



**Management
and
Engineering
Services Ltd**

LORDSHIP LANE LONDON

EXTERNAL LIGHTING STRATEGY

Project No: B2921
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Client: ATRI7 2 LIMITED
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Version: 2

Amber Management and Engineering Services Limited

Suites 1 & 2, Kings Court, 87/89 High Street, Nailsea, Bristol. BS48 1AW
Registered Office: As Above

Tel: 01275 851100



Email: eng@amberman.co.uk
Company Registration No 3791501

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PROJECT REVISION SHEET

Version	Details	Comments	Prepared by	Checked by	Issued
1.0	First Issue	First Issue	JDC	CC	06.02.24
1.1	First Re-Issue	Updated Massing Figure	JDC	DLM	13.02.24
2.0	Second Issue	Updated Ground Floor Lighting Drawing	JDC	DLM	16.02.24



Executive Summary

The External Lighting Scheme document details the proposed development's external lighting, designed in accordance with the following: and low/zero carbon technology strategies to meet the requirements of the London Plan Policies:

Building Regulations Approved Document L2A 2021.

CIBSE Lighting Guide LG6

BS 5489-1:2020

BREEAM requirements for light pollution.

The proposed redevelopment involves the construction of 623 beds of Purpose Build Student Accommodation (PBSA), which makes up building A. Building B-D make up the Purpose Built Residential Dwelling section of the development. There is blue badge parking between buildings C and D, and outside building B. The main area running alongside building A is a pedestrian area with bollards to prevent vehicle access. These bollards will be lowered to allow access by refuse truck or maintenance vehicles.

As well as providing a safe illuminance for pedestrians and vehicles and providing a safe environment by discouraging crime. These requirements have to be balanced against the need for a visually appealing scheme, saving energy, reducing nuisance glare and reducing stray upwards light.

Ideally, the external spaces should have a good level of vertical illuminance, being able to clearly see people's faces makes people feel more secure. However, with bedrooms on the ground floor in buildings B and C we need to limit the nuisance light reaching these windows as nuisance light can be detrimental to good sleep. To achieve this we have tried to limit stray light reaching these windows by facing or locating luminaires away from these buildings. Columns have been limited to 4m meter and either face away or are distanced from the building. Where lighting is required such as the back of building C bollards have been used to ensure the light spill is below window level.

Bollards have been provided to the area of trees to the west of the PBSA to reduce shadowing in this area.

1.0 Introduction

This External Lighting Scheme has been prepared for Fusion Students to support their planning application for the redevelopment of the site on Lordship Lane, London.

1.1 Site Location

The site is currently a Mecca Bingo Hall south of Lordship Lane and north of Wellesley Road. There are residential buildings adjoined to the development to the east and a large residential building with a ground floor gym to the west.



Figure 1.2 – Site Location

1.2 Development Proposal

The proposed redevelopment involves the construction of 623 beds of Purpose Build Student Accommodation (PBSA), which makes up Building A. The PBSA bed spaces are provided with en-suite facilities, and are arranged in a mix of en-suites, social studios, duplex studios, studios & accessible studios. Building A also contains a shell and core non-residential retail space on the ground floor.

Buildings B-D make up the Residential Dwelling section of the development. Building B is composed of Shared Ownership units including one beds, 2 beds (3 persons), 2 beds (4 persons) and 3 beds (5 persons). Building C is composed of social rent including one beds (2 persons), 2 beds (3 persons), 2 beds (4 persons) and 3 beds (5 persons). Building D is composed of 7 number 5 beds (8 persons).

The gross floor area of the PBSA is circa 19,500m², inclusive of various communal student facilities. The Residential buildings gross floor area is 5767m².



Figure 1.3 – Proposed Site Plan

2.0 Proposed Luminaires

Reference Type	X1	
Application	General and Emergency External Lighting – Building MMounted	
Description	IP65 / IK16 rated surface wall mounted LED bulkhead luminaire. Opal polycarbonate diffuser, die-cast aluminium, powder coated finish in titanium. Complete with integral battery and inverter for 3-hour operation. Minimum 86 Lm/W.	
Manufacturer	Design Plan	
Reference Luminaire	TLSW/1100NW/XC49/EM3	
Lamp	4000K LED CRI>80	

Reference Type	X2	
Application	General External Lighting – Bollard	
Description	IP65 & IK10 exterior downlight with aluminium die-cast body, finished with a matt white powder coat and fitted with a polycarbonate diffuser and medium beam light distribution. 4000K colour temperature. Complete with integral battery and inverter for 3-hour operation. Minimum 57 Lm/W.	
Manufacturer	Design Plan	
Reference Luminaire	DL86-G1-1000W-M-MW-DA	
Lamp	4000K LED CRI>80	

Reference Type	X3	
Application	General External Lighting – Bollard and EV charger	
Description	IP65 & IK10 exterior downlight with aluminium die-cast body, finished with a matt white powder coat and fitted with a polycarbonate diffuser and medium beam light distribution. 4000K colour temperature. Complete with integral battery and inverter for 3-hour operation. Minimum 57 Lm/W. Fitted with a 7.4Kw EV charger.	
Manufacturer	Design Plan	
Reference Luminaire	TLSBP/1100NW/XC49/EM3	
Lamp	4000K LED CRI>80	

Reference Type	X4	
Application	General External Lighting – 4m street column	
Description	IP68 Streethead on 4m column 43.4w 7010 lumens complete with S07 beam pattern 161 Lm/W	
Manufacturer	Kingfisher	
Reference Luminaire	Italo 1 S07	
Lamp	4000K LED	

Reference Type	X5	
Application	Surface mounted amenity luminaire used under walkways	
Description	Surface mounted Polycarbonate IP65 luminaire. Used under walkways, on top floor X5a to be used. 6.3w 800 lumen Minimum 126 Lm/W.	
Manufacturer	Whitcroft	
Reference Luminaire	Kolo IP65	
Lamp	6.3w 800 lumen LED 4000K	

Reference Type	X5a	
Application	Surface mounted amenity luminaire used when not under a walkway	
Description	Surface mounted Polycarbonate IP65 luminaire. Used on top floor to prevent upwards light 14w 1004 lumen Minimum 72 Lm/W.	
Manufacturer	Whitcroft	
Reference Luminaire	Kolo Hood IP65	
Lamp	14w 1004 lumen LED 4000K	

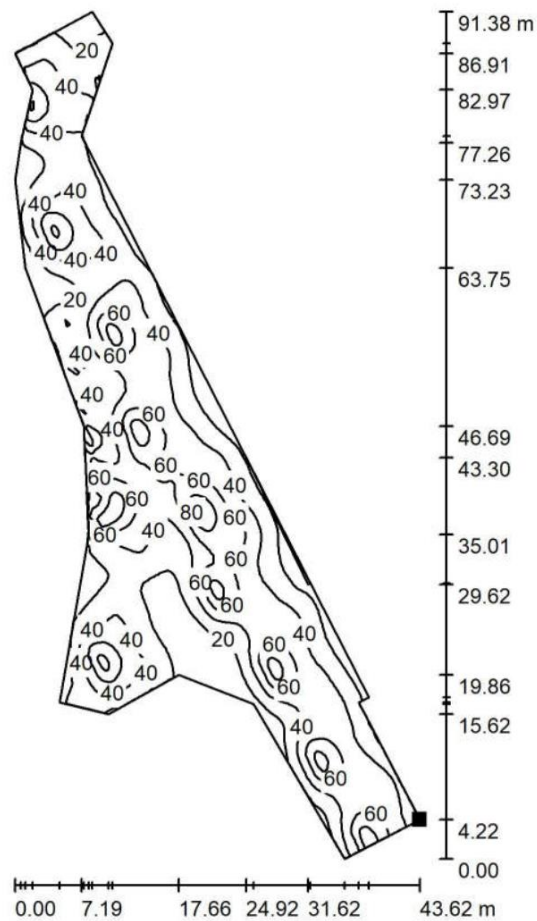
Reference Type	X6	
Application	Outdoor Image Projector	
Description	Aluminium bodied column mounted pattern projector	
Manufacturer	Martin Lighting	
Reference Luminaire	Projection 500	
Lamp	LED	



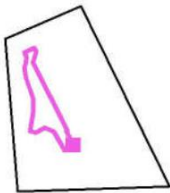
3.0 Lighting Calculations

3.1 Main Area east of PBSA

LLL externals / Main area / Isolines (E, Perpendicular)



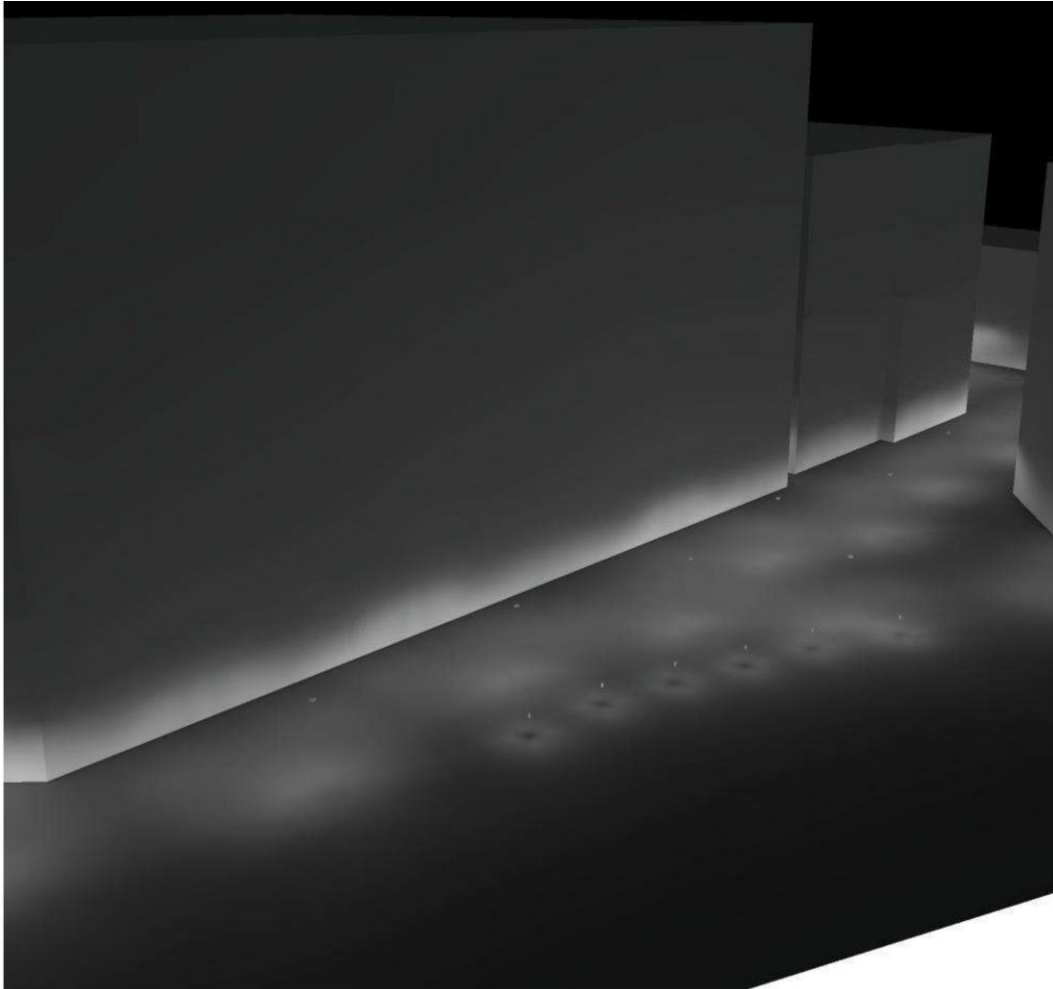
Position of surface in room:
Marked point:
(45.896 m, 27.935 m, 0.001 m)



Values in Lux, Scale 1 : 715

Grid: 128 x 128 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0	E_{min} / E_{max}
40	5.74	98	0.142	0.058

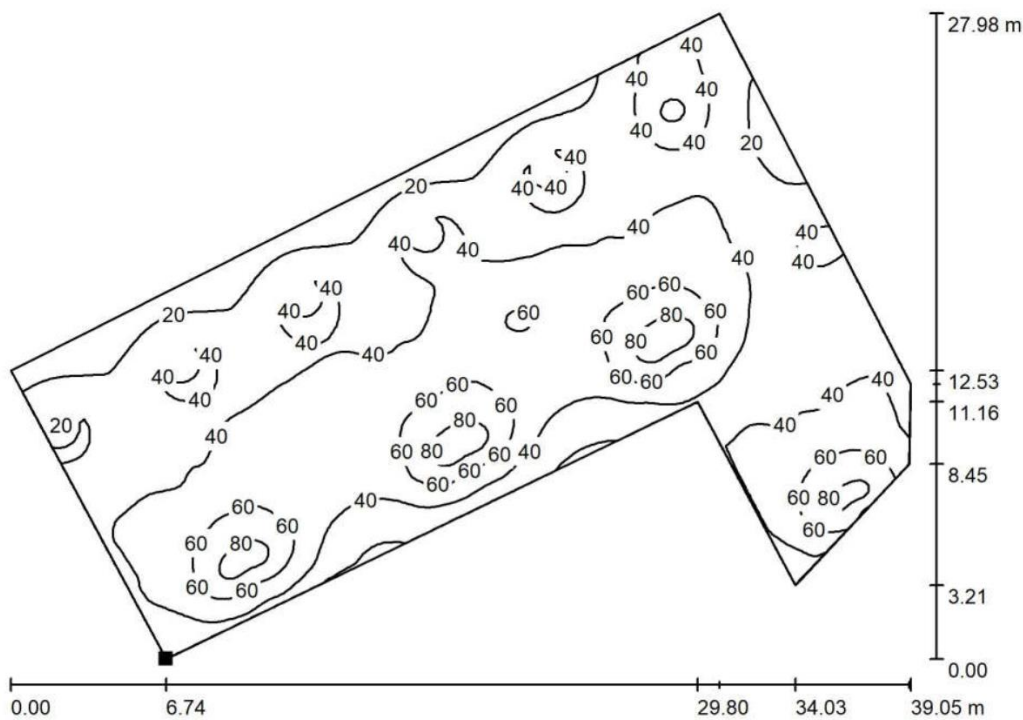


Main Area east of PBSA 3D Render

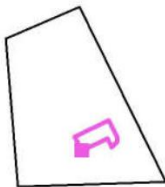


3.2 Parking Area between buildings C and D

LLL externals / Building D access / Isolines (E, Perpendicular)



Position of surface in room:
Marked point:
(54.900 m, 20.000 m, 0.001 m)



Values in Lux, Scale 1 : 280

Grid: 128 x 128 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0	E_{min} / E_{max}
41	10	91	0.252	0.114

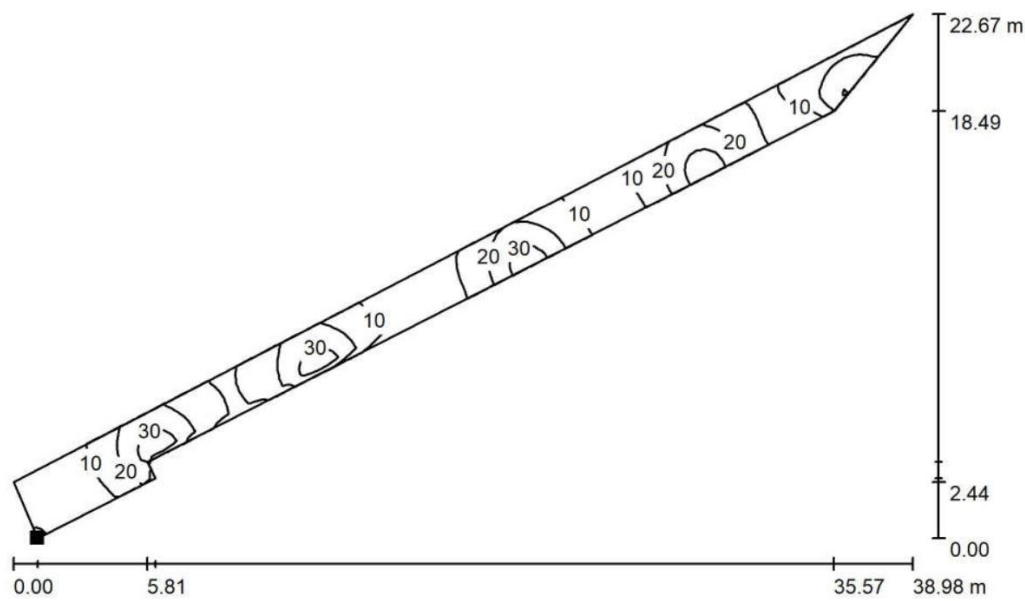


Parking Area between buildings C and D – 3D Render

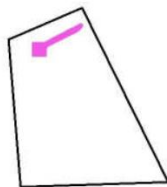


3.3 High Street outside PBSA

LLL externals / Building A high street / Isolines (E, Perpendicular)



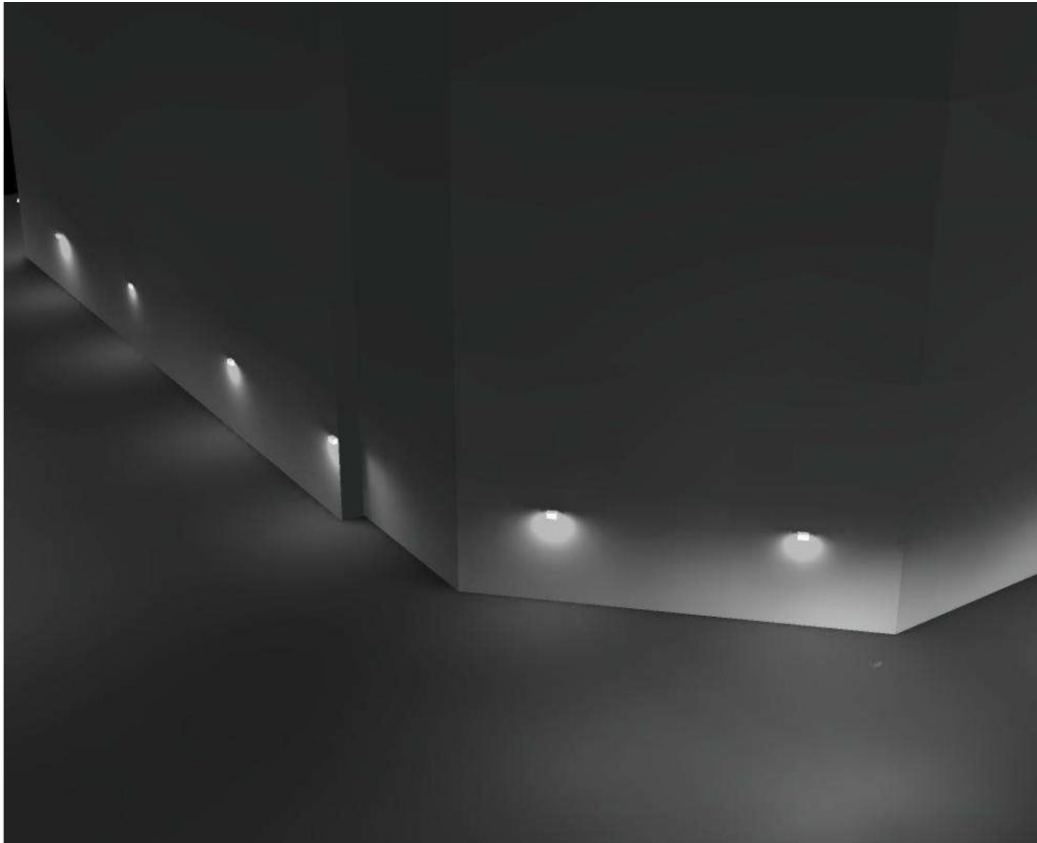
Position of surface in room:
Marked point:
(13.543 m, 113.428 m, 0.001 m)



Values in Lux, Scale 1 : 279

Grid: 128 x 8 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0	E_{min} / E_{max}
16	2.93	37	0.184	0.079

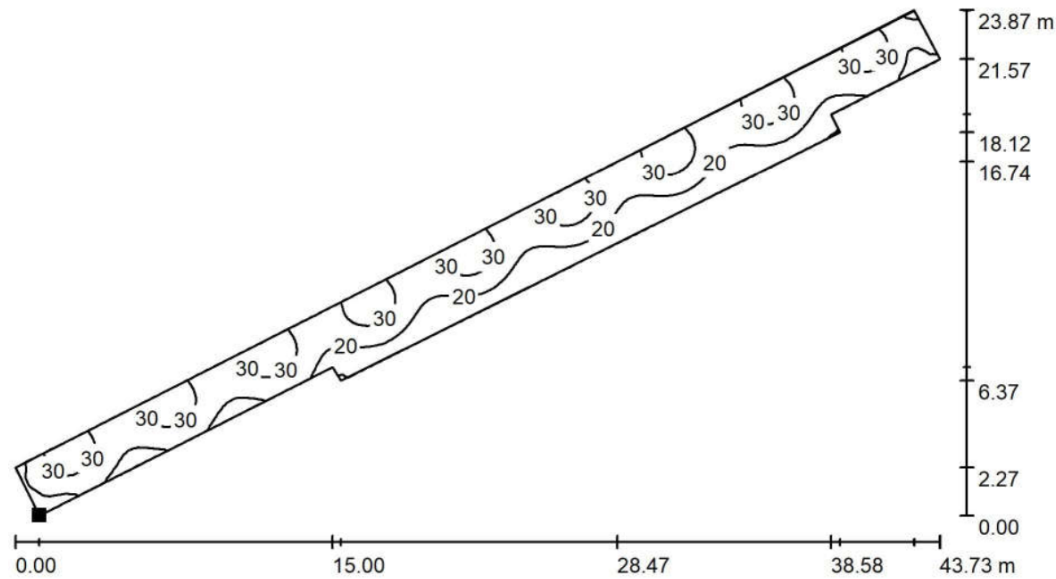


High Street outside PBSA 3D Render



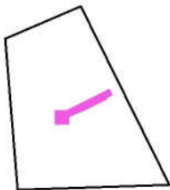
3.4 Service corridor between buildings A & C

LLL externals / Building A to C service corridor / Isolines (E, Perpendicular)



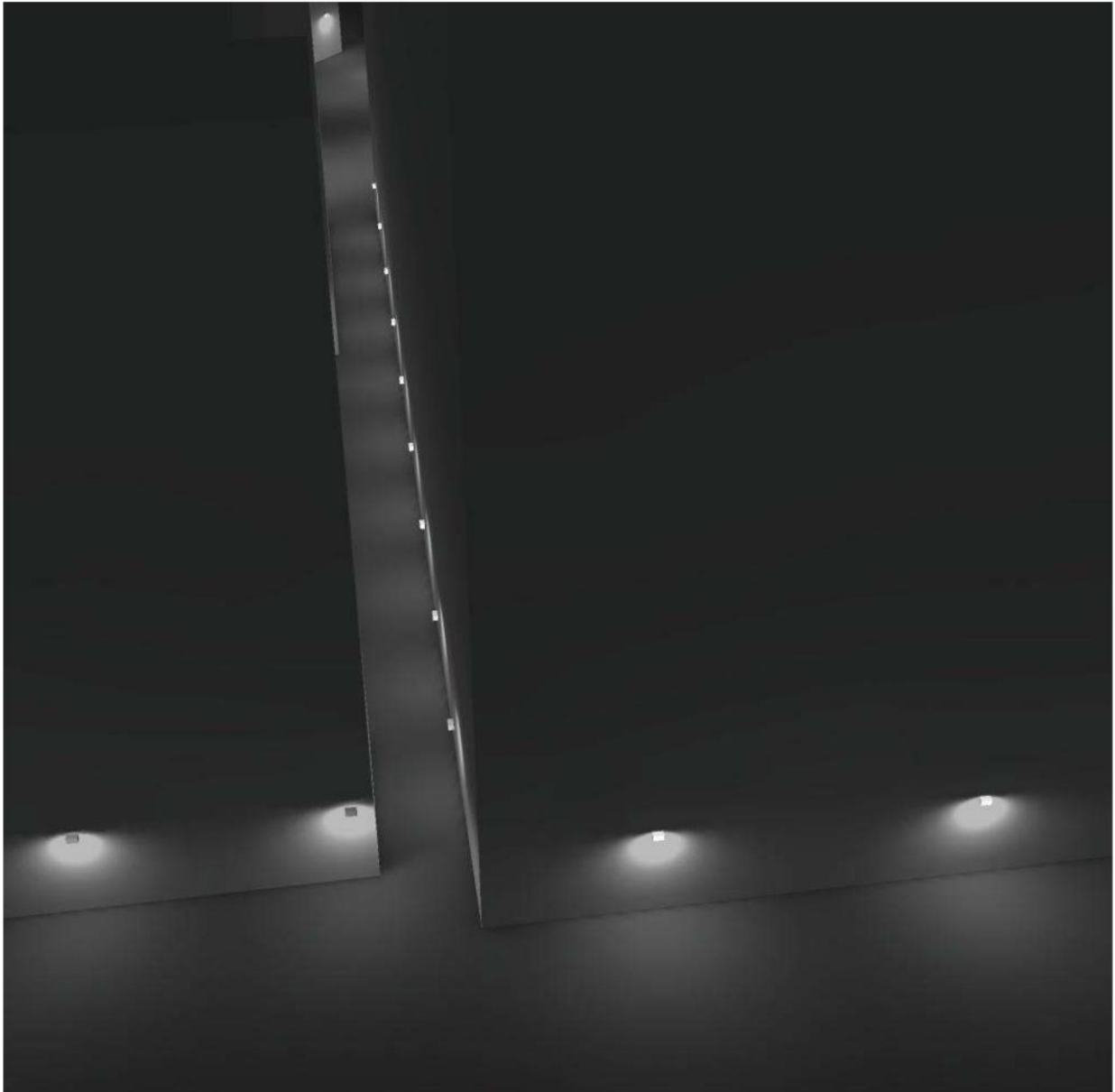
Values in Lux, Scale 1 : 313

Position of surface in room:
Marked point:
(36.041 m, 51.531 m, 0.001 m)



Grid: 128 x 128 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	$u0$	E_{min} / E_{max}
25	9.25	40	0.376	0.229

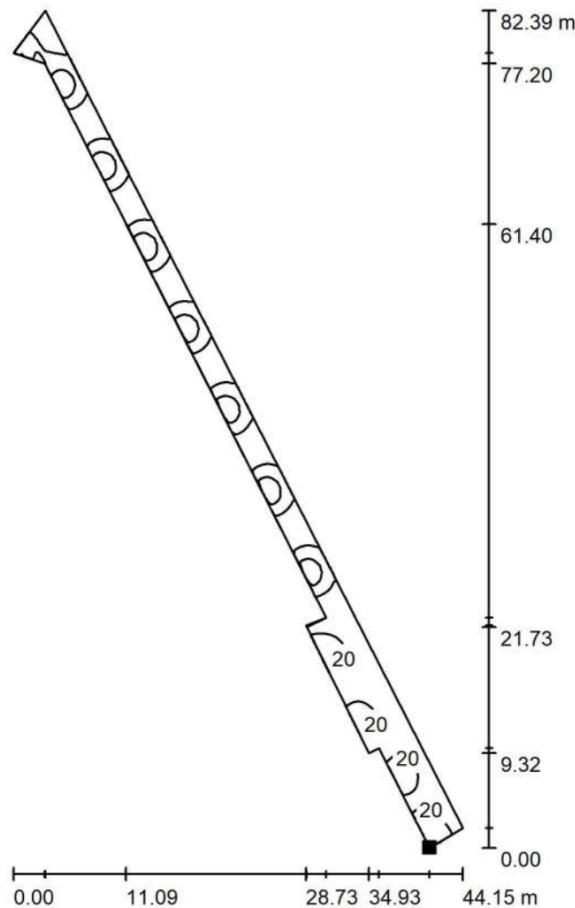


Service corridor between buildings A & C – 3D Render

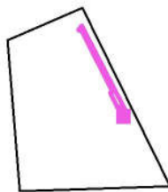


3.5 Access to East of Buildings A & D

LLL externals / Building A & D east / Isolines (E, Perpendicular)



Position of surface in room:
Marked point:
(89.750 m, 53.777 m, 0.001 m)



Values in Lux, Scale 1 : 645

Grid: 128 x 128 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	$u0$	E_{min} / E_{max}
22	5.50	60	0.251	0.091

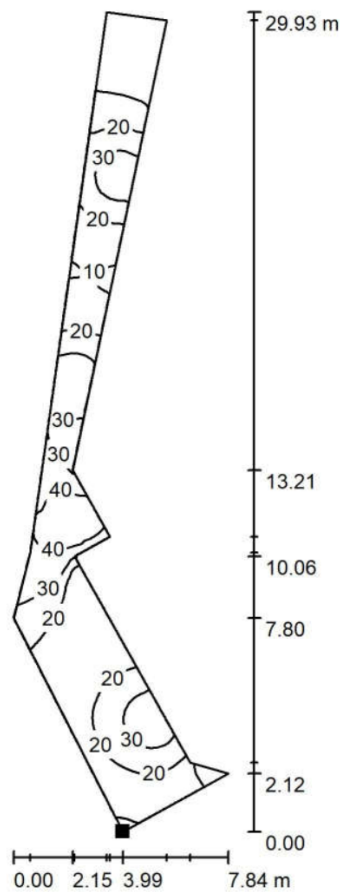


Access to East of Buildings A & D -3D Render

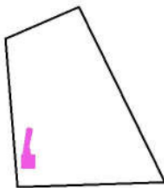


3.6 Access around West of Building B

LLL externals / Building B south path / Isolines (E, Perpendicular)



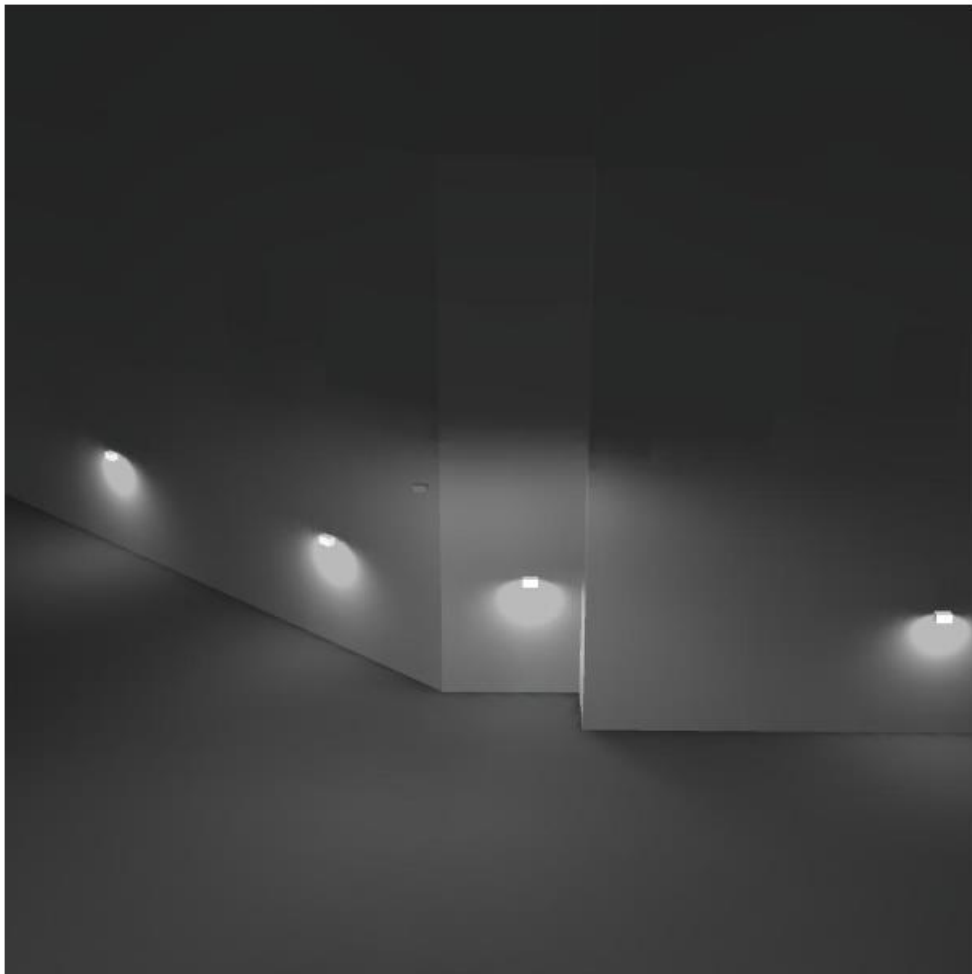
Position of surface in room:
Marked point:
(6.478 m, 9.795 m, 0.001 m)



Values in Lux, Scale 1 : 235

Grid: 128 x 128 Points

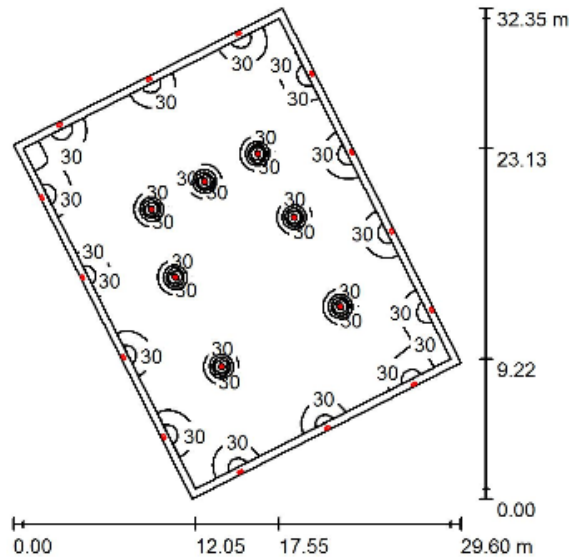
E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	$u0$	E_{min} / E_{max}
22	1.27	47	0.058	0.027



Access around West of Building B 3D Render

3.7 Courtyard of PBSA

LLL externals / Summary



Height of Room: 80.000 m, Maintenance factor: 0.80

Values in Lux, Scale 1:416

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	$u0$
Workplane	/	20	2.72	146	0.134
Floor	8	20	6.26	45	0.307
Ceiling	0	0.04	0.04	0.05	0.954
Walls (4)	10	0.74	0.01	279	/

Workplane:

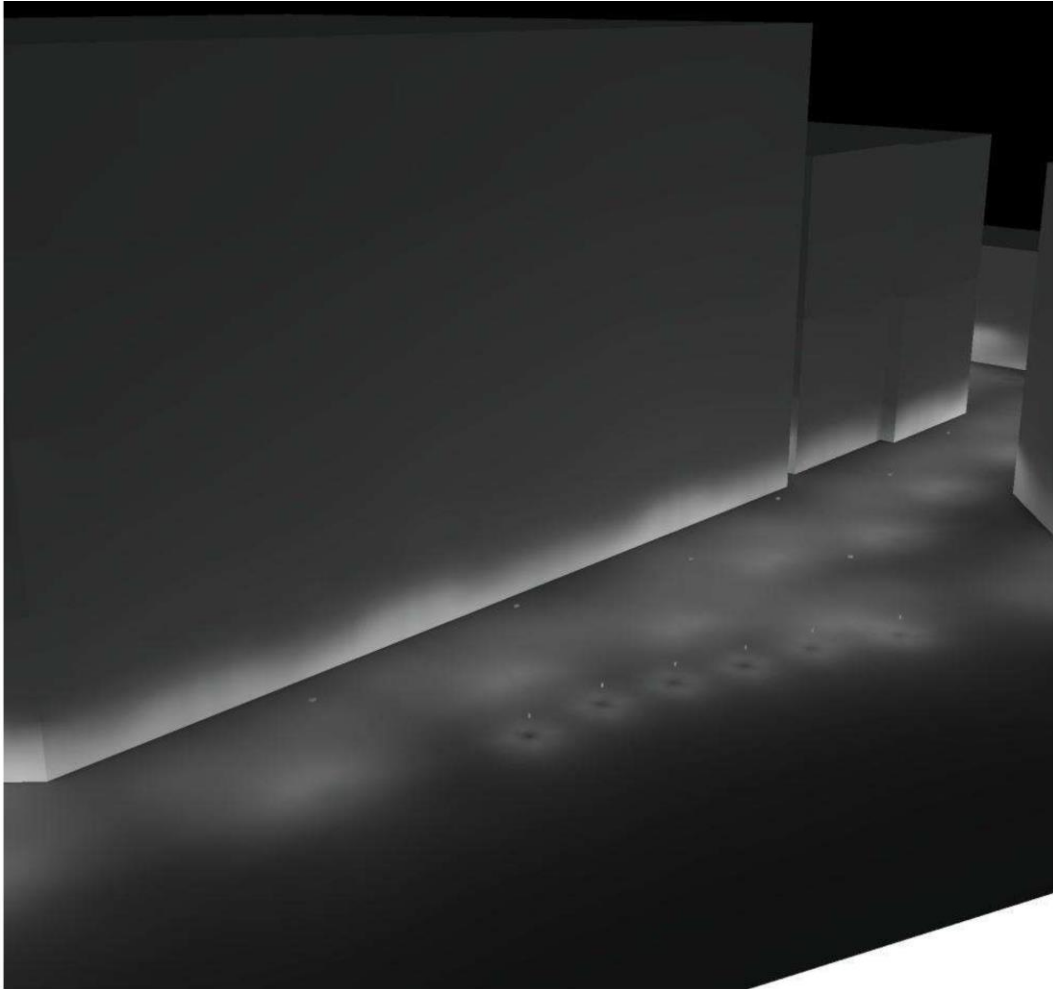
Height: 0.750 m
Grid: 128 x 128 Points
Boundary Zone: 0.500 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.039, Ceiling / Working Plane: 0.002.

Luminaire Parts List

No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	14	Designplan TLSW/1100NW/XC49 Zelos Wall TLSW/1100NW/XC49 (1.000)	1154	1154	13.4
2	7	TRT Lighting Ltd. VIA SYM 280mA 4000K LED VIA SYM 280mA 4000K LED (1.000)	500	500	9.0
Total:			19654	19656	251.2

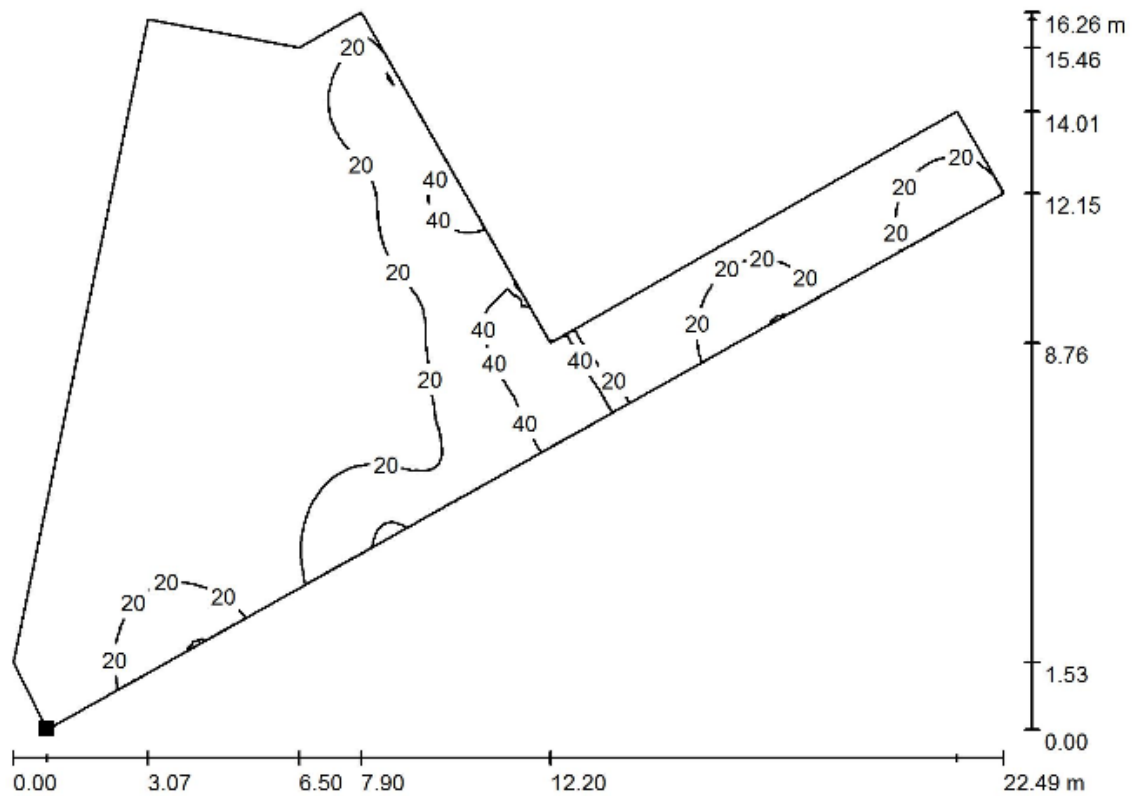
Specific connected load: $0.48 \text{ W/m}^2 = 2.38 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 521.46 m²)



Courtyard of PBSA 3D Render

3.8 Building B First Floor

LLL externals / Calculation Surface 0.5 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 161

Grid: 128 x 128 Points

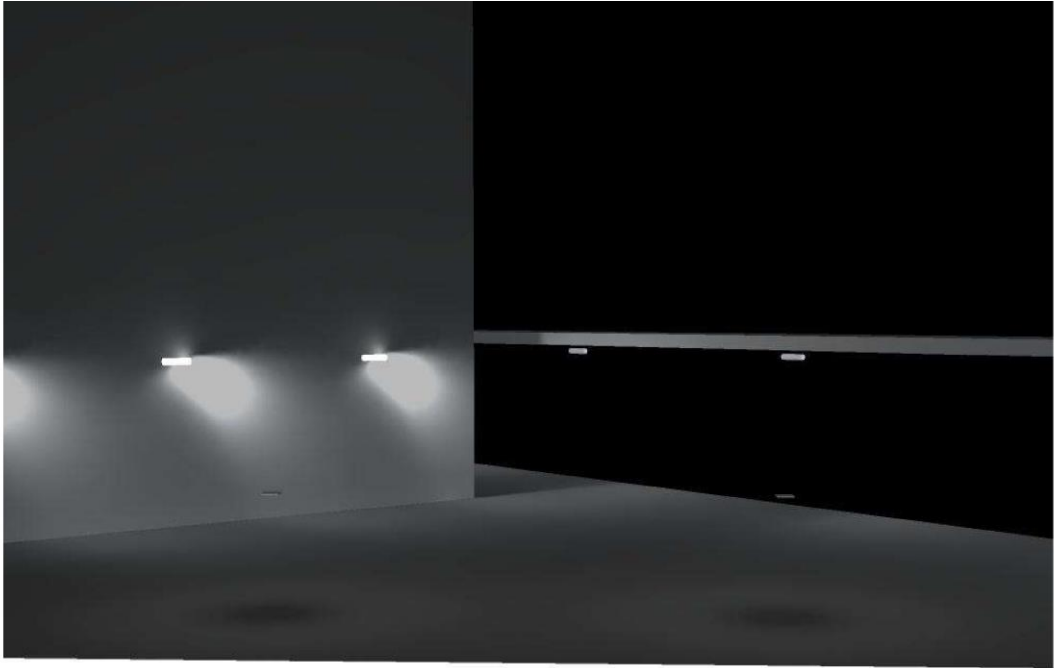
E_{av} [lx]
18

E_{min} [lx]
4.03

E_{max} [lx]
55

$u0$
0.225

E_{min} / E_{max}
0.073

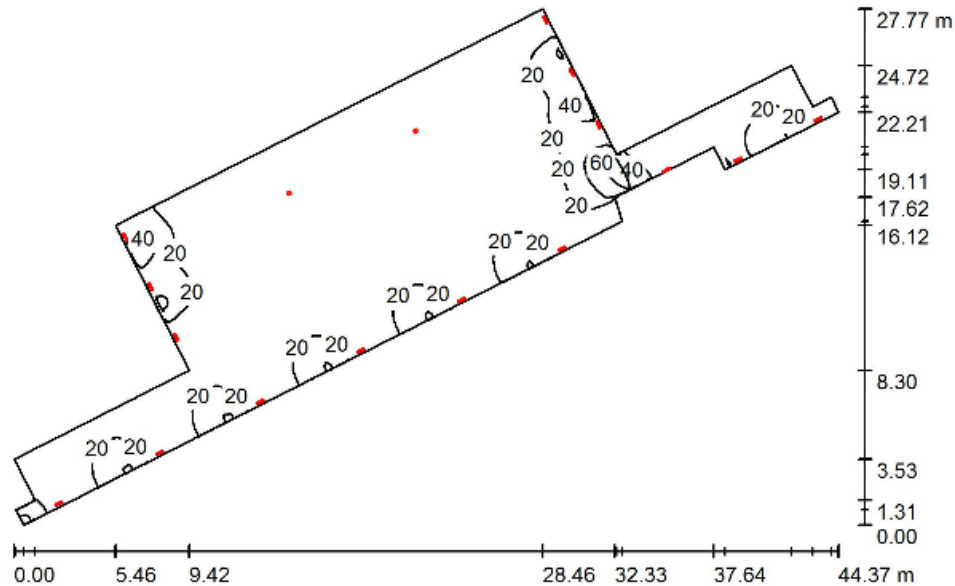


Building B First Floor 3D Render



3.9 Building C First Floor

LLL externals / Summary



Height of Room: 12.000 m, Maintenance factor: 0.80

Values in Lux, Scale 1:357

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	$u0$
Workplane	/	13	1.58	71	0.122
Floor	8	13	1.56	71	0.121
Ceiling	0	0.29	0.13	0.37	0.431
Walls (16)	1	5.65	0.01	12070	/

Workplane:

Height: 0.001 m
Grid: 128 x 128 Points
Boundary Zone: 0.000 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.418, Ceiling / Working Plane: 0.023.

Luminaire Parts List

No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	2	TRT Lighting Ltd. VIA SYM 280mA 4000K LED VIA SYM 280mA 4000K LED (1.000)	500	500	9.0
2	15	WHITECROFT K6H44KHB KOLO IP65 HOOD (1.000)	1008	1008	14.2
Total:			16120	16120	231.0

Specific connected load: $0.61 \text{ W/m}^2 = 4.71 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 378.50 m^2)



Building C First Floor 3D Render



Appendix A: External Lighting Drawings

Ground Floor Lighting LLWGSA-AMES-00-00-DR-E-SS7080-1001 D2 P3

First Floor Lighting LLWGSA-AMES-00-01-DR-E-SS7080-1011 D2 P2

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LEGEND

LIGHTING & SWITCHING
REFER TO THE LUMINAIRE SCHEDULE FOR
DETAILS OF THE INDIVIDUAL LUMINAIRE

-  PASSIVE INFRA-RED PRESENCE DETECTOR
-  MICROWAVE PRESENCE DETECTOR -
DIRECTIONAL DETECTION
-  4m COLUMN WITH KINGFISHER LIGHTING
ITALO 1 LUMINAIRE
-  TRT LIGHTING VIA 1.2m ILLUMINATED
BOLLARD
-  AS ABOVE BUT INCORPORATIVE A 7kW
ELECTRIC CAR CHARGER
-  TRT LIGHTING - WALL MOUNTED FACET
LOW LUMINAIRE
-  E - E DENOTES 3 HOUR EMERGENCY
BATTERY PADS
-  PATTERN PROJECTOR
MARTIN 500 PROJECTOR PART No.90506535

SEE DRAWING No.1011 FOR LIGHTING
DETAILS TO FIRST FLOOR COURTYARD.

SEE DRAWING No.1011 FOR LIGHTING
DETAILS TO FIRST FLOOR GARDENS.

SEE DRAWING No.1011 FOR LIGHTING
DETAILS TO FIRST FLOOR GARDENS.

PATTERN PROJECTOR
MOUNTED ON COLUMN

BACK GLARE BAFFLE
REQUIRED ON LUMINAIRE

PATTERN PROJECTOR
MOUNTED ON COLUMN

EXISTING STREET LIGHTS



X1 DESIGN PLAN
ZELOS WALL LIGHT



X2 TRT BOLLARD +
EV CHARGER



X3 TRT BOLLARD



X4 ITALO 1
STREET LIGHT



X5 WHITECROFT
KOLO



X5a WHITECROFT
KOLO HOOD



X6 MARTIN 500
PATTERN PROJECTOR

A1 Original
Sheet Size

NOTES:
THE DRAWING MUST BE READ IN CONJUNCTION WITH THE ARCHITECT'S DOCUMENTS,
STRUCTURAL ENGINEER'S DETAILS AND ALL RELEVANT SPECIFICATIONS.

REV	DESCRIPTION	CHK'D	DATE
P3	BACKGROUND UPDATED	JDC	15.02.24
P2	BACKGROUND UPDATED	JDC	26.01.24
P1	PRELIMINARY ISSUE	JDC	12.01.24

CLIENT:
ATRI 7 2 LIMITED

ARCHITECT:
CORSTORPHINE + WRIGHT



Management and Engineering
Services Limited
SUITES 1 & 2 KINGS COURT, 67/69 HIGH STREET
NALSEA, BRISTOL BS48 1AW
Tel: 01275 851100 Fax: 01275 851344
email: eng@entertainment.co.uk

SCALE: 1:200@A1
DATE: DEC 2023
ENGINEER: JDC
DRAWN: EG

CHECKED: JDC
QA:
AMBER
PROJECT No: B2921

TITLE:
LORDSHIP LANE, WOOD GREEN
STUDENT ACCOMADATION, BUILDING A LEVEL 00
ELECTRICAL SERVICES
EXTERNAL LIGHTING LAYOUT

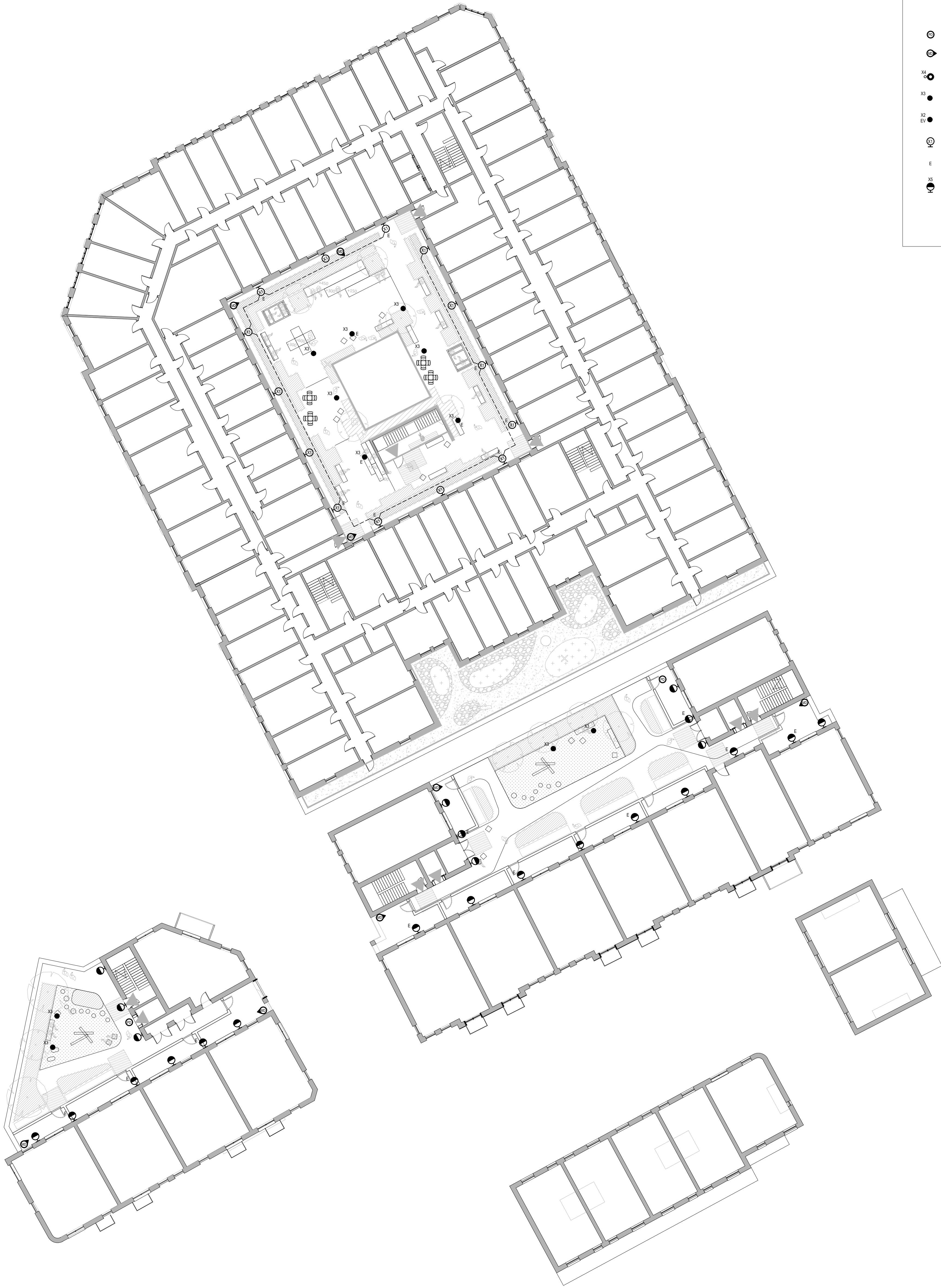
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PROJECT REF	ORIGINATOR	VOL	LEVEL	TYPE	ROLE	CLASS	NUMBER	SUIT	REV	

PLOT DATE: 15.2.2024

LEGEND

LIGHTING & SWITCHING
REFER TO THE LUMINAIRE SCHEDULE FOR
DETAILS OF THE INDIVIDUAL LUMINAIRE

- PASSIVE INFRA-RED PRESENCE DETECTOR
- MICROWAVE PRESENCE DETECTOR -
DIRECTIONAL DETECTION
- 4m COLUMN WITH KINGFISHER LIGHTING
ITALO 1 LUMINAIRE
- TRT LIGHTING VIA 1.2m ILLUMINATED
BOLLARD
- AS ABOVE BUT INCORPORATIVE A 7kW
ELECTRIC CAR CHARGER
- TRT LIGHTING - WALL MOUNTED FACET
LOW LUMINAIRE
- E - E DENOTES 3 HOUR EMERGENCY
BATTERY PADS
- WHITCROFT KOLO
IP65 NOOD



X1 DESIGN PLAN
ZELOS WALL LIGHT



X2 TRT BOLLARD +
EV CHARGER



X3 TRT BOLLARD



X4 ITALO 1
STREET LIGHT



X5 WHITCROFT
KOLO



X5a WHITCROFT
KOLO HOOD

A1 Original
Sheet Size

NOTES:
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ENGINEER'S DETAILS AND ALL RELEVANT SPECIFICATIONS.

P2	LUMINAIRES AMENDED	JDC	05.02.24
P1	PRELIMINARY ISSUE	JDC	12.01.24
REV	DESCRIPTION	CHK'D	DATE

CLIENT:
ATRI 2 LIMITED

ARCHITECT:
CORSTORPHINE + WRIGHT



Management and Engineering
Services Limited
SUITES 1 & 2 KINGS COURT, 67/69 HIGH STREET
NAILSEA, BRISTOL BS48 1AW
Tel: 01275 851100 Fax: 01275 851344
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QA:
AMBER
PROJECT No: B2921

TITLE:
LORDSHIP LANE, WOOD GREEN
STUDENT ACCOMADATION, BUILDING A LEVEL 01
ELECTRICAL SERVICES
FIRST FLOOR EXTERNAL LIGHTING LAYOUT

DRAWING No:	LLWGS	AMES	00	01	DR	E	SS7080	1011	02	P2
PROJECT REF	ORIGINATOR	VOL	LEVEL	TYPE	ROLE	CLASS	NUMBER	SUIT	REV	