

Queens Park Student Accomodation

Installation :

Project number : PA56727

Customer :

Processed by : Darren Read

Date : 13.06.2016

The following values are based on exact calculations on calibrated lamps, luminaires and their arrangement. In practice, gradual divergences can occur.

Guarantee claims for luminaire data are excluded.

Relux and the luminaire manufacturers accept no liability for consequential damage and damage which is occasioned to the user or to third parties.

1 Luminaire data

1.1 Whitecroft Lighting, MARINE LT (MRLT1M)

1.1.1 Data sheet

Manufacturer: Whitecroft Lighting



MRLT1M floor-recessed luminaires MARINE LT

MARINE LT IP67 In Ground LED adjustable uplighter with die cast housing, 316 grade stainless steel bezel and asymmetric distribution. Clear thermal shock resistant tempered glass.

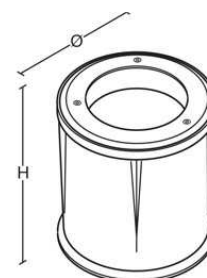
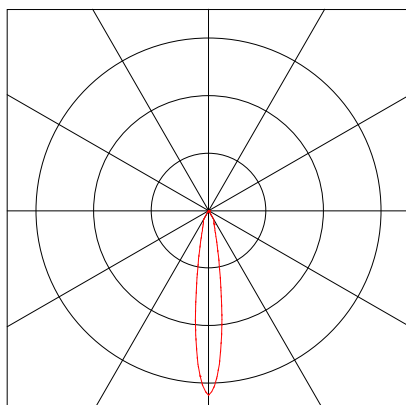
Luminaire data

Luminaire efficiency	: 100%
Luminaire efficacy	: 71.49 lm/W
Classification	: A80 ↓100.0% ↑0.0%
CIE Flux Codes	: 97 99 100 100 100
UGR 4H 8H	: 12.1 / 12.1
Control gear	: electronic ballast
Power	: 21.5 W
Luminous flux	: 1537 lm

Equipped with

Quantity	: 1
Designation	: LED
Power	: 21.5 W
Colour	: 4000K
Luminous flux	: 1537 lm
Colour reproduction	: 1B

Dimensions : Ø150 mm x 0.0 mm



1 Luminaire data

1.2 Whitecroft Lighting, CONCERT FIRE (CNFH14KFL)

1.2.1 Data sheet

Manufacturer: Whitecroft Lighting



CNFH14KFL DOWNLIGHTERS CONCERT FIRE CONCERT FIRE

Small diameter IP65 fire-rated LED down light for use in areas where fire protection is required. Flood or medium beam angle options with circular or square bezels. For ceiling thicknesses of 9-40mm, flood 60° distribution

NO Emergency available

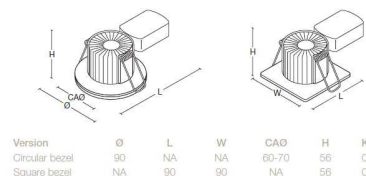
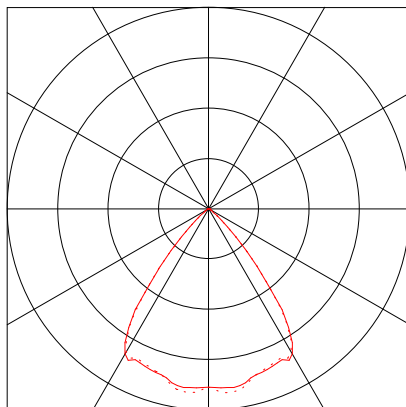
Luminaire data

Luminaire efficiency : 100%
 Luminaire efficacy : 74.11 lm/W
 Classification : A60 ↓100.0% ↑0.0%
 CIE Flux Codes : 90 99 100 100 100
 UGR 4H 8H : 24.4 / 24.3
 Control gear : electronic transformer
 Power : 9 W
 Luminous flux : 667 lm

Equipped with

Quantity : 1
 Designation : LED
 Power : 9 W
 Colour : 4000K
 Luminous flux : 667 lm
 Colour reproduction : 1B

Dimensions : Ø85 mm x 60 mm



1 Luminaire data

1.3 Whitecroft Lighting, BROADWALK L360 (BLF3614KG)

1.3.1 Data sheet

Manufacturer: Whitecroft Lighting



BLF3614KG bollard / pole mounted luminaires BROADWALK L360

BROADWALK L360 flange plate mounted IP65 bollard with symmetrical distribution.1100mm high finished in Graphite Grey.

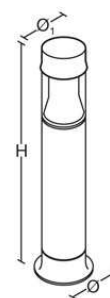
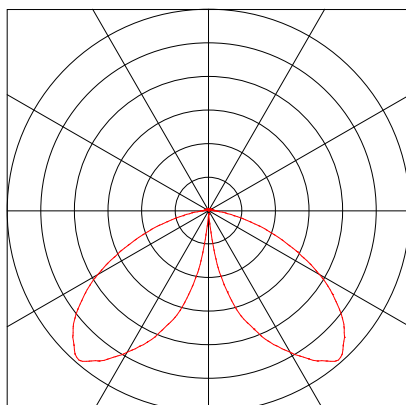
Luminaire data

Luminaire efficiency	: 100%
Luminaire efficacy	: 52.61 lm/W
Classification	: A31 ↓97.4% ↑2.6%
CIE Flux Codes	: 36 76 96 97 100
UGR 4H 8H	: 22.5 / 22.5
Control gear	: electronic ballast
Power	: 9.2 W
Luminous flux	: 484 lm

Equipped with

Quantity	: 1
Designation	: LED
Power	: 9.2 W
Colour	: 4000K
Luminous flux	: 484 lm
Colour reproduction	: 1B

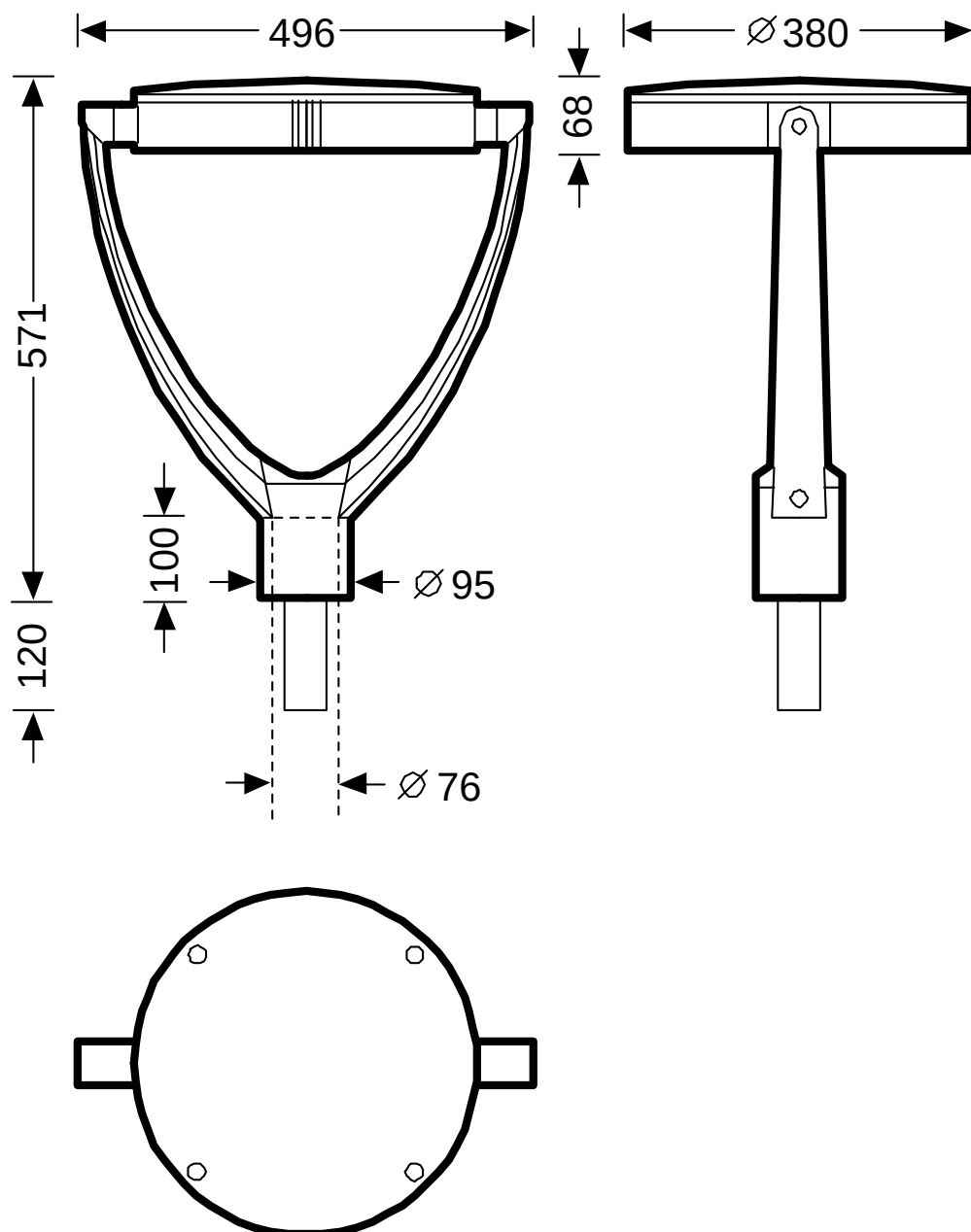
Dimensions : Ø180 mm x 200 mm



1 Luminaire data

1.4 TOC 6640651... (Publisca P1-RB6L/1000-740 ...)

1.4.1 CAD drawing



Manufacturer : TRILUX
 Order number : Publisca P1-RB6L/1000-740 2G1S E
 Luminaire name : TOC 6640651
 Equipment : 1 x LED 12 W / 1000 lm
 Dimensions : L 496 mm x W 380 mm x H 571 mm
 File name : tx047578.ltd

Efficiency factor : 99.99%
 Luminaire efficacy : 83.33 lm/W (A20)
 Light distribution : sym. to C0-C180 / C90-C270
 Beam Angle : 131.5° C0-C180
 131.5° C90-C270

2 Exterior 1

2.1 Description, Exterior 1

2.1.1 Luminaire data/Room elements

Product data:

Type No.\Make

Whitecroft Lighting		
1	16	Order No. : MRLT1M Luminaire name : MARINE LT Equipment : 1 x LED 21.5 W / 1537 lm
2	6	Order No. : CNFH14KFL Luminaire name : CONCERT FIRE Equipment : 1 x LED 9 W / 667 lm
3	10	Order No. : BLF3614KG Luminaire name : BROADWALK L360 Equipment : 1 x LED 9.2 W / 484 lm
8	9	Order No. : Luminaire name : X5 - Trilux with : 1 x Publisca P1-RB6L/1000-740 2G1S ETDD Equipment : 1 x LED 12 W / 1000 lm

No.	Centre point			Rotation angle			Target coordinates		
	X [m]	Y [m]	Z [m]	Z [°]	C0 [°]	C90 [°]	Xa [m]	Ya [m]	Za [m]
Whitecroft Lighting MARINE LT MRLT1M									
10	41.85	29.23	0.00	0.00	0.00	180.00	--	--	--
11	51.88	29.19	0.00	0.00	0.00	180.00	--	--	--
12	56.87	29.23	0.00	0.00	0.00	180.00	--	--	--
13	61.86	29.14	0.00	0.00	0.00	180.00	--	--	--
14	51.65	43.38	0.00	0.00	0.00	180.00	--	--	--
15	39.33	48.61	0.00	0.00	0.00	180.00	--	--	--
16	36.51	37.48	0.00	0.00	0.00	180.00	--	--	--
17	32.06	39.40	0.00	0.00	0.00	180.00	--	--	--
18	23.76	37.26	0.00	0.00	0.00	180.00	--	--	--
19	27.31	40.99	0.00	0.00	0.00	180.00	--	--	--
20	19.63	40.62	0.00	0.00	0.00	180.00	--	--	--
21	61.85	23.52	0.00	0.00	0.00	180.00	--	--	--
22	42.91	48.61	0.00	0.00	0.00	180.00	--	--	--
23	46.53	48.61	0.00	0.00	0.00	180.00	--	--	--
24	56.92	43.38	0.00	0.00	0.00	180.00	--	--	--
25	61.97	43.38	0.00	0.00	0.00	180.00	--	--	--
Whitecroft Lighting CONCERT FIRE CNFH14KFL									
3.1	20.50	29.10	2.97	0.00	0.00	0.00	20.50	29.10	0.00
3.2	19.13	30.30	2.97	0.00	0.00	0.00	19.13	30.30	0.00
3.3	26.22	26.98	2.97	0.00	0.00	0.00	26.22	26.98	0.00
3.4	27.93	25.51	2.97	0.00	0.00	0.00	27.93	25.51	0.00
3.5	20.52	33.93	2.97	0.00	0.00	0.00	20.52	33.94	0.00
3.6	19.38	34.92	2.97	0.00	0.00	0.00	19.38	34.92	0.00
Whitecroft Lighting BROADWALK L360 BLF3614KG									
4.1	16.01	44.90	0.90	0.00	0.00	0.00	16.01	44.90	0.00
4.2	25.79	23.37	0.90	0.00	0.00	0.00	25.79	23.37	0.00
4.3	31.80	23.23	0.90	0.00	0.00	0.00	31.80	23.23	0.00
4.4	40.28	23.34	0.90	0.00	0.00	0.00	40.28	23.34	0.00
4.5	46.67	25.54	0.90	0.00	0.00	0.00	46.67	25.54	0.00
4.6	54.17	25.48	0.90	0.00	0.00	0.00	54.17	25.48	0.00

2 Exterior 1

2.1 Description, Exterior 1

2.1.1 Luminaire data/Room elements

4.7	59.29	25.57	0.90	0.00	0.00	0.00	59.29	25.57	0.00
1.1	16.03	26.07	0.90	90.00	0.00	0.00	16.03	26.07	0.00
1.2	16.03	33.42	0.90	90.00	0.00	0.00	16.03	33.42	0.00
1.3	16.03	40.78	0.90	90.00	0.00	0.00	16.03	40.78	0.00

				Position		Rotation			
				x[m]	y[m]	z[m]	za	xa	ya
X5 - Trilux									
1	X5 - Trilux			26.27	30.80	0.00	0.0°	0.0°	0.0°
2				31.56	31.52	0.00	0.0°	0.0°	0.0°
3				38.17	32.84	0.00	0.0°	0.0°	0.0°
4				46.16	34.77	0.00	0.0°	0.0°	0.0°
5				50.91	36.57	0.00	0.0°	0.0°	0.0°
6				55.84	38.49	0.00	0.0°	0.0°	0.0°
7				62.45	38.73	0.00	0.0°	0.0°	0.0°
8				44.18	43.54	0.00	0.0°	0.0°	0.0°
9				37.44	43.51	0.00	0.0°	0.0°	0.0°

Structural elements

Virtual measuring surface

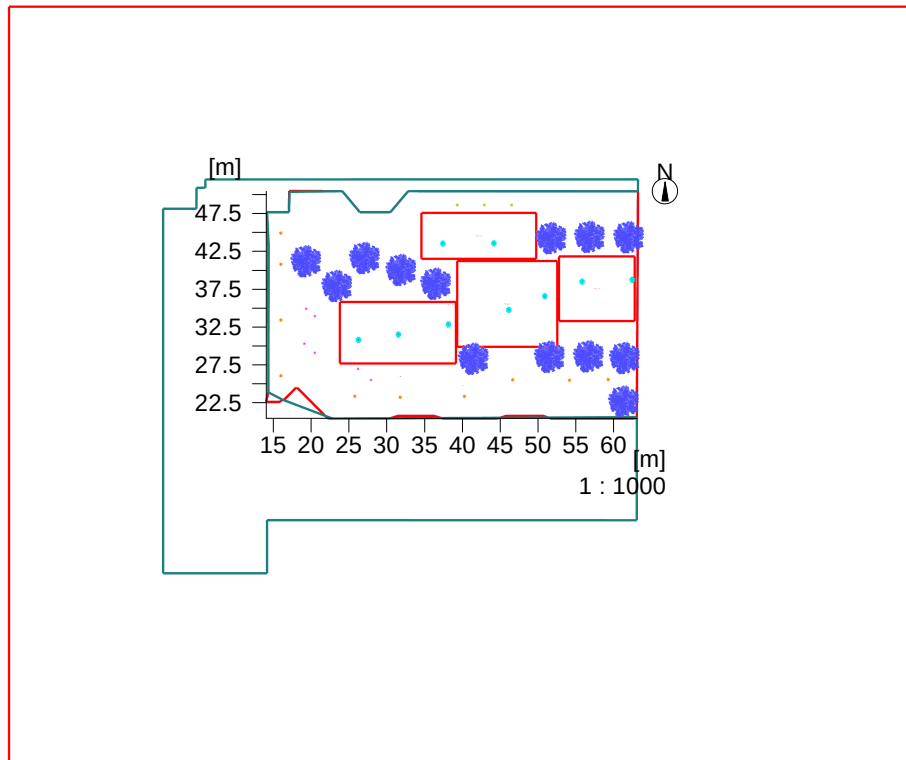
No.	xm[m]	ym[m]	zm[m]	Length	Width	z axis	Rotation angle	
							L axis	Q axis
Ref. plane 1.1	14.07	22.61	0.00	49.15	30.04	0.00	0.00	0.00
m 1	-19.90	-25.22	0.00	120.00	100.00	0.00	0.00	0.00
Walkway Area 1								
m 2	23.82	27.69	0.00	15.35	8.12	0.00	0.00	0.00
Walkway Area 2								
m 3	39.33	29.89	0.00	13.23	11.32	0.00	0.00	0.00
Walkway Area 3								
m 4	52.78	33.29	0.00	10.01	8.53	0.00	0.00	0.00
Walkway Area 4								
m 5	34.60	41.50	0.00	15.17	6.06	0.00	0.00	0.00

Others

No.	xm[m]	ym[m]	zm[m]	Length	Width	z axis	Rotation angle	
							L axis	Q axis
A 1	0.47	-0.00	0.00	62.76	51.99	0.00	0.00	0.00

2.1 Description, Exterior 1

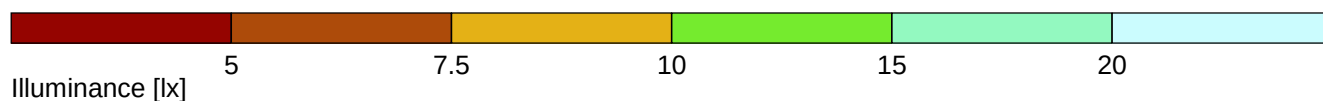
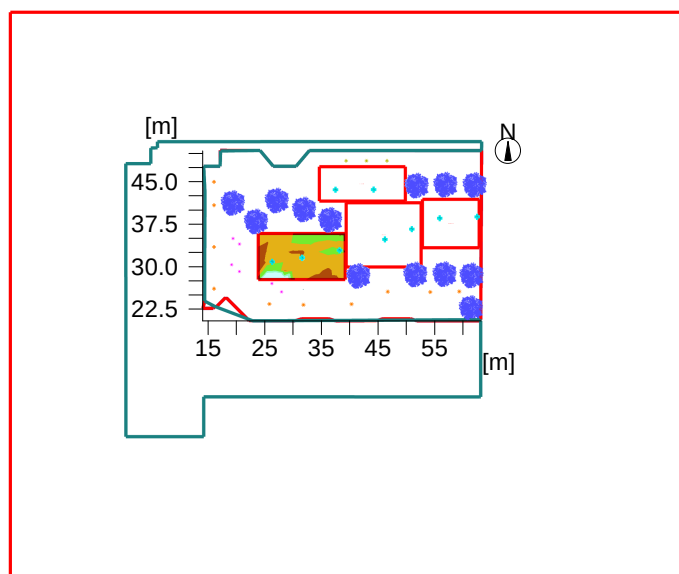
2.1.2 Floor plan



2 Exterior 1

2.2 Summary, Exterior 1

2.2.1 Result overview, Walkway Area 1



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80
Total luminous flux of all lamps	42434 lm
Total power	598 W
Total power per area (1416.26 m²)	0.42 W/m²

Illuminance

Average illuminance	Eav	10.5 lx
Minimum illuminance	Emin	6 lx
Maximum illuminance	Emax	51.6 lx
Uniformity Uo	Emin/Em	1:1.76 (0.57)
Diversity Ud	Emin/Emax	1:8.64 (0.12)

Type No. \ Make

Whitecroft Lighting		
1	16	Order No. : MRLT1M
		Luminaire name : MARINE LT
		Equipment : 1 x LED 21.5 W / 1537 lm
2	6	Order No. : CNFH14KFL
		Luminaire name : CONCERT FIRE
		Equipment : 1 x LED 9 W / 667 lm

Object : Queens Park Student Accomodation
Installation :
Project number : PA56727
Date : 13.06.2016



2 Exterior 1

2.2 Summary, Exterior 1

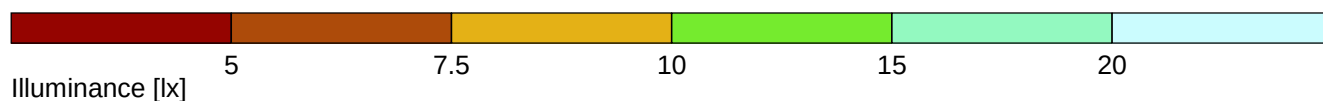
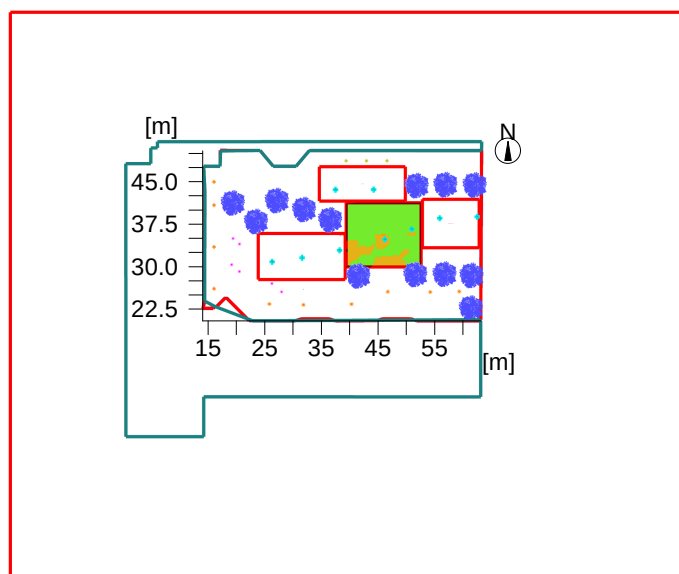
2.2.1 Result overview, Walkway Area 1

3 10  Order No. : BLF3614KG
Luminaire name : BROADWALK L360
Equipment : 1 x LED 9.2 W / 484 lm

8 9  Order No. :
Luminaire name : X5 - Trilux
with : 1 x Publisca P1-RB6L/1000-740 2G1S ETDD
Equipment : 1 x LED 12 W / 1000 lm

2.2 Summary, Exterior 1

2.2.2 Result overview, Walkway Area 2



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80

Total luminous flux of all lamps	42434 lm
Total power	598 W
Total power per area (1416.26 m²)	0.42 W/m²

Illuminance

Average illuminance	Eav	10.9 lx
Minimum illuminance	Emin	7.8 lx
Maximum illuminance	Emax	14.3 lx
Uniformity Uo	Emin/Em	1:1.4 (0.71)
Diversity Ud	Emin/Emax	1:1.84 (0.54)

Type No. \ Make

- | | |
|---|--|
| Whitecroft Lighting | |
| 1 | 16 |
|  | Order No. : MRLT1M
Luminaire name : MARINE LT
Equipment : 1 x LED 21.5 W / 1537 lm |
| 2 | 6 |
|  | Order No. : CNFH14KFL
Luminaire name : CONCERT FIRE
Equipment : 1 x LED 9 W / 667 lm |

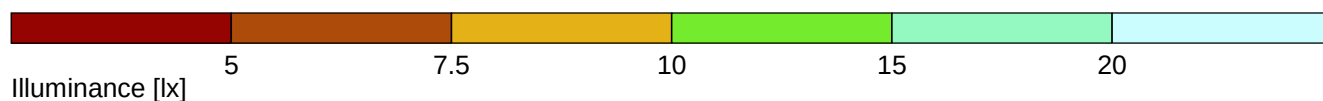
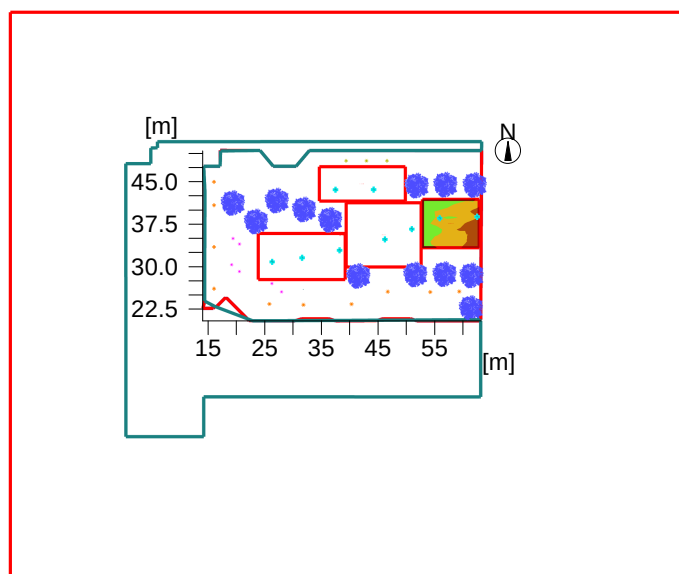
2.2 Summary, Exterior 1

2.2.2 Result overview, Walkway Area 2

3	10	Order No.	: BLF3614KG
		Luminaire name	: BROADWALK L360
		Equipment	: 1 x LED 9.2 W / 484 lm
8	9	Order No.	:
		Luminaire name	: X5 - Trilux
		with	: 1 x Publisca P1-RB6L/1000-740 2G1S ETDD
		Equipment	: 1 x LED 12 W / 1000 lm

2.2 Summary, Exterior 1

2.2.3 Result overview, Walkway Area 3



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80

Total luminous flux of all lamps	42434 lm
Total power	598 W
Total power per area (1416.26 m²)	0.42 W/m²

Illuminance

Average illuminance	Eav	9.3 lx
Minimum illuminance	Emin	5.3 lx
Maximum illuminance	Emax	13.4 lx
Uniformity Uo	Emin/Em	1:1.76 (0.57)
Diversity Ud	Emin/Emax	1:2.54 (0.39)

Type No. \Make

- Whitecroft Lighting**
- | | | |
|---|----|--------------------------------------|
| 1 | 16 | Order No. : MRLT1M |
|  | | Luminaire name : MARINE LT |
| | | Equipment : 1 x LED 21.5 W / 1537 lm |
| 2 | 6 | Order No. : CNFH14KFL |
|  | | Luminaire name : CONCERT FIRE |
| | | Equipment : 1 x LED 9 W / 667 lm |

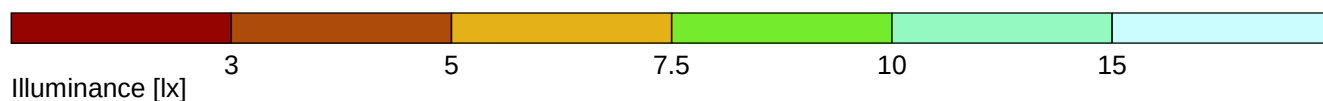
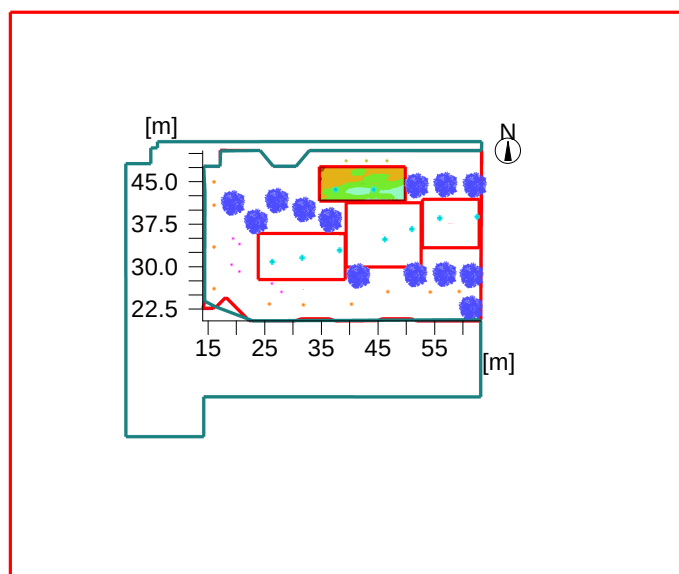
2.2 Summary, Exterior 1

2.2.3 Result overview, Walkway Area 3

3	10	Order No.	: BLF3614KG
		Luminaire name	: BROADWALK L360
		Equipment	: 1 x LED 9.2 W / 484 lm
8	9	Order No.	:
		Luminaire name	: X5 - Trilux
		with	: 1 x Publisca P1-RB6L/1000-740 2G1S ETDD
		Equipment	: 1 x LED 12 W / 1000 lm

2.2 Summary, Exterior 1

2.2.4 Result overview, Walkway Area 4



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80

Total luminous flux of all lamps	42434 lm
Total power	598 W
Total power per area (1416.26 m²)	0.42 W/m²

Illuminance

Average illuminance	Eav	8.1 lx
Minimum illuminance	Emin	4.3 lx
Maximum illuminance	Emax	12.3 lx
Uniformity Uo	Emin/Em	1:1.9 (0.53)
Diversity Ud	Emin/Emax	1:2.9 (0.35)

Type No. \ Make

- Whitecroft Lighting**
- | | | |
|---|----|--------------------------------------|
| 1 | 16 | Order No. : MRLT1M |
|  | | Luminaire name : MARINE LT |
| | | Equipment : 1 x LED 21.5 W / 1537 lm |
| 2 | 6 | Order No. : CNFH14KFL |
|  | | Luminaire name : CONCERT FIRE |
| | | Equipment : 1 x LED 9 W / 667 lm |

2.2 Summary, Exterior 1

2.2.4 Result overview, Walkway Area 4

3 10



Order No. : BLF3614KG
Luminaire name : BROADWALK L360
Equipment : 1 x LED 9.2 W / 484 lm

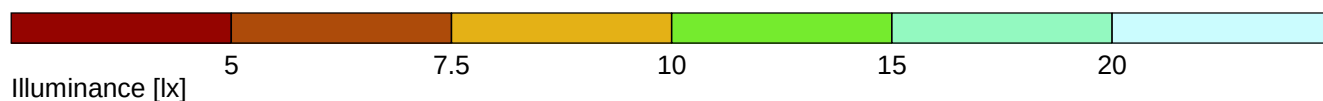
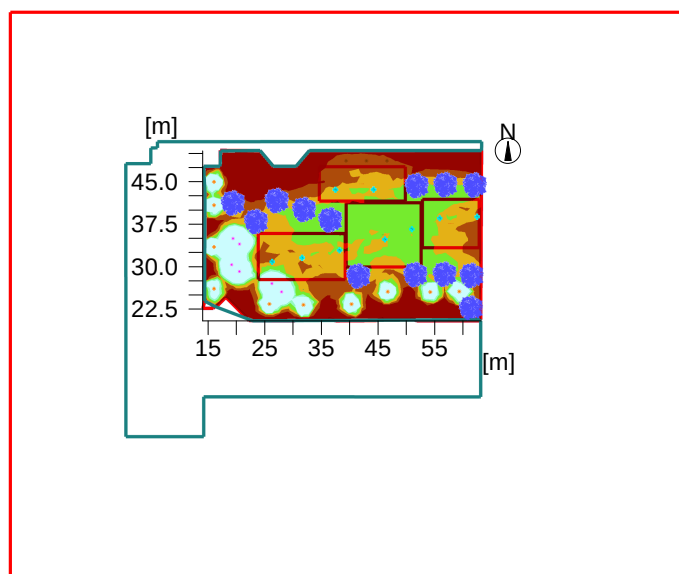
8 9



Order No. :
Luminaire name : X5 - Trilux
with : 1 x Publisca P1-RB6L/1000-740 2G1S ETDD
Equipment : 1 x LED 12 W / 1000 lm

2.2 Summary, Exterior 1

2.2.5 Result overview, Evaluation area 1



General

Calculation algorithm used
 Maintenance factor

Average indirect fraction
 0.80

Total luminous flux of all lamps

42434 lm

Total power

598.0 W

Total power per area (1416.26 m²)

0.42 W/m² (3.60 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

Horizontal
 Em 11.7 lx
 Emin 0.2 lx
 Emin/Eav (Uo) 0.02
 Emin/Emax (Ud) 0.00
 Position 0.00 m

Type No. Make

- | | | Whitecroft Lighting | |
|---|---|----------------------------|----------------------------|
| 1 | 16 | Order No. | : MRLT1M |
| |  | Luminaire name | : MARINE LT |
| | | Equipment | : 1 x LED 21.5 W / 1537 lm |
| 2 | 6 | Order No. | : CNFH14KFL |
| |  | Luminaire name | : CONCERT FIRE |
| | | Equipment | : 1 x LED 9 W / 667 lm |

2.2 Summary, Exterior 1

2.2.5 Result overview, Evaluation area 1

3 10



Order No. : BLF3614KG
Luminaire name : BROADWALK L360
Equipment : 1 x LED 9.2 W / 484 lm

8 9

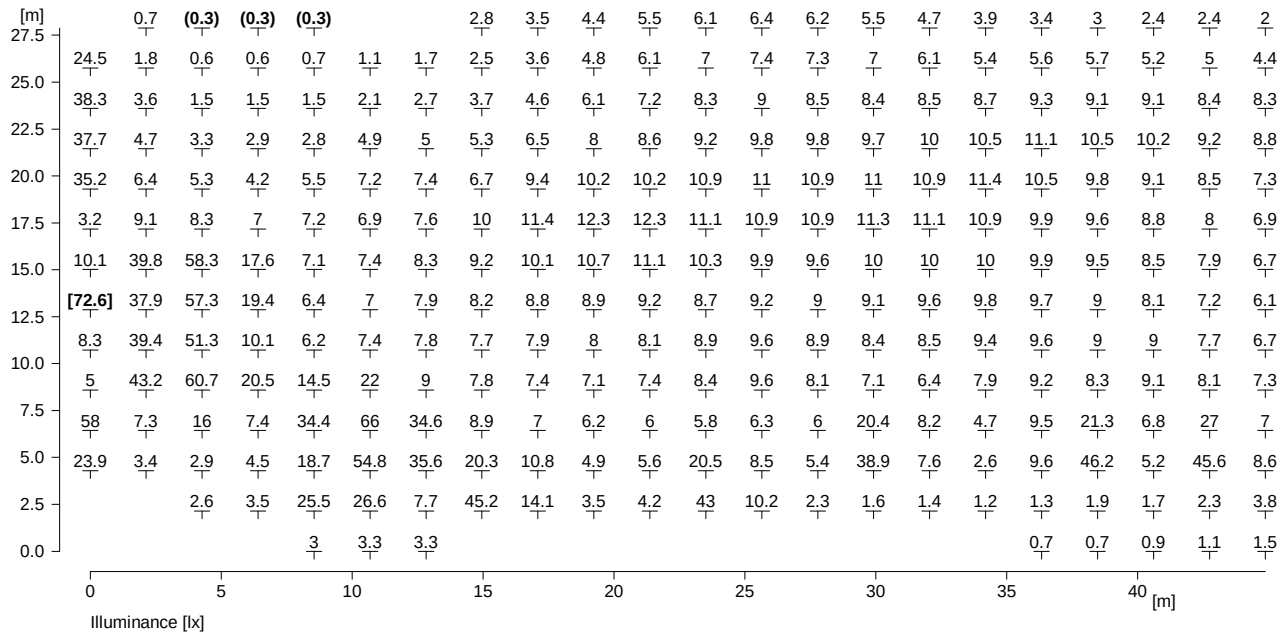


Order No. :
Luminaire name : X5 - Trilux
with : 1 x Publisca P1-RB6L/1000-740 2G1S ETDD
Equipment : 1 x LED 12 W / 1000 lm

2 Exterior 1

2.3 Calculation results, Exterior 1

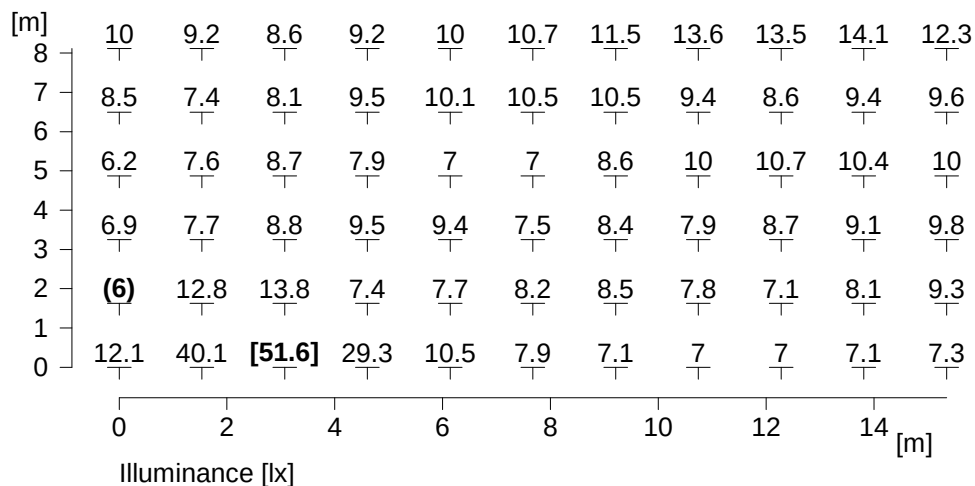
2.3.1 Table, Floor (E)



Average illuminance	Eav	: 10.8 lx
Minimum illuminance	Emin	: 0.3 lx
Maximum illuminance	Emax	: 72.6 lx
Uniformity Uo	Emin/Eav	: 1 : 42.49 (0.02)
Diversity Ud	Emin/Emax	: 1 : 285.11 (0.00)

2.3 Calculation results, Exterior 1

2.3.2 Table, Walkway Area 1 (E)

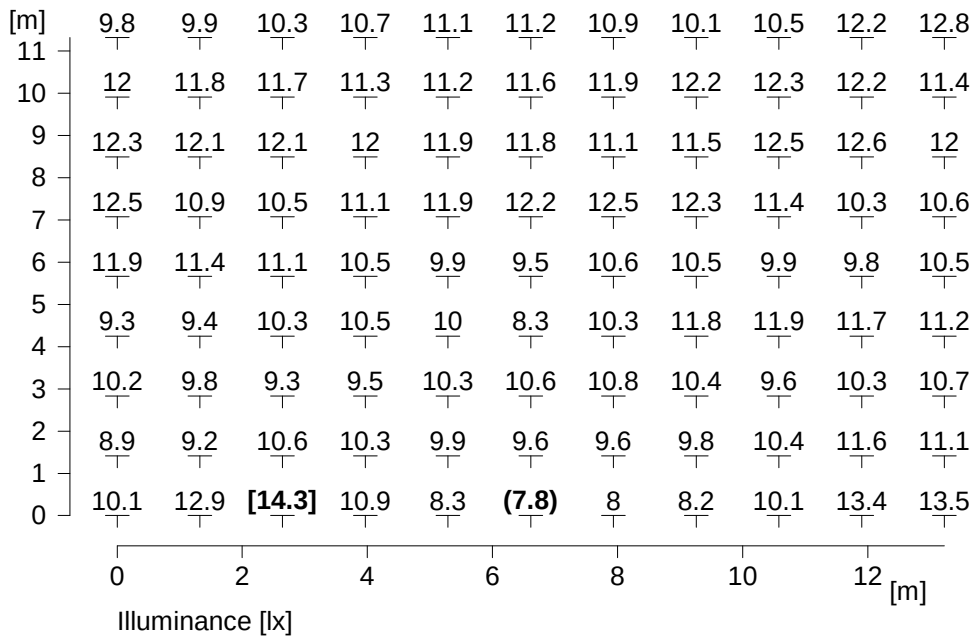


Height of the reference plane

Average illuminance	Eav	: 0.00 m
Minimum illuminance	Emin	: 10.5 lx
Maximum illuminance	Emax	: 6 lx
Uniformity Uo	Emin/Eav	: 51.6 lx
Diversity Ud	Emin/Emax	: 1 : 1.76 (0.57)
		: 1 : 8.64 (0.12)

2.3 Calculation results, Exterior 1

2.3.3 Table, Walkway Area 2 (E)

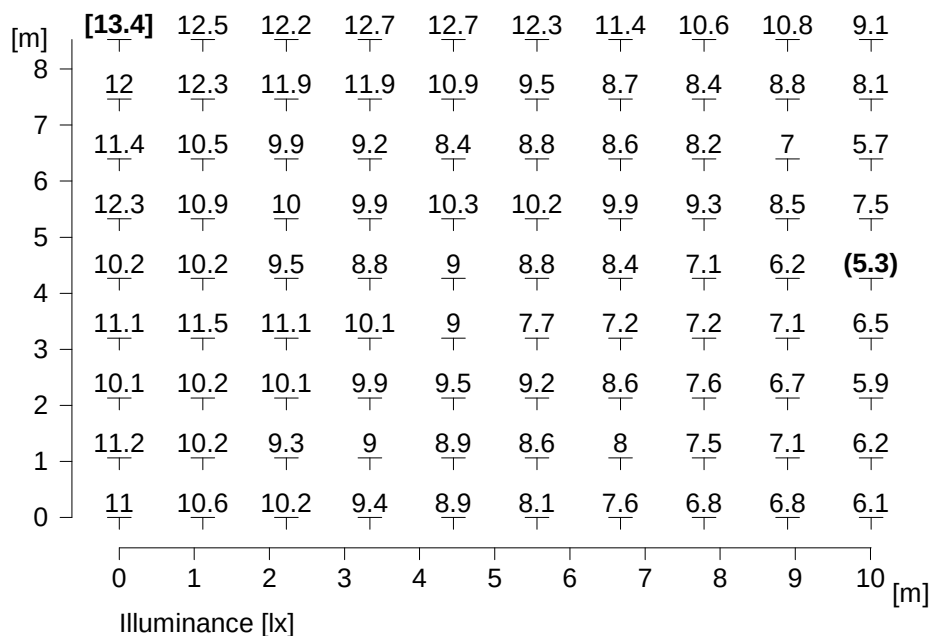


Height of the reference plane

Average illuminance	Eav	: 10.9 lx
Minimum illuminance	Emin	: 7.8 lx
Maximum illuminance	Emax	: 14.3 lx
Uniformity Uo	Emin/Eav	: 1 : 1.40 (0.71)
Diversity Ud	Emin/Emax	: 1 : 1.84 (0.54)

2.3 Calculation results, Exterior 1

2.3.4 Table, Walkway Area 3 (E)

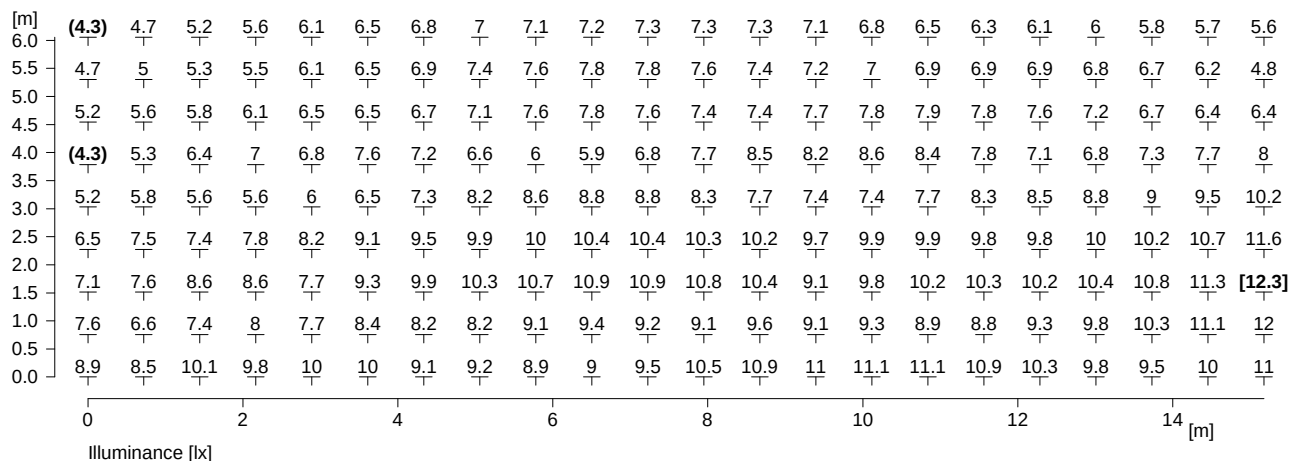


Height of the reference plane

Average illuminance	Eav	: 0.00 m
Minimum illuminance	Emin	: 9.3 lx
Maximum illuminance	Emax	: 5.3 lx
Uniformity Uo	Emin/Eav	: 1 : 1.76 (0.57)
Diversity Ud	Emin/Emax	: 1 : 2.54 (0.39)

2.3 Calculation results, Exterior 1

2.3.5 Table, Walkway Area 4 (E)

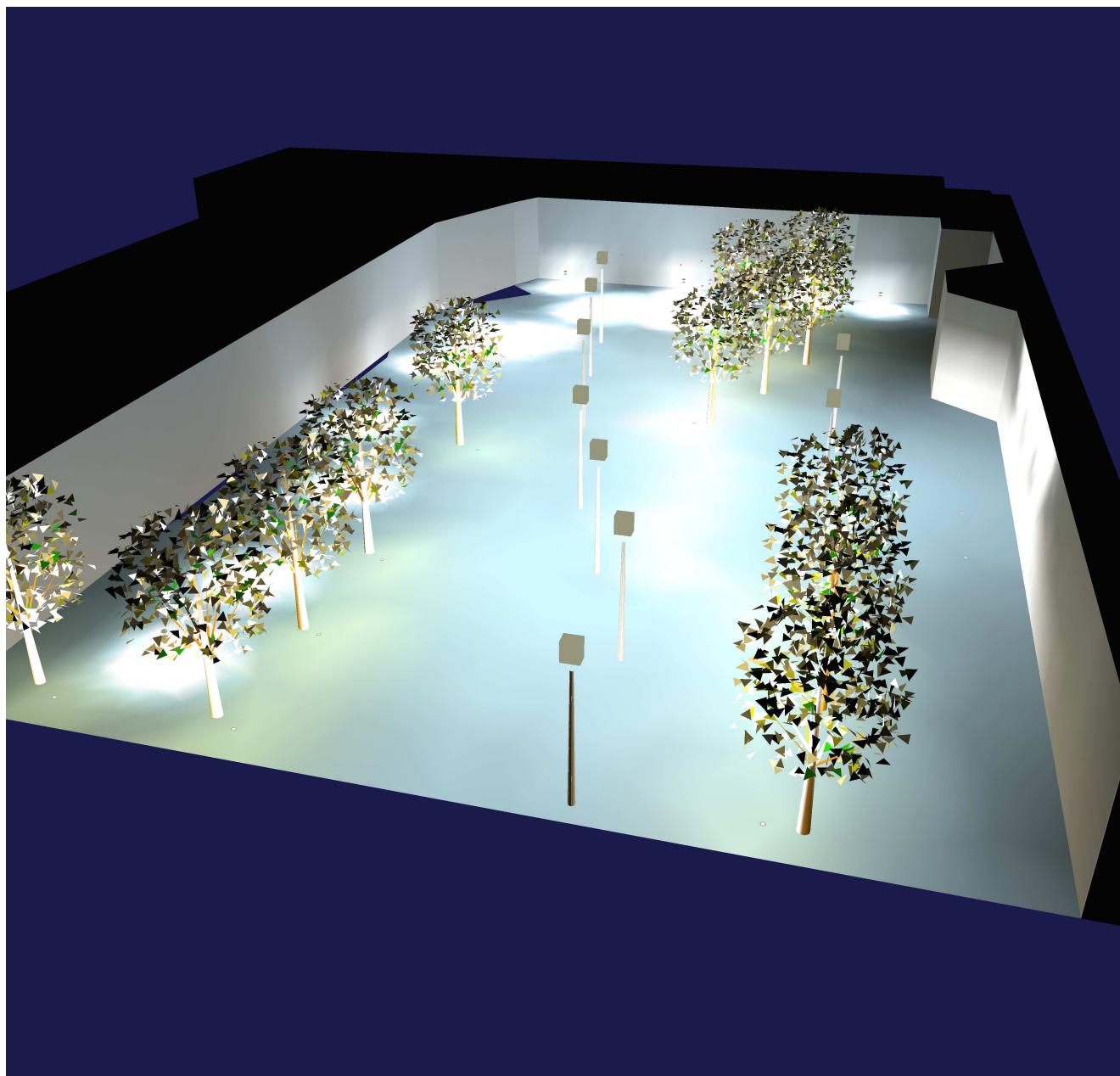


Height of the reference plane

Average illuminance	Eav	: 0.00 m
Minimum illuminance	Emin	: 8.1 lx
Maximum illuminance	Emax	: 4.3 lx
Uniformity Uo	Emin/Eav	: 1 : 1.90 (0.53)
Diversity Ud	Emin/Emax	: 1 : 2.90 (0.35)

2.3 Calculation results, Exterior 1

2.3.6 3D luminance, View 1



Luminance in the scene

Minimum: : 0 cd/m²
Maximum: : 203 cd/m²