



Installation : Cyfartha Castle

Project number : KJ28082024

Customer : Merthyr CBC

Processed by : Kris Jones

Date : 05.09.2024

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

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

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

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

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

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

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

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

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

Nominal Values Used:
Maintenance Factor - 0.8
Reflectance Values (Office Type Interior): 70\50\20
Reflectance Values (Warehouse Type Interior): 50\30\20

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

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

[illegible]

1 Reception

1.1 Description, Reception

1.1.1 Floor plan



Object :
Installation : Cyfartha Castle
Project number : KJ28082024
Date : 05.09.2024



1 Reception

1.1 Description, Reception

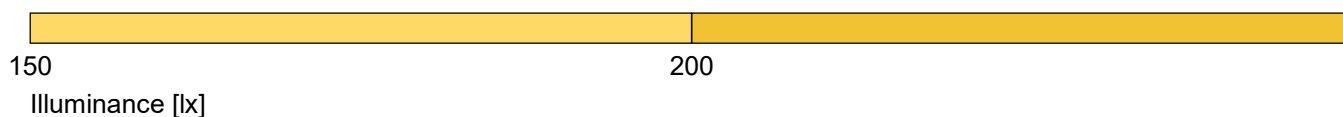
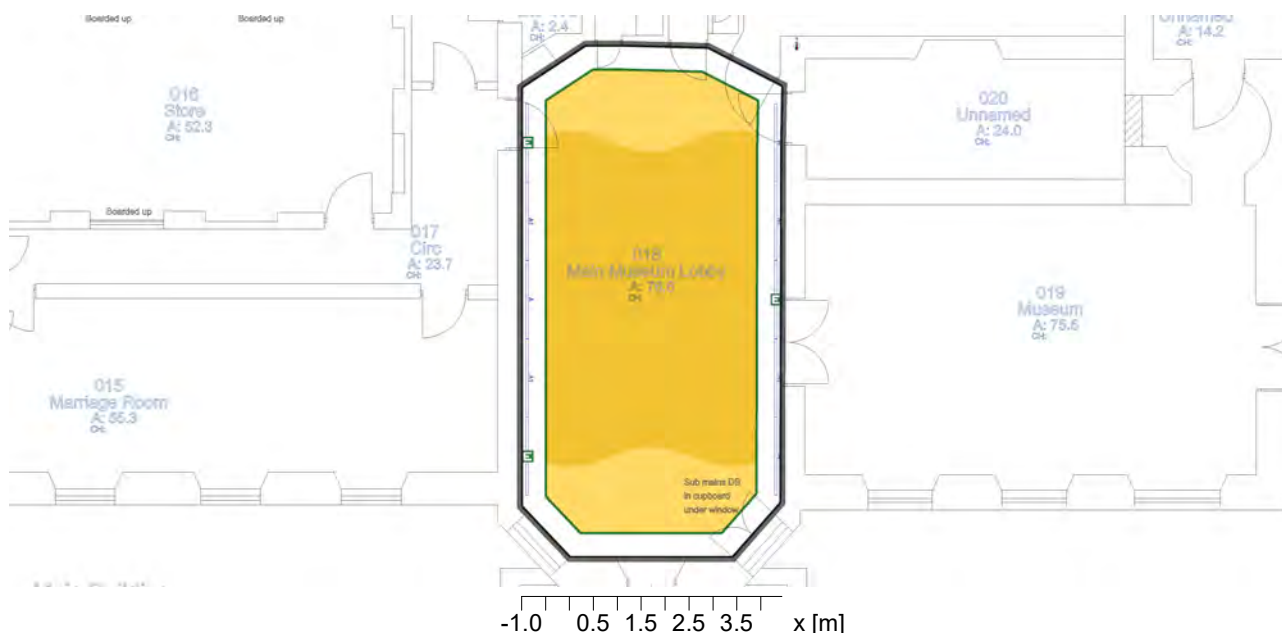
1.1.1 Floor plan

Wall	x	y	Length	Reflectance
1	69.35 m	6.22 m	3.39 m	50.0 %
2	70.35 m	7.36 m	1.51 m	50.0 %
3	70.37 m	14.82 m	7.47 m	50.0 %
4	70.39 m	16.05 m	1.23 m	50.0 %
5	68.84 m	16.85 m	1.75 m	50.0 %
6	67.04 m	16.90 m	1.79 m	50.0 %
7	66.28 m	16.90 m	0.76 m	50.0 %
8	64.95 m	16.02 m	1.59 m	50.0 %
9	64.95 m	7.29 m	8.74 m	50.0 %
10	65.95 m	6.22 m	1.46 m	50.0 %
Floor				20.0 %
Ceiling				70.0 %
Room height		4.00 m		
Height of ref. plane		0.00 m		

1 Reception

1.2 Summary, Reception

1.2.1 Result overview, Evaluation area 1



General

Calculation algorithm used
 Height of luminaire plane
 Maintenance factor

High indirect fraction
 3.95 m
 0.80

Total luminous flux
 Total power
 Total power per area (55.37 m²)

31800.00 lm
 246.0 W
 4.44 W/m² (2.12 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

Horizontal
 $\bar{E}_m$ 210 lx
 E_{min} 163 lx
 $E_{min}/\bar{E}_m (U_o)$ 0.78
 $E_{min}/E_{max} (U_d)$ 0.69
 E_z/E_h
 Position 0.00 m
 $R_{UG} (2.0H \ 3.9H)$ ≤ 20.8
 Luminaire :
 (SIGNUM N O, SGN5530ONWWDM3)

cylindrical
 91 lx
 77 lx
 0.85
 0.41
 0.45 m

Major surfaces

$\bar{E}_m$

U_o

Type No. Make

Object :
Installation : Cyfartha Castle
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1 Reception

1.2 Summary, Reception

1.2.1 Result overview, Evaluation area 1

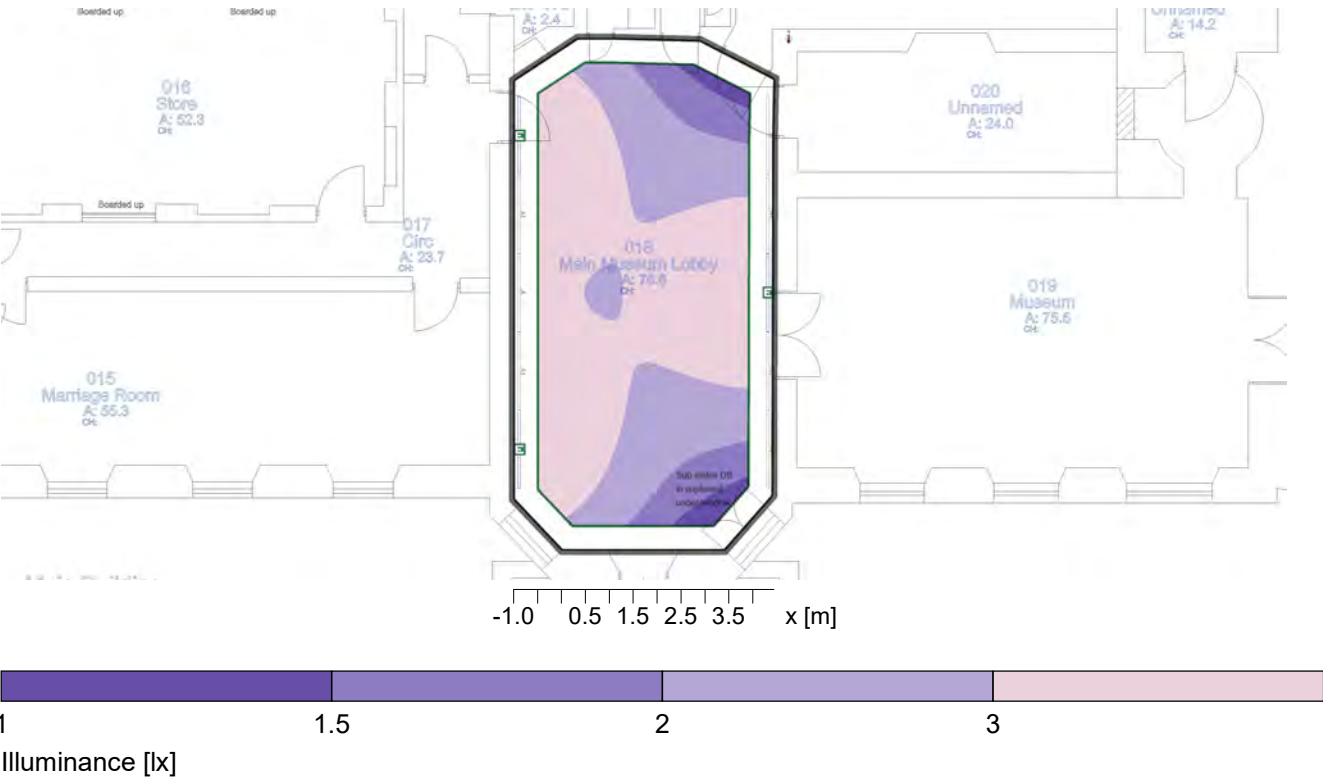
Tamlite Lighting				
<u>A</u>	2	3 x	Order No.	: SGN5530ONWWD
			Luminaire name	: SIGNUM N O
			Equipment	: 1 x LED 41 W / 5300 lm
<u>A1</u>	3	4 x	Order No.	: !SGD1625INFILL
			Luminaire name	: SIGNUM O
			Equipment	: 1 x / 0 lm
<u>AE</u>	7	3E x	Order No.	: SGN5530ONWWDM3
			Luminaire name	: SIGNUM N O
			Equipment	: 1 x 41 W / 5300 lm
			Emergency	: 320 lm (6.0 %)
				-- Emergency Lighting --



1 Reception

1.3 Summary, Reception

1.3.1.1 Result overview (emergency lighting)

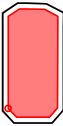


General

Calculation algorithm used : Direct component
Maintenance factor : 0.8
Height (phot. centre) : 3.91 m
Maximum I : 77 cd <= 2500 cd

Anti panic area:

No.	Surface		Ud
	Emin [lx]	Emax [lx]	
Anti panic area 1.1			
Calculation field: 4.44m x 9.67m (8 x 17 pts), Height = 0.00m			
1	1.20 lx	4.40 lx	1: 3.68
	>= 0.5 lx		>= 1 : 40



Type No. Make

Tamlite Lighting			-- Emergency Lighting --
7	3E x	Order No. : SGN5530ONWWD3	
		Luminaire name : SIGNUM N O	
		Equipment : 1 x 41 W / 5300 lm	
		Emergency : 320 lm (6.0 %)	



2 Art Gallery

2.1 Description, Art Gallery

2.1.1 Floor plan



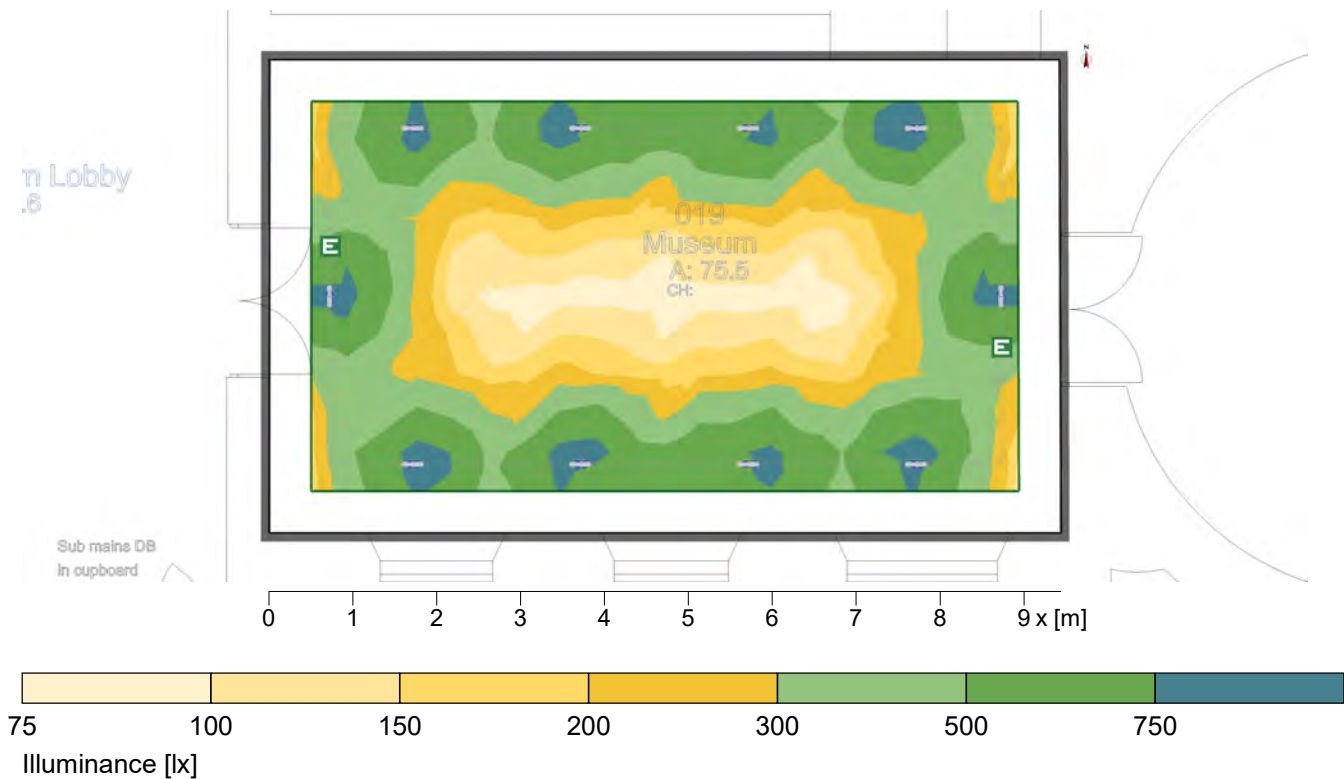
Wall	x	y	Length	Reflectance
1	80.29 m	7.94 m	9.44 m	50.0 %
2	80.28 m	13.58 m	5.64 m	50.0 %
3	70.86 m	13.58 m	9.41 m	50.0 %
4	70.86 m	7.94 m	5.64 m	50.0 %
Floor				20.0 %
Ceiling				70.0 %
Room height		4.00 m		
Height of ref. plane		0.00 m		



2 Art Gallery

2.2 Summary, Art Gallery

2.2.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction
Maintenance factor	0.80
Total luminous flux	28000.00 lm
Total power	250.0 W
Total power per area (53.14 m²)	4.70 W/m² (1.16 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

$\bar{E}_m$	Horizontal	cylindrical
E_{min}	407 lx	76 lx
$E_{min}/\bar{E}_m (U_o)$	81 lx	47 lx
$E_{min}/E_{max} (U_d)$	0.20	0.62
E_z/E_h	0.10	
Position		0.18
RUG (3.7H 2.2H)	0.00 m	0.45 m
Luminaire : (SONATA, SNT280NWWWD)	≤ 15.5	

Major surfaces

$\bar{E}_m$	U_o
-------------	-------

Type No. Make

Tamlite Lighting

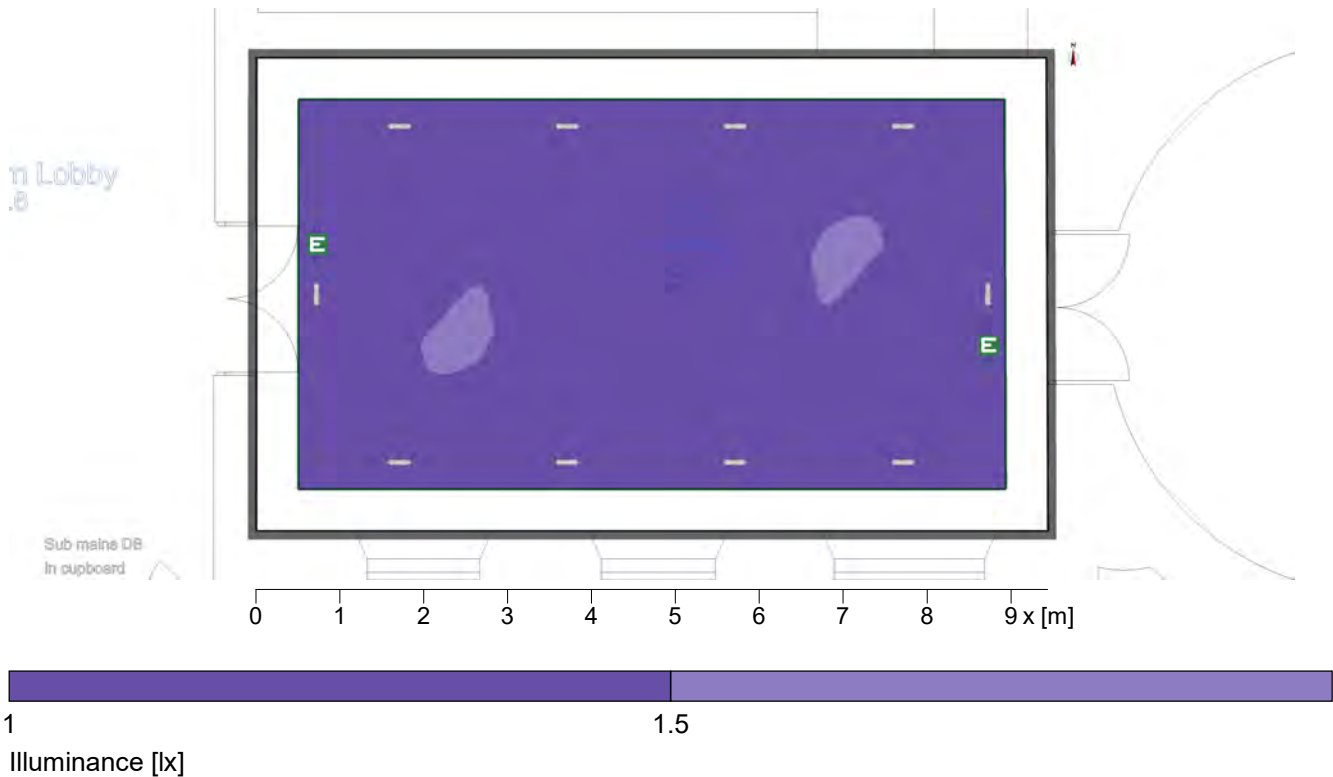
1	10 x	Order No.	: SNT280NWWWD
		Luminaire name	: SONATA
		Equipment	: 1 x LED 25 W / 2800 lm



2 Art Gallery

2.3 Summary, Art Gallery

2.3.1.1 Result overview (emergency lighting)



General

Calculation algorithm used : Direct component
Maintenance factor : 0.8
Height (phot. centre) : 3.97 m
Maximum I : 46 cd <= 2500 cd

Anti panic area:

No.	Surface		Ud
	Emin [lx]	Emax [lx]	
Anti panic area 1.1			
Calculation field: 8.43m x 4.64m (10 x 5 pts), Height = 0.00m			
1	1.02 lx	1.53 lx	1: 1.50
	>= 0.5 lx		>= 1 : 40



Type No.\Make

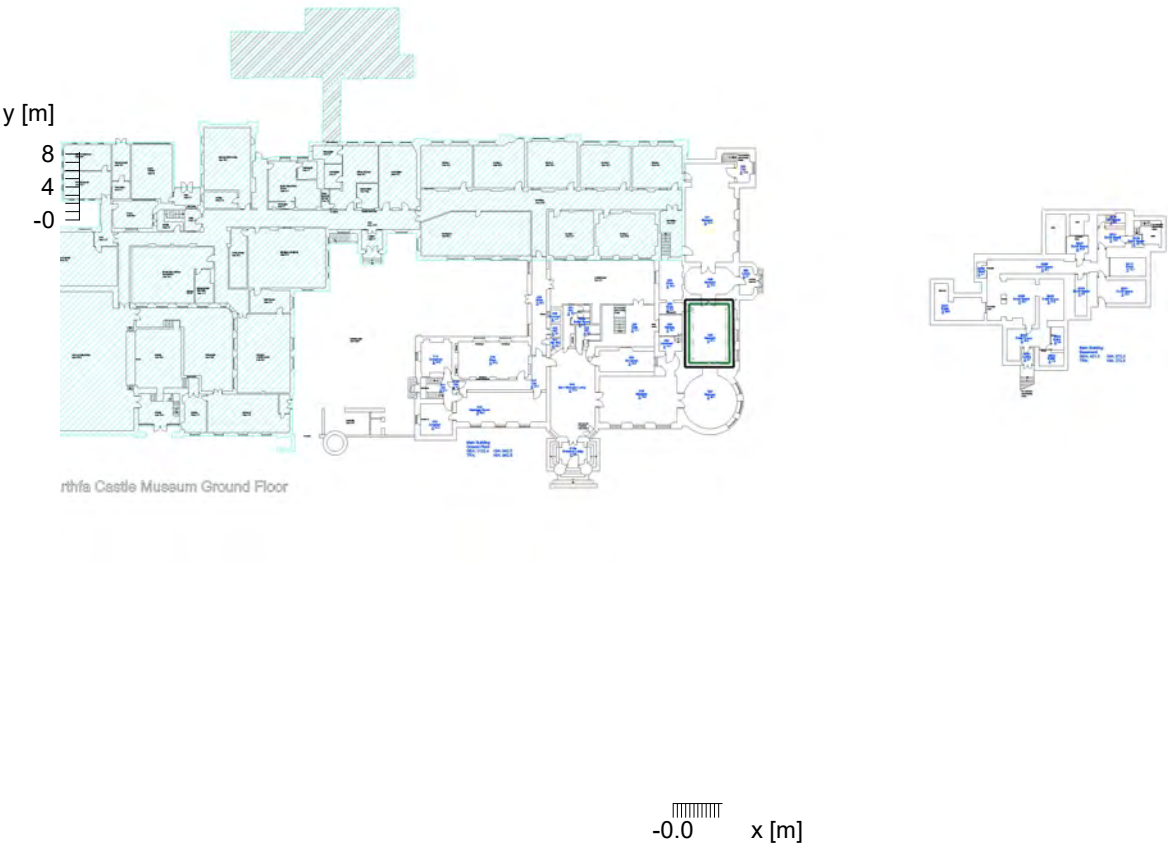
Tamlite Lighting
6 2E x Order No. : !ELTDLNM3 -- Emergency Lighting --
Luminaire name : ELITE TRACK
Equipment : 1 x 3 W / 190 lm
Emergency : 190 lm (100.0 %)



3 Art Gallery 2

3.1 Description, Art Gallery 2

3.1.1 Floor plan

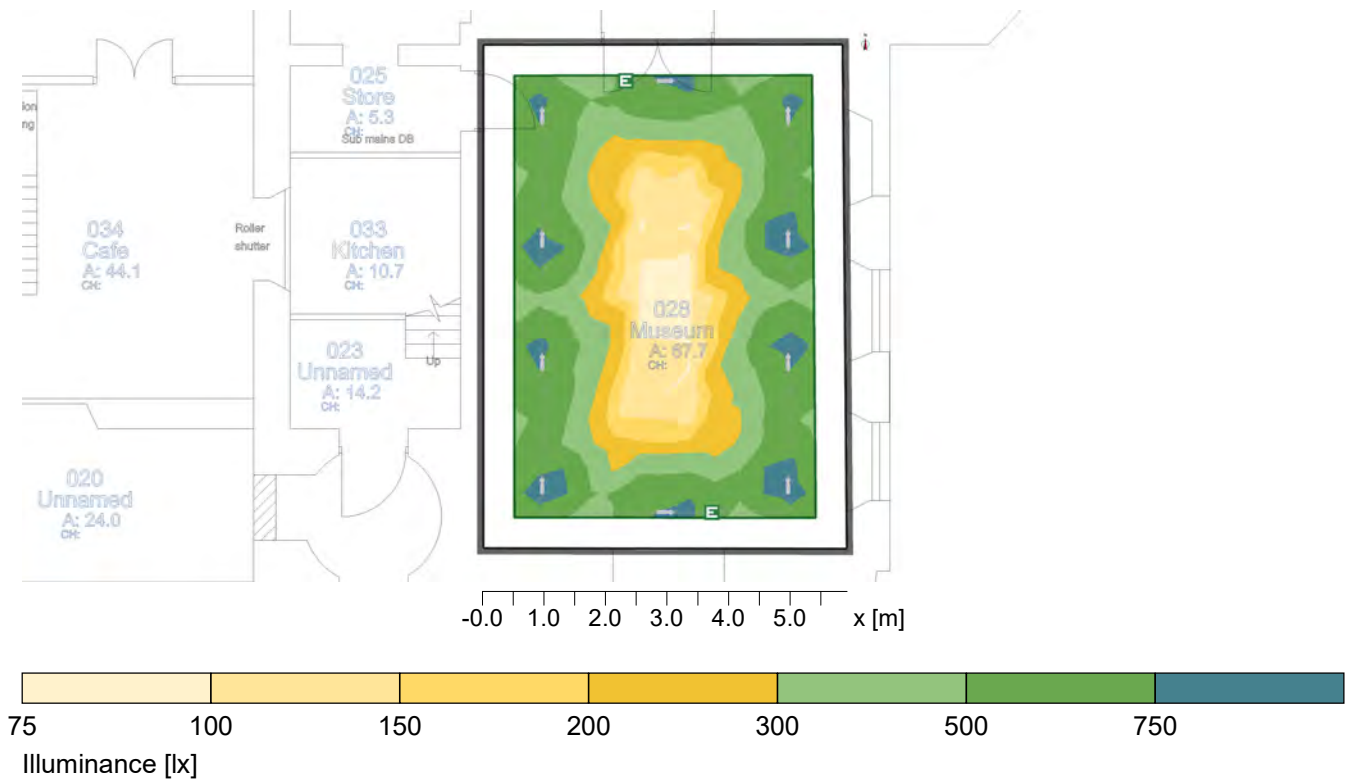


Wall	x	y	Length	Reflectance
1	87.18 m	14.66 m	5.90 m	50.0 %
2	87.11 m	22.84 m	8.19 m	50.0 %
3	81.27 m	22.84 m	5.84 m	50.0 %
4	81.27 m	14.67 m	8.17 m	50.0 %
Floor				20.0 %
Ceiling				70.0 %
Room height		4.00 m		
Height of ref. plane		0.00 m		

3 Art Gallery 2

3.2 Summary, Art Gallery 2

3.2.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction
Maintenance factor	0.80
Total luminous flux	28000.00 lm
Total power	250.0 W
Total power per area (48.00 m²)	5.21 W/m² (1.15 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

$\bar{E}_m$	Horizontal	cylindrical
E_{min}	455 lx	85 lx
$E_{min}/\bar{E}_m (U_o)$	95 lx	52 lx
$E_{min}/E_{max} (U_d)$	0.21	0.61
E_z/E_h	0.11	
Position	0.00 m	0.18
Rug (2.3H 3.2H)	<=15.5	0.45 m
Luminaire : (SONATA, SNT280NWWWD)		

Major surfaces

$\bar{E}_m$

U_o

Type No.\Make

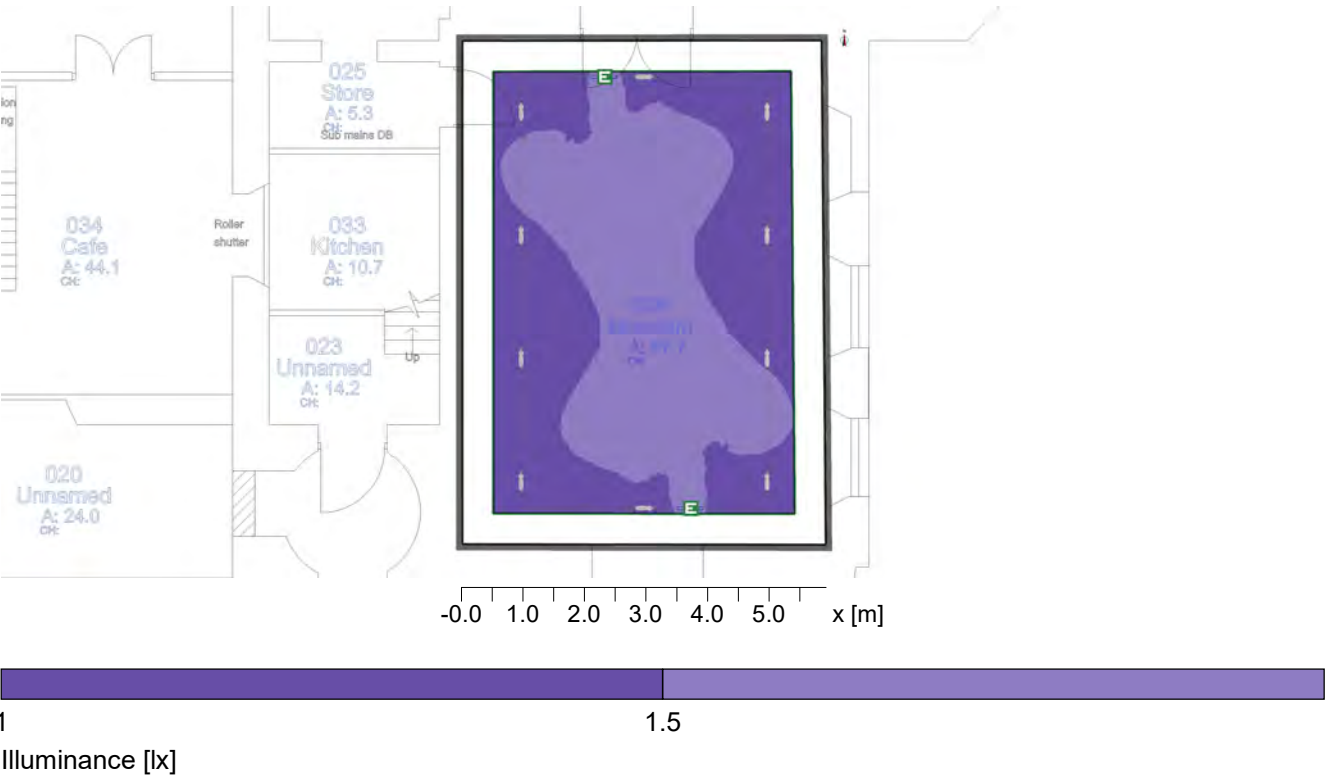
1	10 x	Tamlite Lighting
		Order No. : SNT280NWWWD
		Luminaire name : SONATA
		Equipment : 1 x LED 25 W / 2800 lm



3 Art Gallery 2

3.3 Summary, Art Gallery 2

3.3.1.1 Result overview (emergency lighting)

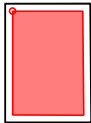


General

Calculation algorithm used : Direct component
Maintenance factor : 0.8
Height (phot centre) : 3.97 m
Maximum I : 46 cd <= 2500 cd

Anti panic area:

No.	Surface	Emin [lx]	Emax [lx]	Ud
1	Anti panic area 1.1	1.14 lx	1.64 lx	1: 1.44
		>= 0.5 lx		>= 1 : 40



Type No.\Make

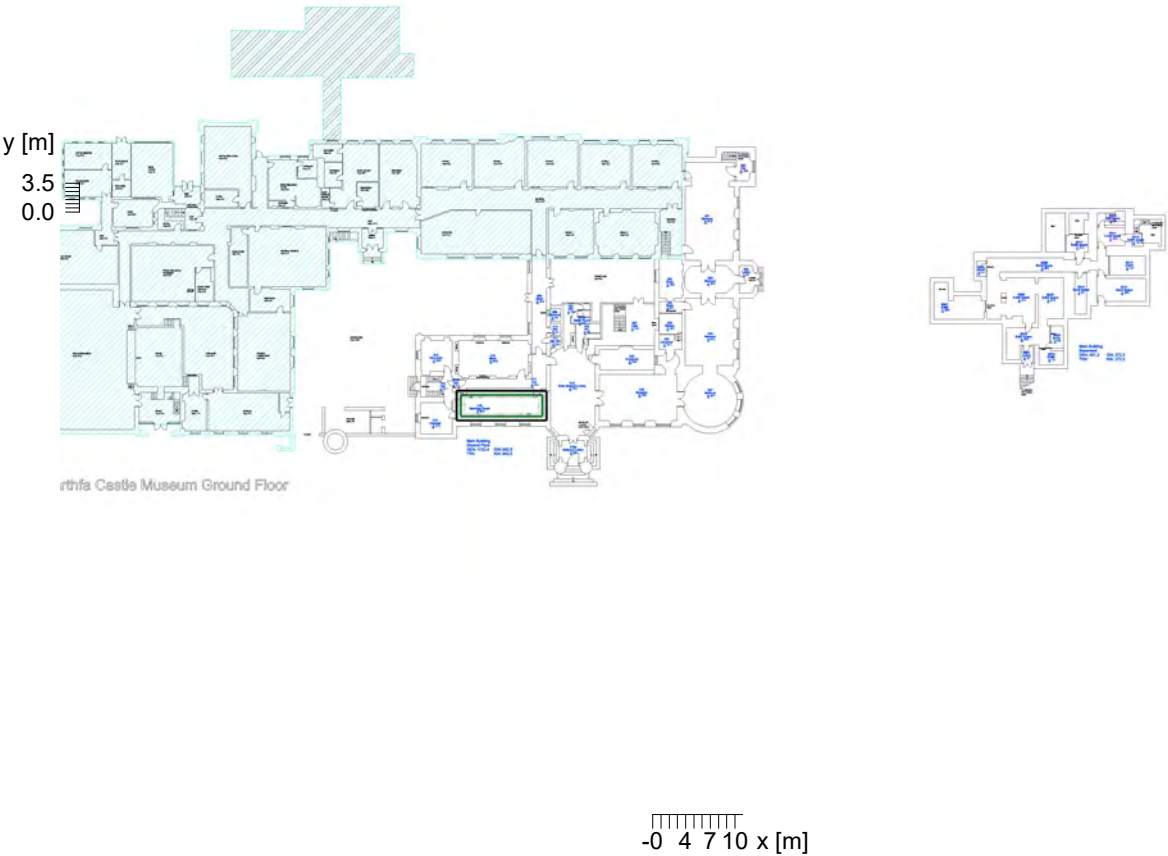
6	2E x	Tamlite Lighting	
		Order No. : !ELTDLNM3	-- Emergency Lighting --
		Luminaire name : ELITE TRACK	
		Equipment : 1 x 3 W / 190 lm	
		Emergency : 190 lm (100.0 %)	



4 Wedding Room

4.1 Description, Wedding Room

4.1.1 Floor plan



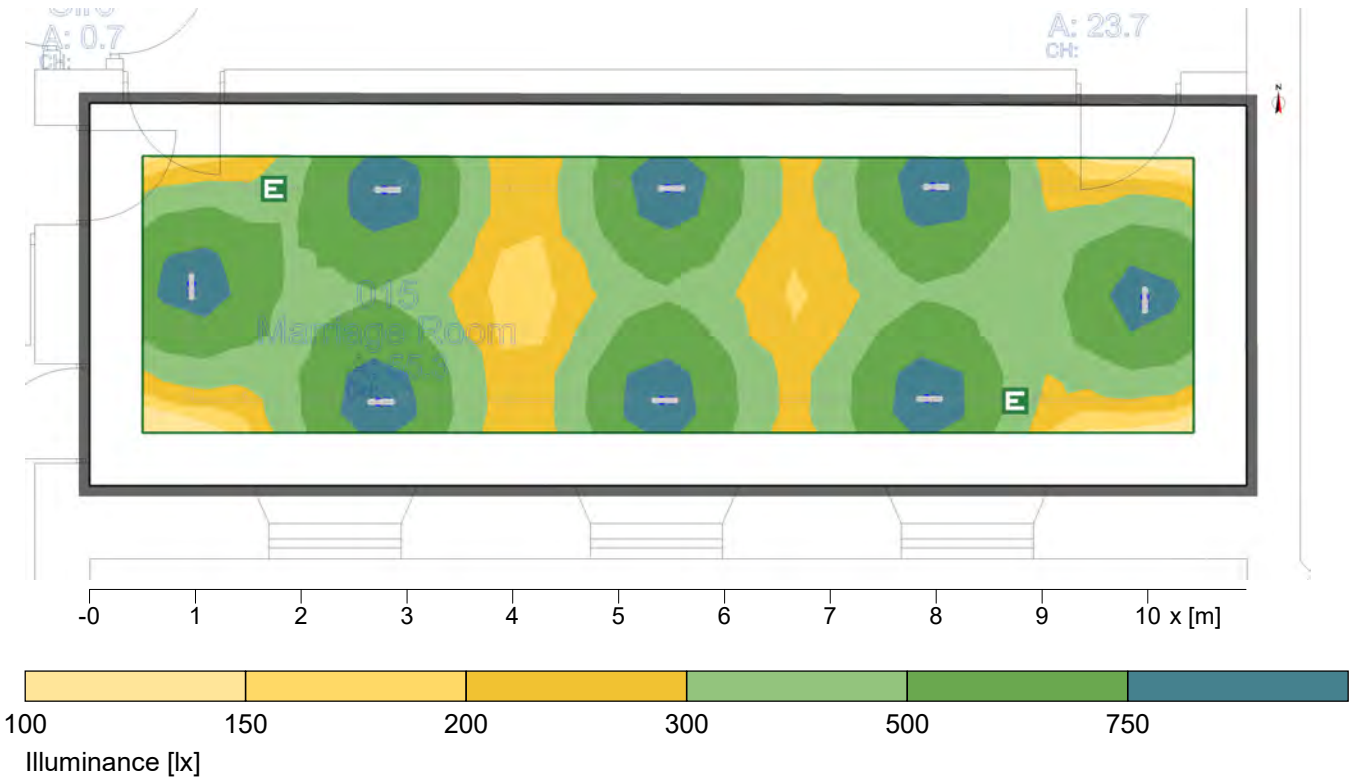
Wall	x	y	Length	Reflectance
1	64.44 m	8.00 m	10.93 m	50.0 %
2	64.44 m	11.59 m	3.59 m	50.0 %
3	53.51 m	11.61 m	10.93 m	50.0 %
4	53.51 m	8.00 m	3.61 m	50.0 %
Floor				20.0 %
Ceiling				70.0 %
Room height		4.00 m		
Height of ref. plane		----		



4 Wedding Room

4.2 Summary, Wedding Room

4.2.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction
Maintenance factor	0.80
Total luminous flux	22400.00 lm
Total power	200.0 W
Total power per area (39.35 m²)	5.08 W/m² (1.04 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

$\bar{E}_m$	Horizontal	cylindrical
E_{min}	487 lx	85 lx
$E_{min}/\bar{E}_m (U_o)$	141 lx	48 lx
$E_{min}/E_{max} (U_d)$	0.29	0.56
E_z/E_h	0.17	0.17
Position	0.00 m (rot: 0°/0°)	0.00 m (rot: 0°/0°)
RUG (4.3H 1.4H)	10.0	
Luminaire : (SONATA, SNT280NWWWD)		
Hints:		
- Encountered room dimensions less than 2H. RUG value has been set to 10 as lower limit.		

Major surfaces

$\bar{E}_m$

U_o

Type No.Make

Object :
Installation : Cyfartha Castle
Project number : KJ28082024
Date : 05.09.2024



4 Wedding Room

4.2 Summary, Wedding Room

4.2.1 Result overview, Evaluation area 1

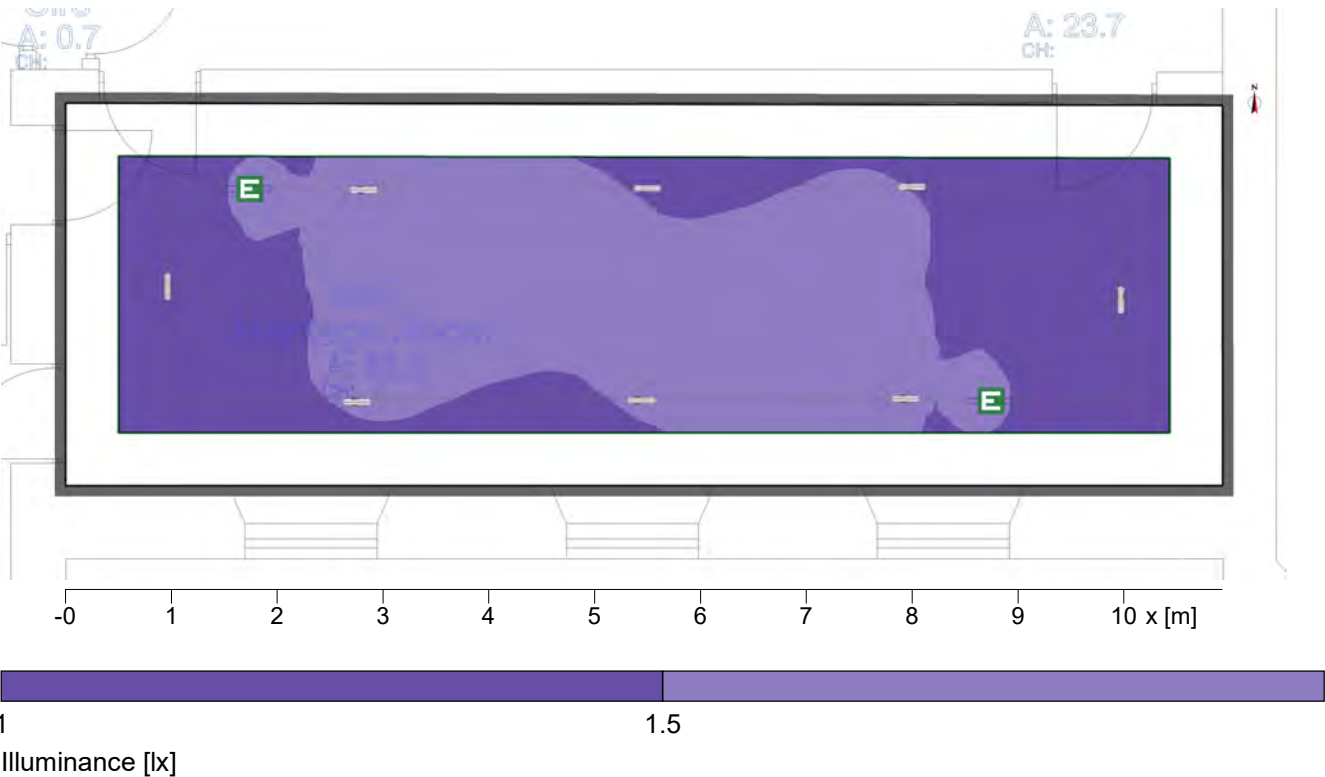
1	8 x	Tamlite Lighting	
		Order No.	: SNT280NWWWD
		Luminaire name	: SONATA
		Equipment	: 1 x LED 25 W / 2800 lm



4 Wedding Room

4.3 Summary, Wedding Room

4.3.1.1 Result overview (emergency lighting)

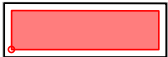


General

Calculation algorithm used : Direct component
Maintenance factor : 0.8
Height (phot. centre) : 3.97 m
Maximum I : 46 cd <= 2500 cd

Anti panic area:

No.	Surface		Ud
	Emin [lx]	Emax [lx]	
1	1.15 lx	1.65 lx	1: 1.43
	>= 0.5 lx		>= 1 : 40



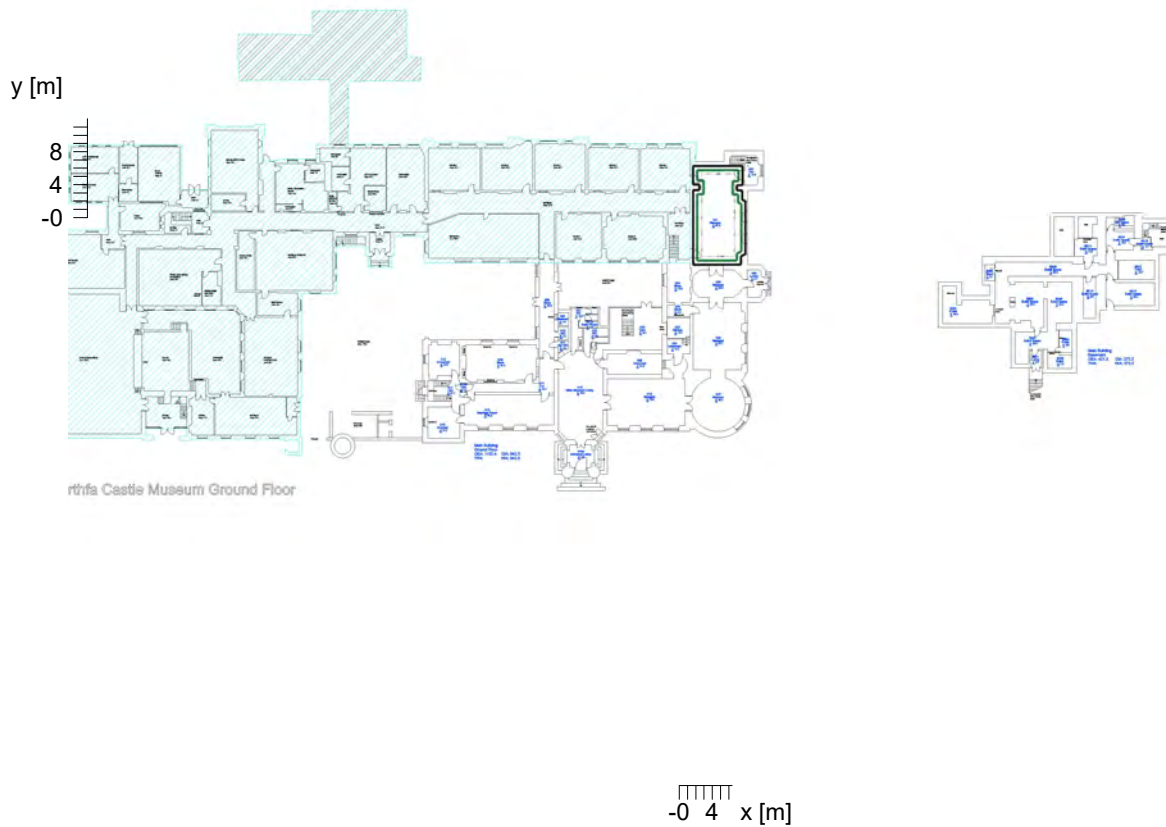
Type No.\Make

Tamlite Lighting			
6	2E x	Order No. : !ELTDLNM3	-- Emergency Lighting --
		Luminaire name : ELITE TRACK	
		Equipment : 1 x 3 W / 190 lm	
		Emergency : 190 lm (100.0 %)	

5 Yellow Art Gallery

5.1 Description, Yellow Art Gallery

5.1.1 Floor plan





5 Yellow Art Gallery

5.1 Description, Yellow Art Gallery

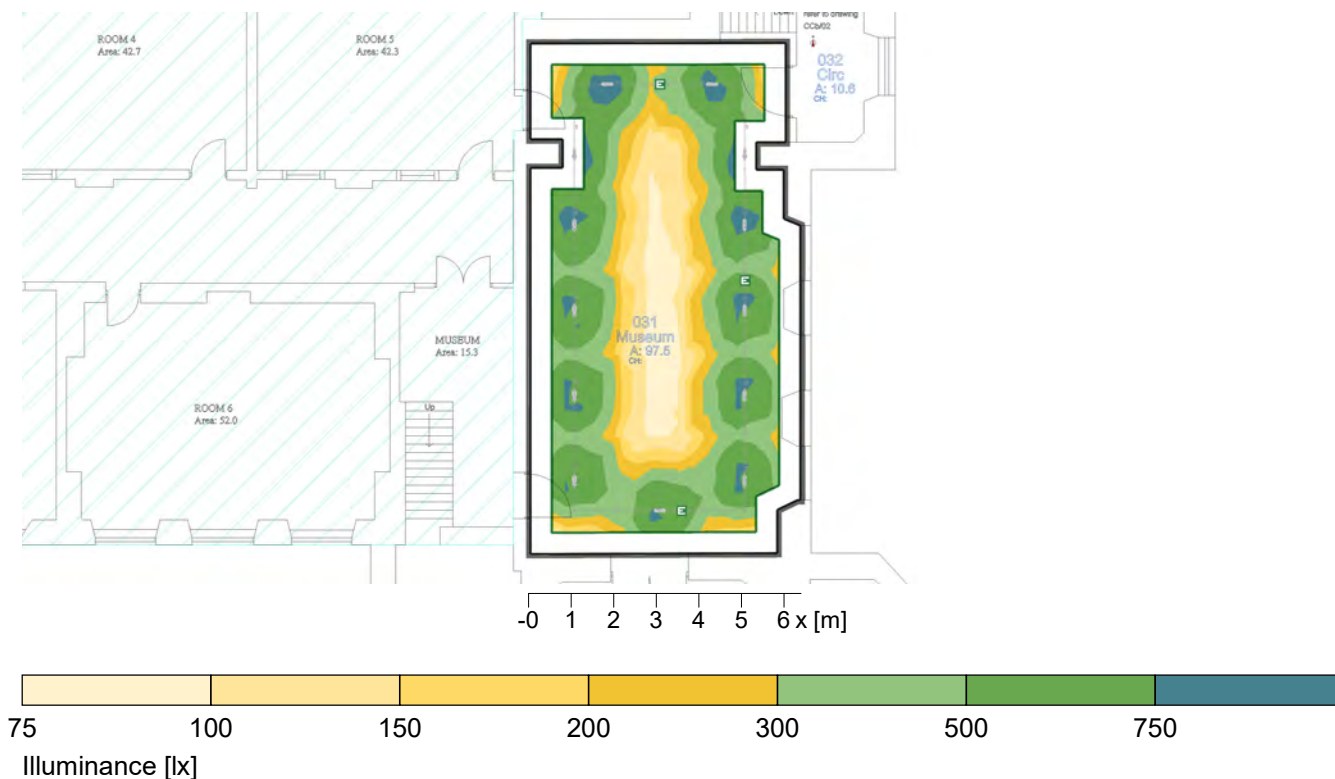
5.1.1 Floor plan

Wall	x	y	Length	Reflectance
1	87.09 m	27.43 m	5.79 m	50.0 %
2	87.09 m	28.45 m	1.02 m	50.0 %
3	87.57 m	28.68 m	0.53 m	50.0 %
4	87.63 m	28.68 m	0.06 m	50.0 %
5	87.63 m	35.12 m	6.44 m	50.0 %
6	87.24 m	35.28 m	0.42 m	50.0 %
7	87.24 m	36.43 m	1.15 m	50.0 %
8	86.60 m	36.43 m	0.64 m	50.0 %
9	86.60 m	37.07 m	0.64 m	50.0 %
10	87.29 m	37.07 m	0.69 m	50.0 %
11	87.29 m	39.40 m	2.33 m	50.0 %
12	81.29 m	39.39 m	5.99 m	50.0 %
13	81.29 m	37.14 m	2.25 m	50.0 %
14	82.05 m	37.14 m	0.76 m	50.0 %
15	82.05 m	36.48 m	0.67 m	50.0 %
16	81.29 m	36.48 m	0.76 m	50.0 %
17	81.30 m	27.42 m	9.06 m	50.0 %
Floor				20.0 %
Ceiling				70.0 %
Room height		4.00 m		
Height of ref. plane		0.00 m		

5 Yellow Art Gallery

5.2 Summary, Yellow Art Gallery

5.2.1 Result overview, Evaluation area 1



General

Calculation algorithm used
 Maintenance factor

Average indirect fraction
 0.80

Total luminous flux

36400.00 lm

Total power

325.0 W

Total power per area (72.80 m²)

4.46 W/m² (1.09 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

$\bar{E}_m$

Horizontal

cylindrical

E_{min}

411 lx

76 lx

E_{min}

82 lx

45 lx

$E_{min}/\bar{E}_m (U_o)$

0.20

0.59

$E_{min}/E_{max} (U_d)$

0.10

E_z/E_h

0.18

Position

0.00 m

0.45 m

RUG (4.7H 2.5H)

≤ 15.4

Luminaire :
 (SONATA, SNT280NWWWD)

Major surfaces

$\bar{E}_m$

U_o

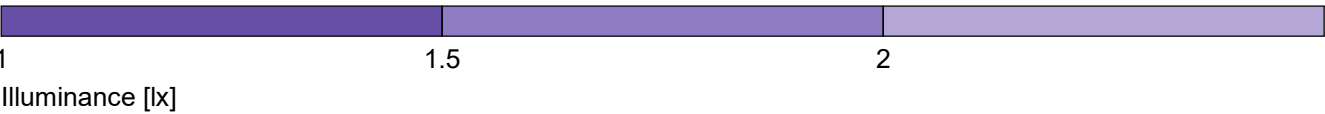
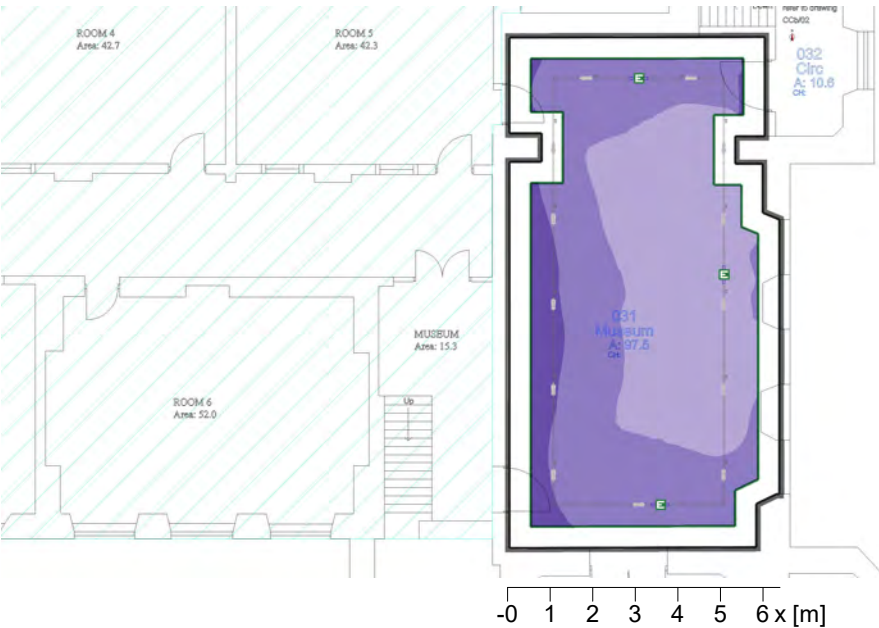
Type No. \ Make

1	13 x	Tamlite Lighting	
		Order No.	: SNT280NWWWD
		Luminaire name	: SONATA
		Equipment	: 1 x LED 25 W / 2800 lm

5 Yellow Art Gallery

5.3 Summary, Yellow Art Gallery

5.3.1.1 Result overview (emergency lighting)

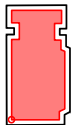


General

Calculation algorithm used : Direct component
Maintenance factor : 0.8
Height (phot centre) : 3.97 m
Maximum I : 46 cd <= 2500 cd

Anti panic area:

No.	Surface		Ud
	Emin [lx]	Emax [lx]	
Anti panic area 1.1			
Calculation field: 5.36m x 10.97m (8 x 17 pts), Height = 0.00m			
1	1.09 lx	2.43 lx	1: 2.23
	>= 0.5 lx		>= 1 : 40



Type No.\Make

Tamlite Lighting		
6	3E x	Order No. : !ELTDLNM3 -- Emergency Lighting --
		Luminaire name : ELITE TRACK
		Equipment : 1 x 3 W / 190 lm
		Emergency : 190 lm (100.0 %)