



Dakota, Manchester Airport

External Lighting Report

On Behalf of
Evans Dakota Hotels Ltd

Revision No: P03
Issued Date: 30 May 2024

CONTENTS

1.	INTRODUCTION	1
1.1	General	1
2.	EXPLANATION OF GUIDANCE	2
2.1	General	2
2.2	BS 5489-1 2020.....	2
2.3	ILP Guidance: Reduction of Obtrusive Light.....	2
3.	PRELIMINARY DESIGN PROPOSALS	4
4.	ECOLOGICAL DESIGN CONSIDERATIONS	5
APPENDIX A:	EXTERNAL LIGHTING PROPOSALS	6
APPENDIX B:	EXTERNAL LUMINAIRE PROPOSALS	7

1. Introduction

1.1 General

The external lighting report has been prepared on behalf of Evans Dakota Hotels Ltd and is in support of the proposed erection of a 7 storey 154 bedroom hotel, with associated car parking, feature vehicular drop-off area and canopy, service yard, landscaping and highways works to existing access at Bailey Lane, Manchester Airport.

The aim of this document is to provide an indicative external lighting strategy for the external operational lighting to support the development planning application.

The strategy is for an external lighting scheme that provides safe levels of illumination to support the proposed use of the site whilst mitigating the impact of the lighting in terms of obtrusive light and light pollution on surrounding properties and wildlife.

The planning stage strategy adopts the principles and guidance set out in the following Codes of Practice:

- i) BS 5489-1 2020: Code of Practice for the design of road lighting, lighting of roads and public amenity areas.
- ii) Institution of Lighting Professionals (ILP): Guidance notes for the reduction of obtrusive light.

2. Explanation of Guidance

2.1 General

The following section provides a précis of the relevant points from the adopted guidance.

2.2 BS 5489-1 2020

This code of practice recommends maintained average lighting levels are as follows:

Entrance Road & Car Park	-	10lux, 25% uniformity
Coach drop off	-	50lux, 25% uniformity
Service Yard	-	20lux, 40% uniformity
Entrance (under canopy)	-	50lux, 40% uniformity

In addition to the functional lighting around the site, it is proposed that building mounted feature lighting is provided to compliment the design of the building. The feature lighting will wash and highlight selected building elements but will provide no functional lighting.

2.3 ILP Guidance: Reduction of Obtrusive Light

Using the following table contained within the ILE guide, we would assess this site as a Category E4 Environmental Zone, which is defined as 'Town/City centres with high levels of night time activity'.

Table 1 – Environmental Zones			
Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically dark	National Parks, Areas of Outstanding Natural Beauty etc
E2	Rural	Low district brightness	Village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Small town centres or suburban locations
E4	Urban	High district brightness	Town/city centres with high levels of night-time activity

The following table contained within BS EN 12464 Part 2 expands on the definition of the E4 Environmental Zone as 'Represents high district brightness area, such as town centres and commercial areas'.

Table 2 — Maximum obtrusive light permitted for exterior lighting installations

Environmental zone	Light on properties		Luminaire intensity		Upward light ratio	Luminance	
	E_v lx		I cd		R_{UL} %	L_b cd·m ⁻²	L_s cd·m ⁻²
	Pre-curfew ^a	Post-curfew	Pre-curfew	Post-curfew		Building facade	Signs
E1	2	0	2 500	0	0	0	50
E2	5	1	7 500	500	5	5	400
E3	10	2	10 000	1 000	15	10	800
E4	25	5	25 000	2 500	25	25	1 000
<p>where</p> <p>E1 represents intrinsically dark areas, such as national parks or protected sites;</p> <p>E2 represents low district brightness areas, such as industrial or residential rural areas;</p> <p>E3 represents medium district brightness areas, such as industrial or residential suburbs;</p> <p>E4 represents high district brightness areas, such as town centres and commercial areas;</p> <p>E_v is the maximum value of vertical illuminance on properties in lx;</p> <p>I is the light intensity of each source in the potentially obtrusive direction in cd;</p> <p>R_{UL} is the proportion of the flux of the luminaire(s) that is emitted above the horizontal, when the luminaire(s) is (are) mounted in its (their) installed position and attitude, and given in %;</p> <p>L_b is the maximum average luminance of the facade of a building in cd·m⁻²;</p> <p>L_s is the maximum average luminance of signs in cd·m⁻².</p> <p>^a In case no curfew regulations are available, the higher values shall not be exceeded and the lower values should be taken as preferable limits.</p>							

This site would come under the definitions provided for a category E4 Environmental Zone.

The external lighting has been designed to ensure that the maximum permitted obtrusive light or light pollution is not exceeded to help minimize difficulties for people, flora and fauna.

Due to the proximity to Manchester Airport, the upward light ration has been further minimised so as not to impact operation of the airport in any way.

3. Preliminary Design Proposals

The preliminary design proposals are indicated on the drawings within appendix A of this report which forms part of the planning submission.

The functional lighting luminaire selection will concentrate on high efficacy light sources, with highly controlled optics to ensure a uniform downward light distribution for minimising unwanted obtrusive light spill. The proposed luminaires are detailed in appendix B of this report.

The feature lighting luminaire selection will also concentrate on high efficacy light sources, with precision optics and glare shields to ensure a uniform light distribution, highlighting selected building elements and minimising unwanted obtrusive light spill. The proposed luminaires are detailed in appendix B of this report.

4. Ecological Design Considerations

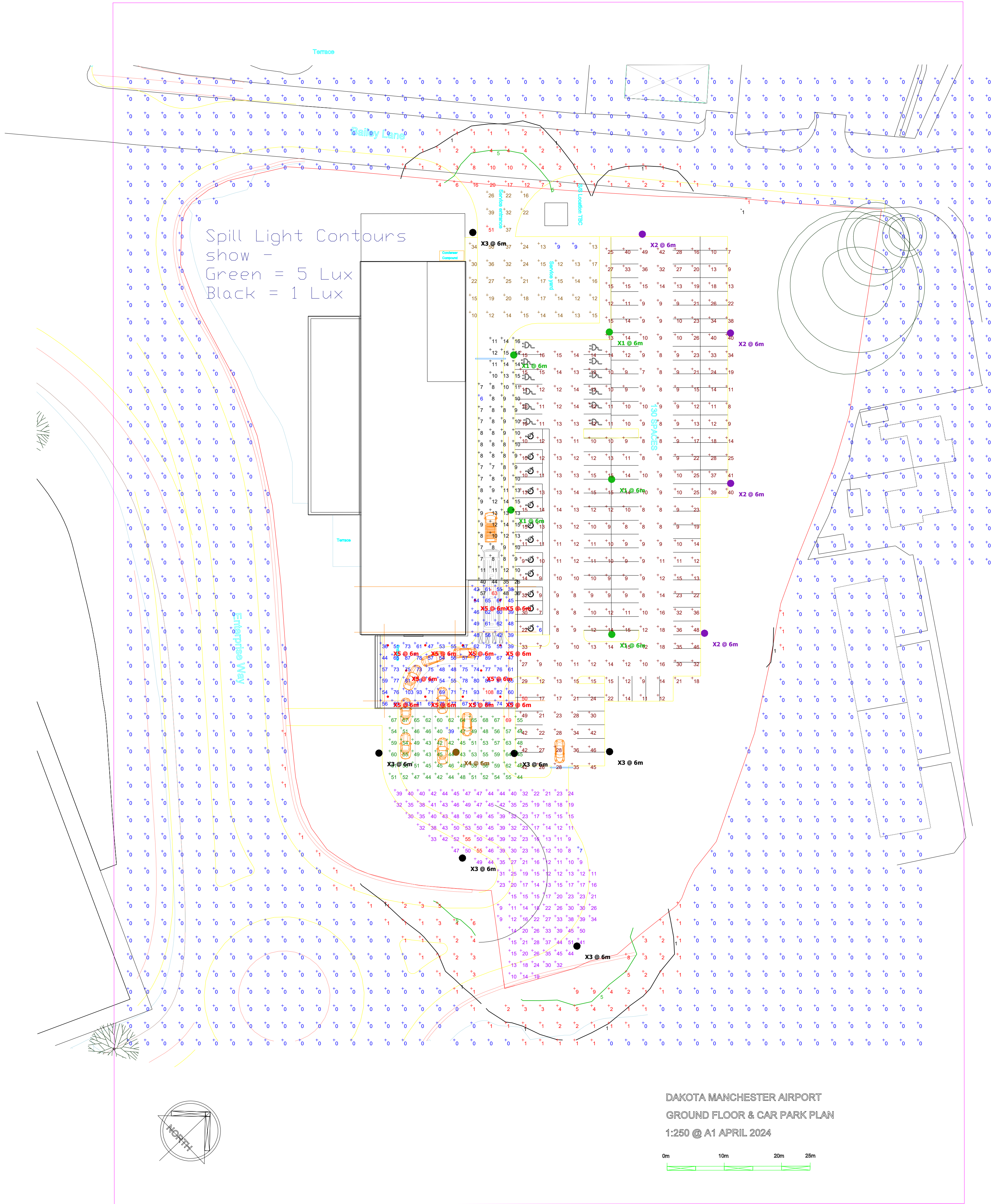
There has not been any areas of ecological significance highlighted on this site that the external lighting would need to consider.

The external lighting has been designed to direct the light only where it is required and minimise light spill to the surrounding house and any trees that are on site.

Appendix A: External Lighting Proposals

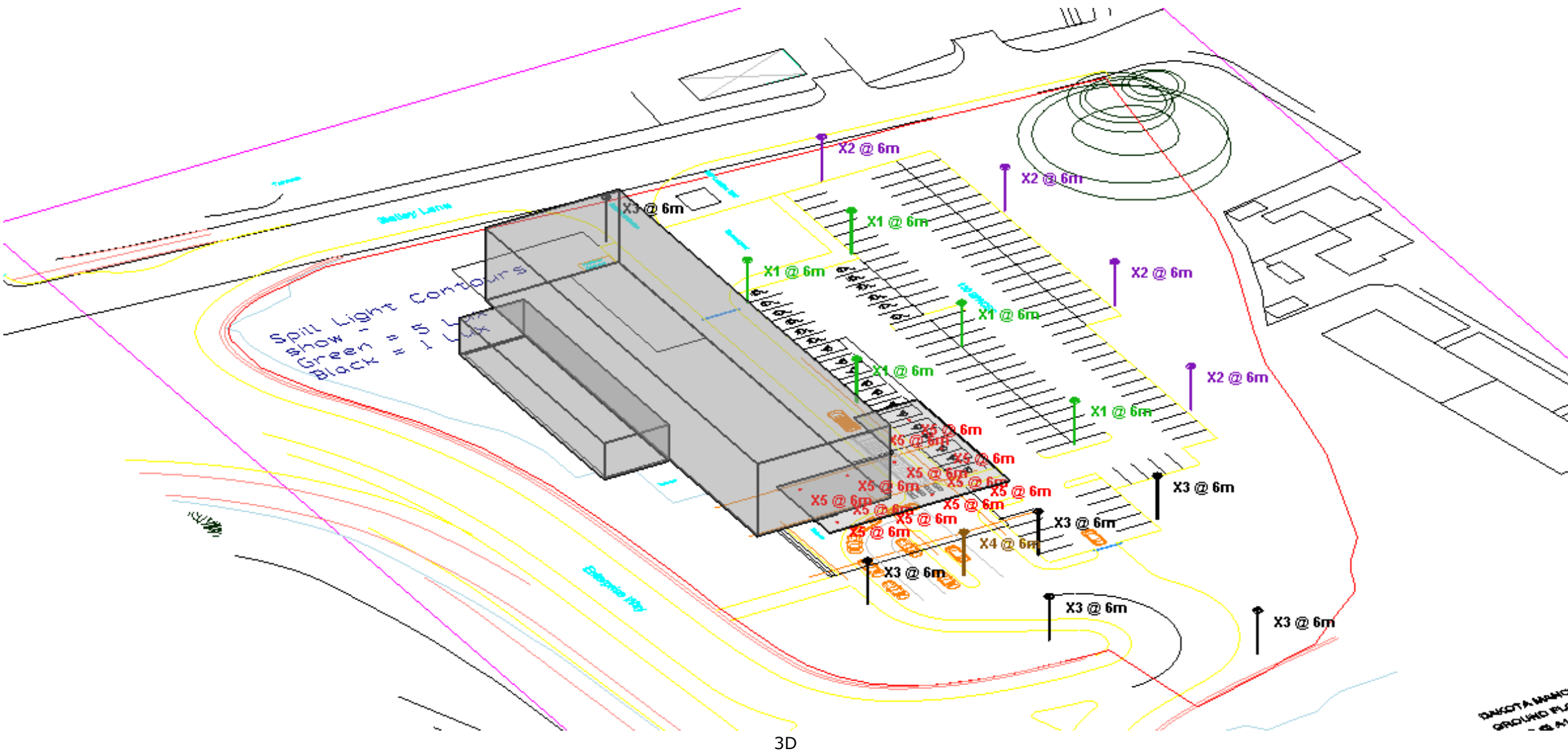
Page 1 – Functional External Lighting

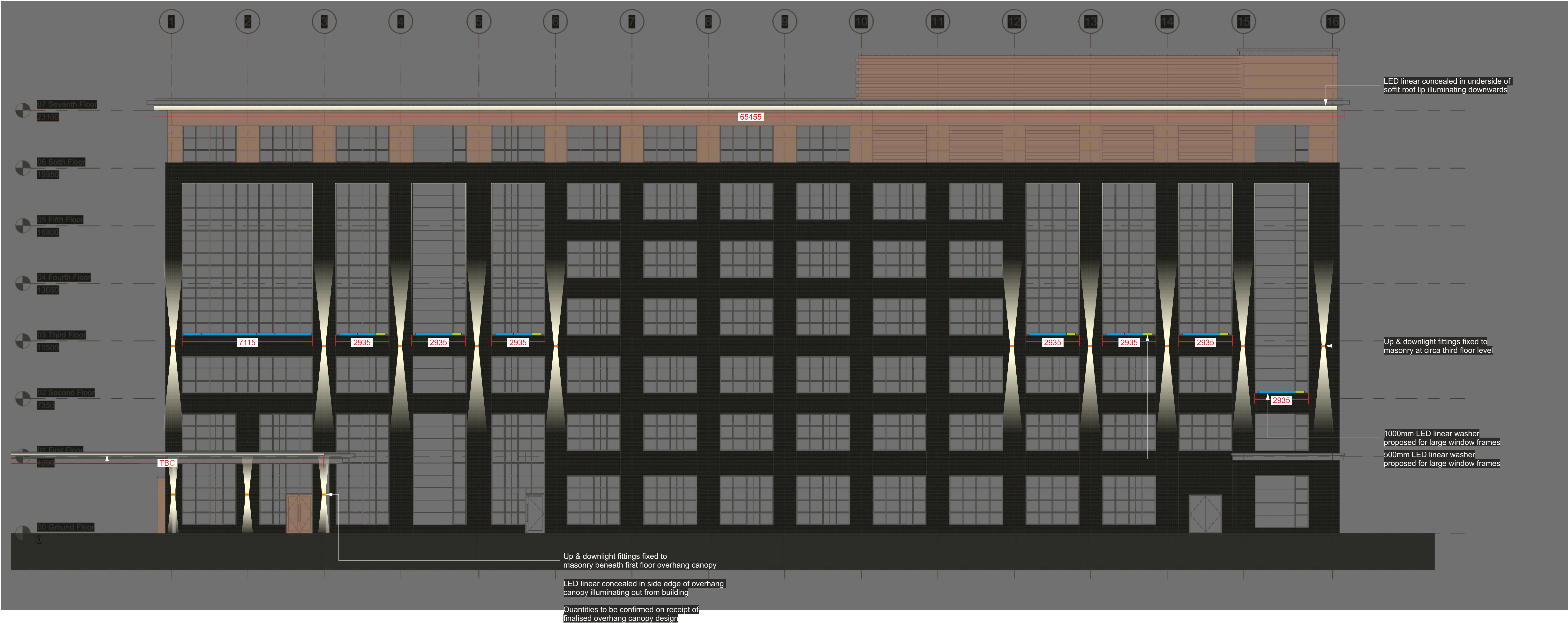
Page 2 – Feature Building Lighting



Schedule						
Symbol	Label	Quantity	Catalog Number	Description	Lamp	Lumens Per Lamp Wattage
	X5	12	PBHD.ASR.8534518	ASTER Large Pro IP65 Recessed downlight c/w 80 degree wide beam optic. Mounted with the canopy at an assumed height of 6m AGL	LED 3000K	2990 35
	X1	5	SCL.2.LA074.ST3.CP-W 056 (TZ)	City Max SMALL c/w 7,000 lm output and ST3 Square Symmetric optic on 6m Column	LED C.7000 Lumens	6831 56
	X2	4	SCL.2.LA074.AS2.CP-W 056 (TZ)	City Max SMALL c/w 7,000 lm output and AS2 Asymmetric optic on 6m Column	LED C.7000 Lumens	7229 56
	X3	6	SCL.2.LA124.AS3.CP-W 108 (TZ)	City Max SMALL c/w 12,000 lm output and AS3 Forward Throw optic on 6m Column	LED C.12000 Lumens	12165 108
	X4	1	SCL.2.LA124.ST3.CP-W 108 (TZ)	City Max SMALL c/w 12,000 lm output and ST3 Square Symmetric optic on 6m Column	LED C.12000 Lumens	11703 108

Statistics				
Description	Symbol	Avg	Min	Min/Avg
Car Park 10 Lux Ave / 0.25 Unif	+	16 lux	6 lux	0.38
Drop Off 50 Lux Ave / 0.4 Unif	+	53 lux	39 lux	0.74
Entrance Road 10 Lux Ave / 0.25	+	28 lux	7 lux	0.25
Service Yard 20 Lux Ave / 0.4 Unif	+	21 lux	9 lux	0.43
Side Road 10 Lux Ave / 0.25 Unif	+	13 lux	6 lux	0.46
Spill Light	+	0 lux	0 lux	N/A
Under Canopy 50 Lux Ave / 0.4 Unif	+	65 lux	36 lux	0.55





Proposed South West Elevation
1:100@A0



Proposed North East Elevation
1:100@A0

Supporting Notes:

All dimensions to be site checked and approved by client prior to fabrication / procurement

- Illuminated Signage (7115mm x 2710mm)
- x29no. Up/Downlights (x19no. High Level, x10no. Low Level)
- x45no. Linear Washer (1000mm - For Large Window Frames)
- x11no. Linear Washer (500mm - For Large Window Frames)
- xTBC (LED linear concealed in side edge of overhang canopy)
- x37.48metres (LED linear illuminating box hedge)
- x130.91metres (LED linear concealed in underside of soffit roof lip)

RAL FINISH:	MATTE	SATIN	GLOSS	%

MATERIAL FINISH

APPROVED BY:			
SIGNED:		DATE:	

FOR CLIENT USE ONLY

C04	-	-	-
C03	-	-	-
C02	-	-	-
C01	-	-	-
P04	Updated As Per Latest Drawings	UA	02/05/2024
P03	Updated As Per Latest Drawings / Comments	UA	30/04/2024
P02	Issue For Comment	UA	28/04/2024
P01	Issue For Comment	UA	13/03/2024
REV:	CHANGE:	BY:	DATE:

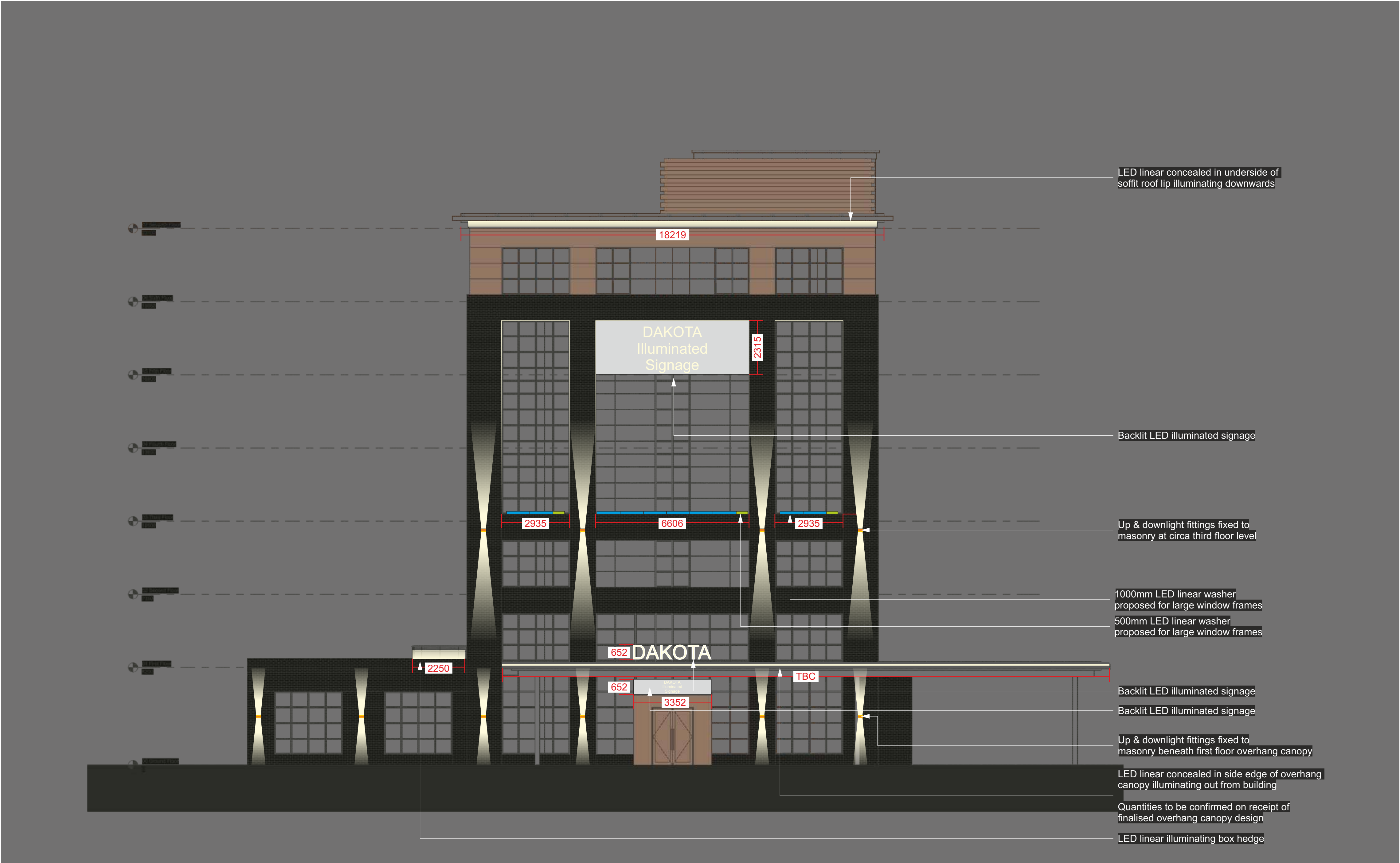
Status: FOR APPROVAL

 **studiotech**
t: 0161 292 9000
e: info@studiotech.co.uk
w: www.studiotech.co.uk
Studiotech, Bridge House, Unit 13,
Latham Close, Bredbury, SK6 2SD

PROJECT:
Dakota Hotel Manchester

TITLE:
Proposed Lighting Layout

SCALE AT A0: 1:100	DATE: 02/05/2024	DRAWN: UA	CHECKED: ST
PROJECT NO: 5082	DRAWING NO: 5082-STU-V1-ZZ-DR-Y-0001-P04	REVISION:	P04



Supporting Notes:

All dimensions to be site checked and approved by client prior to fabrication / procurement

DAKOTA Backlit Illuminated Signage
(3352mm x 652mm)

Backlit Illuminated Signage
(3352mm x 652mm)

Illuminated Signage
(6606mm x 2315mm)

x16no. Up/Downlights
(x8no. High Level, x8no. Low Level)

x16no. Linear Washer
(1000mm - For Large Window Frames)

x6no. Linear Washer
(500mm - For Large Window Frames)

xTBC
(LED linear concealed in side edge of overhang canopy)

x4.50metres
(LED linear illuminating box hedge)

x36.44metres
(LED linear concealed in underside of soffit roof lip)

RAL FINISH:	MATTE	SATIN	GLOSS	%

MATERIAL FINISH

APPROVED BY:			
SIGNED:		DATE:	

FOR CLIENT USE ONLY

C04	-	-	
C03	-	-	
C02	-	-	
C01	-	-	
P04	Updated As Per Latest Drawings	UA	02/05/2024
P03	Updated As Per Latest Drawings / Comments	UA	30/04/2024
P02	Issue For Comment	UA	28/04/2024
P01	Issue For Comment	UA	13/03/2024
REV:	CHANGE:	BY:	DATE:

Status: FOR APPROVAL

 **studiotech**
t: 0161 292 9000
e: info@studiotech.co.uk
w: www.studiotech.co.uk
Studiotech, Bridge House, Unit 13,
Latham Close, Bredbury, SK6 2SD

PROJECT:
Dakota Hotel Manchester

TITLE:
Proposed Lighting Layout

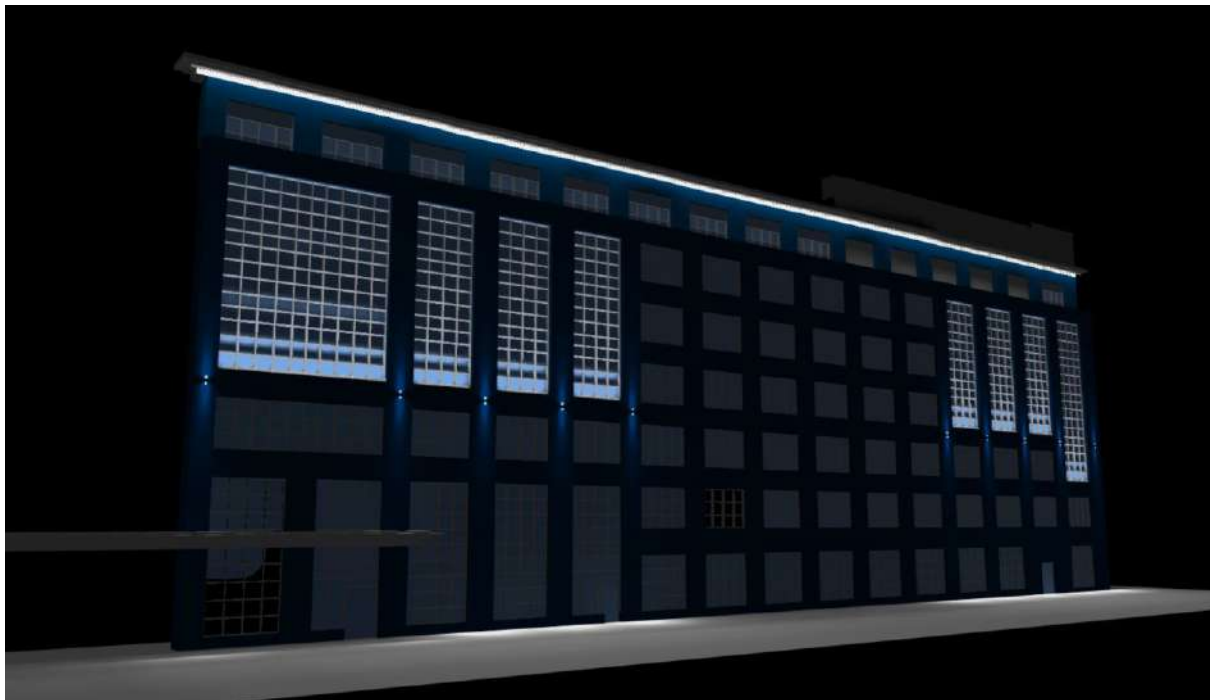
SCALE AT A0: 1:100	DATE: 02/05/2024	DRAWN: UA	CHECKED: ST
PROJECT NO: 5082	DRAWING NO: 5082-STU-V1-ZZ-DR-Y-0002-104	REVISION: P04	

Proposed South East Elevation
1:100@A0

Proposed North West Elevation
1:100@A0

Dakota Hotel

Feature Lighting Assessment
5082-STU-V1-ZZ-DR-Y-0003-P02



Date: 12.05.2024
Operator: Studiotech

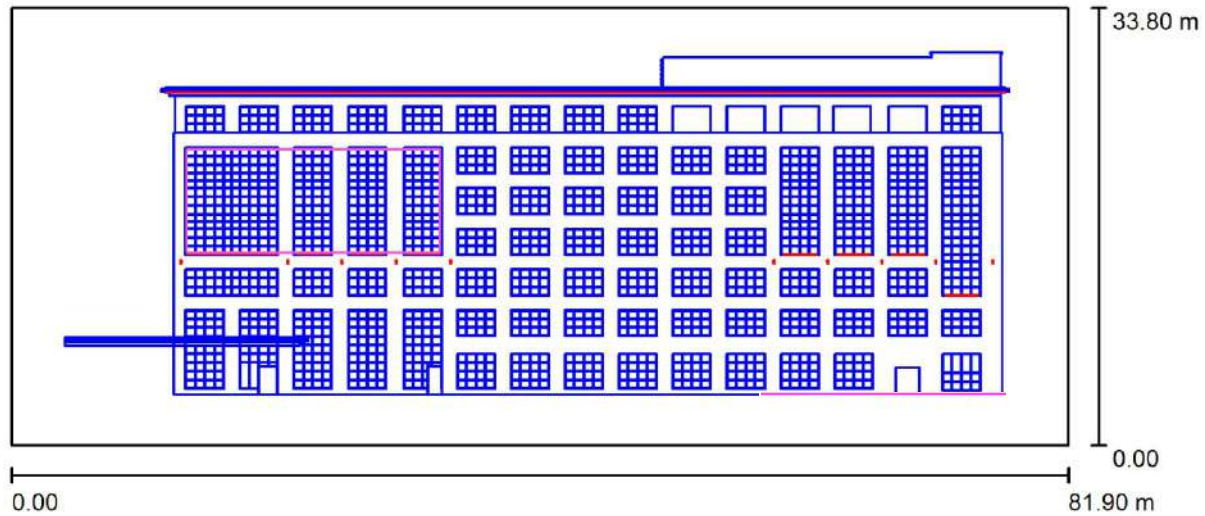


Studiotech

Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SD

Operator Studiotech
Telephone 0161 292 9000
Fax N/A
e-Mail info@studiotech.co.uk

Proposed North East Elevation / Floor plan



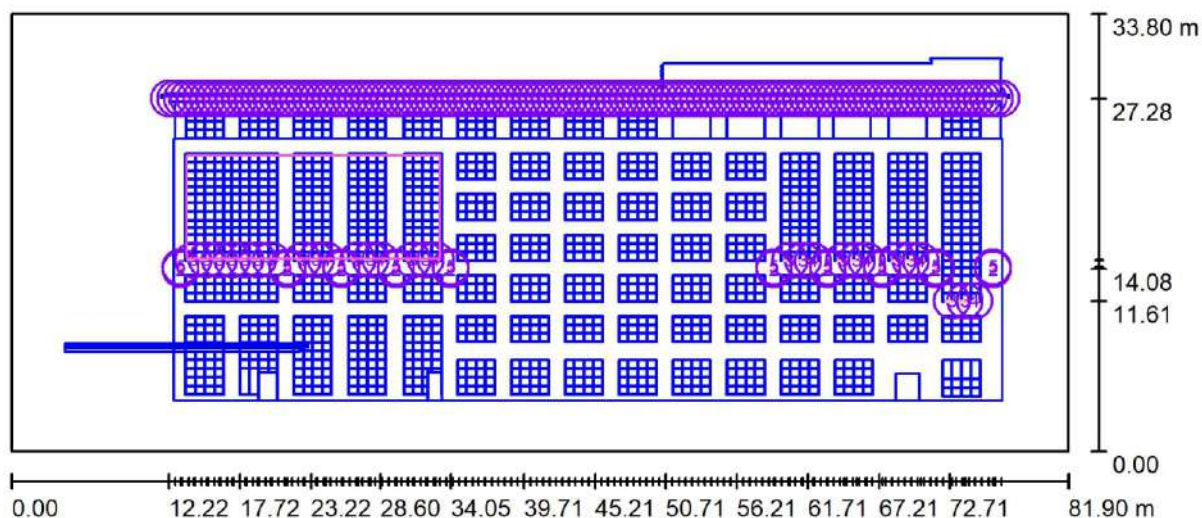
Scale 1 : 586

Studiotech

Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SD

Operator Studiotech
Telephone 0161 292 9000
Fax N/A
e-Mail info@studiotech.co.uk

Proposed North East Elevation / Luminaires (layout plan)



Scale 1 : 586

Luminaire Parts List

No.	Pieces	Designation
1	65	IBL FLEX NEON 15V RGBW
2	10	ILLUMINATION PHYSICS IP DOWNLIGHT 6W
3	21	ILLUMINATION PHYSICS IP HP LINEAR 1000
4	7	ILLUMINATION PHYSICS IP HP LINEAR 500
5	10	ILLUMINATION PHYSICS IP UPLIGHT 6W

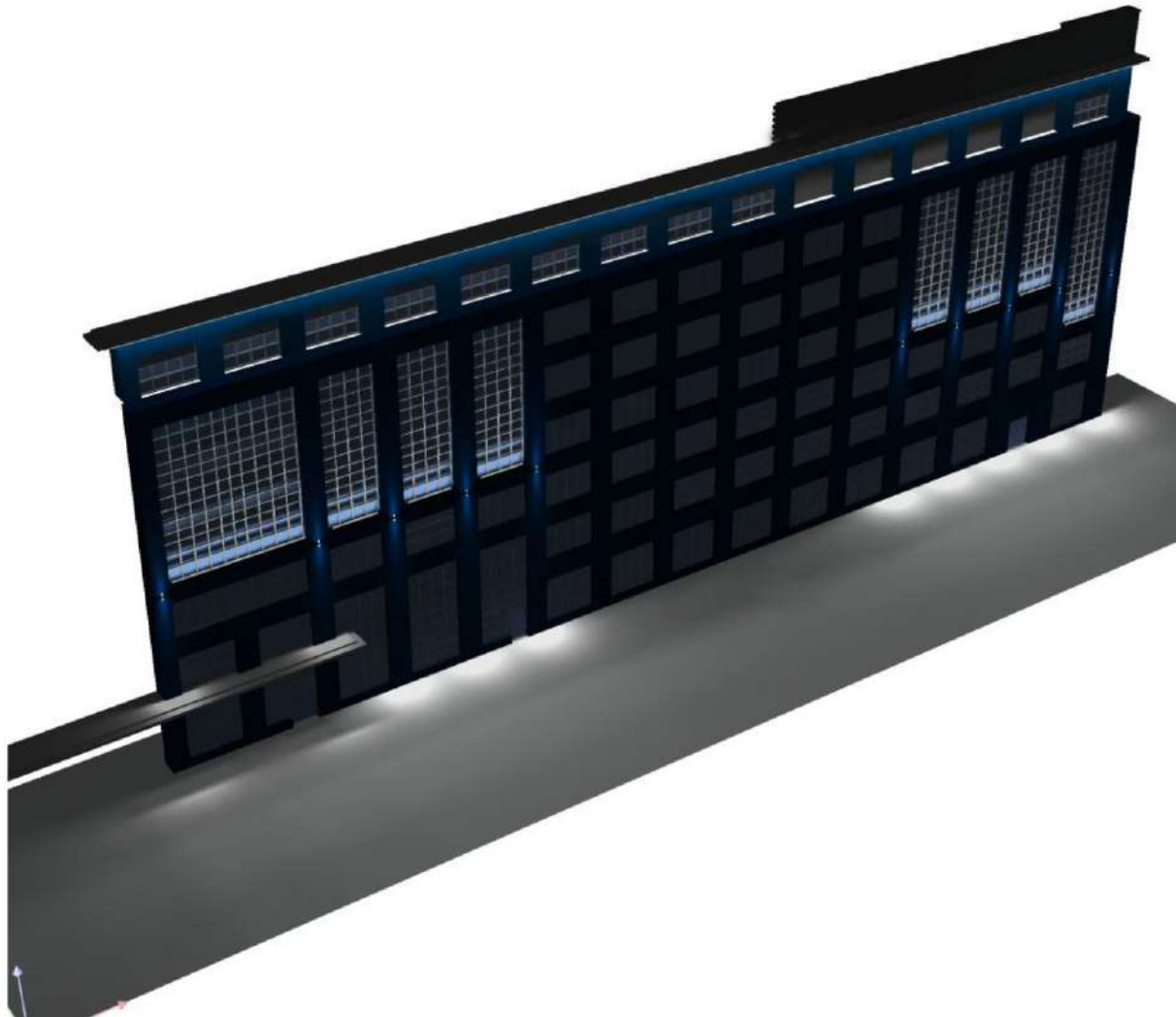


Studiotech

Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SD

Operator	Studiotech
Telephone	0161 292 9000
Fax	N/A
e-Mail	info@studiotech.co.uk

Proposed North East Elevation / 3D Rendering



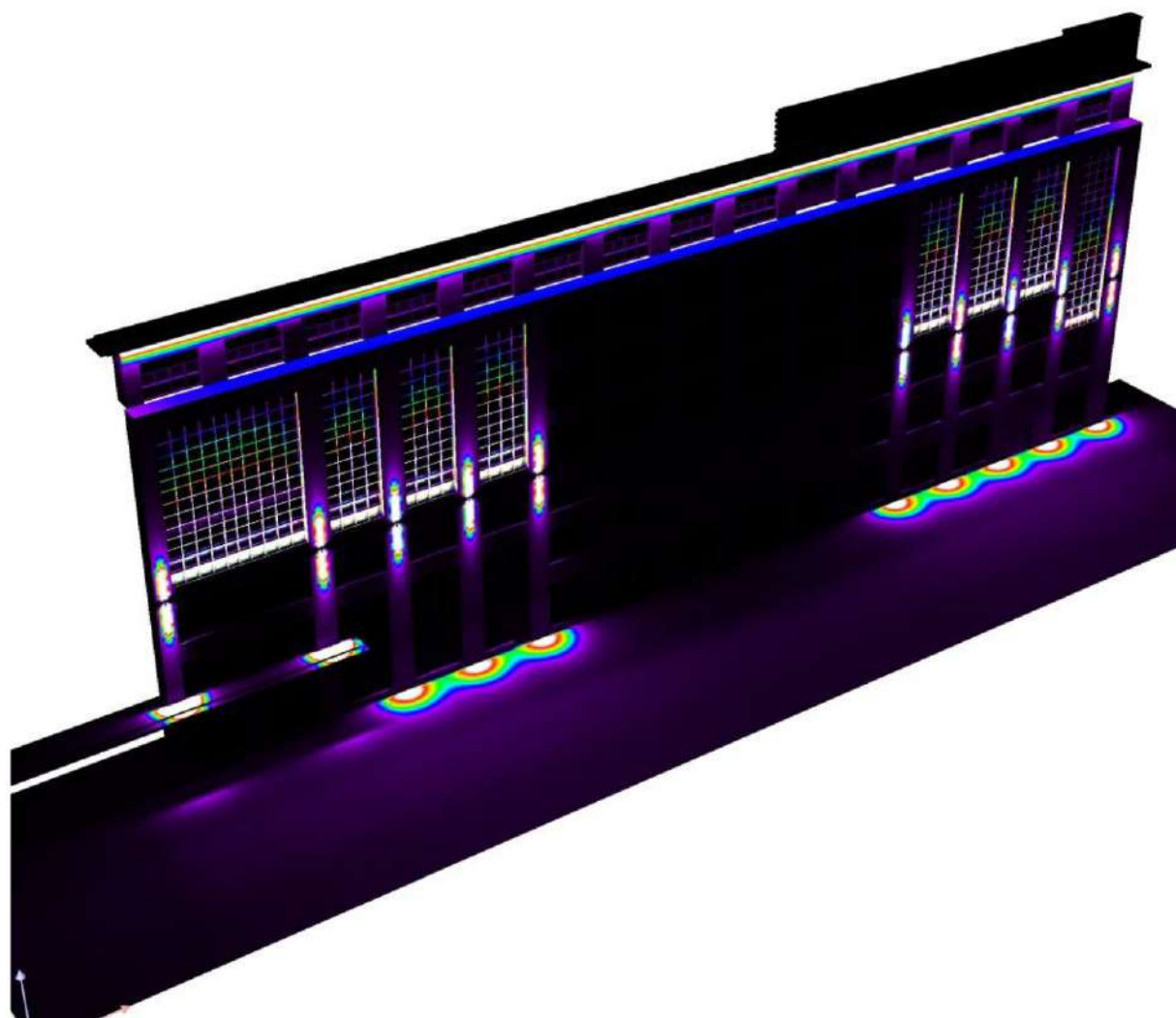
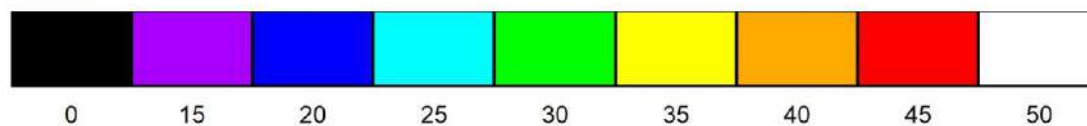


Studiotech

Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SD

Operator Studiotech
Telephone 0161 292 9000
Fax N/A
e-Mail info@studiotech.co.uk

Proposed North East Elevation / False Color Rendering



lx

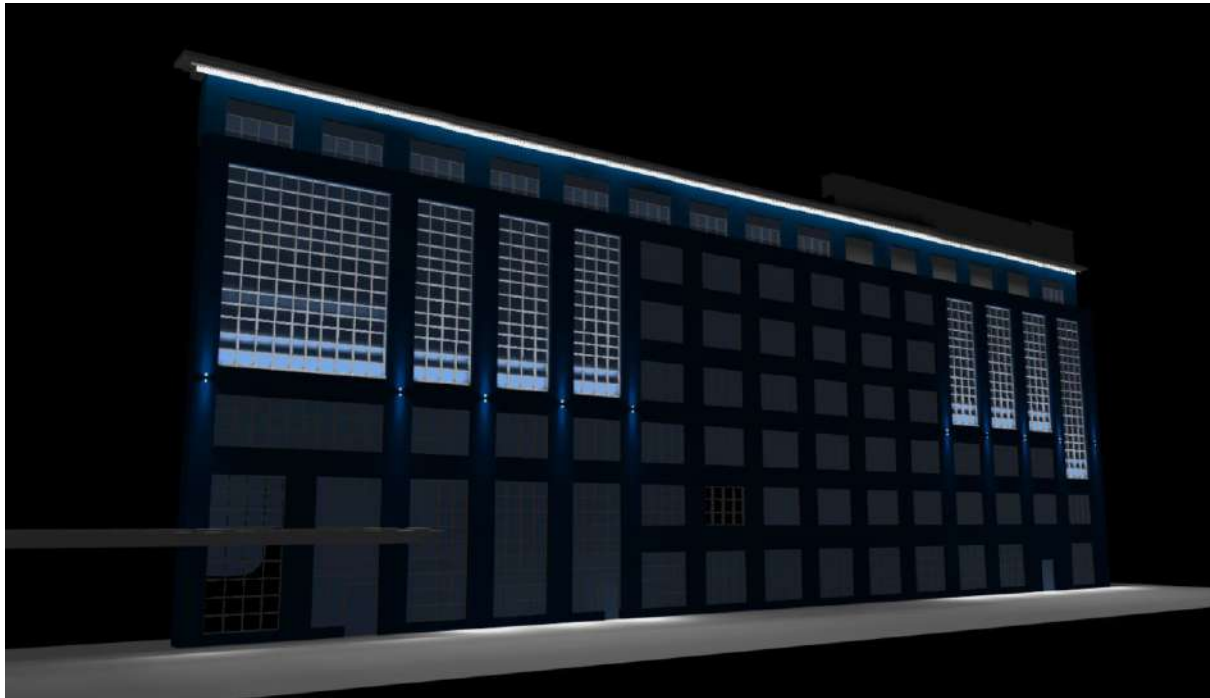


Studiotech

Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SD

Operator	Studiotech
Telephone	0161 292 9000
Fax	N/A
e-Mail	info@studiotech.co.uk

Proposed North East Elevation / Raytrace preview 1





Studiotech

Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SD

Operator	Studiotech
Telephone	0161 292 9000
Fax	N/A
e-Mail	info@studiotech.co.uk

Proposed North East Elevation / Raytrace preview 2





Studiotech

Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SD

Operator	Studiotech
Telephone	0161 292 9000
Fax	N/A
e-Mail	info@studiotech.co.uk

Proposed North East Elevation / Raytrace preview 3



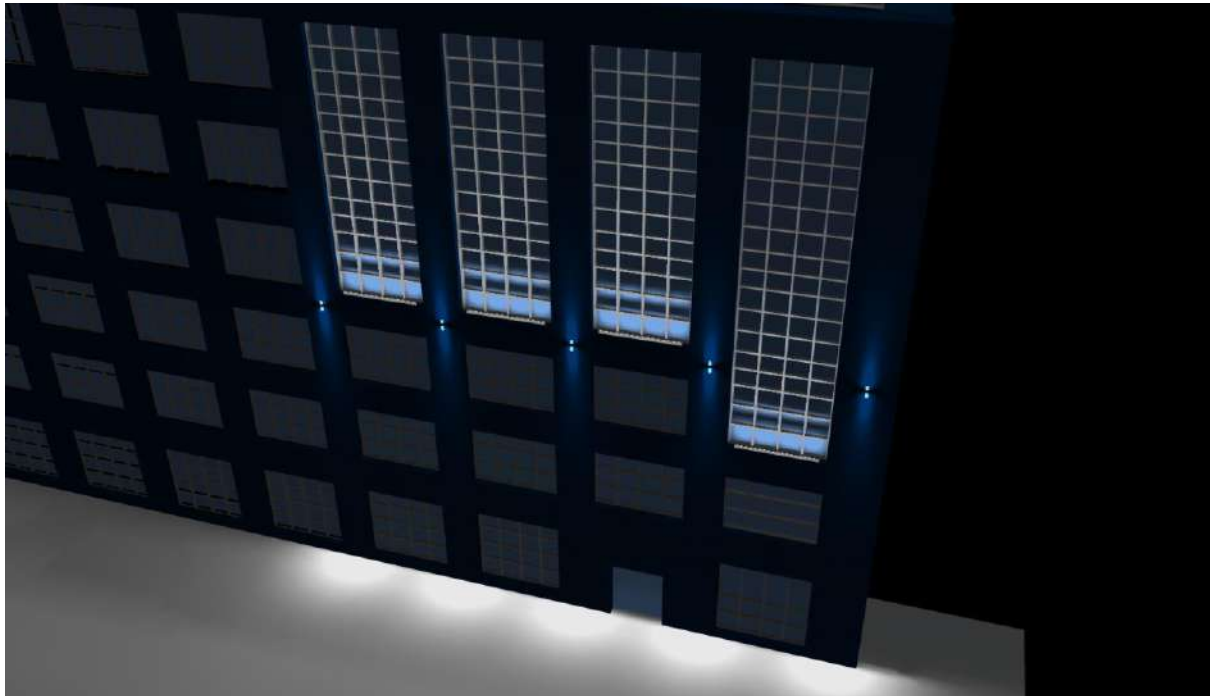


Studiotech

Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SD

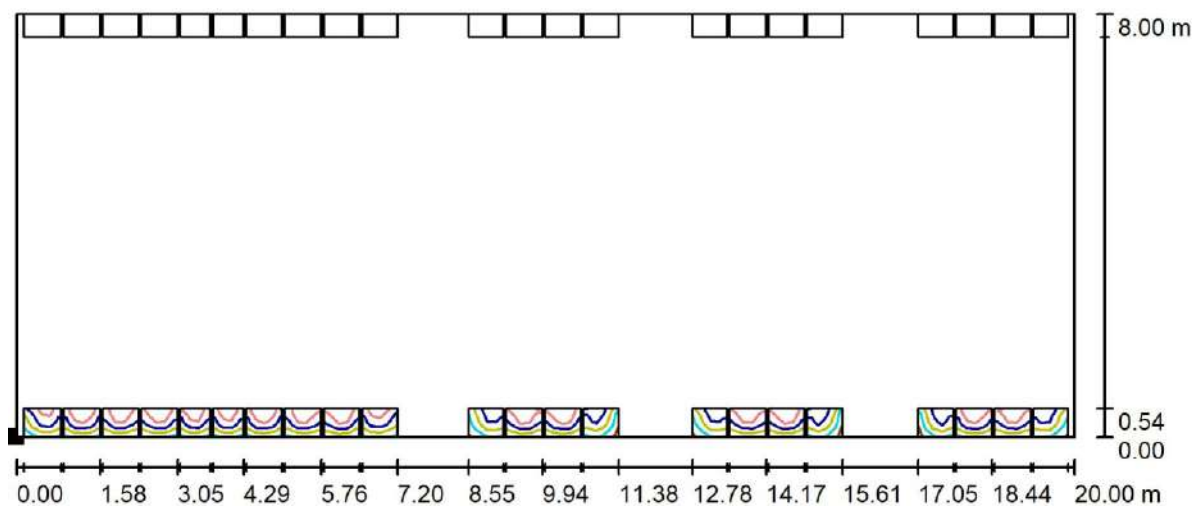
Operator	Studiotech
Telephone	0161 292 9000
Fax	N/A
e-Mail	info@studiotech.co.uk

Proposed North East Elevation / Raytrace preview 4





Studiotech

Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SDOperator Studiotech
Telephone 0161 292 9000
Fax N/A
e-Mail info@studiotech.co.uk**Proposed North East Elevation / Calculation Surface 1 / Isolines (E, Perpendicular)**

Values in Lux, Scale 1 : 143

Position of surface in external scene:

Marked point:

(13.400 m, 13.445 m, 10.900 m)

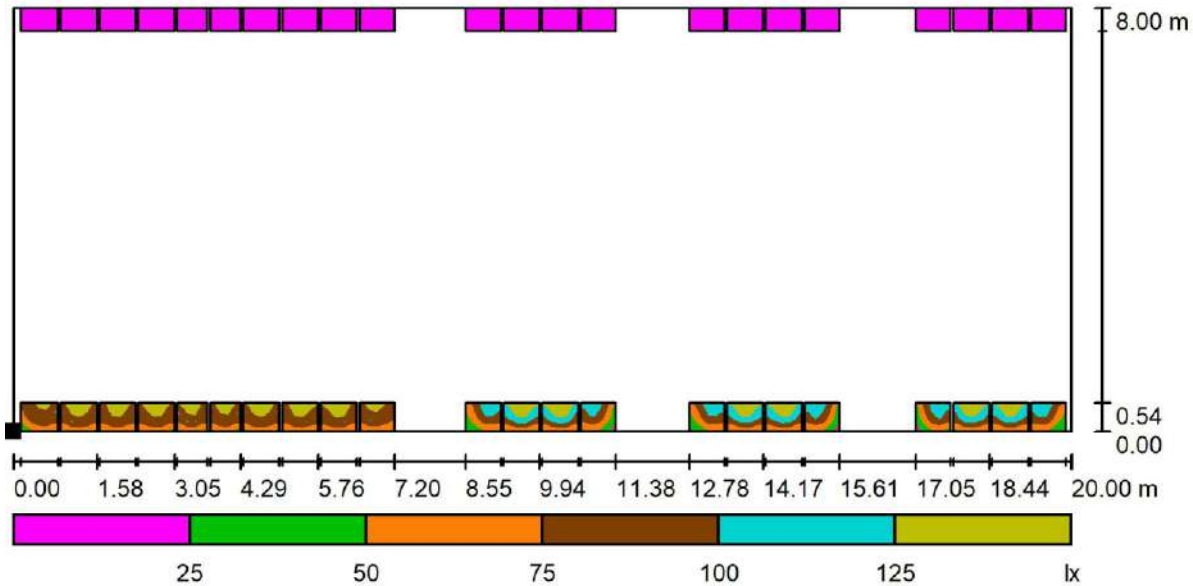


Grid: 128 x 128 Points

 E_{av} [lx]
54 E_{min} [lx]
0.04 E_{max} [lx]
177 u_0
0.001 E_{min} / E_{max}
0.000



Studiotech

Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SDOperator Studiotech
Telephone 0161 292 9000
Fax N/A
e-Mail info@studiotech.co.uk**Proposed North East Elevation / Calculation Surface 1 / Greyscale (E, Perpendicular)**

Scale 1 : 143

Position of surface in external scene:
Marked point:
(13.400 m, 13.445 m, 10.900 m)

Grid: 128 x 128 Points

 E_{av} [lx]
54 E_{min} [lx]
0.04 E_{max} [lx]
177 u_0
0.001 E_{min} / E_{max}
0.000

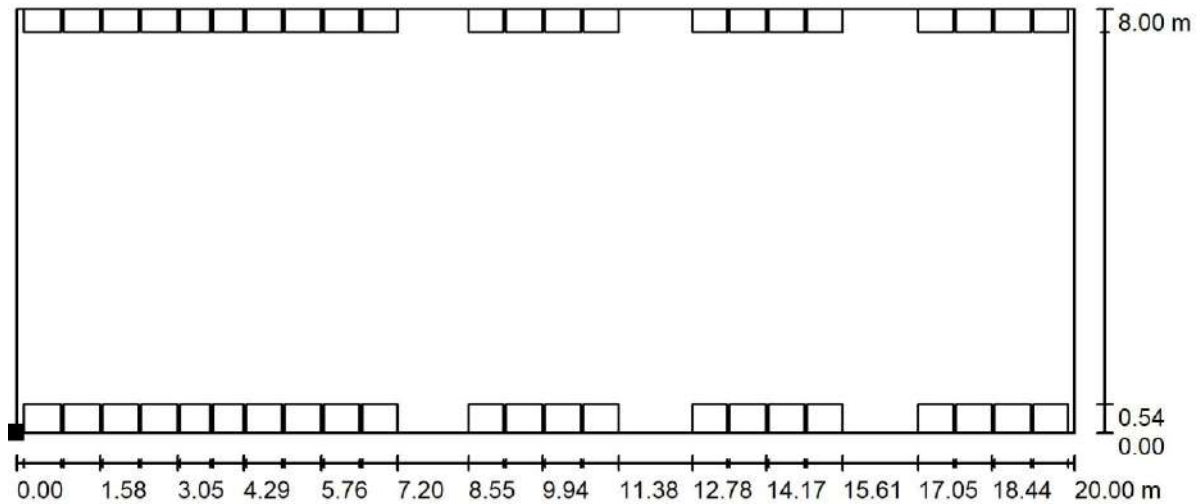


Studiotech

Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SD

Operator Studiotech
Telephone 0161 292 9000
Fax N/A
e-Mail info@studiotech.co.uk

Proposed North East Elevation / Calculation Surface 1 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 143

Not all calculated values could be displayed.

Position of surface in external scene:

Marked point:

(13.400 m, 13.445 m, 10.900 m)



Grid: 128 x 128 Points

E_{av} [lx]
54

E_{min} [lx]
0.04

E_{max} [lx]
177

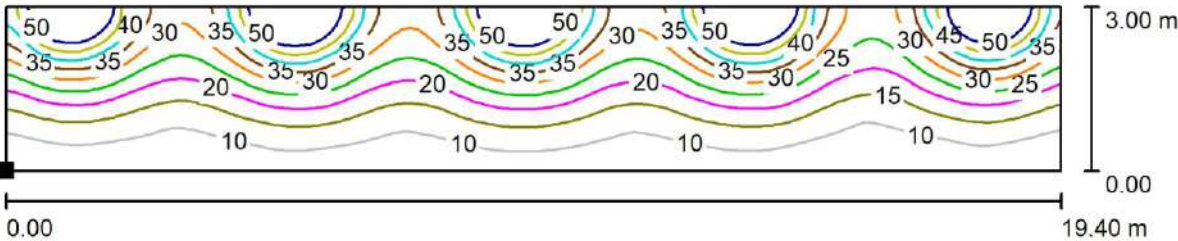
u_0
0.001

E_{min} / E_{max}
0.000

Studiotech
Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SD

Operator Studiotech
Telephone 0161 292 9000
Fax N/A
e-Mail info@studiotech.co.uk

Proposed North East Elevation / Calculation Surface 2 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 139

Position of surface in external scene:
Marked point:
(57.900 m, 10.092 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0	E_{min} / E_{max}
24	5.61	65	0.229	0.087

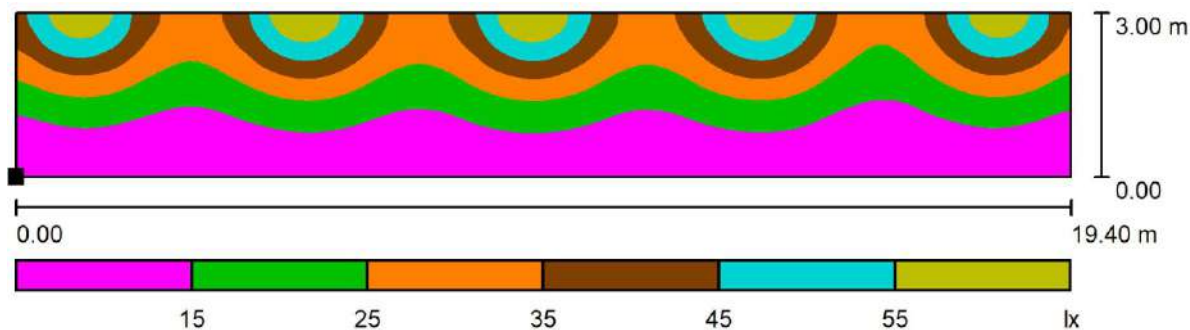


Studiotech

Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SD

Operator Studiotech
Telephone 0161 292 9000
Fax N/A
e-Mail info@studiotech.co.uk

Proposed North East Elevation / Calculation Surface 2 / Greyscale (E, Perpendicular)



Scale 1 : 139

Position of surface in external scene:

Marked point:

(57.900 m, 10.092 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]
24

E_{min} [lx]
5.61

E_{max} [lx]
65

u_0
0.229

E_{min} / E_{max}
0.087

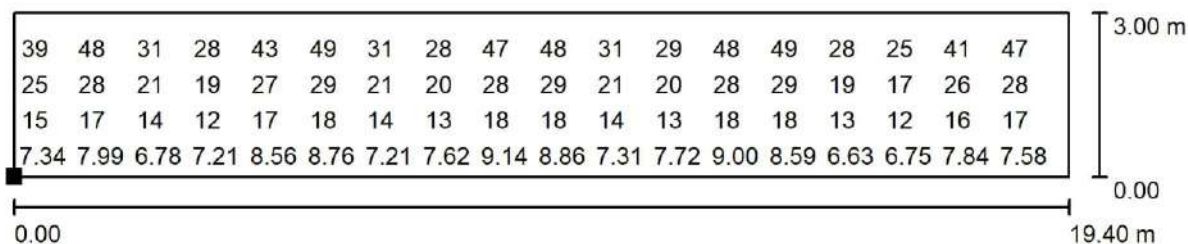


Studiotech

Bridge House, Unit 13, Latham Close, Bredbury, Stockport, Cheshire,
SK6 2SD

Operator Studiotech
Telephone 0161 292 9000
Fax N/A
e-Mail info@studiotech.co.uk

Proposed North East Elevation / Calculation Surface 2 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 139

Not all calculated values could be displayed.

Position of surface in external scene:

Marked point:

(57.900 m, 10.092 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]
24

E_{min} [lx]
5.61

E_{max} [lx]
65

u_0
0.229

E_{min} / E_{max}
0.087

Appendix B: External Luminaire Proposals

Pages 1-16 – Car Park, Road and Service Yard Luminaires

Pages 17-22 – Entrance Canopy Luminaires

Pages 23-24 – Window Reveal Luminaires

Page 25 – Wall Wash Luminaires



CityMAX[®]

INNOVATION AND EFFICIENCY
FOR URBAN SPACES



PATENTED DESIGN
REGISTERED EUROPEAN DESIGN

 CityMAX®



INTELLIGENT & DIGITAL STREETLIGHTING LUMINAIRE



Innovation and efficiency for urban spaces.

CityMax is a concept that delivers a versatile urban lighting system with a modern, innovative design, for a variety of city applications.

CityMax guarantees excellent levels of illumination for different types of lighting applications. With its flexible design it offers an extensive range of lumen packages and varied mounting options that are an ideal solution for city projects that encompass streets, avenues, squares and roads.

Its circular design revolves around LED modules that make the urban landscape a comfortable and pleasant space at night, whilst ensuring a discrete, elegant look in the day.

Maintenance

Tool-less access into the luminaire during installation.



Typical Luminaire Performance

Configuration	Delivered Lumens	Power Consumption	Driver Current	Projected Life of LED Module (L70B50 @Tq 25°C)*
SCL.LA02X	c.2000	17W	612mA	100,000 hrs
SCL.LA02X.HE	c.2000	16W	302mA	100,000 hrs
SCL.LA03X	c.3000	27W	990mA	100,000 hrs
SCL.LA03X.HE	c.3000	23W	452mA	100,000 hrs
SCL.LA04X	c.4000	33W	609mA	100,000 hrs
SCL.LA04X.HE	c.4000	31W	602mA	100,000 hrs
SCL.LA05X.HE	c.5000	39W	762mA	100,000 hrs
SCL.LA06X	c.6000	54W	985mA	100,000 hrs
SCL.LA06X.HE	c.6000	47W	909mA	100,000 hrs
SCL.LA07X	c.7000	56W	548mA	100,000 hrs
SCL.LA09X	c.9000	75W	727mA	100,000 hrs
SCL.LA10X	c.10,000	85W	821mA	100,000 hrs
SCL.LA12X	c.12,000	108W	1023mA	100,000 hrs
SCL.LA14X	c.14,000	111W	683mA	100,000 hrs
SCL.LA16X	c.16,000	131W	797mA	100,000 hrs
SCL.LA18X	c.18,000	153W	921mA	100,000 hrs
SCL.LA20X	c.20,000	176W	1050mA	100,000 hrs

Note: Data is correct at time of print.

* For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

Optics/light source

- Available with a variety of optical packages.
- Lumen packages ranging from 2,000 to 20,000 lumens.
- Colour temperature of 4000°K, 3000°K and 2700°K. Also available in amber.
- Future proof: Design ready for upgrading and fully controls ready via ZD4i.

TM66 CEAM-Make Rating

- Preliminary Rating: 2.3 (Definite/substantial progress to circularity).

Approvals

- CE
- IP66 light engines (EN 60529)
- IP66 gear compartment (EN 60529)
- Ta -40 °C to +50 °C
- IK10 (EN 62262)



ASTER collection

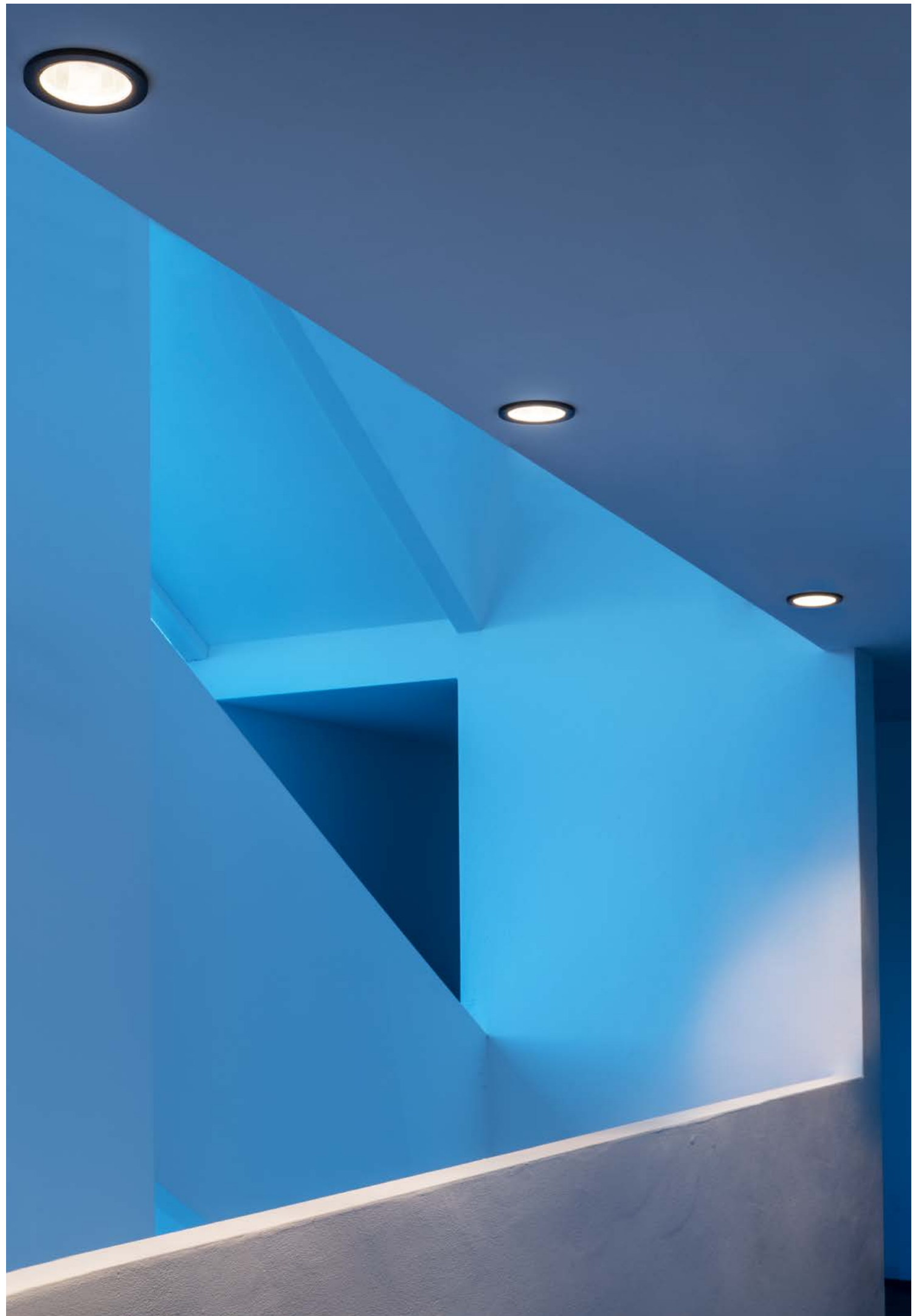


ceiling recessed

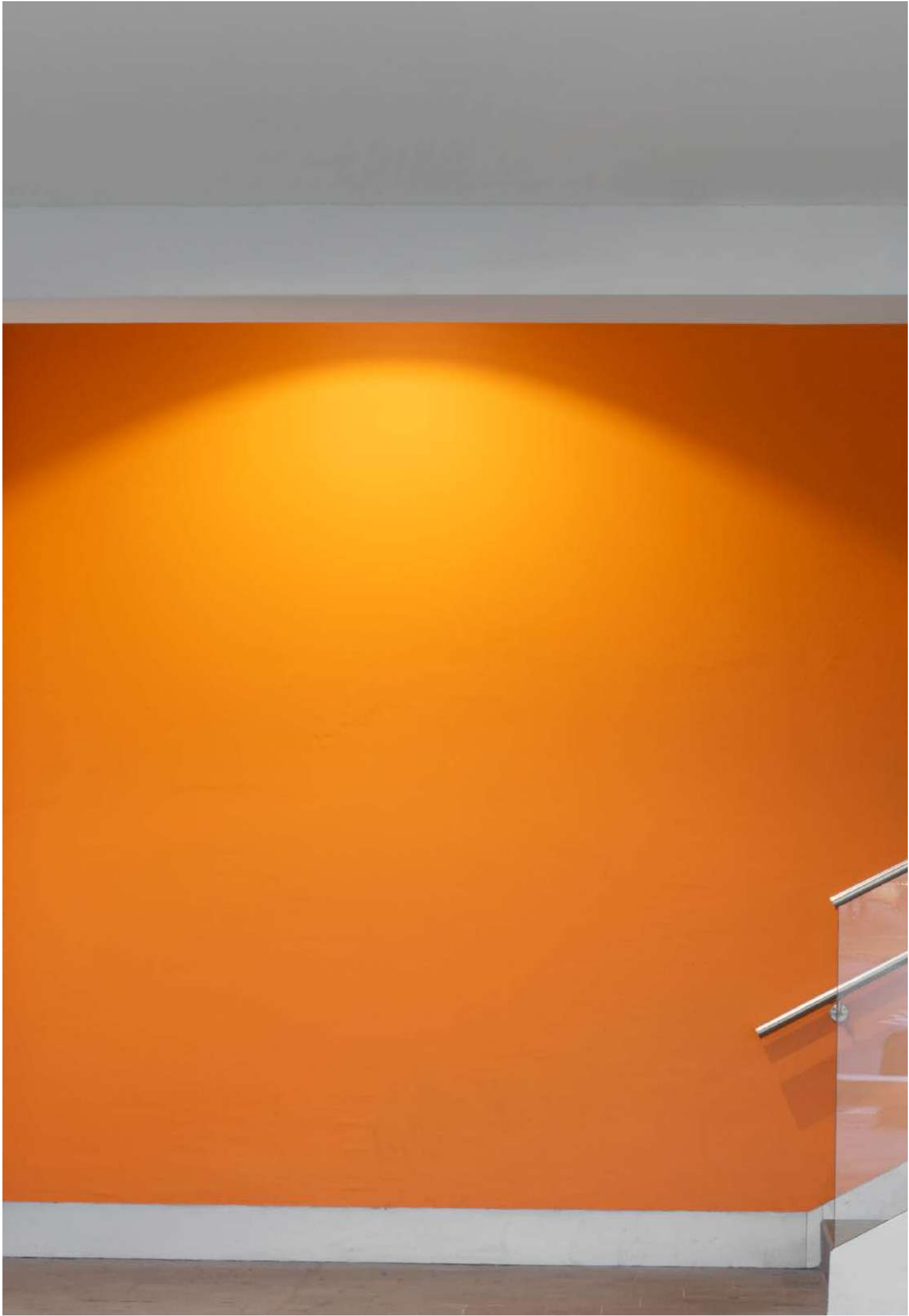


aster small

A ceiling recessed luminaire specifically designed to withstand severe outdoor environmental conditions thanks to its IP65 protection rating on the entire product (both front and back). The possibility of using a remote power supply allows the product to be extremely versatile thanks to the multiple settings of output current. The optics have been specifically designed for a downlight use and allow various declinations: from a narrow to an asymmetrical beam. The product is also available with RGBW LEDs. Available in three sizes - small, medium and large - Aster is introduced in the Basic version with 220-240V line voltage LED and Professional with remote power supply units, either ON/OFF adjustable on different output currents and dimmable.



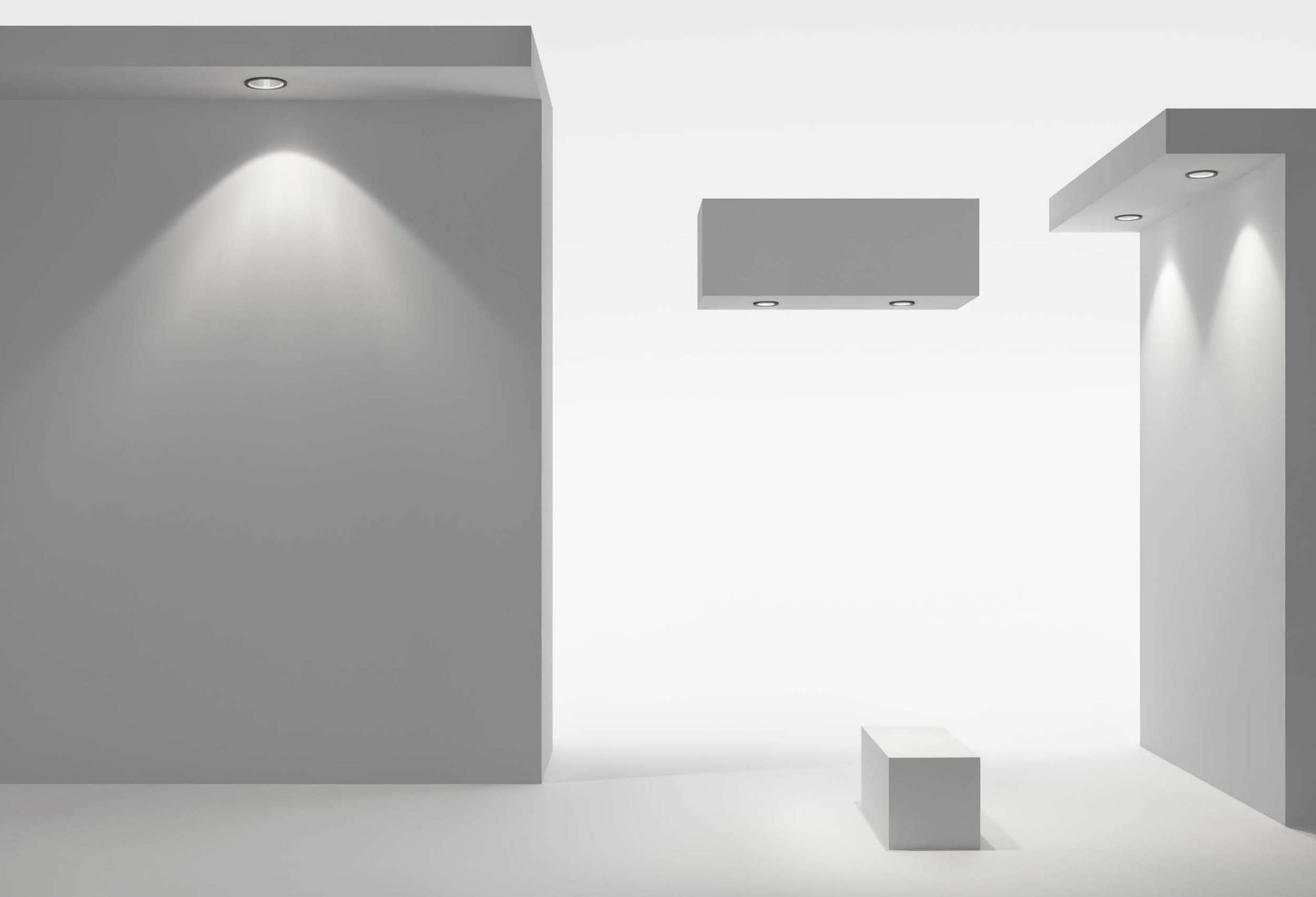
aster medium



aster large



aster medium



collection

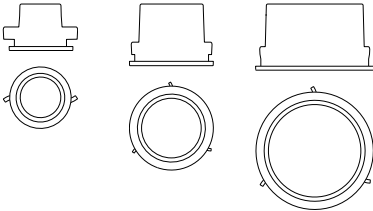


ceiling recessed

IP65
IK 07

4 mm flat tempered
extra clear glass

technical dimensions
ø 113 x h. 83 mm
ø 149 x h. 109 mm
ø 210 x h. 117 mm



standard finishes



.02 white



.08 anthracite

on request finishes



.01 black



.06 grey



.07 corten



.09 bronze

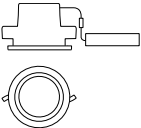
small pro



ceiling recessed

white LED version:
0,25 m cable length

RGBW LED version:
0,5 m cable length



PRO version

WHITE LED

3000K
max. 300 mA ⚡
power supply
to be ordered separately

2700K / 4000K
available on request

→ symmetrical



5W | 625 lm (*)
10W | 1140 lm (*)
spot



15°
7750 cd/klm



5W | 610 lm (*)
10W | 1110 lm (*)
medium



30°
2845 cd/klm



5W | 620 lm (*)
10W | 1130 lm (*)
large



56°
1335 cd/klm

→ asymmetrical



5W | 520 lm (*)
10W | 900 lm (*)
asymmetrical



700 cd/klm

RGBW LED

max. 700 mA ⚡
4 channels +
1 channel NTC

→ symmetrical



8W
spot
15°



8W
medium
30°



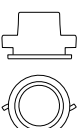
8W
large
56°

small basic



ceiling recessed

0,50 m cable length



BASIC version

WHITE LED

3000K
220-240V 50/60Hz ⚡
TRIAC dimmable

2700K / 4000K
available on request

→ symmetrical



6W | 390 lm (*)
10W | 680 lm (*)
spot



15°
8420 cd/klm



6W | 375 lm (*)
10W | 665 lm (*)
medium



30°
2650 cd/klm



6W | 385 lm (*)
10W | 670 lm (*)
large



60°
1310 cd/klm

(*) Real Data



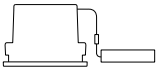
medium pro



ceiling recessed

white LED version:
0,25 m cable length

RGBW LED version:
0,5 m cable length



PROFESSIONAL version

WHITE LED

3000K
max. 600 mA
power supply
to be ordered separately

2700K / 4000K
available on request

→ symmetrical



15W | 1795 lm (*)
20W | 2230 lm (*)
spot



15W | 1740 lm (*)
20W | 2165 lm (*)
medium



15W | 1795 lm (*)
20W | 2230 lm (*)
large



10°
15440 cd/klm



31°
2730 cd/klm



63°
1180 cd/klm

→ asymmetrical



15W | 1675 lm (*)
20W | 1970 lm (*)
asymmetrical



585 cd/klm

RGBW LED

max. 700
4 channels +
1 channel NTC

→ symmetrical



16W
spot
10°



16W
medium
31°



16W
large
63°

medium basic



ceiling recessed

0,50 m cable length



BASIC version

WHITE LED

3000K
220-240V 50/60Hz
TRIAC dimmable

2700K / 4000K
available on request

→ symmetrical



14W | 1090 lm (*)
18,5W | 1450 lm (*)
spot



14W | 1045 lm (*)
18,5W | 1385 lm (*)
medium



14W | 1065 lm (*)
18,5W | 1405 lm (*)
large



10°
13522 cd/klm



30°
2490 cd/klm



60°
1405 cd/klm

(*) Real Data

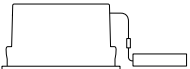
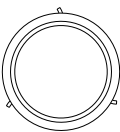
large pro



ceiling recessed

white LED version:
0,25 m cable length

RGBW LED version:
0,5 m cable length



PROFESSIONAL version

WHITE LED

3000K
max 1050 mA
power supply
to be ordered separately

2700K / 4000K
available on request

→ symmetrical



27W | 2680 lm (*)
35W | 3100 lm (*)
spot



27W | 2660 lm (*)
35W | 3075 lm (*)
medium



27W | 2585 lm (*)
35W | 2990 lm (*)
large



8°
15020 cd/klm



30°
1960 cd/klm



81°
740 cd/klm

→ asymmetrical



27W | 3200 lm (*)
35W | 3700 lm (*)
asymmetrical



520 cd/klm

RGBW LED

max. 700
4 channels +
1 channel NTC

→ symmetrical



32W
spot
8°



32W
medium
30°



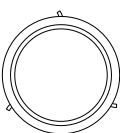
32W
large
81°

large basic



ceiling recessed

0,50 m cable length



BASIC version

WHITE LED

3000K
220-240V 50/60Hz
TRIAC dimmable

2700K / 4000K
available on request

→ symmetrical



30W | 2140 lm (*)
spot



30W | 2110 lm (*)
medium



30W | 2065 lm (*)
large



8°
12470 cd/klm



30°
1925 cd/klm



85°
720 cd/klm

(*) Real Data

Technical specifications



Enclosure - IP66

In accordance with EN 60529, IP66 luminaire enclosure has been achieved. A series of bespoke clips and seals designed for the luminaire ensure that the IP66 seal is maintained.

Impact rating - IK10

In accordance with EN 62262, IK10 impact protection rating has been achieved. Maximum protection to ensure the projected life of the luminaire is maintained. The IK10 rating is achieved via the 4mm thick tempered glass lens.

Control

Using programmable gear, DALI and 1-10V protocol, the lighting is managed in a more efficient manner, minimising consumption and maximising performance. Available as part of an Integrated wireless controls system.



Electrical class

Available in CI and CII.



Brackets

With a variety of mounting options CityMax can be used in different city spaces: squares, streets, avenues, urban centres and even secondary roads.

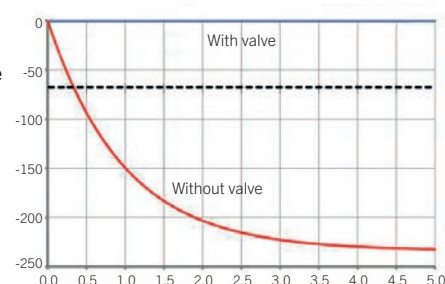
Pressure equalisation valve



Each module has a pressure equalisation valve that offsets interior/exterior pressure. The integration of the valve extends the projected life of the seals and interior

parts by reducing the pressure placed on them and prevents moisture from entering which can lead to condensation.

Change in pressure inside the module due to a significant change in temperature



Overvoltage protector

CityMAX includes an overvoltage protection system, that protects the electronic parts of the luminaire against overvoltages of up to 10KV/KA.



3000K or warmer must be selected for IDA dark sky certification.



SE
Side entry
mounting

SE1: 34/42 mm
SE2: 49/60 mm

PT
Post top
mounting

PT1: 76 mm
PT2: 60 mm

CP
Central post
mounting

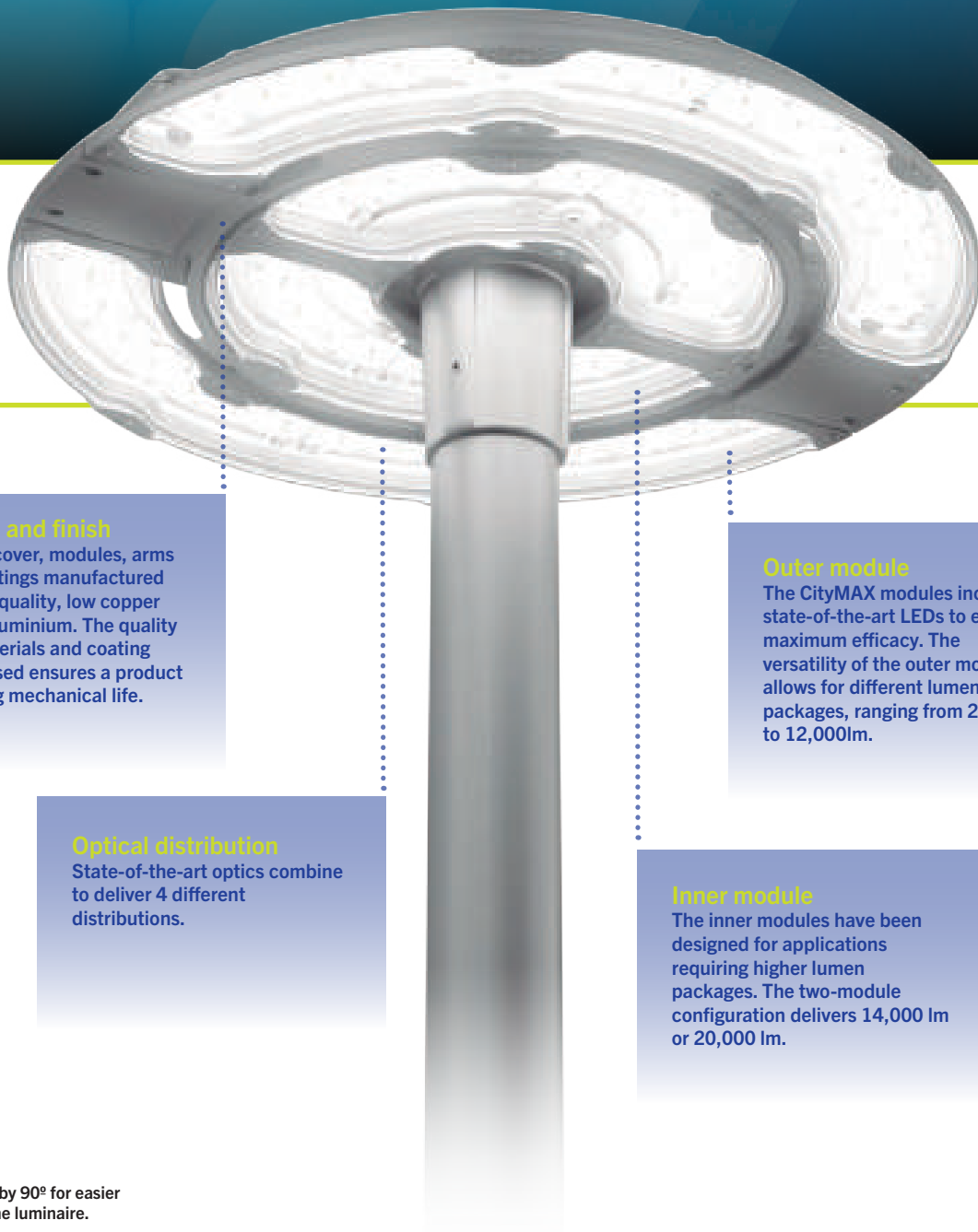
CP1: 76 mm
CP2: 60 mm

VB
Cradle
mounting

VB1: 76 mm
VB2: 60 mm

CB
Curved
mounting

CB1: 76 mm
CB2: 60 mm



Material and finish

Housing, cover, modules, arms and mountings manufactured from high quality, low copper content aluminium. The quality of the materials and coating process used ensures a product with a long mechanical life.

Optical distribution

State-of-the-art optics combine to deliver 4 different distributions.

Outer module

The CityMAX modules include state-of-the-art LEDs to ensure maximum efficacy. The versatility of the outer module allows for different lumen packages, ranging from 2,000lm to 12,000lm.

Inner module

The inner modules have been designed for applications requiring higher lumen packages. The two-module configuration delivers 14,000 lm or 20,000 lm.

Cover hinges by 90° for easier access into the luminaire.

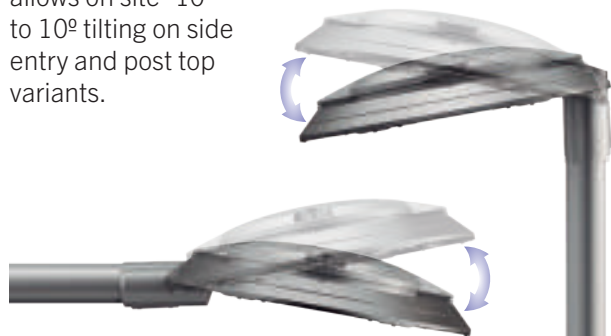


Maintenance

Convenient luminaire access from the top, without the need for tools. The modules are separate from the driver, which encourages heat dissipation by way of convection and conduction.

Tilt Options

The design of CityMAX allows on site -10° to 10° tilting on side entry and post top variants.



FUTURE-PROOF

Future-proof design

The CityMax design means that its modules can be upgraded in line with future technology for maximum energy efficiency.

Thermal management

Excellent heat dissipation,
longer complete life

The LED module system covers a large contact surface that conducts heat away from the critical electronic components which is then dissipated throughout the housing. The channel between the modules and the

gear compartment generates a constant flow of air that passes through the luminaire. This process of convection ensures the luminaire is running as cool as possible resulting in a long system life.

Thermal management

CityMax utilises all three heat transfer principles of conduction, convection and radiation.



Conduction

From the LEDs and driver onto the LED module and gear housing respectively.



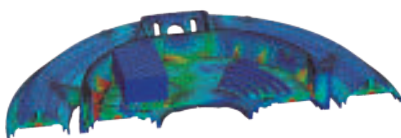
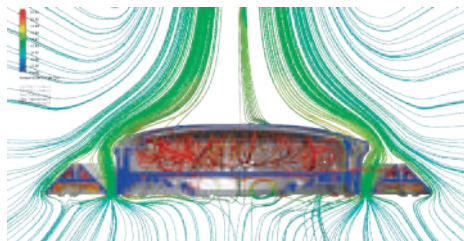
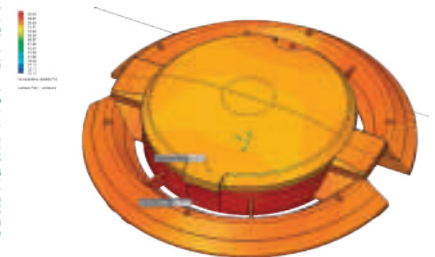
Convection

The air channel between the LED module and gear housing.



Radiation

Heat energy from the driver and LED is emitted from the casting in all directions.



Measurements

Windage m²

VB2	0.1027
VB1	0.1139
SE2	0.0545
SE1	0.0519
PT2	0.0545
PT1	0.0598
CP2	0.0524
CP1	0.0540
CB1	0.1203
CB2	0.1082

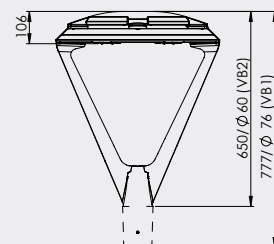
Weight kg

VB1 up to LA12X	13.50
VB1 LA14X & LA20X	16.00
VB2 up to LA12X	12.50
VB2 LA14X to LA20X	15.00
SE2/PT2 up to LA12X	10.00
SE2/PT2 LA14X to LA20X	12.60
CP2 up to LA12X	10.16
CP2 LA14X to LA20X	12.70
CB1 up to LA12X	13.90
CB1 LA14X to LA20X	16.40
CB2 up to LA12X	12.90
CB2 LA14X to LA20X	15.40

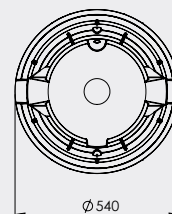
NOTE: Given the constant upgrading of technology and LEDs, the values, data or measurements may change without prior notice.



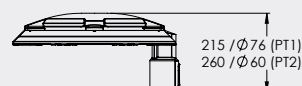
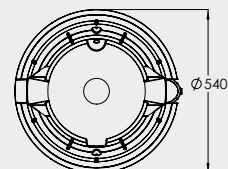
VB mounting



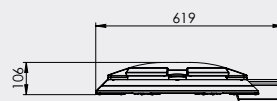
Dimensions in mm



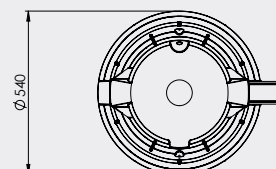
PT mounting



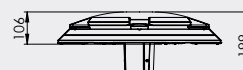
SE mounting



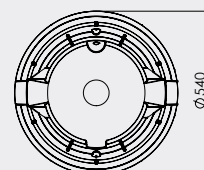
Same total length for versions SE1 (Ø 34/42) and SE2 (Ø 49/60)



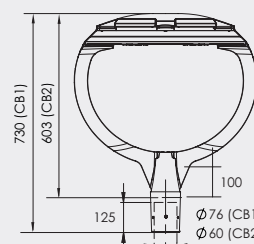
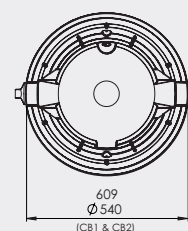
CP mounting



Same total height for versions CP1 (Ø 76) and CP2 (Ø 60)



CB mounting



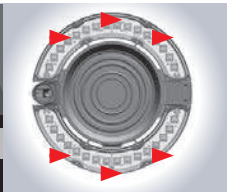
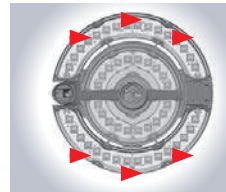
Applications

A luminaire for the entire city



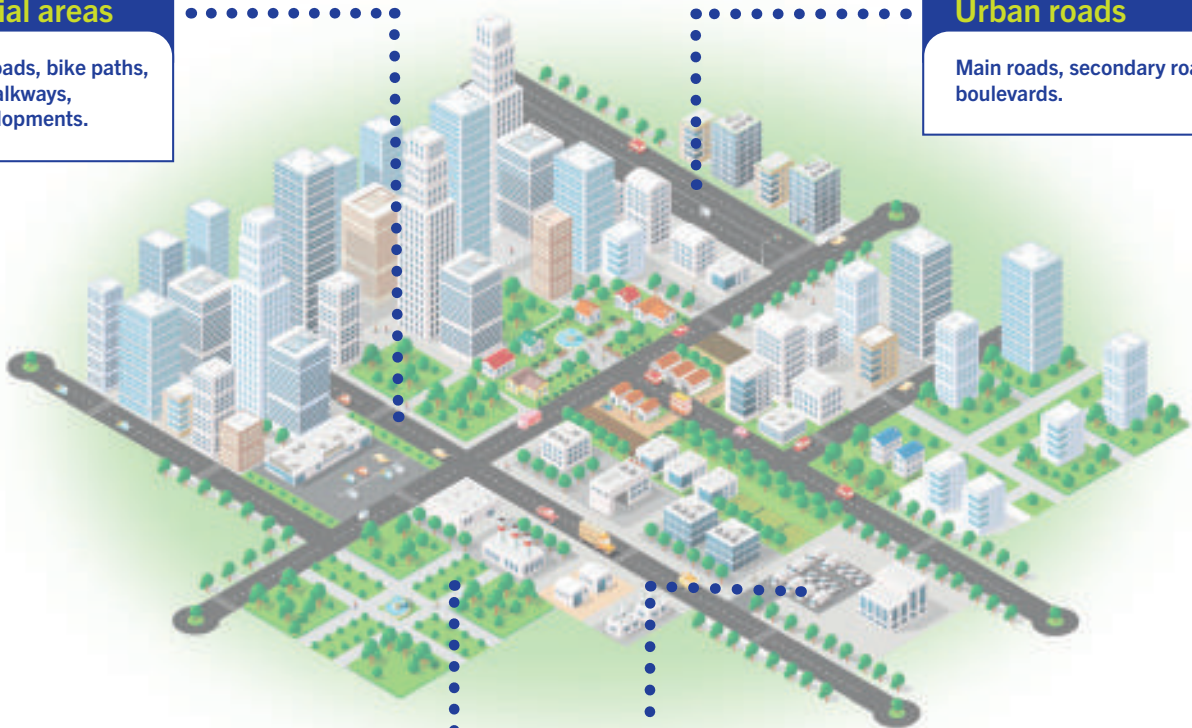
Residential areas

Residential roads, bike paths, pedestrian walkways, housing developments.



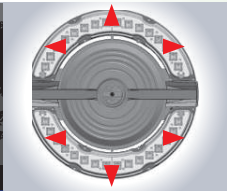
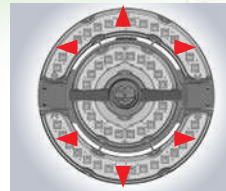
Urban roads

Main roads, secondary roads, boulevards.



Squares and gardens

Parks, play areas, squares, pedestrian areas.



Outdoor areas

Private spaces, car parks, roundabouts, shopping areas, train or bus stations.

A versatile luminaire



CityMax has a wide range of optical packages which have been developed for a variety of urban environments.




CityMAX®

Controls

Compatible with Controlux Air

Controlux Air helps users transform their existing infrastructure into a wireless platform. With Controlux Air, you have full remote configuration or your site with an intuitive user interface which is map based and delivers accurate/update reporting.



Wireless Controller

Wireless communication, lighting control and external sensor interface.

External antenna allowing communication with 'Motion Sensor' and 'Wireless Gateway'.

Creates a wireless mesh type network when used with the 'Wireless Gateway'.

Available with option codes .CA or .CAP



Motion Sensor

Motion sensor and wireless communication triggering 1 to 10 luminaires (with Integral Wireless Controller) upon detection (user configurable).

Wireless communication with 'Gateway'.

Detects pedestrians, cyclists and cars range (range: 2.5 -75 mph)

Range: up to 15m on each side, 9m front and 3m behind at a mounting height of 5m (max).



Gateway

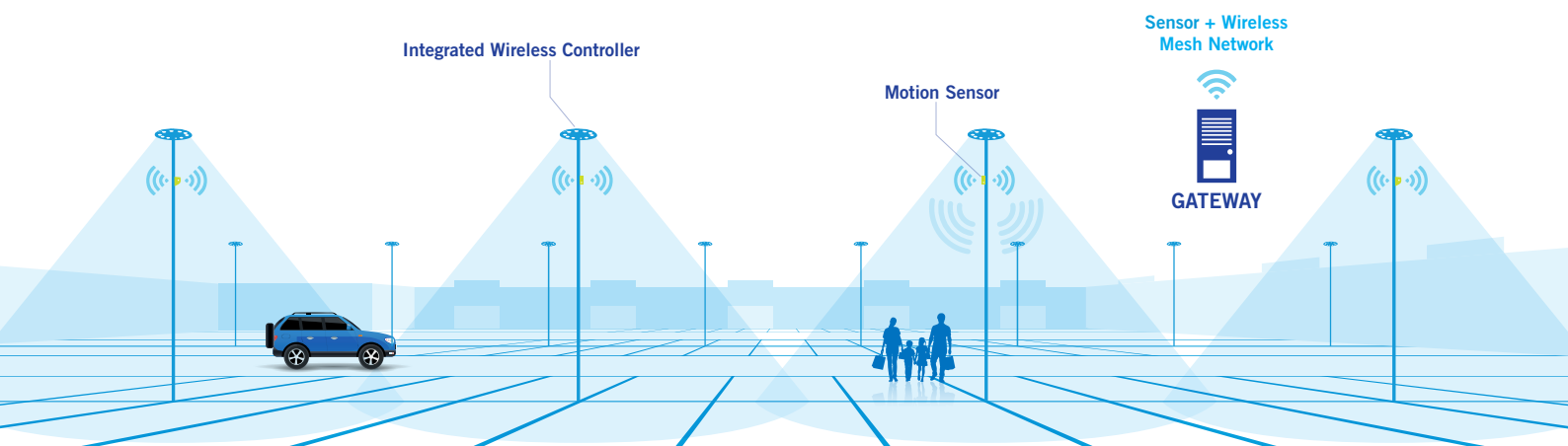
Wireless network and server communication (via SIM Card).

Suitable for pole, wall or inside cabinet mounting.

One Gateway required for up to 200 devices (Motion Sensors or Integrated Light Controllers)

with a range of up to 1km open field range.

Links all devices to web-based Customer Interface for remote management of luminaires and devices.



Intuitive user interface

Gain in-depth insights into every single aspect of your lighting system. Smart analytics and simple charts will help you make the right decision about your lighting infrastructure.



Automatic failure reports

Lighting-related system faults are identified, and automatic failure reports are sent in real-time. This results in optimized maintenance, better planning, reduced costs and extended luminaire life.



Power metering

Dedicated hardware provides precise energy metering, which is converted into detailed energy usage and savings reports.



Accurate real-time data

Generation of analytics per an individual light point or their groups. Available data includes: notifications about lighting-related faults, number of triggers per light point, generated energy savings, heatmaps, and more.



Map-based visualizations

Outdoor lighting points are represented in a graphic interface on Google Maps, coordinated with GPS technology, which enables you to locate, monitor and control individual light points with ease.



Continuous support

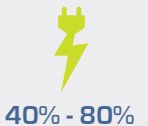
CityManager receives periodic security and feature upgrades. We do this to ensure optimum functionality and system performance.



Financial Benefits

By installing Controlux Air controls systems, you benefit financially, thanks to energy savings and reduced energy costs.

Energy savings of up to 80%



- By using dynamic lighting, it is possible to generate energy savings of 40-80%, depending on the usage environment
- In dense urban environments, the Controlux Air solution has the potential to generate energy savings of 40-50% (in this case, actual savings depend on the traffic intensity)

Maintenance costs savings up to 50%



- Automatic failure reporting
- No need for expensive visual inspections
- Extended luminaire lifetime
- Excellent preventive maintenance

A solution for energy efficiency

that offers a wide range of functions to adapt to any setting.



Autonomous luminaire control

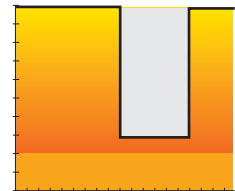
LRT56 / LRT66 / LRT76.

With the individual control, the precise amount of light is set in the correct place and at the right time. The autonomous controls uses the driver that is built into the luminaire.

Presence sensor. The presence sensors are connected to the driver (DALI or 1-10V) to improve the efficiency of the installation by increasing the lumen level when pedestrians or vehicles are detected and reducing it when no movement is sensed in the area.

Example: LRT56

- LRT:** Pre-set to dim
5: 50% of the initial flow
6: Hours during which dimming is maintained



Control by light source groups

LRD (DALI). Digital communication interface. This is a two-way control interface that allows for information to be obtained on the light source. It requires a second control line for each luminaire.

ZD4i. The Zhaga-D4i ecosystem of lighting products enables smart, future-proof LED luminaires with IoT connectivity.

Controlux control systems



CONTROLUX AIR is a wireless technology that offers intelligent lighting with reductions in energy consumption of up to 80%. It optimises energy savings thanks to the individual control

of light sources. It controls, monitors and manages street lighting, reporting consumptions, operating hours or system faults.

*Actual savings depend on the traffic & pedestrian intensity and usage.



Code	Luminaire (required)													
SCL	CityMax Luminaire													
	Code	Lamp Type (required)												
	.LA02X	2000lm LED module with 4000K, 3000K or 2700K colour temperature, 70CRI												
	.LA03X	3000lm LED module with 4000K, 3000K or 2700K colour temperature, 70CRI												
	.LA04X	4000lm LED module with 4000K, 3000K or 2700K colour temperature, 70CRI												
	.LA05X	5000lm LED module with 4000K, 3000K or 2700K colour temperature, 70CRI*												
	.LA06X	6000lm LED module with 4000K, 3000K or 2700K colour temperature, 70CRI												
	.LA07X	7000lm LED module with 4000K, 3000K or 2700K colour temperature, 70CRI												
	.LA09X	9000lm LED module with 4000K, 3000K or 2700K colour temperature, 70CRI												
	.LA10X	10000lm LED module with 4000K, 3000K or 2700K colour temperature, 70CRI												
	.LA12X	12000lm LED module with 4000K, 3000K or 2700K colour temperature, 70CRI												
	.LA14X	14000lm LED module with 4000K, 3000K or 2700K colour temperature, 70CRI												
	.LA16X	16000lm LED module with 4000K, 3000K or 2700K colour temperature, 70CRI												
	.LA18X	18000lm LED module with 4000K, 3000K or 2700K colour temperature, 70CRI												
	.LA20X	20000lm LED module with 4000K, 3000K or 2700K colour temperature, 70CRI												
	Code	Distribution (required)												
	.ST1	Symmetric long distribution												
	.ST2	Symmetric wide distribution												
	.ST3	Symmetric distribution												
	.AS1	Long & narrow distribution												
	.AS2	Asymmetric distribution												
	.AS3	Asymmetric distribution												
	.FW	Forward throw distribution												
	Code	Mounting (option)												
	.PT1 ¹	Post Top 76mm												
	.PT2 ¹	Post Top 60mm												
	.SE1 ¹	Side Entry 34/42												
	.SE2 ¹	Side Entry 49/60mm												
	.CP1	Central Post 76mm												
	.CP2	Central Post 60mm												
	.VB1	Cradle Mount 76mm												
	.VB2	Cradle Mount 60mm												
	.CB1	Curved Mount 76mm												
	.CB2	Curved Mount 60mm												
	Code	Colour (required)												
	.C1	Smooth White (RAL9016)												
	.C4	Graphite (RAL7011)												
	.C6	Smooth Grey (RAL7035)												
	.C7	Black (RAL9005)												
	.C9	Metallic Silver (RAL9006)												
	Code	Paint Finish (option)												
	.C	Enhanced Paint Finish												
	Code	Light Engine												
	.HE	High Efficiency (available with lumen options: LA02X, LA03X, LA04X, LA05X, LA06X)												
	Code	Photocell (option)												
	.TZ01	Complete with 4-Pin Zhaga Socket - 'Top' (suitable photocell/node available from Holophane or supplied by others) with weather proof locking top												
	.TZ02	Complete with 4-Pin Zhaga Socket - 'Bottom' (suitable photocell/node available from Holophane or supplied by others) with weather proof locking top.												
	.TZ03	Complete with 4-Pin Zhaga Socket – 'Top' & 'Bottom' (suitable photocell/node available from Holophane or supplied by others) with weather proof locking top												
	.T1	Complete with NEMA socket. (To accept standard NEMA Photocell)												
	.TSZ	Complete with miniature 70 lux factory fitted photocell. (Zodion SS12)												
	.TSZA	Complete with miniature 55 lux factory fitted photocell. (Zodion SS12A)												
	.TSZB	Complete with miniature 35 lux factory fitted photocell												
	.T5T	Complete with 5-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top												
	.T5	Complete with 5-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) without locking top												
	.T7	Complete with 7-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) without locking top												
	.T7T	Complete with 7-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top												
	Code	Dimming Outputs (option)												
	.LRD	DALI enabled												
	.LRT*****	Dimming as per customer requirements												
	.LRT56	Pre-set to dim to 50% between 12am to 6am												
	.LRT66	Pre-set to dim to 60% between 12am to 6am												
	.LRT76	Pre-set to dim to 70% between 12am to 6am												
	Code	Control Gear (option)												
	.CL7 ²	LED programmed to deliver 70% lumen flow over the life of the luminaire												
	.CL8 ²	LED programmed to deliver 80% lumen flow over the life of the luminaire												
	.CL9 ²	LED programmed to deliver 90% lumen flow over the life of the luminaire												
	Code	Controls												
	.PH1	PIR on a Zhaga socket, suitable up to 12m. Dims to 30% after 10 minutes of inactivity - switches off after further 10 minutes. Remotely re-programmable with accessory HEL.PR.G (purchased separately)												
	.PH2	Groupable PIR on a Zhaga socket, suitable up to 12m. Dims to 30% after 10 minutes of inactivity - switches off after further 10 minutes. Remotely re-programmable with accessory HEL.PR.G (purchased separately)												
	.CA	Wireless lighting node (top socket) for use with Holophane Controlux Air System. (Includes subscription package for two years)												
	.CAP	Wireless lighting node (top socket) & PIR (bottom socket) for use with Holophane Controlux Air System. (Includes subscription package for two years). Suitable up to 12m												
	Code	Cable Entry												
	.E4 to .E14	4 metres of 1.5mm ² to 14 metres of 1.5mm ²												
	.E42 to .E142	4 metres of 2.5mm ² , 14 metres of 2.5mm ²												
	Code	Electrical Class												
	.CII	Class II												
	Code	Protection												
	.C-PROTEC	Overvoltage protection												
	Code	Inputs (required)												
	.W016	16W to												
	.W176	176W												
SCL	.L023	.ST1	.CP1	.C9	.C	.HE	.T1	.LRD	.CL7 ²	.PH1	.E4	.CII	.C-PROTEC	.W016
Example														



LA02X & LA03X
8 LED
(2 x 4 LED modules)



LA04X & LA06X
16 LED
(2 x 8 LED modules)



LA02X.HE,
LA03X.HE,
LA04X.HE,
LA05X.HE,
LA06X.HE,
LA07X, LA09X,
LA10X & LA12X
32 LED
(2 x 16 LED
modules)



LA14X, LA16X,
LA18X & LA20X
52 LED
(2 x 16 LED
modules & 2 x 10
LED modules)



Replace 'X' with:

2 for 2700K

3 for 3000K

4 for 4000K

A for Amber

¹ Not available with ST1 and ST2

² Not available with LRD

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.

*Wattage is determined by the lumen package selected.



LA02X & LA03X
8 LED
(2 x 4 LED modules)



LA04X & LA06X
16 LED
(2 x 8 LED modules)



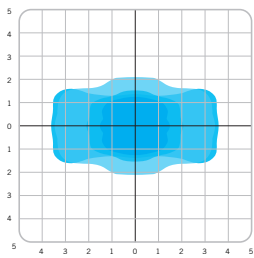
LA02X.HE, LA03X.HE, LA04X.HE, LA05X.HE, LA06X.HE, LA07X, LA09X, LA10X & LA12X
32 LED
(2 x 16 LED modules)



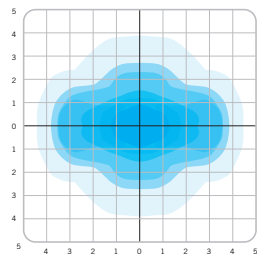
LA14X, LA16X, LA18X & LA20X
52 LED
(2 x 16 LED modules & 2 x 10 LED modules)

* Only available with .HE. Options PH1, PH2 must be configured with TZ02 or TZ03. Option CAP must be configured with TZ03. Option CA must be configured with TZ01.

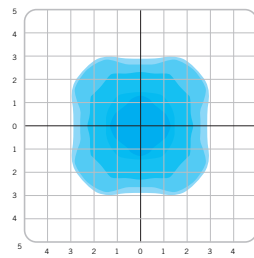
Distributions



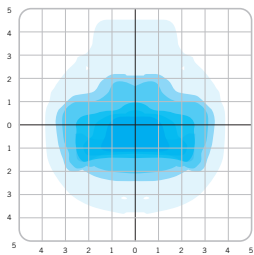
Symmetric Long (.ST1)



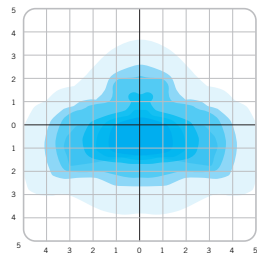
Symmetric Long (.ST2)



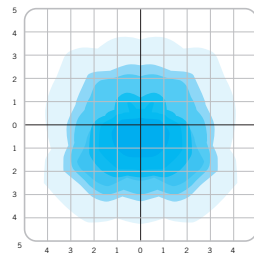
Symmetric Long (.ST3)



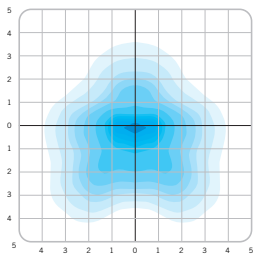
Long & Narrow (.AS1)



Asymmetric (.AS2)



Asymmetric (.AS3)



Forward Throw (.FW)





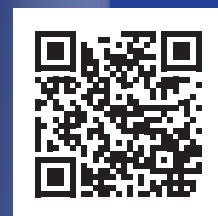


 CityMAX®

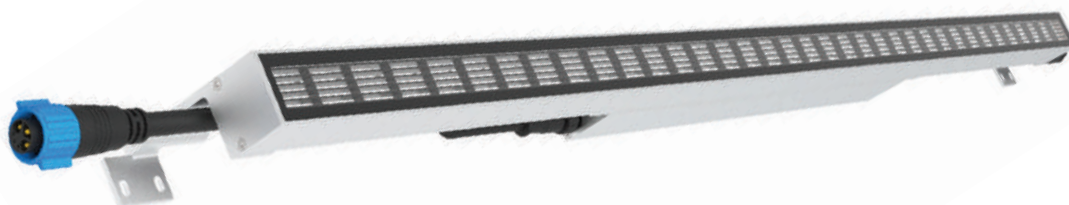


Holophane Europe Limited
Bond Avenue, Bletchley, Milton Keynes MK1 1JG United Kingdom
Telephone: +44 (0)1908 649292
E-mail: info@holophane.co.uk
www.holophane.co.uk

 Acuity Brands.



IP LINEAR WASH MONO 36W AC CUSTOM



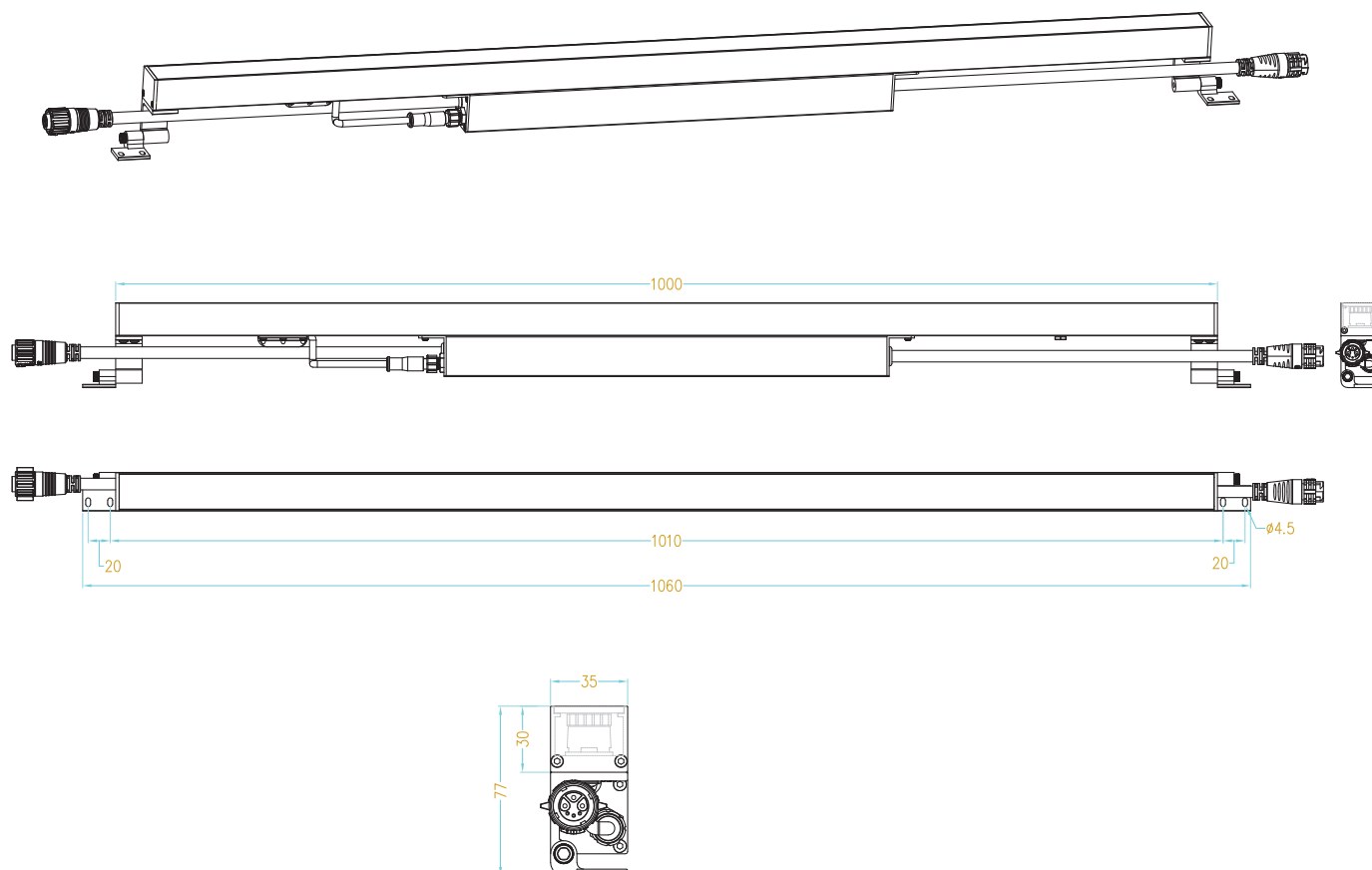
SPECIFICATIONS

Operating Voltage:	AC 100-240V, 50-60 Hz
Color Range:	RGB/RGBW, 4-in-1 LEDs, RGBW W=6000K
LED Type:	70,000 hours, at T80 lumen maintenance, B10 CO - 25 deg C
Source Life:	4-in-1 LEDs - 36pcs / 1000mm
Beam Angle:	20°x40°
Power Consumption:	36W max. / 1000mm, 18W max. / 500mm
Listing:	CE
Connection:	6-core AC/DMX cable with IP connector for daisy chain
Control:	DMX-512 / RDM Protocol, addressed by RDM Tester
Certification:	IP67
Operation Temperature:	-20 deg C to +55 deg C
Storage Temperature:	-20 deg C to +70 deg C
Weight:	3.2 kgs / 1000mm
Dimensions:	500mm or 1000mm (L) x 35mm (W) x 77mm (H)
Housing, Construction:	Aluminium extrusion in anodized process and tempered glass with internal longitudinal louver

** All rights reserved. Improvement and changes to specifications, design and all contents in this catalog, may be made at any time without prior notice.

IP LINEAR WASH MONO 36W AC CUSTOM

DRAWINGS



** All rights reserved. Improvement and changes to specifications, design and all contents in this catalog, may be made at any time without prior notice.

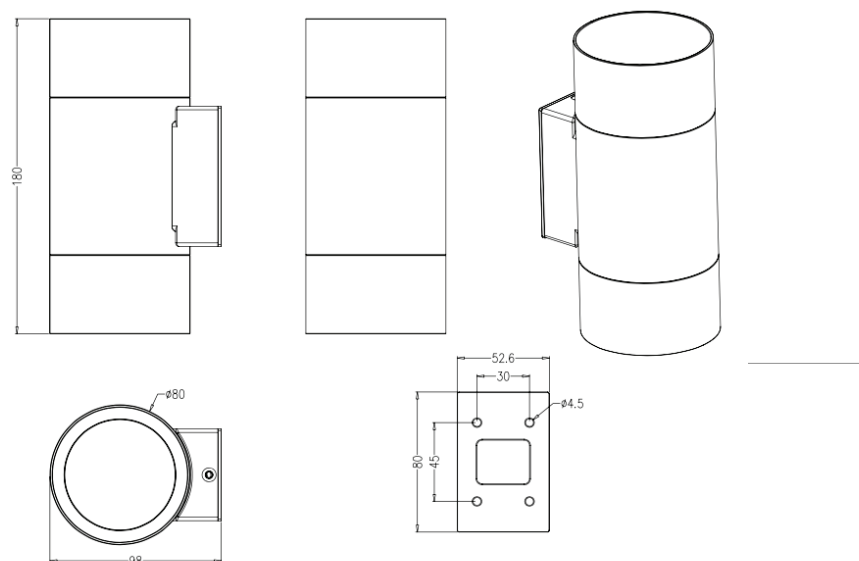
IP SM WALL LIGHT 2x6W UP & DOWN LIGHTER



SPECIFICATIONS

Colour Range:	3000K
Source Range:	50,000 ~ 70,000 hours at 70% lumen maintenance
LED Type:	High Power LEDs
Light Source:	2x6W max. (Up & Down Lighter)
Beam Angle:	10° lens with full hood up and down
Control:	Integrated power/driver, AC100~240V, no DMX, no control
Connection:	3-pin AC cable with bare end
Listing:	CE Certified
Housing:	Die cast aluminum with powder coating
IP Rating:	IP66
Operation Temperature:	-20°C ~ + 50°C
Storage Temperature:	-20°C ~ + 70°C
Dimension:	180mm(L) x 80mm(Dia)
Weight:	3.5Kg

PHYSICAL DIMENSIONS



** All rights reserved. Improvement and changes to specifications, design and all contents in this catalog, may be made at any time without prior notice.