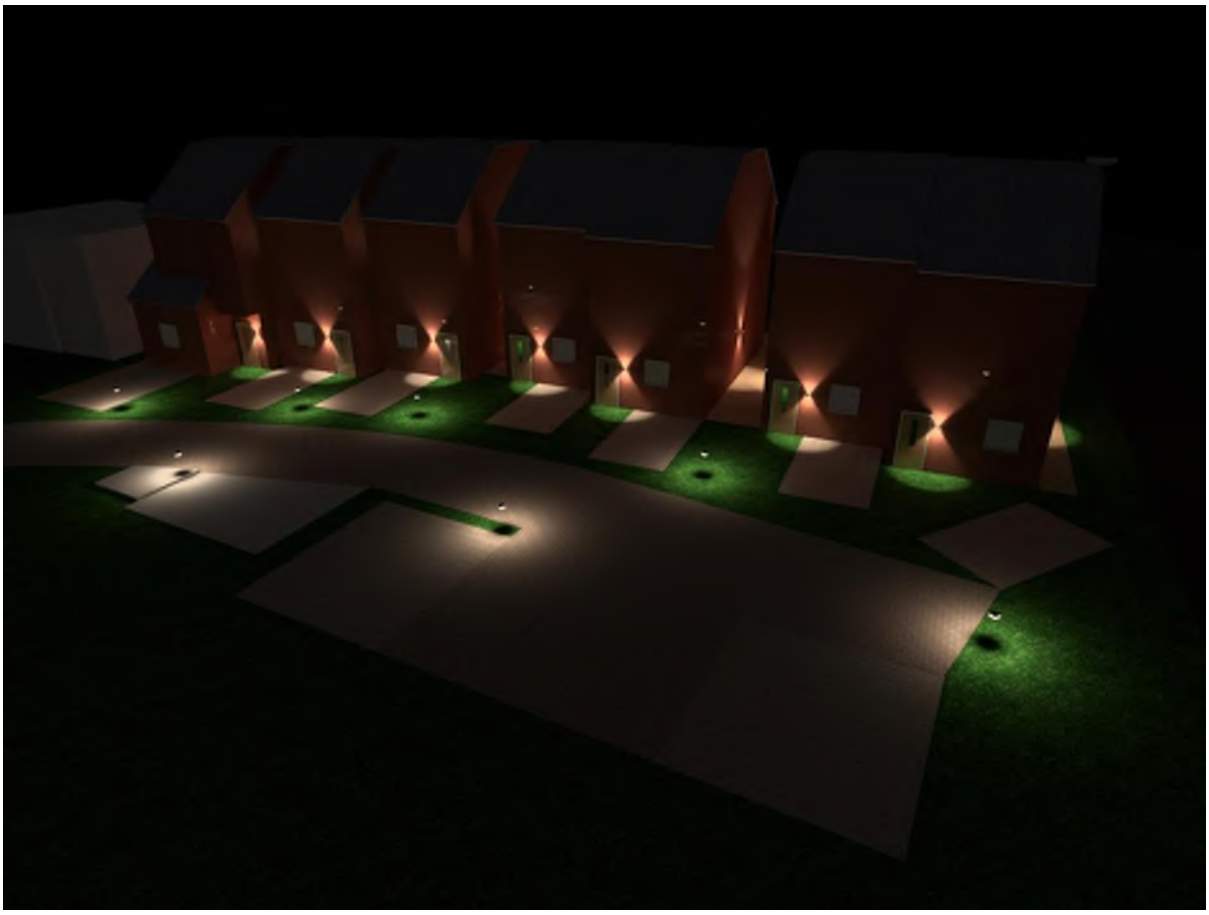
PS LIGHTING CONSULTANTS



Quail Gardens Lighting Report.

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PS Lighting Consultants
8 Browning Close, Rusden.
Northamptonshire. NN10 0YW

TEL : 07887 787 920
EMAIL : info@pslightingconsultants.co.uk
WEB : www.pslightingconsultants.co.uk

Lighting Levels LG06 / BS12464-2

Lighting Levels.

This is a private residential development, no highways section 278 amendments are required, no roadway development is required.

Lighting to the plots is for private and residential use only.

No lighting adoption by local authorities will be required.

Light Overspill and Trespass ILPGN01-2021

Environment.

Lighting should not impact on the environment or dwellings, below are exerts from ILP GN01 – 20 guidance to unobtrusive lighting.

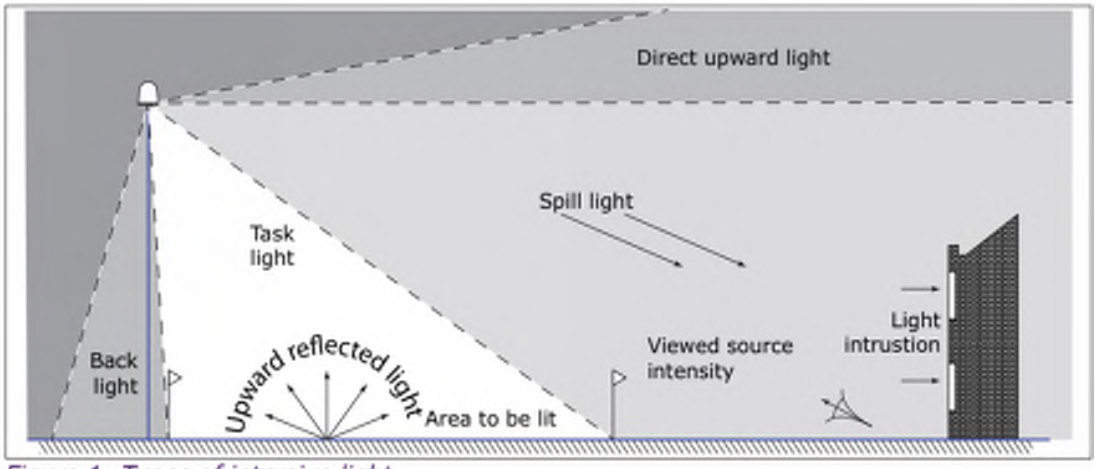


Figure 1: Types of intrusive light

Table 2: Environmental zones

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

Environment Category E2.

This project falls into category E2.

Table 3 – shows maximum permissible vertical illuminance onto other building frontage(s).

This is measured at 1.2m from floor level.

Table 3 (CIE 150 table 2): Maximum values of vertical illuminance on properties.						
Light technical parameter	Application conditions	Environmental zone				
		E0	E1	E2	E3	E4
Illuminance in the vertical plane (E_v)	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx*	1 lx	2 lx	5 lx

Light Trespass Results into Properties.

Lighting Scale. 0.10 0.20 0.30 0.50 0.75 1.00 2.00 3.00 5.00 7.50 10.0 20.0 30.0 50.0 75.0 100.0

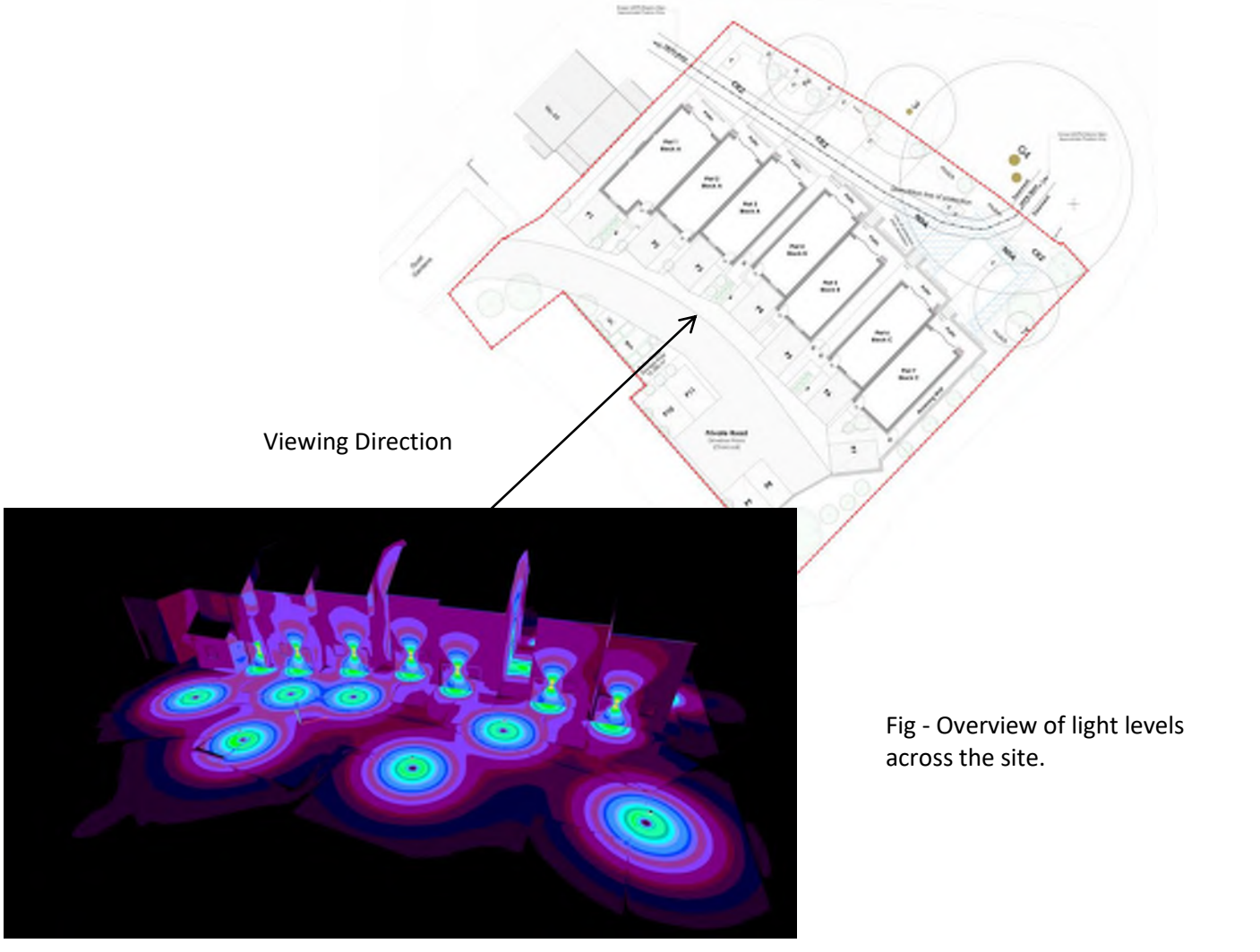
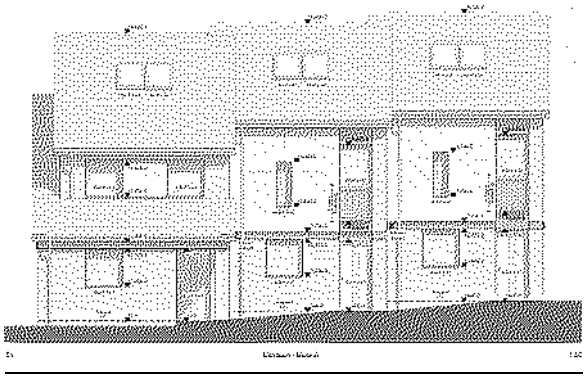


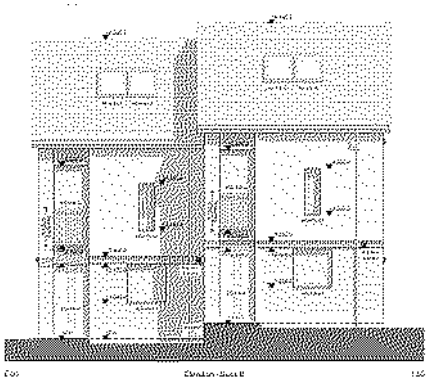
Fig - Overview of light levels across the site.

Lighting Scale. 



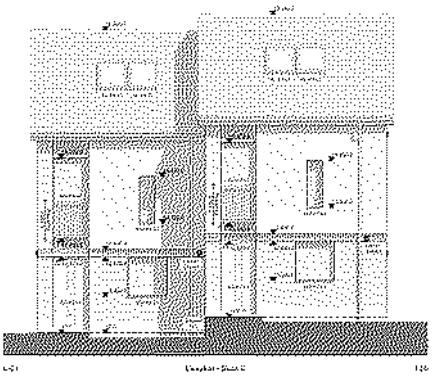
Block A Elevations

Light Intrusion (Pre-Curfew)



Block B Elevations

Light Intrusion (Pre-Curfew)



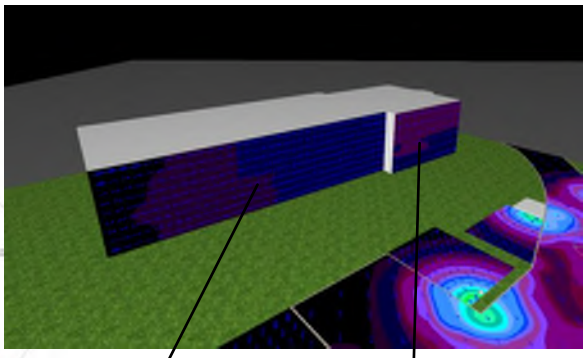
Block C Elevations

Light Intrusion (Pre-Curfew)

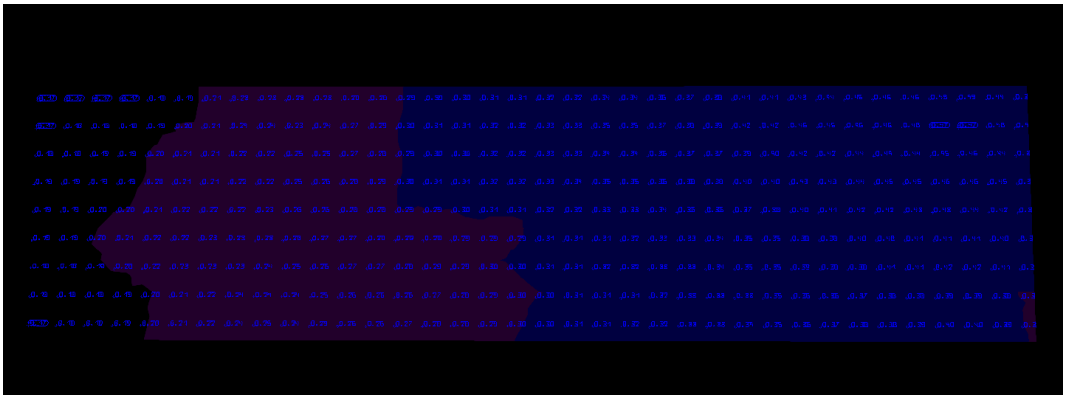
Conclusion

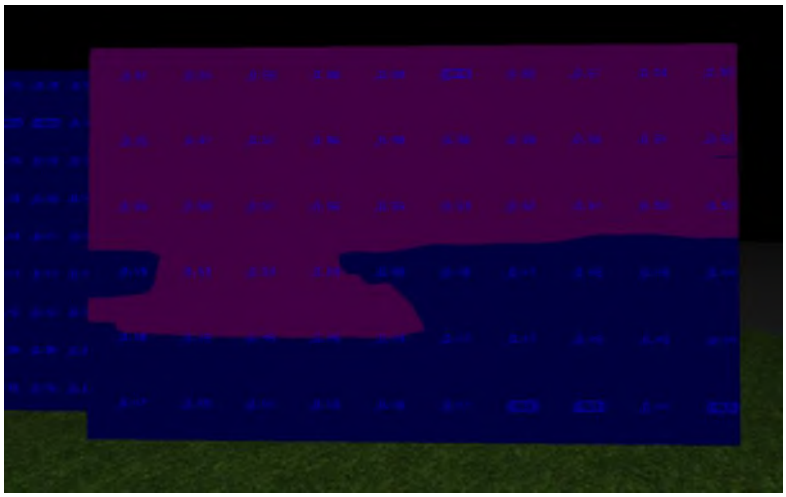
Light intrusion into window areas is meets ILP Guidance requirements. Maximum light intrusion is measured at 1.8 lux in plot 2.

Light Trespass Results Neighbouring Properties #1 & #2



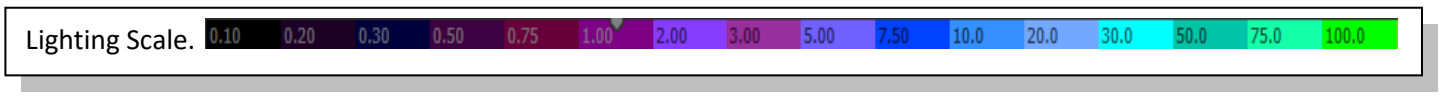
Viewing Direction



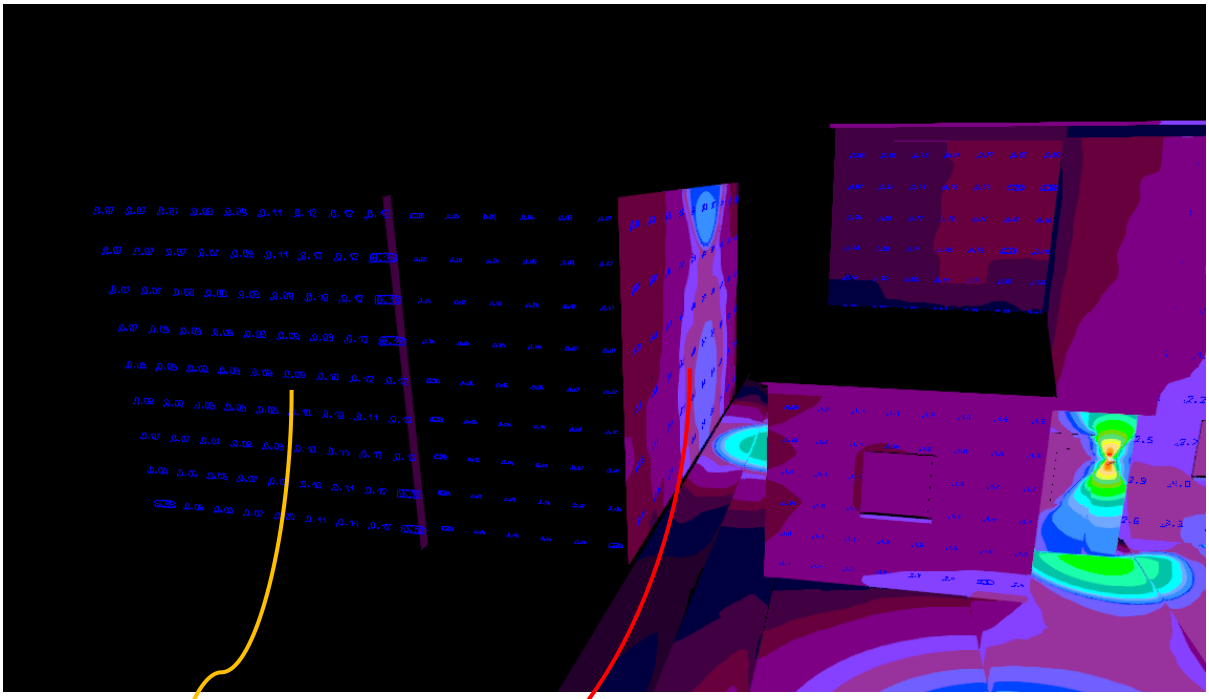


Conclusion

Light Trespass into the neighbouring sites (shown as #1 and #2 on main scheme) is less than <0.5lux, pre curfew, below the recommended level of 5lux.



Light Trespass Results Neighbouring Properties #3

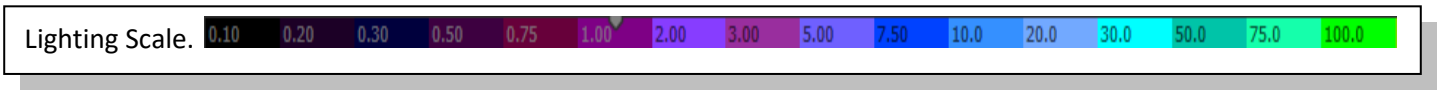


(Image Google Earth)

Conclusion

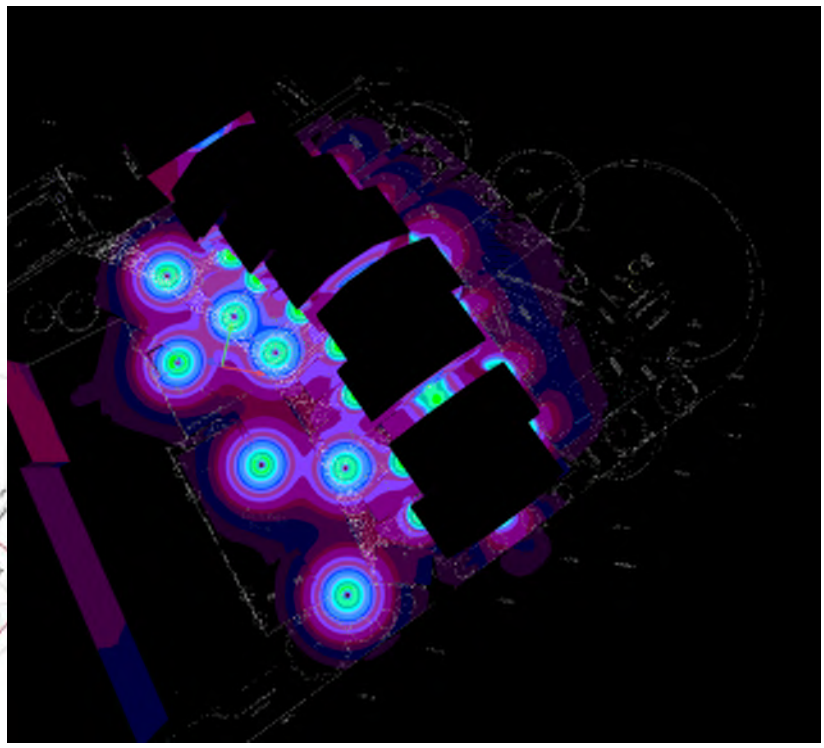
Light Trespass into the neighbouring sites (shown as #3 on main scheme) is less than <1lux, pre curfew, below the recommended level of 5lux.

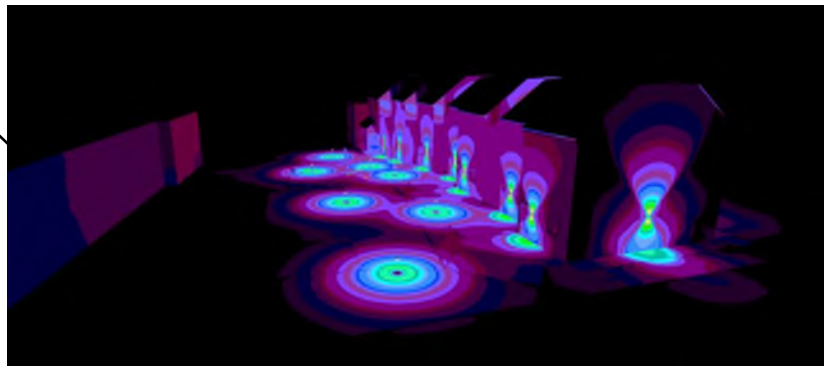
There is some light spill on local lighting switchable from the dwelling to the pathway, however this is outside ILPGN01 requirements.

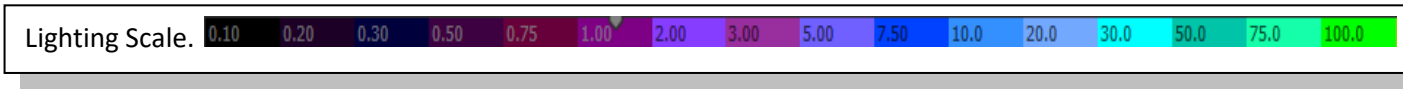


Light Trespass All Lighting On.

Viewing Direction







Conclusion

Horizontal light trespass from site into adjacent woodland is minimal <0.5 lux.

Lighting for the Environment.

Bat Conservation Trust

ILP Institution of Lighting Professionals

Guidance Note 08/18

For full information please reference ILP GN08/18

A Saxby Palin style decorative wall mounted LED bi directional canister style luminaire is selected for property mounted local illumination. Additional controls of dusk to dawn sensing will be present as well as PIR presence detection.

Bollard lighting will be by means of the Arcluce Klou (supplied by Kingfisher lighting) radial distribution.

Chipsets.

LED chipsets should be of “Warm White” colour referring to <3000K to include a peak spectral distribution of <440nm and greater than 550nm. Chipset manufacturers can provide this information upon request.

Photometric Properties.

All permanent switching luminaires (bollards) luminaire will require <180 cut off.

Output.

Wall mounted luminaires shall have an output of no more than 1400 luminaire lumen output combined (7watt GU10 LED lamp), bollards shall be no more than 1000luminaire lumen output.

Controls.

Although not a specific requirement, to dwelling local light from a wall pack a PIR is preferred as lighting into the environment is reduced when the area is not being used.

Permanent switched lighting in this case bollards should be time clock controlled with a facility to change timing to coincide with summer clock timings.

Appendix 1 – Luminaire Specification Sheets.

Kingfisher Lighting

Part of the Luceco group of companies

Datasheet

KLOU 180 Series

Arcluce

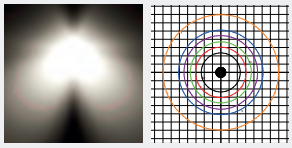
Specification Text

The KLOU 180 Series is a versatile range of bollards available in a variety of sizes and with multiple optic choices. This Italian built bollard enhances the aesthetic of most schemes and offers a low glare distribution for ultimate visual comfort.

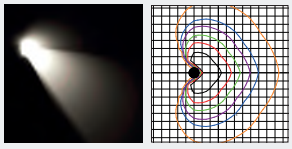
Specification

Weight:	4.3 kg – 7.5 kg
Windage:	0.09m² – 0.2m²
Material:	Die-cast Aluminium
Paint Finish:	Graphite Grey

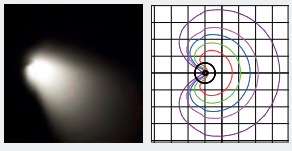
Optics



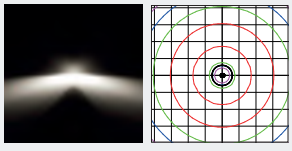
Radial



One-Way



Comfort



Short

Product Description

The KLOU 180 Series is a versatile range of bollards available in a variety of sizes and with multiple optic choices. This Italian built bollard enhances the aesthetic of most schemes and offers a low glare distribution for ultimate visual comfort.

Key Features

- 10.0W - 19.0W
- 700 – 1,600 Luminaire Lumens
- Efficacy up to 80 lm/W
- 3000K & 4000K, CRI>80
- IP66, IP68 & IK08, IK09, IK10
- Lifetime 60,000, L80
- Low Glare
- Emergency Compatible
- Driver Included
- Grey and Black Optics

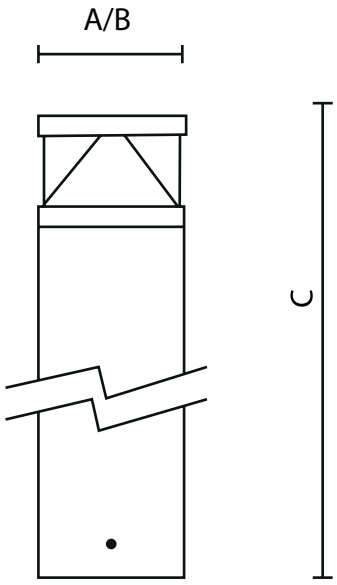
Short

Comfort

Mounting Options

- Flange Plate Mount

Body Type	A	B	C
KLOU 180 Short – 900mm	182	182	900
KLOU 180 Comfort – 960mm	182	182	960
KLOU 180 Comfort – 460mm	182	182	460



Code	Power	Luminaire Lumens	Drive Current	Optic	CCT(K)	IP	IK	Weight kg	Driver Included	Driver Type
KLOSH9-SYR-830-19-16	19.0	1,500	-	Radial	3000	IP66	IK10	7.5	Y	Fixed
KLOSH9-SYR-840-19-16	19.0	1,600	-	Radial	4000	IP66	IK10	7.5	Y	Fixed
KLOSH9-1W-830-10-16	10.0	700	-	One-Way	3000	IP66	IK10	7.5	Y	Fixed
KLOSH9-1W-840-10-16	10.0	750	-	One-Way	4000	IP66	IK10	7.5	Y	Fixed
KLOCO1-SYR-830-19-16	19.0	1,100	-	Radial	3000	IP68	IK10	7.5	Y	Fixed
KLOCO1-SYR-840-19-16	19.0	1,150	-	Radial	4000	IP66	IK10	7.5	Y	Fixed
KLOCO5-SYR-830-19-16	19.0	1,100	-	Radial	3000	IP68	IK10	4.3	Y	Fixed
KLOCO5-SYR-840-19-16	19.0	1,150	-	Radial	4000	IP66	IK10	4.3	Y	Fixed

Arcluce

75432

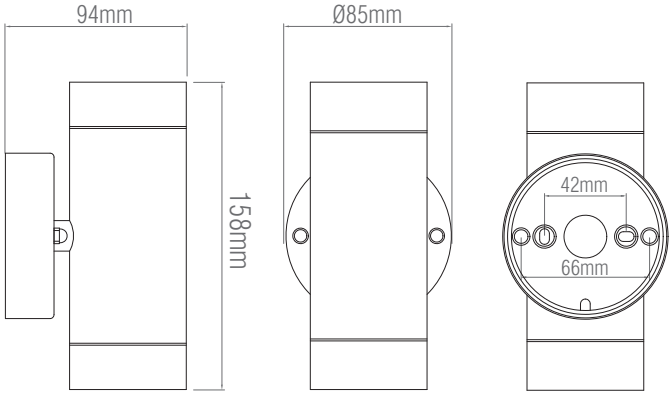
Palin Twin Wall Light

FEATURES

- 2 years warranty
- Matt black & clear glass finish
- Constructed from stainless steel & glass
- IP44

SPEC DATA

Product Wattage:	2 x Max. 7W LED GU10 (required)
Dimmable:	Y
Product Voltage:	220-240V
Hertz:	50/60
Product Weight (KG):	0.61
Terminal Block:	3-way
Class:	1



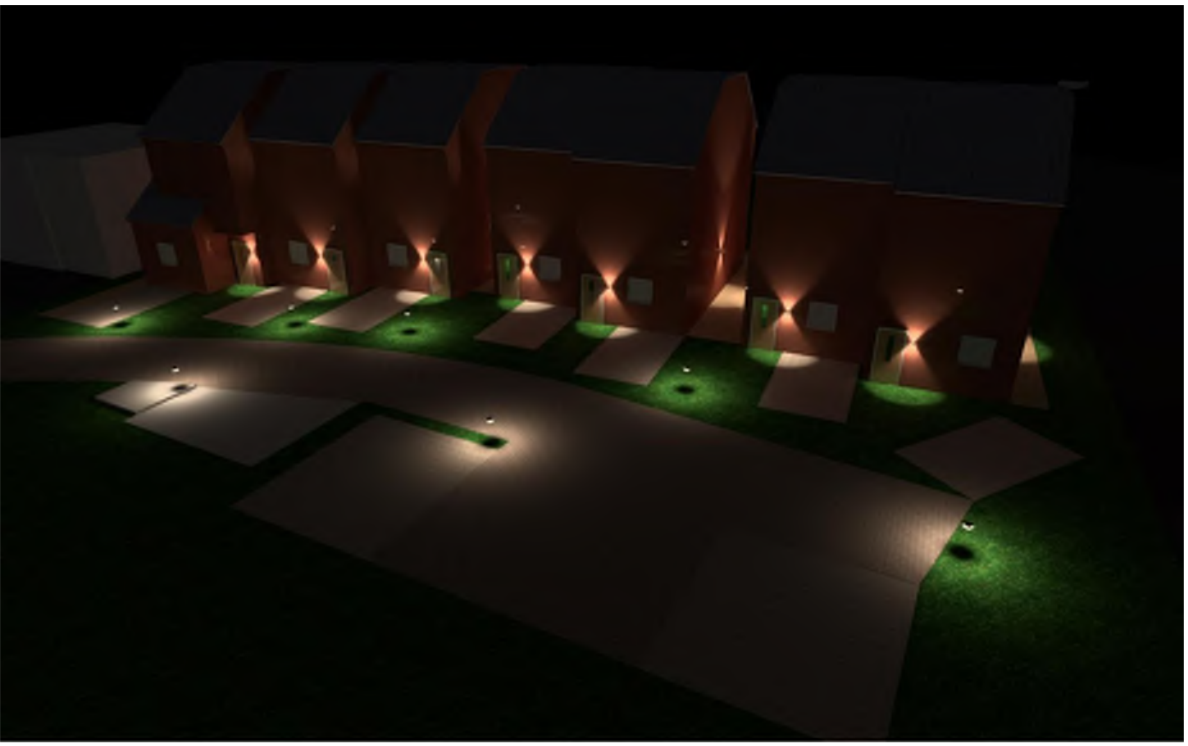
ACCESSORIES

70257, GU10 LED SMD 60º 7W
70258, GU10 LED SMD 60º 7W
70259, GU10 LED SMD dimmable 60º 7W
70260, GU10 LED SMD dimmable 60º 7W
74045, GU10 LED SMD 60º 7W
74048, GU10 LED SMD dimmable 60º 7W

Saxby Lighting, Cabot Lane, Creekmoor, Poole, Dorset, BH17 7BY.
T: (+44) 033 00 555 885 F: (+44) 01202 409811 E: sales@saxbylighting.com
www.saxbylighting.com

Appendix 2 – Lighting Scheme

Date 10/04/2024



Quail Gardens

New Dwellings.

Table of Contents

Product data sheets

Site 1

Table of Contents

Contacts

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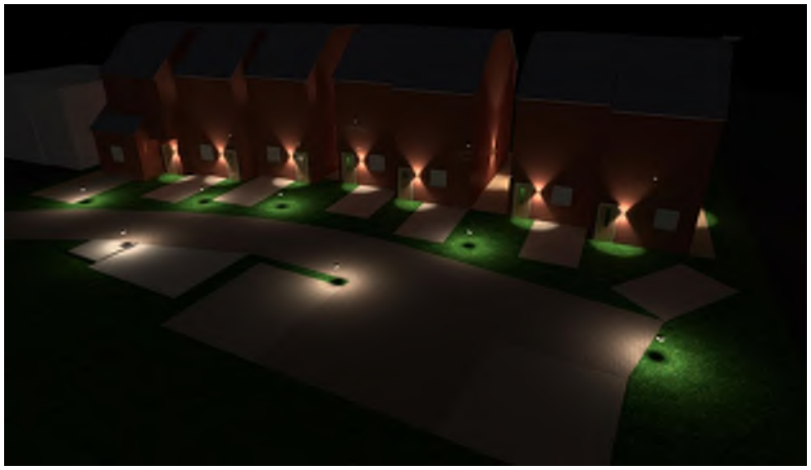
info@pslightingconsultants.co.uk

Images



Luminaire list

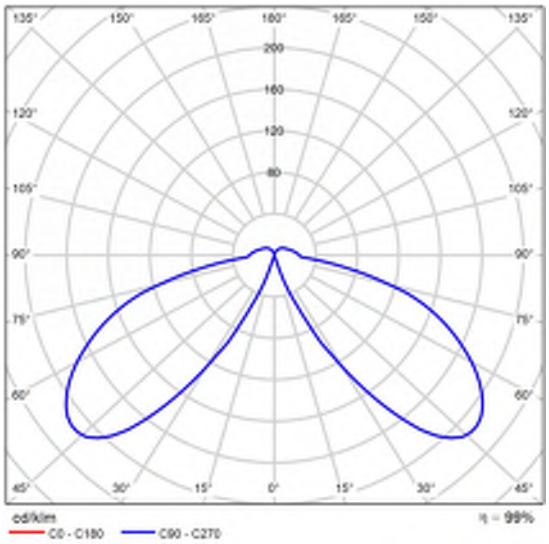
Φ_{total}	P_{total}	Luminous efficacy
28792 lm	404.0 W	71.3 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
7	ARCLUCE S.p.A.	0871030A-830-12	KLOU180 21W RADIALE AL H=960 ON/OFF	12.0 W	896 lm	74.7 lm/W
20	Saxby Palin Twin Wall Light	75432	GU10 Max 7w up/downlight 73? beam angle IP54	16.0 W	1126 lm	70.4 lm/W

Product data sheet

ARCLUCE S.p.A. - KLOU180 21W RADIALE AL H=960 ON/OFF

Article No.	0871030A-830-12
P	12.0 W
Φ_{Lamp}	905 lm
$\Phi_{Luminaire}$	896 lm
η	99.00 %
Luminous efficacy	74.7 lm/W
CCT	3000 K
CRI	80



Polar LDC

Glare evaluation according to UGR

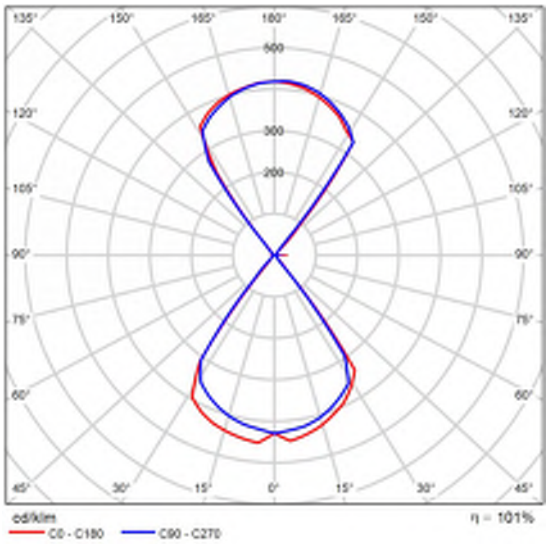
ρ Ceiling		70	70	50	50	30	70	70	50	50	30
ρ Walls		50	30	50	30	30	50	30	50	30	30
ρ Floor		20	20	20	20	20	20	20	20	20	20
Room size X	Y	Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	20.4	22.0	20.8	22.4	22.8	20.4	22.0	20.8	22.4	22.8
	3H	22.1	23.6	22.6	24.0	24.5	22.1	23.6	22.6	24.0	24.5
	4H	22.8	24.1	23.3	24.6	25.1	22.8	24.1	23.3	24.6	25.1
	6H	23.1	24.4	23.6	24.8	25.4	23.1	24.4	23.6	24.8	25.4
	8H	23.2	24.4	23.7	24.9	25.4	23.2	24.4	23.7	24.9	25.4
	12H	23.2	24.4	23.7	24.8	25.4	23.2	24.4	23.7	24.8	25.4
4H	2H	21.1	22.5	21.6	22.9	23.4	21.1	22.5	21.6	22.9	23.4
	3H	23.0	24.2	23.6	24.7	25.2	23.0	24.2	23.6	24.7	25.2
	4H	23.8	24.8	24.3	25.3	25.9	23.8	24.8	24.3	25.3	25.9
	6H	24.2	25.1	24.8	25.7	26.3	24.2	25.1	24.8	25.7	26.3
	8H	24.3	25.2	24.9	25.7	26.3	24.3	25.2	24.9	25.7	26.3
	12H	24.4	25.1	24.9	25.7	26.3	24.4	25.1	24.9	25.7	26.3
8H	4H	24.0	24.9	24.6	25.4	26.0	24.0	24.9	24.6	25.4	26.0
	6H	24.6	25.3	25.2	25.9	26.5	24.6	25.3	25.2	25.9	26.5
	8H	24.7	25.4	25.3	26.0	26.6	24.7	25.4	25.3	26.0	26.6
	12H	24.8	25.4	25.4	26.0	26.6	24.8	25.4	25.4	26.0	26.6
12H	4H	24.0	24.8	24.6	25.4	26.0	24.0	24.8	24.6	25.4	26.0
	6H	24.6	25.2	25.2	25.8	26.5	24.6	25.2	25.2	25.8	26.5
	8H	24.8	25.3	25.4	25.9	26.6	24.8	25.3	25.4	25.9	26.6
Variation of the observer position for the luminaire distances S											
S = 1.0H		+0.1 / -0.1					+0.1 / -0.1				
S = 1.5H		+0.3 / -0.4					+0.3 / -0.4				
S = 2.0H		+0.4 / -0.7					+0.4 / -0.7				
Standard table		BK05					BK05				
Correction summand		7.5					7.5				
Corrected glare indices referring to 865lm Total luminous flux											

UGR diagram (SHR: 0.25)

Product data sheet

Saxby Palin Twin Wall Light - GU10 Max 7w up/downlight 73? beam angle IP54

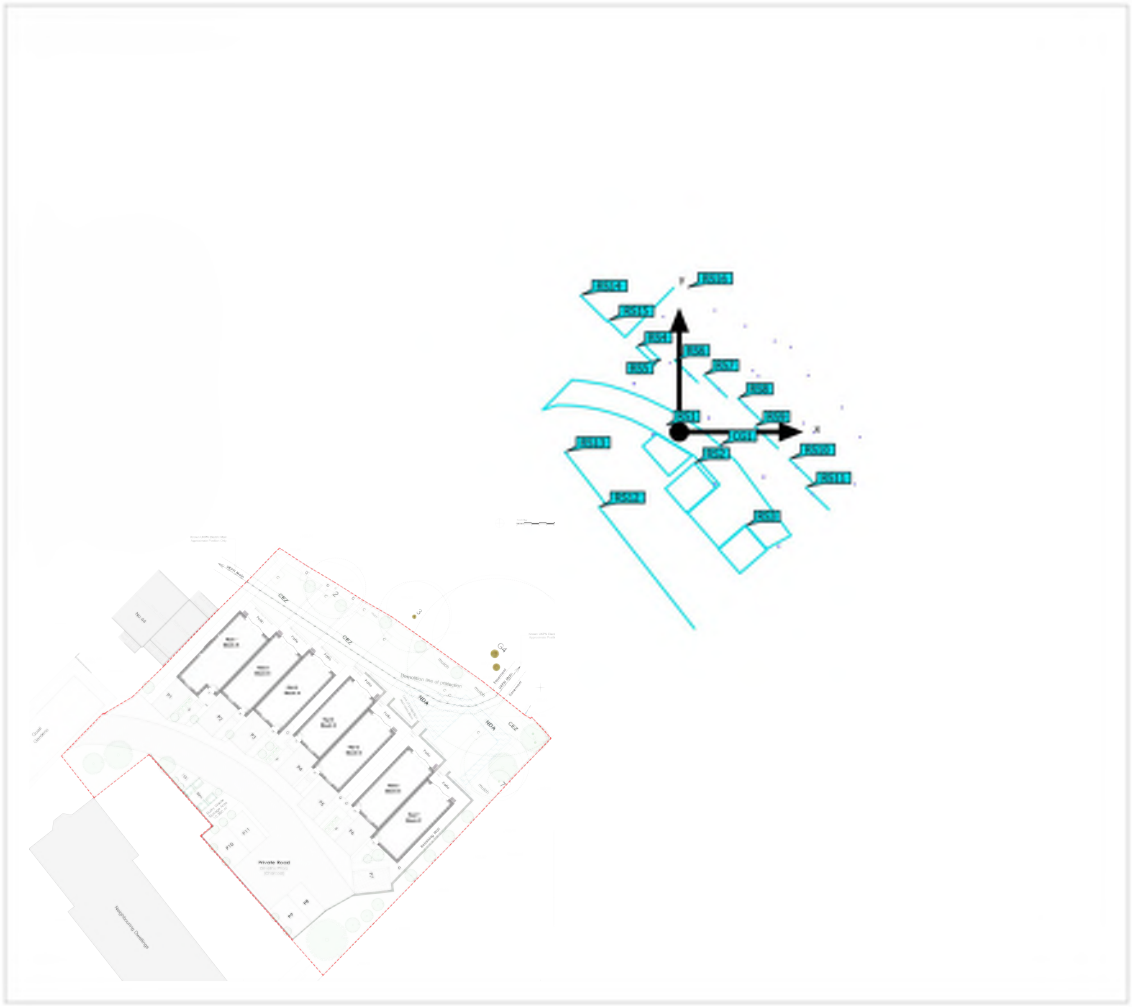
Article No.	75432
P	16.0 W
Φ_{Lamp}	1116 lm
$\Phi_{Luminaire}$	1126 lm
η	100.86 %
Luminous efficacy	70.4 lm/W
CCT	3000 K
CRI	83



Polar LDC

Site 1 (Light scene 1)

Calculation objects



Site 1 (Light scene 1)

Calculation objects

Surface result objects

Properties	Ø	min	max	U_o (g_1)	g_2	Index
BIN STORAGE Perpendicular illuminance (adaptive) Height: 0.015 m	8.07 lx	0.33 lx	102 lx	0.041	0.003	RS1
BIN STORAGE Luminance Height: 0.015 m	1.80 cd/m²	0.074 cd/m²	22.7 cd/m²	0.041	0.003	RS1
P10 . P11 Perpendicular illuminance (adaptive) Height: 0.020 m	6.20 lx	0.22 lx	103 lx	0.035	0.002	RS2
P10 . P11 Luminance Height: 0.020 m	0.92 cd/m²	0.033 cd/m²	15.3 cd/m²	0.036	0.002	RS2
P8 . P9 Perpendicular illuminance (adaptive) Height: 0.010 m	0.59 lx	0.13 lx	10.5 lx	0.22	0.012	RS3
P8 . P9 Luminance Height: 0.010 m	0.088 cd/m²	0.019 cd/m²	1.56 cd/m²	0.22	0.012	RS3
PLOT 1 #1 Perpendicular illuminance (adaptive) Height: 1.579 m	1.33 lx	0.37 lx	3.16 lx	0.28	0.12	RS4
PLOT 1 #1 Luminance Height: 1.579 m	0.084 cd/m²	0.024 cd/m²	0.20 cd/m²	0.29	0.12	RS4
PLOT 1 #2 Perpendicular illuminance (adaptive) Height: 3.359 m	0.25 lx	0.00 lx	0.76 lx	0.00	0.00	RS5
PLOT 1 #2 Luminance Height: 3.359 m	0.015 cd/m²	0.00 cd/m²	0.046 cd/m²	0.00	0.00	RS5
PLOT 2 Perpendicular illuminance (adaptive) Height: 3.359 m	14.8 lx	0.57 lx	8071 lx	0.039	0.000	RS6

Site 1 (Light scene 1)

Calculation objects

PLOT 2 Luminance Height: 3.359 m	0.95 cd/m²	0.036 cd/m²	514 cd/m²	0.038	0.000	RS6
PLOT 3 Perpendicular illuminance (adaptive) Height: 3.359 m	14.6 lx	0.50 lx	8353 lx	0.034	0.000	RS7
PLOT 3 Luminance Height: 3.359 m	0.93 cd/m²	0.030 cd/m²	533 cd/m²	0.032	0.000	RS7
PLOT 4 Perpendicular illuminance (adaptive) Height: 3.359 m	14.2 lx	0.29 lx	8671 lx	0.020	0.000	RS8
PLOT 4 Luminance Height: 3.359 m	0.91 cd/m²	0.017 cd/m²	553 cd/m²	0.019	0.000	RS8
PLOT 5 Perpendicular illuminance (adaptive) Height: 3.359 m	13.6 lx	0.32 lx	6640 lx	0.024	0.000	RS9
PLOT 5 Luminance Height: 3.359 m	0.86 cd/m²	0.019 cd/m²	423 cd/m²	0.022	0.000	RS9
PLOT 6 Perpendicular illuminance (adaptive) Height: 3.359 m	13.8 lx	0.28 lx	9080 lx	0.020	0.000	RS10
PLOT 6 Luminance Height: 3.359 m	0.88 cd/m²	0.016 cd/m²	578 cd/m²	0.018	0.000	RS10
PLOT 7 Perpendicular illuminance (adaptive) Height: 3.359 m	12.7 lx	0.29 lx	9498 lx	0.023	0.000	RS11
PLOT 7 Luminance Height: 3.359 m	0.81 cd/m²	0.017 cd/m²	604 cd/m²	0.021	0.000	RS11
Neighbouring Property #1 Perpendicular illuminance (adaptive) Height: 3.005 m	0.54 lx	0.37 lx	0.70 lx	0.69	0.53	RS12

Site 1 (Light scene 1)

Calculation objects

Neighbouring Property #1 Luminance Height: 3.005 m	0.12 cd/m²	0.083 cd/m²	0.16 cd/m²	0.69	0.52	RS12
Neighbouring Property #2 Perpendicular illuminance (adaptive) Height: 3.005 m	0.79 lx	0.71 lx	0.85 lx	0.90	0.84	RS13
Neighbouring Property #2 Luminance Height: 3.005 m	0.18 cd/m²	0.16 cd/m²	0.19 cd/m²	0.89	0.84	RS13
Neighbouring Property #3 - sect 1 Perpendicular illuminance (adaptive) Height: 3.000 m	0.083 lx	0.051 lx	0.13 lx	0.61	0.39	RS14
Neighbouring Property #3 - sect 1 Luminance Height: 3.000 m	0.019 cd/m²	0.011 cd/m²	0.028 cd/m²	0.58	0.39	RS14
Neighbouring Property #3 sect 2 Perpendicular illuminance (adaptive) Height: 3.000 m	0.24 lx	0.18 lx	0.41 lx	0.75	0.44	RS15
Neighbouring Property #3 sect 2 Luminance Height: 3.000 m	0.053 cd/m²	0.041 cd/m²	0.092 cd/m²	0.77	0.45	RS15
Neighbouring Property #3 sect 3 Perpendicular illuminance (adaptive) Height: 3.000 m	2.76 lx	0.68 lx	15.4 lx	0.25	0.044	RS16
Neighbouring Property #3 sect 3 Luminance Height: 3.000 m	0.61 cd/m²	0.15 cd/m²	3.42 cd/m²	0.25	0.044	RS16

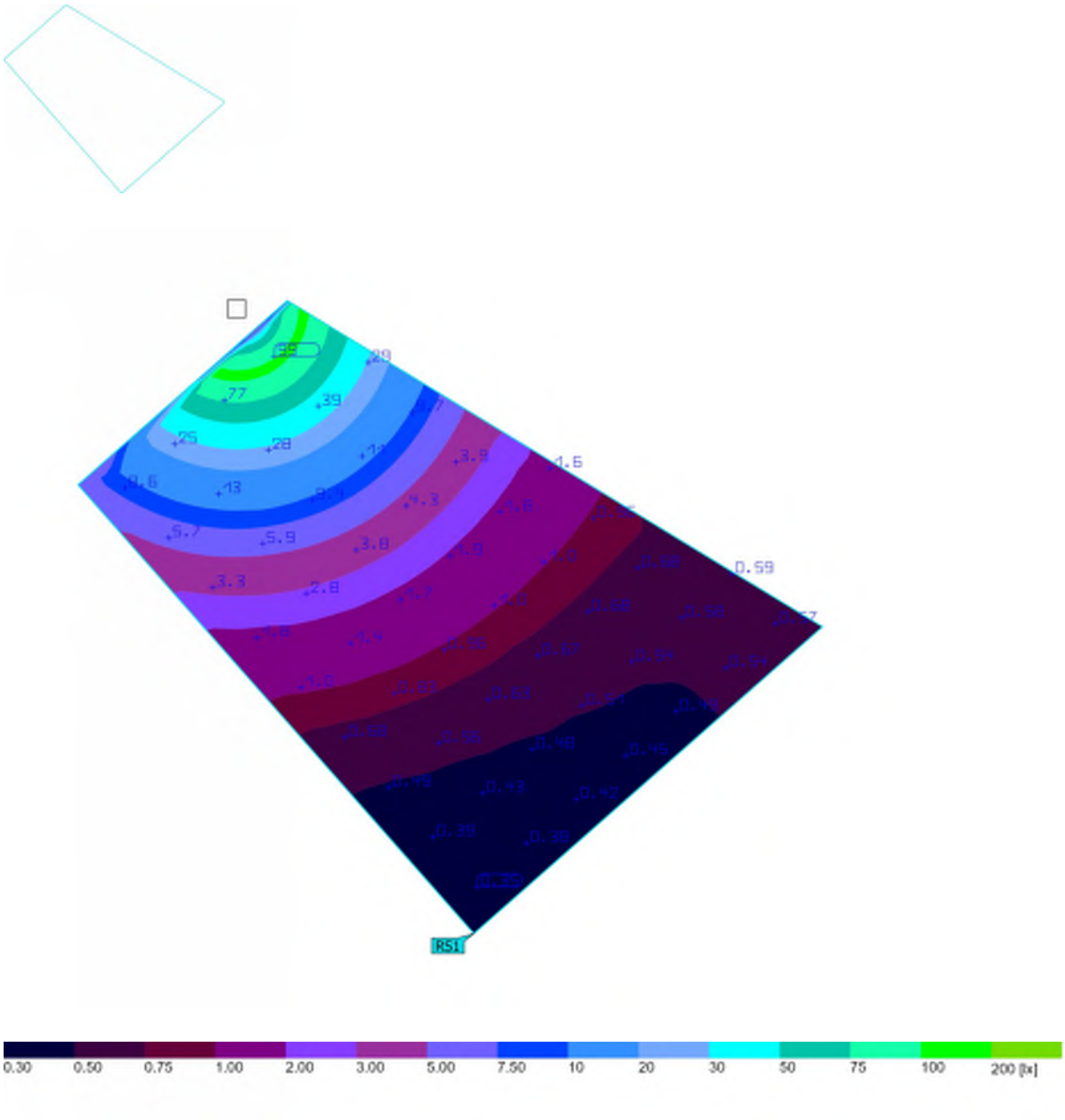
Calculation surfaces

Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
ROADWAY AREA #1 Perpendicular illuminance Height: 0.050 m	5.44 lx	0.055 lx	110 lx	0.010	0.001	CG1

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

BIN STORAGE

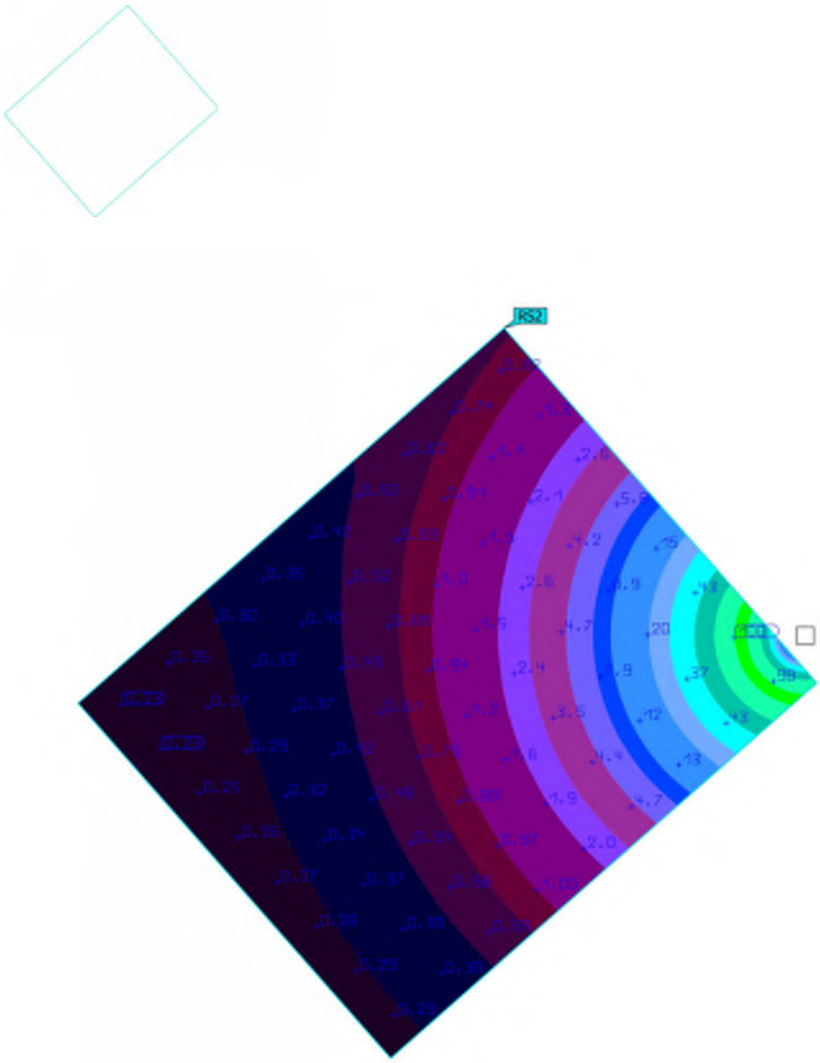


Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
BIN STORAGE Perpendicular illuminance (adaptive) Height: 0.015 m	8.07 lx	0.33 lx	102 lx	0.041	0.003	RS1

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

P10 . P11

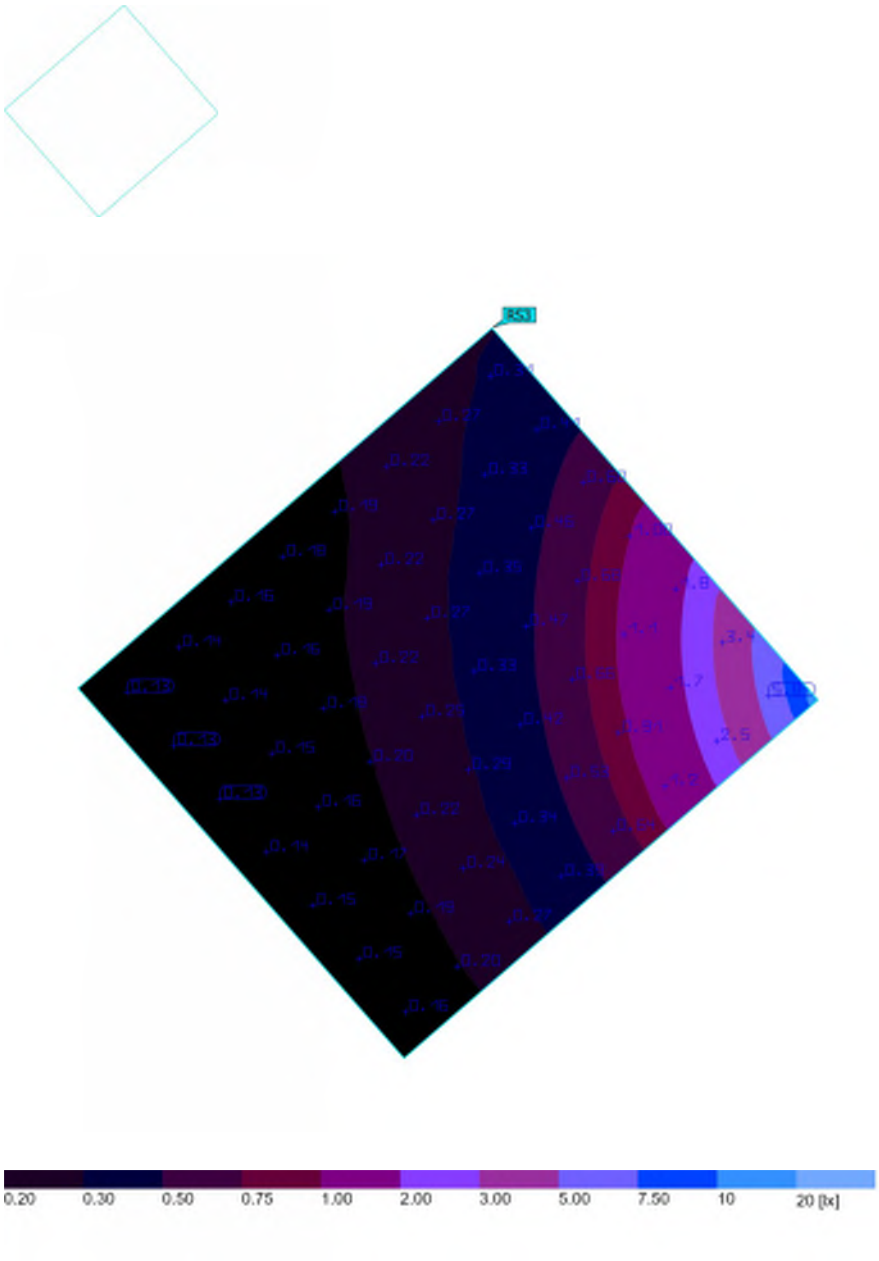


Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
P10 . P11 Perpendicular illuminance (adaptive) Height: 0.020 m	6.20 lx	0.22 lx	103 lx	0.035	0.002	RS2

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

P8 . P9

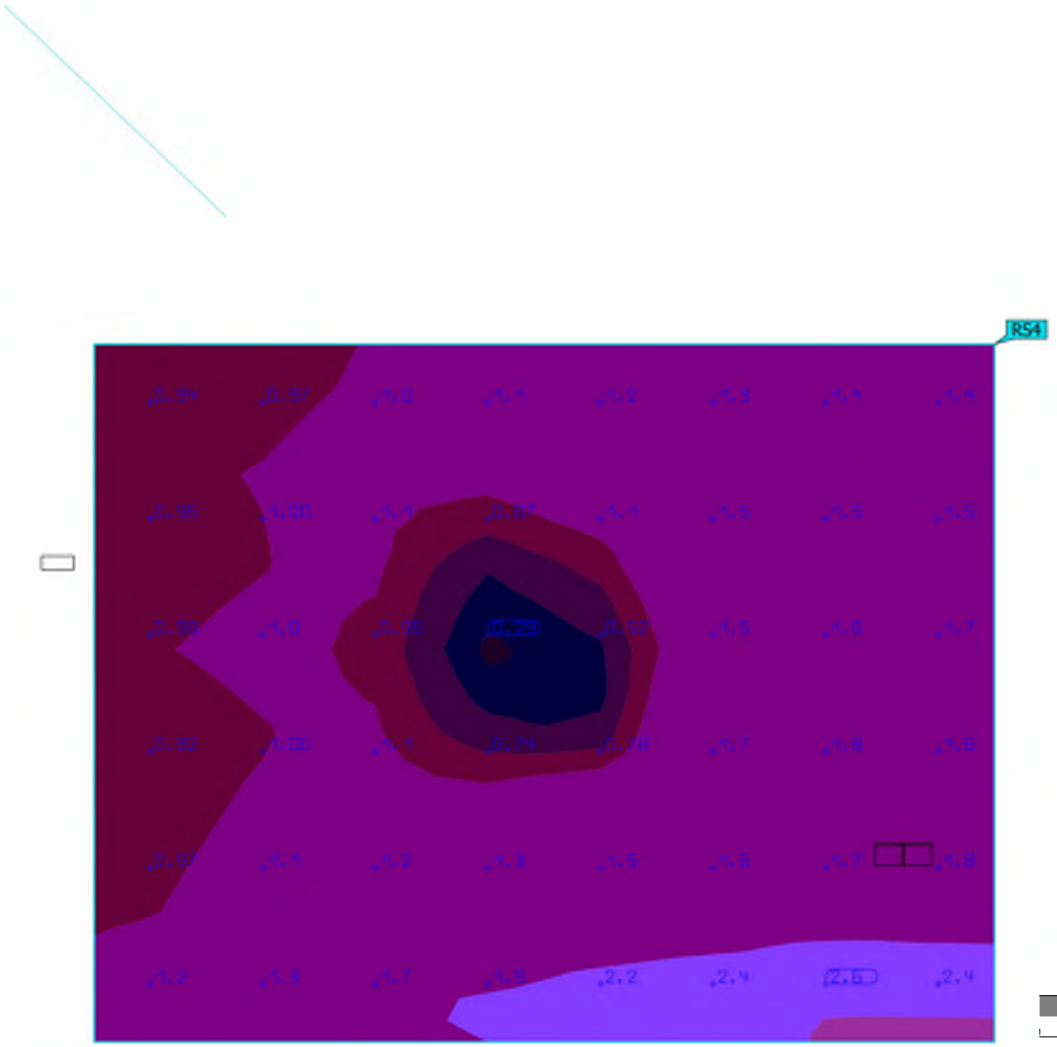


Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
P8 . P9 Perpendicular illuminance (adaptive) Height: 0.010 m	0.59 lx	0.13 lx	10.5 lx	0.22	0.012	RS3

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 1 #1 Building Luminance.



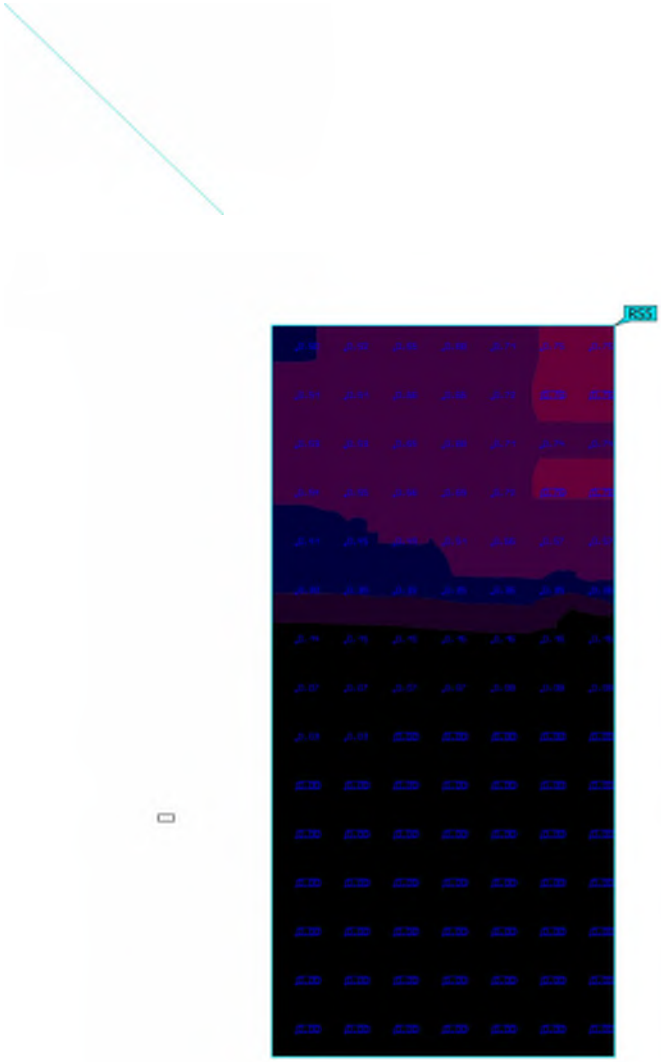
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
PLOT 1 #1 Perpendicular illuminance (adaptive) Height: 1.579 m	1.33 lx	0.37 lx	3.16 lx	0.28	0.12	RS4

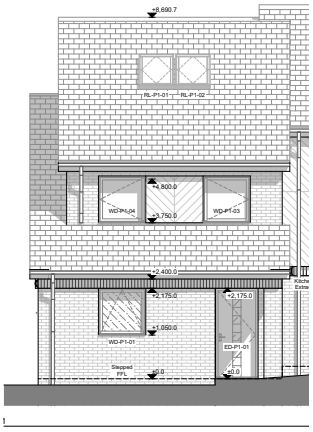
Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 1 #2

Direct Illumination



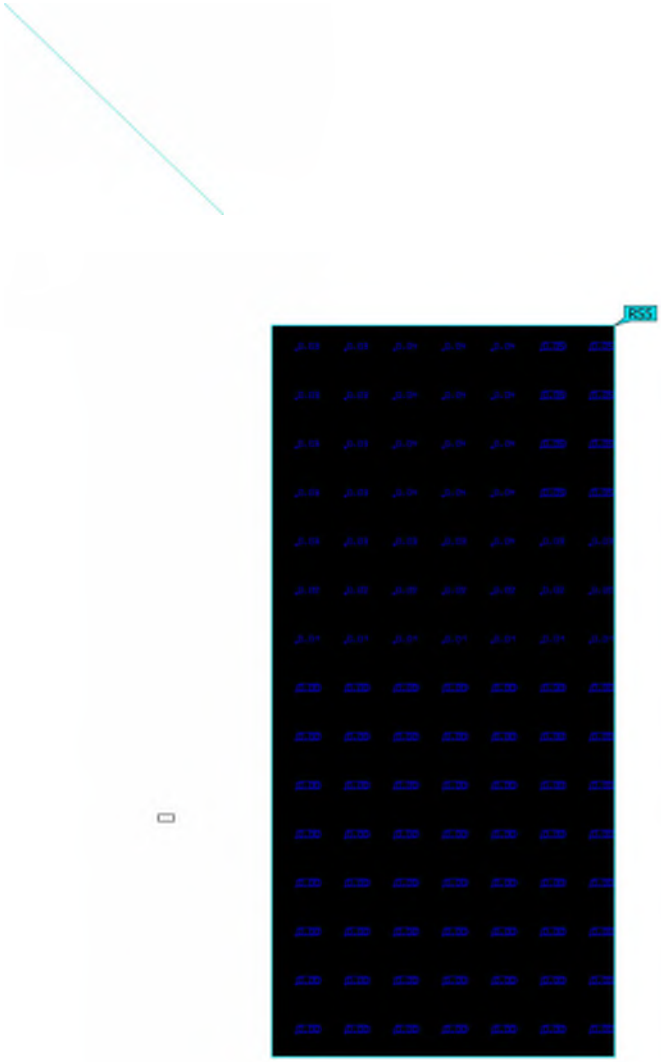


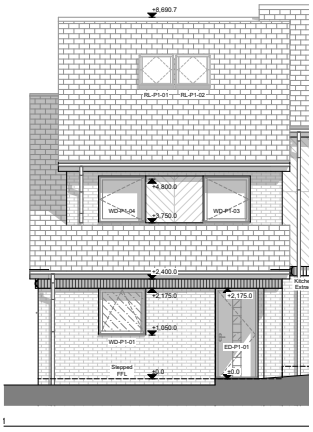
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
PLOT 1 #2 Perpendicular illuminance (adaptive) Height: 3.359 m	0.25 lx	0.00 lx	0.76 lx	0.00	0.00	RS5

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 1 #2 Building Luminance.





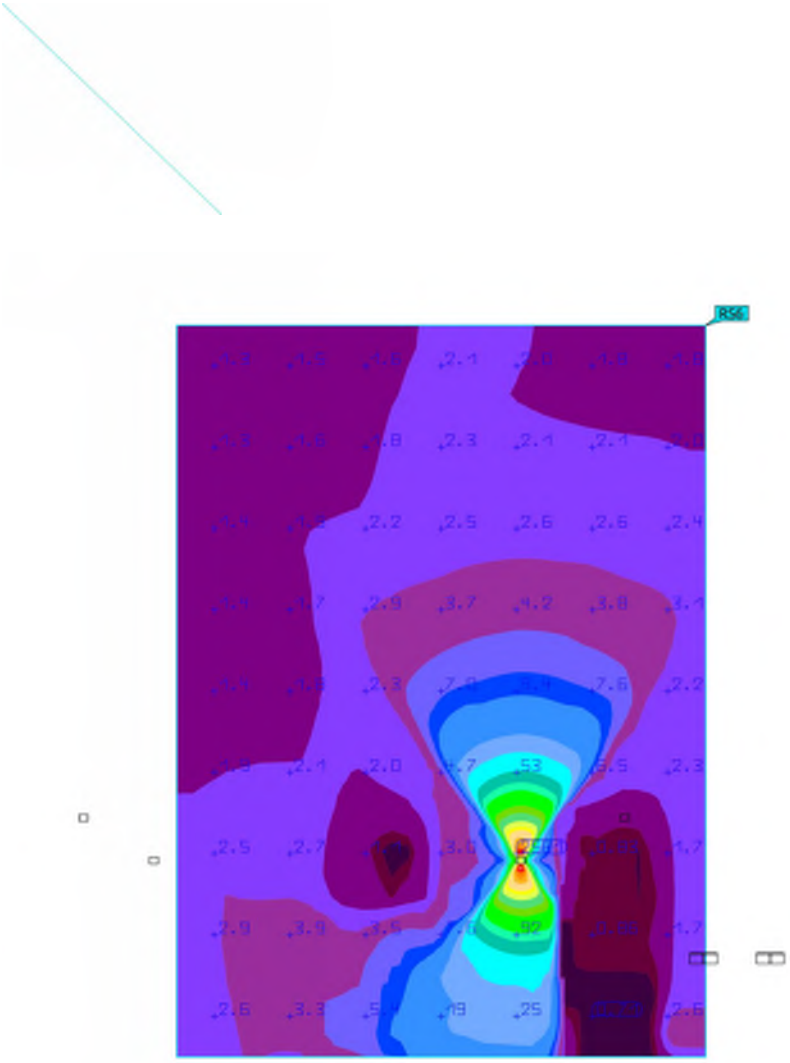
0.10 [cd/m²]

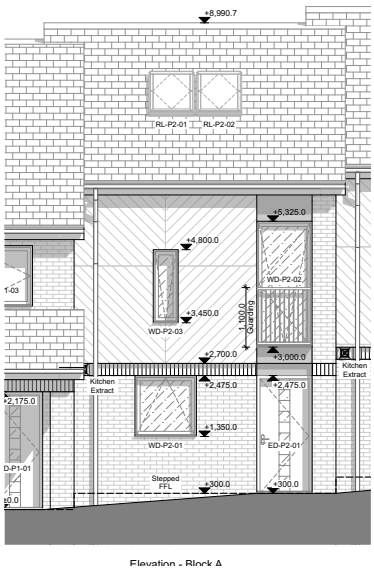
Properties	Ø	min	max	U_o (g_1)	g_2	Index
PLOT 1 #2 Luminance Height: 3.359 m	0.015 cd/m²	0.00 cd/m²	0.046 cd/m²	0.00	0.00	RS5

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 2 Direct Illumination





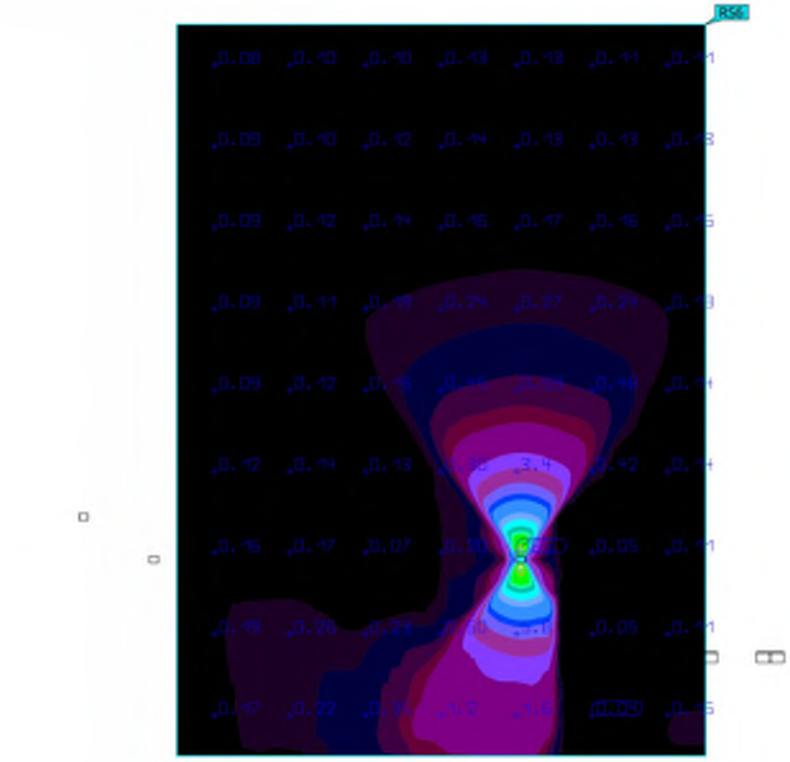
Elevation - Block A

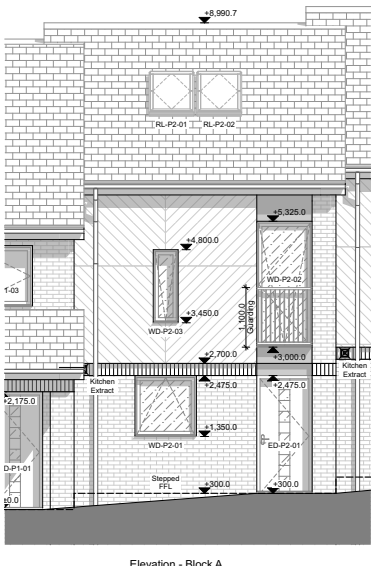
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
PLOT 2 Perpendicular illuminance (adaptive) Height: 3.359 m	14.8 lx	0.57 lx	8071 lx	0.039	0.000	RS6

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

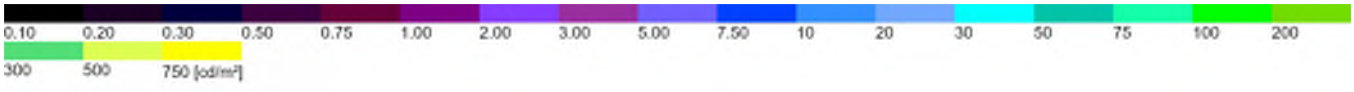
Site 1 (Light scene 1)

PLOT 2 Building Luminance.





Elevation - Block A

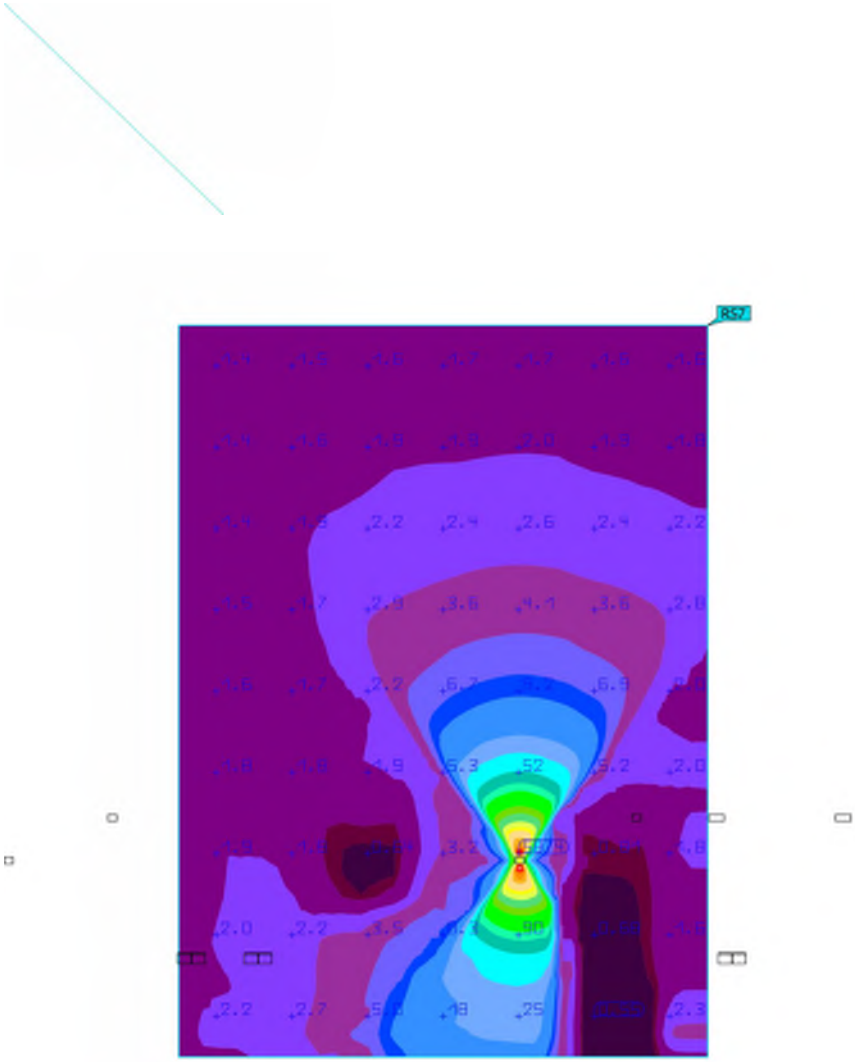


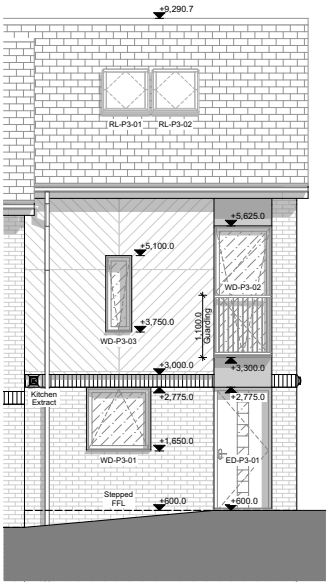
Properties	Ø	min	max	U_o (g_1)	g_2	Index
PLOT 2 Luminance Height: 3.359 m	0.95 cd/m²	0.036 cd/m²	514 cd/m²	0.038	0.000	RS6

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 3 Direct Illumination



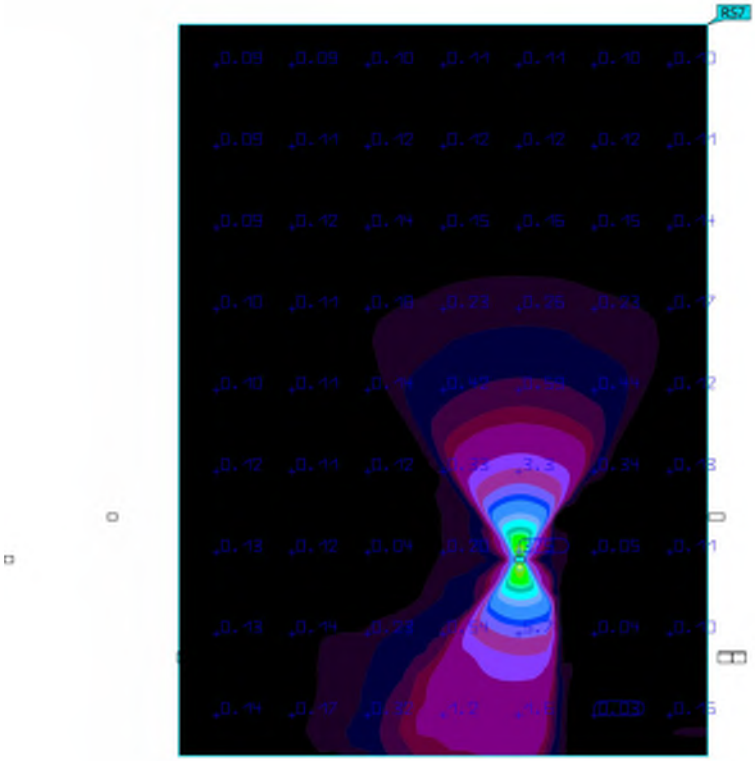


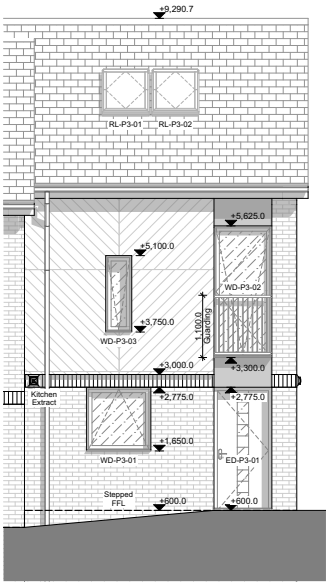
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
PLOT 3 Perpendicular illuminance (adaptive) Height: 3.359 m	14.6 lx	0.50 lx	8353 lx	0.034	0.000	RS7

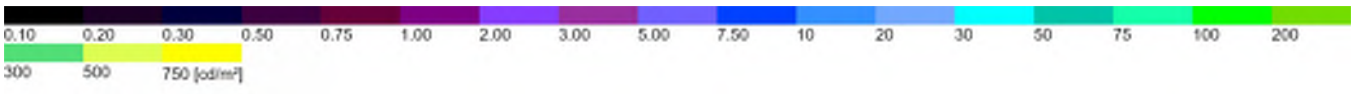
Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 3 Building Luminance.





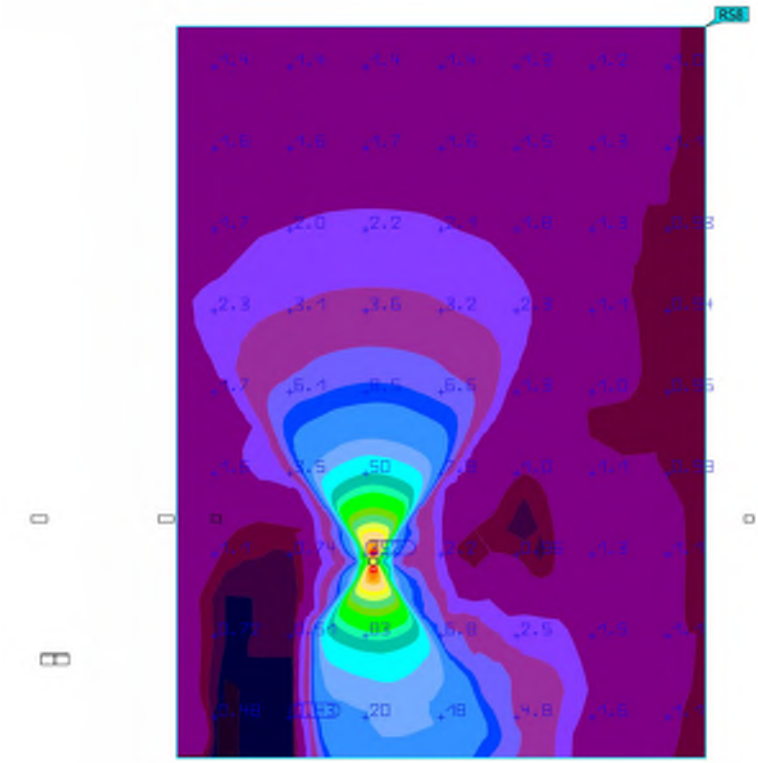


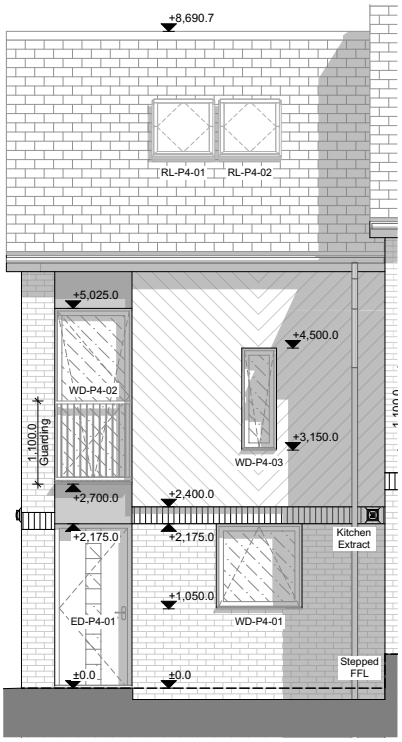
Properties	Ø	min	max	U_o (g_1)	g_2	Index
PLOT 3 Luminance Height: 3.359 m	0.93 cd/m²	0.030 cd/m²	533 cd/m²	0.032	0.000	RS7

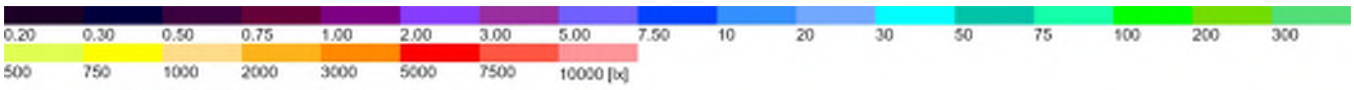
Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 4 Direct Illumination





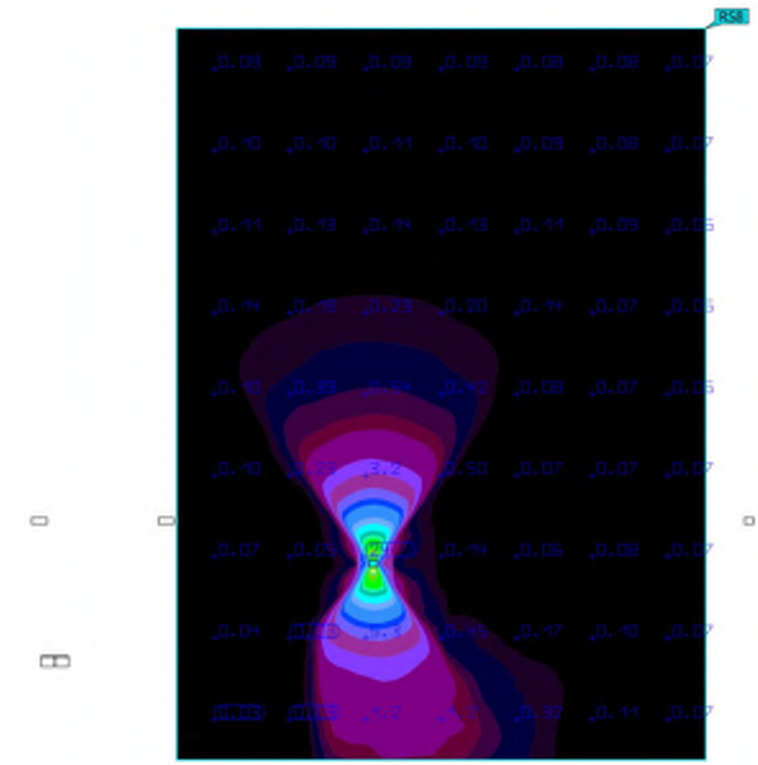


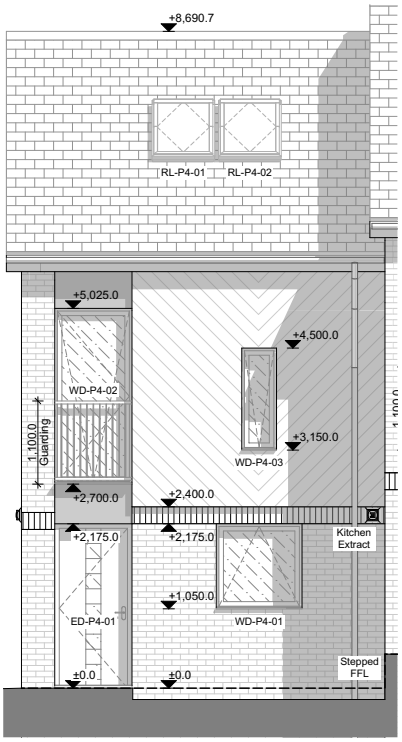
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
PLOT 4 Perpendicular illuminance (adaptive) Height: 3.359 m	14.2 lx	0.29 lx	8671 lx	0.020	0.000	RS8

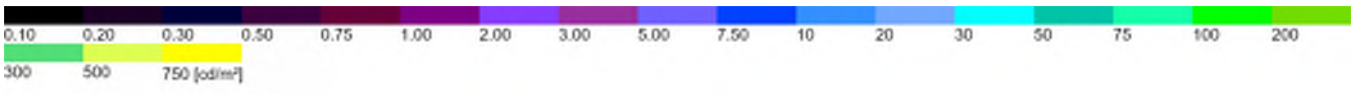
Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 4 Building Luminance.





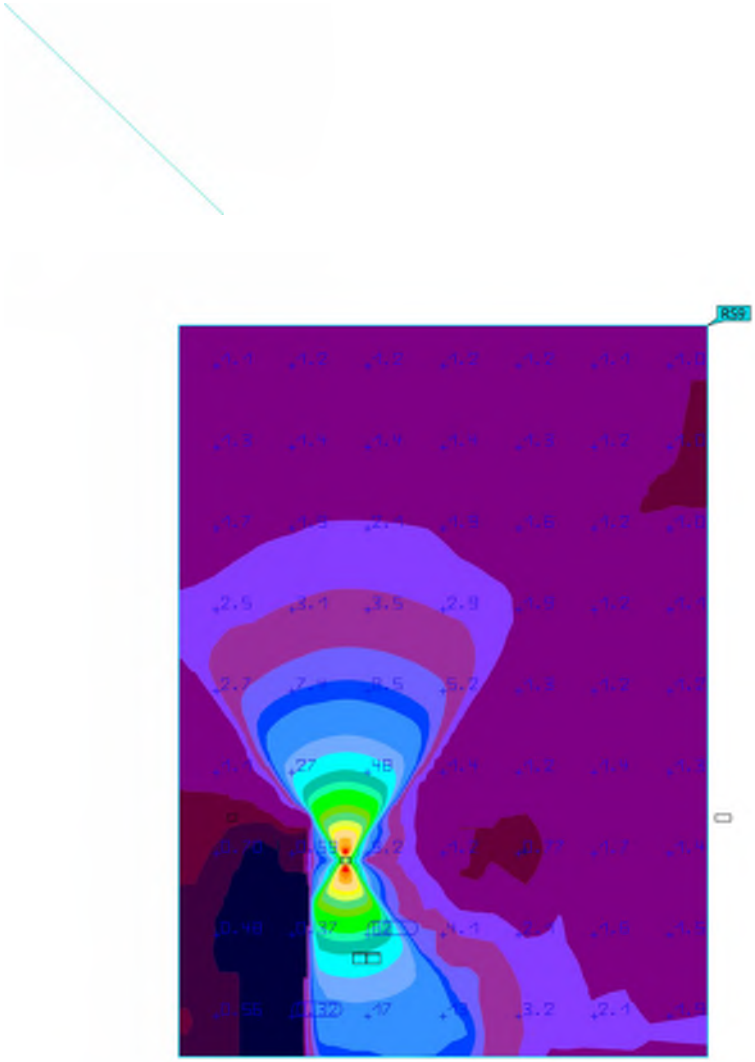


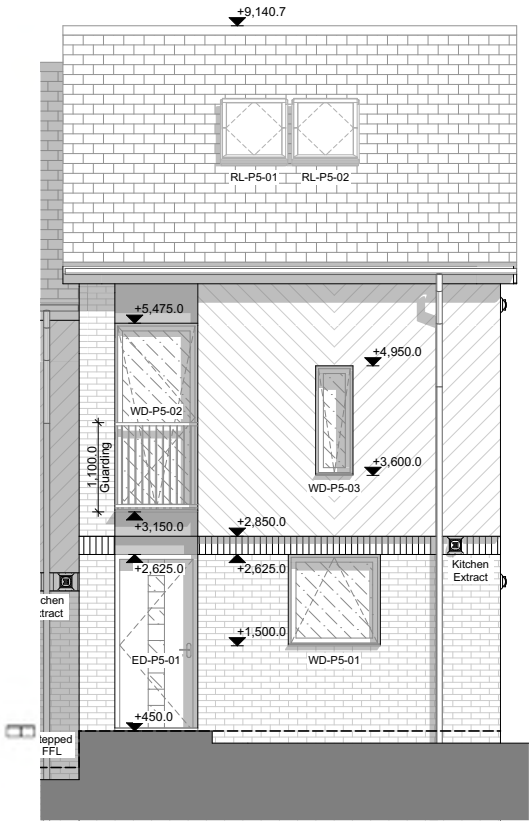
Properties	Ø	min	max	U_o (g_1)	g_2	Index
PLOT 4 Luminance Height: 3.359 m	0.91 cd/m²	0.017 cd/m²	553 cd/m²	0.019	0.000	RS8

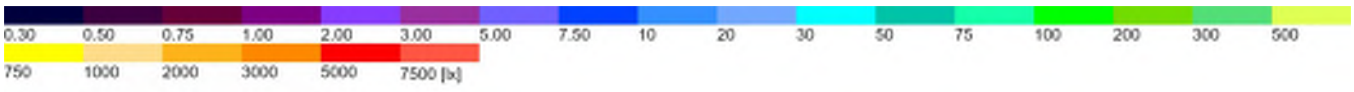
Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 5 Direct Illumination





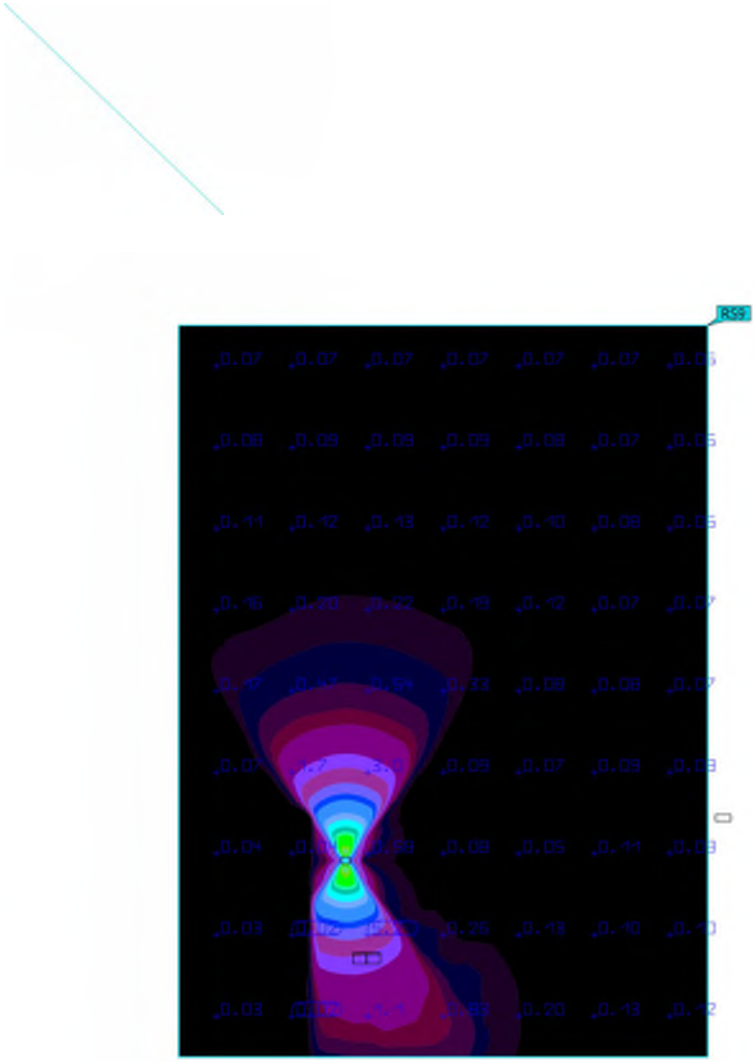


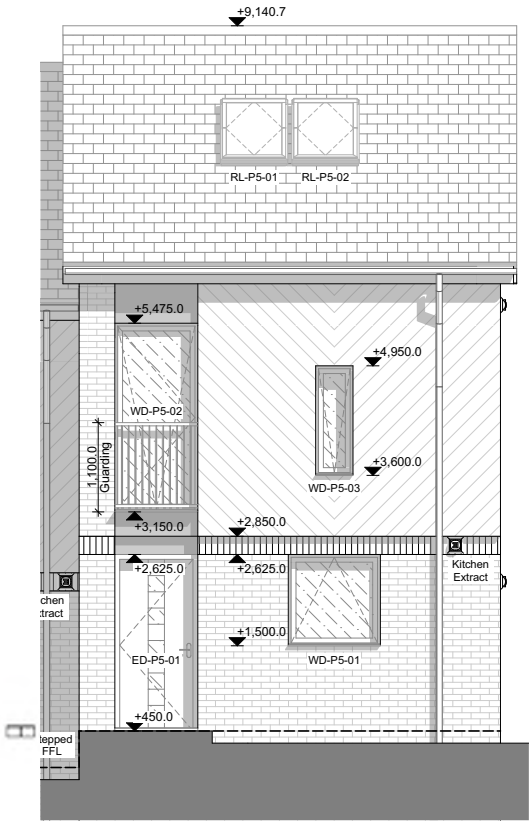
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
PLOT 5 Perpendicular illuminance (adaptive) Height: 3.359 m	13.6 lx	0.32 lx	6640 lx	0.024	0.000	RS9

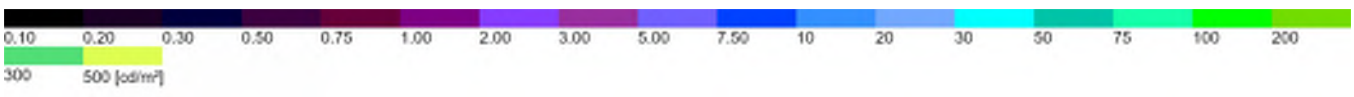
Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 5 Building Luminance.





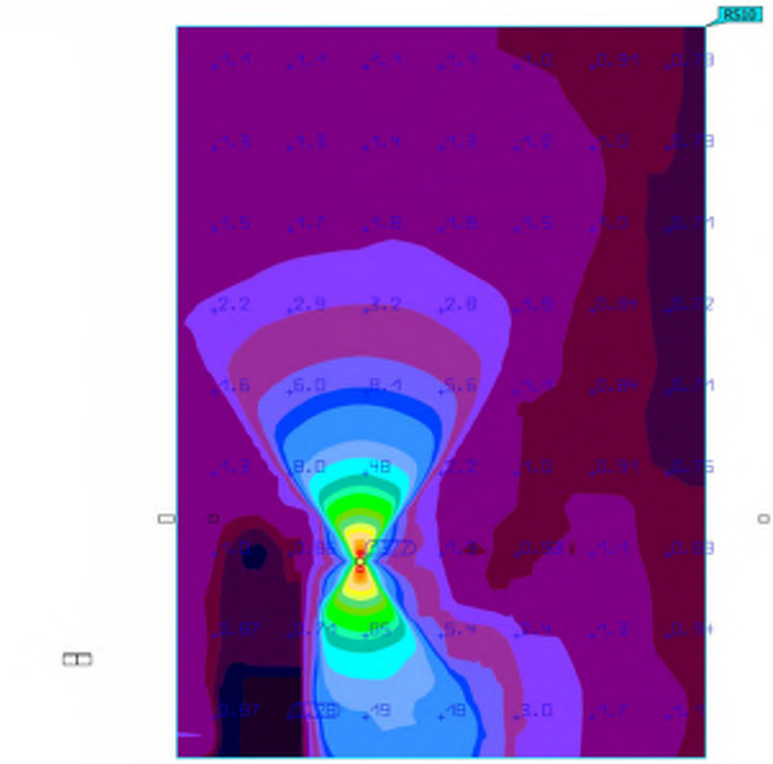


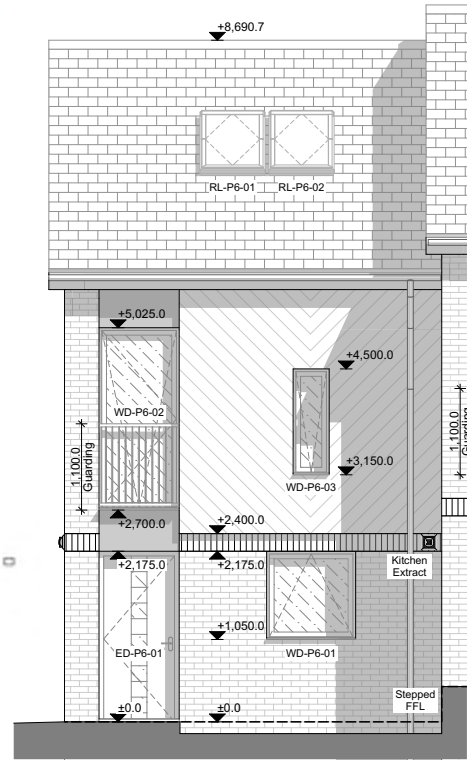
Properties	Ø	min	max	U_o (g_1)	g_2	Index
PLOT 5 Luminance Height: 3.359 m	0.86 cd/m²	0.019 cd/m²	423 cd/m²	0.022	0.000	RS9

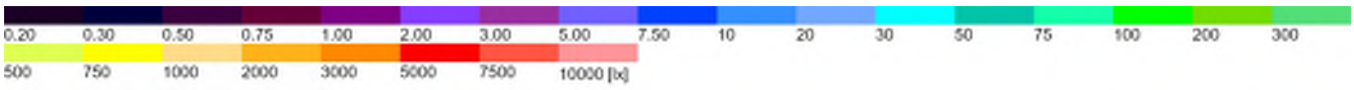
Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 6 Direct Illumination





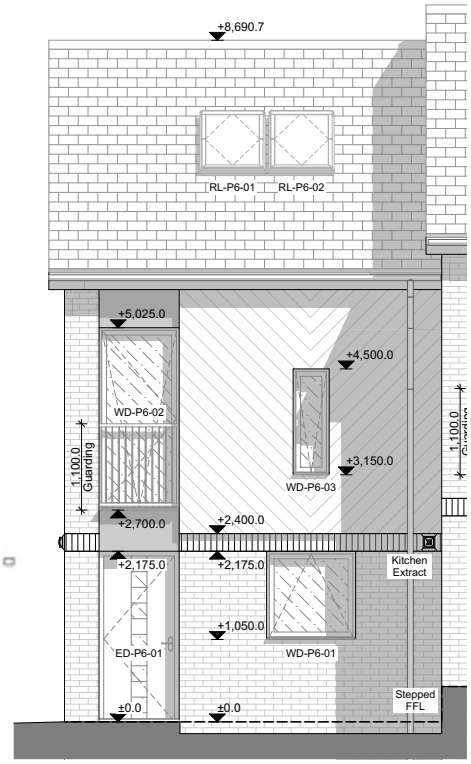


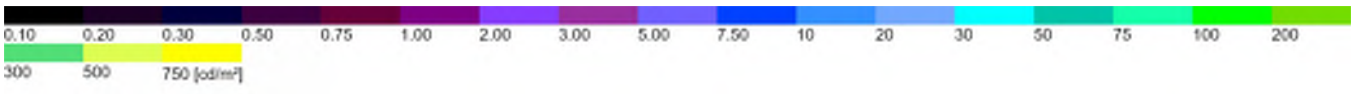
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
PLOT 6 Perpendicular illuminance (adaptive) Height: 3.359 m	13.8 lx	0.28 lx	9080 lx	0.020	0.000	RS10

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 6 Building Luminance.



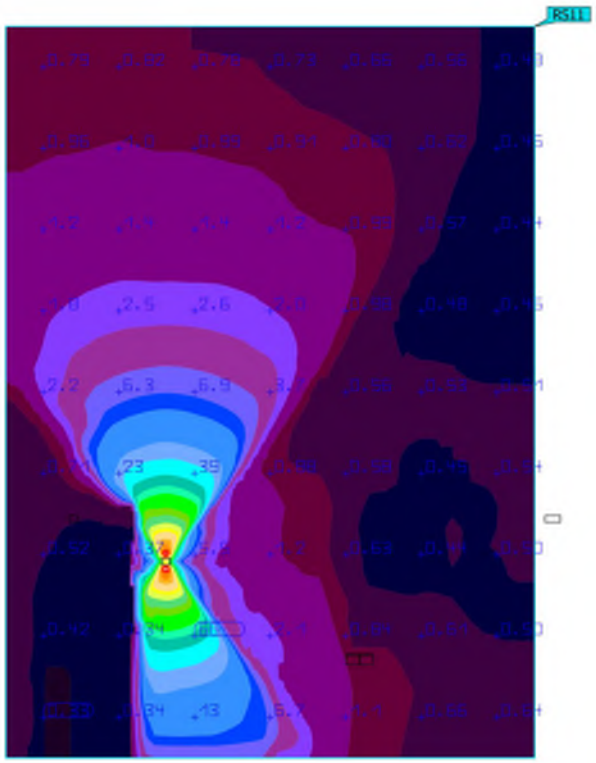


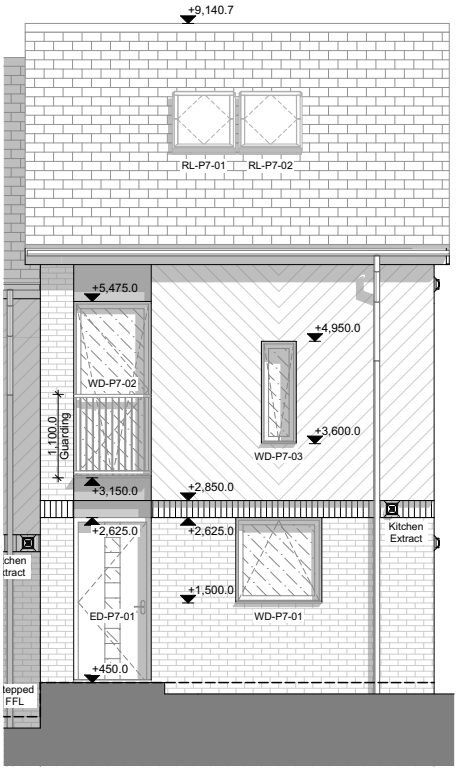
Properties	Ø	min	max	U_o (g_1)	g_2	Index
PLOT 6 Luminance Height: 3.359 m	0.88 cd/m²	0.016 cd/m²	578 cd/m²	0.018	0.000	RS10

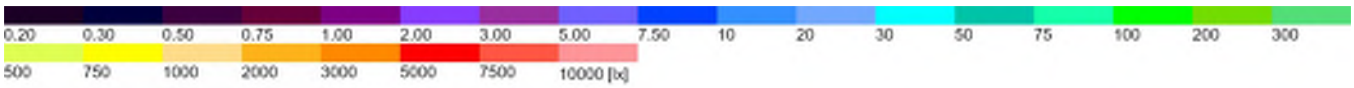
Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 7 Direct Illumination





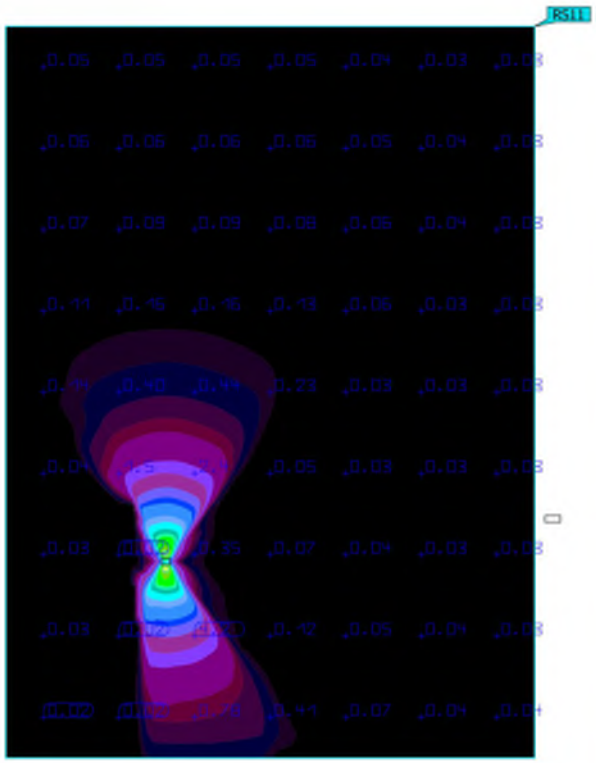


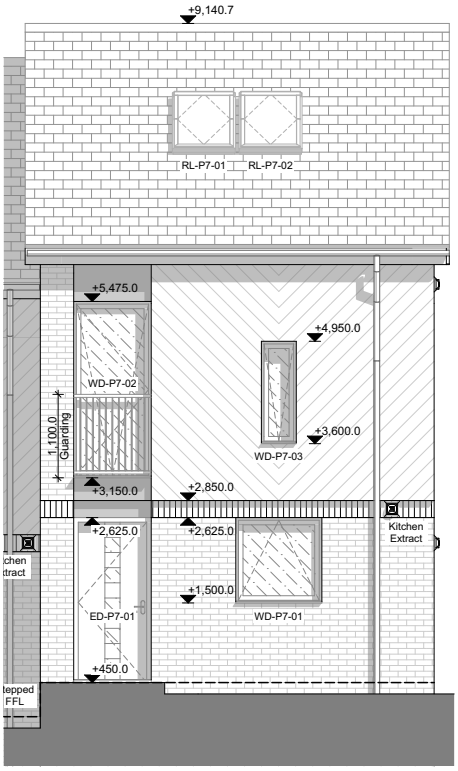
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
PLOT 7 Perpendicular illuminance (adaptive) Height: 3.359 m	12.7 lx	0.29 lx	9498 lx	0.023	0.000	RS11

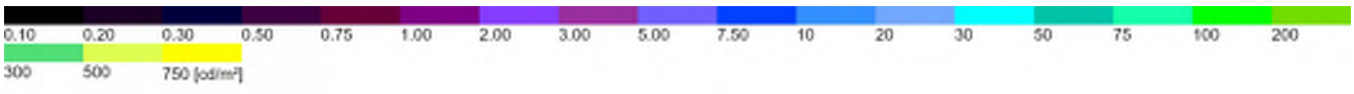
Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

PLOT 7 Building Luminance.





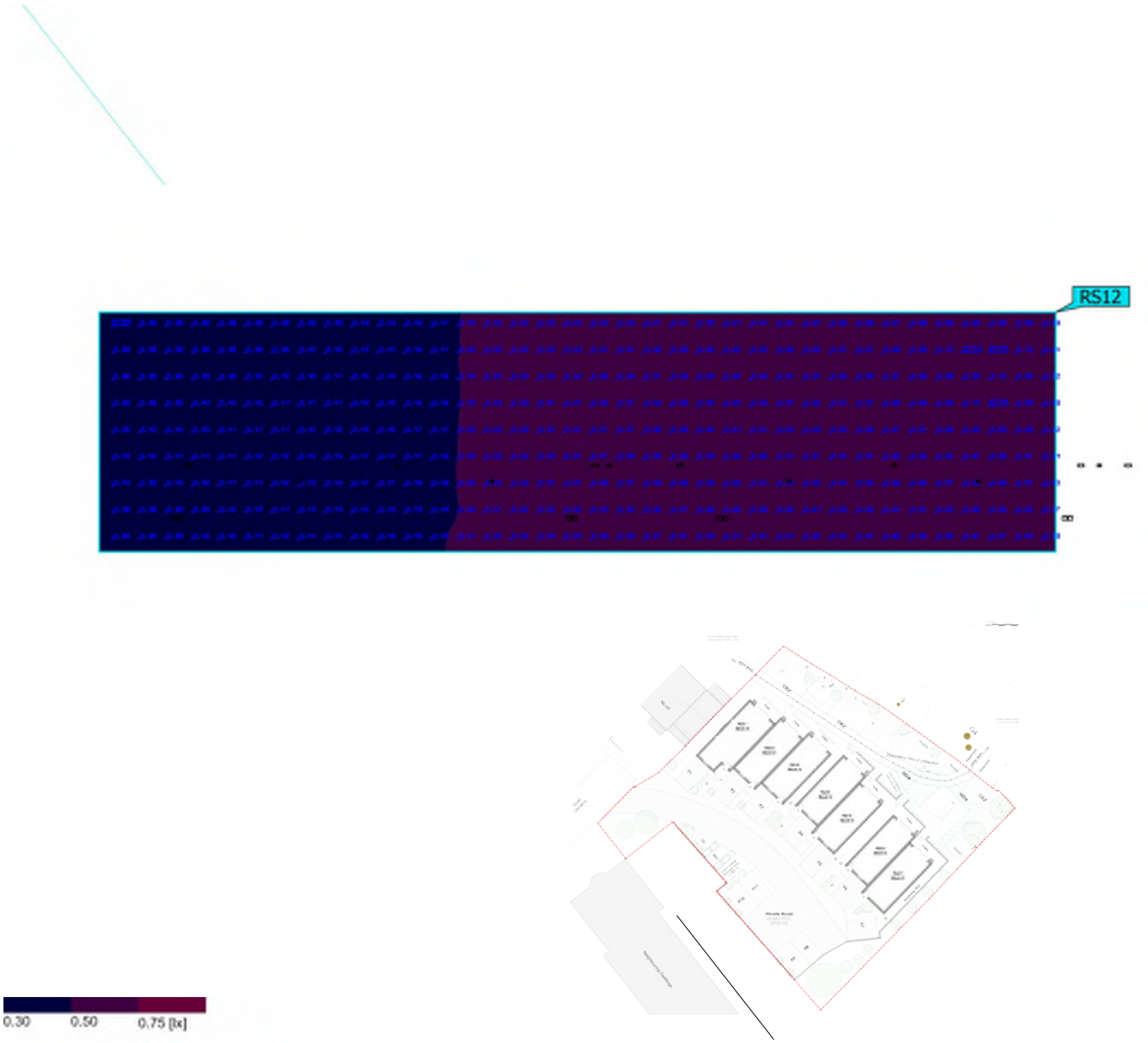


Properties	Ø	min	max	U_o (g_1)	g_2	Index
PLOT 7 Luminance Height: 3.359 m	0.81 cd/m²	0.017 cd/m²	604 cd/m²	0.021	0.000	RS11

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

Neighbouring Property #1



Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Neighbouring Property #1 Perpendicular illuminance (adaptive) Height: 3.005 m	0.54 lx	0.37 lx	0.70 lx	0.69	0.53	RS12

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

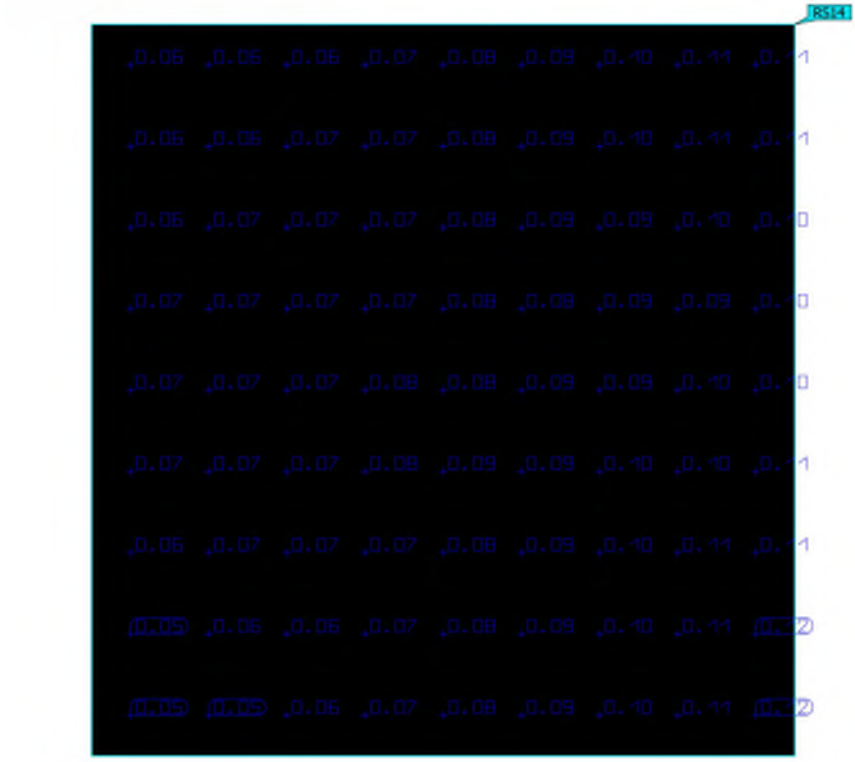
Neighbouring Property #2

Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Neighbouring Property #2 Perpendicular illuminance (adaptive) Height: 3.005 m	0.79 lx	0.71 lx	0.85 lx	0.90	0.84	RS13

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

Neighbouring Property #3 - sect 1

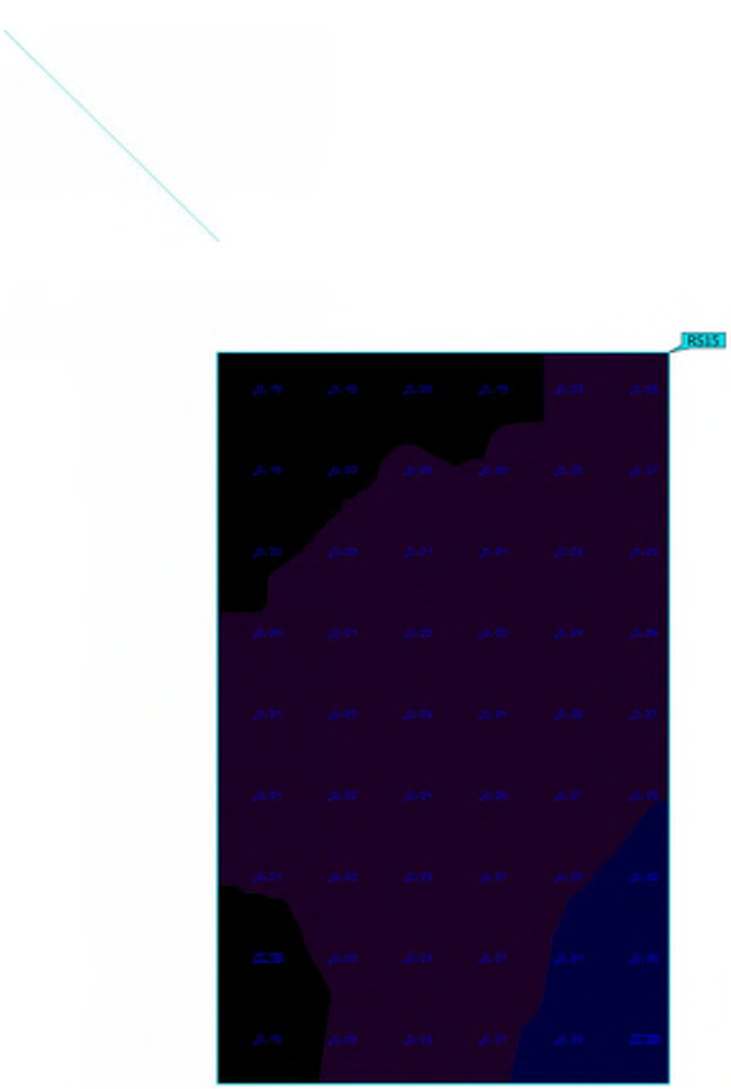


Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Neighbouring Property #3 - sect 1 Perpendicular illuminance (adaptive) Height: 3.000 m	0.083 lx	0.051 lx	0.13 lx	0.61	0.39	RS14

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

Neighbouring Property #3 sect 2

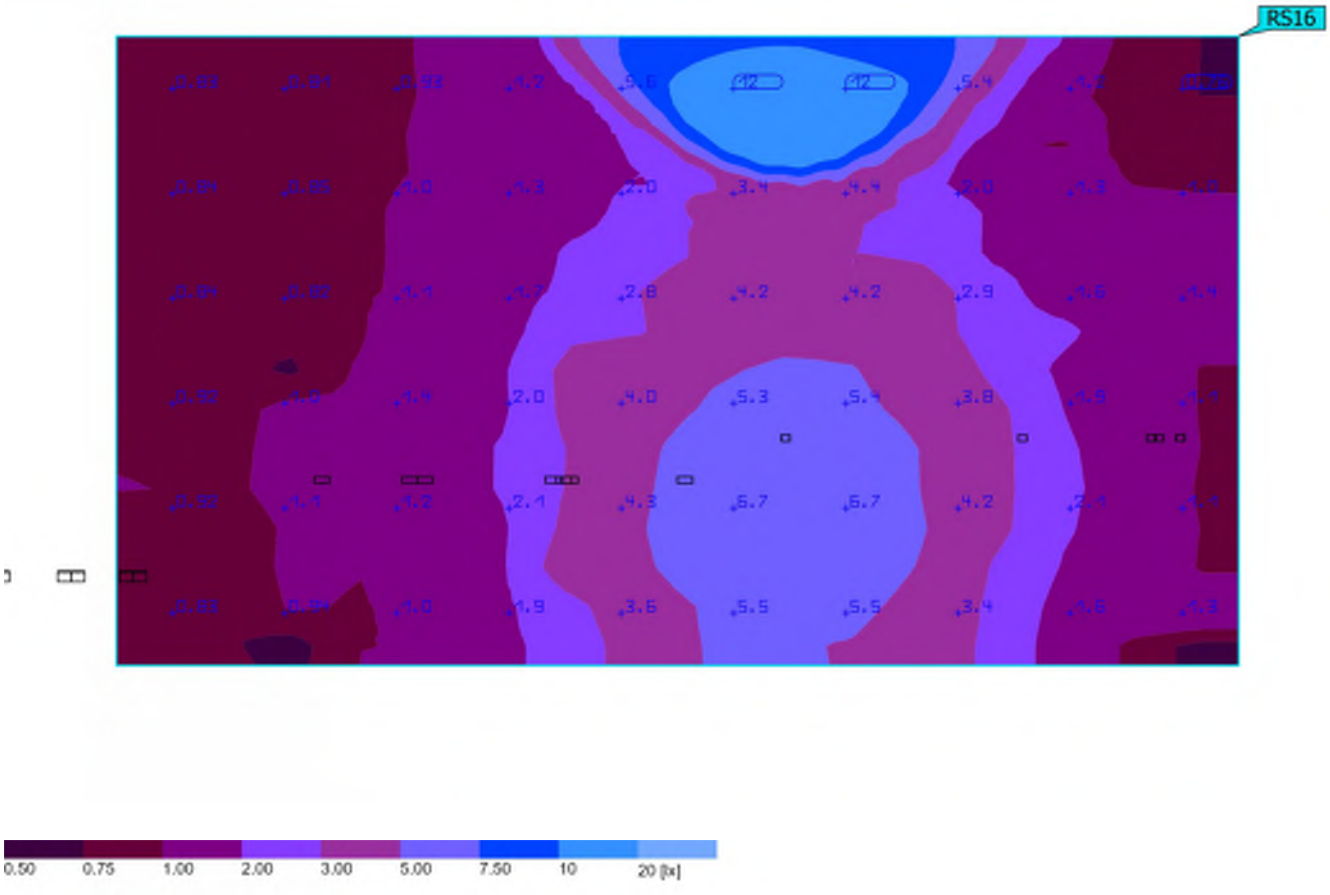


Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Neighbouring Property #3 sect 2 Perpendicular illuminance (adaptive) Height: 3.000 m	0.24 lx	0.18 lx	0.41 lx	0.75	0.44	RS15

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

Neighbouring Property #3 sect 3

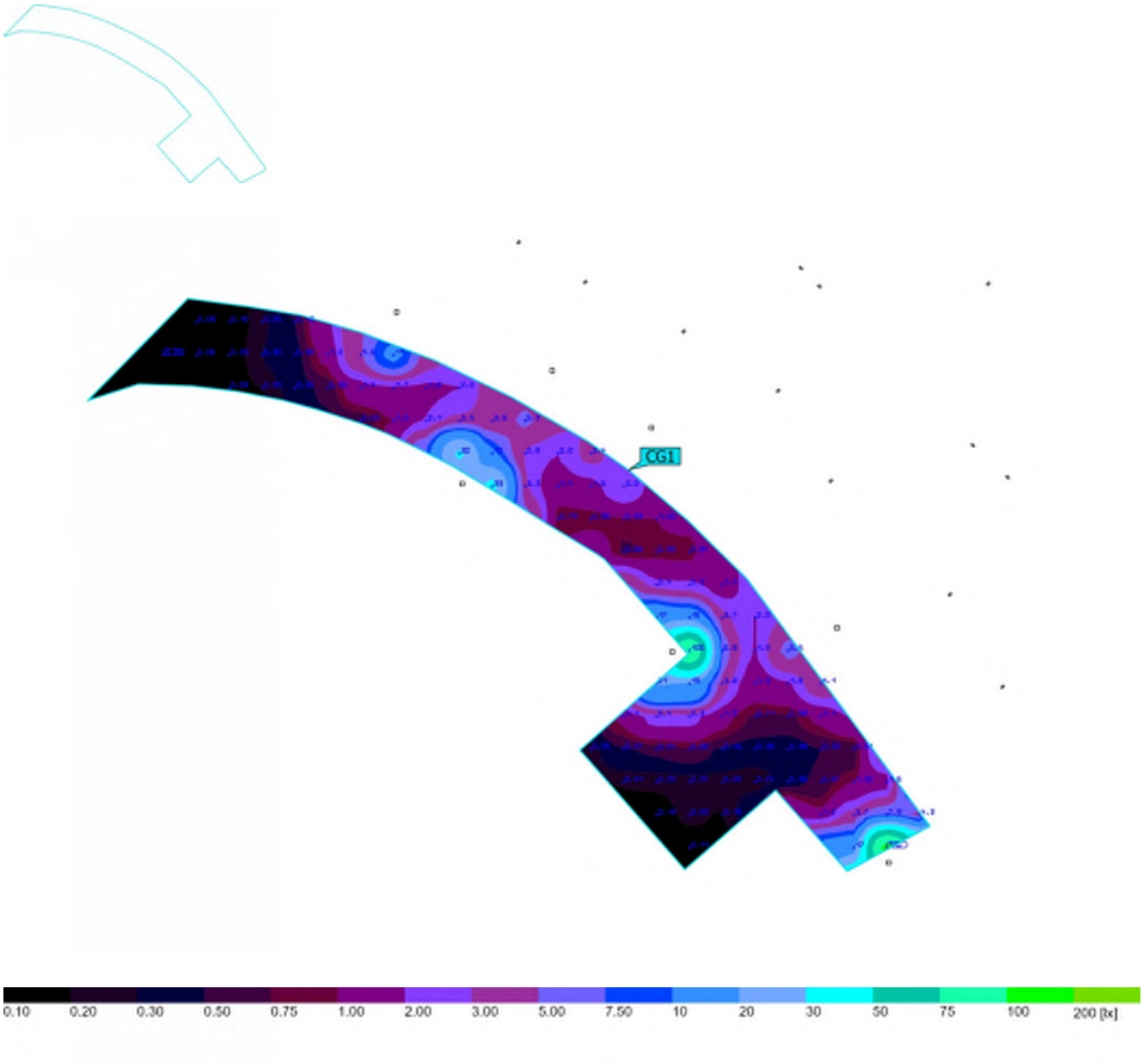


Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Neighbouring Property #3 sect 3 Perpendicular illuminance (adaptive) Height: 3.000 m	2.76 lx	0.68 lx	15.4 lx	0.25	0.044	RS16

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Site 1 (Light scene 1)

ROADWAY AREA #1



Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
ROADWAY AREA #1 Perpendicular illuminance Height: 0.050 m	5.44 lx	0.055 lx	110 lx	0.010	0.001	CG1

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Glossary

A

A	Formula symbol for a surface in the geometry

B

Background area	The background area borders the direct ambient area according to DIN EN 12464-1 and reaches up to the borders of the room. In larger rooms, the background area is at least 3 m wide. It is located horizontally at floor level.

C

CCT	(Engl. correlated colour temperature) Body temperature of a thermal radiator which serves to describe its light colour. Unit: Kelvin [K]. The lesser the numerical value the redder; the greater the numerical value the bluer the light colour. The colour temperature of gas-discharge lamps and semi-conductors are termed "correlated colour temperature" in contrast to the colour temperature of thermal radiators. Allocation of the light colours to the colour temperature ranges acc. to EN 12464-1: Light colour - colour temperature [K] warm white (ww) < 3,300 K neutral white (nw) ≥ 3,300 – 5,300 K daylight white (dw) > 5,300 K
Clearance height	The designation for the distance between upper edge of the floor and bottom edge of the ceiling (in the completely furnished status of room).
Control group	A group of luminaires that are dimmed and controlled together. For each lighting scene, a control group provides its own dimming value. All luminaires within a control group share this dimming value. The control groups with their luminaires are automatically determined by DIALux on the basis of the created light scenes and their luminaire groups.
CRI	(Engl. colour rendering index) Designation for the colour rendering index of a luminaire or a lamp acc. to DIN 6169: 1976 or CIE 13.3: 1995. The general colour rendering index Ra (or CRI) is a dimensionless figure that describes the quality of a white light source in regards to its similarity with the remission spectra of defined 8 test colours (see DIN 6169 or CIE 1974) to a reference light source.

Glossary

D

Daylight autonomy	Describes what percentage of the daily working time the required illuminance is met by daylight. The nominal illuminance is used from the room profile, unlike described in EN 17037. The calculation is not done in the centre of the room but at the placed sensor measuring point. A room is considered sufficiently supplied with daylight if it achieves at least 50% daylight autonomy.
Daylight factor	Ratio of the illuminance achieved solely by daylight incidence at a point in the inside to the horizontal illuminance in the outer area under an unobstructed sky. Formula symbol: D (Engl. daylight factor) Unit: %
Daylight quotient effective area	A calculation surface within which the daylight quotient is calculated.

E

Energy evaluation	Based on an hourly calculation procedure for daylight in indoor spaces, considering the project geometry and any existing daylight control systems. Orientation and location of the project are also considered. The calculation uses the specified system power of the luminaires to determine the energy demand. A linear relationship between power and luminous flux in the dimmed state is assumed for daylight-controlled luminaires. Times of use and nominal illuminance are determined from the usage profiles of the spaces. Switched-on luminaires that are explicitly excluded from control also consider the specified times-of-use. The daylight control systems use a simplified control logic that closes them at an outdoor horizontal illuminance of 27,500lx. The calendar year 2022 is used as a reference only. It is not a simulation of this year. The reference year is only used to assign the days of the week to the calculated results. The changeover to summer time is not considered. The reference sky type used is the average sky described in CIE 110 without direct sunlight. The method was developed together with the Fraunhofer Institute for Building Physics and is available for review by the Joint Working Group 1 ISO TC 274 as an extension of the previous annual regression-based method.
Eta (η)	(light output ratio) The light output ratio describes what percentage of the luminous flux of a free radiating lamp (or LED module) is emitted by the luminaire when installed. Unit: %

Glossary

G

g_1	Often also U_o (Engl. overall uniformity) Designates the overall uniformity of the illuminance on a surface. It is the quotient from E_{min} to $\bar{E}$ and is required, for instance, in standards for illumination of workstations.
g_2	Actually it designates the "non-uniformity" of the illuminance on a surface. It is the quotient of E_{min} to E_{max} and is generally only relevant for certifying the emergency lighting acc. to EN 1838.

I

Illuminance	Describes the ratio of the luminous flux that strikes a certain surface to the size of this surface ($lm/m^2 = lx$). The illuminance is not tied to an object surface. It can be determined anywhere in space (inside or outside). The illuminance is not a product feature because it is a recipient value. Luxometers are used for measuring. Unit: Lux Abbreviation: lx Formula symbol: E
Illuminance, adaptive	For the determining of the middle adaptive illuminance on a surface, this is rastered "adaptively". In the area of large illuminance differences within the surface, the raster is subdivided finer; within lesser differences, a rougher classification is made.
Illuminance, horizontal	Illuminance that is calculated or measured on a horizontal (level) surface (this can be for example a table top or the floor). The horizontal illuminance is usually identified by the formula letter E_h.
Illuminance, perpendicular	Illuminance that is calculated or measured plumb-vertical to a surface. This needs to be taken into account for tilted surfaces. If the surface is horizontal or vertical, then there is no difference between the perpendicular and the horizontal or vertical illuminance.
Illuminance, vertical	Illuminance that is calculated or measured on a vertical surface (this can be for example the front of some shelves). The vertical illuminance is usually identified by the formula letter E_v.

L

LENI	(Engl. lighting energy numeric indicator) Lighting energy numeric indicator acc. to EN 15193 Unit: $kWh/(m^2 * a)$

Glossary

LLMF	(Engl. lamp lumen maintenance factor)/acc. to CIE 97: 2005 Lamp flux maintenance factor that takes the luminous flux reduction into account of a luminaire or an LED module in the course of the operating time. The lamp flux maintenance factor is specified as a decimal digit and can have a maximum value of 1 (no luminous flux reduction existing).
LMF	(Engl. luminaire maintenance factor)/acc. to CIE 97: 2005 Luminaire maintenance factor that takes the soiling into account of the luminaire in the course of the operating time. The luminaire maintenance factor is specified as a decimal digit and can have a maximum value of 1 (no soiling existing).
LSF	(Engl. lamp survival factor)/acc. to CIE 97: 2005 Lamp survival factor that takes the total failure into account of a luminaire in the course of the operating time. The lamp survival factor is specified as a decimal digit and can have a maximum value of 1 (no failures existing within the time concerned or prompt replacement after the failure).
Luminance	Dimension for the "brightness impression" that the human eye has of a surface. The surface itself can emit light thereby or light striking it can be reflected (emitter value). It is the only photometric value that the human eye can perceive. Unit: Candela per square metre Abbreviation: cd/m^2 Formula symbol: L
Luminous efficacy	Ratio of the emitted luminous flux Φ [lm] to the absorbed electrical power P [W] Unit: lm/W. This ratio can be formed for the lamp or LED module (lamp or module light output), the lamp or module with control gear (system light output) and the complete luminaire (luminaire light output).
Luminous flux	Dimension for the total light output that is emitted from one light source in all directions. It is thus an "emitter value" that specifies the entire emitting output. The luminous flux of a light source can only be determined in a laboratory. A difference is made between the lamp or LED module luminous flux and the luminaire luminous flux. Unit: Lumen Abbreviation: lm Formula symbol: Φ
Luminous intensity	Describes the intensity of the light in a certain direction (emitter value). The luminous intensity is a matter of the luminous flux Φ that is emitted in a certain spherical angle Ω. The radiation characteristics of a light source are presented graphically in a light distribution curve (LDC). The luminous intensity is an SI base unit. Unit: Candela Abbreviation: cd Formula symbol: I

Glossary

M

Maintenance factor	See MF
MF	(Engl. maintenance factor)/acc. to CIE 97: 2005 Maintenance factor as decimal number between 0 and 1 that describes the ratio of the new value of a photometric planning parameter (e.g. of the illuminance) to a maintenance value after a certain time. The maintenance factor takes into account the soiling of luminaires and rooms as well as the luminous flux reduction and the failure of light sources. The maintenance factor is taken into account either overall or determined in detail acc. to CIE 97: 2005 by the formula RMF x LMF x LLMF x LSF.

P

P	(Engl. power) Electric power consumption Unit: watt Abbreviation: W

R

$R_{(UG)}$ max	Measure of the psychological glare in indoor spaces. In addition to the luminance of luminaires, the level of the $R_{(UG)}$ value also depends on the observer position, the viewing direction and the ambient luminance. The calculation is made according to the table method, see CIE 117. Among other things, EN 12464-1:2021 specifies maximum permissible $R_{(UG)}$- values $R_{(UGL)}$ for various indoor workplaces.
Reflection factor	The reflection factor of a surface describes how much of the striking light is reflected back. The reflection factor is defined by the colour of the surface.
RMF	(Engl. room maintenance factor)/acc. to CIE 97: 2005 Room maintenance factor that takes the soiling into account of the space encompassing surfaces in the course of the operating time. The room maintenance factor is specified as a decimal digit and can have a maximum value of 1 (no soiling existing).

S

Surrounding area	The ambient area directly borders the area of the visual task and should be planned with a width of at least 0.5 m according to DIN EN 12464-1. It is at the same height as the area of the visual task.

Glossary

U

UGR (max)	(unified glare rating) Measure for the psychological glare effect in interiors. In addition to luminaire luminance, the UGR value also depends on the position of the observer, the viewing direction and the ambient luminance. Among other things, EN 12464-1 specifies maximum permissible UGR values for various indoor workplaces.
UGR observer	Calculation point in the room, for the DIALux the UGR value is determined. The location and height of the calculation point should correspond to the typical observer position (position and eye level of the user).

V

Visual task area	The area that is needed for carrying out the visual task in accordance with DIN EN 12464 -1. The height corresponds with the height at which the visual task is executed.

W

Wall zone	Circumferential area between working plane and walls which is not taken into account for the calculation.
Working plane	Virtual measuring or calculation surface at the height of the visual task that generally follows the room geometry. The working plane may also feature a wall zone.