



Installation : Renslade

Project number : SP009044

Customer :

Processed by : JL/CP

Date : 29.09.2015

Project description:

Final Design - Floors One to Eleven ONLY

Includes one lighting scheme for each varied size room and corridor.

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.

Object :
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1 Luminaire data

1.1 AURORA, AU-FRL701/30... (220-240V IP65 Fixed 7W MV...)

1.1.1 Data sheet

Manufacturer: AURORA

220-240V IP65 Fixed 7W MV Non-dimmable LED Downlight Fire Protection

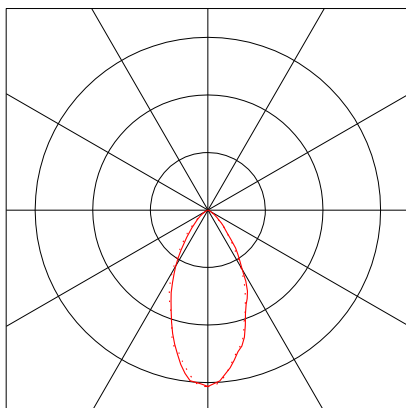
AU-FRL701/30

Luminaire data

Absolute Photometry
Luminaire efficacy : 59.61 lm/W
Classification : A70 ↓100.0% ↑0.0%
CIE Flux Codes : 86 99 100 100 101
UGR 4H 8H (20%, 50%, 70%)
C0 / C90 : 22.9 / 23.2
Control gear :
System power : 7.4 W
Diameter : 78 mm
Height : 5 mm

Equipped with

Quantity : 1
Designation : LED
Colour : 2900K
Luminous flux : 435 lm
Colour reproduction : 81.7



Object :
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1 Luminaire data

1.2 Aurora Lighting, AU-DL10218BW/40... (220-240V 18W Round Low...)

1.2.1 Data sheet

Manufacturer: Aurora Lighting

220-240V 18W Round Low Profile LED Downlight

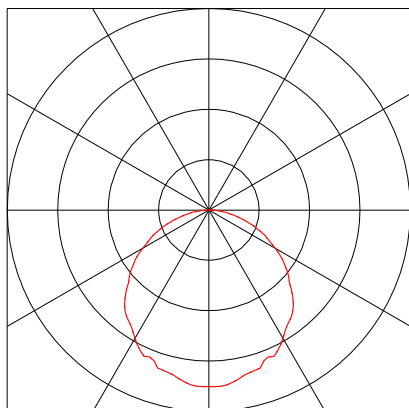
AU-DL10218BW/40

Luminaire data

Luminaire efficiency : 100%
Luminaire efficacy : 60.23 lm/W
Classification : A40 ↓100.0% ↑0.0%
CIE Flux Codes : 47 78 95 100 100
UGR 4H 8H (20%, 50%, 70%)
C0 / C90 : 25.4 / 25.4
Control gear :
System power : 17.7 W
Diameter : 200 mm
Height : 5 mm

Equipped with

Quantity : 1
Designation : LED
Colour : 4000K
Luminous flux : 1066 lm
Colour reproduction : 80



Object :
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1 Luminaire data

1.3 AURORA, EMERGENCY DOWNLIGHT - 3W LED (!AU-EMLD2MW)

1.3.1 Data sheet

Manufacturer: AURORA

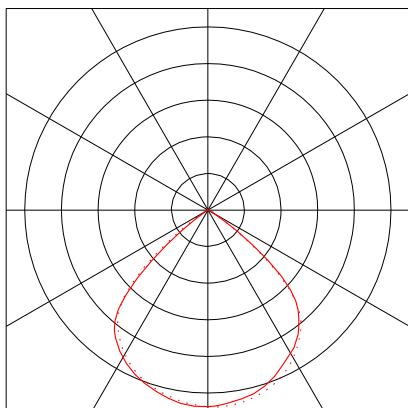
!AU-EMLD2MW EMERGENCY DOWNLIGHT - 3W LED

Luminaire data

Luminaire efficiency : 100%
Luminaire efficacy : 31.76 lm/W
Classification : A60 ↓100.0% ↑0.0%
CIE Flux Codes : 73 99 100 100 100
UGR 4H 8H (20%, 50%, 70%)
C0 / C90 : 31.5 / 30.8
Control gear :
System power : 3.4 W
Diameter : 51 mm
Height : 5 mm

Equipped with

Quantity : 1
Designation : LED
Colour : RGB 1.00 1.00 1.00
Luminous flux : 108 lm



Object :
Installation : Renslade
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1 Luminaire data

1.4 Aurora Lighting, AU-ANT1204A (AU-ANT1204A)

1.4.1 Data sheet

Manufacturer: Aurora Lighting

AU-ANT1204A

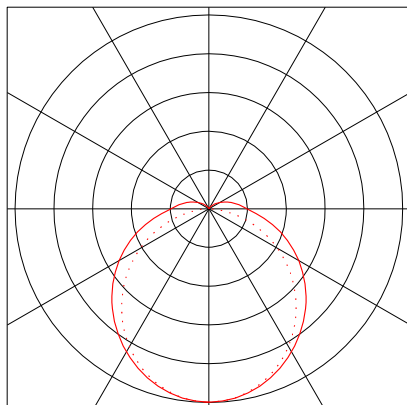
AU-ANT1204A

Luminaire data

Luminaire efficiency : 84.7%
Luminaire efficacy : 69.45 lm/W
Classification : A31 ↓92.4% ↑7.6%
CIE Flux Codes : 43 72 91 92 85
UGR 4H 8H (20%, 50%, 70%) :
C0 / C90 : 26.7 / 23.1
Control gear :
System power : 50 W
Length : 1274 mm
Width : 90 mm
Height : 90 mm

Equipped with

Quantity : 1
Designation : LED
Colour : 4000K
Luminous flux : 4100 lm
Colour reproduction : Group 1B



Object :
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1 Luminaire data

1.5 Aurora Lighting, AU-ANT1204AEM (AU-ANT1204AEM)

1.5.1 Data sheet

Manufacturer: Aurora Lighting

AU-ANT1204AEM

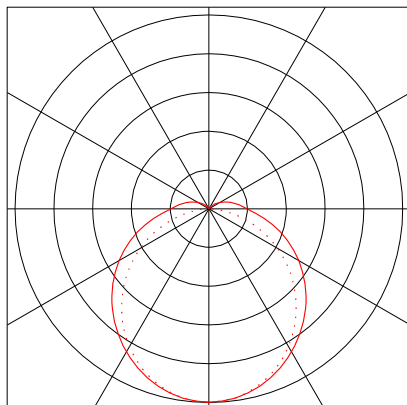
AU-ANT1204AEM

Luminaire data

Luminaire efficiency : 84.7%
Luminaire efficacy : 69.45 lm/W
Classification : A31 ↓92.4% ↑7.6%
CIE Flux Codes : 43 72 91 92 85
UGR 4H 8H (20%, 50%, 70%)
C0 / C90 : 26.7 / 23.1
Control gear :
System power : 50 W
Length : 1274 mm
Width : 90 mm
Height : 90 mm

Equipped with

Quantity : 1
Designation : LED
Colour : 4000K
Luminous flux : 4100 lm
Colour reproduction : Group 1B

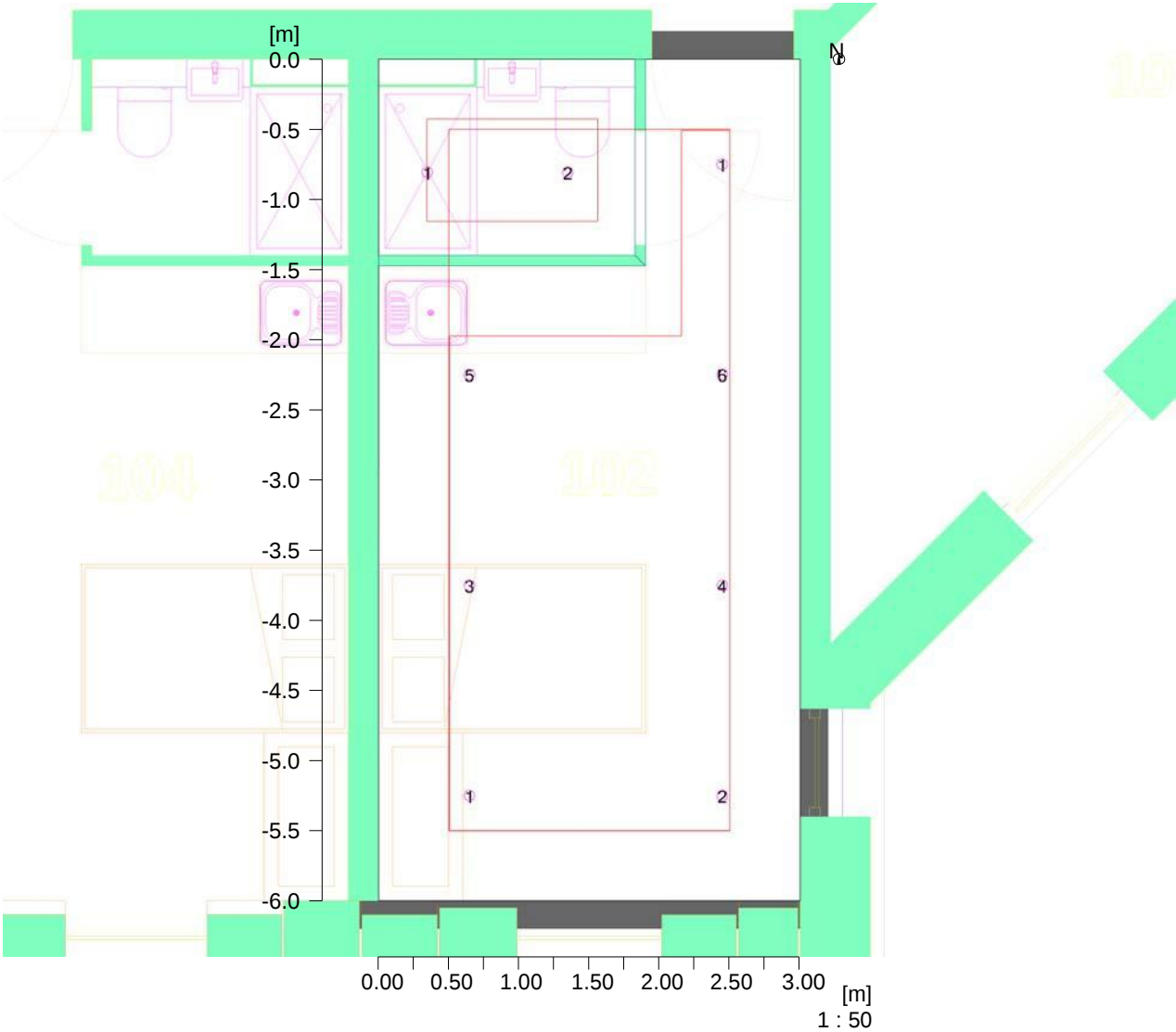


Object :
Installation : Renslade
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2 Type A

2.1 Description, Type A

2.1.1 Floor plan



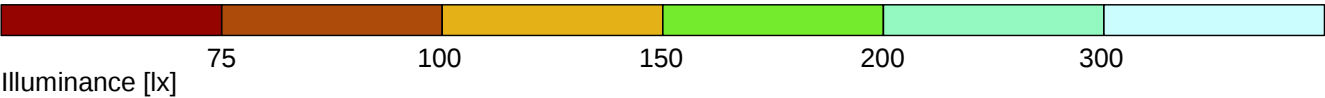
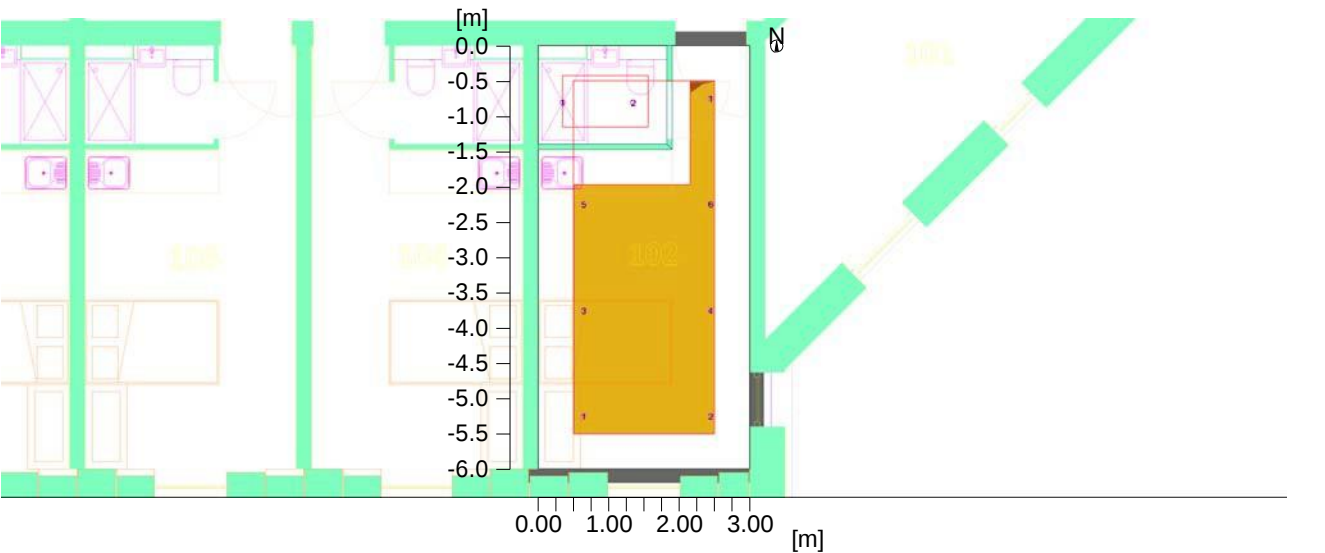
Wall	x	y	Length	Reflectance
1	84.56 m	10.67 m	6.00 m	50.0 %
2	87.56 m	10.67 m	3.00 m	50.0 %
3	87.56 m	16.67 m	6.00 m	50.0 %
4	84.56 m	16.67 m	3.00 m	50.0 %
Floor				19.9 %
Ceiling				70.0 %
Room height		2.40 m		
Height of reference plane		0.75 m		

Object :
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2 Type A

2.2 Summary, Type A

2.2.1 Result overview, Main Area



General

Calculation algorithm used	Average indirect fraction with light colours
Height of evaluation surface	0.00 m
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	3915 lm
Total power	66.6 W
Total power per area (18.00 m²)	3.70 W/m²

Illuminance

Average illuminance	Eav	128 lx
Minimum illuminance	Emin	107 lx
Maximum illuminance	Emax	144 lx
Uniformity Uo	Emin/Em	1:1.2 (0.83)
Diversity Ud	Emin/Emax	1:1.35 (0.74)

Type No.\Make

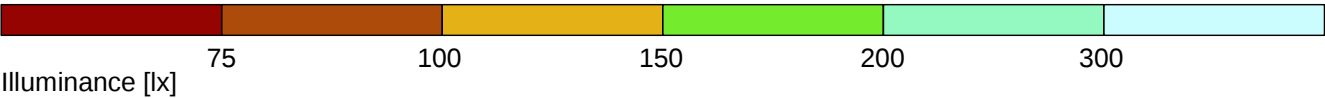
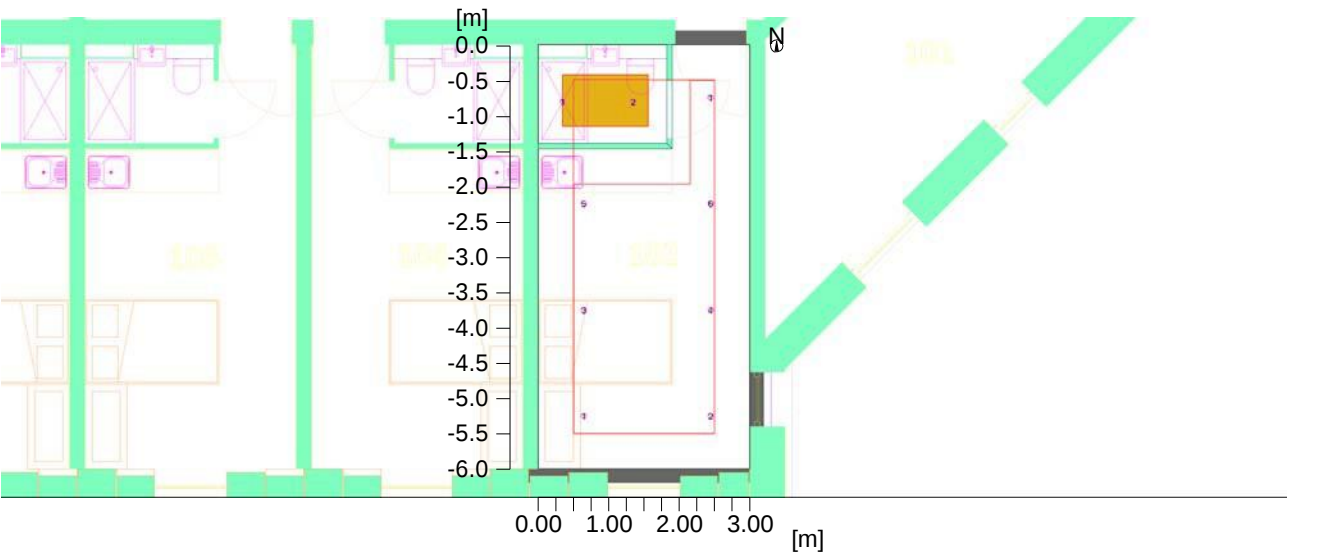
2	9	AURORA	
		Order No.	: 220-240V IP65 Fixed 7W MV Non-dimmable LED Downlight Fire Protection
		Luminaire name	: AU-FRL701/30
		Equipment	: 1 x LED / 435 lm 2900K



Object :
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2.2 Summary, Type A

2.2.2 Result overview, Ensuite



General

Calculation algorithm used	Average indirect fraction with light colours
Height of evaluation surface	0.00 m
Height of luminaire plane	2.40 m
Maintenance factor	0.80

Total luminous flux of all lamps	3915 lm
Total power	66.6 W
Total power per area (18.00 m²)	3.70 W/m²

Illuminance

Average illuminance	Eav	132 lx
Minimum illuminance	Emin	119 lx
Maximum illuminance	Emax	141 lx
Uniformity Uo	Emin/Em	1:1.11 (0.9)
Diversity Ud	Emin/Emax	1:1.18 (0.84)

Type No. \Make

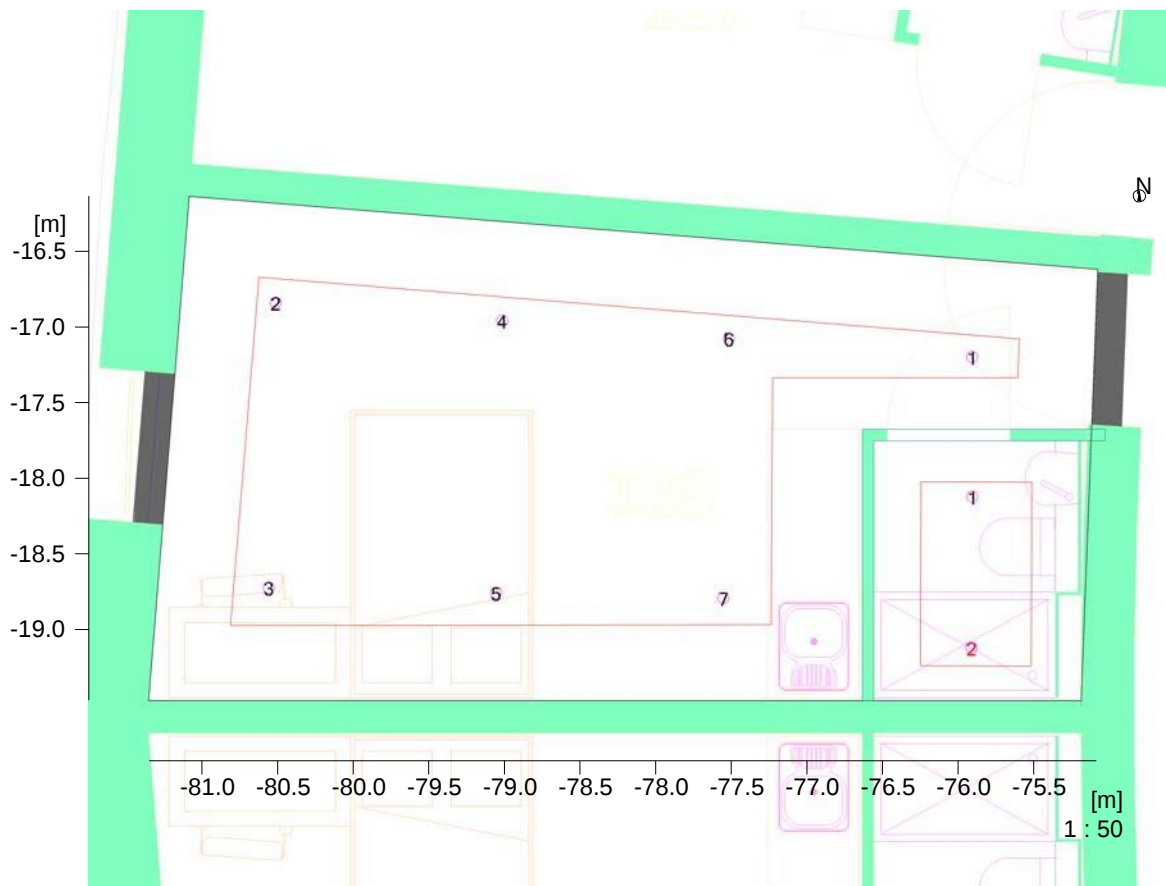
2	9	AURORA	
		Order No.	: 220-240V IP65 Fixed 7W MV Non-dimmable LED Downlight Fire Protection
		Luminaire name	: AU-FRL701/30
		Equipment	: 1 x LED / 435 lm 2900K

Object :
Installation : Renslade
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3 Type B

3.1 Description, Type B

3.1.1 Floor plan



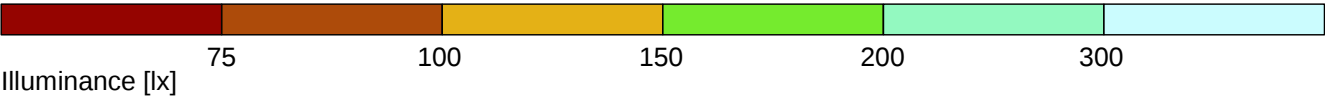
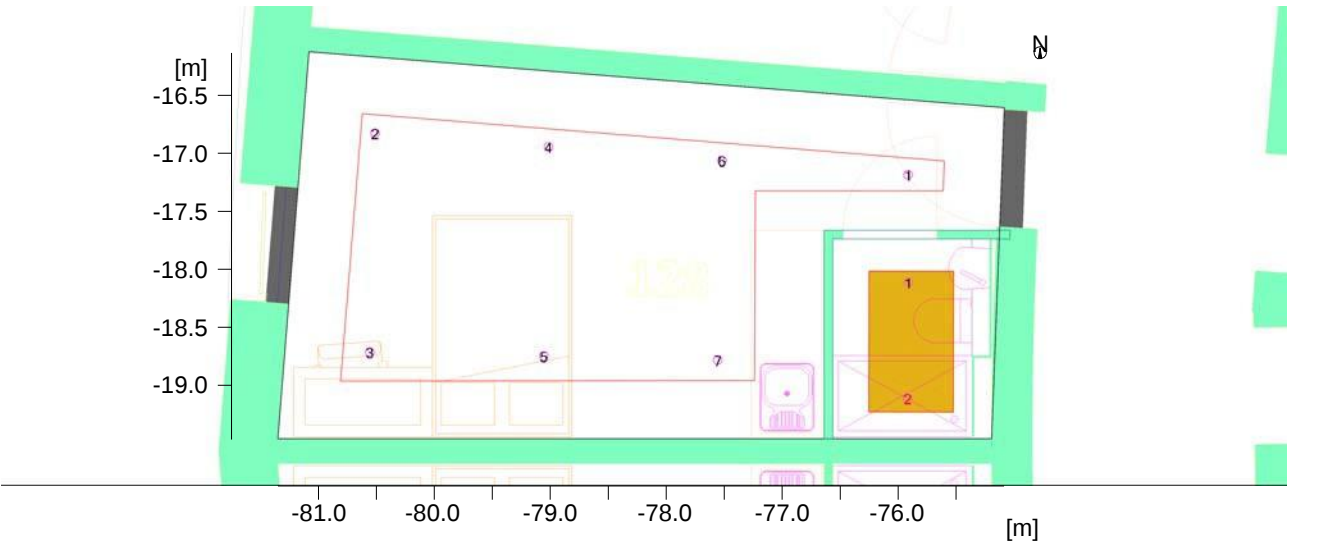
Wall	x	y	Length	Reflectance
1	6.15 m	-0.00 m	6.15 m	50.0 %
2	6.26 m	2.85 m	2.85 m	50.0 %
3	0.27 m	3.33 m	6.01 m	50.0 %
4	0.17 m	2.16 m	1.18 m	50.0 %
5	0.09 m	1.16 m	1.00 m	50.0 %
6	0.00 m	0.00 m	1.17 m	50.0 %
Floor				19.9 %
Ceiling				70.0 %
Room height		2.40 m		
Height of reference plane		0.00 m		

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

3 Type B

3.2 Summary, Type B

3.2.1 Result overview, Ensuite



General

Calculation algorithm used	Average indirect fraction with light colours
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	3915 lm
Total power	66.6 W
Total power per area (18.83 m²)	3.54 W/m²

Illuminance

Average illuminance	Eav	134 lx
Minimum illuminance	Emin	125 lx
Maximum illuminance	Emax	141 lx
Uniformity Uo	Emin/Em	1:1.08 (0.93)
Diversity Ud	Emin/Emax	1:1.13 (0.88)

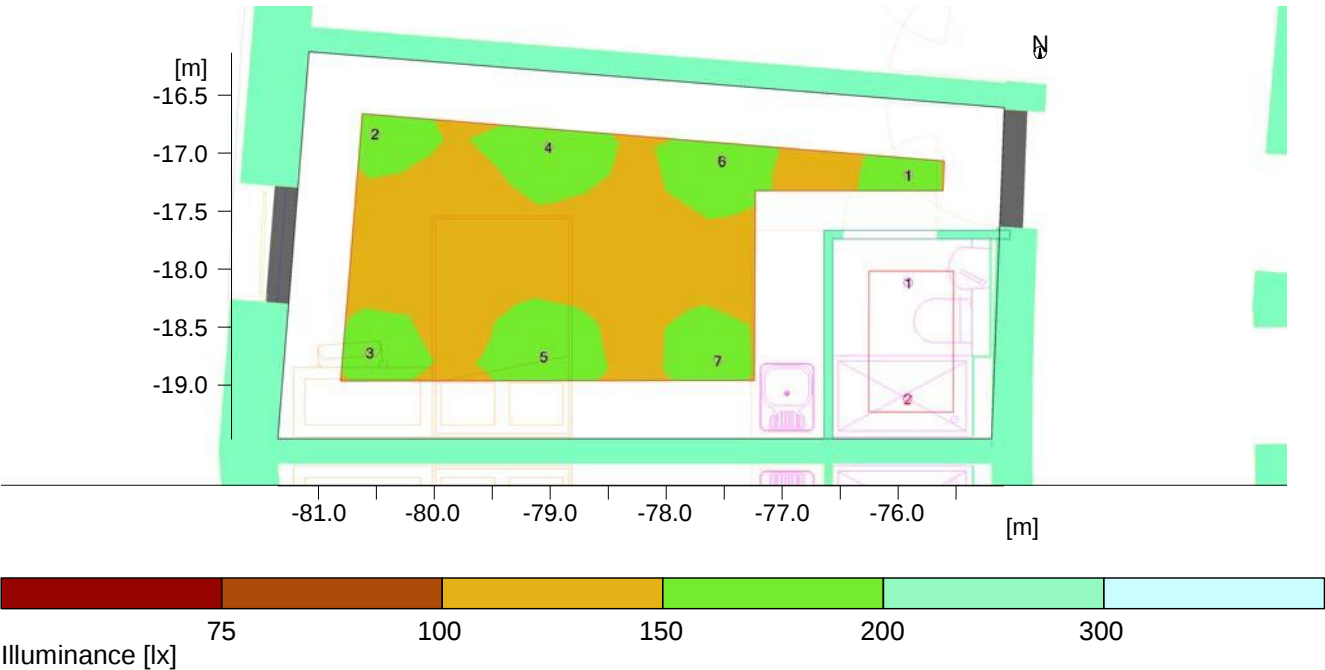
Type No. \Make

2	9	AURORA	
		Order No.	: 220-240V IP65 Fixed 7W MV Non-dimmable LED Downlight Fire Protection
		Luminaire name	: AU-FRL701/30
		Equipment	: 1 x LED / 435 lm 2900K

Object :
Installation : Renslade
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3.2 Summary, Type B

3.2.2 Result overview, Main Area



General

Calculation algorithm used	Average indirect fraction with light colours
Height of evaluation surface	0.75 m
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	3915 lm
Total power	66.6 W
Total power per area (18.83 m²)	3.54 W/m²

Illuminance

Average illuminance	Eav	145 lx
Minimum illuminance	Emin	106 lx
Maximum illuminance	Emax	193 lx
Uniformity Uo	Emin/Em	1:1.37 (0.73)
Diversity Ud	Emin/Emax	1:1.83 (0.55)

Type No. \Make

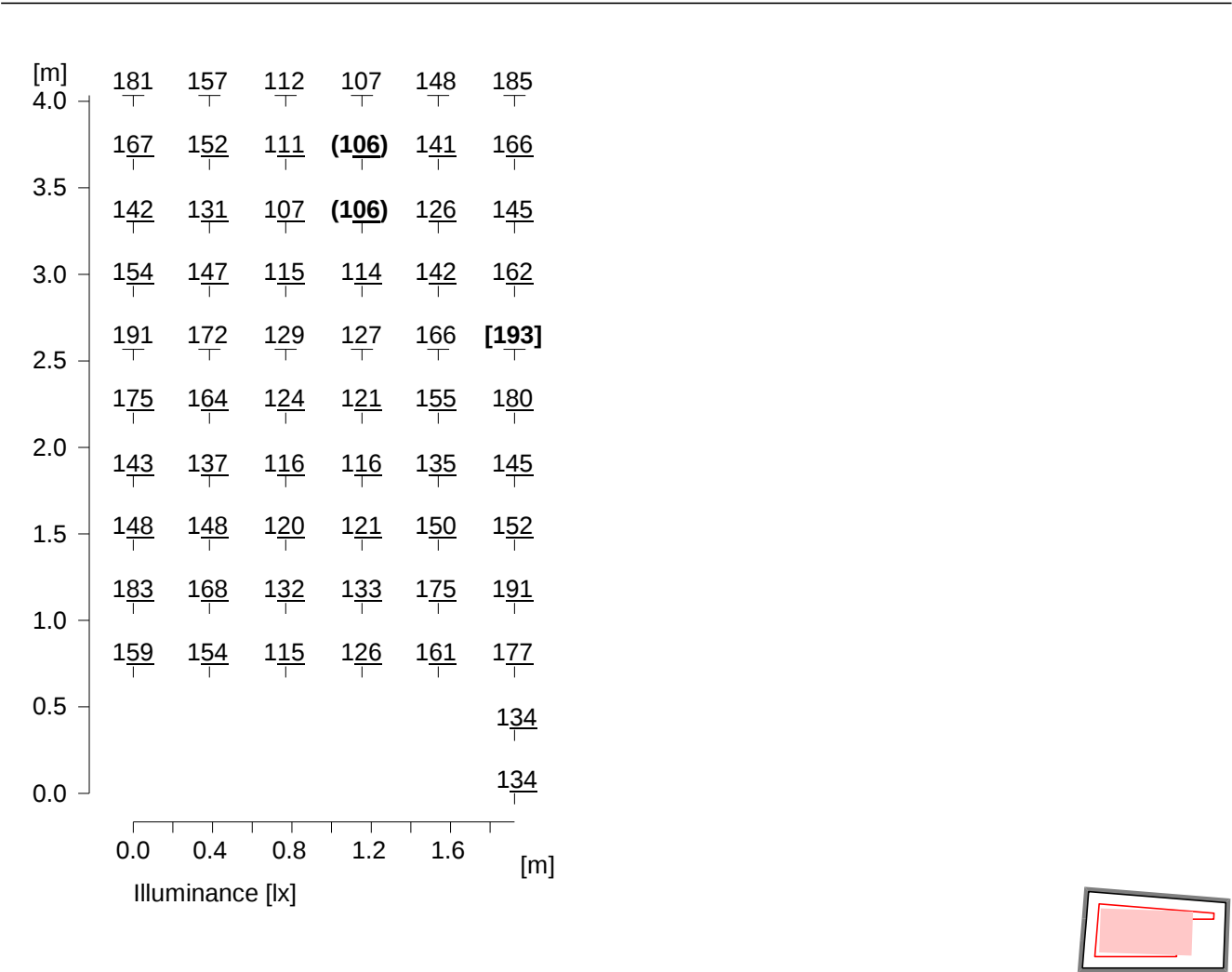
2	9	AURORA	
		Order No.	: 220-240V IP65 Fixed 7W MV Non-dimmable LED Downlight Fire Protection
		Luminaire name	: AU-FRL701/30
		Equipment	: 1 x LED / 435 lm 2900K

Object :
Installation : Renslade
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3 Type B

3.3 Calculation results, Type B

3.3.1 Table, Main Area (E)



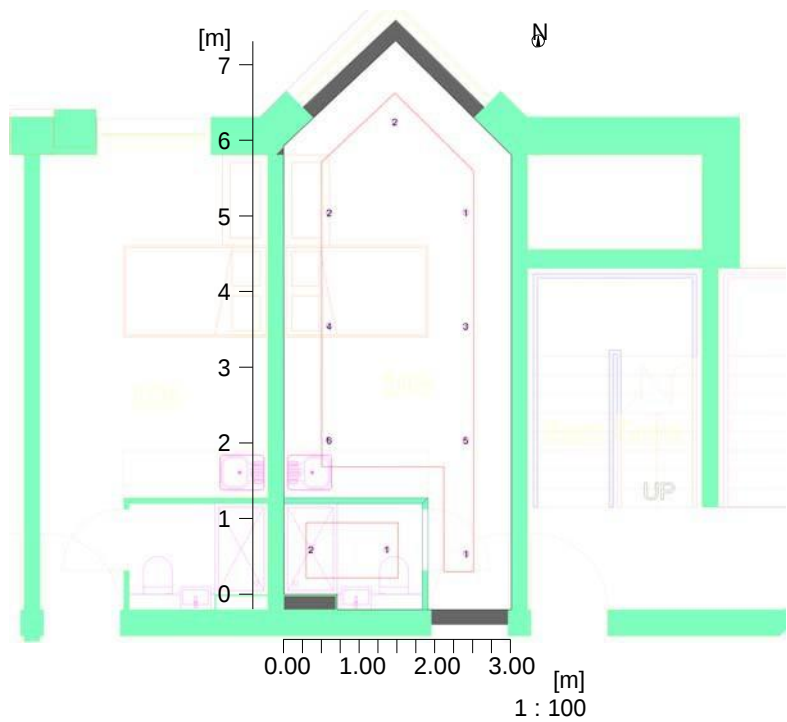
Height of the reference plane		: 0.75 m
Average illuminance	Eav	: 145 lx
Minimum illuminance	Emin	: 106 lx
Maximum illuminance	Emax	: 193 lx
Uniformity Uo	Emin/Eav	: 1 : 1.37 (0.73)
Diversity Ud	Emin/Emax	: 1 : 1.83 (0.55)

Object :
Installation : Renslade
Project number : SP009044
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4 Type C

4.1 Description, Type C

4.1.1 Floor plan



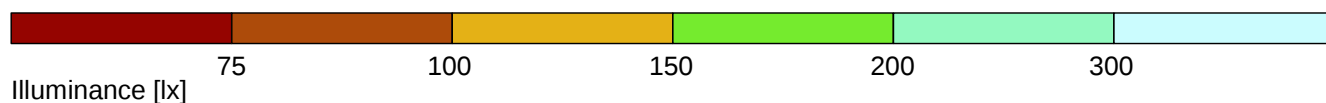
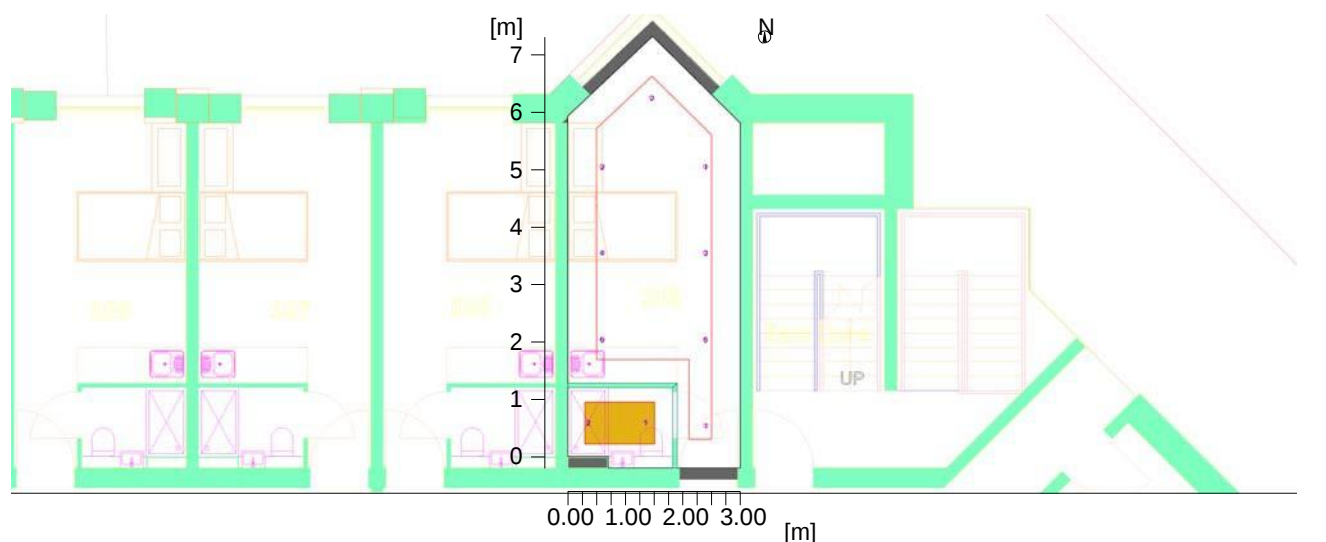
Wall	x	y	Length	Reflectance
1	82.05 m	19.47 m	0.70 m	50.0 %
2	82.05 m	19.27 m	0.20 m	50.0 %
3	84.35 m	19.27 m	2.30 m	50.0 %
4	84.35 m	25.27 m	6.00 m	50.0 %
5	82.82 m	26.78 m	2.15 m	50.0 %
6	81.34 m	25.39 m	2.03 m	50.0 %
7	81.35 m	19.47 m	5.92 m	50.0 %
Floor				19.9 %
Ceiling				70.0 %
Room height		2.40 m		
Height of reference plane		0.00 m		

Object :
 Installation : Renslade
 Project number : SP009044
 Date : 29.09.2015

4 Type C

4.2 Summary, Type C

4.2.1 Result overview, Ensuite



General

Calculation algorithm used	Average indirect fraction with light colours
Height of evaluation surface	0.00 m
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	4350 lm
Total power	74 W
Total power per area (20.23 m ²)	3.66 W/m ²

Illuminance

Average illuminance	Eav	133 lx
Minimum illuminance	Emin	122 lx
Maximum illuminance	Emax	141 lx
Uniformity U ₀	Emin/Em	1:1.09 (0.92)
Diversity U _d	Emin/Emax	1:1.15 (0.87)

Type No. \Make

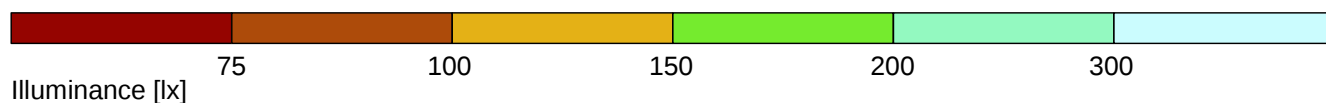
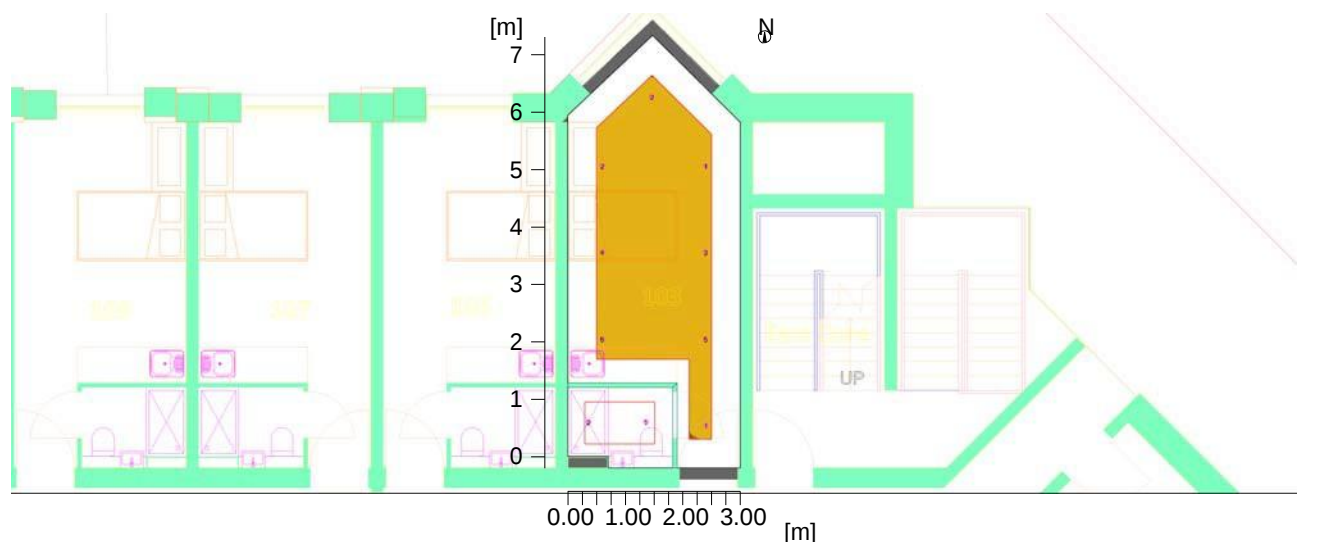
2	10	AURORA	
		Order No.	: 220-240V IP65 Fixed 7W MV Non-dimmable LED Downlight Fire Protection
		Luminaire name	: AU-FRL701/30
		Equipment	: 1 x LED / 435 lm 2900K



Object :
 Installation : Renslade
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4.2 Summary, Type C

4.2.2 Result overview, Main Area



General

Calculation algorithm used	Average indirect fraction with light colours
Height of evaluation surface	0.00 m
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	4350 lm
Total power	74 W
Total power per area (20.23 m ²)	3.66 W/m ² (2.79 W/m ² /100lx)

Illuminance

Average illuminance	Eav	131 lx
Minimum illuminance	Emin	106 lx
Maximum illuminance	Emax	143 lx
Uniformity U _o	Emin/Em	1:1.23 (0.81)
Diversity U _d	Emin/Emax	1:1.35 (0.74)

Type No. \Make

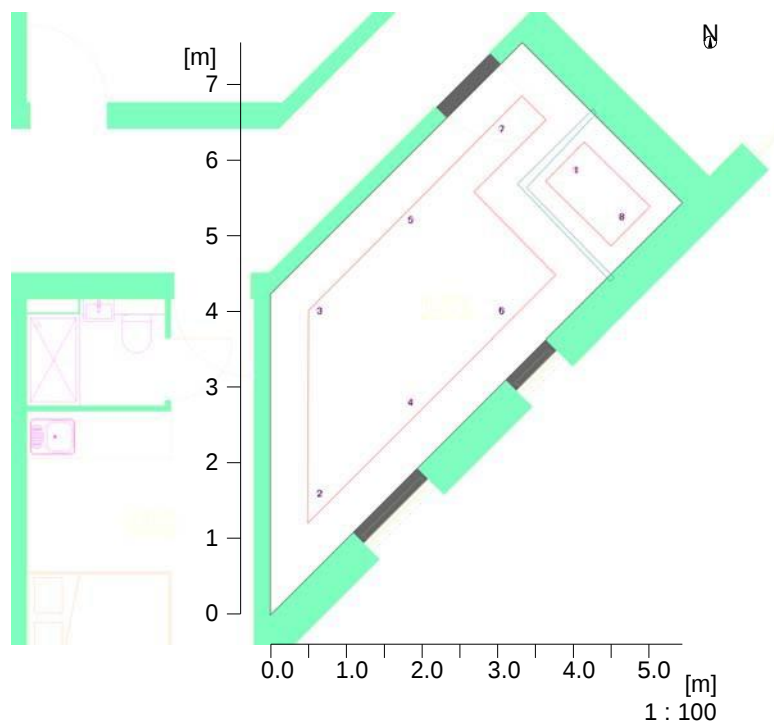
2	10	AURORA	
		Order No.	: 220-240V IP65 Fixed 7W MV Non-dimmable LED Downlight Fire Protection
		Luminaire name	: AU-FRL701/30
		Equipment	: 1 x LED / 435 lm 2900K

Object :
Installation : Renslade
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Date : 29.09.2015

5 Type D

5.1 Description, Type D

5.1.1 Floor plan



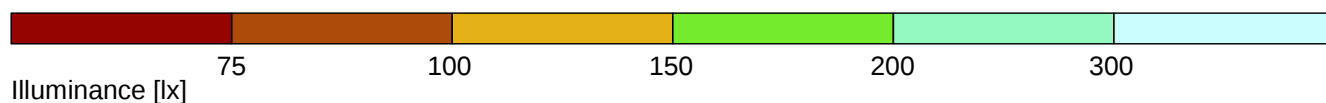
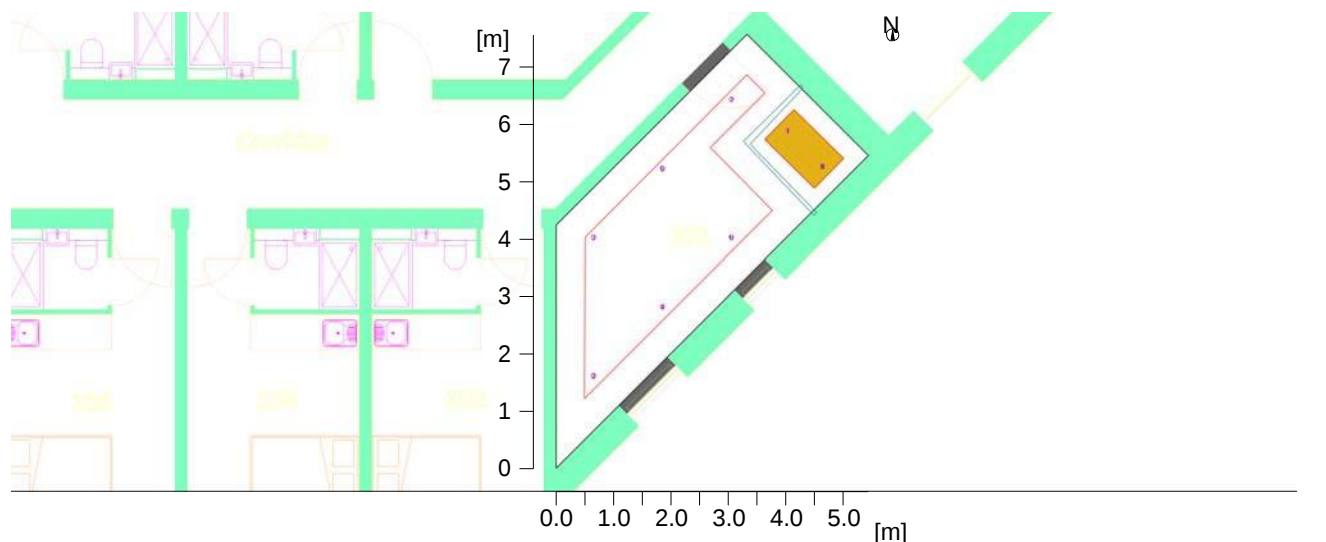
Wall	x	y	Length	Reflectance
1	93.22 m	17.94 m	7.69 m	50.0 %
2	91.10 m	20.06 m	2.99 m	50.0 %
3	87.78 m	16.73 m	4.70 m	50.0 %
4	87.78 m	12.50 m	4.23 m	50.0 %
Floor				19.9 %
Ceiling				70.0 %
Room height		2.40 m		
Height of reference plane		0.00 m		

Object :
 Installation : Renslade
 Project number : SP009044
 Date : 29.09.2015

5 Type D

5.2 Summary, Type D

5.2.1 Result overview, Ensuite



General

Calculation algorithm used	Average indirect fraction with light colours
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	3480 lm
Total power	59.2 W
Total power per area (18.55 m²)	3.19 W/m²

Illuminance

Average illuminance	Eav	140 lx
Minimum illuminance	Emin	128 lx
Maximum illuminance	Emax	149 lx
Uniformity Uo	Emin/Em	1:1.09 (0.92)
Diversity Ud	Emin/Emax	1:1.16 (0.86)

Type No. \Make

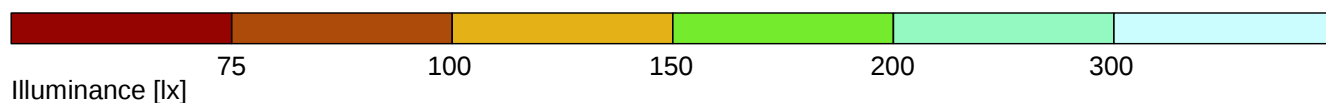
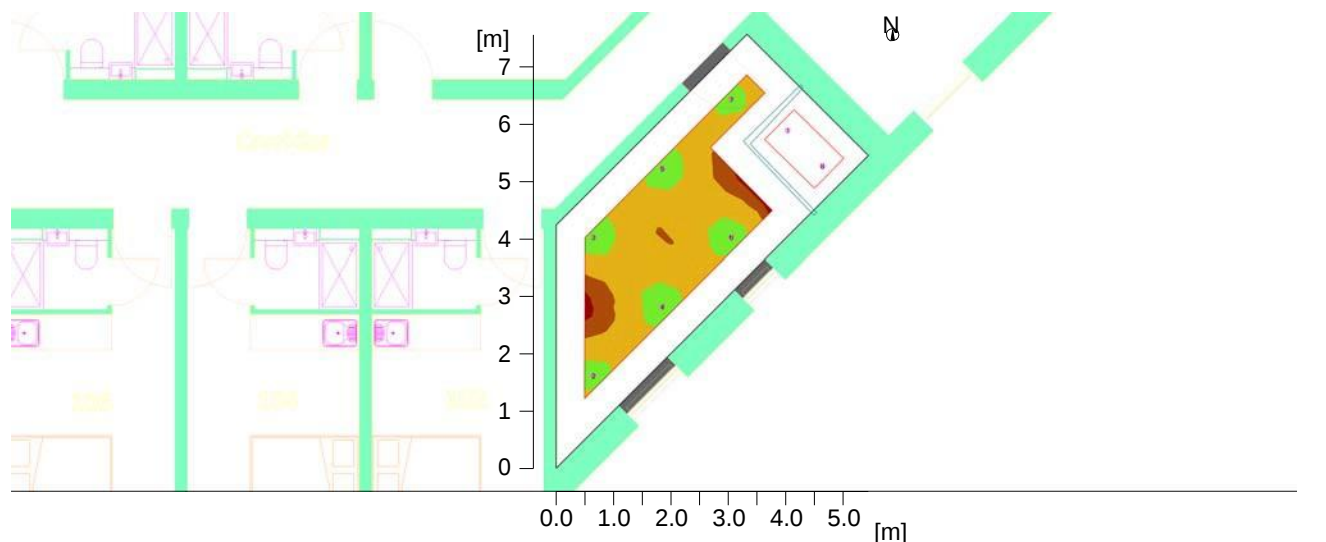
2	8	AURORA	
		Order No.	: 220-240V IP65 Fixed 7W MV Non-dimmable LED Downlight Fire Protection
		Luminaire name	: AU-FRL701/30
		Equipment	: 1 x LED / 435 lm 2900K



Object :
 Installation : Renslade
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5.2 Summary, Type D

5.2.2 Result overview, Main Area



General

Calculation algorithm used	Average indirect fraction with light colours
Height of evaluation surface	0.75 m
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	3480 lm
Total power	59.2 W
Total power per area (18.55 m ²)	3.19 W/m ²

Illuminance

Average illuminance	Eav	128 lx
Minimum illuminance	Emin	76 lx
Maximum illuminance	Emax	187 lx
Uniformity U _o	Emin/Em	1:1.69 (0.59)
Diversity U _d	Emin/Emax	1:2.47 (0.41)

Type No. \Make

2	8	AURORA	
		Order No.	: 220-240V IP65 Fixed 7W MV Non-dimmable LED Downlight Fire Protection
		Luminaire name	: AU-FRL701/30
		Equipment	: 1 x LED / 435 lm 2900K

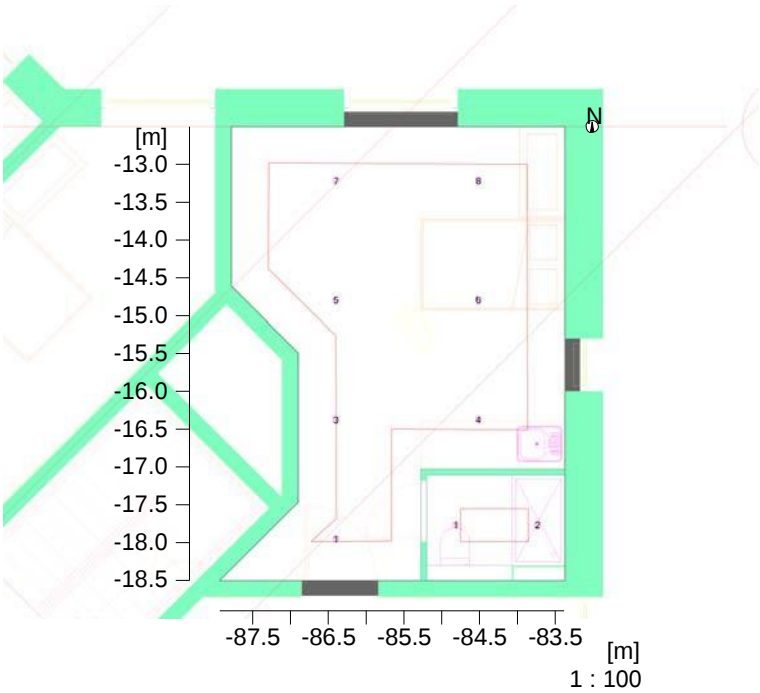


Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

6 Type E

6.1 Description, Type E

6.1.1 Floor plan



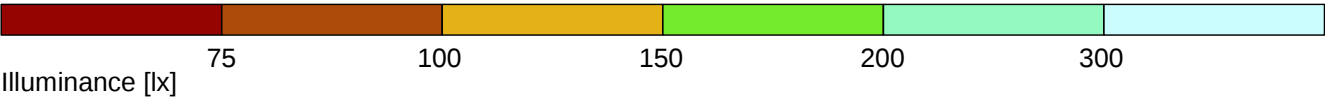
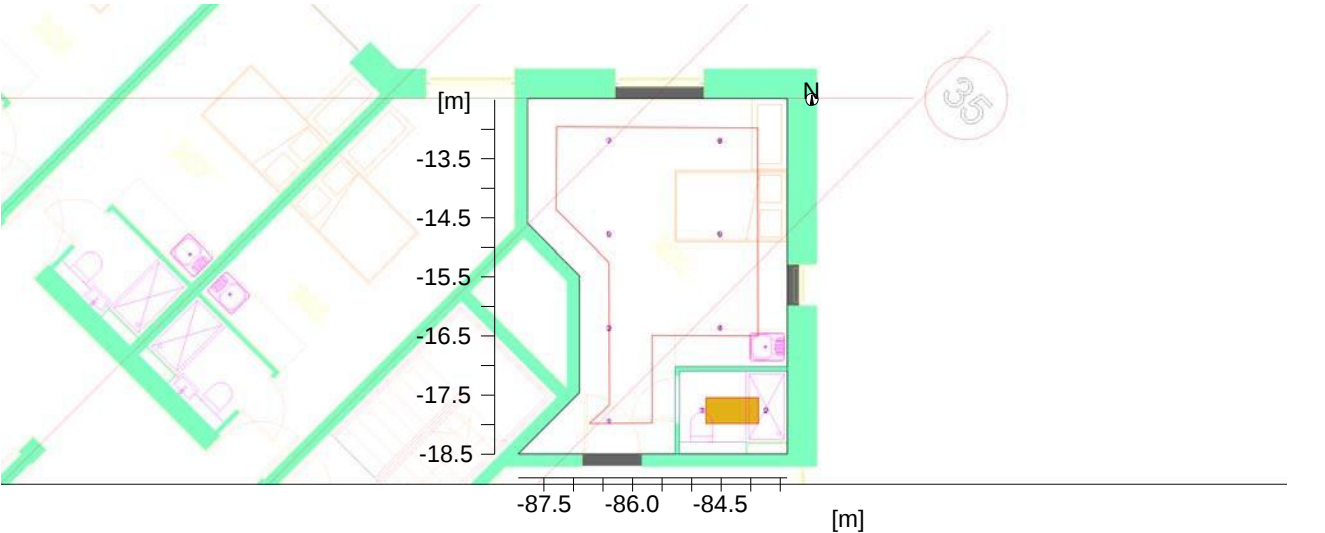
Wall	x	y	Length	Reflectance
1	0.00 m	-2.11 m	2.11 m	50.0 %
2	0.88 m	-2.99 m	1.25 m	50.0 %
3	0.88 m	-4.96 m	1.97 m	50.0 %
4	-0.16 m	-6.00 m	1.47 m	50.0 %
5	4.40 m	-6.00 m	4.55 m	50.0 %
6	4.40 m	0.00 m	6.00 m	50.0 %
7	0.00 m	0.00 m	4.40 m	50.0 %
Floor				19.9 %
Ceiling				70.0 %
Room height		2.40 m		
Height of reference plane		0.00 m		

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

6 Type E

6.2 Summary, Type E

6.2.1 Result overview, Ensuite



General

Calculation algorithm used	Average indirect fraction with light colours
Height of evaluation surface	0.00 m
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	3915 lm
Total power	66.6 W
Total power per area (23.89 m²)	2.79 W/m²

Illuminance

Average illuminance	Eav	135 lx
Minimum illuminance	Emin	129 lx
Maximum illuminance	Emax	138 lx
Uniformity Uo	Emin/Em	1:1.04 (0.96)
Diversity Ud	Emin/Emax	1:1.07 (0.94)

Type No. \Make

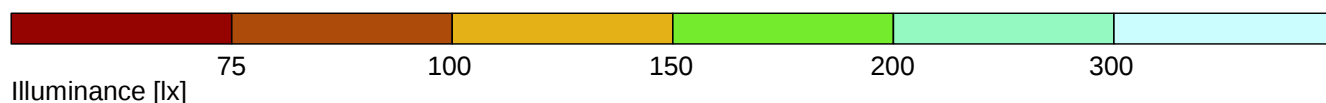
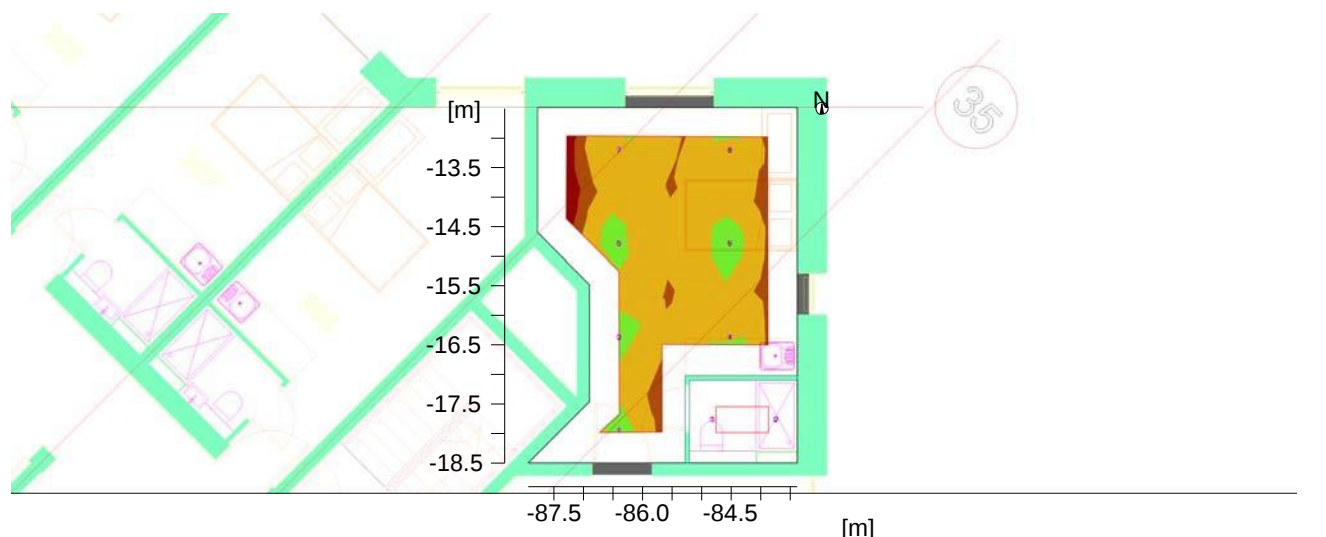
2	9	AURORA	
		Order No.	: 220-240V IP65 Fixed 7W MV Non-dimmable LED Downlight Fire Protection
		Luminaire name	: AU-FRL701/30
		Equipment	: 1 x LED / 435 lm 2900K



Object :
 Installation : Renslade
 Project number : SP009044
 Date : 29.09.2015

6.2 Summary, Type E

6.2.2 Result overview, Main Area



General

Calculation algorithm used	Average indirect fraction with light colours
Height of evaluation surface	0.75 m
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	3915 lm
Total power	66.6 W
Total power per area (23.89 m ²)	2.79 W/m ²

Illuminance

Average illuminance	Eav	125 lx
Minimum illuminance	Emin	84 lx
Maximum illuminance	Emax	191 lx
Uniformity U _o	Emin/Em	1:1.5 (0.67)
Diversity U _d	Emin/Emax	1:2.27 (0.44)

Type No. \Make

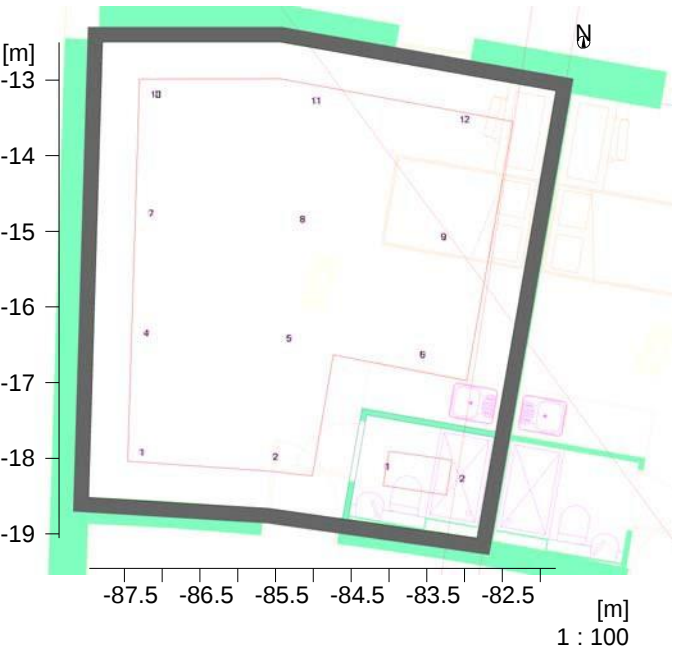
2	9	AURORA	
		Order No.	: 220-240V IP65 Fixed 7W MV Non-dimmable LED Downlight Fire Protection
		Luminaire name	: AU-FRL701/30
		Equipment	: 1 x LED / 435 lm 2900K

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

7 Type F

7.1 Description, Type F

7.1.1 Floor plan



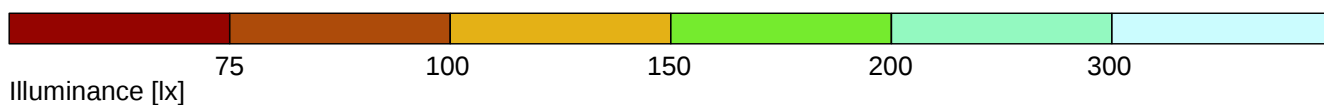
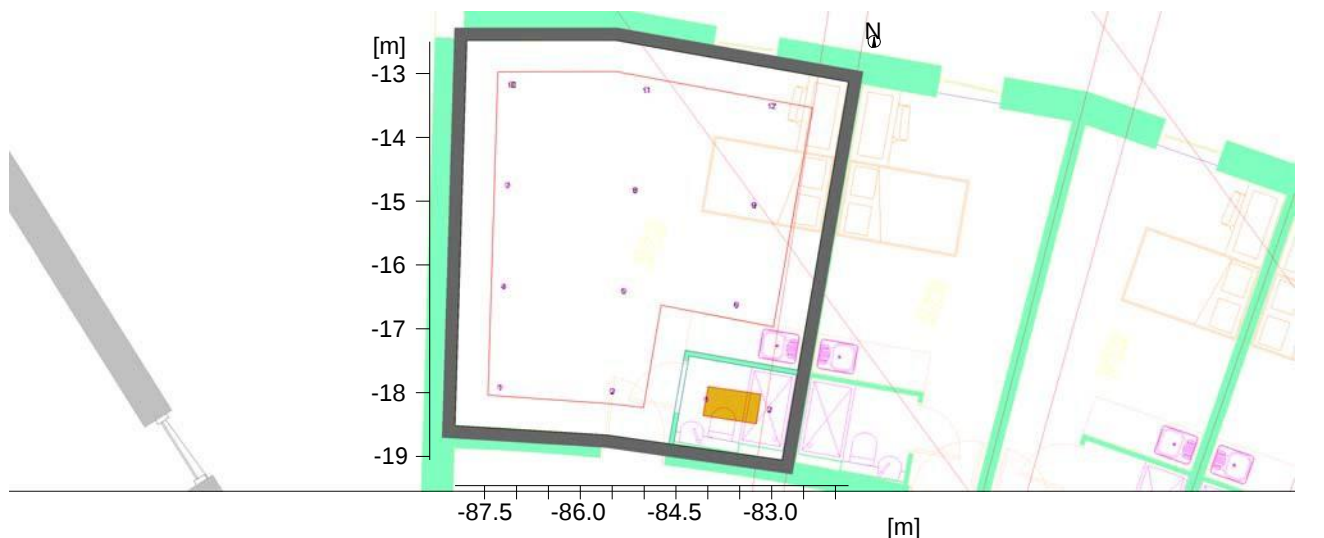
Wall	x	y	Length	Reflectance
1	-0.18 m	-6.02 m	6.02 m	50.0 %
2	2.19 m	-6.16 m	2.38 m	50.0 %
3	4.94 m	-6.56 m	2.78 m	50.0 %
4	5.98 m	-0.65 m	6.00 m	50.0 %
5	2.35 m	-0.00 m	3.70 m	50.0 %
6	0.00 m	-0.00 m	2.35 m	50.0 %
Floor				19.9 %
Ceiling				70.0 %
Room height		2.40 m		
Height of reference plane		0.00 m		

Object :
 Installation : Renslade
 Project number : SP009044
 Date : 29.09.2015

7 Type F

7.2 Summary, Type F

7.2.1 Result overview, Ensuite



General

Calculation algorithm used	Average indirect fraction with light colours
Height of evaluation surface	0.00 m
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	5655 lm
Total power	96.2 W
Total power per area (33.98 m ²)	2.83 W/m ²

Illuminance

Average illuminance	Eav	140 lx
Minimum illuminance	Emin	134 lx
Maximum illuminance	Emax	145 lx
Uniformity U ₀	Emin/Em	1:1.05 (0.95)
Diversity U _d	Emin/Emax	1:1.08 (0.93)

Type No. \Make

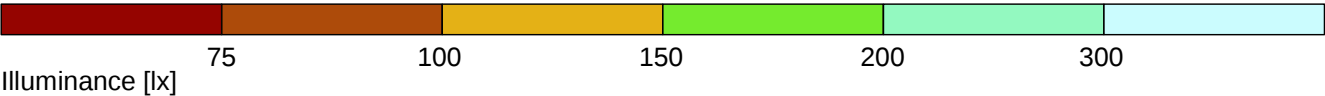
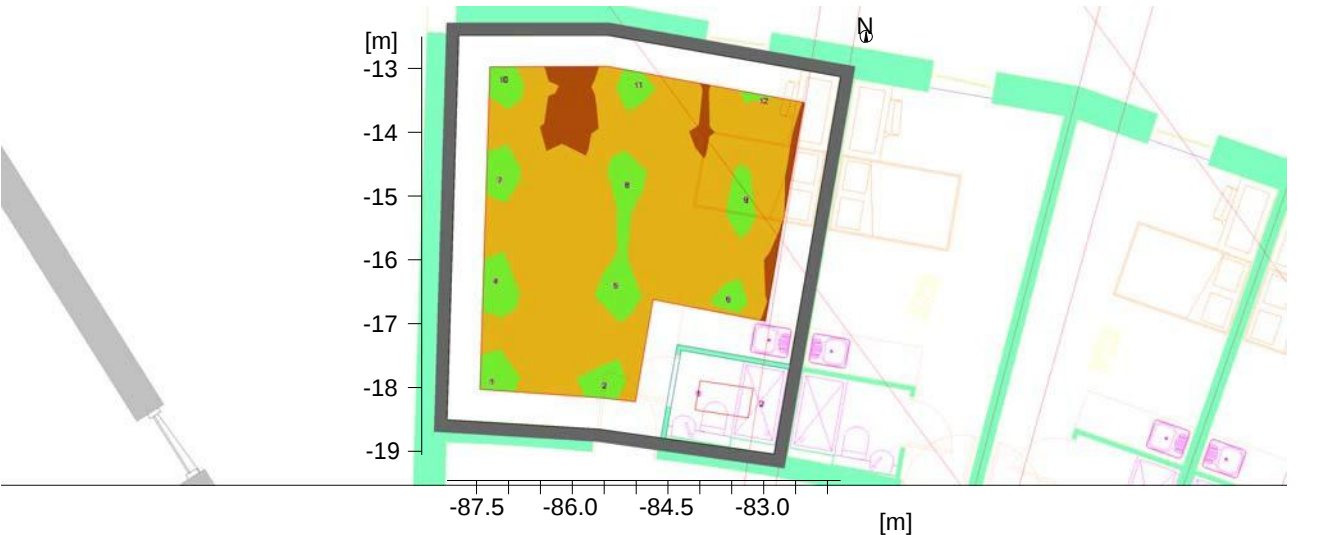
2	13	AURORA	
		Order No.	: 220-240V IP65 Fixed 7W MV Non-dimmable LED Downlight Fire Protection
		Luminaire name	: AU-FRL701/30
		Equipment	: 1 x LED / 435 lm 2900K



Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

7.2 Summary, Type F

7.2.2 Result overview, Main Area



General

Calculation algorithm used	Average indirect fraction with light colours
Height of evaluation surface	0.75 m
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	5655 lm
Total power	96.2 W
Total power per area (33.98 m²)	2.83 W/m²

Illuminance

Average illuminance	Eav	131 lx
Minimum illuminance	Emin	89 lx
Maximum illuminance	Emax	183 lx
Uniformity Uo	Emin/Em	1:1.48 (0.68)
Diversity Ud	Emin/Emax	1:2.06 (0.49)

Type No.\Make

2	13	AURORA	
		Order No.	: 220-240V IP65 Fixed 7W MV Non-dimmable LED Downlight Fire Protection
		Luminaire name	: AU-FRL701/30
		Equipment	: 1 x LED / 435 lm 2900K

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

8 1F Corridor 1

8.1 Description, 1F Corridor 1

8.1.1 Floor plan



Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

8 1F Corridor 1

8.1 Description, 1F Corridor 1

8.1.1 Floor plan

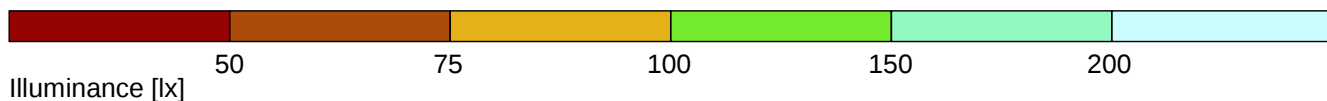
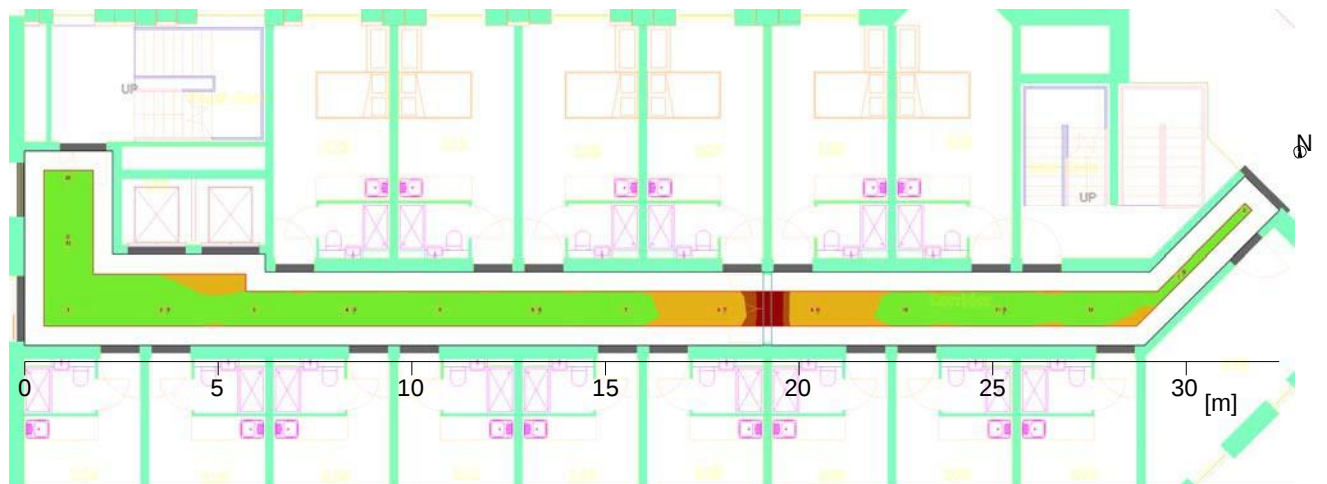
Wall	x	y	Length	Reflectance
1	87.76 m	17.02 m	28.92 m	50.0 %
2	91.24 m	20.50 m	4.93 m	50.0 %
3	90.35 m	21.38 m	1.25 m	50.0 %
4	87.89 m	18.92 m	3.48 m	50.0 %
5	65.06 m	18.92 m	22.83 m	50.0 %
6	65.06 m	19.36 m	0.44 m	50.0 %
7	61.12 m	19.36 m	3.94 m	50.0 %
8	61.12 m	22.03 m	2.67 m	50.0 %
9	58.84 m	22.03 m	2.27 m	50.0 %
10	58.84 m	17.02 m	5.01 m	50.0 %
Floor				19.9 %
Ceiling				70.0 %
Room height		2.40 m		
Height of reference plane		----		

Object :
 Installation : Renslade
 Project number : SP009044
 Date : 29.09.2015

8 1F Corridor 1

8.2 Summary, 1F Corridor 1

8.2.1 Result overview, Evaluation area 1



General

Calculation algorithm used
 Height of luminaire plane
 Maintenance factor

Average indirect fraction with light colours
 2.40 m
 0.80

Total luminous flux of all lamps
 Total power
 Total power per area (69.16 m²)

17056 lm
 283.2 W
 4.09 W/m² (3.91 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

Horizontal
 Em 105 lx
 Emin 2 lx
 Emin/Eav (Uo) 0.02
 Emin/Emax (Ud) 0.01
 Position -0.00 m (rot: 0°/0°)

Type No. \ Make

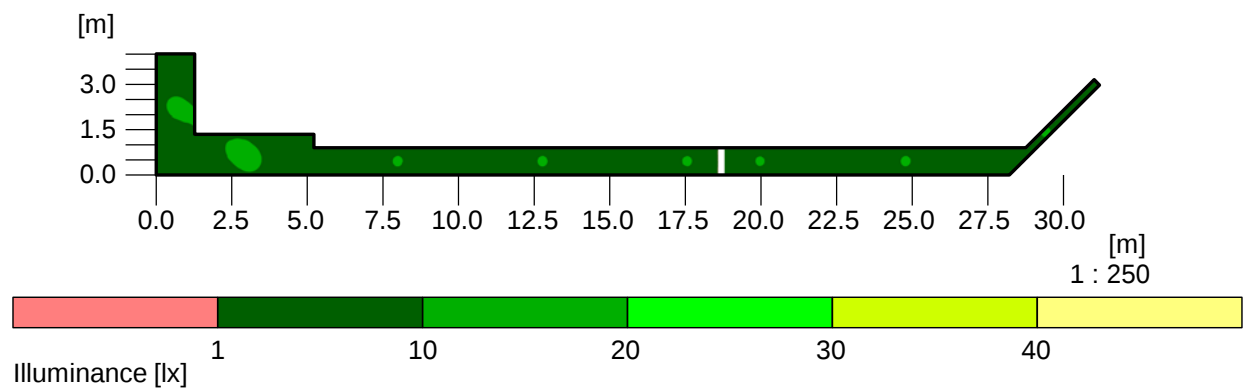
Aurora Lighting
 3 16
 Order No. : 220-240V 18W Round Low Profile LED Downlight
 Luminaire name : AU-DL10218BW/40
 Equipment : 1 x LED / 1066 lm 4000K

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

8 1F Corridor 1

8.3 Calculation results, 1F Corridor 1

8.3.1 Boundary line, Reference plane for emergency lighting 1 (E)



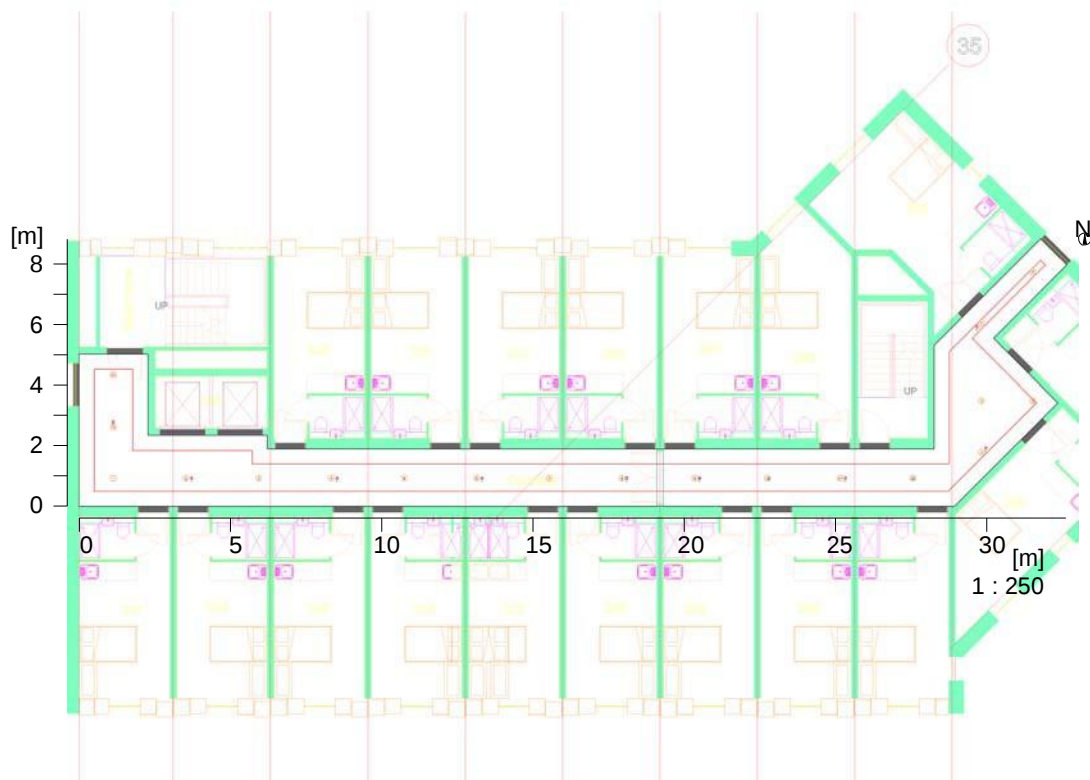
Required minimum illuminance		: 1 lx
Minimum illuminance	Emin	: 0 lx
Maximum illuminance	Emax	: 11 lx
Uniformity	Emin/Emax	: --- (Threshold value 1:40)
Height		: 0 m
Calculation algorithm used		: Direct component

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

9 2F - 9F Corridor 1

9.1 Description, 2F - 9F Corridor 1

9.1.1 Floor plan



Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

9 2F - 9F Corridor 1

9.1 Description, 2F - 9F Corridor 1

9.1.1 Floor plan

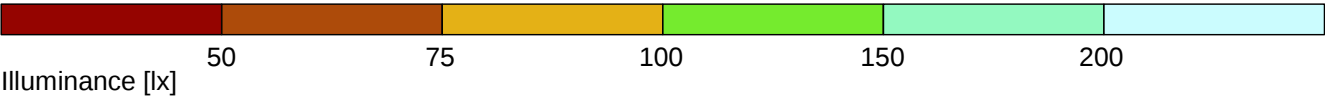
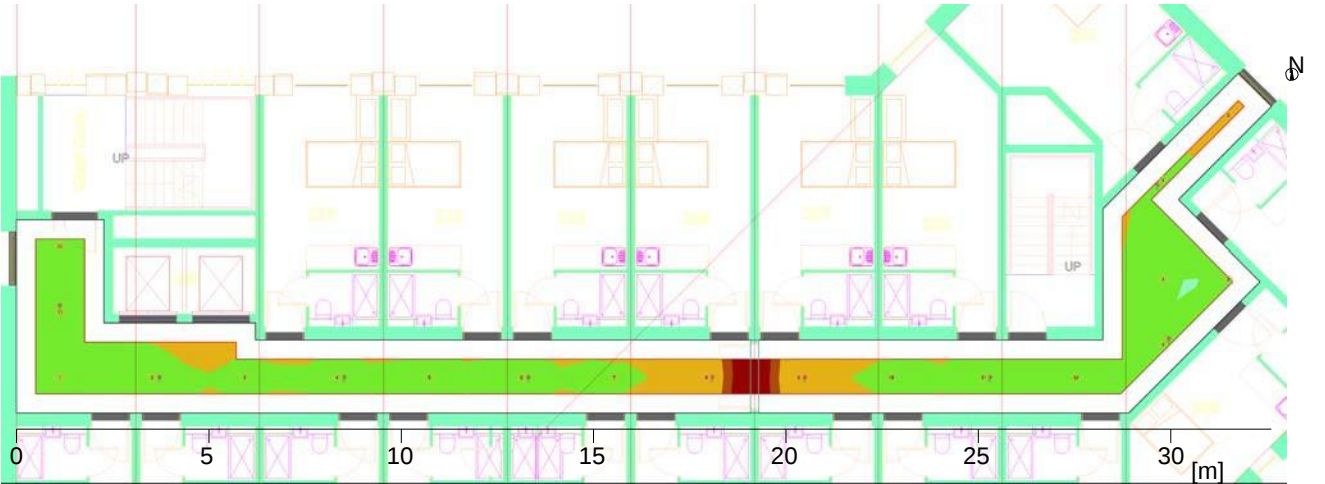
Wall	x	y	Length	Reflectance
1	80.70 m	13.65 m	28.90 m	50.0 %
2	84.12 m	17.06 m	4.83 m	50.0 %
3	82.00 m	19.18 m	3.00 m	50.0 %
4	84.42 m	21.61 m	3.43 m	50.0 %
5	83.55 m	22.46 m	1.22 m	50.0 %
6	80.03 m	18.94 m	4.97 m	50.0 %
7	80.03 m	15.55 m	3.40 m	50.0 %
8	58.01 m	15.55 m	22.02 m	50.0 %
9	58.01 m	15.99 m	0.44 m	50.0 %
10	54.07 m	15.99 m	3.94 m	50.0 %
11	54.07 m	18.66 m	2.67 m	50.0 %
12	51.80 m	18.66 m	2.27 m	50.0 %
13	51.80 m	13.65 m	5.01 m	50.0 %
Floor				19.9 %
Ceiling				70.0 %
Room height		2.40 m		
Height of reference plane		----		

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

9 2F - 9F Corridor 1

9.2 Summary, 2F - 9F Corridor 1

9.2.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction with light colours
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	20254 lm
Total power	336.3 W
Total power per area (81.89 m²)	4.11 W/m² (3.67 W/m²/100lx)

Evaluation area 1

	Reference plane 1.1
	Horizontal
Em	112 lx
Emin	0 lx
Emin/Eav (Uo)	0.00
Emin/Emax (Ud)	0.00
Position	-0.00 m (rot: 0°/0°)

Type No. \Make

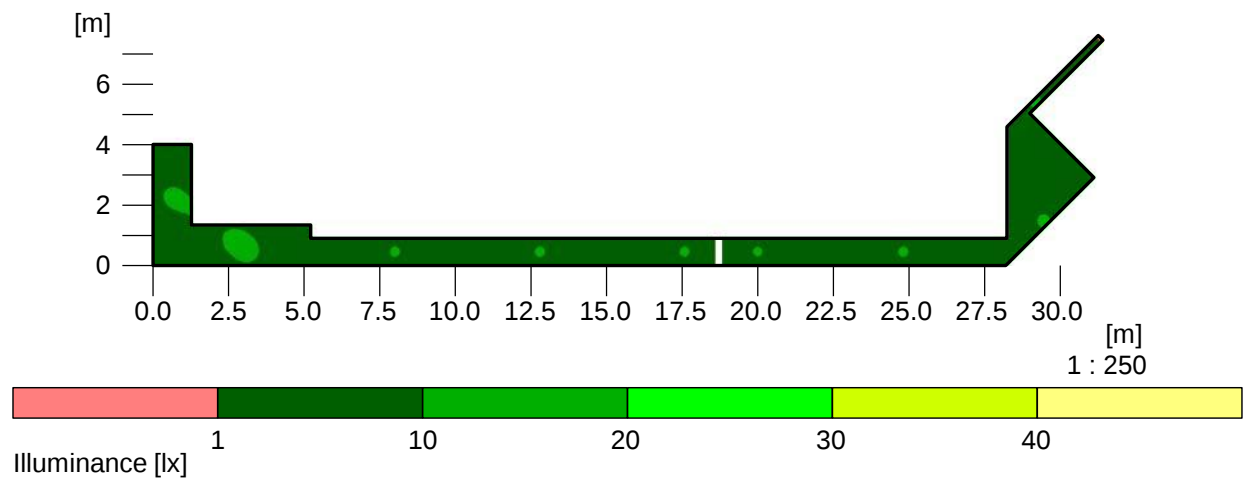
3 19		Aurora Lighting
		Order No. : 220-240V 18W Round Low Profile LED Downlight
		Luminaire name : AU-DL10218BW/40
		Equipment : 1 x LED / 1066 lm 4000K

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

9 2F - 9F Corridor 1

9.3 Calculation results, 2F - 9F Corridor 1

9.3.1 Boundary line, Reference plane for emergency lighting 1 (E)



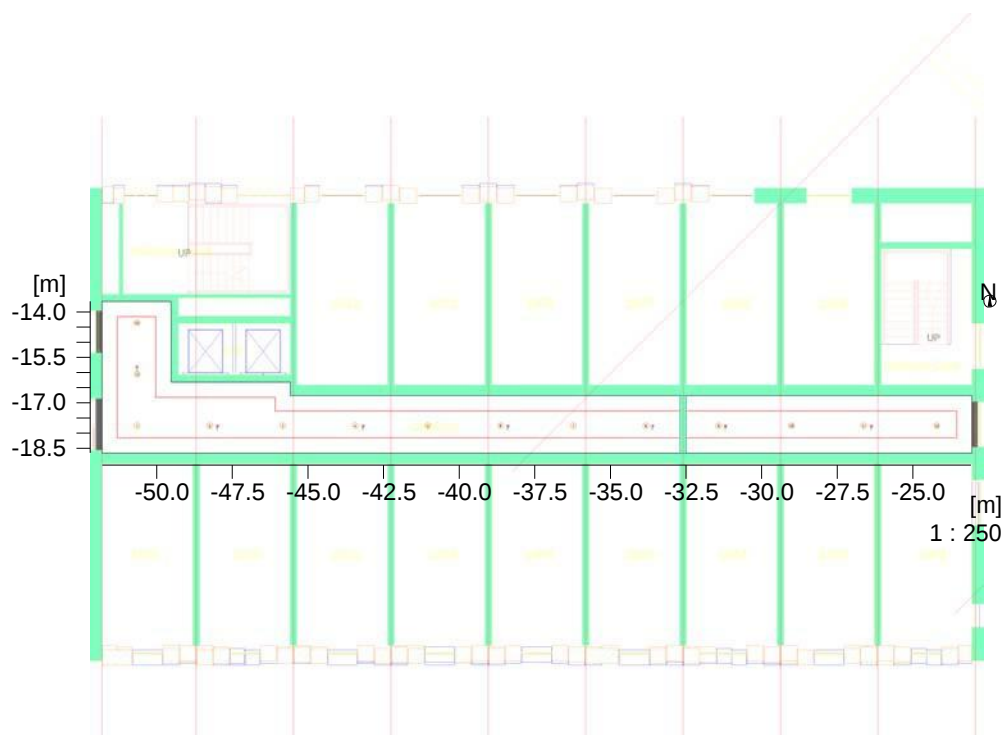
Required minimum illuminance		: 1 lx
Minimum illuminance	Emin	: 0 lx
Maximum illuminance	Emax	: 11 lx
Uniformity	Emin/Emax	: --- (Threshold value 1:40)
Height		: 0 m
Calculation algorithm used		: Direct component

Object :
 Installation : Renslade
 Project number : SP009044
 Date : 29.09.2015

10 10F - 11F Corridor 1

10.1 Description, 10F - 11F Corridor 1

10.1.1 Floor plan



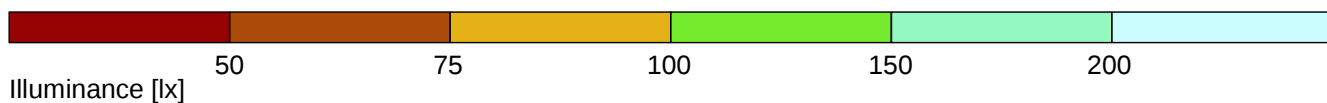
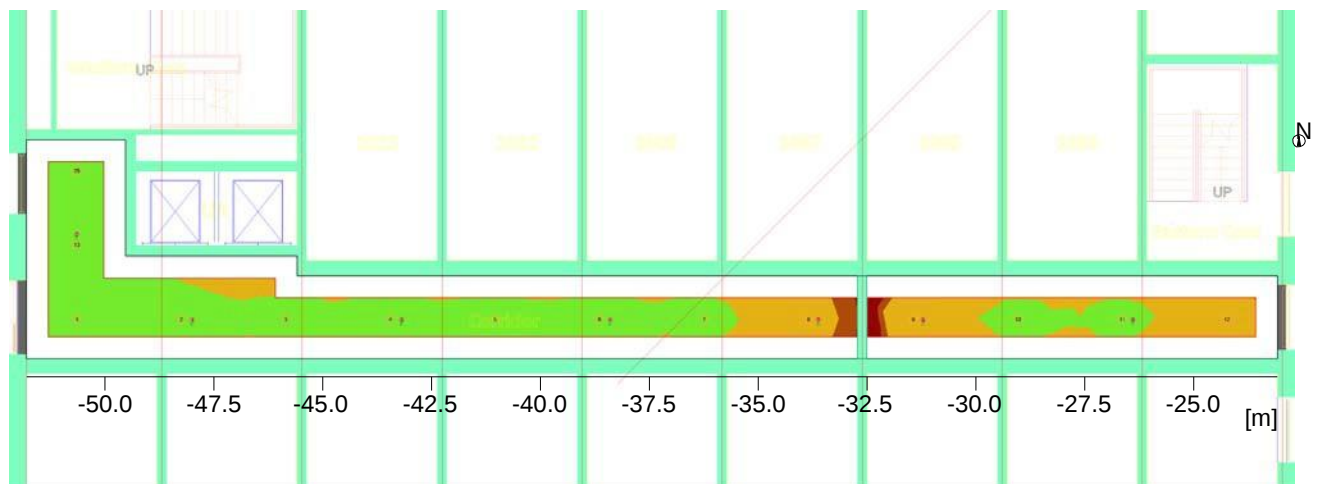
Wall	x	y	Length	Reflectance
1	0.00 m	-5.01 m	5.01 m	50.0 %
2	28.72 m	-5.01 m	28.72 m	50.0 %
3	28.72 m	-3.11 m	1.90 m	50.0 %
4	6.22 m	-3.11 m	22.50 m	50.0 %
5	6.22 m	-2.66 m	0.44 m	50.0 %
6	2.28 m	-2.67 m	3.94 m	50.0 %
7	2.27 m	0.00 m	2.67 m	50.0 %
8	0.00 m	0.00 m	2.27 m	50.0 %
Floor				19.9 %
Ceiling				70.0 %
Room height		2.40 m		
Height of reference plane		0.00 m		

Object :
 Installation : Renslade
 Project number : SP009044
 Date : 29.09.2015

10 10F - 11F Corridor 1

10.2 Summary, 10F - 11F Corridor 1

10.2.1 Result overview, Reference plane 1



General

Calculation algorithm used	Average indirect fraction with light colours
Height of evaluation surface	0.00 m
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	14924 lm
Total power	247.8 W
Total power per area (63.40 m ²)	3.91 W/m ² (3.79 W/m ² /100lx)

Illuminance

Average illuminance	Eav	103 lx
Minimum illuminance	Emin	48 lx
Maximum illuminance	Emax	140 lx
Uniformity Uo	Emin/Em	1:2.14 (0.47)
Diversity Ud	Emin/Emax	1:2.9 (0.34)

Type No. \Make

3	14	Aurora Lighting
		Order No. : 220-240V 18W Round Low Profile LED Downlight
		Luminaire name : AU-DL10218BW/40
		Equipment : 1 x LED / 1066 lm 4000K

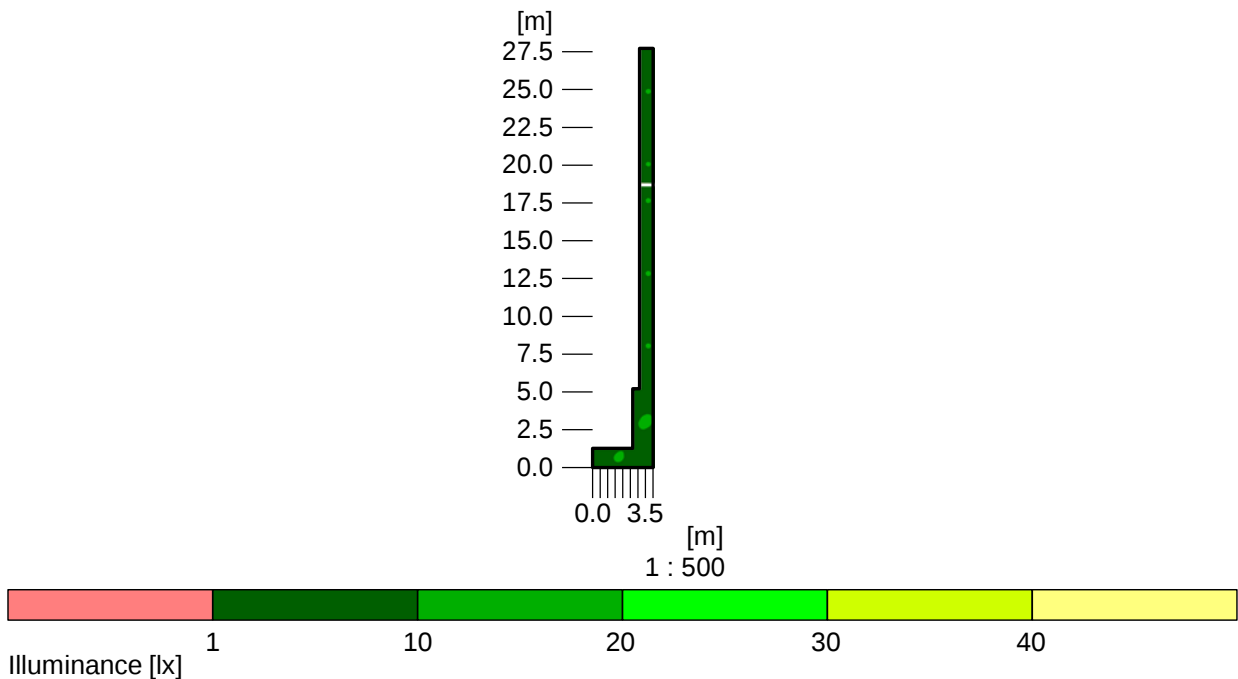


Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

10 10F - 11F Corridor 1

10.3 Calculation results, 10F - 11F Corridor 1

10.3.1 Boundary line, Reference plane for emergency lighting 2 (E)



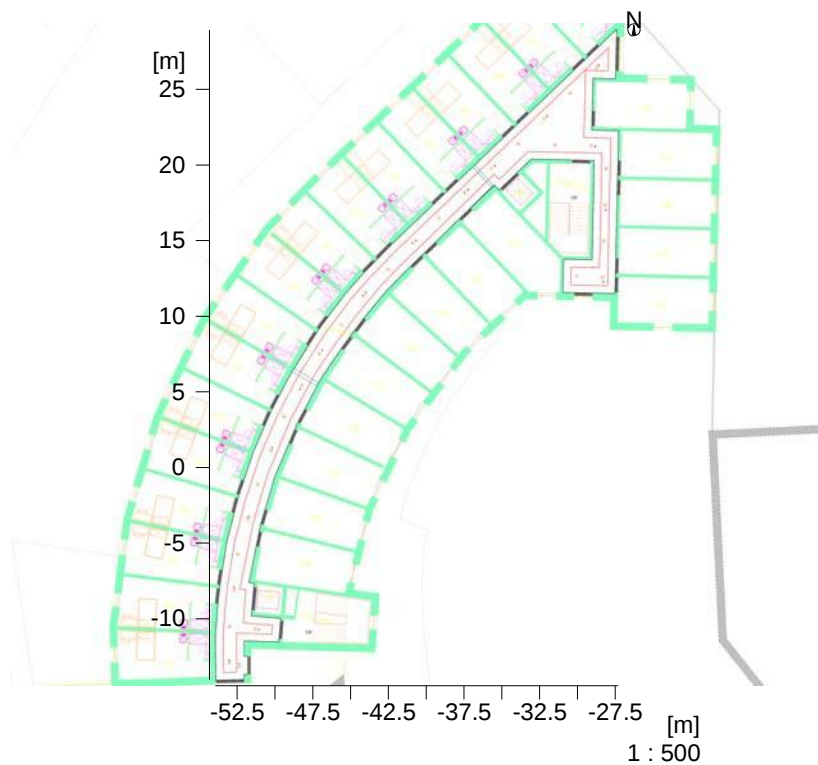
Required minimum illuminance		: 1 lx
Minimum illuminance	Emin	: 0 lx
Maximum illuminance	Emax	: 11 lx
Uniformity	Emin/Emax	: --- (Threshold value 1:40)
Height		: 0 m
Calculation algorithm used		: Direct component

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

11 1F -7F Corridor 2

11.1 Description, 1F -7F Corridor 2

11.1.1 Floor plan



Object :
 Installation : Renslade
 Project number : SP009044
 Date : 29.09.2015

11 1F -7F Corridor 2

11.1 Description, 1F -7F Corridor 2

11.1.1 Floor plan

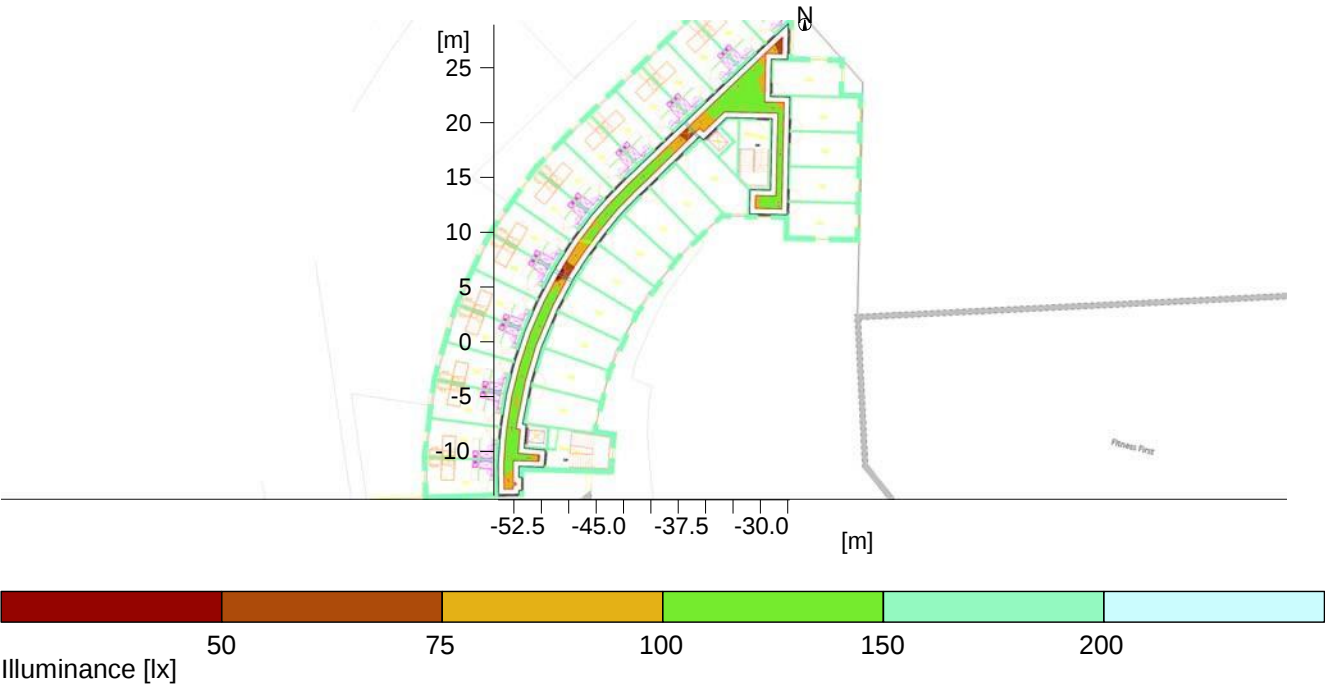
Wall	x	y	Length	Reflectance
1	0.00 m	1.20 m	1.20 m	50.0 %
2	-0.25 m	1.20 m	0.25 m	50.0 %
3	-0.25 m	2.22 m	1.02 m	50.0 %
4	2.05 m	2.15 m	2.30 m	50.0 %
5	2.18 m	3.69 m	1.55 m	50.0 %
6	0.24 m	3.86 m	1.95 m	50.0 %
7	0.43 m	6.02 m	2.16 m	50.0 %
8	0.08 m	6.07 m	0.35 m	50.0 %
9	0.86 m	9.92 m	3.93 m	50.0 %
10	1.78 m	13.01 m	3.23 m	50.0 %
11	3.30 m	16.63 m	3.93 m	50.0 %
12	4.82 m	19.48 m	3.23 m	50.0 %
13	6.17 m	21.50 m	2.43 m	50.0 %
14	7.67 m	23.51 m	2.51 m	50.0 %
15	9.16 m	25.32 m	2.34 m	50.0 %
16	10.75 m	26.95 m	2.28 m	50.0 %
17	12.40 m	28.53 m	2.29 m	50.0 %
18	16.26 m	32.31 m	5.39 m	50.0 %
19	16.58 m	31.97 m	0.47 m	50.0 %
20	18.72 m	34.01 m	2.96 m	50.0 %
21	22.88 m	33.92 m	4.16 m	50.0 %
22	22.73 m	27.36 m	6.55 m	50.0 %
23	20.86 m	27.41 m	1.87 m	50.0 %
24	20.81 m	25.22 m	2.19 m	50.0 %
25	24.24 m	25.14 m	3.43 m	50.0 %
26	24.48 m	35.88 m	10.74 m	50.0 %
27	22.71 m	35.92 m	1.78 m	50.0 %
28	22.78 m	39.35 m	3.43 m	50.0 %
29	24.28 m	39.32 m	1.49 m	50.0 %
30	24.35 m	42.57 m	3.26 m	50.0 %
31	21.52 m	39.87 m	3.92 m	50.0 %
32	17.60 m	36.12 m	5.42 m	50.0 %
33	14.99 m	33.63 m	3.61 m	50.0 %
34	13.17 m	31.89 m	2.52 m	50.0 %
35	12.24 m	31.00 m	1.29 m	50.0 %
36	9.55 m	28.43 m	3.72 m	50.0 %
37	7.68 m	26.53 m	2.67 m	50.0 %
38	6.42 m	25.09 m	1.91 m	50.0 %
39	4.70 m	22.79 m	2.88 m	50.0 %
40	2.92 m	19.99 m	3.31 m	50.0 %
41	1.51 m	17.30 m	3.03 m	50.0 %
42	0.36 m	14.65 m	2.89 m	50.0 %
43	-0.64 m	11.62 m	3.19 m	50.0 %
44	-1.38 m	8.74 m	2.98 m	50.0 %
45	-1.83 m	5.91 m	2.87 m	50.0 %
46	-1.97 m	4.67 m	1.25 m	50.0 %
47	-2.14 m	2.37 m	2.31 m	50.0 %
48	-2.09 m	-0.38 m	2.75 m	50.0 %
49	-0.25 m	-0.34 m	1.84 m	50.0 %
50	-0.25 m	0.00 m	0.34 m	50.0 %
51	0.00 m	0.00 m	0.25 m	50.0 %
Floor				19.9 %
Ceiling				70.0 %
Room height		2.40 m		
Height of reference plane		0.00 m		

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

11 1F -7F Corridor 2

11.2 Summary, 1F -7F Corridor 2

11.2.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction with light colours
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	30914 lm
Total power	513.3 W
Total power per area (133.61 m²)	3.84 W/m² (3.48 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

	Horizontal
Em	110 lx
Emin	84 lx
Emin/Eav (Uo)	0.76
Emin/Emax (Ud)	0.66
Position	0.00 m

Type No. \Make

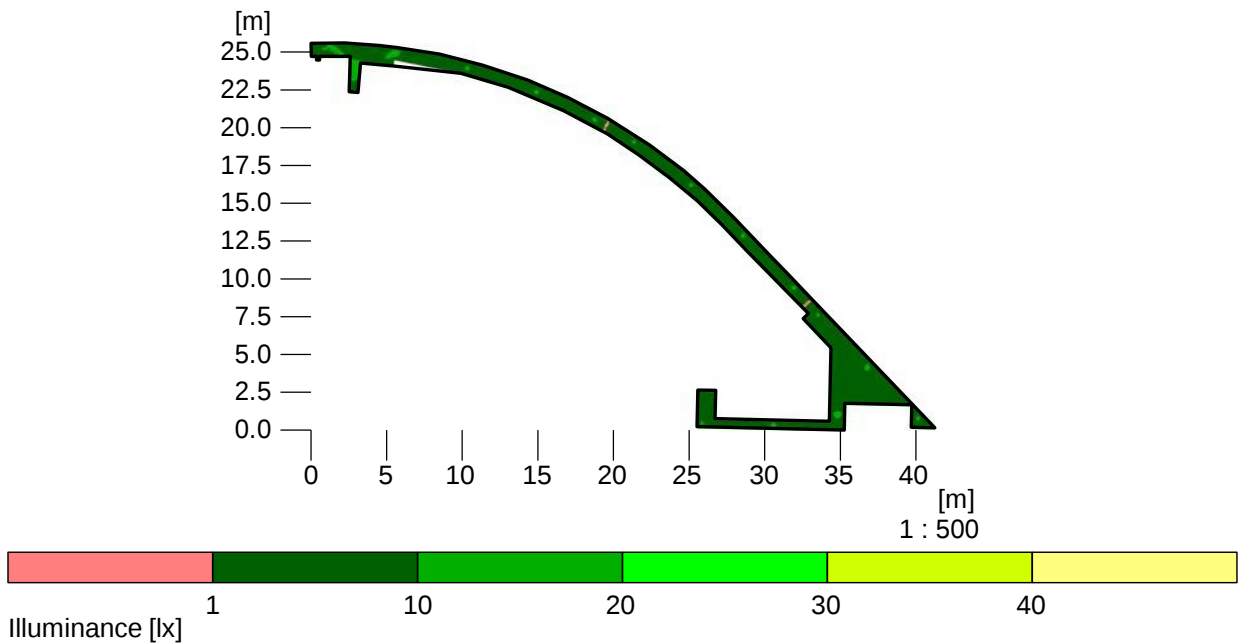
3	29	Aurora Lighting
		Order No. : 220-240V 18W Round Low Profile LED Downlight
		Luminaire name : AU-DL10218BW/40
		Equipment : 1 x LED / 1066 lm 4000K

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

11 1F -7F Corridor 2

11.3 Calculation results, 1F -7F Corridor 2

11.3.1 Boundary line, Reference plane for emergency lighting 1 (E)



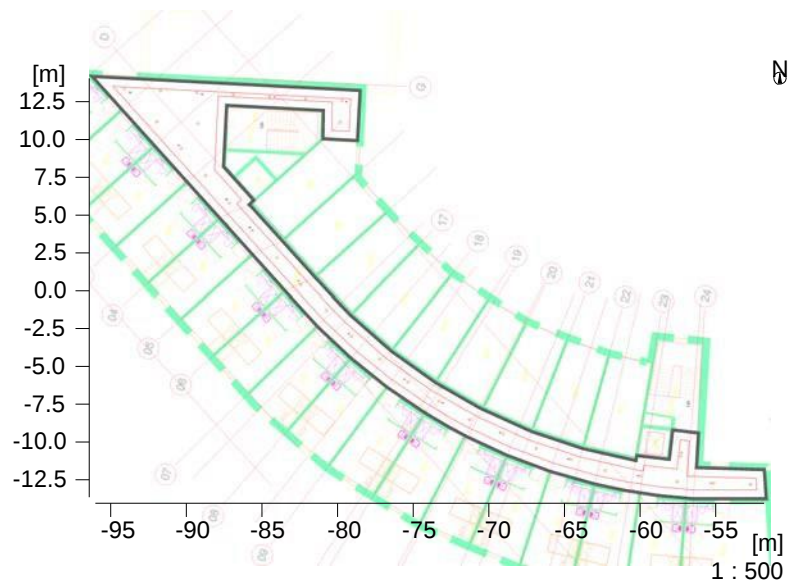
Required minimum illuminance		: 1 lx
Minimum illuminance	Emin	: 0 lx
Maximum illuminance	Emax	: 12 lx
Uniformity	Emin/Emax	: --- (Threshold value 1:40)
Height		: 0 m
Calculation algorithm used		: Direct component

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

12 8F Corridor 2

12.1 Description, 8F Corridor 2

12.1.1 Floor plan



Object :
 Installation : Renslade
 Project number : SP009044
 Date : 29.09.2015

12 8F Corridor 2

12.1 Description, 8F Corridor 2

12.1.1 Floor plan

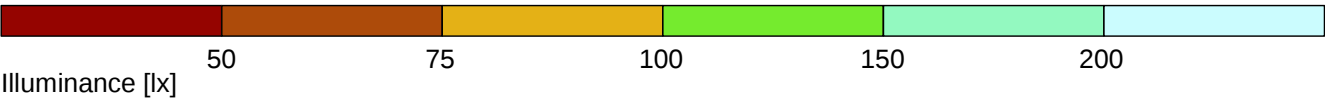
Wall	x	y	Length	Reflectance
1	-0.12 m	1.76 m	1.77 m	50.0 %
2	-4.61 m	1.89 m	4.49 m	50.0 %
3	-4.47 m	4.19 m	2.30 m	50.0 %
4	-6.01 m	4.37 m	1.55 m	50.0 %
5	-6.24 m	2.43 m	1.95 m	50.0 %
6	-8.39 m	2.68 m	2.16 m	50.0 %
7	-8.45 m	2.34 m	0.35 m	50.0 %
8	-12.04 m	3.15 m	3.69 m	50.0 %
9	-13.54 m	3.65 m	1.58 m	50.0 %
10	-15.44 m	4.29 m	2.00 m	50.0 %
11	-16.24 m	4.65 m	0.88 m	50.0 %
12	-18.87 m	5.85 m	2.89 m	50.0 %
13	-21.80 m	7.53 m	3.38 m	50.0 %
14	-24.72 m	9.61 m	3.58 m	50.0 %
15	-26.00 m	10.73 m	1.70 m	50.0 %
16	-27.41 m	11.97 m	1.88 m	50.0 %
17	-28.11 m	12.70 m	1.01 m	50.0 %
18	-29.77 m	14.48 m	2.43 m	50.0 %
19	-31.92 m	16.86 m	3.22 m	50.0 %
20	-34.15 m	19.33 m	3.32 m	50.0 %
21	-33.85 m	19.60 m	0.41 m	50.0 %
22	-35.83 m	21.80 m	2.96 m	50.0 %
23	-35.61 m	25.95 m	4.16 m	50.0 %
24	-29.06 m	25.61 m	6.55 m	50.0 %
25	-29.09 m	23.74 m	1.87 m	50.0 %
26	-26.97 m	23.63 m	2.12 m	50.0 %
27	-26.81 m	26.77 m	3.15 m	50.0 %
28	-44.22 m	27.69 m	17.44 m	50.0 %
29	-42.37 m	25.64 m	2.76 m	50.0 %
30	-40.22 m	23.25 m	3.22 m	50.0 %
31	-38.07 m	20.86 m	3.21 m	50.0 %
32	-35.92 m	18.47 m	3.22 m	50.0 %
33	-33.77 m	16.08 m	3.21 m	50.0 %
34	-31.62 m	13.69 m	3.22 m	50.0 %
35	-29.48 m	11.36 m	3.16 m	50.0 %
36	-27.27 m	9.27 m	3.04 m	50.0 %
37	-24.91 m	7.36 m	3.04 m	50.0 %
38	-22.39 m	5.66 m	3.03 m	50.0 %
39	-20.74 m	4.68 m	1.92 m	50.0 %
40	-19.64 m	4.10 m	1.25 m	50.0 %
41	-16.99 m	2.86 m	2.92 m	50.0 %
42	-14.14 m	1.80 m	3.04 m	50.0 %
43	-11.21 m	0.98 m	3.04 m	50.0 %
44	-9.34 m	0.58 m	1.91 m	50.0 %
45	-7.11 m	0.23 m	2.26 m	50.0 %
46	-4.72 m	0.00 m	2.40 m	50.0 %
47	-0.00 m	-0.00 m	4.72 m	50.0 %
Floor				19.9 %
Ceiling				70.0 %
Room height		2.40 m		
Height of reference plane		----		

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

12 8F Corridor 2

12.2 Summary, 8F Corridor 2

12.2.1 Result overview, Corridor



General

Calculation algorithm used	Average indirect fraction with light colours
Height of evaluation surface	0.00 m
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	33046 lm
Total power	548.7 W
Total power per area (139.06 m²)	3.95 W/m²

Illuminance

Average illuminance	Eav	113 lx
Minimum illuminance	Emin	98 lx
Maximum illuminance	Emax	141 lx
Uniformity Uo	Emin/Em	1:1.16 (0.86)
Diversity Ud	Emin/Emax	1:1.44 (0.69)

Type No. \Make

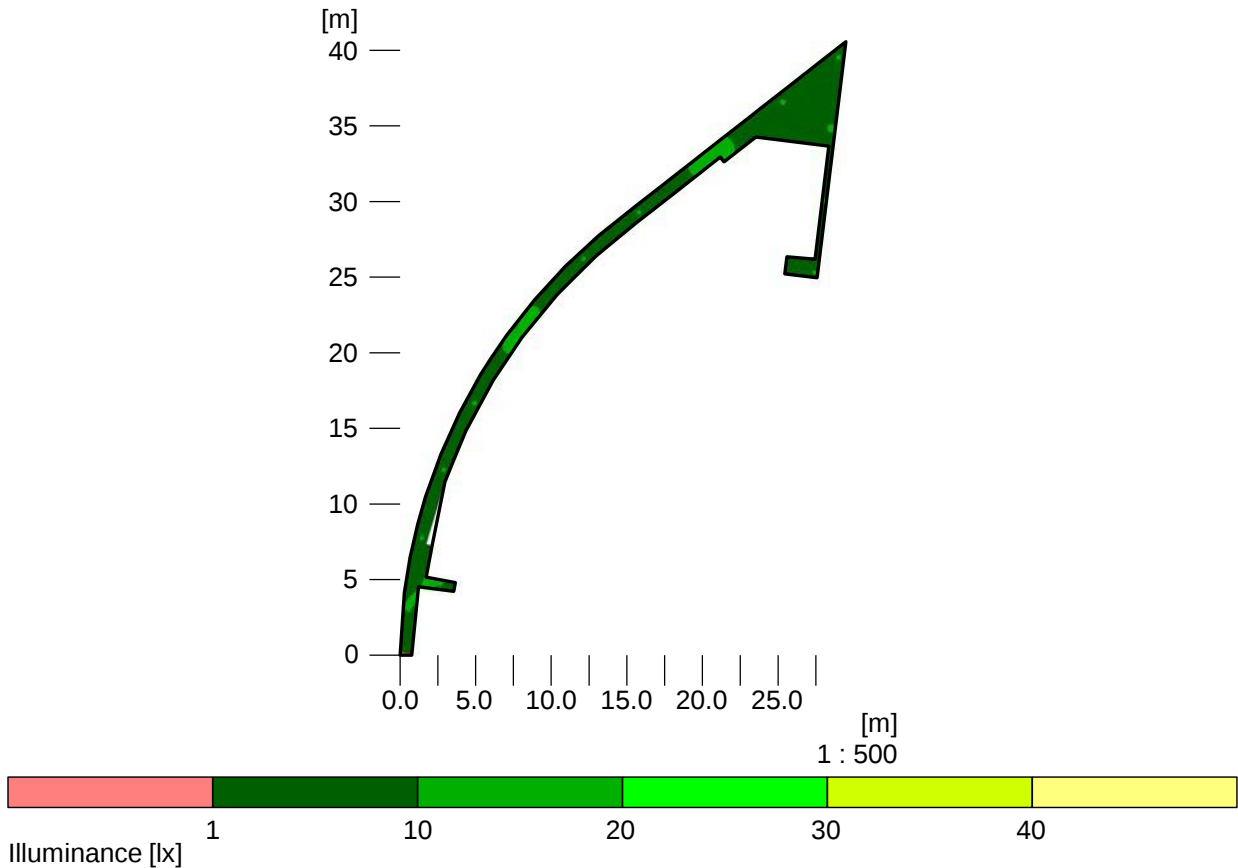
31		Aurora Lighting	
		Order No.	: 220-240V 18W Round Low Profile LED Downlight
		Luminaire name	: AU-DL10218BW/40
		Equipment	: 1 x LED / 1066 lm 4000K

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

12 8F Corridor 2

12.3 Calculation results, 8F Corridor 2

12.3.1 Boundary line, Reference plane for emergency lighting 1 (E)



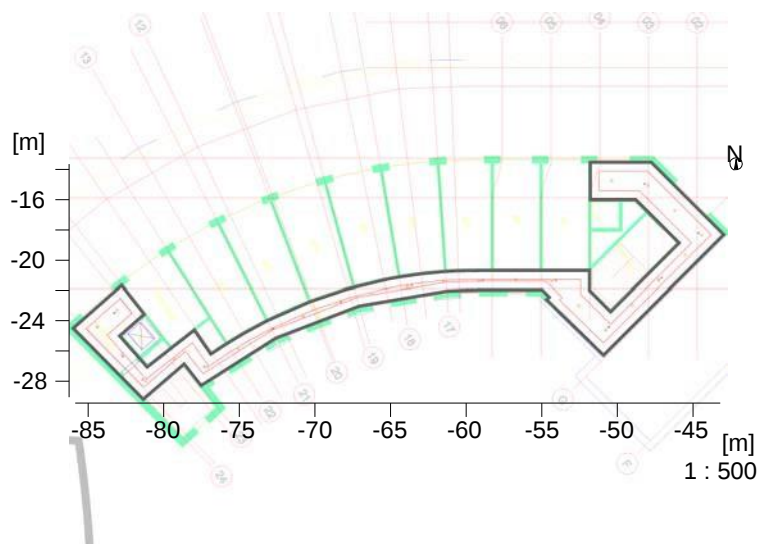
Required minimum illuminance		: 1 lx
Minimum illuminance	Emin	: 0.5 lx
Maximum illuminance	Emax	: 13 lx
Uniformity	Emin/Emax	: 1 : 25.10 (0.04) (Threshold value 1:40)
Height		: 0 m
Calculation algorithm used		: Direct component

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

13 9F Corridor 2

13.1 Description, 9F Corridor 2

13.1.1 Floor plan



Object :
 Installation : Renslade
 Project number : SP009044
 Date : 29.09.2015

13 9F Corridor 2

13.1 Description, 9F Corridor 2

13.1.1 Floor plan

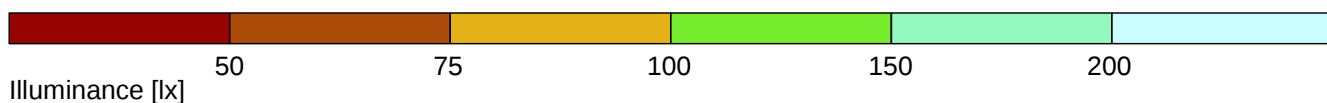
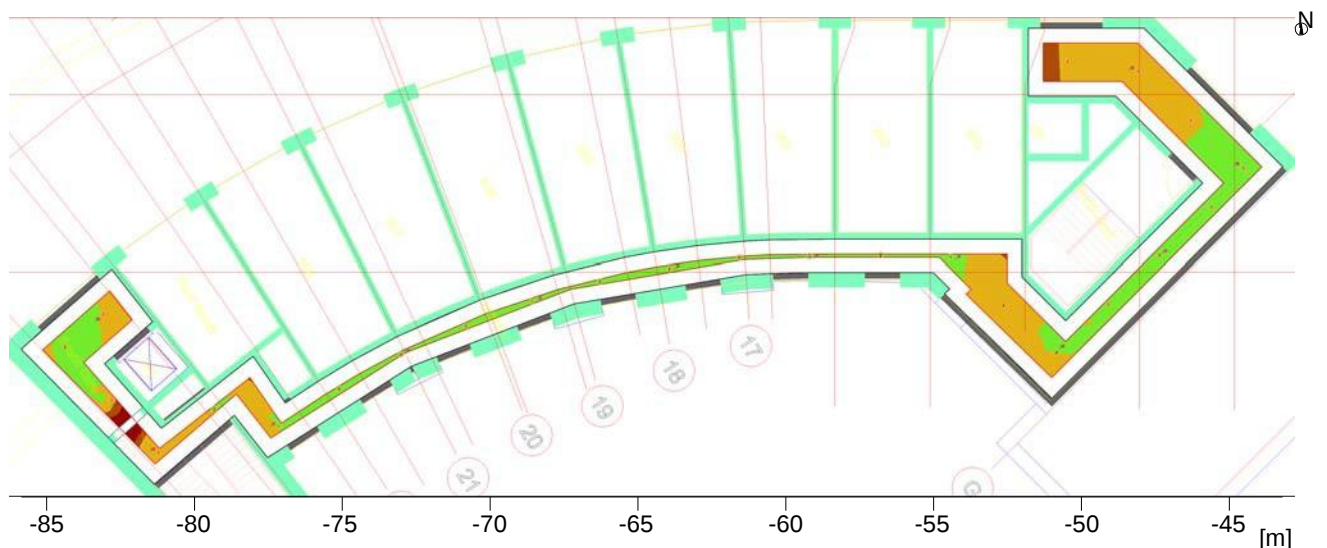
Wall	x	y	Length	Reflectance
1	0.00 m	-2.30 m	2.30 m	50.0 %
2	2.96 m	-2.30 m	2.96 m	50.0 %
3	5.90 m	-5.24 m	4.16 m	50.0 %
4	1.26 m	-9.88 m	6.55 m	50.0 %
5	-0.21 m	-8.40 m	2.09 m	50.0 %
6	-0.22 m	-7.13 m	1.26 m	50.0 %
7	-3.32 m	-7.13 m	3.11 m	50.0 %
8	-6.54 m	-7.13 m	3.21 m	50.0 %
9	-8.76 m	-7.16 m	2.22 m	50.0 %
10	-9.62 m	-7.21 m	0.86 m	50.0 %
11	-11.22 m	-7.36 m	1.61 m	50.0 %
12	-12.66 m	-7.57 m	1.45 m	50.0 %
13	-13.66 m	-7.75 m	1.02 m	50.0 %
14	-16.05 m	-8.34 m	2.47 m	50.0 %
15	-18.55 m	-9.18 m	2.63 m	50.0 %
16	-21.35 m	-10.42 m	3.06 m	50.0 %
17	-22.86 m	-11.23 m	1.71 m	50.0 %
18	-24.01 m	-11.93 m	1.35 m	50.0 %
19	-25.12 m	-12.66 m	1.33 m	50.0 %
20	-26.21 m	-11.08 m	1.92 m	50.0 %
21	-29.31 m	-13.51 m	3.94 m	50.0 %
22	-31.23 m	-11.33 m	2.90 m	50.0 %
23	-29.61 m	-9.91 m	2.16 m	50.0 %
24	-30.99 m	-8.14 m	2.24 m	50.0 %
25	-34.06 m	-10.84 m	4.08 m	50.0 %
26	-29.55 m	-15.41 m	6.42 m	50.0 %
27	-26.85 m	-13.08 m	3.57 m	50.0 %
28	-25.73 m	-14.51 m	1.82 m	50.0 %
29	-23.33 m	-12.99 m	2.84 m	50.0 %
30	-20.85 m	-11.41 m	2.94 m	50.0 %
31	-20.16 m	-11.15 m	0.73 m	50.0 %
32	-17.95 m	-10.30 m	2.37 m	50.0 %
33	-15.35 m	-9.30 m	2.78 m	50.0 %
34	-12.45 m	-8.81 m	2.94 m	50.0 %
35	-10.42 m	-8.47 m	2.06 m	50.0 %
36	-9.55 m	-8.32 m	0.89 m	50.0 %
37	-8.64 m	-8.29 m	0.91 m	50.0 %
38	-7.43 m	-8.25 m	1.21 m	50.0 %
39	-3.21 m	-8.25 m	4.22 m	50.0 %
40	-2.66 m	-8.80 m	0.78 m	50.0 %
41	-2.84 m	-8.96 m	0.24 m	50.0 %
42	0.79 m	-12.51 m	5.07 m	50.0 %
43	8.60 m	-4.69 m	11.05 m	50.0 %
44	3.91 m	0.00 m	6.64 m	50.0 %
45	0.00 m	0.00 m	3.91 m	50.0 %
Floor				19.9 %
Ceiling				70.0 %
Room height		2.40 m		
Height of reference plane		----		

Object :
 Installation : Renslade
 Project number : SP009044
 Date : 29.09.2015

13 9F Corridor 2

13.2 Summary, 9F Corridor 2

13.2.1 Result overview, Corridor



General

Calculation algorithm used	Average indirect fraction with light colours
Height of evaluation surface	0.00 m
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	26650 lm
Total power	442.5 W
Total power per area (96.02 m ²)	4.61 W/m ²

Illuminance

Average illuminance	Eav	97 lx
Minimum illuminance	Emin	66 lx
Maximum illuminance	Emax	117 lx
Uniformity U ₀	Emin/Em	1:1.46 (0.68)
Diversity U _d	Emin/Emax	1:1.76 (0.57)

Type No. \Make

3	25	Aurora Lighting
		Order No. : 220-240V 18W Round Low Profile LED Downlight
		Luminaire name : AU-DL10218BW/40
		Equipment : 1 x LED / 1066 lm 4000K

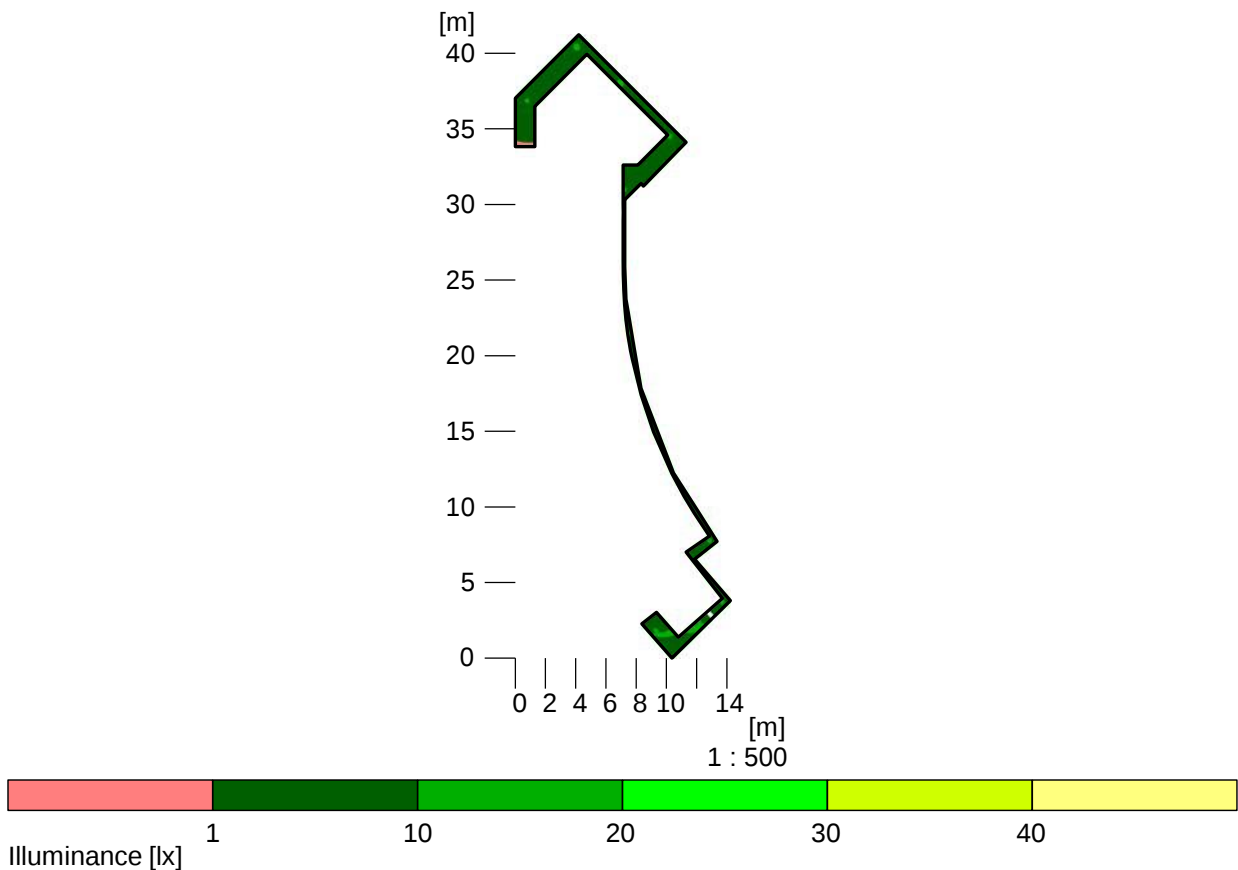


Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

13 9F Corridor 2

13.3 Calculation results, 9F Corridor 2

13.3.1 Boundary line, Reference plane for emergency lighting 1 (E)



Required minimum illuminance : 1 lx

Minimum illuminance Emin : 0 lx

Maximum illuminance Emax : 11 lx

Uniformity Emin/Emax : --- (Threshold value 1:40)

Height : 0 m

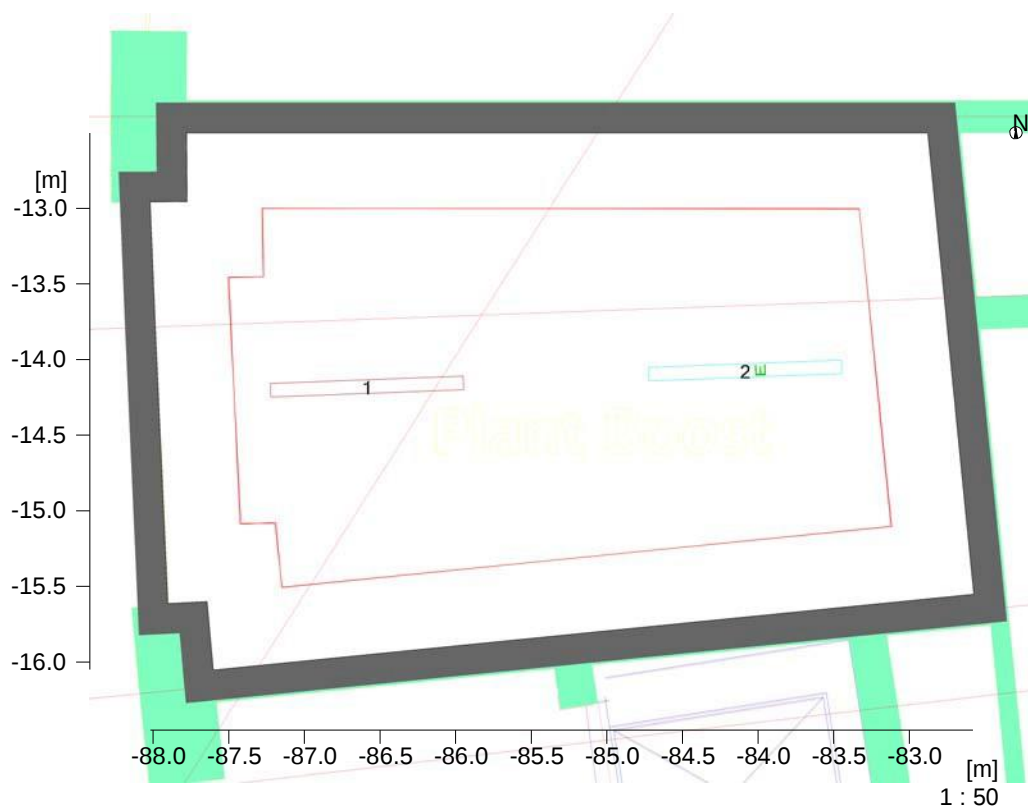
Calculation algorithm used : Direct component

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

14 9F Plant Boost

14.1 Description, 9F Plant Boost

14.1.1 Floor plan



Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

14 9F Plant Boost

14.1 Description, 9F Plant Boost

14.1.1 Floor plan

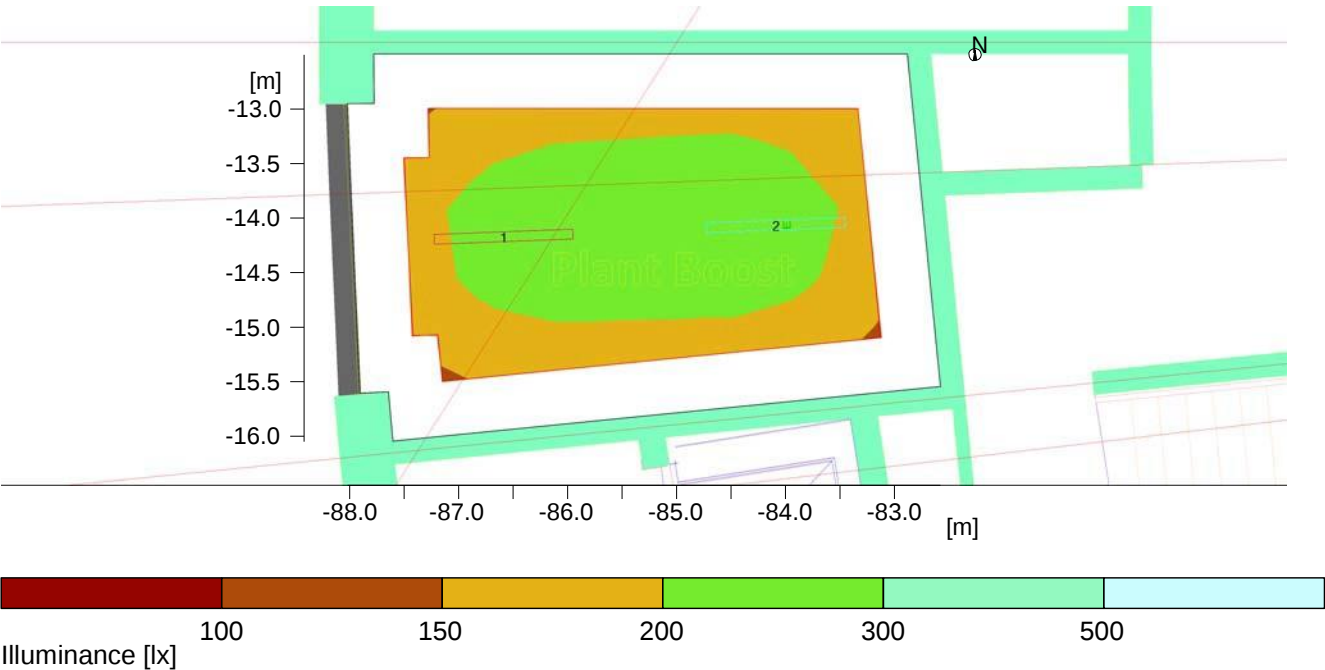
Wall	x	y	Length	Reflectance
1	0.00 m	-0.45 m	0.45 m	50.0 %
2	-0.24 m	-0.46 m	0.24 m	50.0 %
3	-0.21 m	-1.29 m	0.83 m	50.0 %
4	-0.12 m	-3.11 m	1.83 m	50.0 %
5	0.14 m	-3.10 m	0.26 m	50.0 %
6	0.18 m	-3.55 m	0.45 m	50.0 %
7	5.20 m	-3.05 m	5.05 m	50.0 %
8	4.90 m	0.00 m	3.06 m	50.0 %
9	0.00 m	0.00 m	4.90 m	50.0 %
Floor				19.9 %
Ceiling				70.0 %
Room height		2.40 m		
Height of reference plane		0.00 m		

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

14 9F Plant Boost

14.2 Summary, 9F Plant Boost

14.2.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction with light colours
Height of luminaire plane	2.40 m
Maintenance factor	0.80
Total luminous flux of all lamps	8200 lm
Total power	100.0 W
Total power per area (17.14 m²)	5.83 W/m² (2.88 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

	Horizontal
Em	203 lx
Emin	168 lx
Emin/Eav (Uo)	0.83
Emin/Emax (Ud)	0.72
Position	0.00 m

Type No. \Make

10	1	Aurora Lighting
		Order No. : AU-ANT1204A
		Luminaire name : AU-ANT1204A
		Equipment : 1 x LED / 4100 lm 4000K

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

14 9F Plant Boost

14.2 Summary, 9F Plant Boost

14.2.1 Result overview, Evaluation area 1

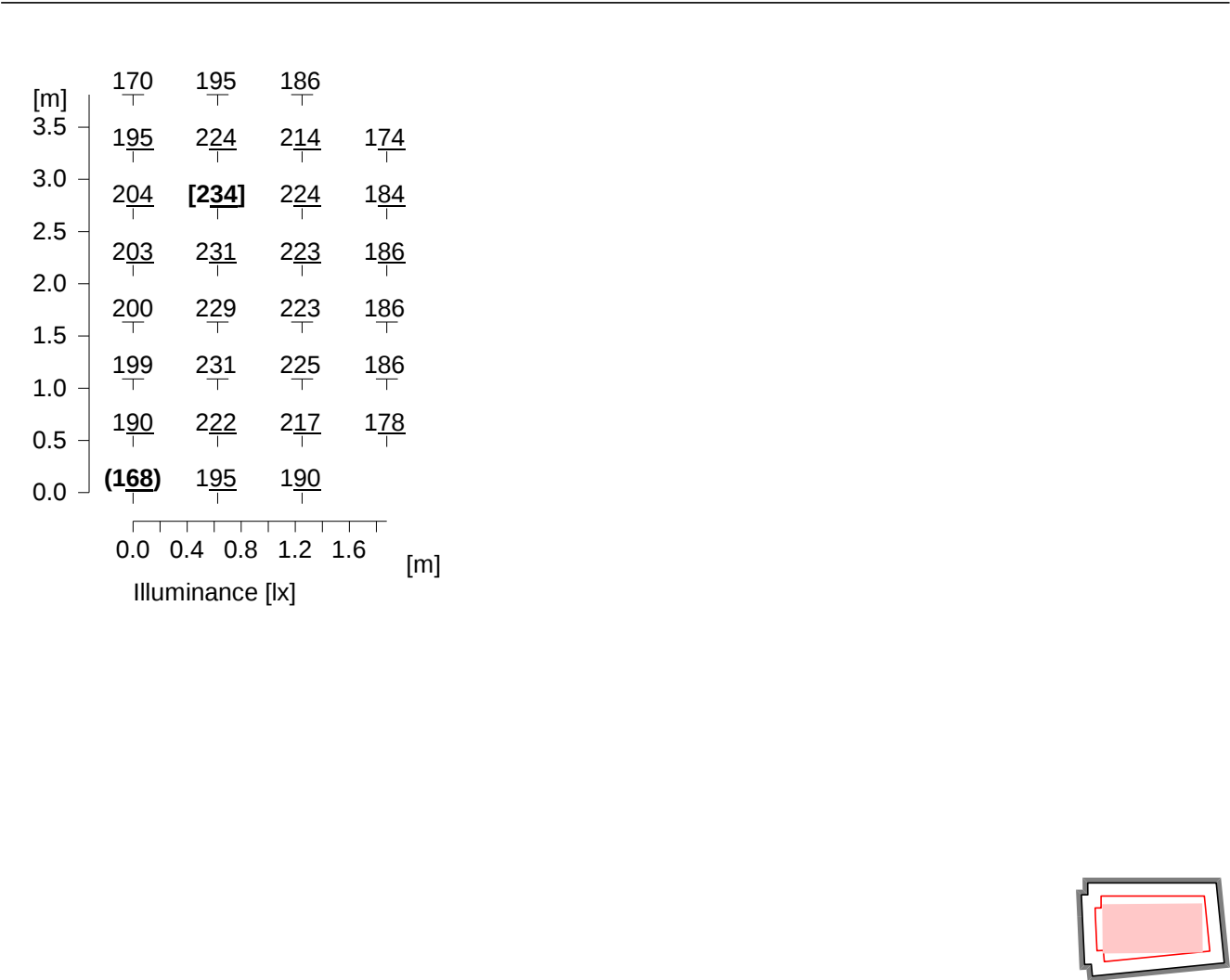
11	1	Order No.	: AU-ANT1204AEM
		Luminaire name	: AU-ANT1204AEM
		Equipment	: 1 x LED / 4100 lm 4000K

Object :
Installation : Renslade
Project number : SP009044
Date : 29.09.2015

14 9F Plant Boost

14.3 Calculation results, 9F Plant Boost

14.3.1 Table, Reference plane 1.1 (E)



Height of the reference plane	: 0.00 m
Average illuminance	Eav : 203 lx
Minimum illuminance	Emin : 168 lx
Maximum illuminance	Emax : 234 lx
Uniformity Uo	Emin/Eav : 1 : 1.21 (0.83)
Diversity Ud	Emin/Emax : 1 : 1.39 (0.72)