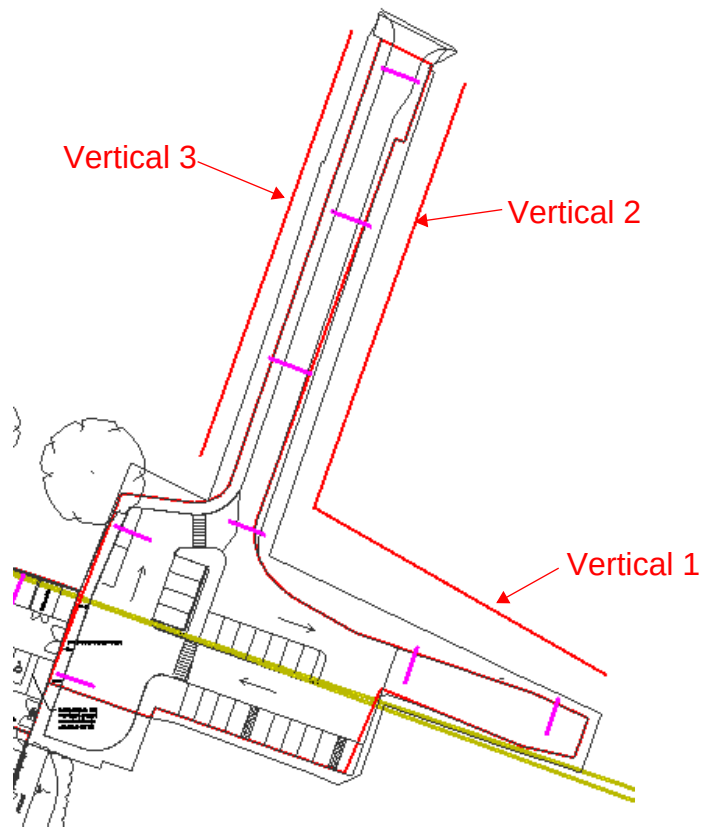


106 works

Installation : The Heights

Project number : P18228
Customer : ESFA
Processed by : S Soper
Date : 13.03.2019

Project description:
P02



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.

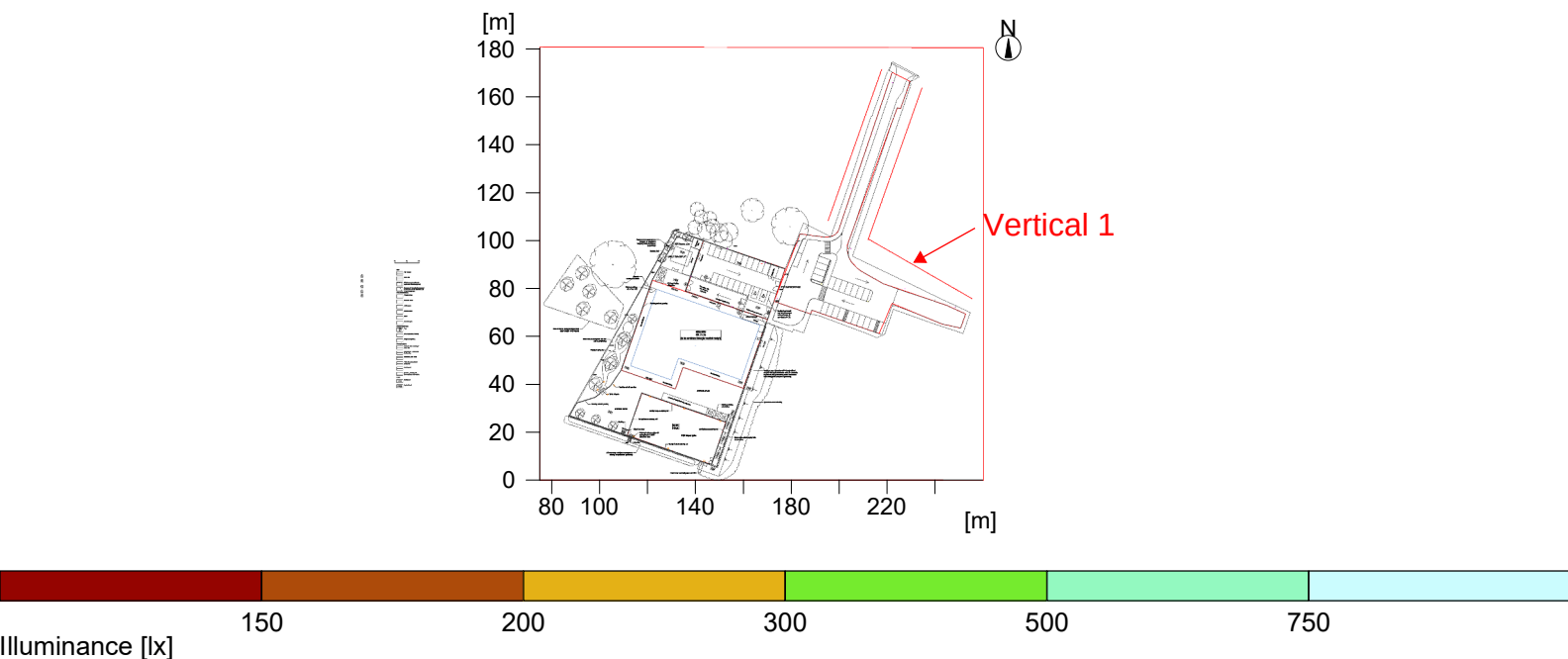
Relux and the luminaire manufacturers accept no liability for consequential damage and damage which is occasioned to the user or to third parties.

Object : 106 works
 Installation : The Heights
 Project number : P18228
 Date : 13.03.2019



2.2 Summary, Exterior 1

2.2.4 Result overview, Vertical 1



General	
Calculation algorithm used	Average indirect fraction
Maintenance factor	0.80
Total luminous flux of all lamps	1001520 lm
Total power	11880 W
Total power per area (33331.03 m²)	0.36 W/m²

Illuminance		
Average illuminance	Em	2.55 lx
Minimum illuminance	Emin	0.73 lx
Maximum illuminance	Emax	7.6 lx
Uniformity Uo	Emin/Em	1:3.5 (0.29)
Diversity Ud	Emin/Emax	1:10.4 (0.1)

Type No.\Make

HOLOPHANE EUROPE LIMITED

1	4	Order No.	: SLI.2.LA054.A2.W036
		Luminaire name	: S-LINE Streetlighting luminaire
		Equipment	: 1 x LED C.5000 Lumens 36 W / 4542 lm
2	12	Order No.	: SLI.2.LA054.A2.W035
		Luminaire name	: S-LINE Streetlighting luminaire
		Equipment	: 1 x LED C.5000 Lumens 35 W / 4446 lm

-please put your own address here-

Object : 106 works
Installation : The Heights
Project number : P18228
Date : 13.03.2019

RELUX[®]

2.2 Summary, Exterior 1

2.2.4 Result overview, Vertical 1

Abacus Lighting

3 10



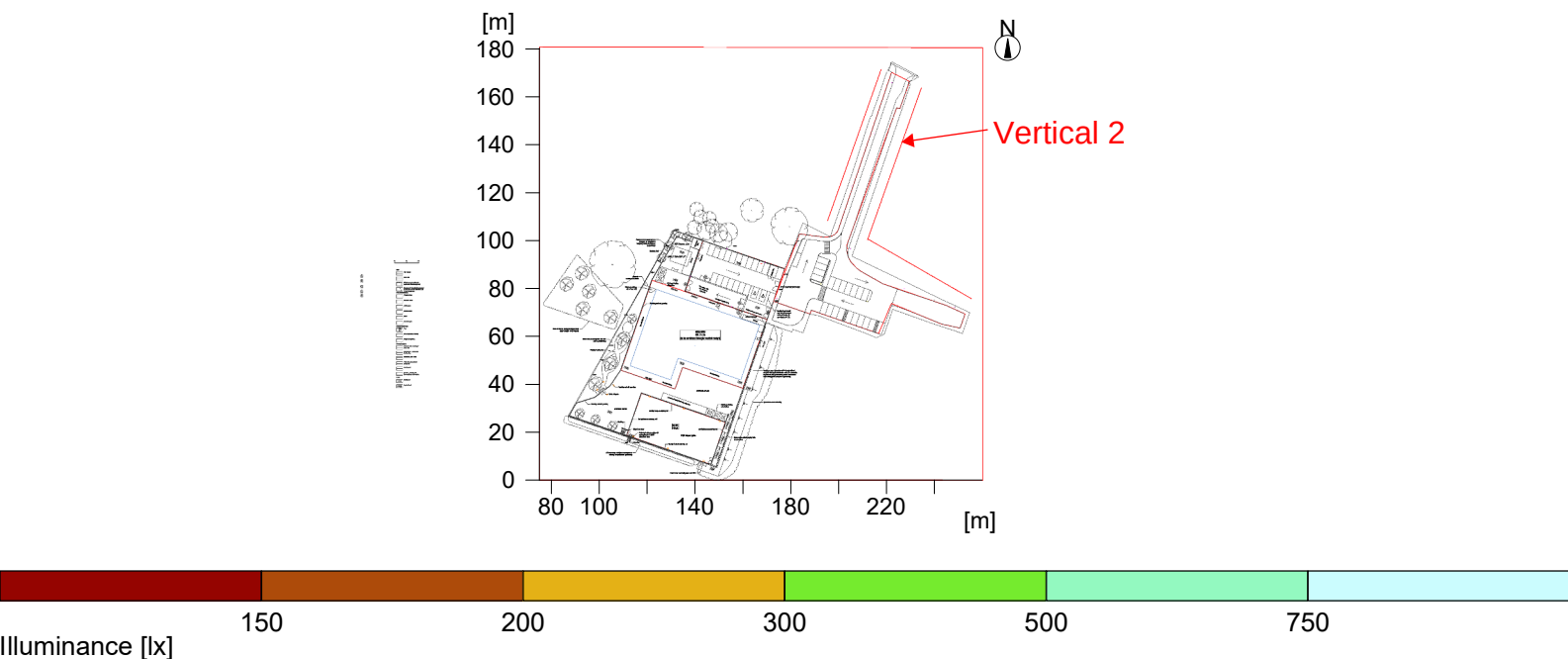
Order No. : AL6012_B MHN-FC 1000W_740 230V XW
Luminaire name : AL6012_B - Challenger 1 MHN-FC 1000W_740 230V XW wide
Equipment : 1 x 55° IPK - 1131.60 W 1131.6 W / 93000 lm

Object : 106 works
 Installation : The Heights
 Project number : P18228
 Date : 13.03.2019



2.2 Summary, Exterior 1

2.2.5 Result overview, Vertical 2



General	
Calculation algorithm used	Average indirect fraction
Maintenance factor	0.80
Total luminous flux of all lamps	1001520 lm
Total power	11880 W
Total power per area (33331.03 m ²)	0.36 W/m ²

Illuminance		
Average illuminance	Em	1.37 lx
Minimum illuminance	Emin	0.58 lx
Maximum illuminance	Emax	4.47 lx
Uniformity Uo	Emin/Em	1:2.35 (0.43)
Diversity Ud	Emin/Emax	1:7.69 (0.13)

Type No.\Make

HOLOPHANE EUROPE LIMITED

1	4	Order No.	: SLI.2.LA054.A2.W036
		Luminaire name	: S-LINE Streetlighting luminaire
		Equipment	: 1 x LED C.5000 Lumens 36 W / 4542 lm
2	12	Order No.	: SLI.2.LA054.A2.W035
		Luminaire name	: S-LINE Streetlighting luminaire
		Equipment	: 1 x LED C.5000 Lumens 35 W / 4446 lm

-please put your own address here-

Object : 106 works
Installation : The Heights
Project number : P18228
Date : 13.03.2019

RELUX[®]

2.2 Summary, Exterior 1

2.2.5 Result overview, Vertical 2

Abacus Lighting

3 10



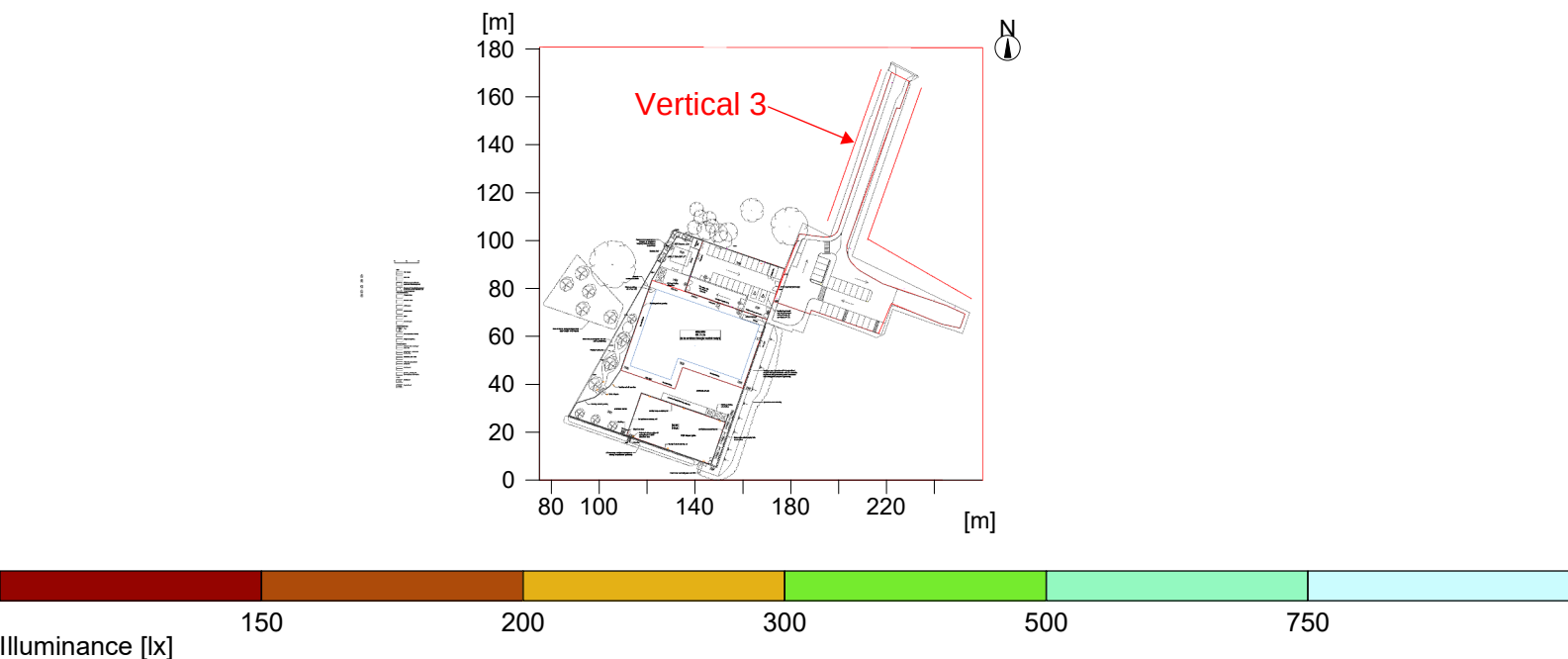
Order No. : AL6012_B MHN-FC 1000W_740 230V XW
Luminaire name : AL6012_B - Challenger 1 MHN-FC 1000W_740 230V XW wide
Equipment : 1 x 55° IPK - 1131.60 W 1131.6 W / 93000 lm

Object : 106 works
Installation : The Heights
Project number : P18228
Date : 13.03.2019

RELUX®

2.2 Summary, Exterior 1

2.2.6 Result overview, Vertical 3



General	
Calculation algorithm used	Average indirect fraction
Maintenance factor	0.80
Total luminous flux of all lamps	1001520 lm
Total power	11880 W
Total power per area (33331.03 m²)	0.36 W/m²

Illuminance		
Average illuminance	Em	0.14 lx
Minimum illuminance	Emin	0.01 lx
Maximum illuminance	Emax	2.61 lx
Uniformity Uo	Emin/Em	1:10.6 (0.09)
Diversity Ud	Emin/Emax	1:194 (0.01)

Type No.\Make

HOLOPHANE EUROPE LIMITED

1	4	Order No.	: SLI.2.LA054.A2.W036
		Luminaire name	: S-LINE Streetlighting luminaire
		Equipment	: 1 x LED C.5000 Lumens 36 W / 4542 lm
2	12	Order No.	: SLI.2.LA054.A2.W035
		Luminaire name	: S-LINE Streetlighting luminaire
		Equipment	: 1 x LED C.5000 Lumens 35 W / 4446 lm

-please put your own address here-

Object : 106 works
Installation : The Heights
Project number : P18228
Date : 13.03.2019

RELUX[®]

2.2 Summary, Exterior 1

2.2.6 Result overview, Vertical 3

3 10

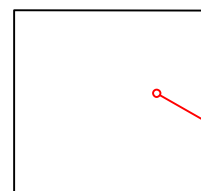


Abacus Lighting

Order No. : AL6012_B MHN-FC 1000W_740 230V XW
Luminaire name : AL6012_B - Challenger 1 MHN-FC 1000W_740 230V XW wide
Equipment : 1 x 55° IPK - 1131.60 W 1131.6 W / 93000 lm

RELUX®

2.3.6 Table, Vertical 1 (E)



Average illuminance	Em	: 2.55 lx
Minimum illuminance	Emin	: 0.73 lx
Maximum illuminance	Emax	: 7.6 lx
Uniformity Uo	Emin/Em	: 1 : 3.50 (0.29)
Diversity Ud	Emin/Emax	: 1 : 10.45 (0.10)

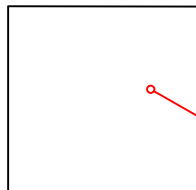
Object : 106 works
Installation : The Heights
Project number : P18228
Date : 13.03.2019



2.3 Calculation results, Exterior 1

2.3.6 Table, Vertical 1 (E)

96	0.96	0.95	0.93	0.9	0.87	0.85	0.82	0.8	0.78	0.76	0.74	0.73	0.73	0.73	0.73	0.74	0.75	0.76	0.79	0.81	0.83	0.86	0.88	0.93	0.98	1	1.03	1.03	1.03	1.07	1.12	1.12	1.12	1.05	1.04	1.01	0.96	0.92		
13	1.11	1.08	1.03	0.99	0.95	0.92	0.89	0.86	0.83	0.82	0.81	0.8	0.8	0.8	0.8	0.81	0.84	0.87	0.92	0.98	1.05	1.13	1.21	1.29	1.39	1.51	1.66	1.7	1.77	1.9	2.37	1.98	1.95	1.89	1.81	1.68	1.54	1.42		
41	1.37	1.32	1.27	1.22	1.16	1.1	1.06	1	0.97	0.96	0.95	0.95	0.94	0.96	0.98	1	1.06	1.14	1.22	1.31	1.41	1.54	1.75	2	2.19	2.32	2.44	2.66	2.77	3	3.12	3.41	3.42	3.32	3.15	2.94	2.7	2.19		
75	1.65	1.62	1.6	1.57	1.48	1.33	1.27	1.29	1.24	1.2	1.14	1.16	1.2	1.2	1.22	1.26	1.41	1.52	1.64	1.78	1.96	2.22	2.56	2.88	3.19	3.49	3.78	4.05	4.35	4.62	4.91	5.12	5.2	5.1	4.77	4.29	3.8	3.39		
23	2.14	2.03	1.94	1.85	1.75	1.67	1.58	1.48	1.44	1.45	1.32	1.3	1.36	1.46	1.53	1.61	1.74	1.88	2.06	2.28	2.55	2.88	3.27	3.66	4.04	4.4	4.78	5.07	5.33	5.63	5.97	6.25	6.36	6.21	5.78	5.27	4.66	4.08		
73	2.62	2.48	2.32	2.13	2	1.9	1.85	1.8	1.76	1.72	1.72	1.71	1.73	1.76	1.8	1.88	1.97	2.13	2.36	2.61	2.95	3.3	3.68	3.98	4.28	4.65	5.04	5.39	5.72	5.97	6.12	6.14	6.09	5.94	5.75	5.64	5.34	4.78		
13	2.99	2.81	2.62	2.43	2.27	2.15	2.05	1.98	1.91	1.87	1.86	1.85	1.87	1.89	1.94	2.03	2.16	2.37	2.58	2.77	2.98	3.2	3.42	3.76	4.02	4.34	4.7	4.97	5.36	5.69	5.97	6.27	6.54	6.74	6.72	6.3	5.66	4.82		
32	3.11	2.94	2.79	2.65	2.52	2.38	2.24	2.15	2.05	1.98	1.94	1.92	1.93	1.97	2.06	2.19	2.32	2.49	2.63	2.81	3.03	3.28	3.6	3.88	4.22	4.66	5.28	5.78	6.25	6.87	7.18	7.37	7.56	7.1	6.42	5.85	5.04	4.3		
30				35				40				45				[m]																								



Part2

-please put your own address here-

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2.3.7 Table, Vertical 2 (E)

Average illuminance	Em	: 1.37 lx
Minimum illuminance	Emin	: 0.58 lx
Maximum illuminance	Emax	: 4.47 lx
Uniformity Uo	Emin/Em	: 1 : 2.35 (0.43)
Diversity Ud	Emin/Emax	: 1 : 7.69 (0.13)

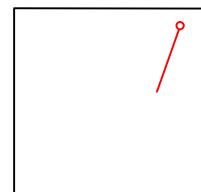
Object : 106 works
Installation : The Heights
Project number : P18228
Date : 13.03.2019



2.3 Calculation results, Exterior 1

2.3.7 Table, Vertical 2 (E)

0.69	0.7	0.69	0.7	0.71	0.71	0.71	0.71	0.7	0.7	0.7	0.7	0.69	0.67	0.66	0.65	0.64	0.63	0.63	0.62	0.61	0.61	0.61	0.6	0.6	(0.58)	0.59	0.59	0.6	0.6	0.61	0.62	0.62	0.63	0.64					
0.79	0.8	0.79	0.8	0.8	0.8	0.79	0.79	0.79	0.79	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.7	0.7	0.7	0.69	0.7	0.7	0.7	0.69	0.7	0.7	0.71	0.72	0.73	0.73	0.74	0.76	0.77	0.79				
1	1.03	1.02	1.02	1	1	1.01	1	1	1.01	1.02	1.02	0.99	0.96	0.95	0.95	0.93	0.92	0.92	0.92	0.93	0.92	0.91	0.91	0.91	0.89	0.88	0.89	0.92	0.95	0.97	0.92	0.91	0.96	0.98	0.98				
1.24	1.31	1.28	1.25	1.2	1.21	1.25	1.2	1.18	1.23	1.25	1.28	1.21	1.1	1.12	1.21	1.2	1.12	1.12	1.19	1.17	1.14	1.08	1.07	1.07	1.05	1.05	1.07	1.2	1.27	1.27	1.16	1.14	1.2	1.22	1.23				
1.61	1.6	1.59	1.57	1.55	1.54	1.54	1.53	1.53	1.54	1.54	1.53	1.55	1.56	1.55	1.5	1.46	1.41	1.36	1.4	1.38	1.35	1.19	1.16	1.17	1.23	1.27	1.3	1.31	1.31	1.34	1.37	1.4	1.43	1.47	1.49				
1.99	1.99	1.97	1.95	1.93	1.9	1.89	1.86	1.85	1.84	1.81	1.83	1.86	1.86	1.83	1.79	1.72	1.66	1.61	1.53	1.5	1.46	1.47	1.45	1.42	1.39	1.39	1.41	1.44	1.45	1.49	1.56	1.6	1.64	1.68	1.7				
2.26	2.27	2.22	2.21	2.21	2.17	2.16	2.11	2.09	2.08	2.06	2.08	2.12	2.12	2.08	2.03	1.98	1.93	1.89	1.84	1.78	1.71	1.69	1.66	1.64	1.67	1.69	1.72	1.76	1.8	1.82	1.81	1.8	1.8	1.84	1.87				
2.46	2.45	2.39	2.37	2.38	2.38	2.39	2.41	2.42	2.43	2.46	2.49	2.48	2.48	2.47	2.43	2.39	2.32	2.28	2.26	2.25	2.21	2.17	2.13	2.1	2.08	2.05	2.04	2.1	2.11	2.12	2.11	2.11	2.09	2.12	2.12				
30															40																								



Part2

-please put your own address here-

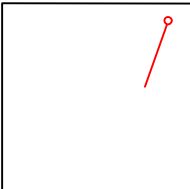
Object : 106 works
Installation : The Heights
Project number : P18228
Date : 13.03.2019



2.3 Calculation results, Exterior 1

2.3.7 Table, Vertical 2 (E)

0.65	0.66	0.67	0.67	0.68	0.69	0.69	0.69	0.69	0.69	0.7	0.7	0.7	0.7	0.7	0.69	0.68	0.67	0.67	0.66	0.65	0.65	0.64	0.64	0.64	0.64	0.64	0.65	0.66	0.66	0.68	0.69	0.72	0.74	0.76	0.8	0.8			
0.79	0.81	0.83	0.84	0.84	0.84	0.83	0.83	0.84	0.84	0.84	0.84	0.85	0.85	0.85	0.84	0.82	0.8	0.79	0.78	0.76	0.75	0.75	0.75	0.75	0.75	0.75	0.76	0.78	0.79	0.82	0.83	0.86	0.91	0.96	1.0				
0.91	0.92	1.01	1.03	1.01	0.99	0.96	0.96	1.01	1	0.97	0.98	1.01	1.02	1.03	0.99	0.91	0.91	0.96	0.95	0.9	0.88	0.89	0.93	0.93	0.92	0.9	0.92	0.96	1.02	1.09	1.16	1.22	1.3	1.38	1.4				
1.24	1.25	1.24	1.22	1.2	1.19	1.18	1.17	1.17	1.17	1.18	1.19	1.19	1.2	1.22	1.22	1.21	1.18	1.18	1.16	1.07	1.05	1.06	1.17	1.17	1.12	1.05	1.06	1.12	1.21	1.3	1.41	1.49	1.62	1.85	2.0				
1.52	1.52	1.51	1.49	1.47	1.45	1.44	1.44	1.44	1.44	1.44	1.45	1.46	1.47	1.48	1.47	1.47	1.44	1.4	1.37	1.33	1.3	1.27	1.25	1.25	1.26	1.28	1.3	1.34	1.47	1.58	1.69	1.84	2.03	2.24	2.4				
1.72	1.73	1.71	1.69	1.66	1.65	1.63	1.63	1.63	1.63	1.63	1.63	1.64	1.65	1.66	1.66	1.67	1.65	1.63	1.61	1.56	1.53	1.49	1.46	1.48	1.49	1.5	1.51	1.56	1.65	1.75	1.85	2.01	2.2	2.4	2.6				
1.89	1.89	1.89	1.86	1.84	1.84	1.84	1.85	1.86	1.87	1.88	1.88	1.87	1.88	1.89	1.87	1.86	1.84	1.82	1.8	1.75	1.73	1.72	1.71	1.7	1.73	1.73	1.74	1.77	1.79	1.87	1.99	2.17	2.35	2.6	2.8				
2.11	2.08	2.07	2.03	2	1.99	2	2.01	2.03	2.04	2.06	2.06	2.05	2.05	2.04	2.04	2.05	2.04	2.03	2.02	1.98	1.96	1.95	1.97	1.96	1.95	1.94	1.96	2	2.05	2.13	2.26	2.47	2.62	2.88	3.1				
										50																				60 [m]									



Part3

-please put your own address here-

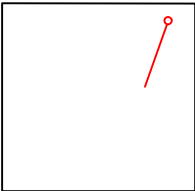
Object : 106 works
Installation : The Heights
Project number : P18228
Date : 13.03.2019



2.3 Calculation results, Exterior 1

2.3.7 Table, Vertical 2 (E)

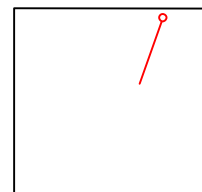
0.88	0.93	0.99
1.13	1.23	1.35
1.51	1.71	2.18
2.33	2.6	2.87
2.72	3.04	3.44
2.99	3.4	3.96
3.25	3.71	4.26
3.59	4.03	[4.47]



Part4

RELUX®

2.3.8 Table, Vertical 3 (E)



Average illuminance	Em	: 0.14 lx
Minimum illuminance	Emin	: 0.01 lx
Maximum illuminance	Emax	: 2.61 lx
Uniformity Uo	Emin/Em	: 1 : 10.61 (0.09)
Diversity Ud	Emin/Emax	: 1 : 194.02 (0.01)

RELUX®

2.3.8 Table, Vertical 3 (E)

Page 39/41

Object : 106 works
Installation : The Heights
Project number : P18228
Date : 13.03.2019



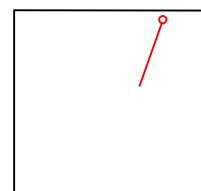
2.3 Calculation results, Exterior 1

2.3.8 Table, Vertical 3 (E)

0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.1	0.1	0.1	0.11	0.11	0.12	0.13	0.14	0.16	0.17	0.19	0.21	0.2
0.06	0.07	0.07	0.08	0.08	0.08	0.09	0.09	0.09	0.1	0.1	0.1	0.09	0.09	0.09	0.09	0.09	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.11	0.11	0.11	0.12	0.12	0.13	0.14	0.15	0.17	0.19	0.21	0.23	0.2	
0.07	0.08	0.09	0.09	0.09	0.1	0.1	0.11	0.11	0.12	0.12	0.11	0.11	0.11	0.1	0.1	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.14	0.15	0.16	0.18	0.2	0.22	0.25	0.2	
0.09	0.09	0.1	0.1	0.11	0.11	0.12	0.13	0.14	0.14	0.14	0.14	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.12	0.12	0.12	0.13	0.14	0.15	0.17	0.18	0.21	0.24	0.27	0.31	0.3	
0.1	0.11	0.12	0.12	0.12	0.13	0.14	0.16	0.17	0.18	0.18	0.17	0.16	0.14	0.13	0.13	0.13	0.14	0.15	0.16	0.16	0.17	0.16	0.16	0.16	0.16	0.16	0.14	0.15	0.17	0.19	0.23	0.27	0.33	0.43	0.51	0.5	
0.13	0.14	0.15	0.15	0.14	0.15	0.17	0.2	0.23	0.26	0.27	0.24	0.21	0.18	0.16	0.15	0.16	0.16	0.17	0.19	0.2	0.21	0.21	0.21	0.22	0.25	0.28	0.32	0.36	0.41	0.47	0.53	0.61	0.7	0.8	0.8		
0.17	0.19	0.2	0.18	0.16	0.16	0.17	0.22	0.28	0.35	0.35	0.31	0.24	0.19	0.17	0.16	0.18	0.21	0.23	0.26	0.3	0.33	0.35	0.36	0.35	0.37	0.42	0.47	0.54	0.62	0.71	0.8	0.91	1.05	1.21	1.3		
0.19	0.21	0.26	0.16	0.12	0.1	0.12	0.16	0.26	0.41	0.52	0.33	0.22	0.19	0.19	0.2	0.21	0.23	0.25	0.28	0.33	0.39	0.46	0.48	0.49	0.55	0.62	0.7	0.79	0.88	1	1.15	1.33	1.51	1.7	1.9		

50

60 [m]



Part3

-please put your own address here-

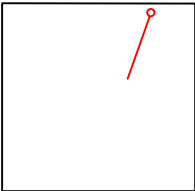
Object : 106 works
Installation : The Heights
Project number : P18228
Date : 13.03.2019



2.3 Calculation results, Exterior 1

2.3.8 Table, Vertical 3 (E)

0.25	0.28	0.3
0.29	0.31	0.34
0.32	0.36	0.4
0.38	0.44	0.5
0.67	0.68	0.72
0.95	0.94	1.03
1.6	1.75	1.94
2.19	2.45	[2.61]



Part4