

Option 1

Installation : Aberthin, Cowbridge Road

Project number : 46350 R4
Customer :
Processed by : Andy Tsui
Date : 06.08.2021

All calculations unless stated have been based upon an open plan area without any obstructions above the working plane. With regards to CIBSE/ BSEN12464-1:2011 we have shown illuminance levels and ratios for your ultimate approval. UGR and luminance values are available for your approval if necessary. It may be necessary in some instances to check UGR values even if the luminance values are below the compliant threshold.

Emergency lighting has been designed in accordance with BS5266-1:2016 but is an indicative layout only - additional lighting may be required. All emergency lighting is to be checked and confirmed with a local building/fire control officer and ultimately approved by the owner of the building. Any emergency lighting calculations that have been completed have been based on 0.5 lux for open areas and 1 lux for escape routes (where details of escape routes have been given).

Please be aware of L2 requirements and check that conformity has been met where required. In addition, ensuring that fire tents are used where needed to conform to current building regulations is vital; please contact our sales office for a quotation.

All luminaires used are subject to approval/certification of client/end user.

Common design parameters (shown below) have been used in order to carry out all calculations.

If any part of this scheme or luminaire choice within this scheme is deemed not suitable for the application, please contact us for re-calculations to be carried out prior to an order being placed.

All calculations have been based upon rated lumen outputs and may vary with ambient on site temperatures.

Please ensure that this lighting scheme complies with all requirements, and if further details/calculations are required please contact us via the below details.

Final quantities are to be confirmed prior to an order/installation and we will not be held responsible for any errors or omissions.

Nominal Values Used:

Maintenance Factor - 0.8

Reflectance Values (Office Type Interior): 70\50\20

Reflectance Values (Warehouse Type Interior): 50\30\20

The following values are based on precise calculations performed on calibrated lamps and luminaires, and their configurations, whereby gradual, unavoidable deviations can occur in practice. All guarantee claims are excluded for the specified data.

This exclusion of liability applies irrespective of the legal grounds for both damages and consequential damages suffered by users and third parties.

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2 Exterior 1

2.1 Description, Exterior 1

2.1.1 Luminaire data/Room elements

Product data:

Type No.\Make

		Tamlite Lighting	
1	3	Order No.	: !EXPFLA480WWD + TC4M
		Luminaire name	: EXPLORER
		Equipment	: 1 x 40 W / 4800 lm
2	6	Order No.	: !EXPFLA480WWD + WALL MOUNT
		Luminaire name	: EXPLORER
		Equipment	: 1 x 40 W / 4800 lm
3	8	Order No.	: !CBL90WWD
		Luminaire name	: CITY BL
		Equipment	: 1 x 9 W / 900 lm
4	8	Order No.	: !TAU80WWD
		Luminaire name	: TAURUS
		Equipment	: 1 x 6 W / 800 lm

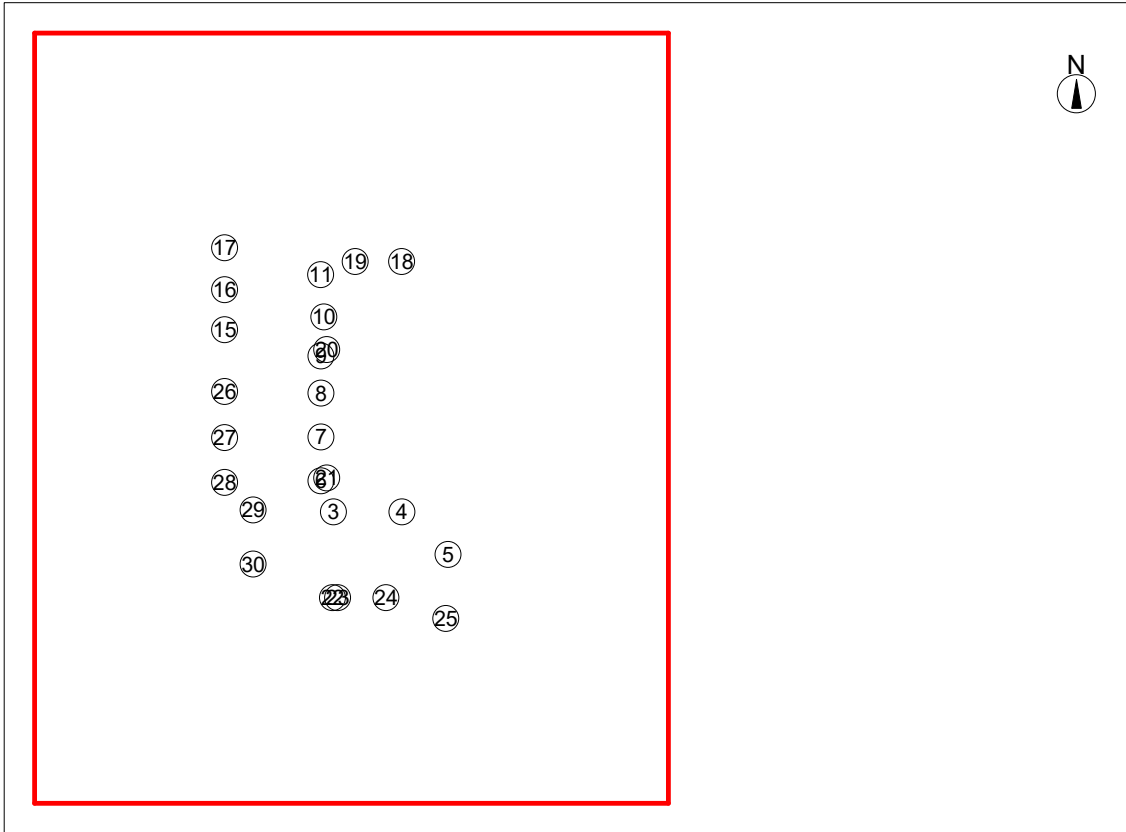


2 Exterior 1

2.1 Description, Exterior 1

2.1.1 Luminaire data/Room elements

Floor with luminaire and sensor positions:





2 Exterior 1

2.1 Description, Exterior 1

2.1.1 Luminaire data/Room elements

No.	Centre point			Rotation angle			Target coordinates		
	X [m]	Y [m]	Z [m]	Z [°]	C0 [°]	C90 [°]	Xa [m]	Ya [m]	Za [m]
Tamlite Lighting EXPLORER !EXPFLA480WWD + TC4M									
3	37.28	56.73	3.96	270.00	0.00	0.00	37.28	51.28	0.00
4	50.61	56.73	3.96	270.00	0.00	0.00	50.61	51.28	0.00
5	59.59	48.45	3.96	90.00	0.00	0.00	59.59	53.90	0.00
Tamlite Lighting EXPLORER !EXPFLA480WWD + WALL MOUNT									
6	34.79	62.76	4.96	180.00	0.00	-20.00	17.48	62.76	0.00
7	34.79	71.31	4.96	180.00	0.00	-20.00	17.48	71.31	0.00
8	34.79	79.84	4.96	180.00	0.00	-20.00	17.48	79.84	0.00
9	34.79	87.10	4.96	180.00	0.00	-20.00	17.48	87.10	0.00
10	35.39	94.70	4.96	180.00	0.00	-20.00	28.58	94.70	0.00
11	34.73	102.93	4.96	180.00	0.00	-20.00	17.42	102.93	0.00
Tamlite Lighting CITY BL !CBL90WWD									
15	16.06	92.18	0.89	90.00	0.00	0.00	16.06	92.18	0.00
16	16.06	100.00	0.89	90.00	0.00	0.00	16.06	100.00	0.00
17	16.06	108.20	0.89	90.00	0.00	0.00	16.06	108.20	0.00
26	16.06	80.14	0.89	90.00	0.00	0.00	16.06	80.14	0.00
27	16.06	71.18	0.89	90.00	0.00	0.00	16.06	71.18	0.00
28	16.06	62.49	0.89	90.00	0.00	0.00	16.06	62.49	0.00
29	21.60	57.12	0.89	90.00	0.00	0.00	21.60	57.12	0.00
30	21.60	46.60	0.89	90.00	0.00	0.00	21.60	46.60	0.00
Tamlite Lighting TAURUS !TAU80WWD									
18	50.55	105.59	2.90	90.00	0.00	0.00	50.55	109.89	0.00
19	41.48	105.59	2.90	90.00	0.00	0.00	41.48	109.89	0.00
20	35.92	88.41	2.90	90.00	0.00	0.00	35.92	92.71	0.00
21	35.92	63.41	2.90	90.00	0.00	0.00	35.92	66.02	1.14
22	37.09	40.08	2.90	90.00	0.00	0.00	37.09	44.38	0.00
23	38.04	40.08	2.90	90.00	0.00	0.00	38.04	44.38	0.00
24	47.51	40.08	2.90	90.00	0.00	0.00	47.51	44.38	0.00
25	59.20	36.00	2.90	0.00	0.00	0.00	63.50	36.00	0.00

Structural elements

Measuring surface

No.	xm[m]	ym[m]	zm[m]	Length	Width	z axis	Rotation angle	
							L axis	Q axis
Ref. plane 1.1								
	-21.00	0.00	0.00	123.50	150.00	0.00	0.00	0.00
Car Park								
M 2	16.00	62.00	0.00	16.99	45.70	0.76	0.00	0.00
Roadway								
M 3	21.48	40.20	0.00	36.52	16.74	0.00	0.00	0.00
M 1	4.73	85.36	0.00	41.91	113.37	281.77	0.00	0.00
M 2								
M 4	4.73	85.36	1.50	41.91	113.37	281.77	0.00	0.00

Others

No.	xm[m]	ym[m]	zm[m]	Length	Width	z axis	Rotation angle		rho[%]
							L axis	Q axis	
A 1	35.03	58.80	0.00	20.71	46.66	0.00	0.00	0.00	50
A 2	31.14	31.17	0.00	12.85	8.82	0.12	0.00	0.00	50
A 3	46.37	31.96	0.00	12.78	9.39	0.12	0.00	0.00	50



2.1 Description, Exterior 1

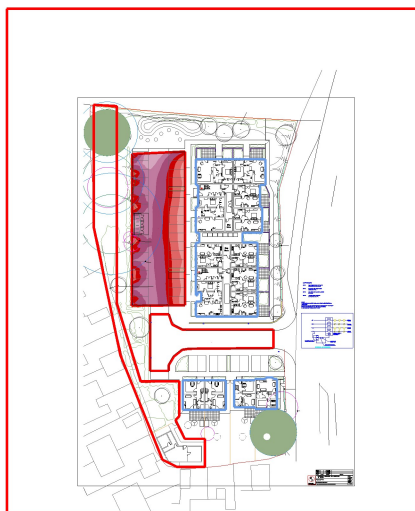
2.1.2 Floor plan



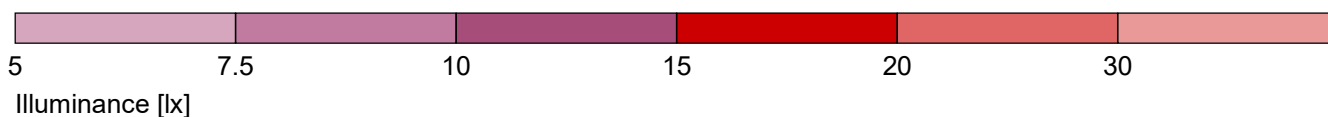
2 Exterior 1

2.2 Summary, Exterior 1

2.2.1 Result overview, Car Park



21 41 61 81 101 x [m]



General



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

Total luminous flux of all lamps	56800 lm
Total power	480 W
Total power per area (18525.00 m ²)	0.03 W/m ²

Illuminance

Average illuminance	Em	15.9 lx
Minimum illuminance	Emin	5.5 lx
Maximum illuminance	Emax	41.8 lx
Uniformity U _o	Emin/Em	1:2.9 (0.34)
Diversity U _d	Emin/Emax	1:7.65 (0.13)

Type No. Make

- Tamlite Lighting**
- | | | | |
|---|---|----------------|------------------------------|
| 1 | 3 | Order No. | : !EXPFLA480WWD + TC4M |
|  | | Luminaire name | : EXPLORER |
| | | Equipment | : 1 x 40 W / 4800 lm |
| 2 | 6 | Order No. | : !EXPFLA480WWD + WALL MOUNT |
|  | | Luminaire name | : EXPLORER |
| | | Equipment | : 1 x 40 W / 4800 lm |



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2 Exterior 1

2.2 Summary, Exterior 1

2.2.1 Result overview, Car Park

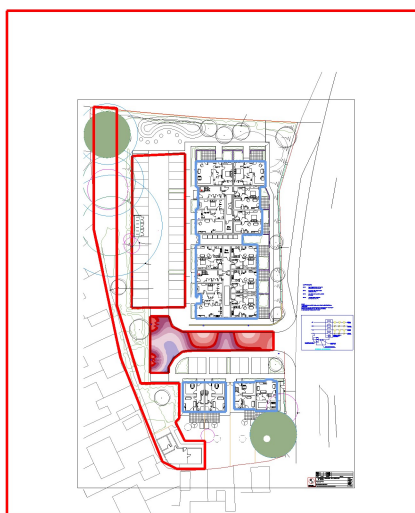
3 8 Order No. : !CBL90WWD
  Luminaire name : CITY BL
Equipment : 1 x 9 W / 900 lm

4 8 Order No. : !TAU80WWD
 Luminaire name : TAURUS
Equipment : 1 x 6 W / 800 lm

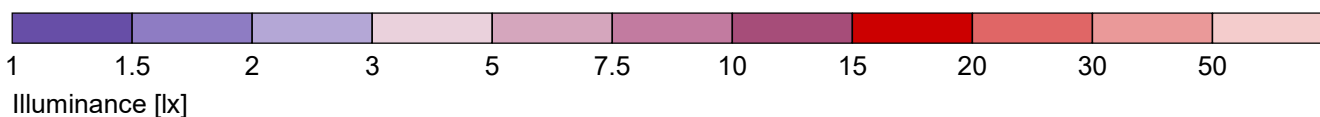


2.2 Summary, Exterior 1

2.2.2 Result overview, Roadway



21 41 61 81 101 x [m]



General

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

Total luminous flux of all lamps	56800 lm
Total power	480 W
Total power per area (18525.00 m ²)	0.03 W/m ²

Illuminance

Average illuminance	Em	16.2 lx
Minimum illuminance	Emin	1.3 lx
Maximum illuminance	Emax	66.7 lx
Uniformity U _o	Emin/Em	1:12.4 (0.08)
Diversity U _d	Emin/Emax	1:51.3 (0.02)

Type No.Make



- | | | |
|-------------------------|---|--|
| Tamlite Lighting | | |
| 1 | 3 | Order No. : !EXPFLA480WWD + TC4M |
| | | Luminaire name : EXPLORER |
| | | Equipment : 1 x 40 W / 4800 lm |
| 2 | 6 | Order No. : !EXPFLA480WWD + WALL MOUNT |
| | | Luminaire name : EXPLORER |
| | | Equipment : 1 x 40 W / 4800 lm |


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2.2 Summary, Exterior 1

2.2.2 Result overview, Roadway

3 8 Order No. : !CBL90WWD
  Luminaire name : CITY BL
Equipment : 1 x 9 W / 900 lm

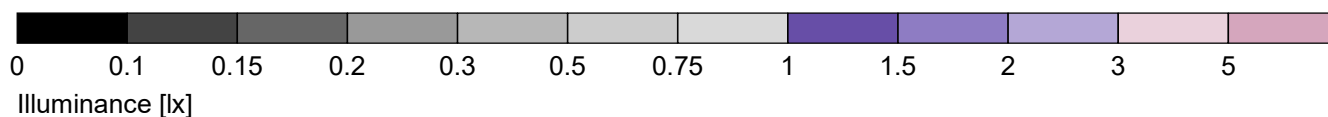
4 8 Order No. : !TAU80WWD
 Luminaire name : TAURUS
Equipment : 1 x 6 W / 800 lm

2.2 Summary, Exterior 1

2.2.3 Result overview, Measuring area 1



21 41 61 81 101 x [m]



General

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

Total luminous flux of all lamps	56800 lm
Total power	480 W
Total power per area (18525.00 m ²)	0.03 W/m ²

Illuminance

Average illuminance	Em	1.1 lx
Minimum illuminance	Emin	0 lx
Maximum illuminance	Emax	5.18 lx
Uniformity U _o	Emin/Em	1:--- (---)
Diversity U _d	Emin/Emax	1:--- (---)

Type No.Make



- | | | |
|-------------------------|---|--|
| Tamlite Lighting | | |
| 1 | 3 | Order No. : !EXPFLA480WWD + TC4M |
| | | Luminaire name : EXPLORER |
| | | Equipment : 1 x 40 W / 4800 lm |
| 2 | 6 | Order No. : !EXPFLA480WWD + WALL MOUNT |
| | | Luminaire name : EXPLORER |
| | | Equipment : 1 x 40 W / 4800 lm |


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2.2 Summary, Exterior 1

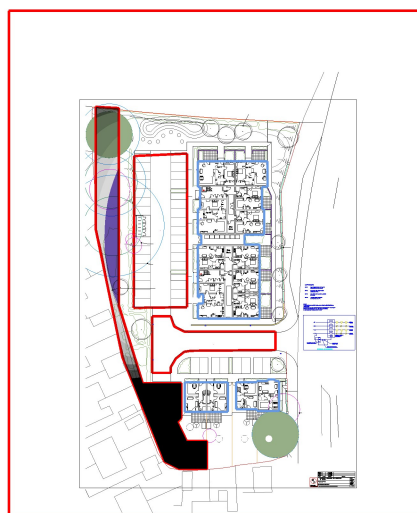
2.2.3 Result overview, Measuring area 1

3 8 Order No. : !CBL90WWD
  Luminaire name : CITY BL
Equipment : 1 x 9 W / 900 lm

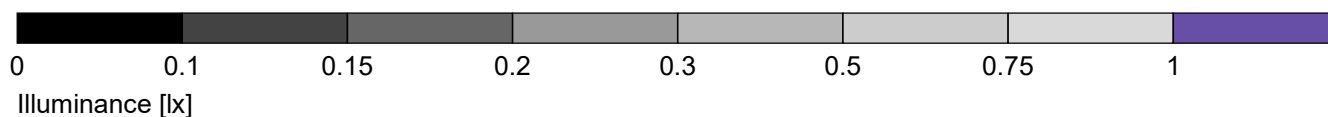
4 8 Order No. : !TAU80WWD
 Luminaire name : TAURUS
Equipment : 1 x 6 W / 800 lm

2.2 Summary, Exterior 1

2.2.4 Result overview, M 2



21 41 61 81 101 x [m]



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	1.50 m
Maintenance factor	0.80

Total luminous flux of all lamps	56800 lm
Total power	480 W
Total power per area (18525.00 m ²)	0.03 W/m ²

Illuminance

Average illuminance	Em	0.43 lx
Minimum illuminance	Emin	0 lx
Maximum illuminance	Emax	1.49 lx
Uniformity U ₀	Emin/Em	1:--- (---)
Diversity U _d	Emin/Emax	1:--- (---)

Type No. Make



- Tamlite Lighting**
- | | | | |
|---|---|----------------|------------------------------|
| 1 | 3 | Order No. | : !EXPFLA480WWD + TC4M |
| | | Luminaire name | : EXPLORER |
| | | Equipment | : 1 x 40 W / 4800 lm |
| 2 | 6 | Order No. | : !EXPFLA480WWD + WALL MOUNT |
| | | Luminaire name | : EXPLORER |
| | | Equipment | : 1 x 40 W / 4800 lm |


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2.2 Summary, Exterior 1

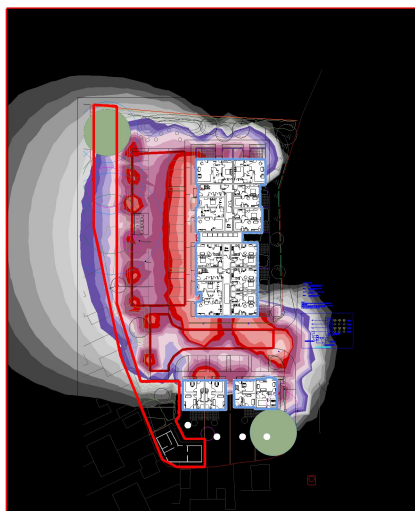
2.2.4 Result overview, M 2

3 8 Order No. : !CBL90WWD
  Luminaire name : CITY BL
Equipment : 1 x 9 W / 900 lm

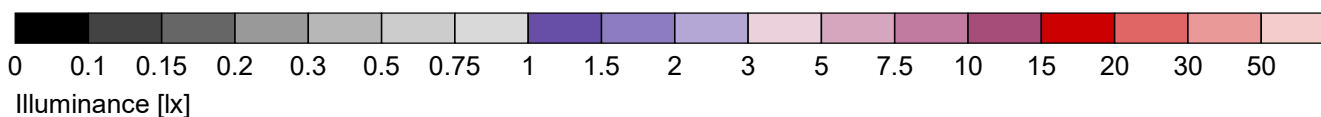
4 8 Order No. : !TAU80WWD
 Luminaire name : TAURUS
Equipment : 1 x 6 W / 800 lm

2.2 Summary, Exterior 1

2.2.5 Result overview, Evaluation area 1



21 41 61 81 101 x [m]



General

Calculation algorithm used	Average indirect fraction
Maintenance factor	0.80
Total luminous flux of all lamps	56800.00 lm
Total power	480.0 W
Total power per area (18525.00 m ²)	0.03 W/m ² (1.02 W/m ² /100lx)

Evaluation area 1

Reference plane 1.1

	Horizontal
Em	2.53 lx
Emin	0 lx
Emin/Em (Uo)	---
Emin/Emax (Ud)	---
Position	0.00 m

Type No. Make



	Tamlite Lighting	
1	3	Order No. : !EXPFLA480WWD + TC4M
		Luminaire name : EXPLORER
		Equipment : 1 x 40 W / 4800 lm
2	6	Order No. : !EXPFLA480WWD + WALL MOUNT
		Luminaire name : EXPLORER
		Equipment : 1 x 40 W / 4800 lm


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2.2 Summary, Exterior 1

2.2.5 Result overview, Evaluation area 1

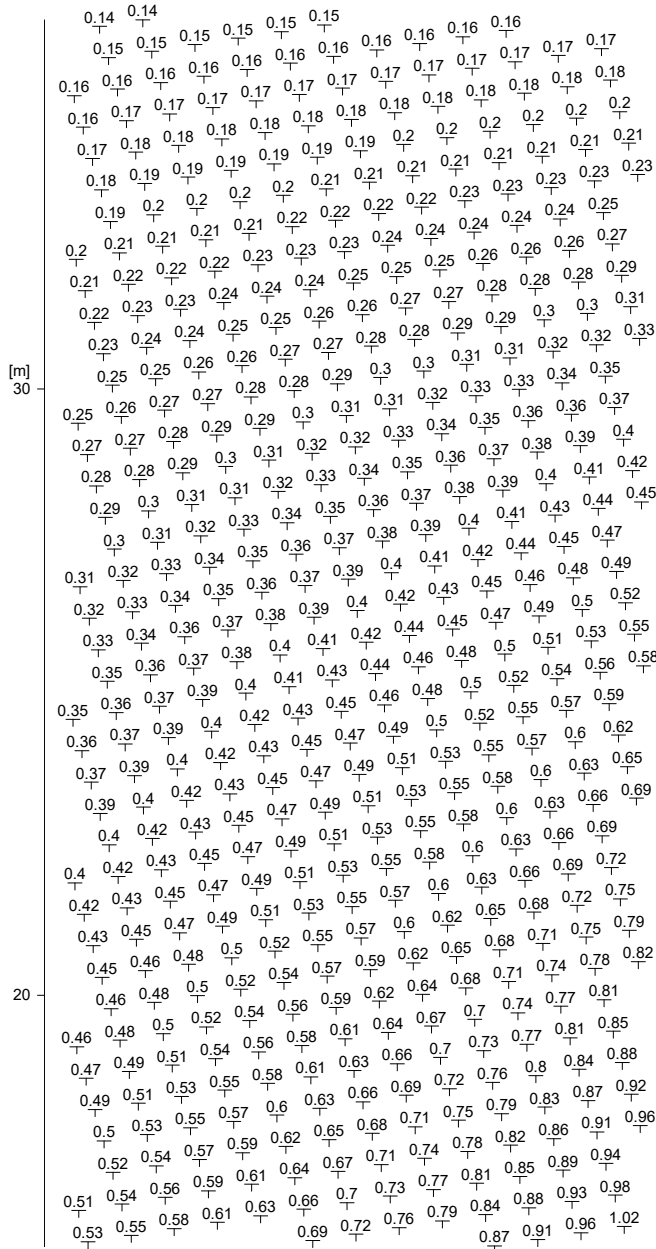
3 8 Order No. : !CBL90WWD
  Luminaire name : CITY BL
Equipment : 1 x 9 W / 900 lm

4 8 Order No. : !TAU80WWD
 Luminaire name : TAURUS
Equipment : 1 x 6 W / 800 lm

2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)



Part1

Height reference plane	:	1.50 m
Average illuminance	Em	: 0.43 lx
Minimum illuminance	Emin	: 0 lx
Maximum illuminance	Emax	: 1.49 lx
Uniformity Uo	Emin/Em	: ---
Diversity Ud	Emin/Emax	: ---

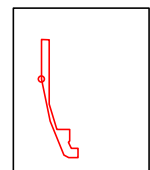
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2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)



Part2

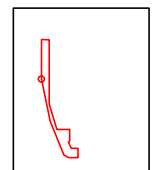
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2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)



Part3

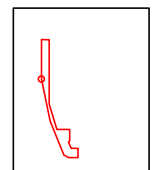
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2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)



Part5

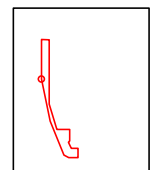
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2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)

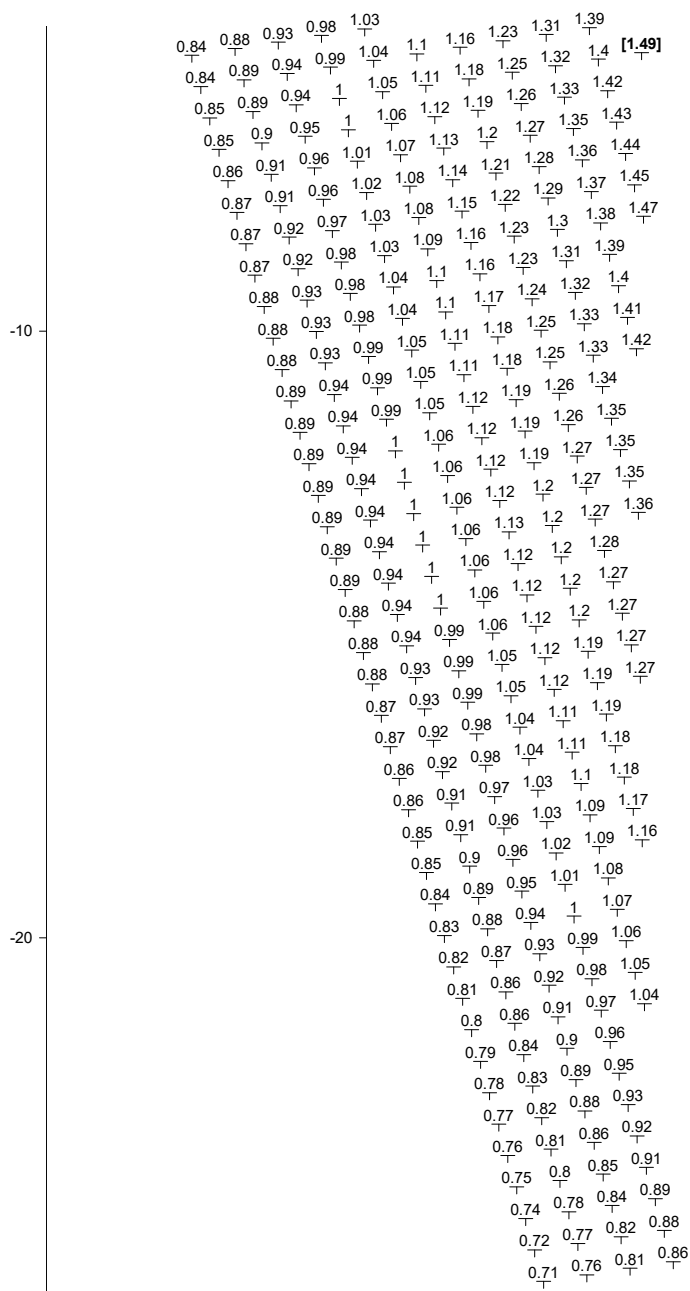


Part6

2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)



Part7

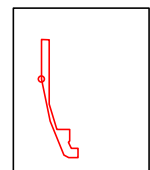
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2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)



Part8

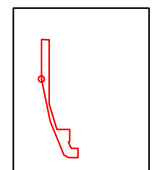
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2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)



Part9

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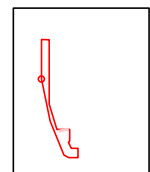


2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)

0.07 0.07 0.06 0.07 0.07 0.07 0.07 0.06 0.07 0.07 0.07 0.07 0.07 0.07 0.07 0.08 0.07 0.08
0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.07 0.07 0.07 0.07 0.07



Part11

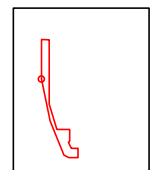
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2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)



Part12

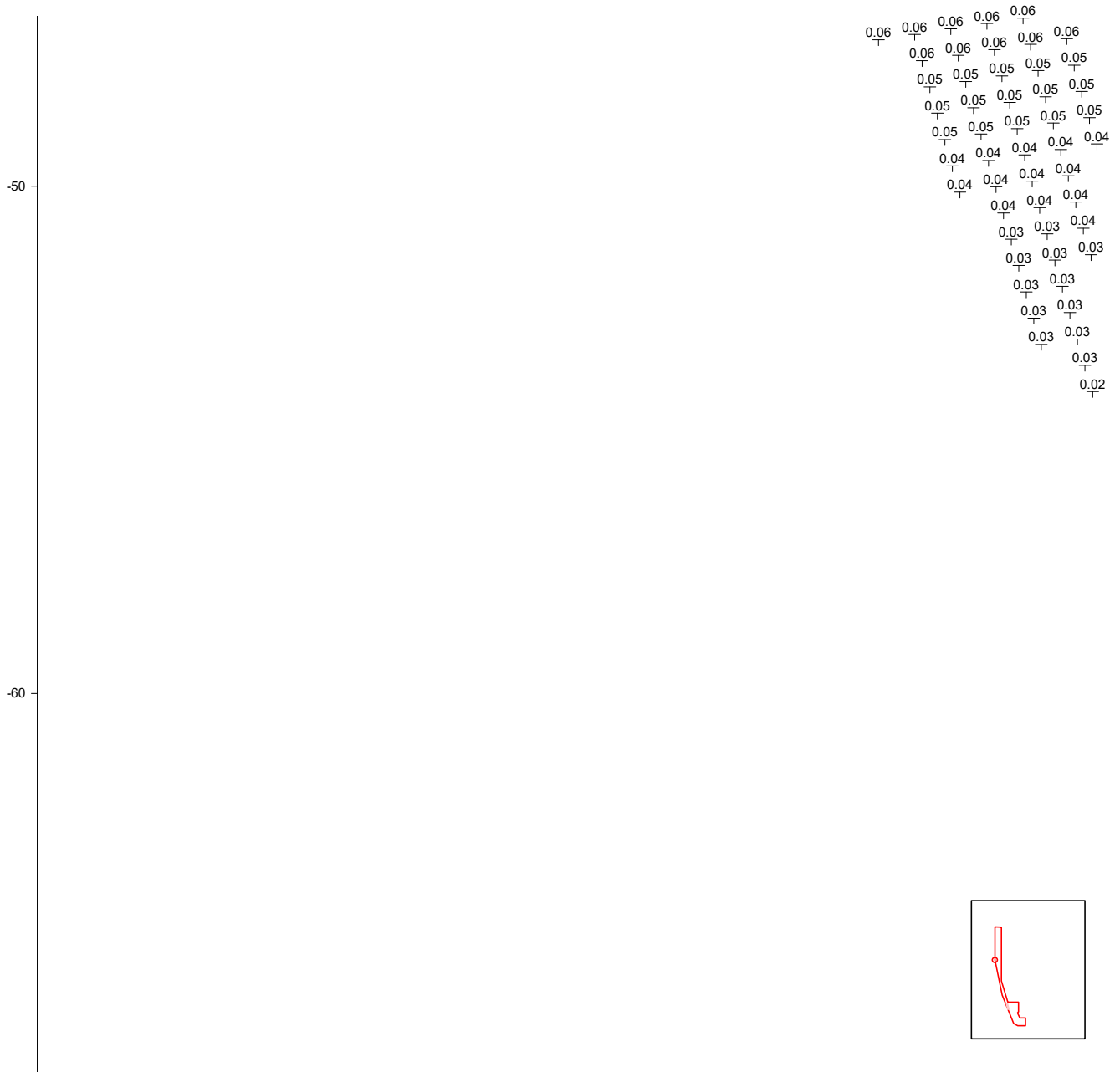
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2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)



Part13



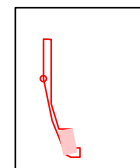
2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)

Table with numerical values and circled zero symbols arranged in a grid pattern, representing calculation results for exterior lighting. The values generally decrease from top-left to bottom-right, with many cells containing a circled zero (0) in the lower right quadrant.

Part14



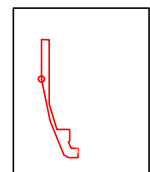
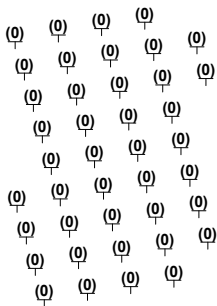
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2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)



Part15

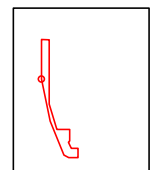
Object : Option 1
Installation : Aberthin, Cowbridge Road
Project number : 46350 R4
Date : 06.08.2021



2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)



Part16

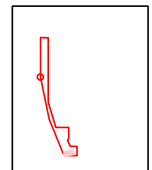
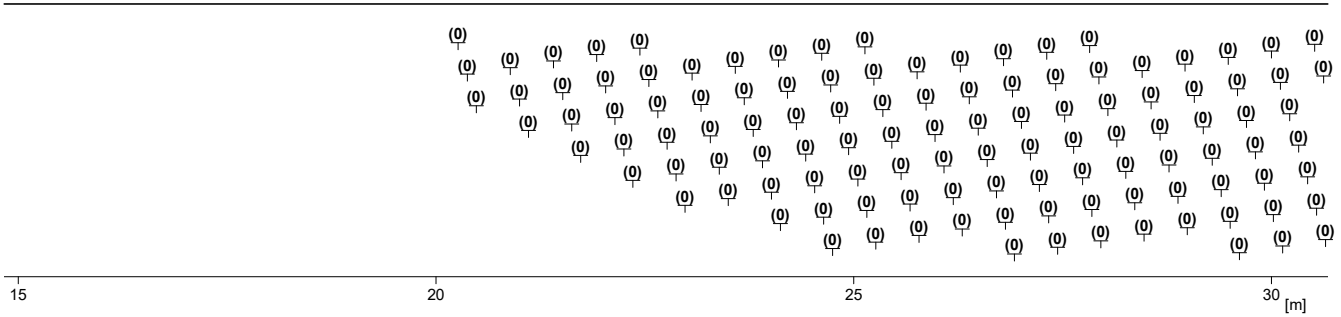
Object : Option 1
Installation : Aberthin, Cowbridge Road
Project number : 46350 R4
Date : 06.08.2021



2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)



Part17

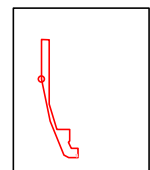
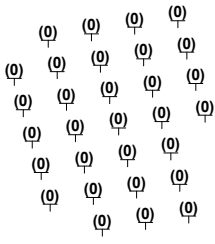
Object : Option 1
Installation : Aberthin, Cowbridge Road
Project number : 46350 R4
Date : 06.08.2021



2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 Table, M 2 (E)



Part18

