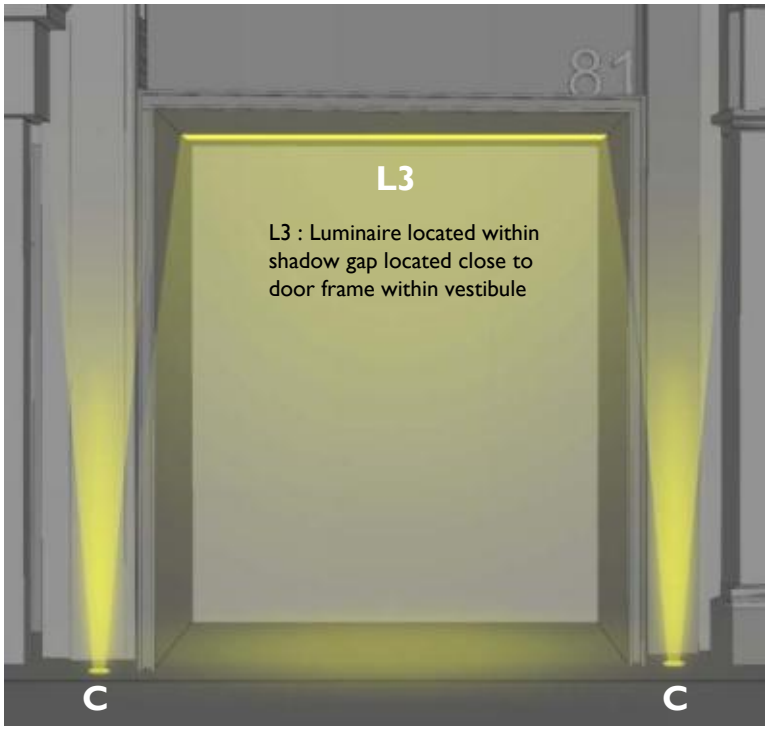
Façade lighting option 3 consists of the elements listed below

L2. Linear up wash light for office entrance façade
C. Inground uplight for office entrance façade threshold pillars
L3. Linear wash downlight for office entrance

2.3 Design Concept



Office entrance façade linear up wash light – generic detail



Office entrance threshold light and inground uplight - generic detail

Typical Luminaires

L2

Product type : Linear Projector
Installation : Surface mounted within detail
Lamp type : white LED / 24W/m
Distribution : Flat beam optics
Colour temperature : 4000K
IP rated

L3

Product type : Linear LED
Installation : recessed within shadow gap
Lamp type : white LED / 24W/m
Distribution : medium beam
Colour temperature : 4000K
IP rated

C

Product type : inground uplight
Installation : located to illuminate verticals
Lamp type : white LED / 6-15w
Distribution : very narrow beam
Colour temperature : 4000K
IP rated – step over

2.3 Design Concept - Visualisation

2.3 Design Concept Visualisation

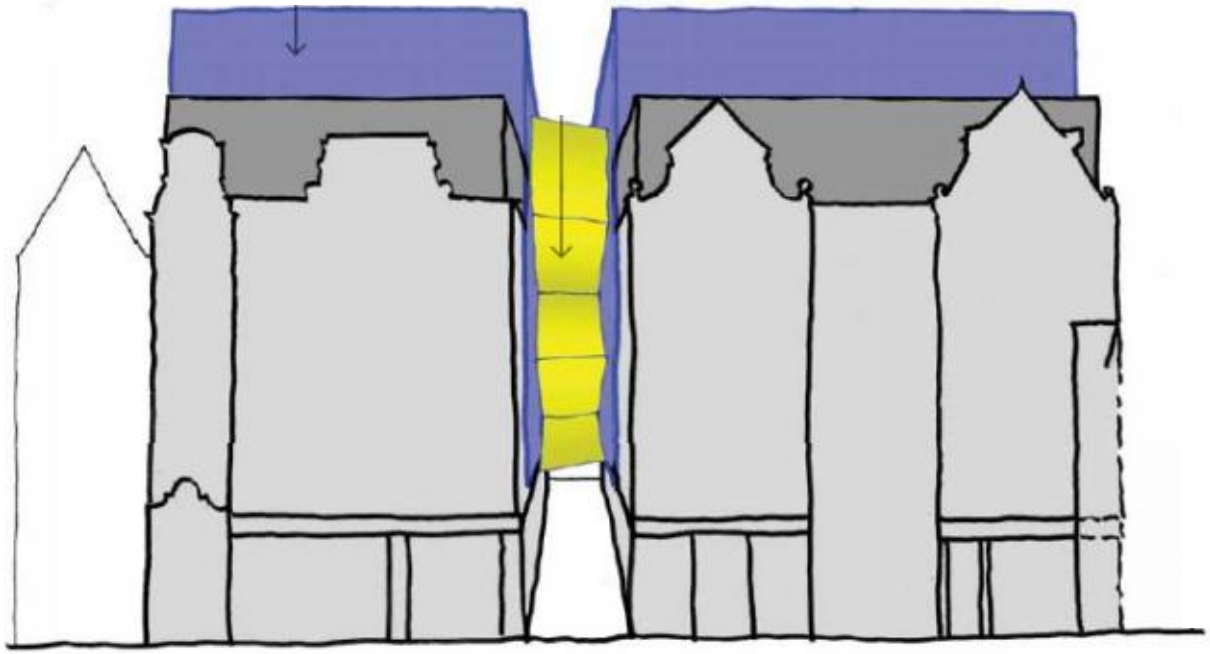
81 Chancery Lane


81

2.3 Design Concept Visualisation

3.0 Jewel Façade Illumination

3.1 Jewel Façade Context



Feature Lighting to Jewel Facade

The new Jewel bridging feature is a key lighting visual focus for the project.

Being only visible from an acute angle, the Jewel will be revealed upon passing or reaching the entrance to Chichester Rents. The intent is to reveal the faceted, irregular nature of the panelling, which will be rendered in complex light during daylight hours.

3.2 Jewel Façade Inspiration

3.2 Jewel Façade Inspiration

3.3 Jewel Façade Illumination

Jewel Rendering

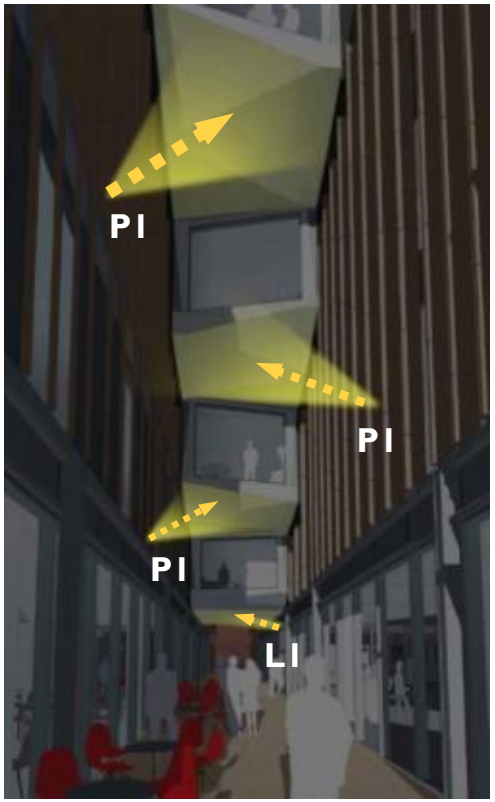
The lighting intent is to render the panelling after dark in a subtle sheen with relatively low visual intensity, revealing its texture and faceted nature in a similar fashion to daylight, with a play of light and shaded panels.

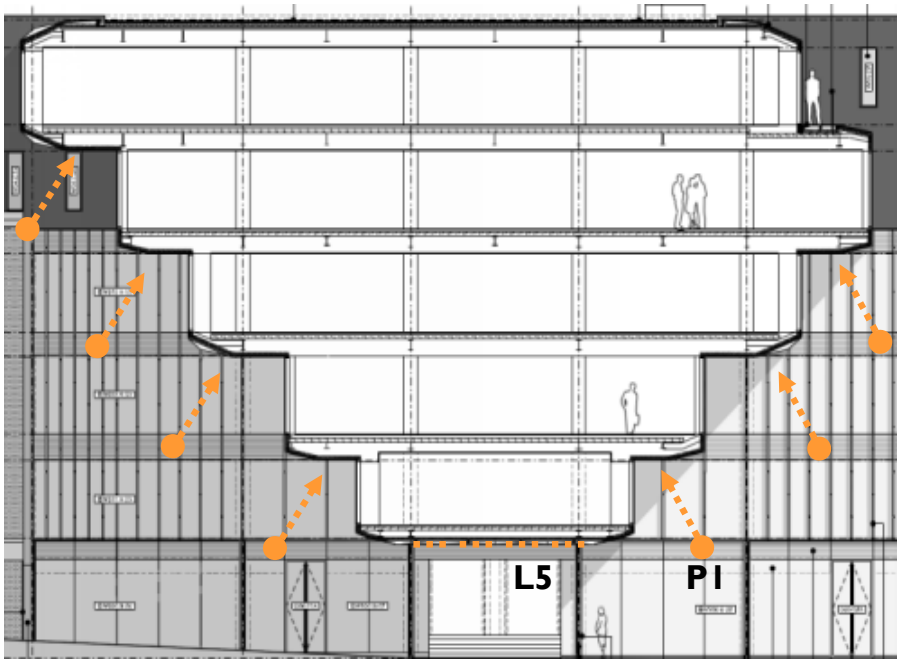
Light should wash and graze the panels from either side in soft, warm white light, with luminaires angled so as to cast light to bring the most out of the Jewel form.

Luminaires are to be surface mounted at slab level on either side of Chichester rents, directed to wash the underside of each faceted pod.

The underside of the residential intersection between Chichester Rents and the new public pedestrian link shares a similar faceted finish to the pods, and is to be directly illuminated in a similar fashion to the pods, using either similar projectors or a linear product in a similar arrangement to the soffit of the new pedestrian link. Lighting in such a way will help to visually connect the interfacing soffit between Chichester Rents and the new pedestrian link in a more deliberate approach.

3.3 Jewel Façade Illumination





Method

Soffit of the link bridge at each level will be lit from single side – alternating from one side to another as moving up the level.

Typical Luminaires

P1

Product type : LED projector
Installation : Surface mounted
Lamp type : white LED / 24W
Distribution : symmetric / wide
Colour temperature : 3000K
IP 66

L5

Product type : Linear LED projector
Installation : Surface mounted to ledge
Lamp type : white LED / 24W/m
Distribution : flat beam
Colour temperature : 3000K
IP 65

- Refer to page 52 for further detail

4.0 Circulation Spaces

4.1 Circulation Spaces - Context

Ambient Lighting

Ambient lighting to the circulation spaces is intended to support a bustling evening and night time café scenario, with lighting largely contributed by spill light from shops and cafes themselves, allowing a suitable atmosphere to develop along Chichester Rents.

Lighting equipment will integrate with and make use of architectural features, leaving the thoroughfare clear of lighting 'clutter', such as the light columns, and post-hoc higher level floodlighting.

4.1 Circulation Spaces - Context

Chichester Rents Illumination

The café and shop spill lighting will be underpinned by a dedicated ambient and feature lighting scheme, ensuring Chichester Rents never falls below a certain level of visual brightness.

However it is envisaged that the visual impression without spill light contribution from shops and cafes will be of pools of light and relative darkness.

Much of the visual brightness and ambient contribution will come from the vertical plane. This will be in visual contrast to the new pedestrian link which will have little visual brightness contribution from the vertical, whilst much contribution from the illuminated soffit.

NOTE: For current typical illuminance calculations please refer to appendix 1.

4.2 Circulation Spaces – Inspiration

4.2 Circulation Spaces – Inspiration

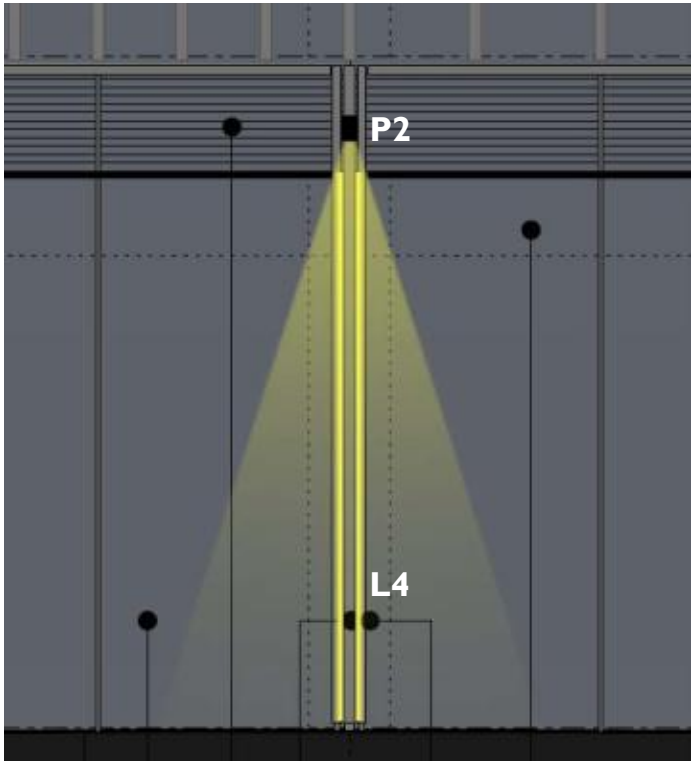
4.3 Circulation Spaces – Chichester Rents

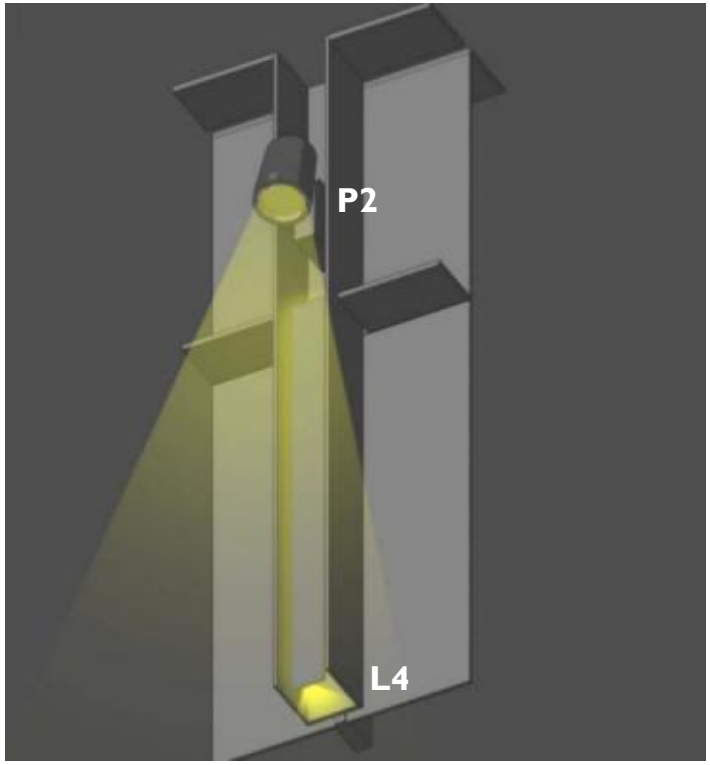
Chichester Rents Illumination

Vertical feature lighting within the steels will bring a rhythmic visual brightness to Chichester Rents, which will not be repeated in the other spaces. These lighting features will be of 'marker' brightness, not necessarily illuminating the space, rather bring a regular, rhythmic visual brightness to the space which corresponds with the architectural features.

Ambient lighting is to be provided by luminaires integrated at the same location at the vertical feature lighting. Opposing luminaires will cause localised pooling, bringing a rhythm of ambient brightness to the thoroughfare.

4.3 Circulation Spaces – Chichester Rents





Lighting within H Beam Pillar

C-beam pillars will accommodate both the ambient luminaires and the feature light within the Chichester Rents.
Each pillar will be equipped with the two lighting elements as listed below.

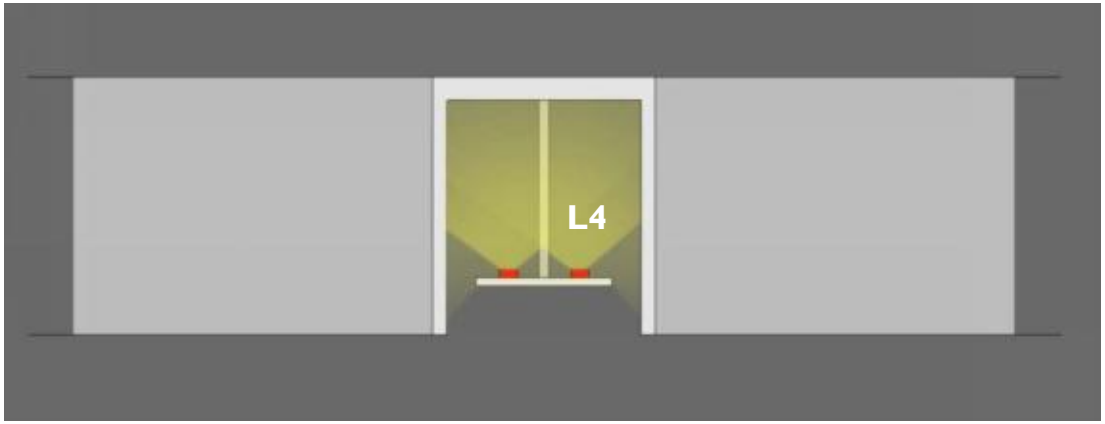
P2 : Wall mounted LED projector creating dramatic ambient by providing focused downlight.

L4 : Feature light - strip LED mounted at the back surface of metal strip fixed within C-beam.
See next page for suggested installation details.

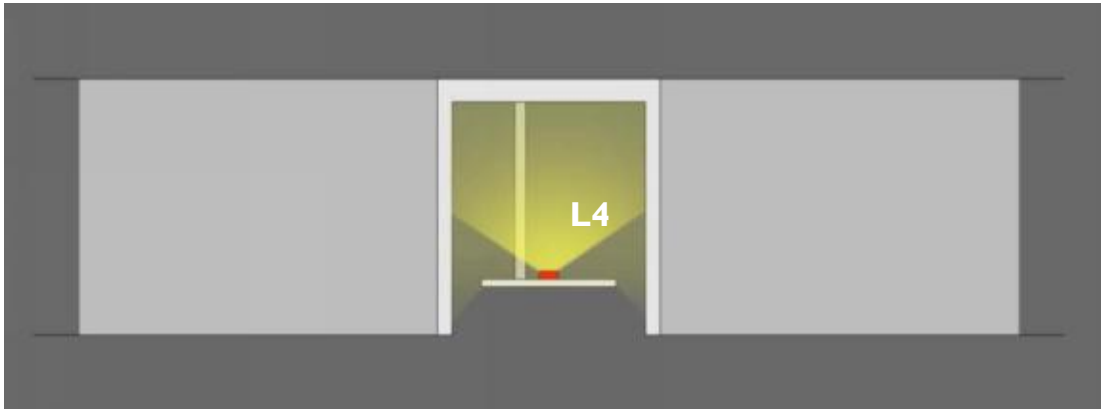
Typical Luminaires

P2

Product type : LED spot light
Installation : Surface mounted within detail
Lamp type : White LED / 22W
Distribution : Medium beam
Colour temperature : 3000K
IP rated



Suggested installation detail 1 – double strip LED – light effect will not be obstructed by spacer.



Suggested installation detail 2 – off centre spacer – there is a chance that light effect is obstructed by spacer, cost effective option.

Vertical Feature Light

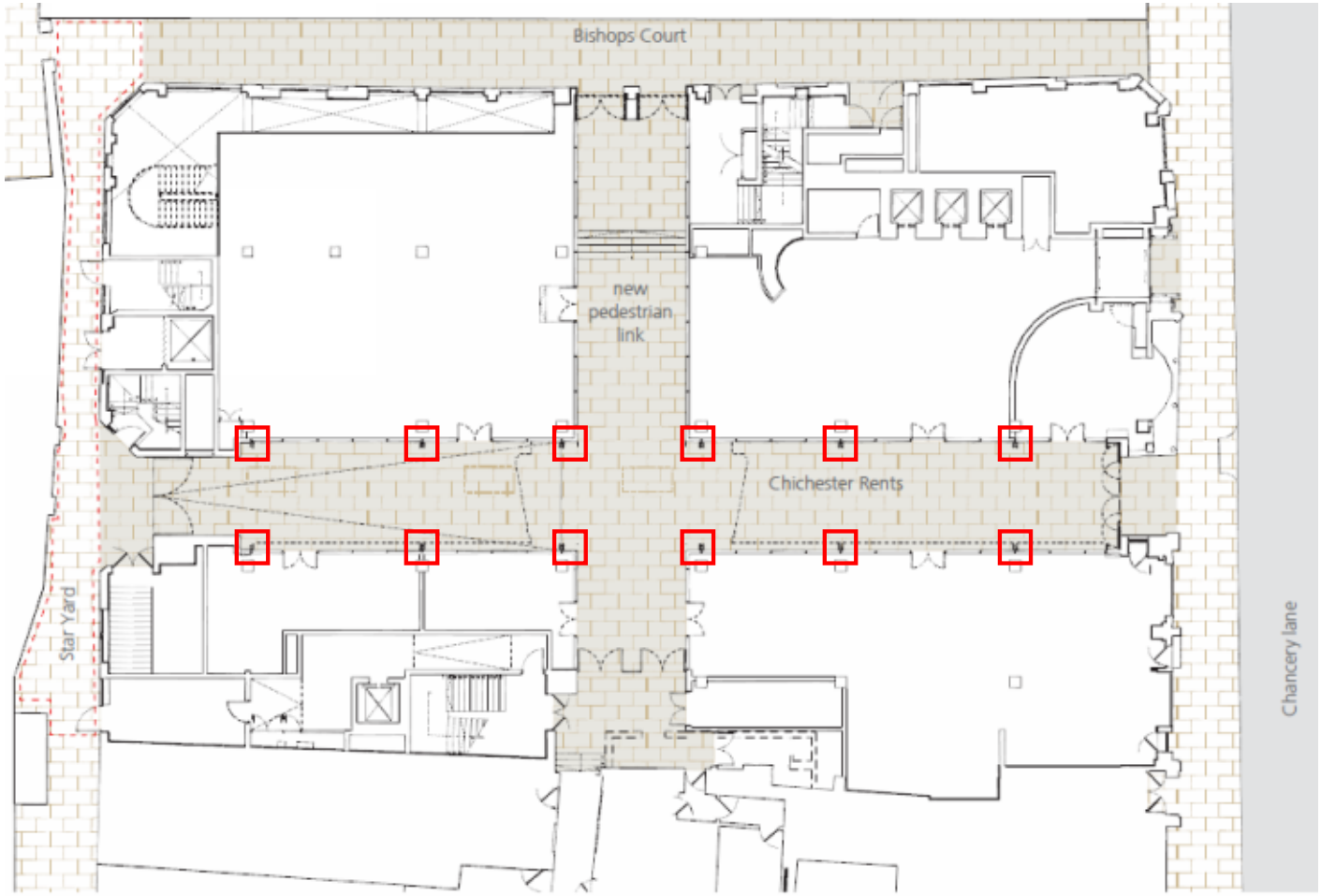
Two different installation methods can be suggested. However working mock-ups would be required prior to finalising the detail.

Typical Luminaires

L4

Product type : Strip LED
Installation : Surface mounted within detail
Lamp type : White LED / 9.7W/m
Distribution : Wide
Colour temperature : 3000K
Dimension : 16.3 x 5.5(h)mm
IP 68

4.3 Circulation Spaces – Chichester Rents

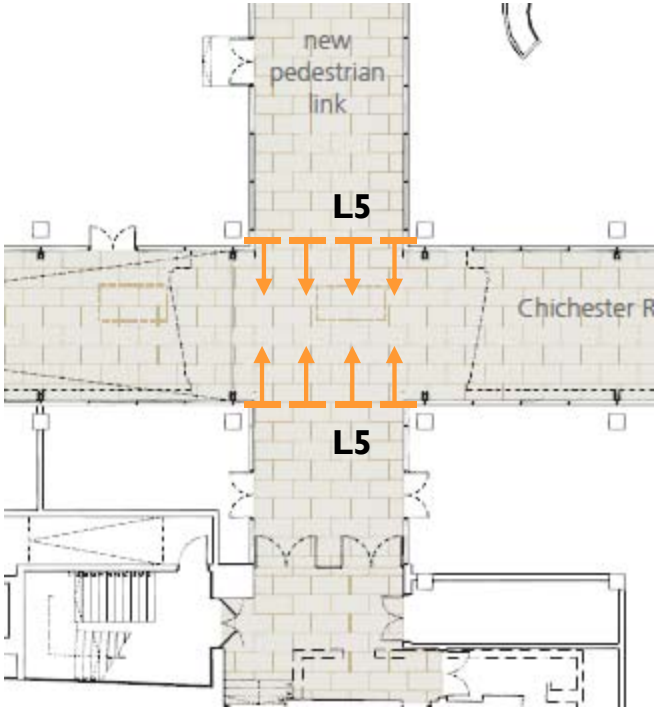


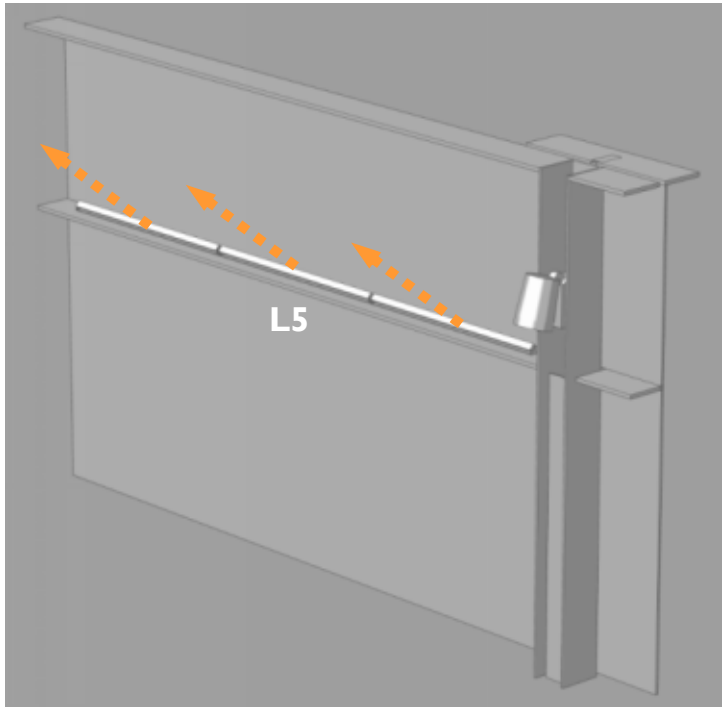
Chichester Rents Illumination

The feature and ambient lighting locations will be integrated with the steels lining Chichester Rents, creating a 'boulevard' of baseline ambient and visual brightness.

NOTE: For current typical illuminance calculations please refer to appendix 1.

4.3 Circulation Spaces – Chichester Rents - New Pedestrian Link/Jewel Soffit





Jewel Soffit Intersection

The intersection of the new pedestrian link and Chichester Rents will feature an illuminated soffit, capturing the faceted nature of the jewel render, whilst also blending with the lit soffit of the new pedestrian link.

Typical Luminaires

L5

Product type : Linear LED projector
Installation : Surface mounted to ledge
Lamp type : White LED / 24W/m
Distribution : Flat beam optic
Colour temperature : 3000K
IP 65

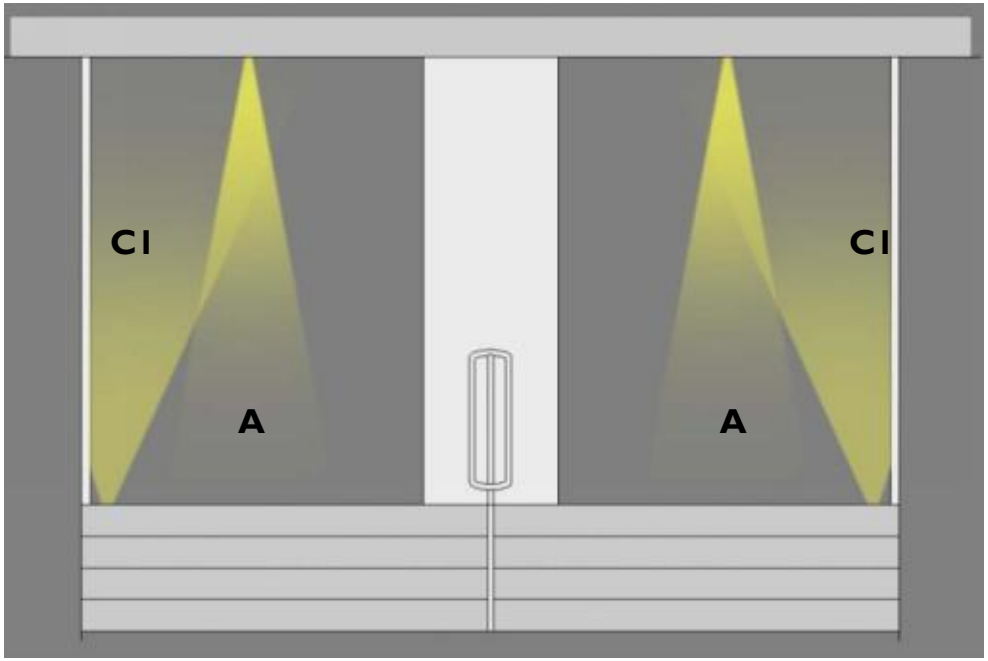
4.4 Circulation Spaces – New Pedestrian Link

New Pedestrian Link Soffit Illumination

The soffit covering the new pedestrian link is to be illuminated in order to bring visual brightness to the space, preventing a claustrophobic or cave-like atmosphere encroaching at night.

Uplights will being a gentle light pattern and visual brightness the underside of the soffit, while narrow beam downlights punctuate the walkway.

4.4 Circulation Spaces – New Pedestrian Link



Typical Luminaires – Soffit Illumination

A

Product type : Low glare downlight
Installation : Recessed
Lamp type : White LED / 8w
Distribution : 45deg / honeycomb louver
Colour temperature : 3000K
IP rated

C1

Product type : inground uplight
Installation : floor recessed
Lamp type : white LED / 2w
Distribution : medium beam; low glare
Colour temperature : 3000K
IP rated – step over

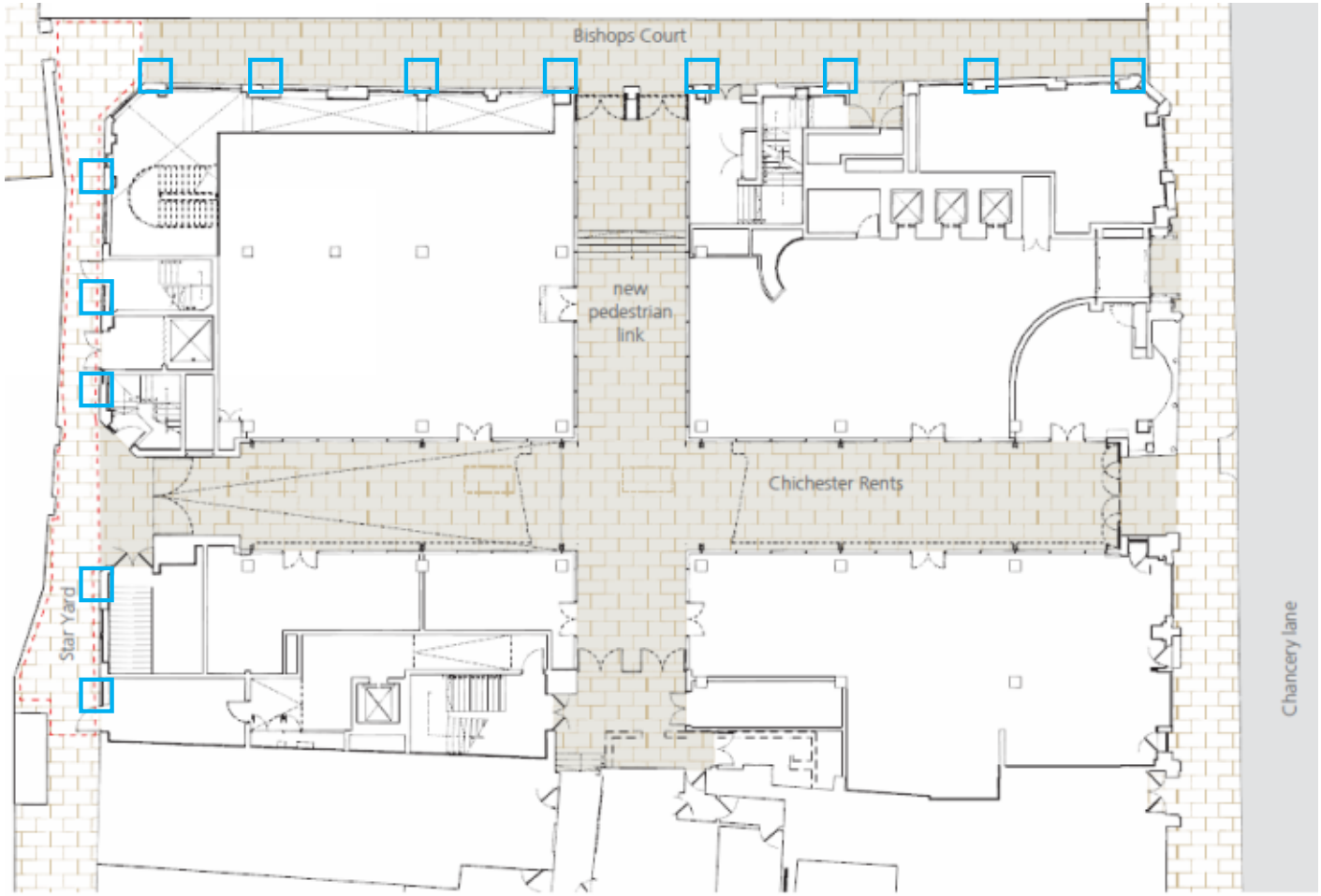
4.4 Circulation Spaces – New Pedestrian Link

Layout

NOTE: For current typical illuminance calculations please refer to appendix 1.

- **A type** Downlight
- **C1 type** uplilght

4.5 Circulation Spaces – Ambient Lighting Overview



Circulation Spaces Ambient Illumination

It is intended that the ambient lighting technique established at Chichester Rents is carried through to the Bishops Court and Star Yard circulation spaces. Luminaires at the Bishops Court and Star Yard will be the same type as in the Chichester Rents but with smaller output.

NOTE: For current typical illuminance calculations please refer to appendix 1.

Typical Luminaires

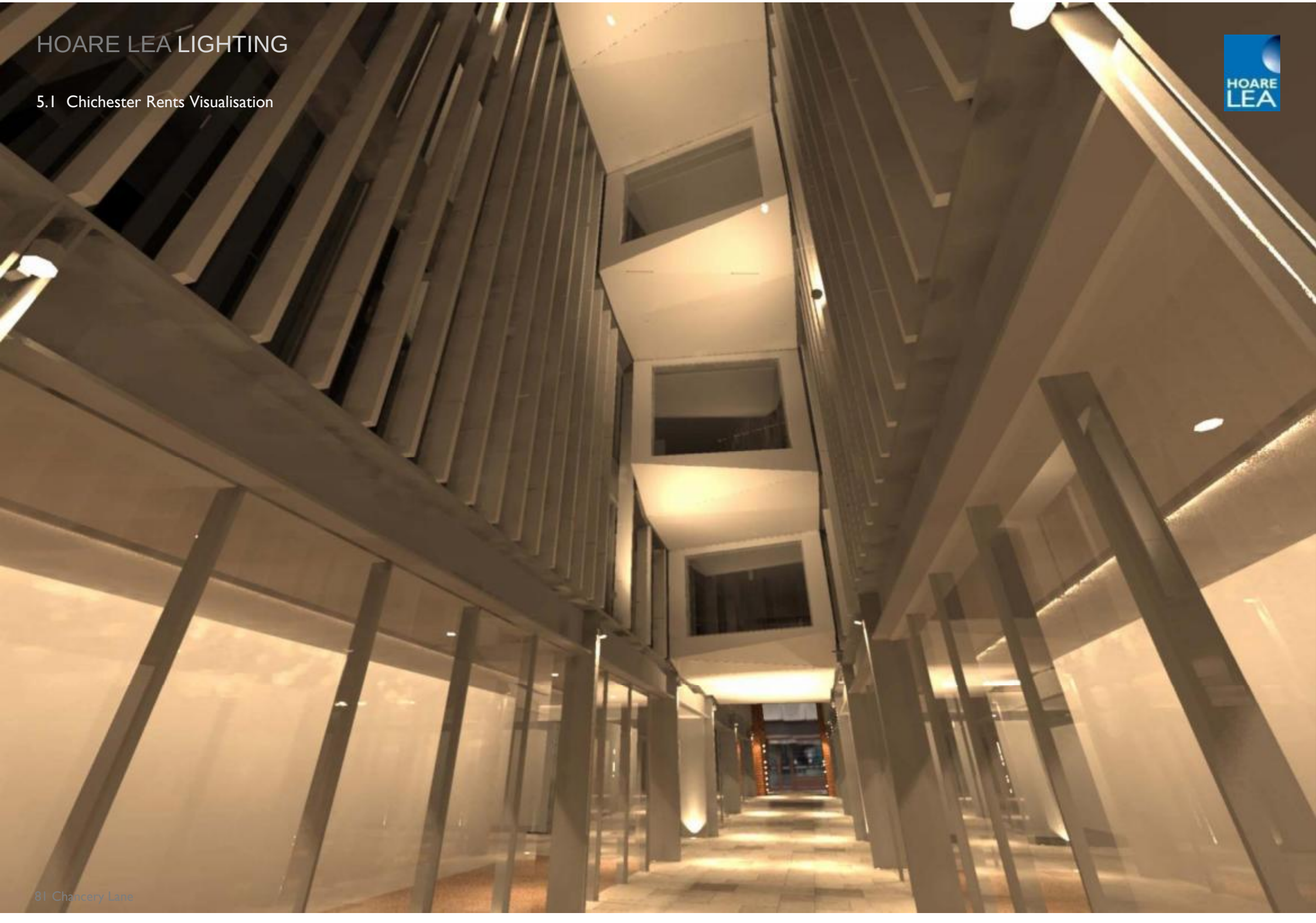
P3

Product type : LED spot light
Installation : Surface mounted on the wall
Lamp type : white LED / 10W
Distribution : Flood
Colour temperature : 3000K
IP rated

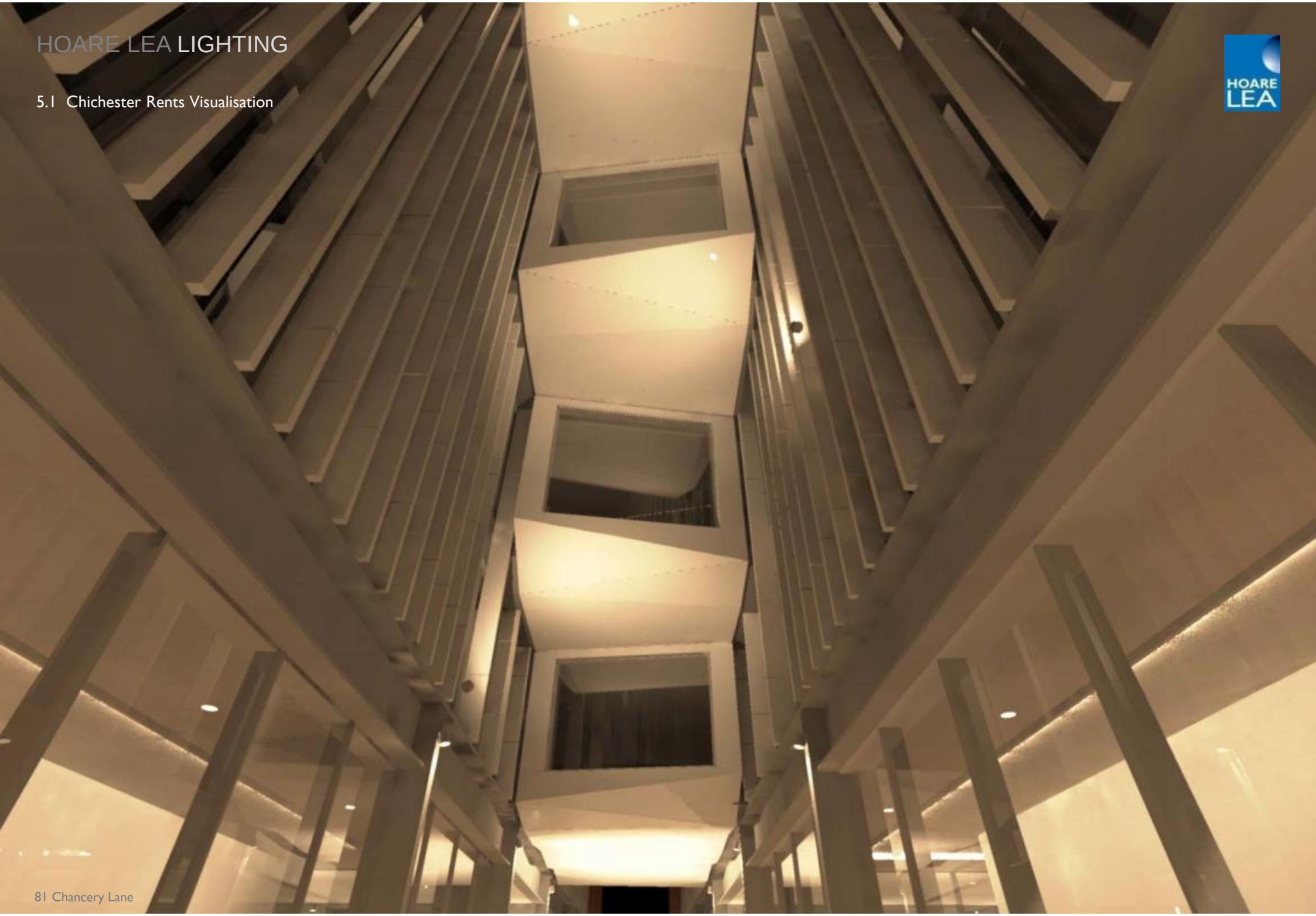
5.0 Visualisation

5.1 Chichester Rents Visualisation

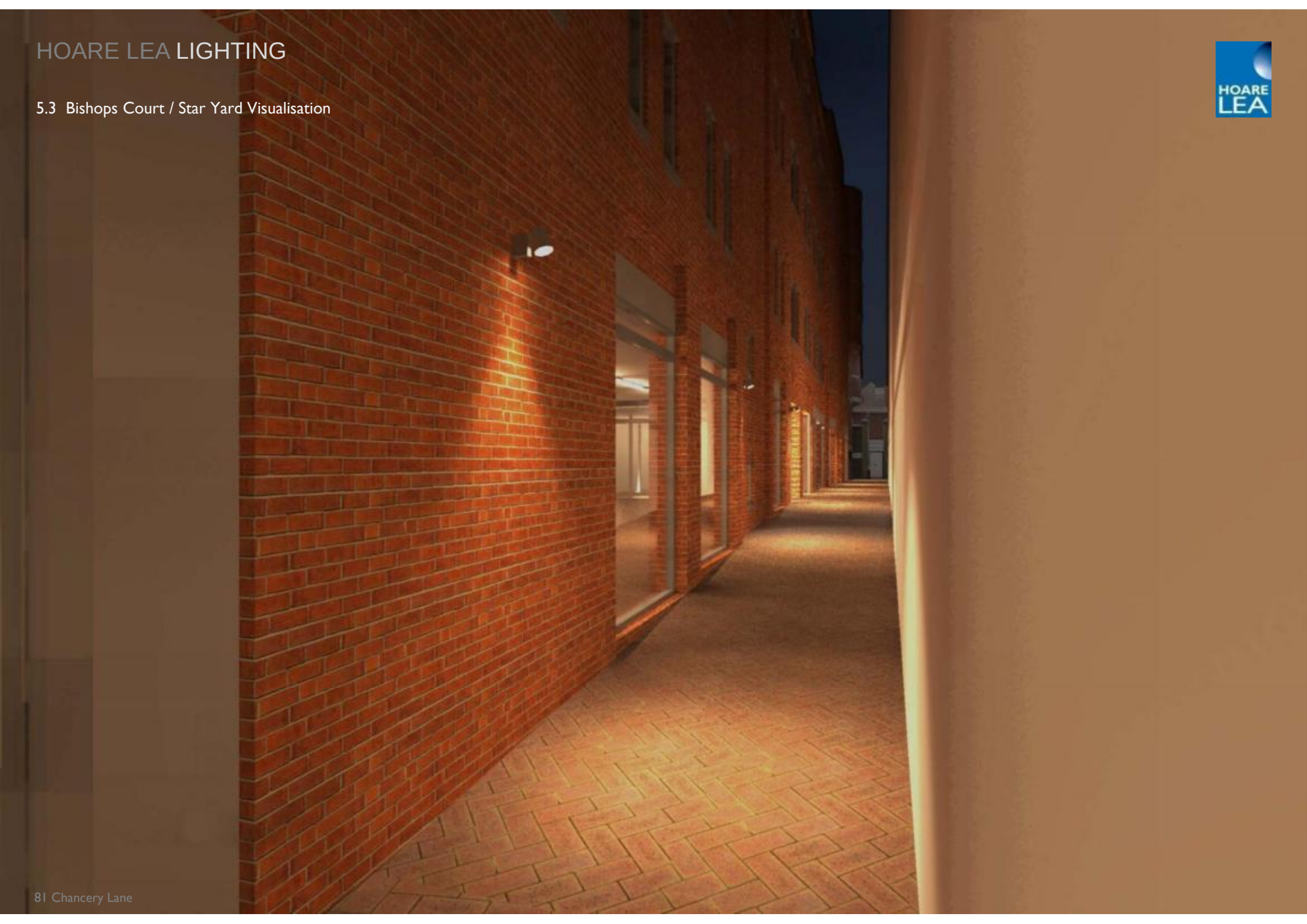
5.1 Chichester Rents Visualisation



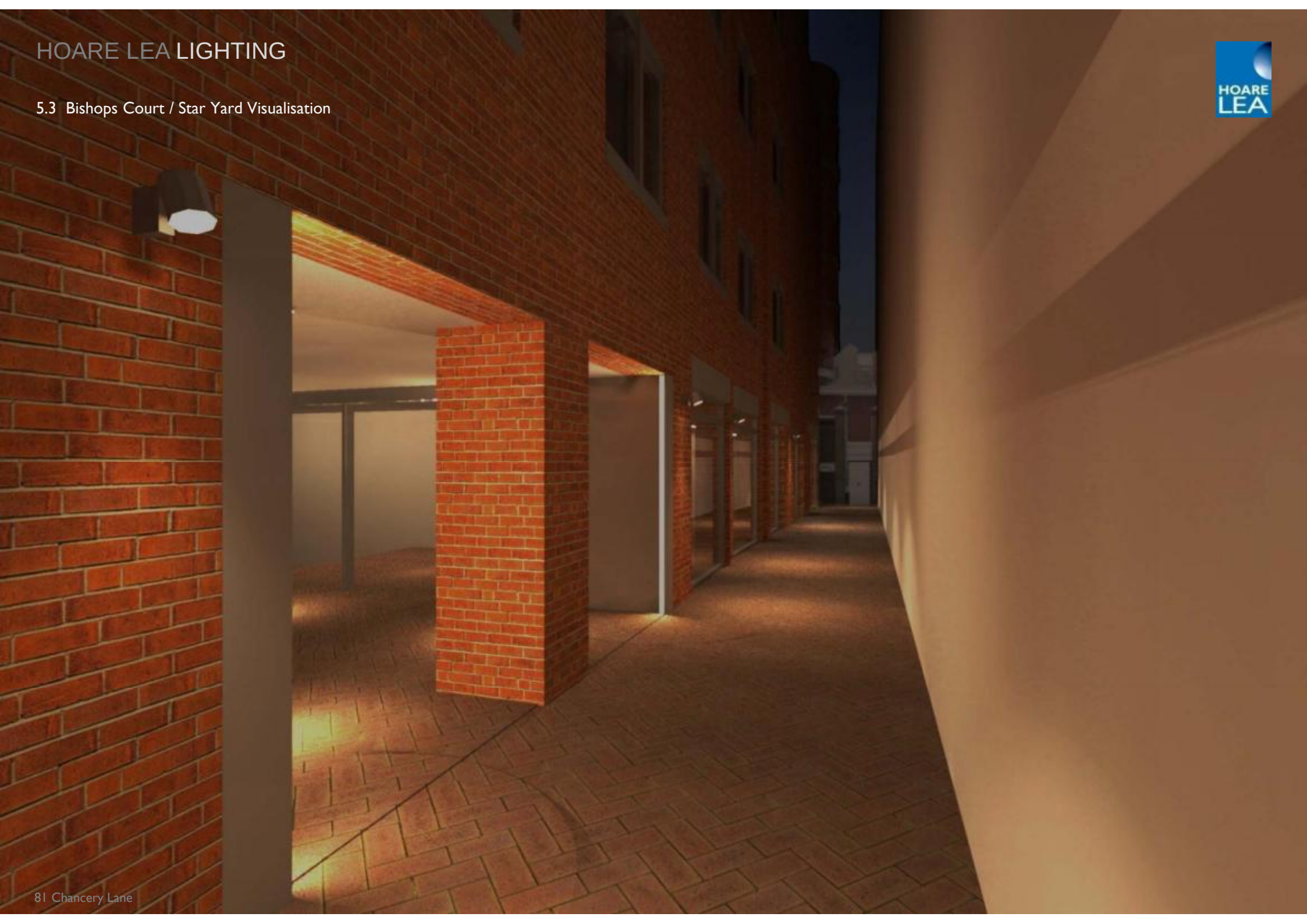
5.1 Chichester Rents Visualisation



5.3 Bishops Court / Star Yard Visualisation



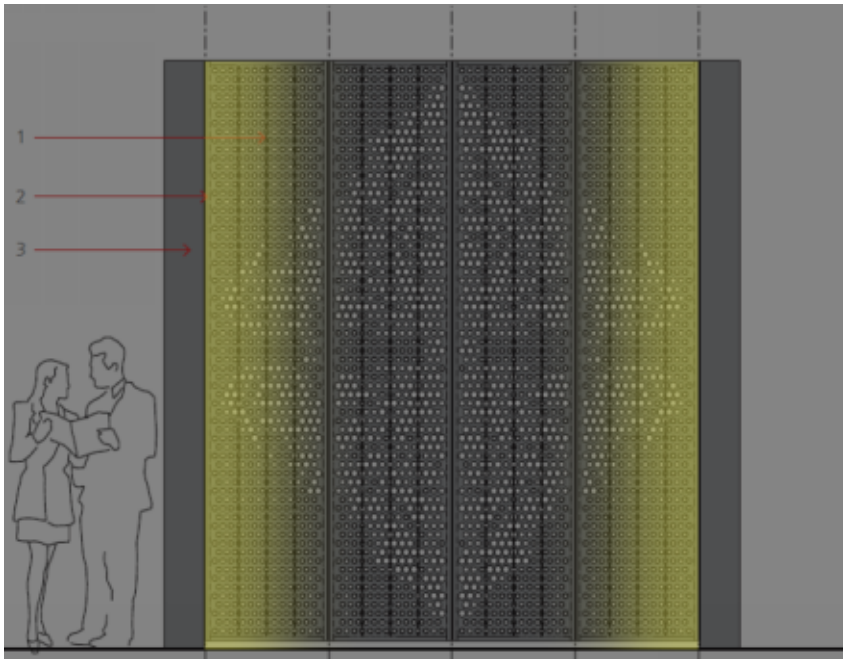
5.3 Bishops Court / Star Yard Visualisation

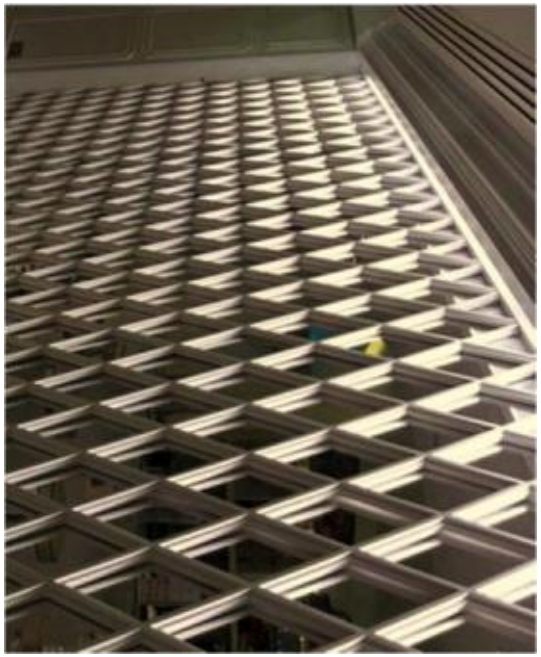


6.0 Gate Feature Illumination

6.1 Gate Feature Illumination - Inspiration

6.2 Gate Feature Illumination – Lighting Design



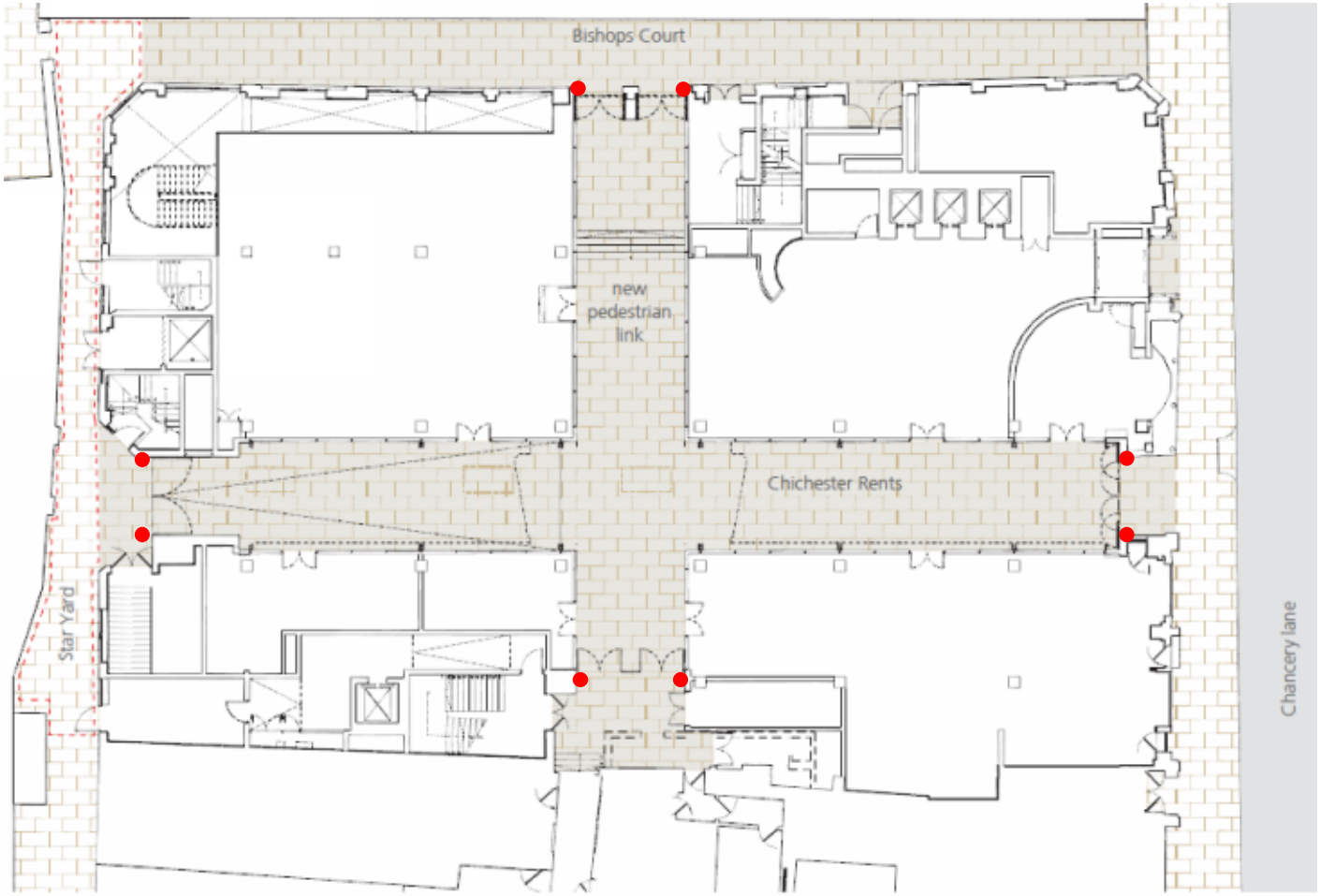


Gate Illumination

It is intended the mesh of the gates be feature illuminated for the external view, such as Chancery Lane.

Two vertically installed wall recessed linear LED will cast a light pattern side by side when the gate is closed whilst working as a threshold marker light when the gate is open.

6.2 Gate Feature Illumination – Lighting Design



Typical Luminaires

L6

Product type : Linear LED
Installation : recessed within shadow gap
Lamp type : white LED
Distribution : diffused cover
Colour temperature : 3000K
IP 65

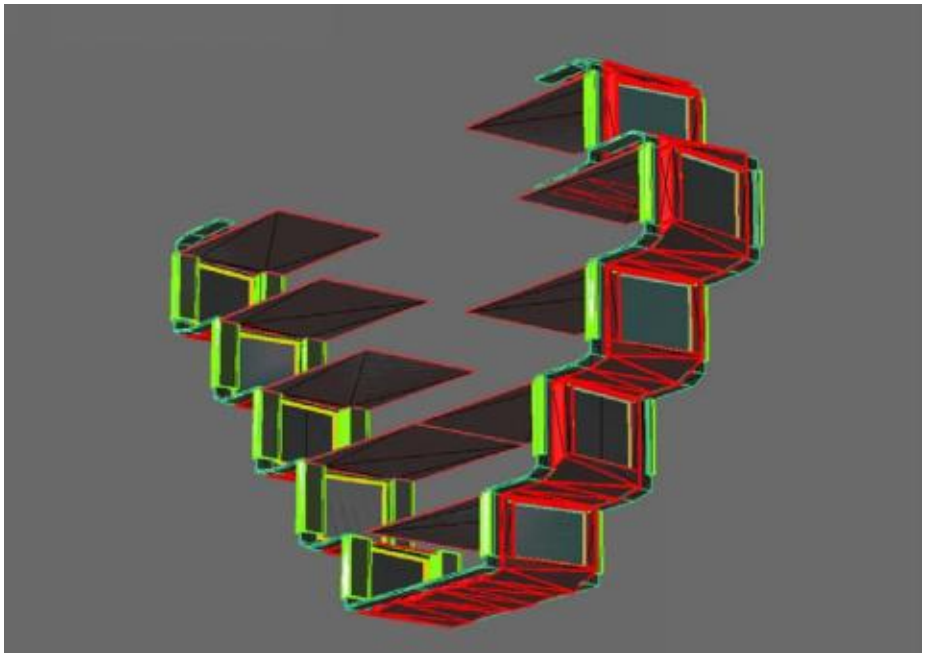
6.3 Visualisation – Design Concept

6.3 Visualisation – Design Concept

6.3 Visualisation – Design Concept

7.0 Pod illumination Study

7.0 Aim



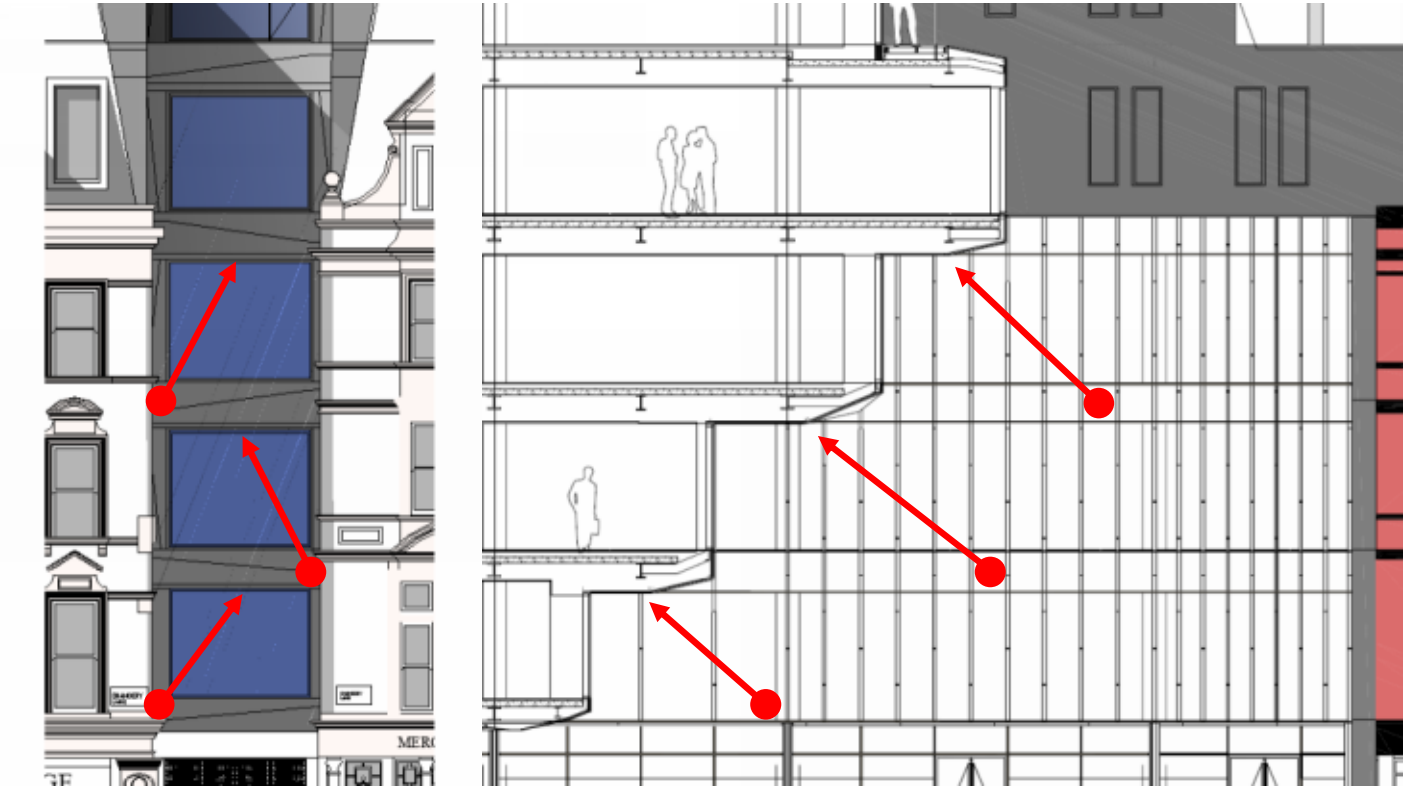
Study Aim

The purpose of this study is to find out the optimum location for luminaires for the pod in order to figure out the illumination method which can embrace the geometries of the architecture whilst producing minimum spill light to the surrounding internal façade.

The latest 3D model of the pods are used for the calculation with 30% reflectance applied which imitates silver anodised aluminium surface characteristics.

Even though this study provides information which provides comparison between different positioning options, true light effects can only be demonstrated by a working mock-up. Therefore it is strongly recommended that an on site lighting mock-up is carried out before finalising the luminaire location.

7.1 LED projector location option1

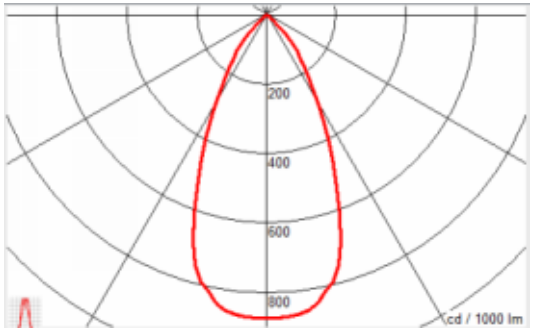


Luminaire location option1

This positioning is used in most of the renders in this document. Soffit of the pod at each level will be lit from single side – alternating from one side to another as moving up the level. Luminaires are located at front forward positions.

P1

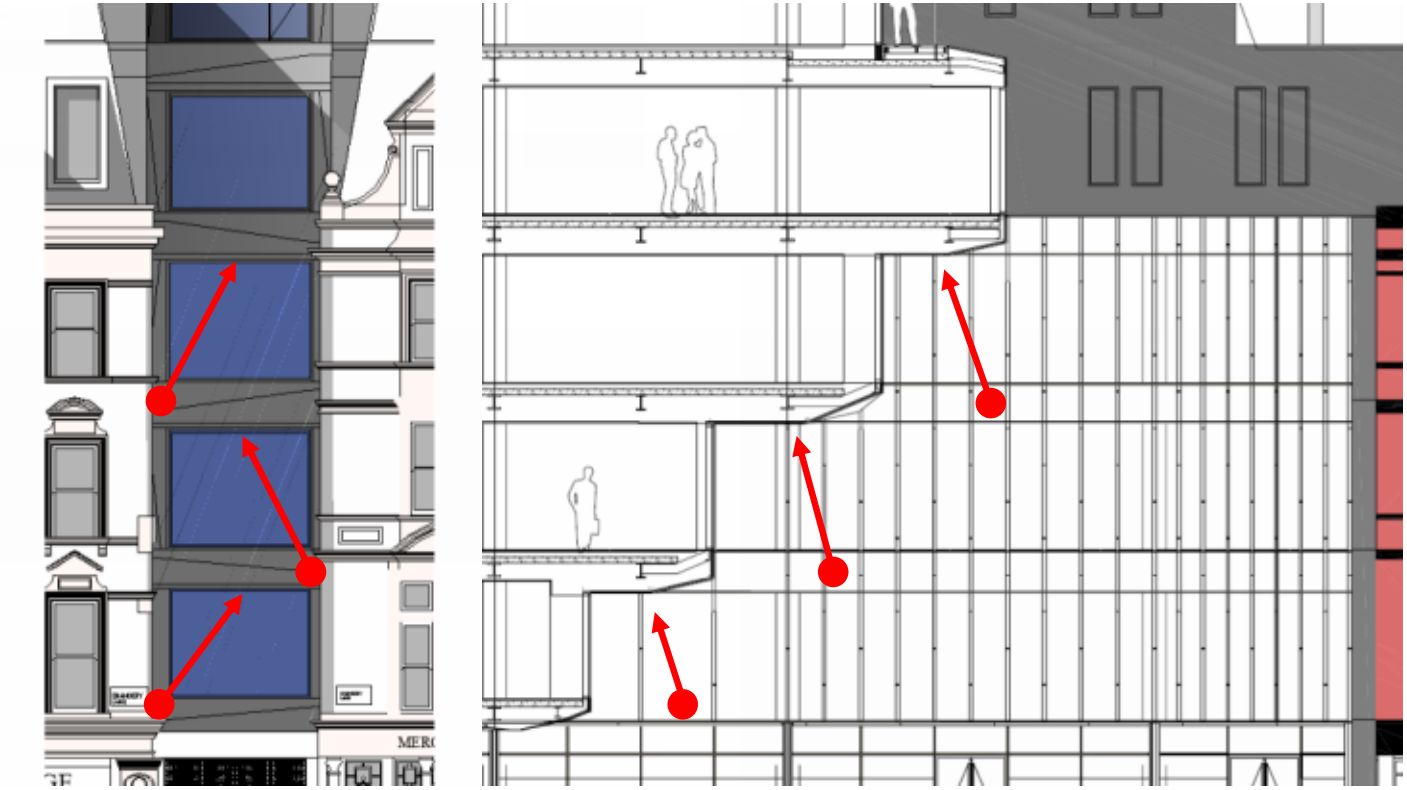
Product type : LED projector
Installation : Surface mounted
Lamp type : White LED / 24W
Distribution : Symmetric / wide
Colour temperature : 3000K
IP 66



It is strongly recommended that an on site lighting mock-up is carried out before finalising the luminaire location.

7.1 LED Projector Location Option 1

7.1 LED Projector Location Option 2

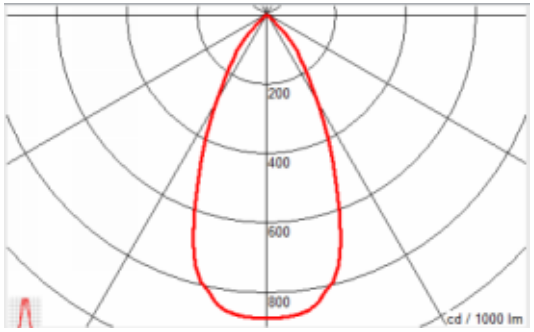


Luminaire location option2

Soffit of the pod at each level will be lit from single side – alternating from one side to another as moving up the level. Luminaires are located right under the soffit.

P1

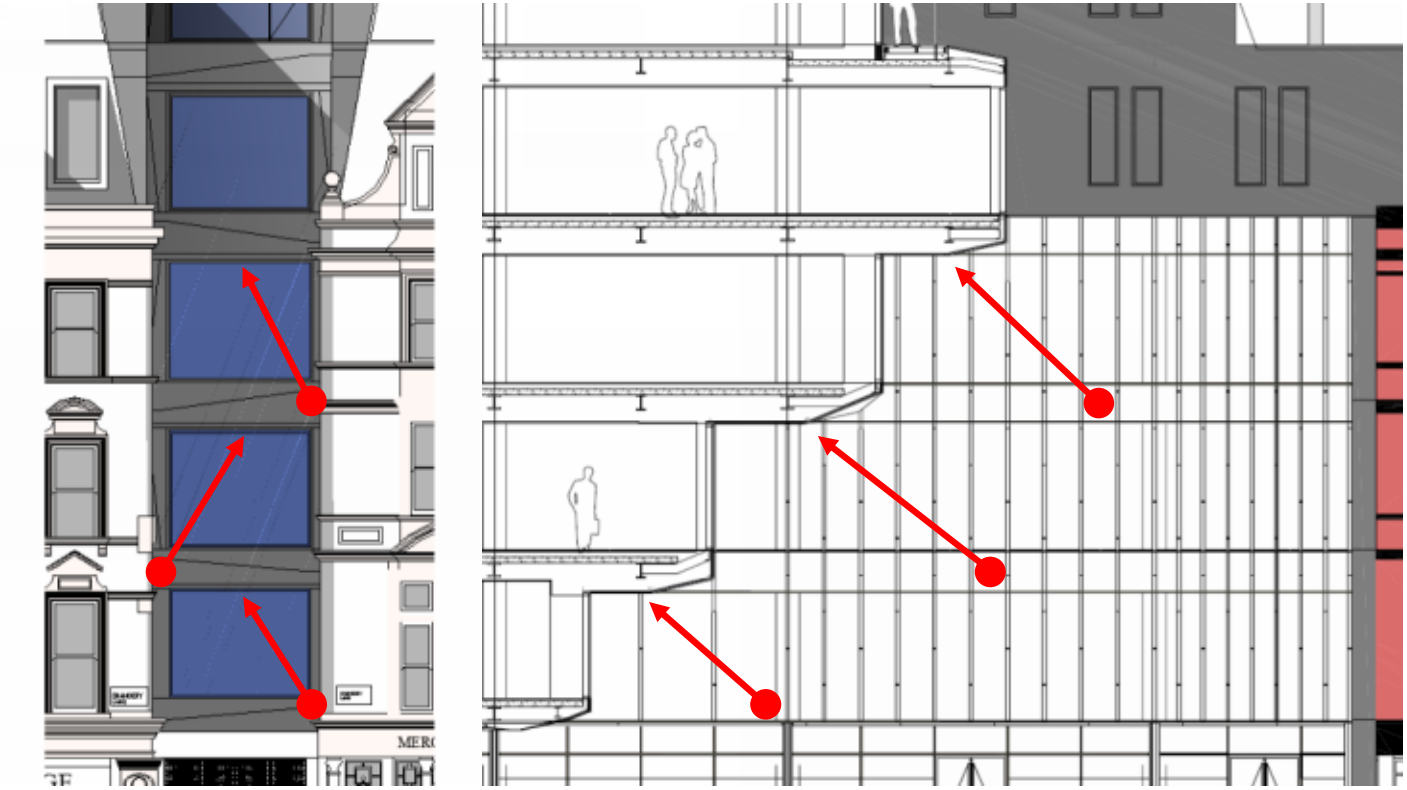
Product type : LED projector
Installation : Surface mounted
Lamp type : White LED / 24W
Distribution : Symmetric / wide
Colour temperature : 3000K
IP 66



It is strongly recommended that an on site lighting mock-up is carried out before finalising the luminaire location.

7.1 LED Projector Location Option 2

7.1 LED Projector Location Option 3

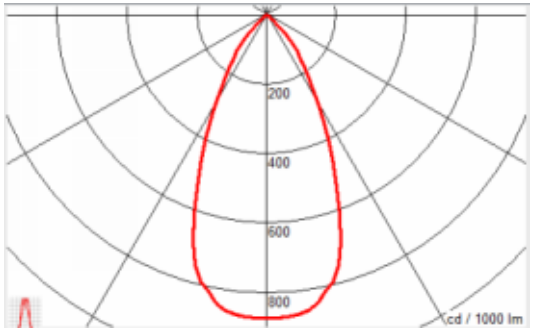


Luminaire location option3

Soffit of the pod at each level will be lit from single side – alternating from one side to another as moving up the level.
Comparing to option1, luminaires are located at opposite direction. Luminaires are located at front forward positions.

P1

Product type : LED projector
Installation : Surface mounted
Lamp type : white LED / 24W
Distribution : symmetric / wide
Colour temperature : 3000K
IP 66

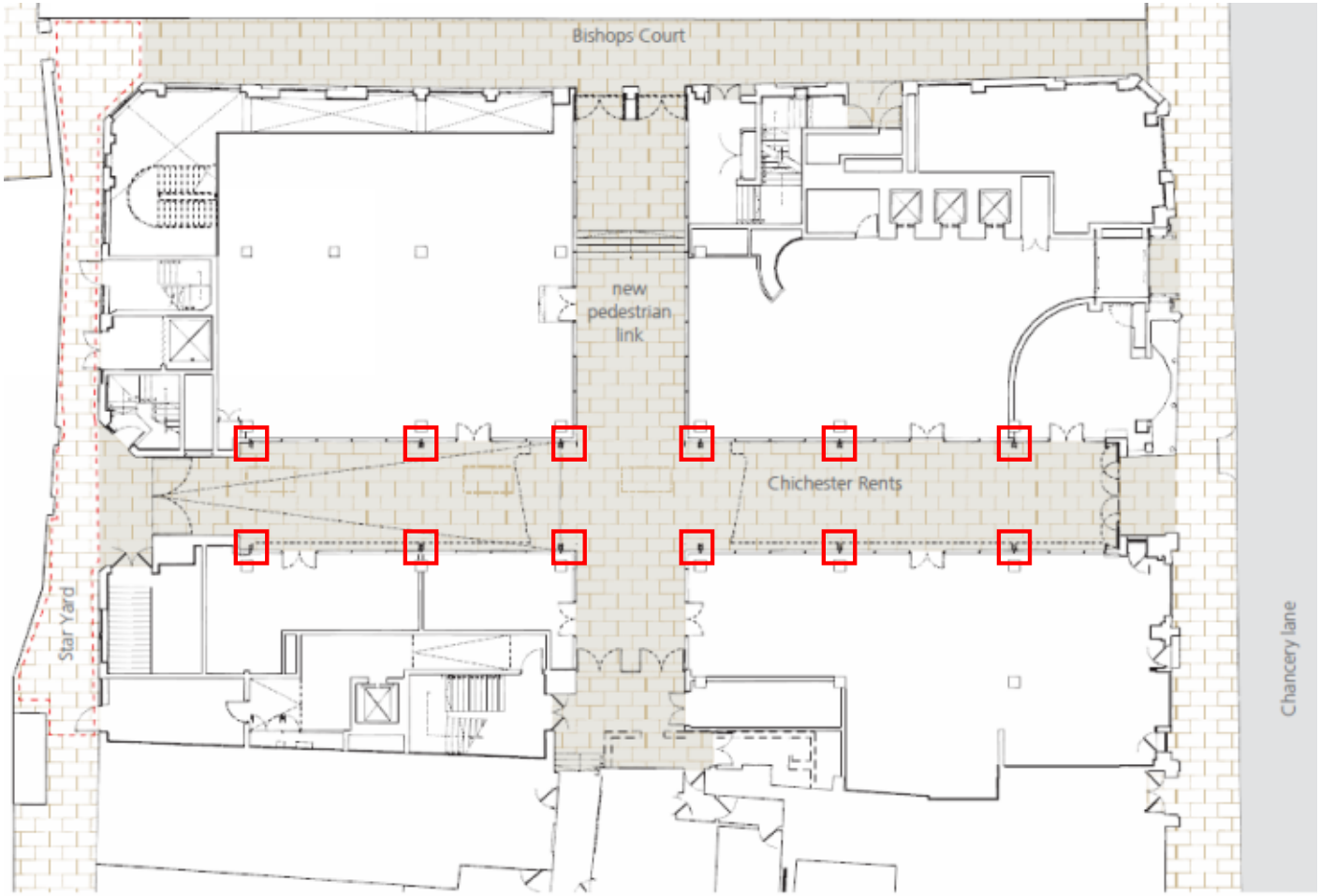


It is strongly recommended that an on site lighting mock-up is carried out before finalising the luminaire location.

7.1 LED Projector Location Option 3

APPENDIX 1: Typical Calculations

Appendix 1: Typical Calculations – Chichester Rents

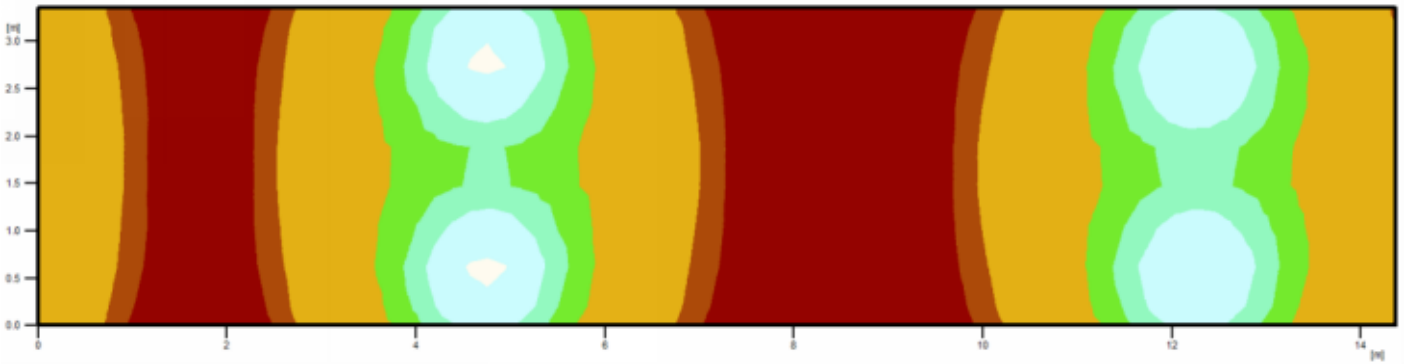


Chichester Rents – Indicative Luminaire Locations

P2

Product type : LED spot light
Installation : Surface mounted within detail
Lamp type : white LED / 22W
Distribution : Medium beam
Colour temperature : 3000K
IP rated

Appendix 1: Typical Calculations – Chichester Rents



Chichester Rents Illumination

Illuminance [lx]

Average illuminance	Eav	: 66 lx
Minimum illuminance	Emin	: 3 lx
Maximum illuminance	Emax	: 432 lx
Uniformity g1	Emin/Eav	: 1 : 23.70 (0.04)
Uniformity g2	Emin/Emax	: 1 : 155.35 (0.01)

Note: Calculation does not include feature lighting or contributed spill light from commercial premises

Appendix 1: Typical Calculations – New Pedestrian Link

New Pedestrian Link - Indicative Luminaire Locations

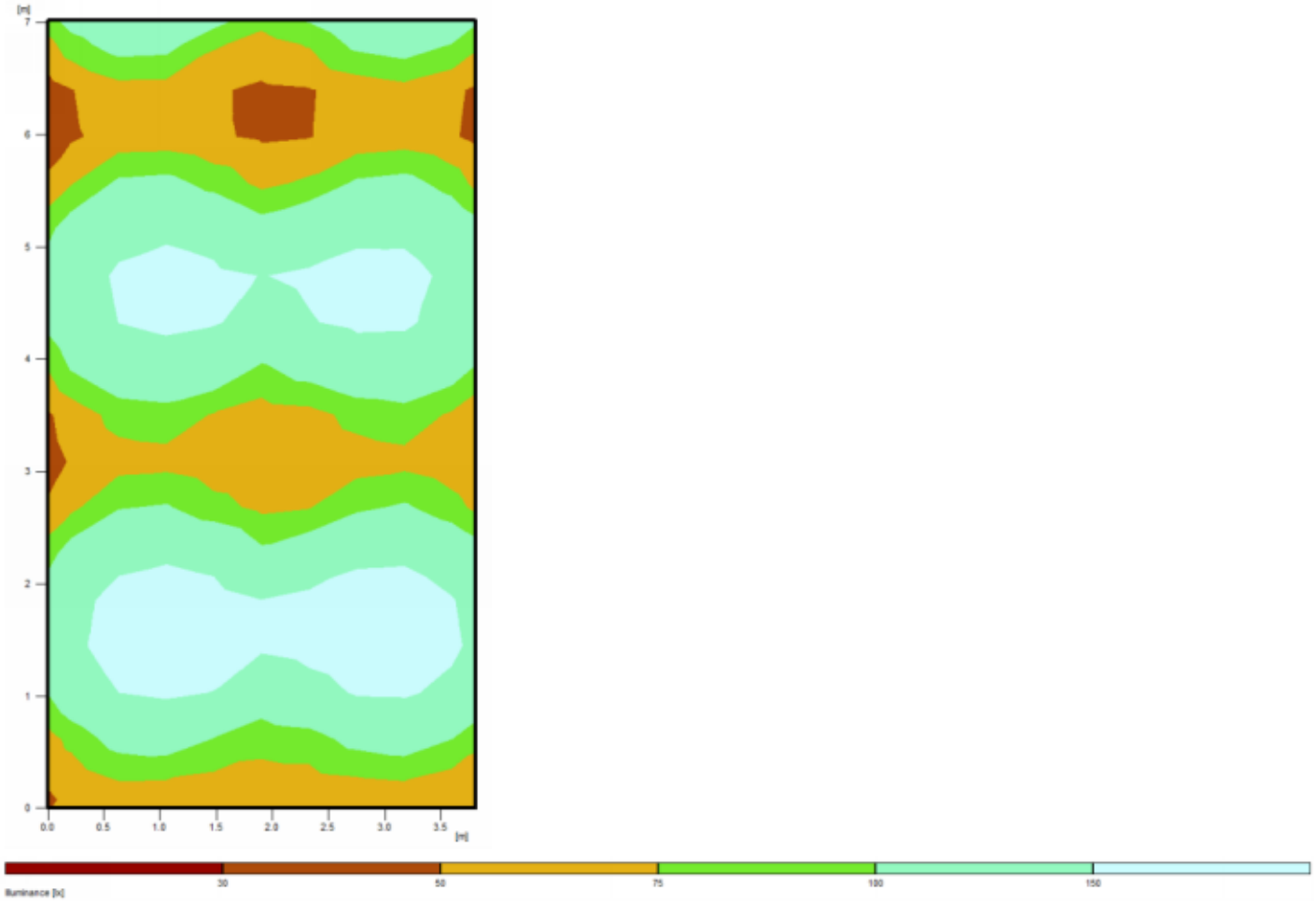
● A

Product type : low glare downlight – soffit recessed
Installation : recessed
Lamp type : white LED / 8w
Distribution : 45deg / honeycomb louvre
Colour temperature : 3000K
IP rated

● C1

Product type : inground uplight
Installation : floor recessed
Lamp type : white LED / 2w
Distribution : medium beam; low glare
Colour temperature : 3000K
IP rated – step over

Appendix 1: Typical Calculations – New Pedestrian Link



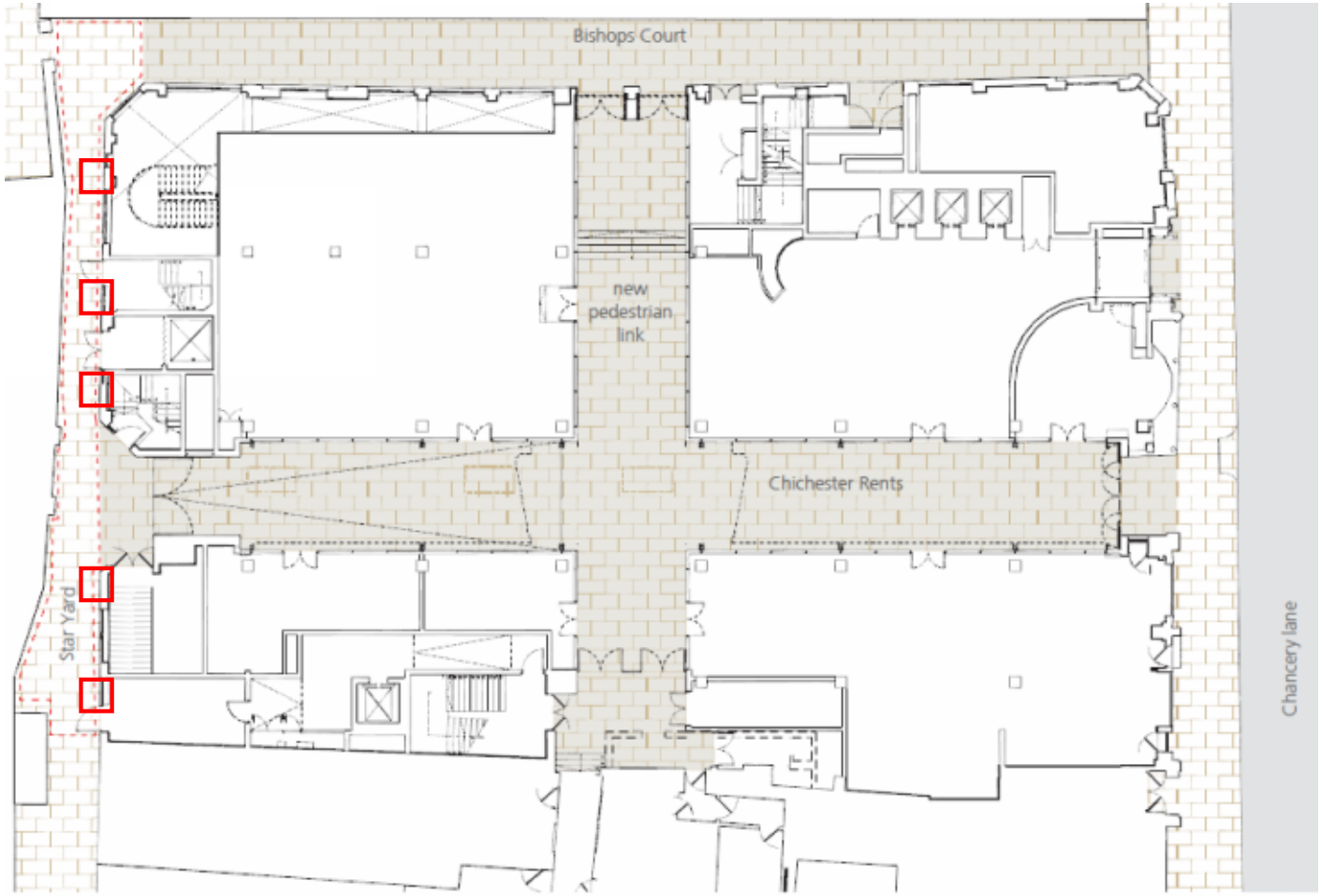
New Pedestrian Link Illumination

Illuminance [lx]

Height of the reference plane		: 0.09 m
Average illuminance	Eav	: 108 lx
Minimum illuminance	Emin	: 46 lx
Maximum illuminance	Emax	: 174 lx
Uniformity g1	Emin/Eav	: 1 : 2.34 (0.43)
Uniformity g2	Emin/Emax	: 1 : 3.77 (0.27)

Note: Calculation does not include feature lighting or contributed spill light from commercial premises

Appendix 1: Typical Calculations – Star Yard

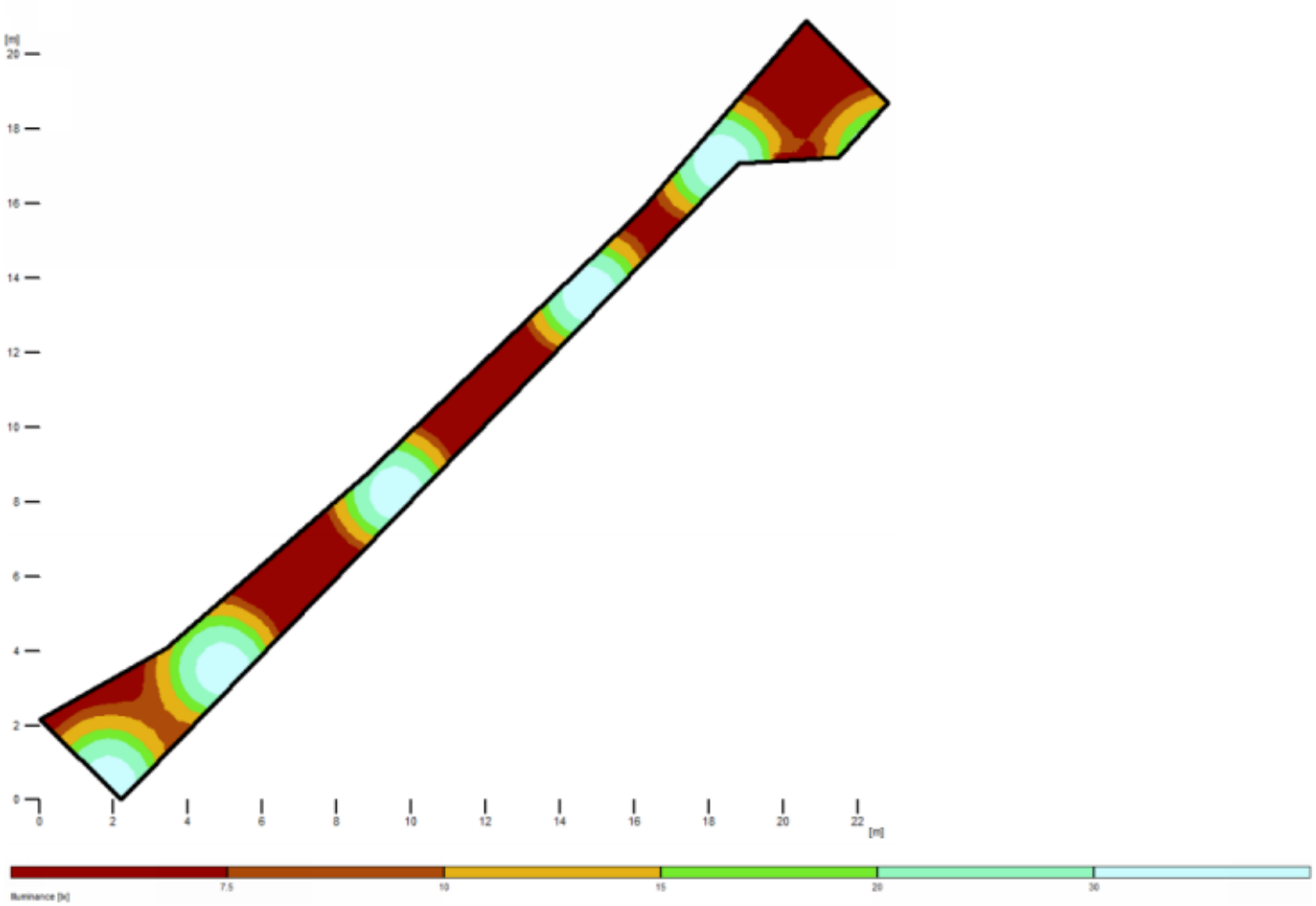


Star Yard – Indicative Luminaire Locations

P3

Product type : LED spot light
Installation : Surface mounted on the wall
Lamp type : white LED / 10W
Distribution : Flood
Colour temperature : 3000K
IP rated

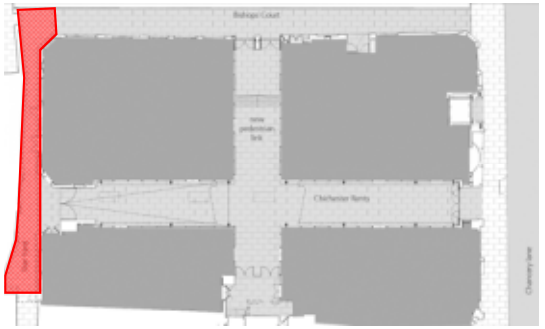
Appendix 1: Typical Calculations – Star Yard



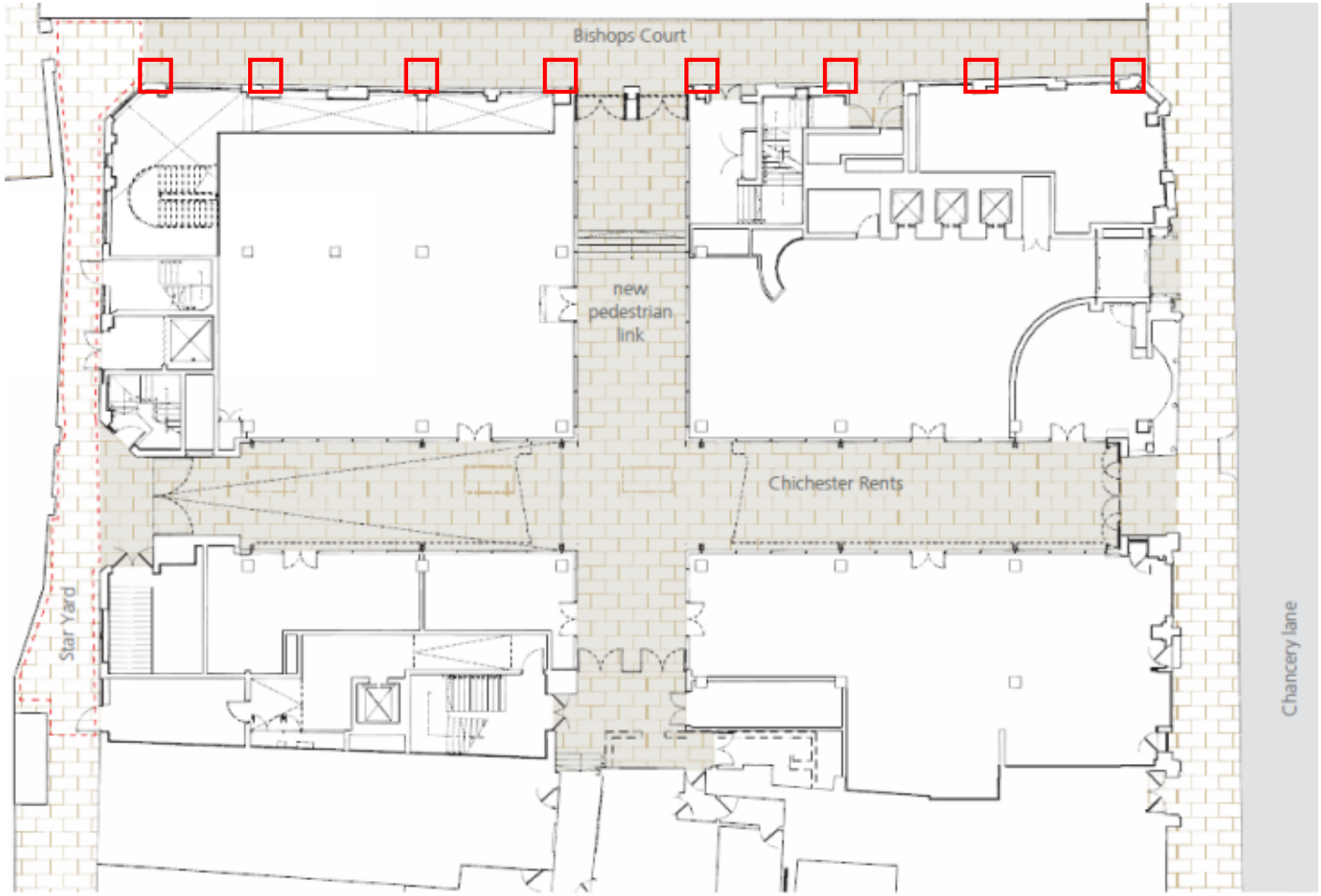
Star Yard Illumination

Illuminance [lx]

Height of the reference plane		: 0.00 m
Average illuminance	Eav	: 14.2 lx
Minimum illuminance	Emin	: 1.2 lx
Maximum illuminance	Emax	: 42.4 lx
Uniformity g1	Emin/Eav	: 1 : 12.34 (0.08)
Uniformity g2	Emin/Emax	: 1 : 36.72 (0.03)



Appendix 1: Typical Calculations – Bishops Court

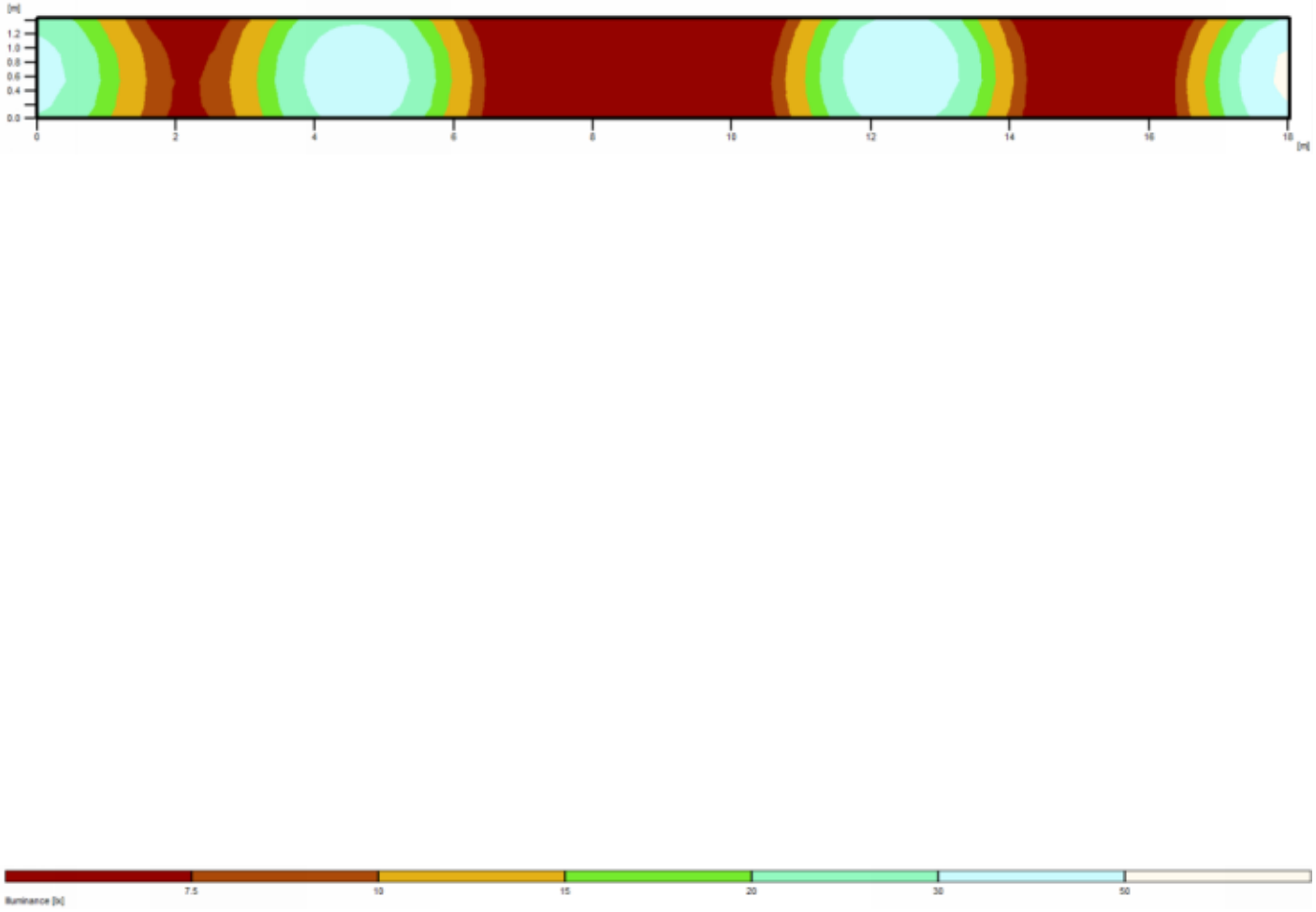


Bishops Court – Indicative Luminaire Locations

P3

Product type : LED spot light
Installation : Surface mounted on the wall
Lamp type : white LED / 10W
Distribution : Flood
Colour temperature : 3000K
IP rated

Appendix 1: Typical Calculations – Bishops Court



Bishops Court Illumination

Illuminance [lx]

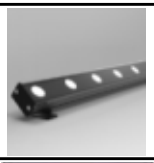
Average illuminance	Eav	: 15.8 lx
Minimum illuminance	Emin	: 1.1 lx
Maximum illuminance	Emax	: 53.2 lx
Uniformity g1	Emin/Eav	: 1 : 14.51 (0.07)
Uniformity g2	Emin/Emax	: 1 : 48.82 (0.02)

Appendix 2: Typical Initial Cost Break Down

Typical Product Cost Break Down – Initial Costs

picture	ref.	manufacturer	product name	Description	Quantity	Unit Cost	total
	A	ACDC lighting	Azeta round lowheight / 8w	New link downlight	10	£ 125	£875
	C	Lightgraphix	LD151	Office entrance inground uplight	2	£ 207	£414
	C1	Lightgraphix	LD56	New link uplight	24	£ 130	£4,914
	L2	Lightgraphix	LD36 / 350mA / 50mm spacing	Linear LED projector for office façade quantity per meter	9	£ 300	£2,700
	L3	Lightgraphix	LD36 / 350mA / 50mm spacing	Office entrance threshold downlight quantity per meter	3	£ 300	£900
	L4	Lightgraphix	LD Flexi / SHORT	Chichester Rents vertical feature light – within vertical metalwork quantity per meter	36	£ 160	£5,760

Typical Product Cost Break Down – Initial Costs

	L5	Lightgraphix	LD36 / 350mA / 50mm spacing	Chichester Rents jewel soffit wash light quantity per meter	11	£ 300	£3,300
	L6	Lightgraphix	Marker Light	Gate vertical wash light quantity per meter	23	£ 300	£6,900
	P1	We-ef	FLC 131 LED 24W	Jewel façade wash projector	7	£ 240	£1,680
	P2	Targetti	Nano Pyros LED 22W	Chichester Rents C-beam mounted spotlight	12	£ 280	£3,360
	P3	Targetti	Pico Pyros LED 10W	Wall light at Bishops Court / Star Yard	13	£ 200	£2,600

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