

External rear extension lighting

Installation : 6313

Project number : The Abbey School

Customer :

Processed by : Paul Roberts

Date : 26.06.2018

Project description:

Values used in our calculations -

Reflectances .70.50.20

Maintenance factor 0.8

Measuring plane at 0.75m from floor

The calculation results are based on the above values and on dimension details given, any inaccuracies in this information may have an effect on the actual illumination level

Nominal values used in our calculations: -

Reflectances .70.50.20

Maintenance factor 0.8

Measuring plane at 0.75m from floor

The calculation results are based on the above values and on dimension details given, any inaccuracies in this information may have an effect on the actual illumination level. The information contained in this document is proprietary to Houghton Greenlees Associates Ltd. This document is prepared for a specific site and incorporates calculations based on data available from the client at this time. By accepting and using this document, the recipient agrees to protect its contents from further dissemination, (other than that within the organization necessary to evaluate such specification) without the written permission of Houghton Greenlees Associates Ltd. The contents of this document are not to be reproduced or copied in whole or in part without the written permission of Hancel Lighting Ltd.

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.

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1 Luminaire data

1.1 HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A., A - 054SY (!DSX1.2.LA054.SY)

1.1.1 Data sheet

Manufacturer: HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A.

!DSX1.2.LA054.SY

A - 054SY

Luminaire data

Absolute Photometry

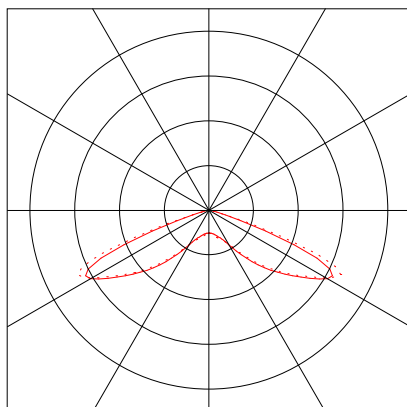
Luminaire efficacy : 139.56 lm/W
Classification : A20 ↓100.0% ↑0.0%
CIE Flux Codes : 14 52 97 100 100
UGR 4H 8H : 31.8 / 32.0
Power : 36 W
Luminous flux : 5024 lm

Equipped with

Quantity : 1
Designation : LED

Colour :

Dimensions : 247 mm x 280 mm x 1 mm





1.1 HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A., A - 054SY (!DSX1.2.LA054.SY)

1.1.2 Glare Rating (UGR)

Reflectance of										
Ceiling	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Floor	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Room dimension		Viewed crosswise					Viewed endwise				
x	y										
2H	2H	27.2	29.2	27.5	29.5	29.8	27.3	29.3	27.6	29.6	29.9
	3H	29.6	31.5	30.0	31.8	32.2	30.0	31.8	30.4	32.2	32.5
	4H	29.8	31.6	30.2	31.9	32.3	30.1	31.8	30.5	32.2	32.5
	6H	29.8	31.4	30.2	31.8	32.2	30.1	31.7	30.5	32.1	32.5
	8H	29.8	31.3	30.2	31.7	32.1	30.0	31.6	30.4	32.0	32.4
	12H	29.7	31.3	30.1	31.6	32.0	30.0	31.5	30.4	31.9	32.3
4H	2H	29.1	30.9	29.5	31.2	31.6	29.2	30.9	29.6	31.3	31.6
	3H	31.6	33.1	32.0	33.5	33.9	31.8	33.4	32.2	33.7	34.1
	4H	31.9	33.2	32.3	33.6	34.0	32.0	33.4	32.5	33.8	34.2
	6H	31.8	33.1	32.3	33.5	33.9	32.0	33.2	32.5	33.7	34.1
	8H	31.8	33.0	32.3	33.4	33.8	32.0	33.1	32.5	33.6	34.0
	12H	31.9	32.9	32.3	33.3	33.8	32.0	33.1	32.5	33.5	34.0
8H	4H	32.2	33.3	32.6	33.7	34.2	32.4	33.5	32.8	33.9	34.4
	6H	32.2	33.1	32.6	33.6	34.1	32.3	33.3	32.8	33.7	34.2
	8H	32.2	33.1	32.7	33.6	34.0	32.4	33.2	32.9	33.7	34.2
	12H	32.2	32.9	32.7	33.4	33.9	32.4	33.1	32.9	33.6	34.1
12H	4H	32.2	33.2	32.7	33.7	34.2	32.4	33.4	32.8	33.8	34.3
	6H	32.2	33.1	32.7	33.6	34.0	32.4	33.2	32.9	33.7	34.2
	8H	32.2	32.9	32.7	33.4	33.9	32.4	33.1	32.9	33.6	34.1

Distance between luminaires: 0.25

Manufacturer	: HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A.	Luminaire efficacy	: 139.56 lm/W (A20)
Order number	: !DSX1.2.LA054.SY	Light distribution	: sym. to C0-C180 / C90-C270
Luminaire name	: A - 054SY	Beam Angle	: 135.2° C0-C180
Equipment	: 1 x LED C.5000LM-4000K 36 W / 50°		: 137.9° C90-C270
Dimensions	: L 247 mm x W 280 mm x H 1 mm		
File name	: rlx_20180625123250.ltd		

1 Luminaire data

1.2 HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A., A1 - 054FW BLS (!DSX1.2.LA054.I

1.2.1 Data sheet

Manufacturer: HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A.

!DSX1.2.LA054.FW.BLS

A1 - 054FW BLS

Luminaire data

Absolute Photometry

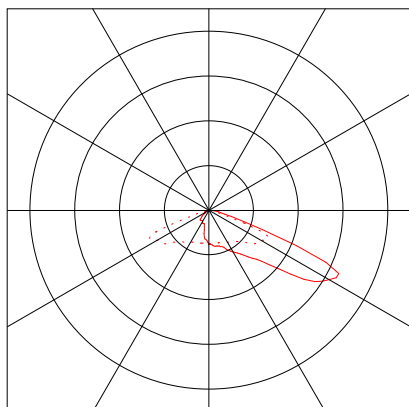
Luminaire efficacy : 105.31 lm/W
Classification : A20 ↓100.0% ↑0.0%
CIE Flux Codes : 23 58 96 100 100
UGR 4H 8H : 35.0 / 31.4
Power : 36 W
Luminous flux : 3791 lm

Equipped with

Quantity : 1
Designation : LED

Colour :

Dimensions : 247 mm x 280 mm x 1 mm



1.2 HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A., A1 - 054FW BLS (!DSX1.2.LA054.I

1.2.2 Glare Rating (UGR)

Reflectance of										
Ceiling	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Floor	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Room dimension		Viewed crosswise					Viewed endwise				
x	y										
2H	2H	31.0	33.0	31.4	33.3	33.6	25.0	26.9	25.4	27.3	27.6
	3H	33.1	34.9	33.5	35.2	35.5	27.8	29.5	28.1	29.9	30.2
	4H	33.2	34.9	33.6	35.2	35.6	27.9	29.6	28.3	29.9	30.3
	6H	33.2	34.8	33.6	35.1	35.5	28.0	29.5	28.4	29.9	30.3
	8H	33.2	34.7	33.6	35.0	35.4	27.9	29.5	28.3	29.8	30.2
	12H	33.1	34.6	33.5	35.0	35.4	27.9	29.4	28.3	29.7	30.1
4H	2H	32.6	34.3	33.0	34.7	35.0	28.4	30.1	28.8	30.4	30.8
	3H	34.8	36.3	35.2	36.6	37.0	31.1	32.5	31.5	32.9	33.3
	4H	35.0	36.3	35.4	36.7	37.1	31.3	32.6	31.7	33.0	33.4
	6H	35.0	36.2	35.5	36.6	37.0	31.4	32.5	31.8	33.0	33.4
	8H	35.0	36.1	35.5	36.5	37.0	31.4	32.5	31.9	32.9	33.4
	12H	35.0	36.0	35.5	36.5	36.9	31.4	32.4	31.9	32.8	33.3
8H	4H	35.4	36.4	35.8	36.9	37.3	31.9	32.9	32.3	33.4	33.8
	6H	35.4	36.3	35.9	36.8	37.3	32.0	32.9	32.4	33.3	33.8
	8H	35.5	36.3	36.0	36.8	37.2	32.1	32.9	32.6	33.3	33.8
	12H	35.5	36.2	36.0	36.7	37.2	32.1	32.7	32.6	33.3	33.7
12H	4H	35.4	36.4	35.8	36.8	37.3	31.9	32.9	32.4	33.3	33.8
	6H	35.5	36.3	36.0	36.8	37.2	32.1	32.8	32.6	33.3	33.8
	8H	35.5	36.2	36.0	36.7	37.2	32.1	32.8	32.6	33.3	33.8

Distance between luminaires: 0.25

Due to missing symmetry characteristics the values apply only to the indicated line of sight.

Manufacturer	: HOLOPHANE EUROPE LIMITED & C	Luminaire efficacy	: 105.31 lm/W (A20)
Order number	: !DSX1.2.LA054.FW.BLS	Light distribution	: sym. to C0-C180
Luminaire name	: A1 - 054FW BLS	Beam Angle	: -- C90-C270
Equipment	: 1 x LED C.5000LM-4000K 36 W / 37!		68.2° C0
Dimensions	: L 247 mm x W 280 mm x H 1 mm		-- C180
File name	: rlx_20180625145534.ltd		

1 Luminaire data

1.3 HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A., A2 - 054AY BLS (!DSX1.2.LA054.A

1.3.1 Data sheet

Manufacturer: HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A.

!DSX1.2.LA054.AY.BLS

A2 - 054AY BLS

Luminaire data

Absolute Photometry

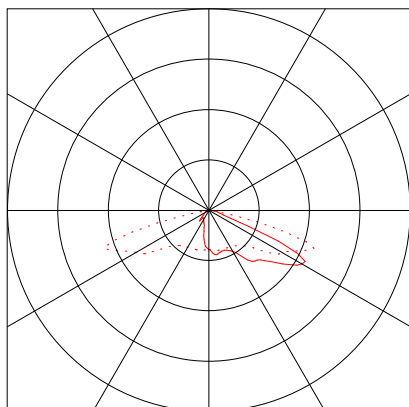
Luminaire efficacy : 104.14 lm/W
Classification : A20 ↓100.0% ↑0.0%
CIE Flux Codes : 23 56 94 100 100
UGR 4H 8H : 31.7 / 35.6
Power : 36 W
Luminous flux : 3749 lm

Equipped with

Quantity : 1
Designation : LED

Colour :

Dimensions : 247 mm x 280 mm x 1 mm



1.3 HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A., A2 - 054AY BLS (!DSX1.2.LA054.A

1.3.2 Glare Rating (UGR)

Reflectance of										
Ceiling	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Floor	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Room dimension		Viewed crosswise					Viewed endwise				
x	y										
2H	2H	28.3	30.2	28.6	30.6	30.9	26.2	28.1	26.5	28.4	28.8
	3H	29.3	31.1	29.7	31.4	31.8	31.2	33.1	31.6	33.4	33.7
	4H	29.3	31.0	29.7	31.4	31.7	32.9	34.7	33.3	35.0	35.4
	6H	29.3	30.9	29.7	31.3	31.7	33.2	34.9	33.6	35.2	35.6
	8H	29.3	30.9	29.7	31.2	31.6	33.2	34.8	33.6	35.1	35.5
	12H	29.3	30.8	29.7	31.2	31.6	33.2	34.7	33.6	35.0	35.4
4H	2H	30.5	32.2	30.9	32.5	32.9	28.2	29.9	28.5	30.2	30.6
	3H	31.6	33.1	32.0	33.5	33.9	33.1	34.6	33.5	34.9	35.3
	4H	31.7	33.0	32.1	33.5	33.9	35.1	36.4	35.5	36.8	37.3
	6H	31.7	32.9	32.2	33.3	33.8	35.6	36.8	36.0	37.2	37.6
	8H	31.7	32.9	32.2	33.3	33.7	35.6	36.7	36.0	37.1	37.6
	12H	31.8	32.8	32.2	33.2	33.7	35.6	36.6	36.1	37.1	37.5
8H	4H	32.8	34.0	33.3	34.4	34.9	35.2	36.4	35.7	36.8	37.2
	6H	32.9	33.8	33.3	34.3	34.8	35.8	36.7	36.3	37.2	37.7
	8H	33.0	33.8	33.5	34.3	34.8	35.9	36.7	36.4	37.2	37.7
	12H	33.0	33.7	33.5	34.2	34.7	35.9	36.6	36.4	37.1	37.6
12H	4H	33.0	34.0	33.4	34.4	34.9	35.3	36.3	35.7	36.7	37.2
	6H	33.1	33.9	33.5	34.4	34.8	35.8	36.7	36.3	37.2	37.6
	8H	33.1	33.8	33.6	34.3	34.8	35.9	36.6	36.4	37.1	37.6

Distance between luminaires: 0.25

Due to missing symmetry characteristics the values apply only to the indicated line of sight.

Manufacturer	: HOLOPHANE EUROPE LIMITED & C	Luminaire efficacy	: 104.14 lm/W (A20)
Order number	: !DSX1.2.LA054.AY.BLS	Light distribution	: sym. to C0-C180
Luminaire name	: A2 - 054AY BLS	Beam Angle	: 145.3° C90-C270
Equipment	: 1 x LED C.5000LM-4000K 36 W / 37		: 64.0° C0
Dimensions	: L 247 mm x W 280 mm x H 1 mm		-- C180
File name	: rlx_20180625150502.ltd		

1 Luminaire data

1.4 Thorlux, B - RL19071 REALTA WIDE LED POL... (!RL19071)

1.4.1 Data sheet

Manufacturer: Thorlux

!RL19071 B - RL19071 REALTA WIDE LED POLY COVER

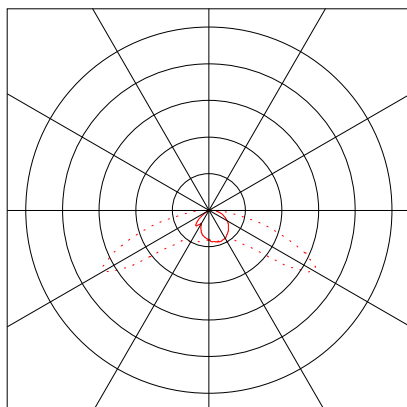
Luminaire data

Luminaire efficiency : 100%
Luminaire efficacy : 120 lm/W
Classification : A30 ↓98.3% ↑1.7%
CIE Flux Codes : 26 60 91 98 100
UGR 4H 8H : 24.2 / 33.5
Power : 11 W
Luminous flux : 1320 lm

Equipped with

Quantity : 1
Designation : 8W LED
Colour : 4000
Luminous flux : 1320 lm
Colour reproduction : 80

Dimensions : 360 mm x 260 mm x 320 mm



1.4 Thorlux, B - RL19071 REALTA WIDE LED POL... (!RL19071)

1.4.2 Glare Rating (UGR)

Reflectance of										
Ceiling	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Floor	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Room dimension		Viewed crosswise					Viewed endwise				
x	y										
2H	2H	17.4	19.2	17.7	19.6	19.9	27.6	29.5	28.0	29.8	30.2
	3H	19.4	21.1	19.8	21.4	21.8	30.9	32.7	31.3	33.0	33.4
	4H	20.4	22.0	20.8	22.4	22.8	31.9	33.6	32.3	33.9	34.3
	6H	21.3	22.9	21.8	23.2	23.7	32.5	34.0	32.9	34.4	34.8
	8H	21.8	23.3	22.2	23.7	24.1	32.6	34.1	33.1	34.5	34.9
	12H	22.3	23.7	22.8	24.2	24.6	32.7	34.2	33.2	34.6	35.0
4H	2H	20.8	22.4	21.2	22.8	23.2	27.6	29.2	28.0	29.6	30.0
	3H	22.2	23.6	22.6	24.0	24.4	31.2	32.6	31.6	33.0	33.4
	4H	23.0	24.3	23.5	24.7	25.2	32.5	33.7	32.9	34.2	34.6
	6H	23.8	25.0	24.3	25.4	25.9	33.2	34.4	33.7	34.9	35.3
	8H	24.2	25.3	24.7	25.8	26.3	33.5	34.6	34.0	35.0	35.5
	12H	24.8	25.8	25.3	26.2	26.7	33.7	34.7	34.2	35.2	35.7
8H	4H	25.0	26.0	25.4	26.5	27.0	32.4	33.5	32.9	34.0	34.4
	6H	25.7	26.6	26.2	27.1	27.6	33.3	34.2	33.8	34.7	35.2
	8H	26.2	27.0	26.7	27.5	28.0	33.7	34.5	34.2	35.0	35.5
	12H	26.7	27.4	27.2	27.9	28.4	34.0	34.7	34.6	35.3	35.8
12H	4H	25.4	26.4	25.9	26.8	27.4	32.4	33.4	32.9	33.9	34.4
	6H	26.2	27.0	26.8	27.6	28.1	33.3	34.1	33.9	34.7	35.2
	8H	26.7	27.4	27.2	27.9	28.5	33.7	34.4	34.2	34.9	35.5

Distance between luminaires: 0.25

Due to missing symmetry characteristics the values apply only to the indicated line of sight.

Manufacturer	: Thorlux	Efficiency factor	: 100%
Order number	: !RL19071	Luminaire efficacy	: 120 lm/W (A30)
Luminaire name	: B - RL19071 REALTA WIDE LED POLY COVER	Light distribution	: sym. to C0-C180
Equipment	: 1 x 8W LED 11 W / 1320 lm	Beam Angle	: 136.6° C90-C270
Dimensions	: L 360 mm x W 260 mm x H 320 mm		-- C0
File name	: RL19071.ltd		-- C180

1 Luminaire data

1.5 Thorlux, C - CT17542 COBALT LED GRILL (ICT17542)

1.5.1 Data sheet

Manufacturer: Thorlux

ICT17542 C - CT17542 COBALT LED GRILL

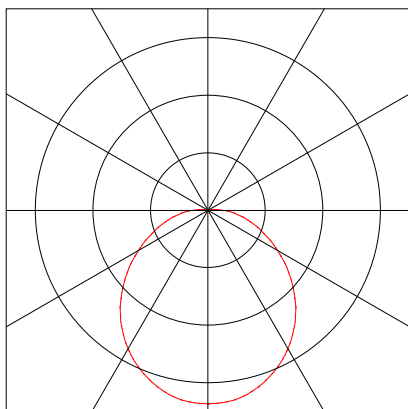
Luminaire data

Luminaire efficiency : 100%
Luminaire efficacy : 60 lm/W
Classification : A41 ↓97.3% ↑2.7%
CIE Flux Codes : 46 75 92 97 100
UGR 4H 8H : 23.1 / 23.1
Power : 18 W
Luminous flux : 1080 lm

Equipped with

Quantity : 1
Designation : 15W LED
Colour : 4000
Luminous flux : 1080 lm
Colour reproduction : 70

Dimensions : 330 mm x 330 mm x 150 mm



1.5 Thorlux, C - CT17542 COBALT LED GRILL (ICT17542)

1.5.2 Glare Rating (UGR)

Reflectance of										
Ceiling	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Floor	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Room dimension		Viewed crosswise					Viewed endwise				
x	y										
2H	2H	17.7	19.4	18.1	19.7	20.1	17.7	19.4	18.1	19.7	20.1
	3H	19.5	21.0	19.9	21.4	21.8	19.5	21.0	19.9	21.4	21.8
	4H	20.4	21.8	20.8	22.2	22.6	20.4	21.8	20.8	22.2	22.6
	6H	21.3	22.6	21.7	23.0	23.4	21.3	22.6	21.7	23.0	23.4
	8H	21.7	22.9	22.1	23.3	23.8	21.7	22.9	22.1	23.3	23.8
	12H	22.1	23.3	22.5	23.7	24.2	22.1	23.3	22.5	23.7	24.2
4H	2H	18.5	19.9	18.9	20.3	20.7	18.5	19.9	18.9	20.3	20.7
	3H	20.5	21.7	20.9	22.1	22.6	20.5	21.7	20.9	22.1	22.6
	4H	21.5	22.6	22.0	23.1	23.6	21.5	22.6	22.0	23.1	23.6
	6H	22.5	23.5	23.0	24.0	24.5	22.5	23.5	23.0	24.0	24.5
	8H	23.1	24.0	23.6	24.5	25.0	23.1	24.0	23.6	24.5	25.0
	12H	23.6	24.5	24.2	25.0	25.5	23.6	24.5	24.2	25.0	25.5
8H	4H	22.0	22.9	22.5	23.4	23.9	22.0	22.9	22.5	23.4	23.9
	6H	23.2	24.0	23.7	24.5	25.0	23.2	24.0	23.7	24.5	25.0
	8H	23.9	24.6	24.5	25.1	25.7	23.9	24.6	24.5	25.1	25.7
	12H	24.7	25.2	25.2	25.8	26.4	24.7	25.2	25.2	25.8	26.4
12H	4H	22.1	22.9	22.6	23.4	23.9	22.1	22.9	22.6	23.4	23.9
	6H	23.4	24.1	24.0	24.6	25.2	23.4	24.1	24.0	24.6	25.2
	8H	24.2	24.8	24.7	25.3	25.9	24.2	24.8	24.7	25.3	25.9

Distance between luminaires: 0.25

Manufacturer	: Thorlux	Efficiency factor	: 100%
Order number	: !CT17542	Luminaire efficacy	: 60 lm/W (A41)
Luminaire name	: C - CT17542 COBALT LED GRILL	Light distribution	: rotationally symmetric
Equipment	: 1 x 15W LED 18 W / 1080 lm	Beam Angle	: 108.5° C0-C180
Dimensions	: L 330 mm x W 330 mm x H 150 mm		
File name	: CT17542.ltd		

1 Luminaire data

1.6 ITAB Prolight UK, D - LDM2 LED (!LDM2W/08/3K8/SG)

1.6.1 Data sheet

Manufacturer: ITAB Prolight UK



!LDM2W/08/3K8/SG Recessed Downlight D - LDM2 LED

780 LUMENS WHITE 130MM DIA FIXED LED DOWNLIGHT: WITH FIXED OUTPUT DRIVER AND SEALED FRONT GLASS, COLOUR 3000, RA 80
EMERGENCY LUMENS 22%

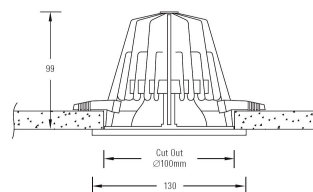
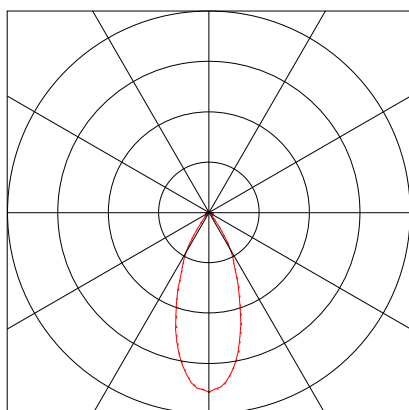
Luminaire data

Luminaire efficiency	: 88.1%
Luminaire efficacy	: 112.65 lm/W
Classification	: A70 ↓99.7% ↑0.3%
CIE Flux Codes	: 85 91 96 100 89
UGR 4H 8H	: 23.8 / 23.8
Control gear	: Electronic ballast
Power	: 6.1 W
Luminous flux	: 687.2 lm

Equipped with

Quantity	: 1
Designation	: LED
Colour	: 3000k
Luminous flux	: 780 lm
Colour reproduction	: 80

Dimensions : Ø130 mm x 0.0 mm



1.6 ITAB Prolight UK, D - LDM2 LED (!LDM2W/08/3K8/SG)

1.6.2 Glare Rating (UGR)

Reflectance of										
Ceiling	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Floor	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Room dimension		Viewed crosswise					Viewed endwise				
x	y										
2H	2H	16.1	17.2	16.5	17.5	17.8	16.4	17.5	16.8	17.8	18.1
	3H	18.1	19.1	18.5	19.4	19.7	18.3	19.2	18.7	19.6	19.9
	4H	19.5	20.4	19.9	20.7	21.1	19.6	20.5	20.0	20.9	21.2
	6H	21.2	22.1	21.6	22.4	22.8	21.3	22.1	21.7	22.5	22.9
	8H	22.3	23.1	22.7	23.5	23.9	22.3	23.1	22.7	23.5	23.9
	12H	23.6	24.4	24.0	24.8	25.2	23.5	24.3	23.9	24.7	25.1
4H	2H	16.7	17.5	17.0	17.9	18.3	16.9	17.8	17.3	18.2	18.5
	3H	19.0	19.8	19.4	20.2	20.6	19.1	19.9	19.5	20.3	20.7
	4H	20.7	21.3	21.1	21.8	22.2	20.7	21.4	21.2	21.8	22.3
	6H	22.6	23.2	23.1	23.7	24.1	22.6	23.3	23.1	23.7	24.2
	8H	23.8	24.4	24.3	24.8	25.3	23.8	24.4	24.3	24.8	25.3
	12H	25.3	25.8	25.7	26.2	26.8	25.2	25.7	25.7	26.2	26.7
8H	4H	21.3	21.9	21.8	22.4	22.8	21.4	22.0	21.9	22.4	22.9
	6H	23.5	24.0	24.0	24.5	25.0	23.6	24.1	24.1	24.6	25.1
	8H	25.0	25.4	25.5	25.9	26.4	25.0	25.5	25.6	26.0	26.5
	12H	26.6	27.0	27.2	27.5	28.0	26.6	27.0	27.2	27.5	28.0
12H	4H	21.5	22.1	22.0	22.5	23.0	21.6	22.1	22.1	22.6	23.1
	6H	23.9	24.4	24.5	24.9	25.4	24.0	24.4	24.5	24.9	25.4
	8H	25.5	25.8	26.0	26.3	26.9	25.5	25.9	26.0	26.4	26.9

Distance between luminaires: 0.25

Due to missing symmetry characteristics the values apply only to the indicated line of sight.

Manufacturer	: ITAB Prolight UK	Efficiency factor	: 88.1%
Order number	: !LDM2W/08/3K8/SG	Luminaire efficacy	: 112.65 lm/W (A70)
Luminaire name	: D - LDM2 LED	Light distribution	: asymmetric
Equipment	: 1 x LED 6.1 W / 780 lm	Beam Angle	: 19.9° C0
Dimensions	: D 130 mm x H 0.0 mm		: 20.4° C90
File name	: ldm2w-08-3k8-sg.ltd		: 21.0° C180
			: 20.6° C270

2 Carpark

2.1 Description, Carpark

2.1.1 Luminaire data/Room elements

Product data:

Type No.\Make

		HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A.	
1	2	Order No.	: !DSX1.2.LA054.SY
		Luminaire name	: A - 054SY
		Equipment	: 1 x LED C.5000LM-4000K 36 W / 5024 lm
2	4	Order No.	: !DSX1.2.LA054.FW.BLS
		Luminaire name	: A1 - 054FW BLS
		Equipment	: 1 x LED C.5000LM-4000K 36 W / 3791 lm
3	1	Order No.	: !DSX1.2.LA054.AY.BLS
		Luminaire name	: A2 - 054AY BLS
		Equipment	: 1 x LED C.5000LM-4000K 36 W / 3749 lm
		ITAB Prolight UK	
6	3	Order No.	: !LDM2W/08/3K8/SG
		Luminaire name	: D - LDM2 LED
		Equipment	: 1 x LED 6.1 W / 780 lm

No.	Centre point			Rotation angle			Target coordinates		
	X [m]	Y [m]	Z [m]	Z [°]	C0 [°]	C90 [°]	Xa [m]	Ya [m]	Za [m]
HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A. A - 054SY									
!DSX1.2.LA054.SY									
1	7.87	9.13	4.00	270.00	0.00	0.00	7.87	9.13	0.00
6	2.46	-5.02	4.00	31.06	0.00	0.00	2.46	-5.02	0.00
HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A. A1 - 054FW BLS									
!DSX1.2.LA054.FW.BLS									
2	18.47	8.85	4.00	271.34	0.00	0.00	18.65	1.17	0.00
3	44.33	-2.82	4.00	86.82	-0.44	1.41	44.76	4.40	0.00
5	35.90	-6.41	4.00	95.56	0.00	-5.00	34.97	3.08	0.00
7	28.01	9.85	4.00	282.47	0.00	0.00	29.66	2.35	0.00
HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A. A2 - 054AY BLS									
!DSX1.2.LA054.AY.BLS									
4	19.28	-8.84	4.00	90.38	0.00	0.00	19.23	-1.16	0.00
ITAB Prolight UK D - LDM2 LED !LDM2W/08/3K8/SG									
8	10.47	-8.69	2.60	0.00	0.00	0.00	10.47	-8.69	0.00
9	12.63	-8.84	2.60	0.00	0.00	0.00	12.63	-8.84	2.60
10	14.85	-8.98	2.60	0.00	0.00	0.00	14.85	-8.98	2.60

Dimming values

No.	Phi [lm]	Phi [%]		T [K]	Red	Color Green	Blue	White
ITAB Prolight UK D - LDM2 LED !LDM2W/08/3K8/SG								
8	390.00	50.00		---	1.0000	1.0000	1.0000	---
9	390.00	50.00		---	1.0000	1.0000	1.0000	---
10	390.00	50.00		---	1.0000	1.0000	1.0000	---

2 Carpark

2.1 Description, Carpark

2.1.1 Luminaire data/Room elements

Measuring surface

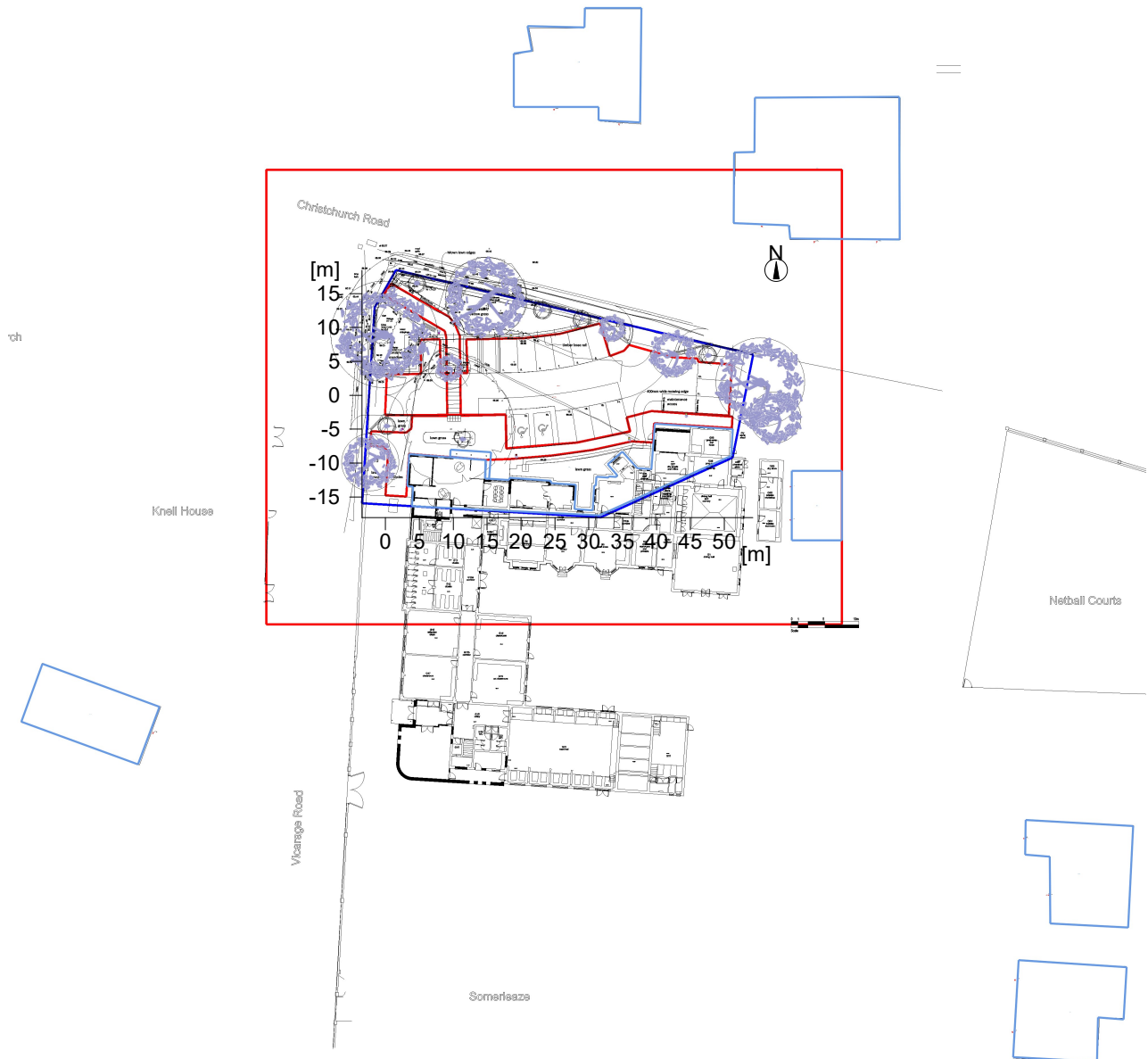
No.	xm[m]	ym[m]	zm[m]	Length	Width	z axis	Rotation angle	
							L axis	Q axis
Pathways								
M 1	-0.29	14.74	0.00	65.64	61.19	56.52	0.00	0.00
Carpark								
M 2	-2.01	3.05	0.00	51.32	18.67	0.40	0.00	0.00
Open area								
M 3	-17.58	-33.79	0.00	84.85	66.97	0.00	0.00	0.00

Others

No.	xm[m]	ym[m]	zm[m]	Length	Width	z axis	Rotation angle		rho[%]
							L axis	Q axis	
building									
A 1	3.89	-16.39	0.00	48.19	17.07	86.59	0.00	0.00	50
house									
A 2	59.89	-21.42	0.00	7.40	10.24	0.00	0.00	0.00	50
house									
A 3	37.52	40.17	0.00	20.00	17.84	356.95	0.00	0.00	50
house									
A 4	51.32	25.33	0.00	24.62	21.18	89.64	0.00	0.00	50
house									
A 5	94.30	-67.74	0.00	16.08	15.85	89.17	0.00	0.00	50
house									
A 6	92.52	-97.58	0.00	16.74	15.20	86.74	0.00	0.00	50
house									
A 7	-53.70	-48.15	0.00	20.39	14.84	69.99	0.00	0.00	50
A 8	9.52	-9.07	2.60	6.21	4.34	86.78	0.00	0.00	50

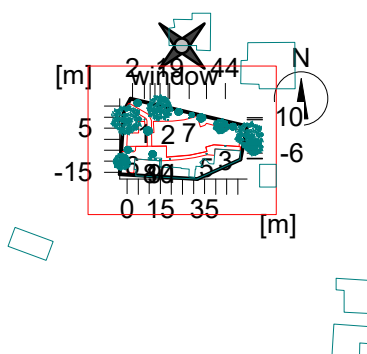
2.1 Description, Carpark

2.1.2 Floor plan



2.1 Calculation results, Carpark

2.1.3 Luminous intensity - window



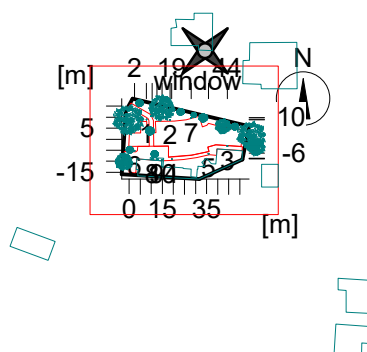
Measuring point for luminous intensity: window

Position : x = 24.82 m, y = 42.06 m, z = 1.50 m

No.	Luminaire	Position			Lumin. intensity
		x[m]	y[m]	z[m]	
1	A2 - 054AY BLS, !DSX1.2.LA054.AY.BLS	19.28	-8.84	4.00	0.028
2	A - 054SY, !DSX1.2.LA054.SY	7.87	9.13	4.00	0.022
3	A - 054SY, !DSX1.2.LA054.SY	2.46	-5.02	4.00	0.016
4	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	44.33	-2.82	4.00	0.011
5	D - LDM2 LED, !LDM2W/08/3K8/SG	12.63	-8.84	2.60	0.007

2.1 Calculation results, Carpark

2.1.4 Luminous intensity - window



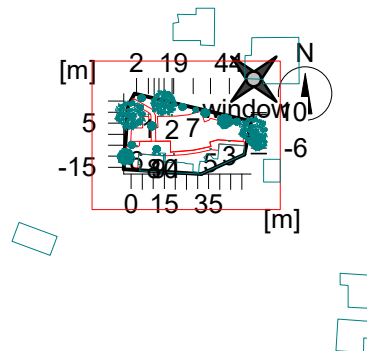
Measuring point for luminous intensity: window

Position : x = 34.41 m, y = 39.91 m, z = 1.50 m

No.	Luminaire	Position			Lumin. intensity
		x[m]	y[m]	z[m]	
1	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	35.90	-6.41	4.00	0.112
2	A2 - 054AY BLS, !DSX1.2.LA054.AY.BLS	19.28	-8.84	4.00	0.029
3	A - 054SY, !DSX1.2.LA054.SY	7.87	9.13	4.00	0.026
4	A - 054SY, !DSX1.2.LA054.SY	2.46	-5.02	4.00	0.018
5	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	44.33	-2.82	4.00	0.012
6	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	28.01	9.85	4.00	0.003
7	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	18.47	8.85	4.00	0.003

2.1 Calculation results, Carpark

2.1.5 Luminous intensity - window



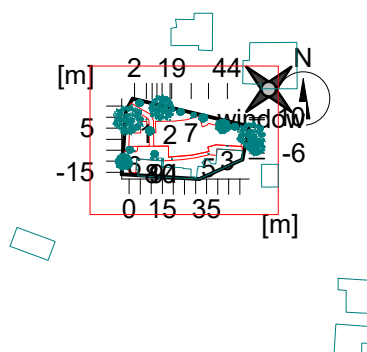
Measuring point for luminous intensity: window

Position : x = 55.43 m, y = 24.85 m, z = 1.50 m

No.	Luminaire	Position			Lumin. intensity
		x[m]	y[m]	z[m]	
1	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	35.90	-6.41	4.00	0.196
2	A2 - 054AY BLS, !DSX1.2.LA054.AY.BLS	19.28	-8.84	4.00	0.032
3	A - 054SY, !DSX1.2.LA054.SY	7.87	9.13	4.00	0.023
4	D - LDM2 LED, !LDM2W/08/3K8/SG	14.85	-8.98	2.60	0.008
5	D - LDM2 LED, !LDM2W/08/3K8/SG	12.63	-8.84	2.60	0.008
6	A - 054SY, !DSX1.2.LA054.SY	2.46	-5.02	4.00	0.008
7	D - LDM2 LED, !LDM2W/08/3K8/SG	10.47	-8.69	2.60	0.008
8	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	28.01	9.85	4.00	0.006
9	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	18.47	8.85	4.00	0.005

2.1 Calculation results, Carpark

2.1.6 Luminous intensity - window



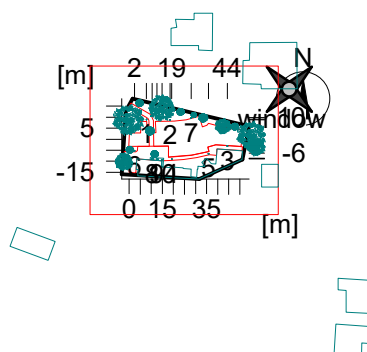
Measuring point for luminous intensity: window

Position : x = 63.21 m, y = 22.61 m, z = 1.50 m

No.	Luminaire	Position			Lumin. intensity
		x[m]	y[m]	z[m]	
1	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	44.33	-2.82	4.00	0.040
2	A2 - 054AY BLS, !DSX1.2.LA054.AY.BLS	19.28	-8.84	4.00	0.029
3	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	28.01	9.85	4.00	0.008
4	D - LDM2 LED, !LDM2W/08/3K8/SG	14.85	-8.98	2.60	0.006
5	D - LDM2 LED, !LDM2W/08/3K8/SG	12.63	-8.84	2.60	0.006
6	D - LDM2 LED, !LDM2W/08/3K8/SG	10.47	-8.69	2.60	0.006
7	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	18.47	8.85	4.00	0.005

2.1 Calculation results, Carpark

2.1.7 Luminous intensity - window



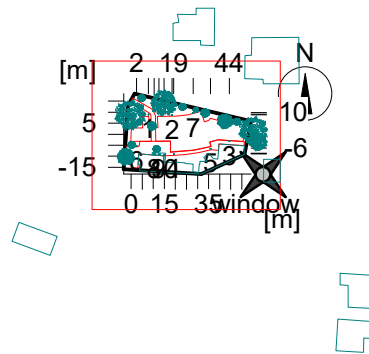
Measuring point for luminous intensity: window

Position : x = 72.42 m, y = 22.60 m, z = 1.50 m

No.	Luminaire	Position			Lumin. intensity
		x[m]	y[m]	z[m]	
1	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	35.90	-6.41	4.00	0.101
2	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	44.33	-2.82	4.00	0.035
3	A2 - 054AY BLS, !DSX1.2.LA054.AY.BLS	19.28	-8.84	4.00	0.024
4	A - 054SY, !DSX1.2.LA054.SY	2.46	-5.02	4.00	0.010
5	D - LDM2 LED, !LDM2W/08/3K8/SG	12.63	-8.84	2.60	0.005
6	D - LDM2 LED, !LDM2W/08/3K8/SG	10.47	-8.69	2.60	0.005
7	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	18.47	8.85	4.00	0.005

2.1 Calculation results, Carpark

2.1.8 Luminous intensity - window



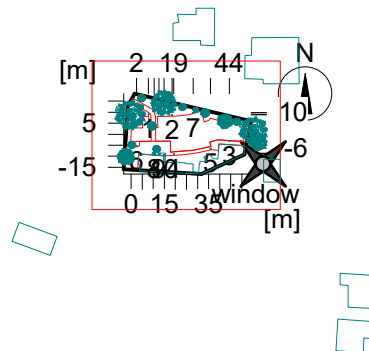
Measuring point for luminous intensity: window

Position : $x = 59.66$ m, $y = -18.41$ m, $z = 4.56$ m

No luminaires with luminous intensities higher than 0 kcd found.

2.1 Calculation results, Carpark

2.1.9 Luminous intensity - window



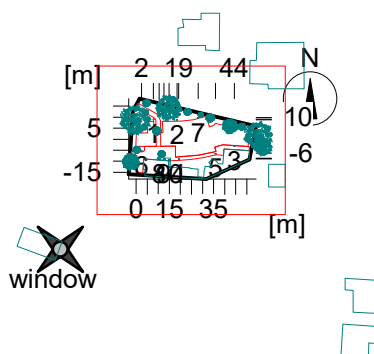
Measuring point for luminous intensity: window

Position : x = 59.69 m, y = -13.52 m, z = 4.56 m

No luminaires with luminous intensities higher than 0 kcd found.

2.1 Calculation results, Carpark

2.1.10 Luminous intensity - window



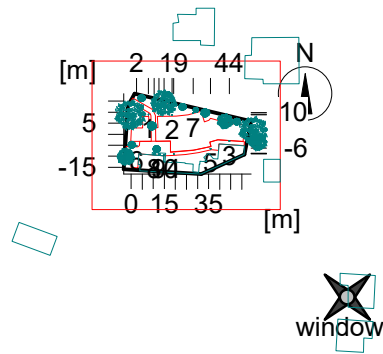
Measuring point for luminous intensity: window

Position : x = -34.28 m, y = -49.78 m, z = 1.50 m

No.	Luminaire	Position			Lumin. intensity
		x[m]	y[m]	z[m]	I[kcd]
1	A1 - 054FW BLS, !DSX1.2.LA054.FW.BLS	18.47	8.85	4.00	0.015
2	A - 054SY, !DSX1.2.LA054.SY	7.87	9.13	4.00	0.013

2.1 Calculation results, Carpark

2.1.12 Luminous intensity - window



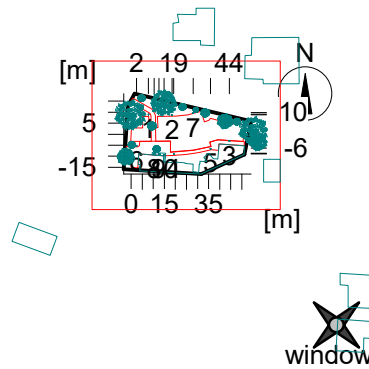
Measuring point for luminous intensity: window

Position : $x = 97.72 \text{ m}$, $y = -73.70 \text{ m}$, $z = 1.50 \text{ m}$

No luminaires with luminous intensities higher than 0 kcd found.

2.1 Calculation results, Carpark

2.1.13 Luminous intensity - window



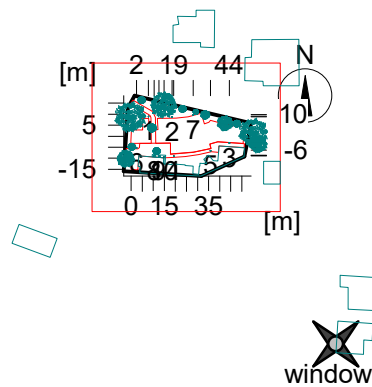
Measuring point for luminous intensity: window

Position : $x = 92.80$ m, $y = -86.24$ m, $z = 1.50$ m

No luminaires with luminous intensities higher than 0 kcd found.

2.1 Calculation results, Carpark

2.1.14 Luminous intensity - window



Measuring point for luminous intensity: window

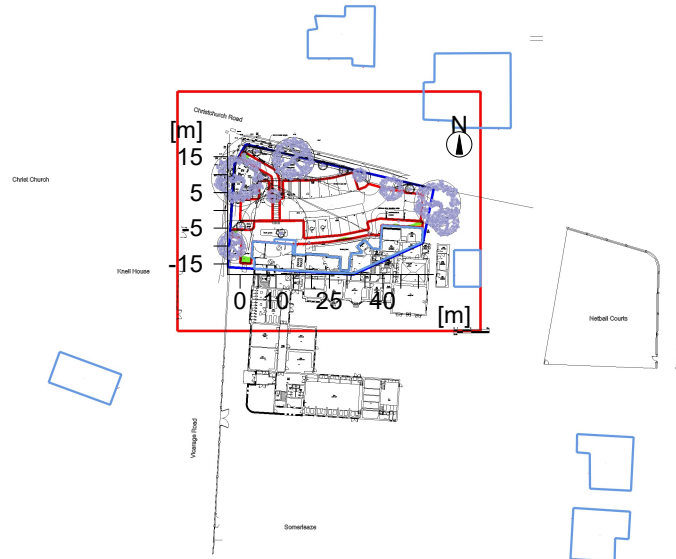
Position : $x = 92.43 \text{ m}$, $y = -93.92 \text{ m}$, $z = 1.50 \text{ m}$

No luminaires with luminous intensities higher than 0 kcd found.

2 Carpark

2.2 Summary, Carpark

2.2.1 Result overview, Pathways



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80
Total luminous flux of all lamps	30131 lm (96.26% dimmed)
(Luminaires have been dimmed. For details turn to the dimming section in the luminaire data output.)	
Total power	270.3 W
Total power per area (1555.93 m²)	0.17 W/m²
Upward light ratio (ULR)	0.00

Illuminance

Average illuminance	Eav	17.5 lx
Minimum illuminance	Emin	5.2 lx
Maximum illuminance	Emax	31.1 lx
Uniformity Uo	Emin/Em	1:3.36 (0.3)
Diversity Ud	Emin/Emax	1:5.97 (0.17)

Type No. Make

HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A.

1	2	Order No.	: !DSX1.2.LA054.SY
		Luminaire name	: A - 054SY
		Equipment	: 1 x LED C.5000LM-4000K 36 W / 5024 lm
2	4	Order No.	: !DSX1.2.LA054.FW.BLS
		Luminaire name	: A1 - 054FW BLS
		Equipment	: 1 x LED C.5000LM-4000K 36 W / 3791 lm

The ULR value has been calculated without obstruction by other objects.

HOUGHTON GREENLEES & ASSOCIATES LTD - 01275 866920
 LOWER BARN, EAST END COURT, TICKENHAM ROAD, CLEVEDON, BS21 6QY

Object : External rear extension lighting
Installation : 6313
Project number : The Abbey School
Date : 26.06.2018



2 Carpark

2.2 Summary, Carpark

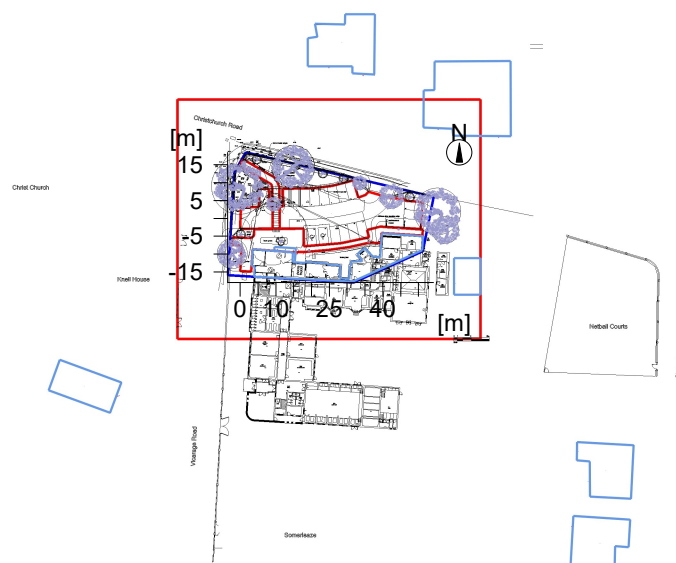
2.2.1 Result overview, Pathways

3 1 Order No. : !DSX1.2.LA054.AY.BLS
 Luminaire name : A2 - 054AY BLS
Equipment : 1 x LED C.5000LM-4000K 36 W / 3749 lm

6 3 **ITAB Prolight UK**
 Order No. : !LDM2W/08/3K8/SG
Luminaire name : D - LDM2 LED
Equipment : 1 x LED 6.1 W / 780 lm

2.2 Summary, Carpark

2.2.2 Result overview, Carpark



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80
Total luminous flux of all lamps	30131 lm (96.26% dimmed)
(Luminaires have been dimmed. For details turn to the dimming section in the luminaire data output.)	
Total power	270.3 W
Total power per area (1555.93 m²)	0.17 W/m²
Upward light ratio (ULR)	0.00

Illuminance

Average illuminance	Eav	20.9 lx
Minimum illuminance	Emin	9.3 lx
Maximum illuminance	Emax	33.2 lx
Uniformity Uo	Emin/Em	1:2.24 (0.45)
Diversity Ud	Emin/Emax	1:3.56 (0.28)

Type No. Make

		HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A.	
1	2	Order No.	: !DSX1.2.LA054.SY
		Luminaire name	: A - 054SY
		Equipment	: 1 x LED C.5000LM-4000K 36 W / 5024 lm
2	4	Order No.	: !DSX1.2.LA054.FW.BLS
		Luminaire name	: A1 - 054FW BLS
		Equipment	: 1 x LED C.5000LM-4000K 36 W / 3791 lm

The ULR value has been calculated without obstruction by other objects.

Object : External rear extension lighting
Installation : 6313
Project number : The Abbey School
Date : 26.06.2018



2.2 Summary, Carpark

2.2.2 Result overview, Carpark

3 1 Order No. : !DSX1.2.LA054.AY.BLS
 Luminaire name : A2 - 054AY BLS
Equipment : 1 x LED C.5000LM-4000K 36 W / 3749 lm

6 3 **ITAB Prolight UK**
 Order No. : !LDM2W/08/3K8/SG
Luminaire name : D - LDM2 LED
Equipment : 1 x LED 6.1 W / 780 lm

2.2 Summary, Carpark

2.2.3 Result overview, Open area



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80
Total luminous flux of all lamps	30131 lm (96.26% dimmed)
(Luminaires have been dimmed. For details turn to the dimming section in the luminaire data output.)	
Total power	270.3 W
Total power per area (1555.93 m²)	0.17 W/m²
Upward light ratio (ULR)	0.00

Illuminance

Average illuminance	Eav	4.1 lx
Minimum illuminance	Emin	0 lx
Maximum illuminance	Emax	43.3 lx
Uniformity Uo	Emin/Em	1:--- (---)
Diversity Ud	Emin/Emax	1:--- (---)

Type No. Make

HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A.	
1	Order No. : !DSX1.2.LA054.SY
2	Luminaire name : A - 054SY
	Equipment : 1 x LED C.5000LM-4000K 36 W / 5024 lm
2	Order No. : !DSX1.2.LA054.FW.BLS
4	Luminaire name : A1 - 054FW BLS
	Equipment : 1 x LED C.5000LM-4000K 36 W / 3791 lm

The ULR value has been calculated without obstruction by other objects.

Object : External rear extension lighting
Installation : 6313
Project number : The Abbey School
Date : 26.06.2018



2.2 Summary, Carpark

2.2.3 Result overview, Open area

3 1 Order No. : !DSX1.2.LA054.AY.BLS
 Luminaire name : A2 - 054AY BLS
Equipment : 1 x LED C.5000LM-4000K 36 W / 3749 lm

6 3 **ITAB Prolight UK**
 Order No. : !LDM2W/08/3K8/SG
Luminaire name : D - LDM2 LED
Equipment : 1 x LED 6.1 W / 780 lm

2.2 Summary, Carpark

2.2.4 Result overview, Evaluation area 1

General

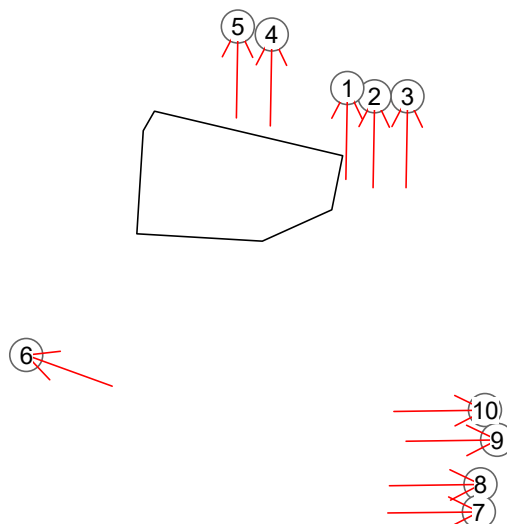
Calculation algorithm used	Average indirect fraction
Maintenance factor	0.80
Total luminous flux of all lamps (Luminaires have been dimmed. For details turn to the dimming section in the luminaire data output.)	30131.00 lm (96.26% dimmed)
Total power	270.3 W
Total power per area (1555.93 m²)	0.17 W/m²

Type No.\Make

		HOLOPHANE EUROPE LIMITED & C&G CARANDINI S.A.	
1	2	Order No.	: !DSX1.2.LA054.SY
		Luminaire name	: A - 054SY
		Equipment	: 1 x LED C.5000LM-4000K 36 W / 5024 lm
2	4	Order No.	: !DSX1.2.LA054.FW.BLS
		Luminaire name	: A1 - 054FW BLS
		Equipment	: 1 x LED C.5000LM-4000K 36 W / 3791 lm
3	1	Order No.	: !DSX1.2.LA054.AY.BLS
		Luminaire name	: A2 - 054AY BLS
		Equipment	: 1 x LED C.5000LM-4000K 36 W / 3749 lm
		ITAB Prolight UK	
6	3	Order No.	: !LDM2W/08/3K8/SG
		Luminaire name	: D - LDM2 LED
		Equipment	: 1 x LED 6.1 W / 780 lm

2.2 Summary, Carpark

2.2.5 Result overview, Carpark



Vertical illuminance

Measuring surface	X	Y	Z	E	from direction
window	55.6 m	24.8 m	1.5 m	0.18 lx	181.04°
window	63.2 m	22.5 m	1.5 m	0.08 lx	181.04°
window	72.4 m	22.5 m	1.5 m	0.06 lx	181.04°
window	34.4 m	39.8 m	1.5 m	0.14 lx	181.04°
window	24.9 m	42.1 m	1.5 m	0.1 lx	181.04°
window	-34.3 m	-49.9 m	1.5 m	0 lx	109.95°
window	92.4 m	-93.8 m	1.5 m	0 lx	269.25°
window	92.8 m	-86.1 m	1.5 m	0 lx	269.25°
window	97.5 m	-73.7 m	1.5 m	0 lx	269.25°
window	94.1 m	-65.3 m	1.5 m	0 lx	269.25°

Summary

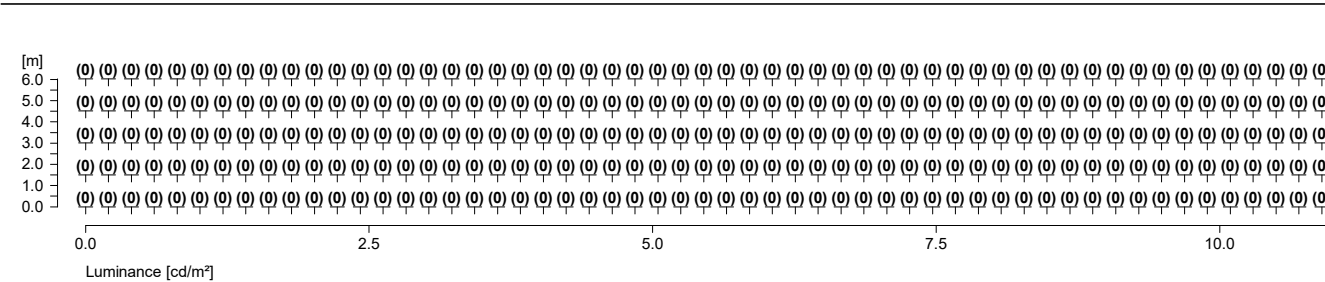
	Quantity	Em	Emin	Emax	Uo	Ud
Vertical illuminance	10	0.06 lx	0 lx	0.18 lx	0.00	0.00



2 Carpark

2.3 Calculation results, Carpark

2.3.1 Table, building.3 (L)



Part1

Average luminance	Lav	: 0 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 0 cd/m²

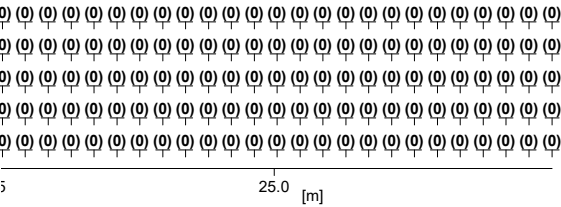




2 Carpark

2.3 Calculation results, Carpark

2.3.1 Table, building.3 (L)

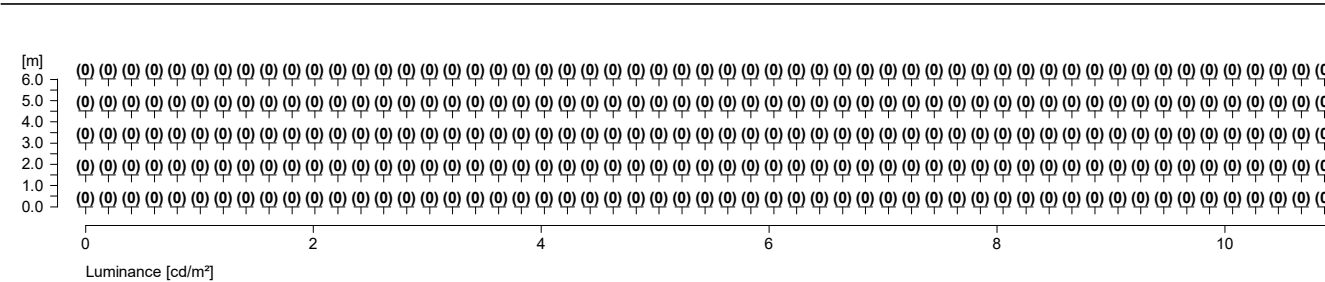


Part3



2.3 Calculation results, Carpark

2.3.2 Table, building.4 (L)



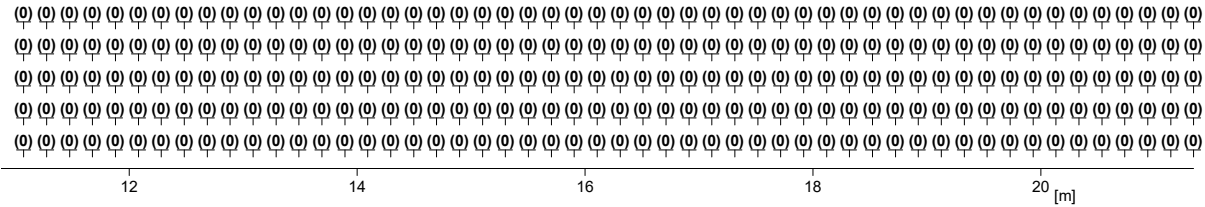
Part1

Average luminance	Lav	: 0 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 0 cd/m²



2.3 Calculation results, Carpark

2.3.2 Table, building.4 (L)

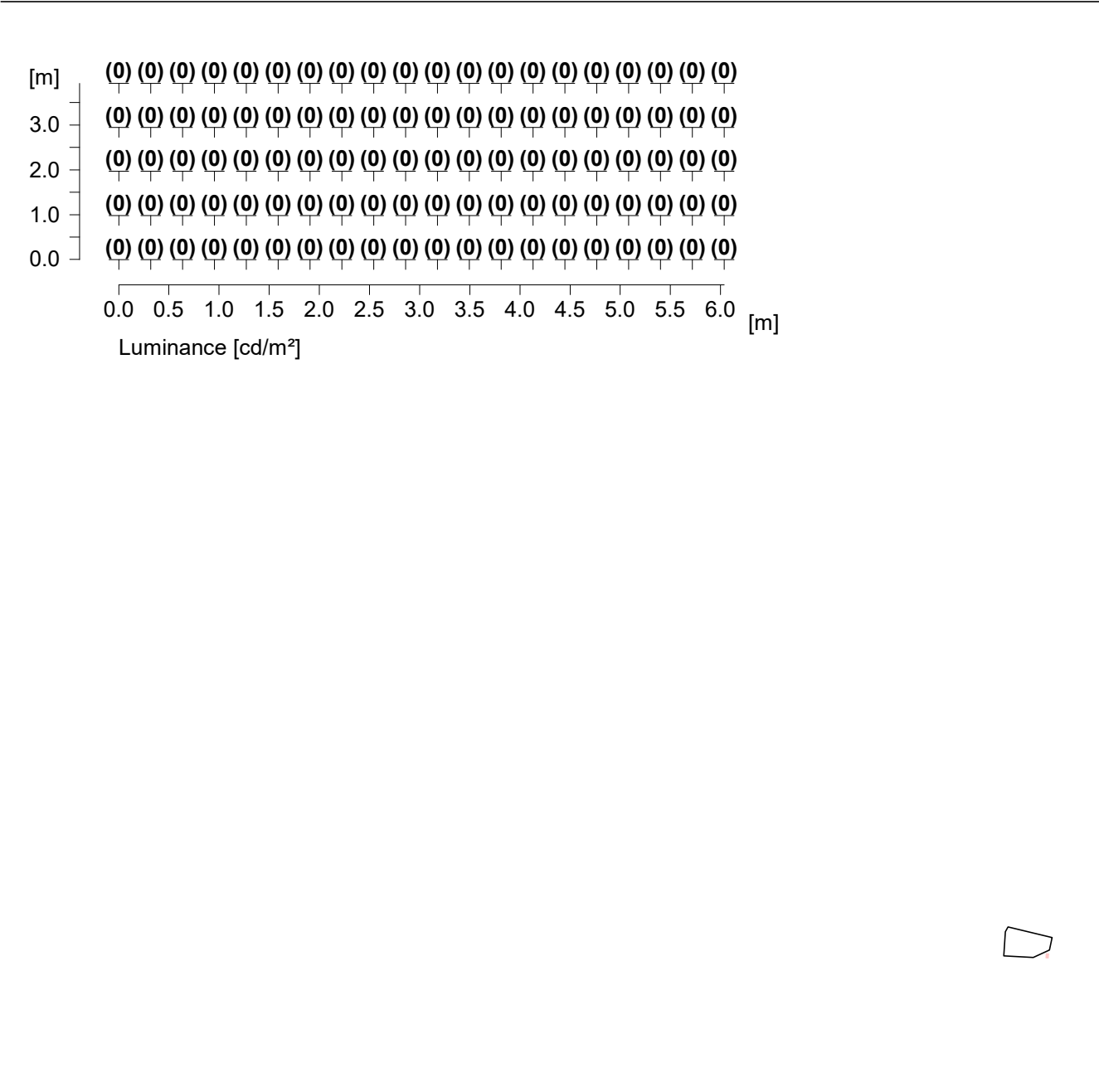


Part2



2.3 Calculation results, Carpark

2.3.3 Table, building.5 (L)

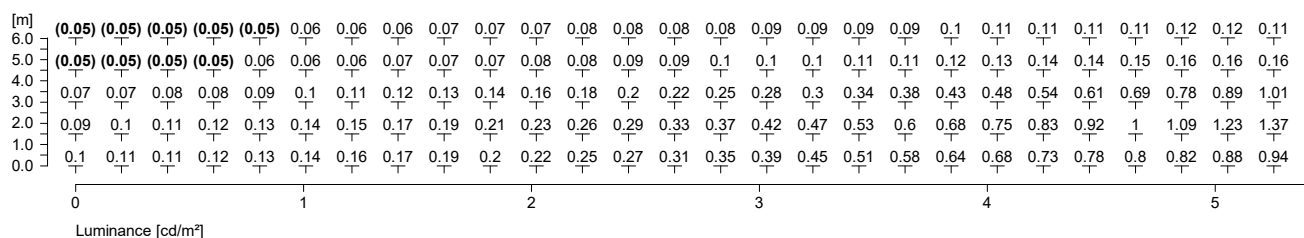


Average luminance	Lav	: 0 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 0 cd/m²



2.3 Calculation results, Carpark

2.3.4 Table, building.6 (L)



Part1

Average luminance	Lav	: 0.48 cd/m²
Minimum luminance	Lmin	: 0.05 cd/m²
Maximum luminance	Lmax	: 2.24 cd/m²



2.3.4 Table, building.6 (L)

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2.3 Calculation results, Carpark

2.3.4 Table, building.6 (L)

0.17
└
0.2
└
0.38
└
0.53
└
0.53
└
—



Part3

2.3 Calculation results, Carpark

2.3.5 Table, building.7 (L)

[m]	0.16	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.13	0.13	0.13	0.12	0.12	0.11	0.11	0.1	0.1	0.1	0.09	0.09	0.09	0.08	0.08	0.08	0.07	0.07	0.06
6.0	0.17	0.17	0.16	0.16	0.16	0.16	0.15	0.15	0.15	0.14	0.16	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.1	0.1	0.1	0.09	0.08	0.08	0.08	0.07	0.07	0.06
5.0	4.75	4.71	4.65	4.68	4.77	4.92	5.08	4.56	3.48	2.33	1.34	0.96	0.76	0.74	0.73	0.71	0.66	0.58	0.47	0.37	0.31	0.27	0.25	0.23	0.21	0.19	0.17	0.15
4.0	6	5.88	5.78	5.84	6.01	6.29	6.61	6.21	5.31	4.21	2.67	1.79	1.37	1.26	1.25	1.23	1.16	1.05	0.9	0.76	0.65	0.59	0.55	0.51	0.47	0.42	0.35	0.29
3.0	2.54	2.54	2.56	2.59	2.62	2.66	2.71	2.74	2.66	2.63	2.45	1.88	1.42	1.22	1.2	1.19	1.14	1.07	0.97	0.87	0.79	0.73	0.7	0.65	0.59	0.52	0.42	0.34
2.0																												
1.0																												
0.0																												
	0					1					2					3					4					5		
	Luminance [cd/m²]																											



Part1

Average luminance	Lav	: 1.08 cd/m²
Minimum luminance	Lmin	: 0.05 cd/m²
Maximum luminance	Lmax	: 6.61 cd/m²



2.3 Calculation results, Carpark

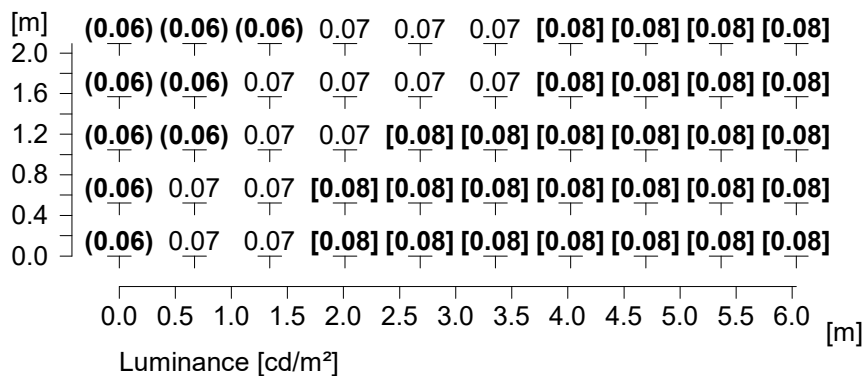
2.3.5 Table, building.7 (L)

0.06	0.06	(0.05)	(0.05)	(0.05)	(0.05)
0.06	0.06	(0.05)	(0.05)	(0.05)	(0.05)
0.13	0.11	0.1	0.09	0.08	0.07
0.25	0.21	0.19	0.17	0.15	0.15
0.29	0.25	0.24	0.22	0.2	0.2
6 [m]					



2.3 Calculation results, Carpark

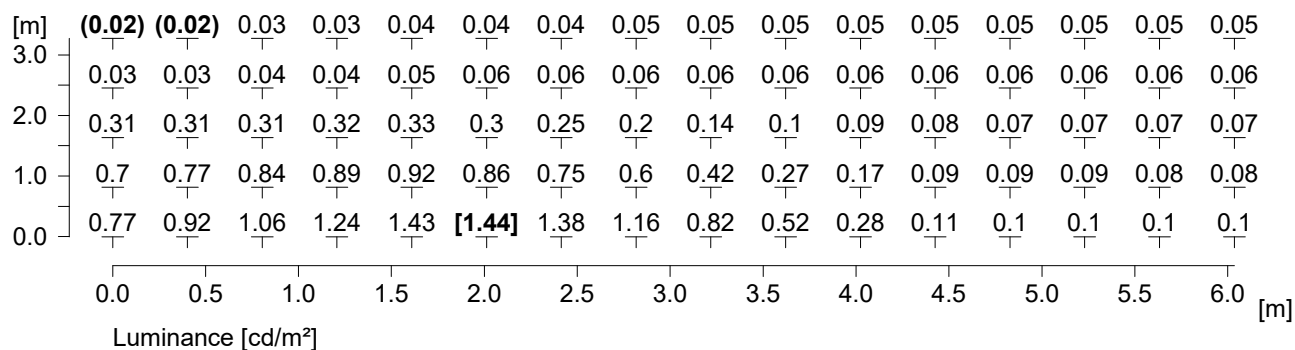
2.3.6 Table, building.8 (L)



Average luminance	Lav	: 0.07 cd/m²
Minimum luminance	Lmin	: 0.06 cd/m²
Maximum luminance	Lmax	: 0.08 cd/m²

2.3 Calculation results, Carpark

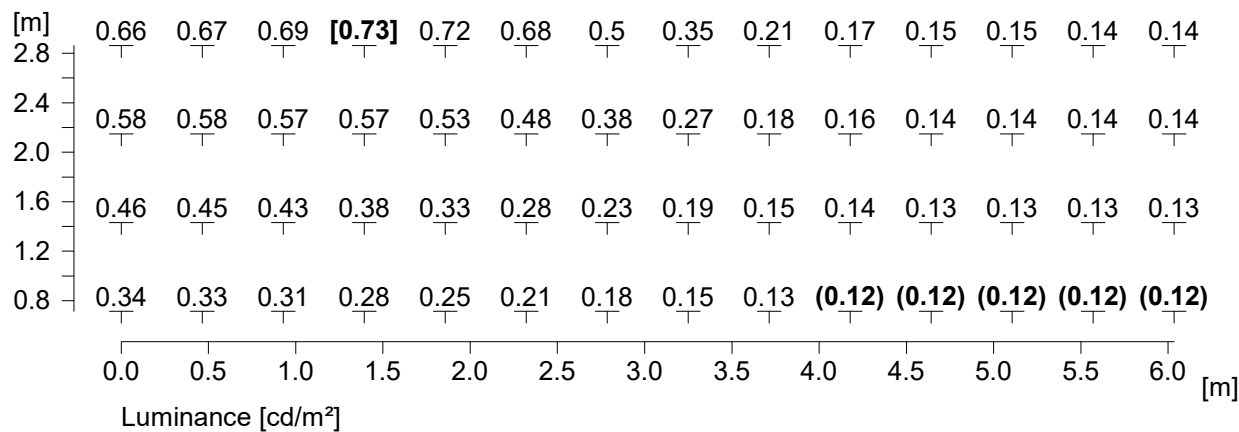
2.3.7 Table, building.9 (L)



Average luminance	Lav	: 0.3 cd/m²
Minimum luminance	Lmin	: 0.02 cd/m²
Maximum luminance	Lmax	: 1.44 cd/m²

2.3 Calculation results, Carpark

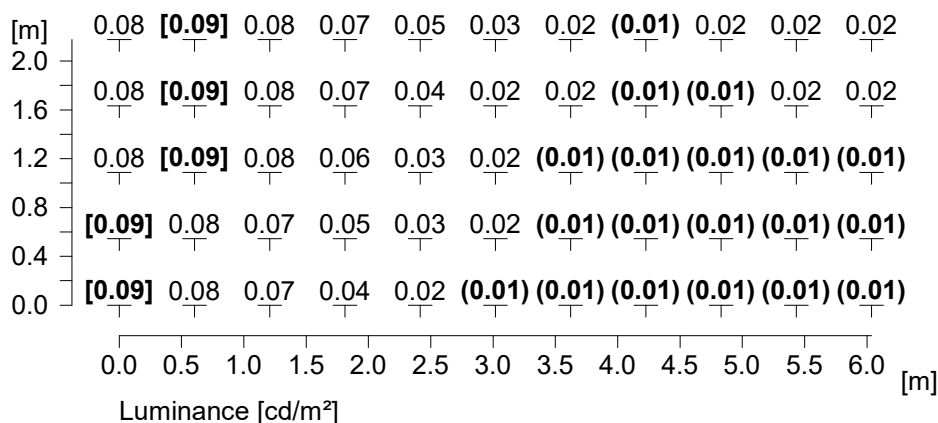
2.3.8 Table, building.10 (L)



Average luminance	Lav	: 0.31 cd/m²
Minimum luminance	Lmin	: 0.12 cd/m²
Maximum luminance	Lmax	: 0.73 cd/m²

2.3 Calculation results, Carpark

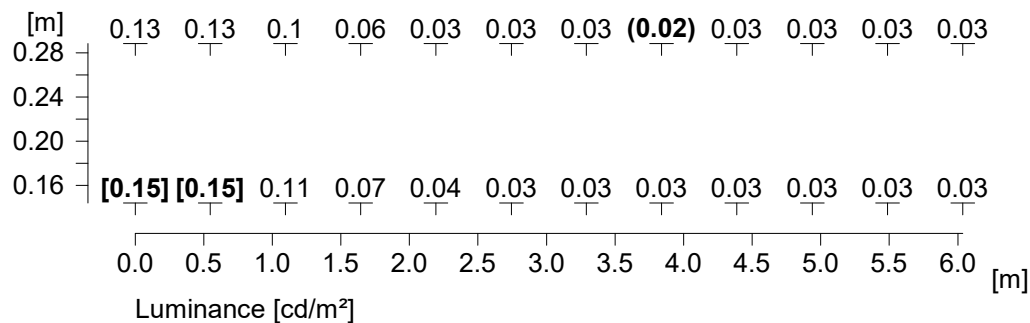
2.3.9 Table, building.11 (L)



Average luminance	Lav	: 0.04 cd/m²
Minimum luminance	Lmin	: 0.01 cd/m²
Maximum luminance	Lmax	: 0.09 cd/m²

2.3 Calculation results, Carpark

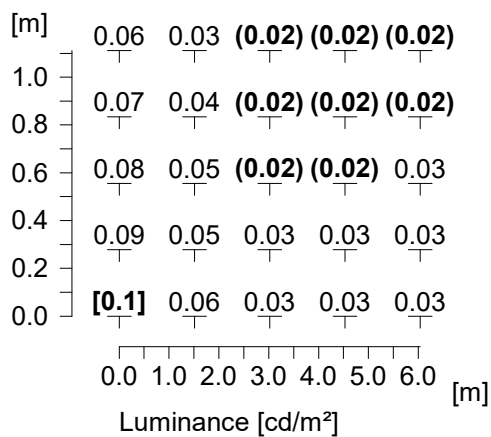
2.3.10 Table, building.12 (L)



Average luminance	Lav	: 0.06 cd/m²
Minimum luminance	Lmin	: 0.02 cd/m²
Maximum luminance	Lmax	: 0.15 cd/m²

2.3 Calculation results, Carpark

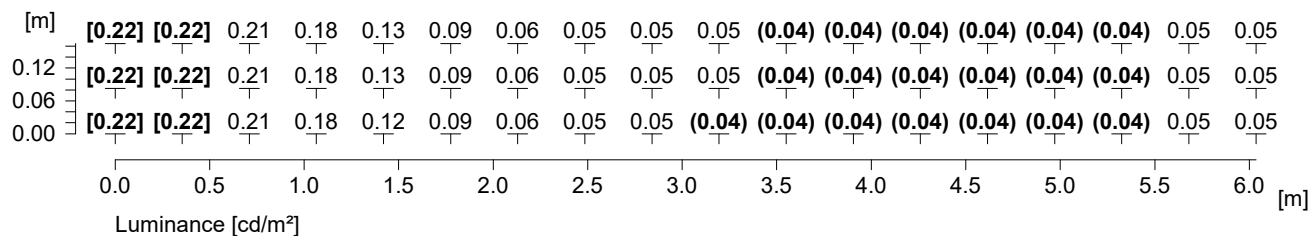
2.3.11 Table, building.13 (L)



Average luminance	Lav	: 0.04 cd/m²
Minimum luminance	Lmin	: 0.02 cd/m²
Maximum luminance	Lmax	: 0.1 cd/m²

2.3 Calculation results, Carpark

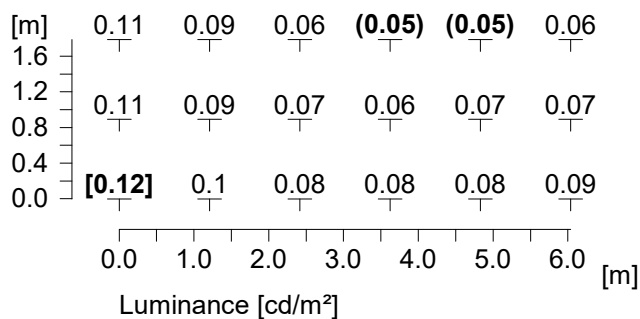
2.3.12 Table, building.14 (L)



Average luminance	Lav	: 0.09 cd/m²
Minimum luminance	Lmin	: 0.04 cd/m²
Maximum luminance	Lmax	: 0.22 cd/m²

2.3 Calculation results, Carpark

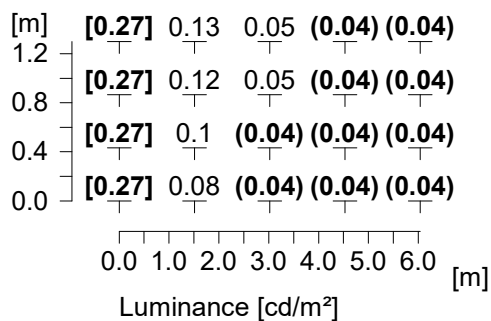
2.3.13 Table, building.15 (L)



Average luminance	Lav	: 0.08 cd/m ²
Minimum luminance	Lmin	: 0.05 cd/m ²
Maximum luminance	Lmax	: 0.12 cd/m ²

2.3 Calculation results, Carpark

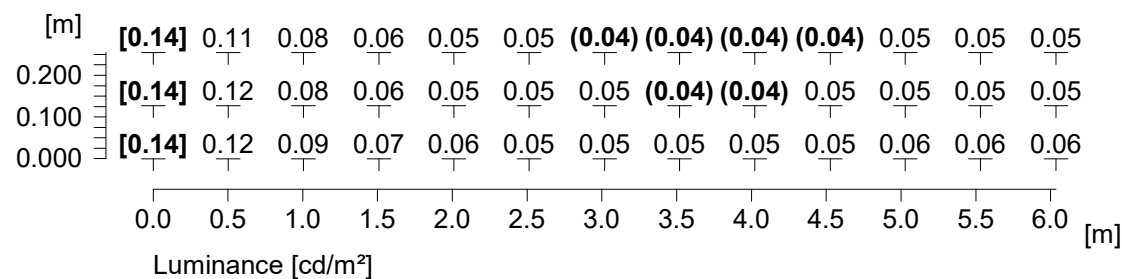
2.3.14 Table, building.16 (L)



Average luminance	Lav	: 0.1 cd/m ²
Minimum luminance	Lmin	: 0.04 cd/m ²
Maximum luminance	Lmax	: 0.27 cd/m ²

2.3 Calculation results, Carpark

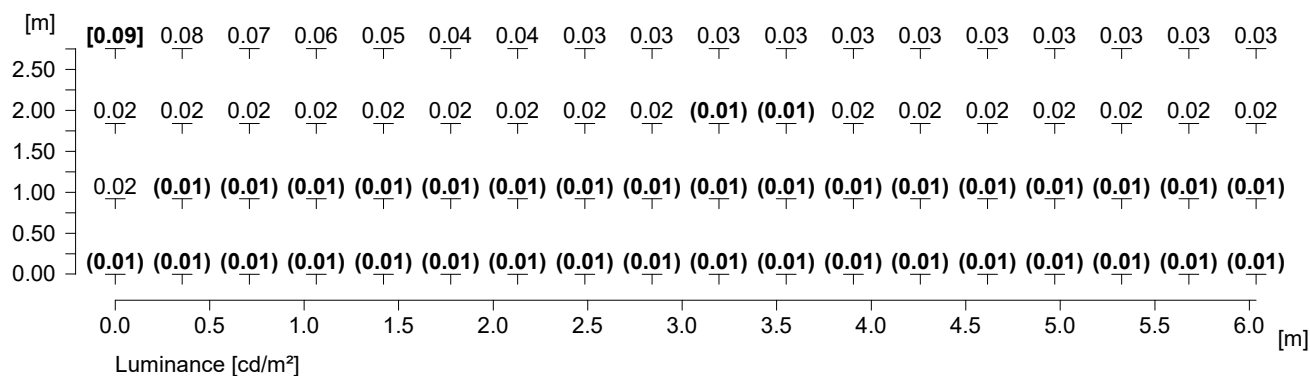
2.3.15 Table, building.17 (L)



Average luminance	Lav	: 0.07 cd/m ²
Minimum luminance	Lmin	: 0.04 cd/m ²
Maximum luminance	Lmax	: 0.14 cd/m ²

2.3 Calculation results, Carpark

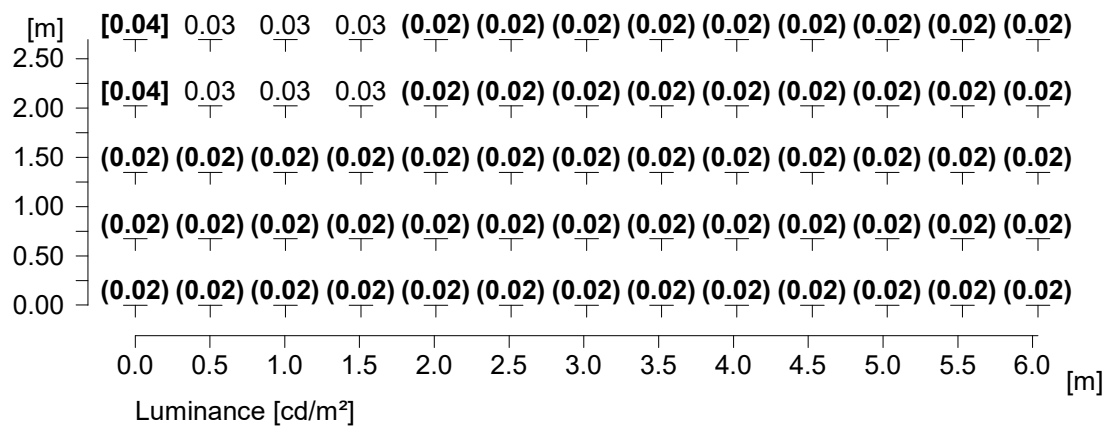
2.3.16 Table, building.18 (L)



Average luminance	Lav	: 0.02 cd/m ²
Minimum luminance	Lmin	: 0.01 cd/m ²
Maximum luminance	Lmax	: 0.09 cd/m ²

2.3 Calculation results, Carpark

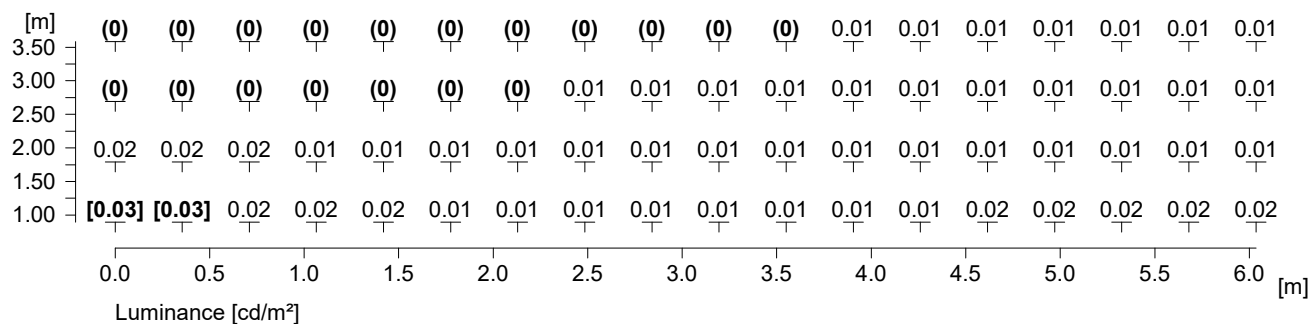
2.3.17 Table, building.19 (L)



Average luminance	Lav	: 0.02 cd/m²
Minimum luminance	Lmin	: 0.02 cd/m²
Maximum luminance	Lmax	: 0.04 cd/m²

2.3 Calculation results, Carpark

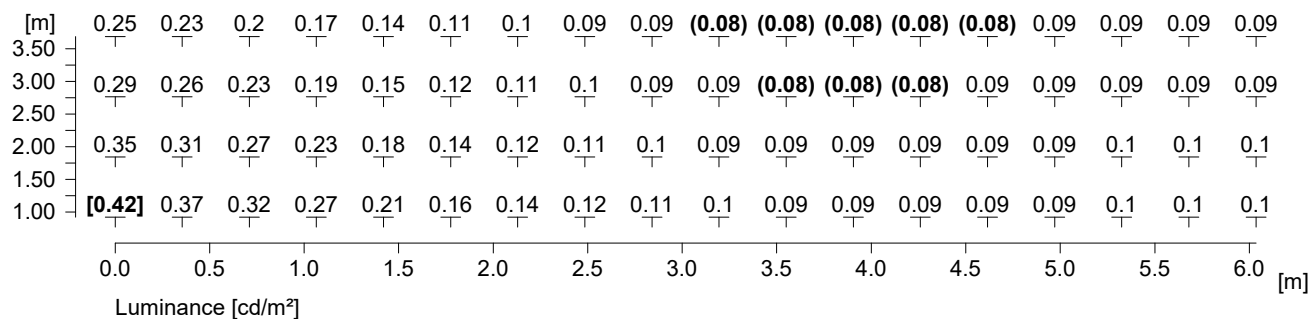
2.3.18 Table, building.20 (L)



Average luminance	Lav	: 0.01 cd/m ²
Minimum luminance	Lmin	: 0 cd/m ²
Maximum luminance	Lmax	: 0.03 cd/m ²

2.3 Calculation results, Carpark

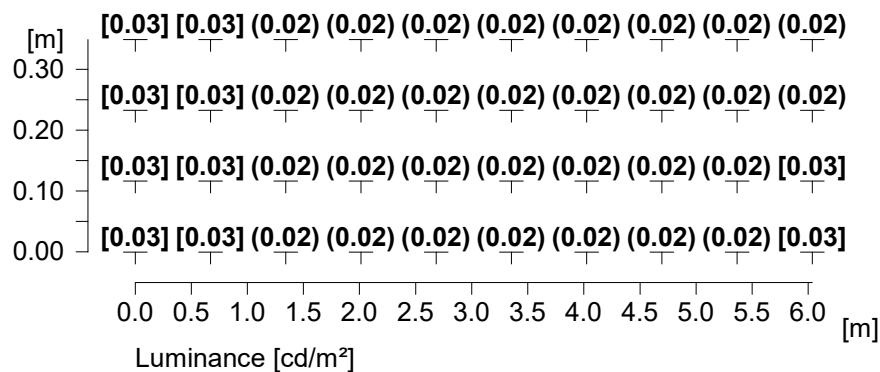
2.3.19 Table, building.21 (L)



Average luminance	Lav	: 0.14 cd/m²
Minimum luminance	Lmin	: 0.08 cd/m²
Maximum luminance	Lmax	: 0.42 cd/m²

2.3 Calculation results, Carpark

2.3.20 Table, building.22 (L)



Average luminance	Lav	: 0.02 cd/m²
Minimum luminance	Lmin	: 0.02 cd/m²
Maximum luminance	Lmax	: 0.03 cd/m²



2.3 Calculation results, Carpark

2.3.21 Table, building.23 (L)

[m]	(0.11)	(0.11)	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.15	0.16
6.0	(0.11)	(0.11)	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.14	0.14	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.16	0.16
5.0	(0.11)	(0.11)	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.14	0.14	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.16	0.16
4.0	0.15	0.16	0.16	0.17	0.18	0.19	0.2	0.2	0.21	0.21	0.22	0.24	0.25	0.26	0.28	0.3	0.31	0.32	0.34	0.35	0.37	0.27	0.17	0.17	0.18	0.18
3.0	0.15	0.16	0.16	0.17	0.18	0.19	0.2	0.2	0.21	0.21	0.22	0.24	0.25	0.26	0.28	0.3	0.31	0.32	0.34	0.35	0.37	0.27	0.17	0.17	0.18	0.18
2.0	0.35	0.37	0.38	0.39	0.42	0.44	0.45	0.47	0.5	0.5	0.52	0.53	0.52	0.53	0.55	0.54	0.55	0.58	0.59	0.6	0.63	0.41	0.17	0.18	0.18	0.18
1.0	0.53	0.54	0.55	0.57	0.6	0.64	0.64	0.66	[0.73]	0.72	0.72	[0.73]	0.68	0.68	0.69	0.65	0.66	0.68	0.67	0.68	0.7	0.44	0.17	0.16	0.17	0.16
0.0	0.53	0.54	0.55	0.57	0.6	0.64	0.64	0.66	[0.73]	0.72	0.72	[0.73]	0.68	0.68	0.69	0.65	0.66	0.68	0.67	0.68	0.7	0.44	0.17	0.16	0.17	0.16
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5																	
	Luminance [cd/m²]																									



Part1

Average luminance	Lav	: 0.29 cd/m²
Minimum luminance	Lmin	: 0.11 cd/m²
Maximum luminance	Lmax	: 0.73 cd/m²



2.3 Calculation results, Carpark

2.3.21 Table, building.23 (L)

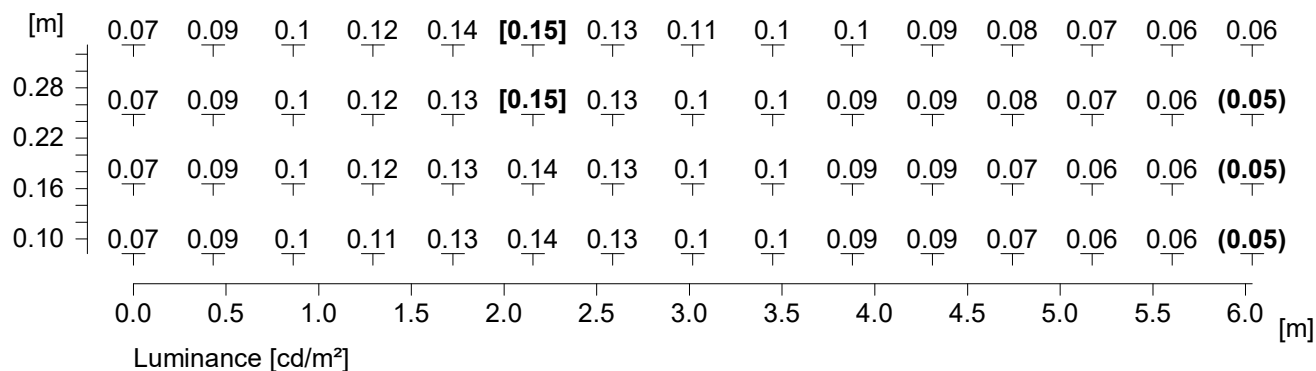
0.15	0.15	0.16	0.16	0.16	0.15
0.16	0.16	0.17	0.17	0.17	0.17
0.19	0.19	0.2	0.2	0.21	0.33
0.19	0.2	0.21	0.21	0.22	0.51
0.17	0.19	0.2	0.2	0.2	0.54
5.0		5.5 [m]			



Part2

2.3 Calculation results, Carpark

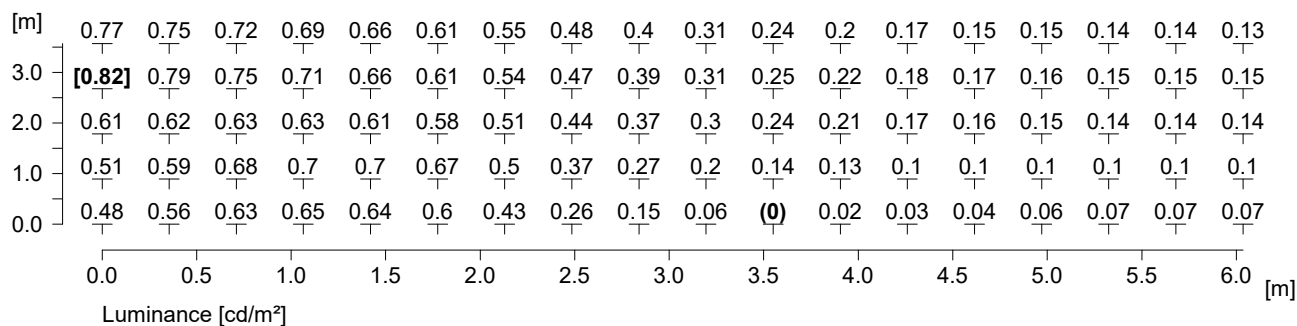
2.3.22 Table, building.24 (L)



Average luminance	Lav	: 0.1 cd/m ²
Minimum luminance	Lmin	: 0.05 cd/m ²
Maximum luminance	Lmax	: 0.15 cd/m ²

2.3 Calculation results, Carpark

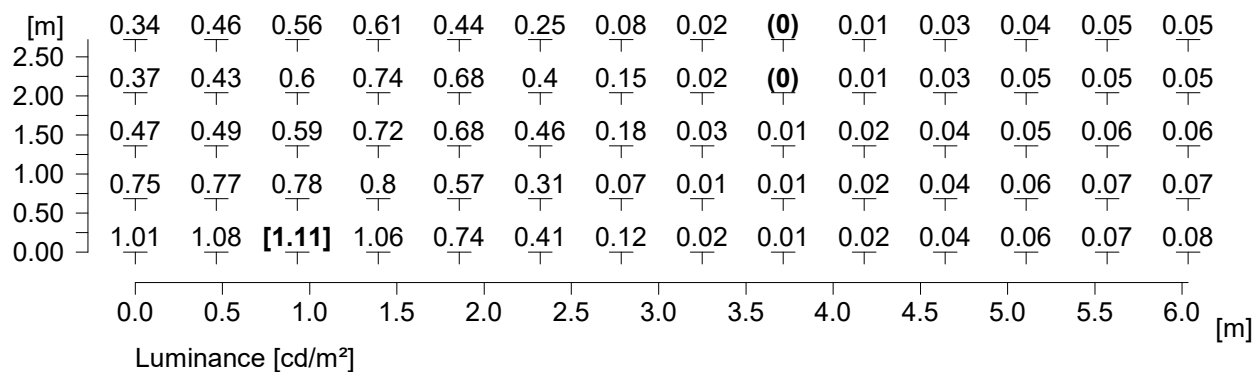
2.3.23 Table, building.25 (L)



Average luminance	Lav	: 0.36 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 0.82 cd/m²

2.3 Calculation results, Carpark

2.3.24 Table, building.26 (L)



Average luminance Lav : 0.29 cd/m²
Minimum luminance Lmin : 0 cd/m²
Maximum luminance Lmax : 1.11 cd/m²

2.3 Calculation results, Carpark

2.3.25 Table, building.27 (L)

[m]	0.09	0.09	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.07	0.07	0.06	0.06	0.06	0.06	0.07	0.07	0.06	0.07	0.07	0.07	0.07	0.07	0.08	0.09
6.0	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	0.04	(0.03)	0.04	0.04	0.04	0.04	0.04	0.07	0.09
5.0	0.31	0.28	0.51	0.68	0.56	0.51	0.53	0.64	0.81	0.56	0.27	0.25	0.26	0.49	0.64	0.52	0.48	0.53	0.67	0.44	0.12	0.13	0.13	0.13	0.37	0.56	0.45	
4.0	3.3	3.01	2.39	2.01	1.68	1.51	1.58	1.88	2.4	2.86	3.55	3.61	2.91	2.33	1.96	1.67	1.57	1.71	2.13	2.64	3.31	4.08	3.56	2.81	2.25	1.93	1.62	
3.0	4.17	3.91	3.28	2.66	2.23	2	2.11	2.49	3.1	3.82	4.29	4.31	3.92	3.24	2.65	2.3	2.18	2.35	2.84	3.61	4.26	4.53	4.41	3.94	3.3	2.8	2.43	
2.0																												
1.0																												
0.0																												
	0				1					2					3					4						5		
	Luminance [cd/m²]																											



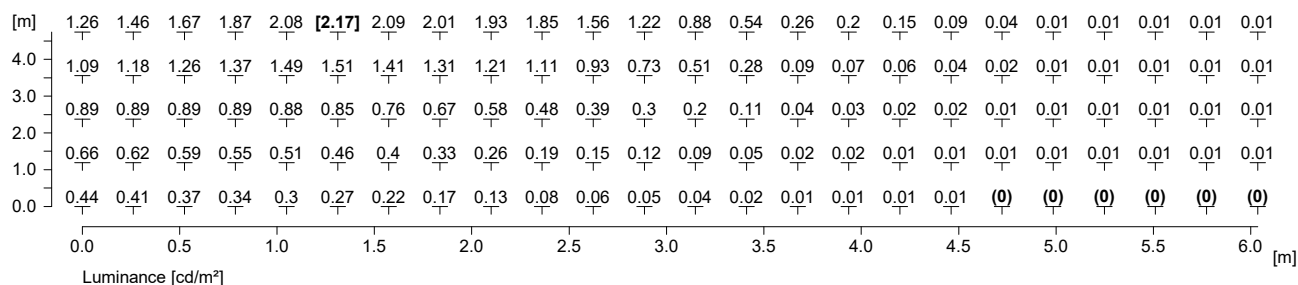
Part1

Average luminance	Lav	: 1.35 cd/m²
Minimum luminance	Lmin	: 0.03 cd/m²
Maximum luminance	Lmax	: 7.44 cd/m²



2.3 Calculation results, Carpark

2.3.26 Table, building.28 (L)

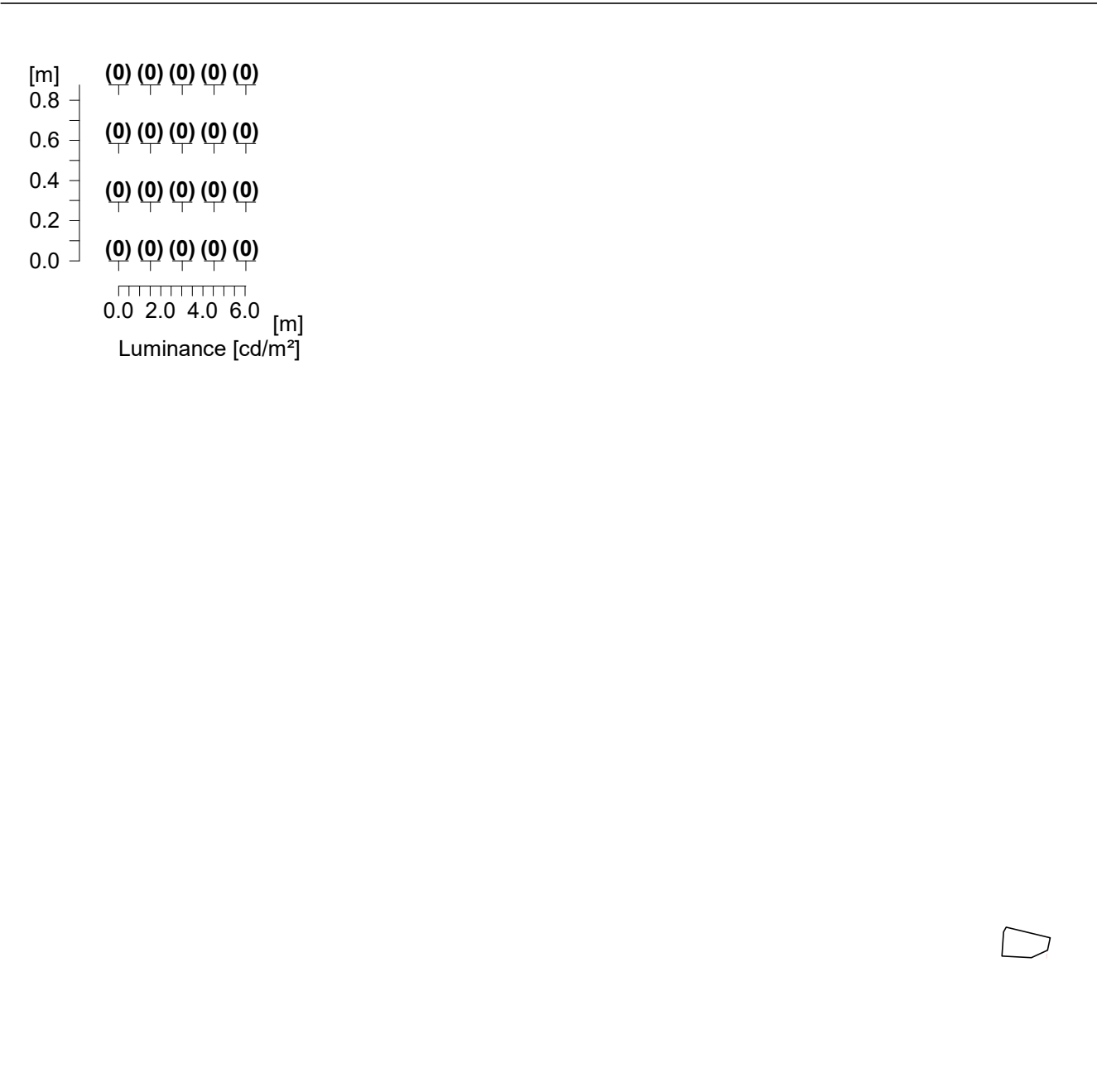


Average luminance	Lav	: 0.47 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 2.17 cd/m²



2.3 Calculation results, Carpark

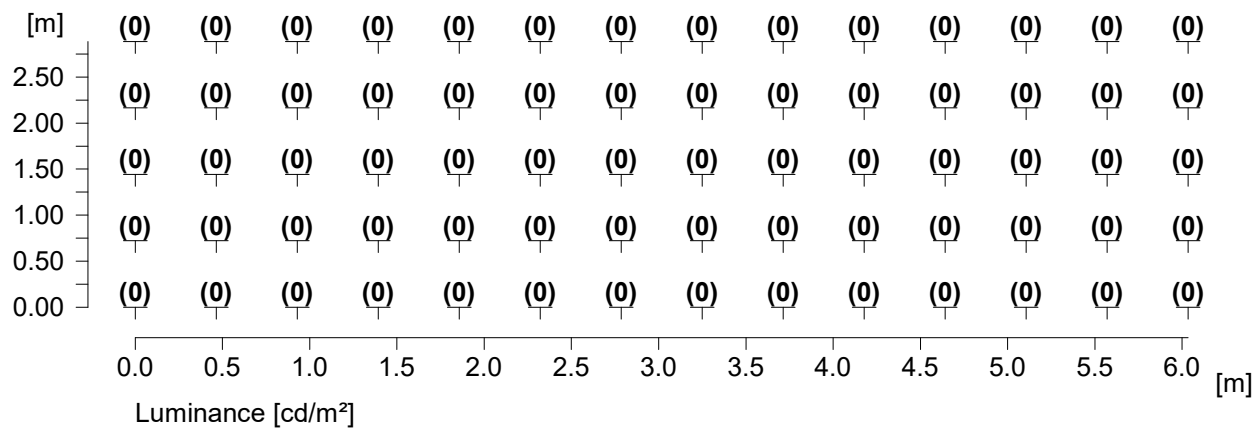
2.3.27 Table, building.29 (L)



Average luminance	Lav	: 0 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 0 cd/m²

2.3 Calculation results, Carpark

2.3.28 Table, building.30 (L)



Average luminance	Lav	: 0 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 0 cd/m²

3 Rear Extension

3.1 Description, Rear Extension

3.1.1 Luminaire data/Room elements

Product data:

Type No.\Make

		Thorlux	
4	3	Order No.	: IRL19071
		Luminaire name	: B - RL19071 REALTA WIDE LED POLY COVER
		Equipment	: 1 x 8W LED 11 W / 1320 lm
5	1	Order No.	: ICT17542
		Luminaire name	: C - CT17542 COBALT LED GRILL
		Equipment	: 1 x 15W LED 18 W / 1080 lm

No.	Centre point			Rotation angle			Target coordinates		
	X [m]	Y [m]	Z [m]	Z [°]	C0 [°]	C90 [°]	Xa [m]	Ya [m]	Za [m]
Thorlux B - RL19071 REALTA WIDE LED POLY COVER IRL19071									
8	1.55	-52.05	2.84	177.12	0.00	0.00	0.60	-52.00	0.00
9	5.26	-57.05	2.84	266.97	0.00	0.00	5.20	-58.10	0.00
11	16.46	-57.75	2.84	266.97	0.00	0.00	16.40	-58.80	0.00
Thorlux C - CT17542 COBALT LED GRILL ICT17542									
10	2.52	-46.70	2.42	0.00	0.00	0.00	2.50	-46.70	0.00

Structural elements

Measuring surface

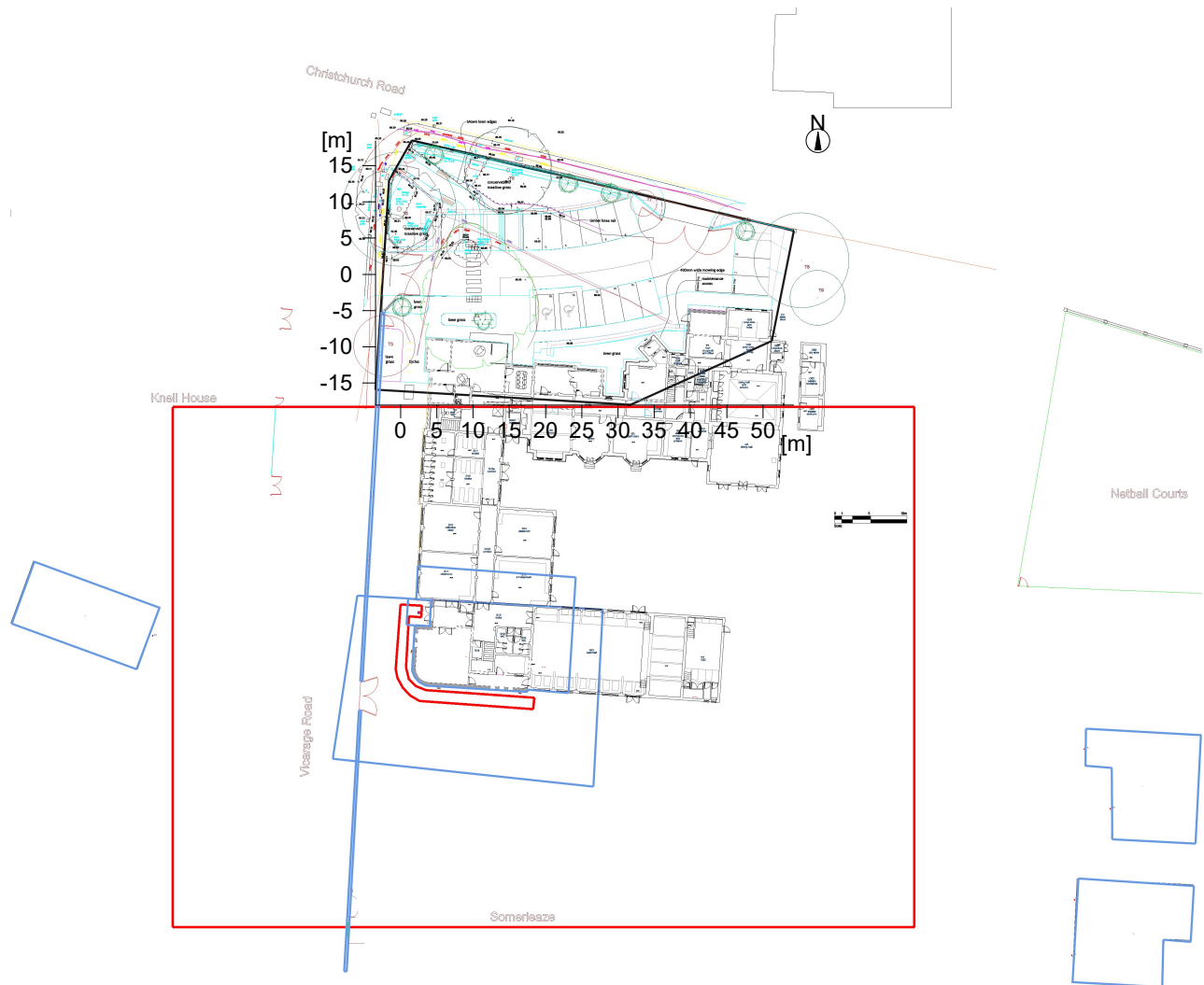
No.	xm[m]	ym[m]	zm[m]	Length	Width	z axis	Rotation angle	
							L axis	Q axis
path								
M 11	9.19	-57.74	0.01	20.09	14.45	86.49	0.00	0.00
open area								
M 17	-31.41	-90.07	0.00	102.21	71.73	0.00	0.00	0.00

Others

No.	xm[m]	ym[m]	zm[m]	Length	Width	z axis	Rotation angle		rho[%]
							L axis	Q axis	
building									
A 6	23.14	-57.78	0.00	23.43	18.34	355.29	0.00	0.00	50
canopy									
A 7	1.01	-44.78	2.50	3.41	3.80	356.51	0.00	0.00	50
house									
A 8	94.38	-67.80	0.00	16.08	15.85	89.17	0.00	0.00	50
house									
A 9	92.61	-97.64	0.00	16.74	15.20	86.74	0.00	0.00	50
house									
A 10	-53.61	-48.22	0.00	20.39	14.84	69.99	0.00	0.00	50
ground									
A 12	-5.99	-44.35	0.00	37.40	26.45	356.76	0.00	0.00	5
wall									
A 13	-2.66	-5.26	0.00	15.77	50.95	349.53	0.00	0.00	50
wall									
A 14	-5.76	-60.15	0.00	2.35	36.07	358.18	0.00	0.00	50

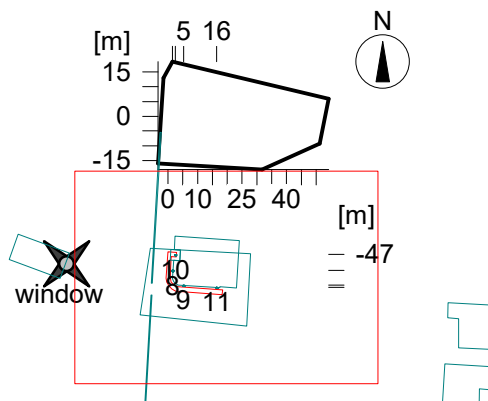
3.1 Description, Rear Extension

3.1.2 Floor plan



3.1 Calculation results, Rear Extension

3.1.3 Luminous intensity - window



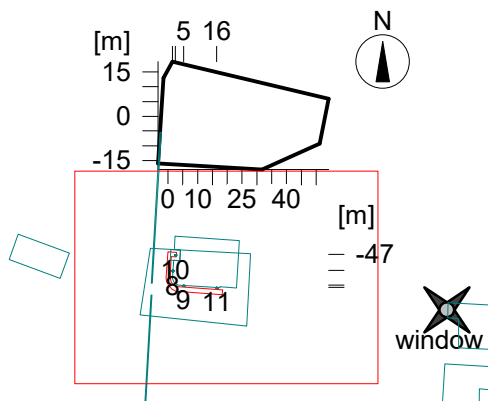
Measuring point for luminous intensity: window

Position : $x = -34.19$ m, $y = -49.85$ m, $z = 1.50$ m

No.	Luminaire	Position			Lumin. intensity
		x[m]	y[m]	z[m]	I[kcd]
1	B - RL19071 REALTA WIDE LED POLY COVER, !RL19071	1.55	-52.05	2.84	0.038
2	C - CT17542 COBALT LED GRILL, !CT17542	2.52	-46.70	2.42	0.034

3.1 Calculation results, Rear Extension

3.1.4 Luminous intensity - window



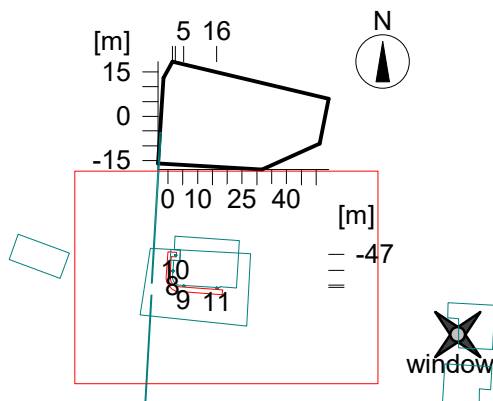
Measuring point for luminous intensity: window

Position : x = 94.23 m, y = -65.48 m, z = 1.50 m

No.	Luminaire	Position			Lumin. intensity
		x[m]	y[m]	z[m]	I[kcd]
1	B - RL19071 REALTA WIDE LED POLY COVER, !RL19071	16.46	-57.75	2.84	0.059
2	B - RL19071 REALTA WIDE LED POLY COVER, !RL19071	5.26	-57.05	2.84	0.057

3.1 Calculation results, Rear Extension

3.1.5 Luminous intensity - window



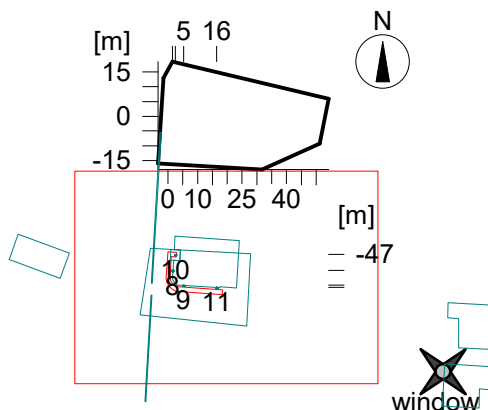
Measuring point for luminous intensity: window

Position : x = 97.81 m, y = -73.77 m, z = 1.50 m

No.	Luminaire	Position			Lumin. intensity
		x[m]	y[m]	z[m]	I[kcd]
1	B - RL19071 REALTA WIDE LED POLY COVER, !RL19071	16.46	-57.75	2.84	0.074
2	B - RL19071 REALTA WIDE LED POLY COVER, !RL19071	5.26	-57.05	2.84	0.071

3.1 Calculation results, Rear Extension

3.1.6 Luminous intensity - window



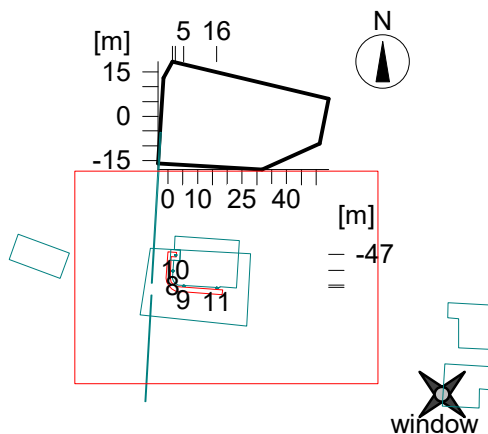
Measuring point for luminous intensity: window

Position : x = 92.89 m, y = -86.31 m, z = 1.50 m

No.	Luminaire	Position			Lumin. intensity
		x[m]	y[m]	z[m]	I[kcd]
1	B - RL19071 REALTA WIDE LED POLY COVER, !RL19071	16.46	-57.75	2.84	0.081
2	B - RL19071 REALTA WIDE LED POLY COVER, !RL19071	5.26	-57.05	2.84	0.080

3.1 Calculation results, Rear Extension

3.1.7 Luminous intensity - window



Measuring point for luminous intensity: window

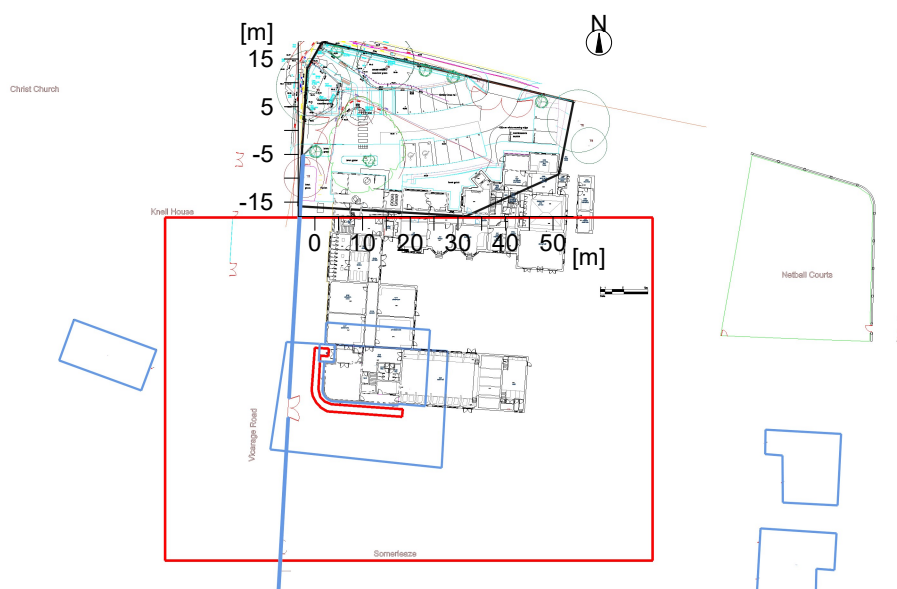
Position : x = 92.52 m, y = -93.99 m, z = 1.50 m

No.	Luminaire	Position			Lumin. intensity
		x[m]	y[m]	z[m]	I[kcd]
1	B - RL19071 REALTA WIDE LED POLY COVER, !RL19071	5.26	-57.05	2.84	0.077
2	B - RL19071 REALTA WIDE LED POLY COVER, !RL19071	16.46	-57.75	2.84	0.075

3 Rear Extension

3.2 Summary, Rear Extension

3.2.1 Result overview, path



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.01 m
Maintenance factor	0.80
Total luminous flux of all lamps	5040 lm
Total power	51 W
Total power per area (1555.93 m²)	0.03 W/m²
Upward light ratio (ULR)	0.02

Illuminance

Average illuminance	Eav	22.2 lx
Minimum illuminance	Emin	9.6 lx
Maximum illuminance	Emax	51.6 lx
Uniformity Uo	Emin/Em	1:2.31 (0.43)
Diversity Ud	Emin/Emax	1:5.37 (0.19)

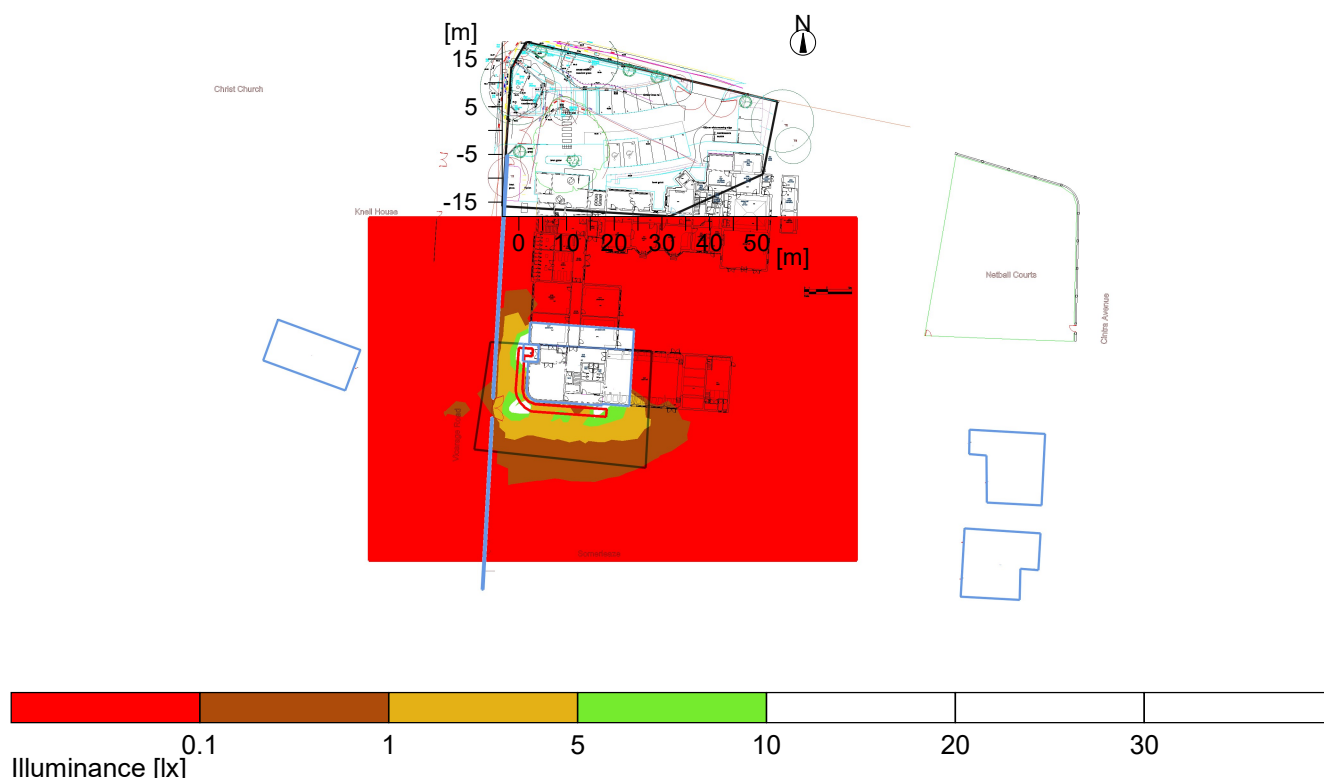
Type No. Make

4	3	Thorlux
	Order No.	: IRL19071
	Luminaire name	: B - RL19071 REALTA WIDE LED POLY COVER
	Equipment	: 1 x 8W LED 11 W / 1320 lm
5	1	
	Order No.	: ICT17542
	Luminaire name	: C - CT17542 COBALT LED GRILL
	Equipment	: 1 x 15W LED 18 W / 1080 lm

The ULR value has been calculated without obstruction by other objects.

3.2 Summary, Rear Extension

3.2.2 Result overview, open area



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80
Total luminous flux of all lamps	5040 lm
Total power	51 W
Total power per area (1555.93 m ²)	0.03 W/m ²
Upward light ratio (ULR)	0.02

Illuminance

Average illuminance	Eav	0.3 lx
Minimum illuminance	Emin	0 lx
Maximum illuminance	Emax	21.8 lx
Uniformity U ₀	Emin/Em	1:--- (---)
Diversity U _d	Emin/Emax	1:--- (---)

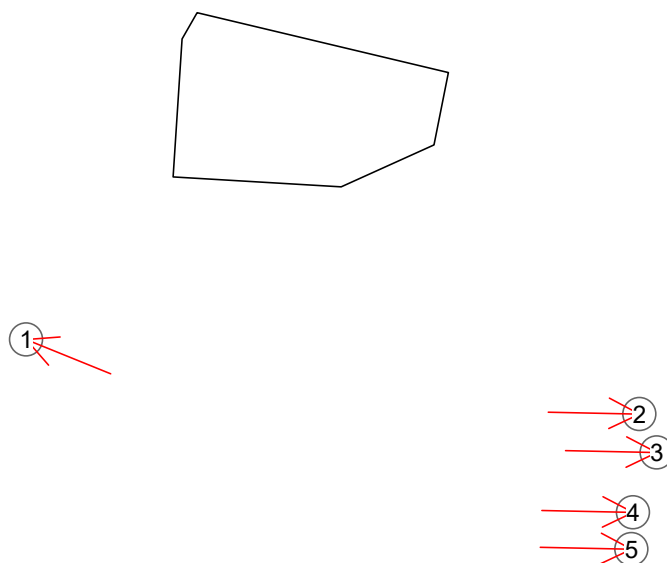
Type No. Make

4	3	Thorlux
	Order No.	: IRL19071
	Luminaire name	: B - RL19071 REALTA WIDE LED POLY COVER
	Equipment	: 1 x 8W LED 11 W / 1320 lm
5	1	
	Order No.	: ICT17542
	Luminaire name	: C - CT17542 COBALT LED GRILL
	Equipment	: 1 x 15W LED 18 W / 1080 lm

The ULR value has been calculated without obstruction by other objects.

3.2 Summary, Rear Extension

3.2.3 Result overview, Rear Extension



Vertical illuminance

Measuring surface	X	Y	Z	E	from direction
window	-34.2 m	-50 m	1.5 m	0.06 lx	112.19°
window	94.2 m	-65.6 m	1.5 m	0.01 lx	-88.76°
window	97.8 m	-73.7 m	1.5 m	0.02 lx	-88.76°
window	92.9 m	-86.2 m	1.5 m	0.02 lx	-88.76°
window	92.5 m	-93.9 m	1.5 m	0.02 lx	-88.76°

Summary

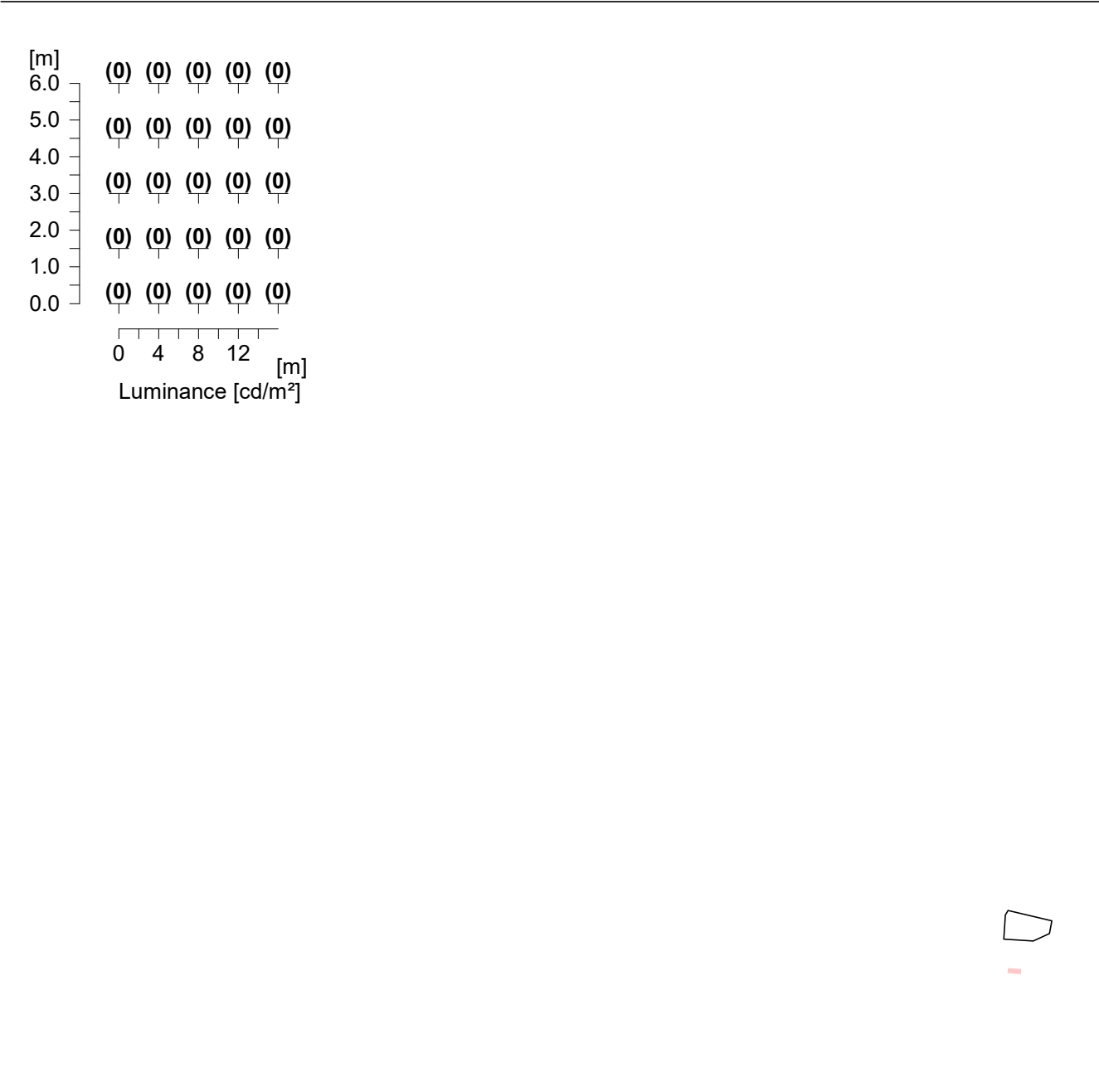
	Quantity	Em	Emin	Emax	Uo	Ud
Vertical illuminance	5	0.03 lx	0.01 lx	0.06 lx	0.54	0.22



3 Rear Extension

3.3 Calculation results, Rear Extension

3.3.1 Table, building.3 (L)

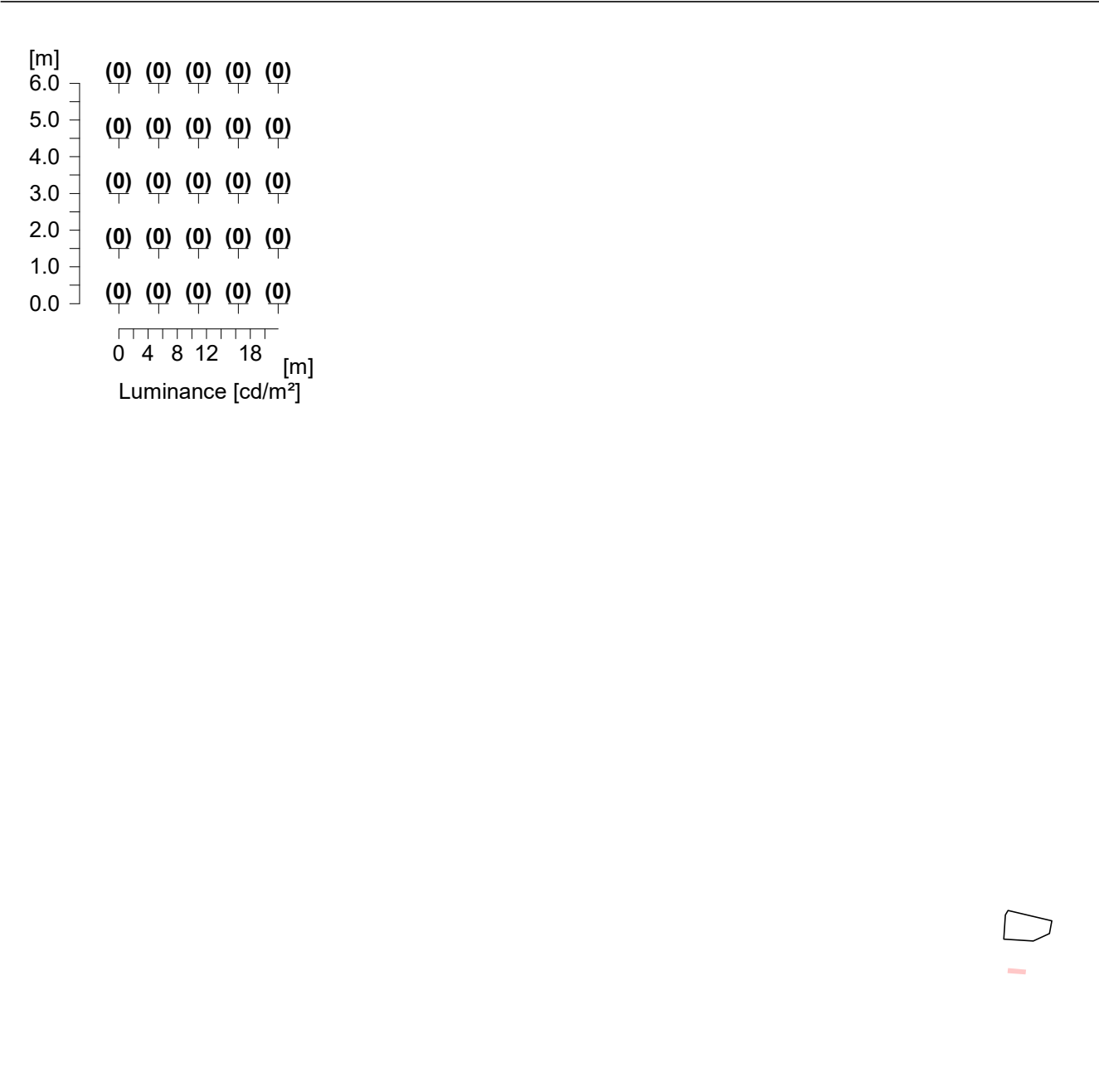


Average luminance	Lav	: 0 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 0 cd/m²



3.3 Calculation results, Rear Extension

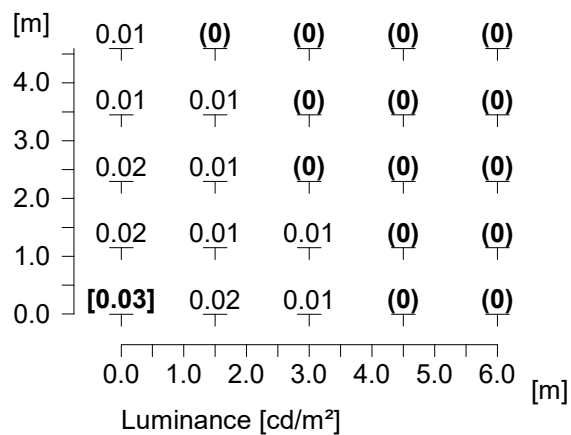
3.3.2 Table, building.4 (L)



Average luminance	Lav	: 0 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 0 cd/m²

3.3 Calculation results, Rear Extension

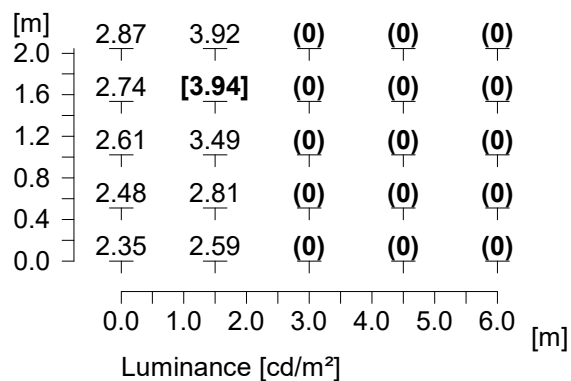
3.3.3 Table, building.5 (L)



Average luminance	Lav	: 0.01 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 0.03 cd/m²

3.3 Calculation results, Rear Extension

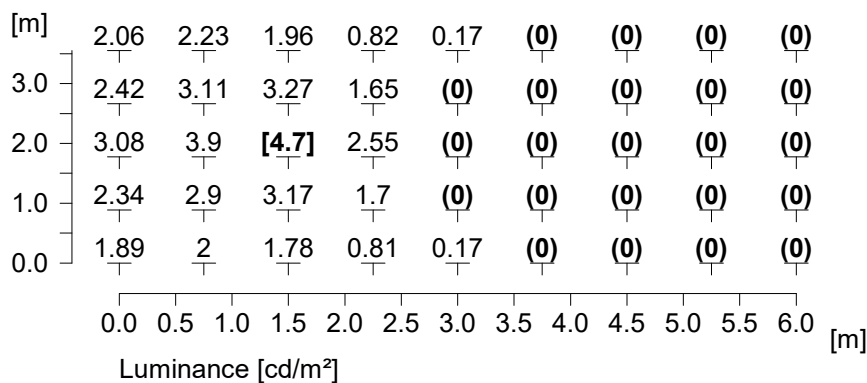
3.3.4 Table, building.6 (L)



Average luminance	Lav	: 1.19 cd/m ²
Minimum luminance	Lmin	: 0 cd/m ²
Maximum luminance	Lmax	: 3.94 cd/m ²

3.3 Calculation results, Rear Extension

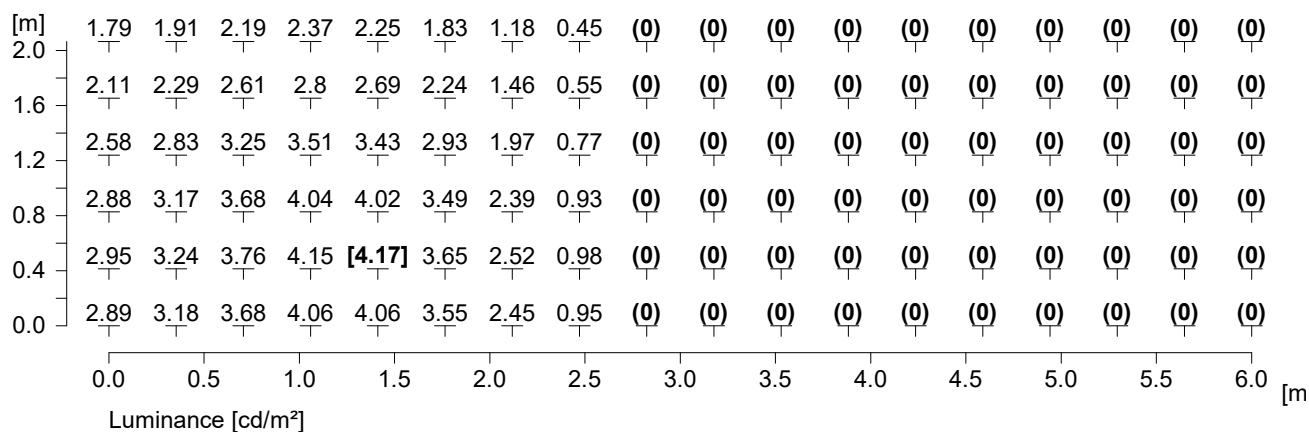
3.3.5 Table, building.7 (L)



Average luminance	Lav	: 1.08 cd/m ²
Minimum luminance	Lmin	: 0 cd/m ²
Maximum luminance	Lmax	: 4.7 cd/m ²

3.3 Calculation results, Rear Extension

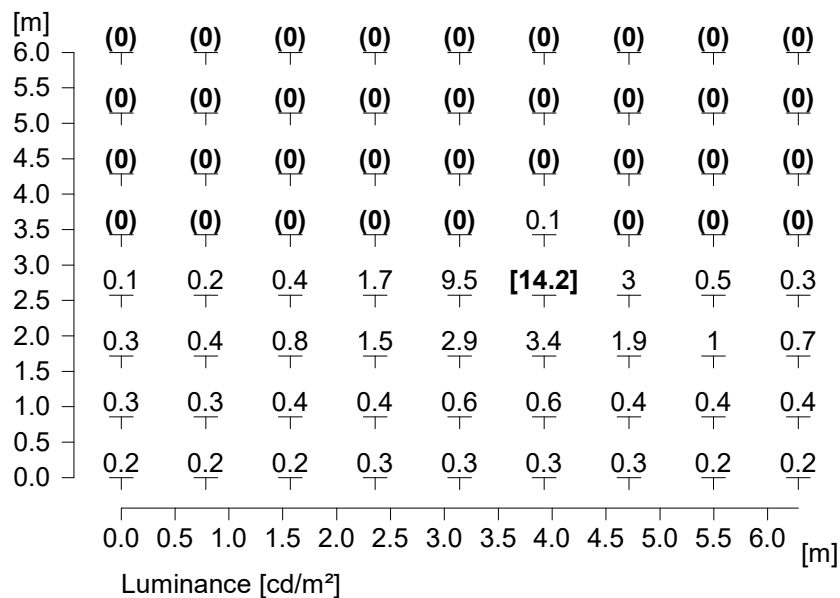
3.3.6 Table, building.8 (L)



Average luminance	Lav	: 1.17 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 4.17 cd/m²

3.3 Calculation results, Rear Extension

3.3.7 Table, building.9 (L)



Average luminance	Lav	: 0.68 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 14.2 cd/m²



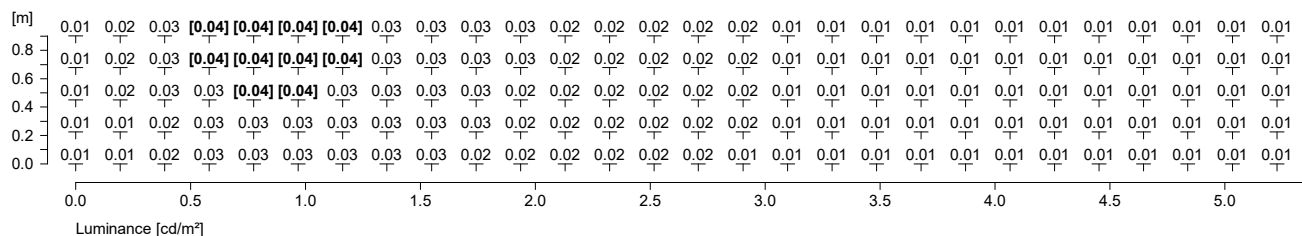
3.3.8 Table, building.10 (L)



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3.3 Calculation results, Rear Extension

3.3.9 Table, building.11 (L)



Part1

Average luminance	Lav	: 0.02 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 0.04 cd/m²



3.3.9 Table, building.11 (L)

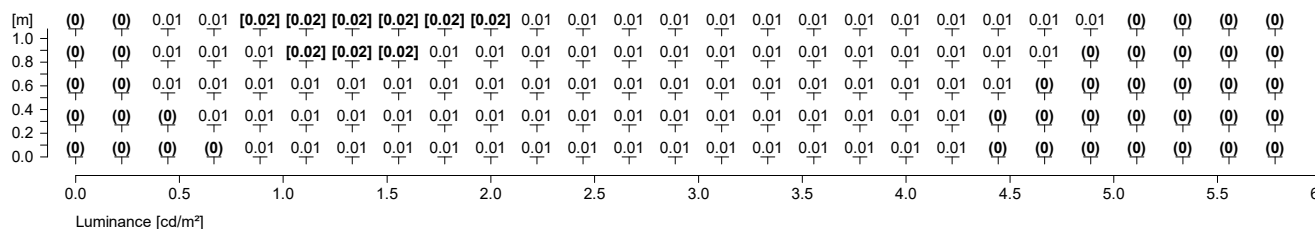


Part2



3.3 Calculation results, Rear Extension

3.3.10 Table, building.12 (L)



Part1

Average luminance Lav : 0.01 cd/m²
 Minimum luminance Lmin : 0 cd/m²
 Maximum luminance Lmax : 0.02 cd/m²



3.3 Calculation results, Rear Extension

3.3.10 Table, building.12 (L)

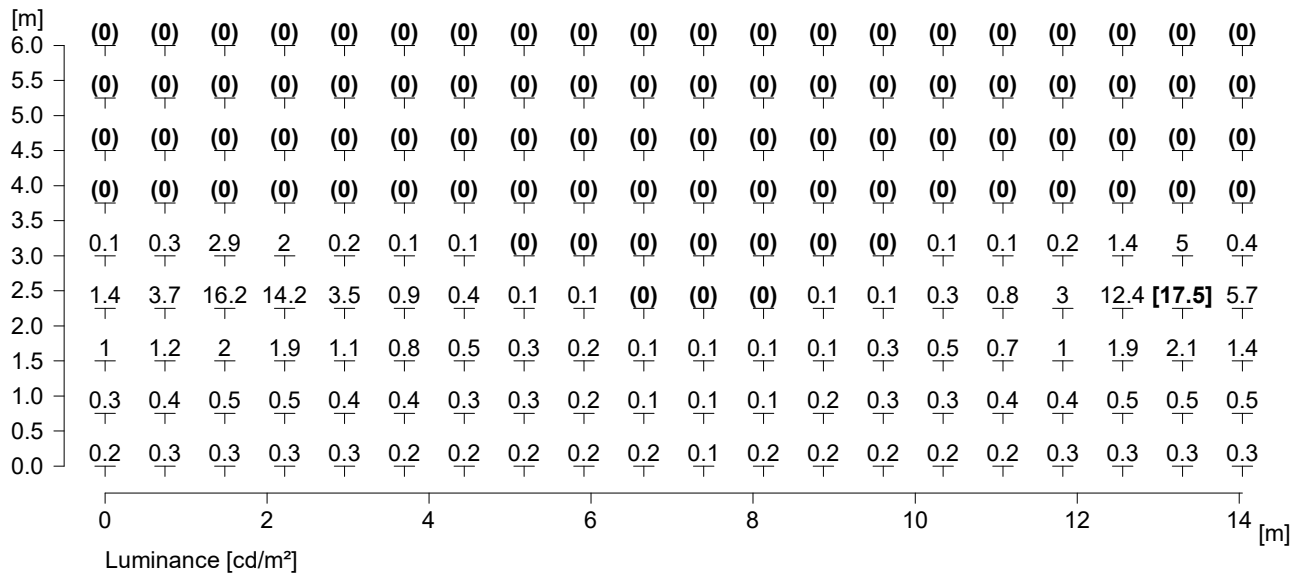
(0)
(0)
(0)
(0)
(0)
3.0 [m]



Part2

3.3 Calculation results, Rear Extension

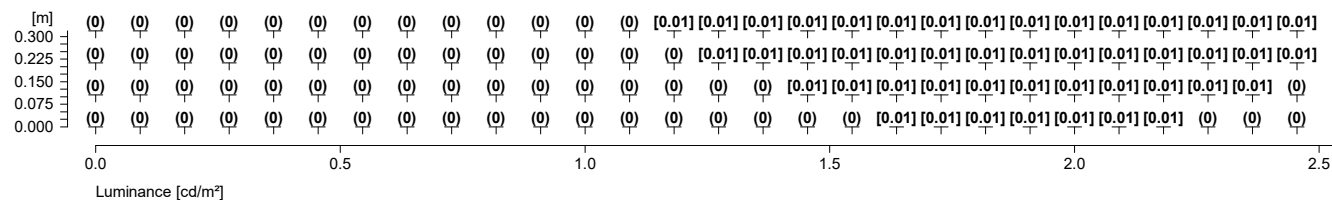
3.3.11 Table, building.13 (L)



Average luminance : 0.68 cd/m²
 Minimum luminance : 0 cd/m²
 Maximum luminance : 17.5 cd/m²

3.3 Calculation results, Rear Extension

3.3.12 Table, building.14 (L)



Part1

Average luminance	Lav	: 0 cd/m²
Minimum luminance	Lmin	: 0 cd/m²
Maximum luminance	Lmax	: 0.01 cd/m²



3.3.12 Table, building.14 (L)





3.3 Calculation results, Rear Extension

3.3.12 Table, building.14 (L)

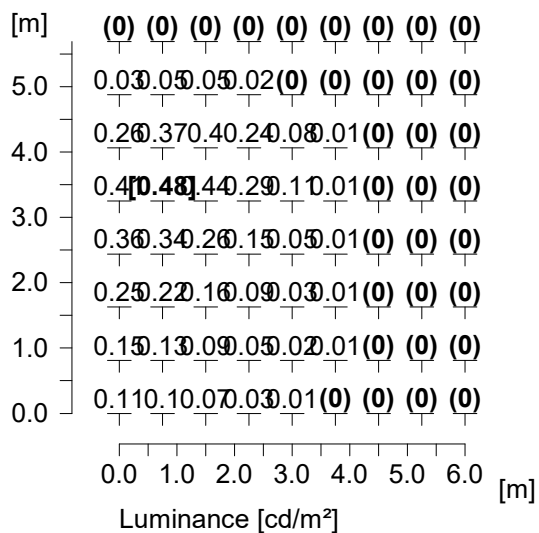
(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
5.5				6.0 [m]				



Part3

3.3 Calculation results, Rear Extension

3.3.13 Table, building.15 (L)



Average luminance	Lav	: 0.08 cd/m ²
Minimum luminance	Lmin	: 0 cd/m ²
Maximum luminance	Lmax	: 0.48 cd/m ²