

Old Granada Studio's

Installation : Exterior

Project number : QP10036-Rev01

Customer : Vaughan Engineering

Processed by : NM

Date : 27.07.2021

Project description:

27/07/21 - Rev01 - 9th floor luminaire types updated

The project has been produced using Drawing No. 190239-3DR-Z6-XX-DR-E-150-B

The following have been applied to the project:

All exterior surface calculated at AFFL

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.

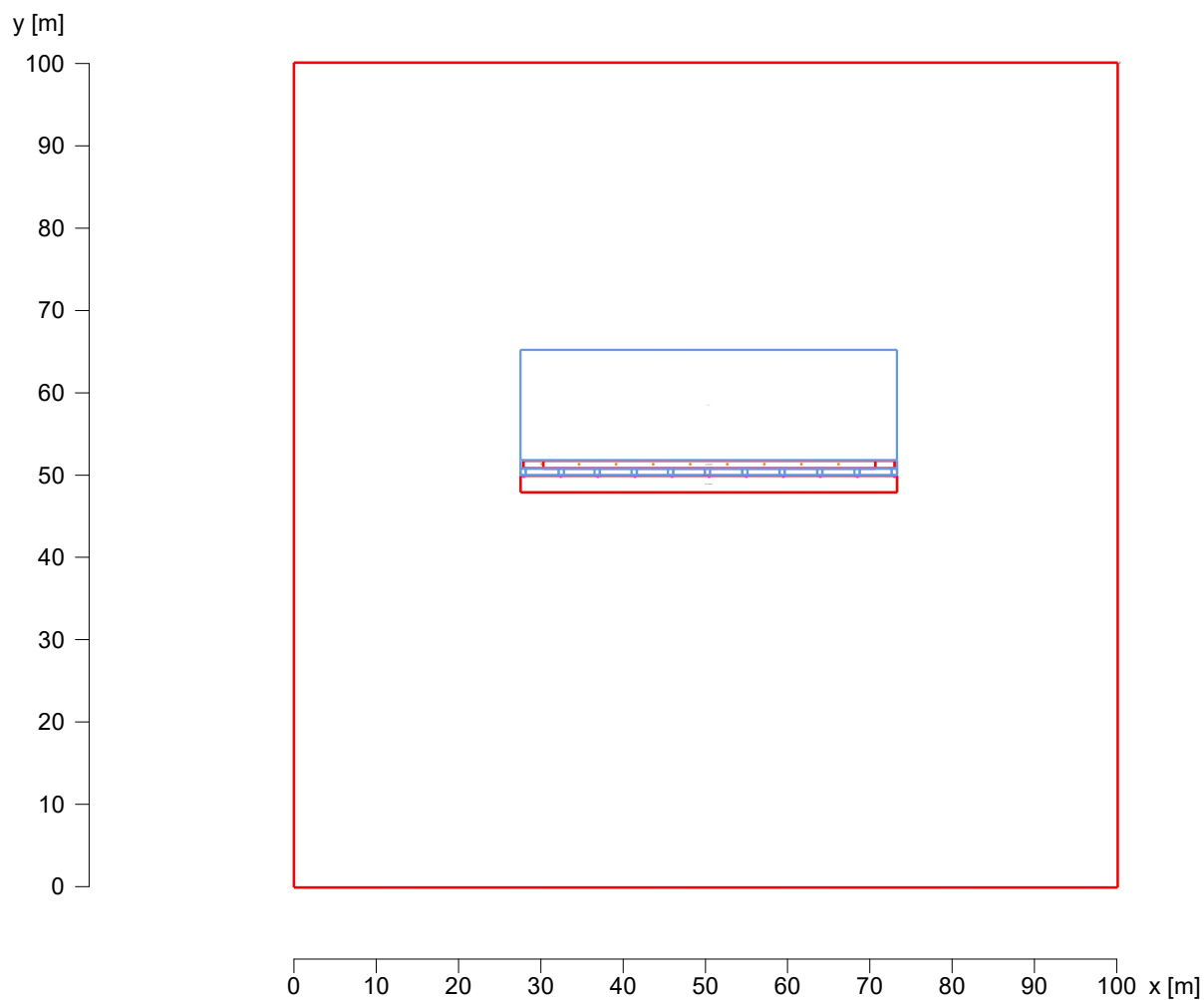
Object : Old Granada Studio's
Installation : Exterior
Project number : QP10036-Rev01
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1 Exterior 1

1.1 Description, Exterior 1

1.1.1 Floor plan



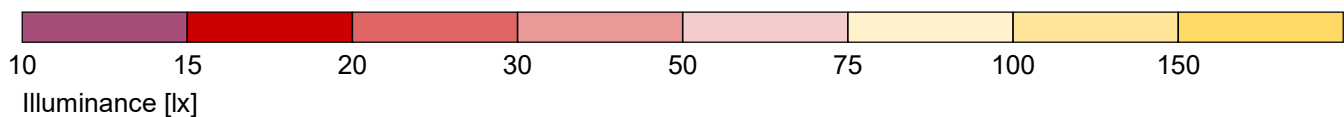
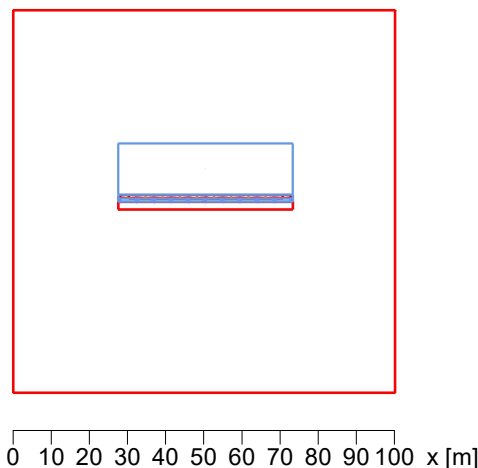
Object : Old Granada Studio's
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1 Exterior 1

1.2 Summary, Exterior 1

1.2.1 Result overview, Covered Walkway



General

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

Total luminous flux of all lamps	79721 lm
Total power	831 W
Total power per area (10000.00 m²)	0.08 W/m²

Illuminance

Average illuminance	Em	49 lx
Minimum illuminance	Emin	11 lx
Maximum illuminance	Emax	189 lx
Uniformity Uo	Emin/Em	1:4.36 (0.23)
Diversity Ud	Emin/Emax	1:16.9 (0.06)

Type No. Make

2 11	SLV	
	Order No.	: !
	Luminaire name	: PA-ENO-3K-B
	Equipment	: 1 x LED 52 W / 6041 lm
3 10	Order No.	: !114420
	Luminaire name	: PA-TTA-3K-9W-38-B
	Equipment	: 1 x LED 11.5 W / 787 lm

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1 Exterior 1

1.2 Summary, Exterior 1

1.2.1 Result overview, Covered Walkway

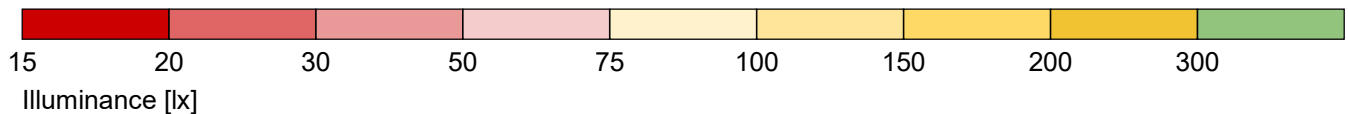
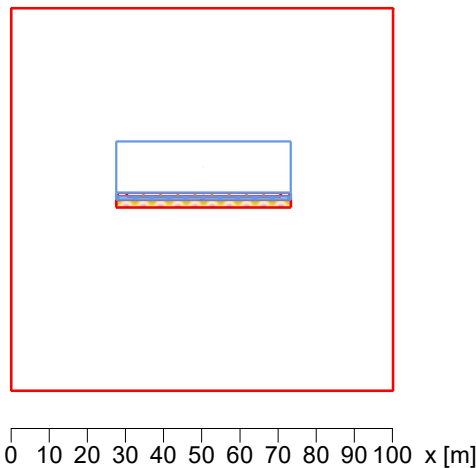
4	9	Order No.	: !PA-FLA-16W-3K-A
		Luminaire name	: PA-FLA
		Equipment	: 1 x LED 100° 16 W / 600 lm

Object : Old Granada Studio's
 Installation : Exterior
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 Date : 27.07.2021



1.2 Summary, Exterior 1

1.2.2 Result overview, Facade Walkway



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80
Total luminous flux of all lamps	79721 lm
Total power	831 W
Total power per area (10000.00 m²)	0.08 W/m²

Illuminance

Average illuminance	Em	134 lx
Minimum illuminance	Emin	17 lx
Maximum illuminance	Emax	378 lx
Uniformity Uo	Emin/Em	1:8.13 (0.12)
Diversity Ud	Emin/Emax	1:22.9 (0.04)

Type No. Make

SLV	
2 11	Order No. : !
	Luminaire name : PA-ENO-3K-B
	Equipment : 1 x LED 52 W / 6041 lm
3 10	Order No. : !114420
	Luminaire name : PA-TTA-3K-9W-38-B
	Equipment : 1 x LED 11.5 W / 787 lm

Object : Old Granada Studio's
Installation : Exterior
Project number : QP10036-Rev01
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1.2 Summary, Exterior 1

1.2.2 Result overview, Facade Walkway

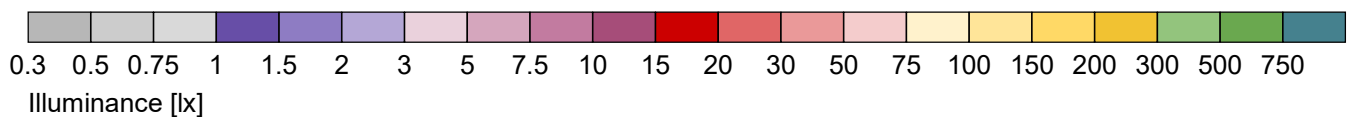
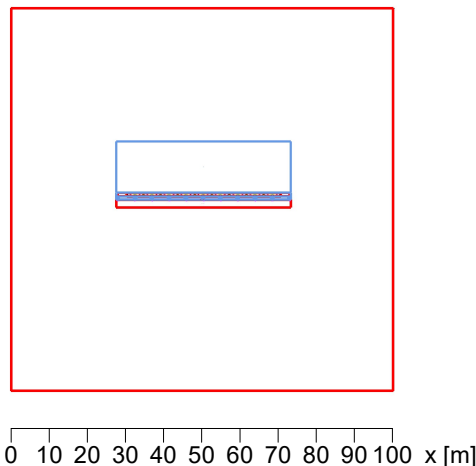
4	9	Order No.	: !PA-FLA-16W-3K-A
		Luminaire name	: PA-FLA
		Equipment	: 1 x LED 100° 16 W / 600 lm

Object : Old Granada Studio's
 Installation : Exterior
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1.2 Summary, Exterior 1

1.2.3 Result overview, 9th floor



General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	38.17 m
Maintenance factor	0.80
Total luminous flux of all lamps	79721 lm
Total power	831 W
Total power per area (10000.00 m²)	0.08 W/m²

Illuminance

Average illuminance	Em	78 lx
Minimum illuminance	Emin	0 lx
Maximum illuminance	Emax	992 lx
Uniformity Uo	Emin/Em	1:180 (0.01)
Diversity Ud	Emin/Emax	1:2290 (0)

Type No.\Make

SLV	
2 11	Order No. : !
	Luminaire name : PA-ENO-3K-B
	Equipment : 1 x LED 52 W / 6041 lm
3 10	Order No. : !114420
	Luminaire name : PA-TTA-3K-9W-38-B
	Equipment : 1 x LED 11.5 W / 787 lm

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1.2 Summary, Exterior 1

1.2.3 Result overview, 9th floor

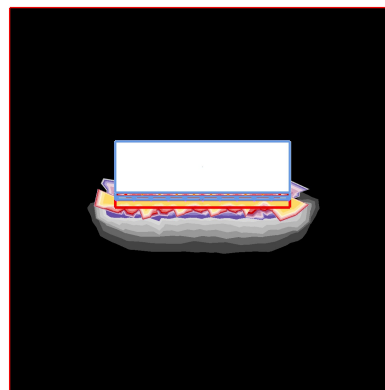
4	9	Order No.	: !PA-FLA-16W-3K-A
		Luminaire name	: PA-FLA
		Equipment	: 1 x LED 100° 16 W / 600 lm

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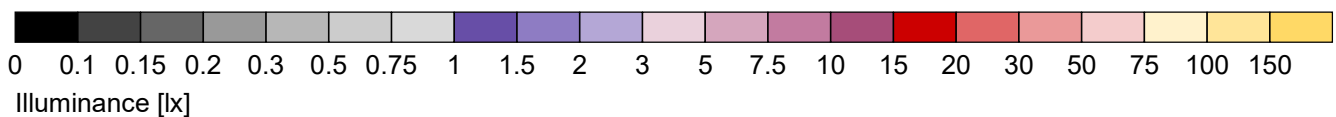


1.2 Summary, Exterior 1

1.2.4 Result overview, Evaluation area 1



0 10 20 30 40 50 60 70 80 90 100 x [m]



General

Calculation algorithm used
 Maintenance factor

Average indirect fraction
 0.80

Total luminous flux of all lamps

79721.00 lm

Total power

831.0 W

Total power per area (10000.00 m²)

0.08 W/m² (4.84 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

Horizontal
 E_m 1.72 lx
 E_{min} 0 lx
 E_{min}/E_m (U_o) ---
 E_{min}/E_{max} (U_d) ---
 Position 0.00 m

Type No.\Make

2 11 SLV
 Order No. : !
 Luminaire name : PA-ENO-3K-B
 Equipment : 1 x LED 52 W / 6041 lm



Object : Old Granada Studio's
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1.2 Summary, Exterior 1

1.2.4 Result overview, Evaluation area 1

3 10 Order No. : !114420
 Luminaire name : PA-TTA-3K-9W-38-B
Equipment : 1 x LED 11.5 W / 787 lm

4 9 Order No. : !PA-FLA-16W-3K-A
 Luminaire name : PA-FLA
Equipment : 1 x LED 100° 16 W / 600 lm

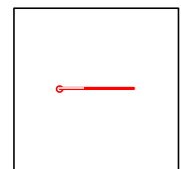
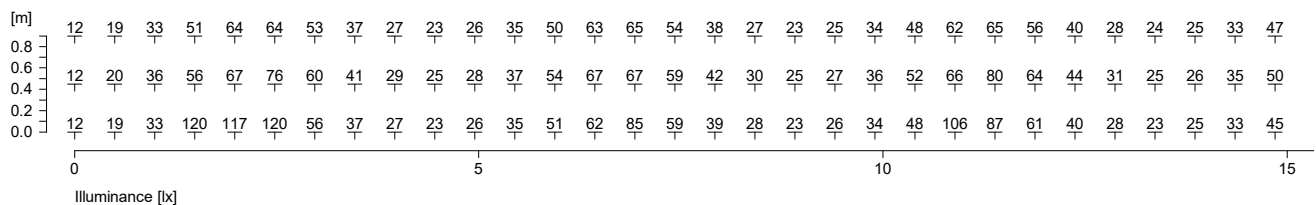
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1 Exterior 1

1.3 Calculation results, Exterior 1

1.3.1 Table, Covered Walkway (E)



Part1

Height reference plane		: 0.00 m
Average illuminance	Em	: 49 lx
Minimum illuminance	Emin	: 11 lx
Maximum illuminance	Emax	: 189 lx
Uniformity Uo	Emin/Em	: 1 : 4.36 (0.23)
Diversity Ud	Emin/Emax	: 1 : 16.85 (0.06)

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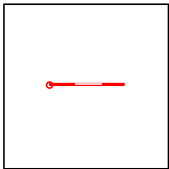


1 Exterior 1

1.3 Calculation results, Exterior 1

1.3.1 Table, Covered Walkway (E)

65	57	41	29	24	25	31	45	60	65	58	42	30	24	24	31	44	59	65	59	44	31	24	24	30	42	58	65	61	45	32	25	24		
65	82	66	45	32	25	26	34	101	104	84	68	47	33	26	25	33	101	104	86	70	48	34	26	25	32	46	104	88	71	50	35	26	25	
107	90	63	41	29	24	25	32	128	108	93	65	42	30	24	24	[189]	133	109	95	67	44	31	25	24	30	134	109	98	69	46	32	25	24	
										20											25											30		



Part2

Object : Old Granada Studio's
Installation : Exterior
Project number : QP10036-Rev01
Date : 27.07.2021

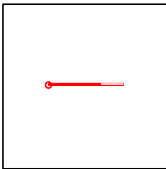


1 Exterior 1

1.3 Calculation results, Exterior 1

1.3.1 Table, Covered Walkway (E)

29	41	57	65	62	47	33	25	24	28	40	55	65	63	48	34	26	24	27	38	54	64	63	49	32	18	(11)
31	44	104	90	73	52	36	27	25	31	43	60	67	74	54	37	27	25	30	42	59	67	66	55	35	20	12
29	137	115	100	71	48	33	25	24	28	40	59	120	74	50	34	26	23	27	38	57	118	77	52	32	18	(11)
						35											40									45 [m]



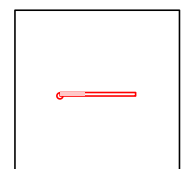
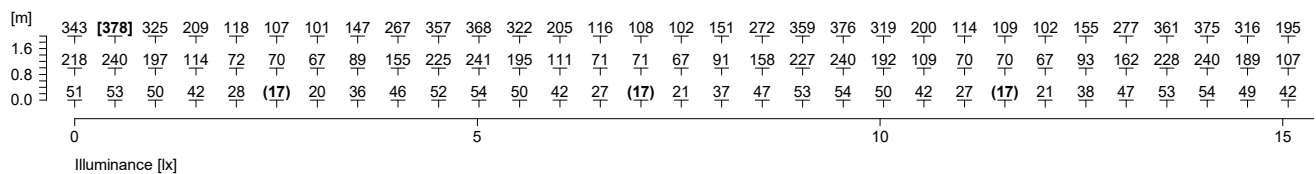
Part3

Object : Old Granada Studio's
 Installation : Exterior
 Project number : QP10036-Rev01
 Date : 27.07.2021



1.3 Calculation results, Exterior 1

1.3.2 Table, Facade Walkway (E)



Part1

Height reference plane		: 0.00 m
Average illuminance	Em	: 134 lx
Minimum illuminance	Emin	: 17 lx
Maximum illuminance	Emax	: 378 lx
Uniformity Uo	Emin/Em	: 1 : 8.13 (0.12)
Diversity Ud	Emin/Emax	: 1 : 22.88 (0.04)

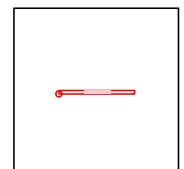
Object : Old Granada Studio's
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 Project number : QP10036-Rev01
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1.3 Calculation results, Exterior 1

1.3.2 Table, Facade Walkway (E)

113	109	103	160	281	353	373	314	190	111	109	105	164	286	354	371	310	186	110	109	106	169	291	356	370	306	181	109	110	107	173	296	358
70	70	67	94	165	230	238	185	106	70	70	68	96	168	231	237	182	104	70	70	69	98	171	233	236	179	102	69	70	69	100	174	234
26	(17)	21	38	47	53	53	49	41	25	(17)	22	39	47	53	53	49	41	24	(17)	22	39	48	53	53	49	41	24	(17)	23	40	48	53
20										25										30												



Part2

Object : Old Granada Studio's
Installation : Exterior
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Date : 27.07.2021



1.3 Calculation results, Exterior 1

1.3.2 Table, Facade Walkway (E)

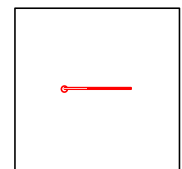
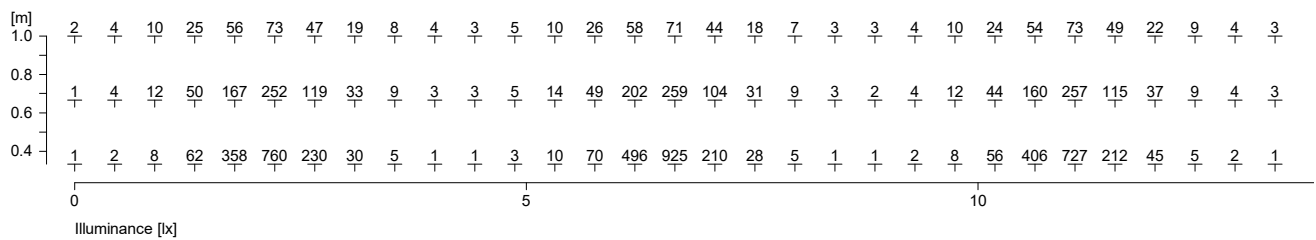
368	301	177	108	109	108	178	301	359	367	295	173	107	109	109	183	307	360	365	290	168	106	110	111	187	311	360	354											
235	176	100	69	70	70	102	178	235	233	173	99	69	70	70	104	181	236	232	170	97	69	70	71	106	183	235	226											
53	48	40	23	(17)	23	41	49	53	53	48	40	23	(17)	24	41	49	53	53	48	39	22	(17)	24	41	49	53	52											
												35													40												45	[m]

Object : Old Granada Studio's
 Installation : Exterior
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1.3 Calculation results, Exterior 1

1.3.3 Table, 9th floor (E)



Part1

Height reference plane	:	38.17 m
Average illuminance	Em	: 78 lx
Minimum illuminance	Emin	: 0 lx
Maximum illuminance	Emax	: 992 lx
Uniformity Uo	Emin/Em	: 1 : 179.57 (0.01)
Diversity Ud	Emin/Emax	: 1 : 2292.02 (0.00)

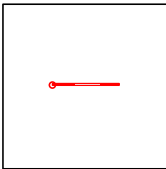
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1.3 Calculation results, Exterior 1

1.3.3 Table, 9th floor (E)

4	10	25	54	70	47	20	8	4	3	4	9	22	50	69	50	22	9	4	3	4	7	19	44	70	56	26	11	4	3	3	5	12	3
4	12	42	162	275	120	37	10	4	2	4	11	43	131	251	158	39	10	4	2	3	8	28	122	276	146	47	16	4	2	2	5	16	6
2	10	36	350	813	217	39	7	1	1	1	9	39	311	[992]	262	35	7	2	1	2	5	32	146	698	401	59	9	3	1	1	3	14	10
15										20										25													



Part2

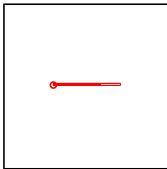
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1.3 Calculation results, Exterior 1

1.3.3 Table, 9th floor (E)

62	68	39	16	6	3	3	5	11	28	59	71	42	17	7	3	3	4	9	22	51	74	51	22	8	3	1
203	265	94	24	7	3	3	5	15	54	211	272	105	26	8	3	2	4	12	39	134	254	143	37	11	3	1
562	691	136	27	4	1	1	3	10	64	504	633	118	22	5	2	1	2	7	44	247	646	186	43	7	2	(0)
30										35										40 [m]						



Part3

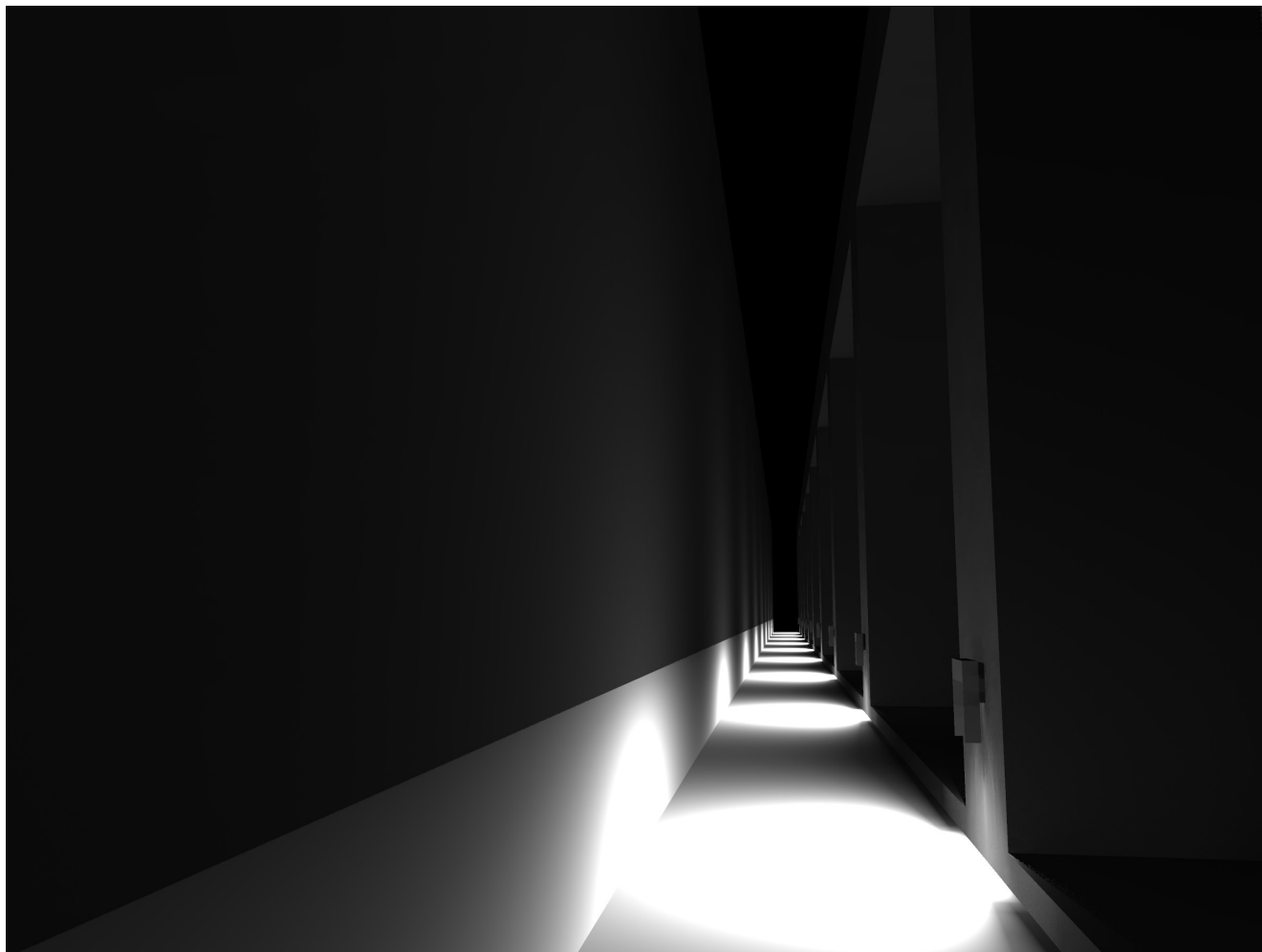
Object : Old Granada Studio's
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1 Exterior 1

1.4 Calculation results, Exterior 1

1.4.1 3D luminance (raytracing), Variable view



Luminance in the illustration:

Minimum: : 0 cd/m²

Maximum: : 12.2 cd/m²

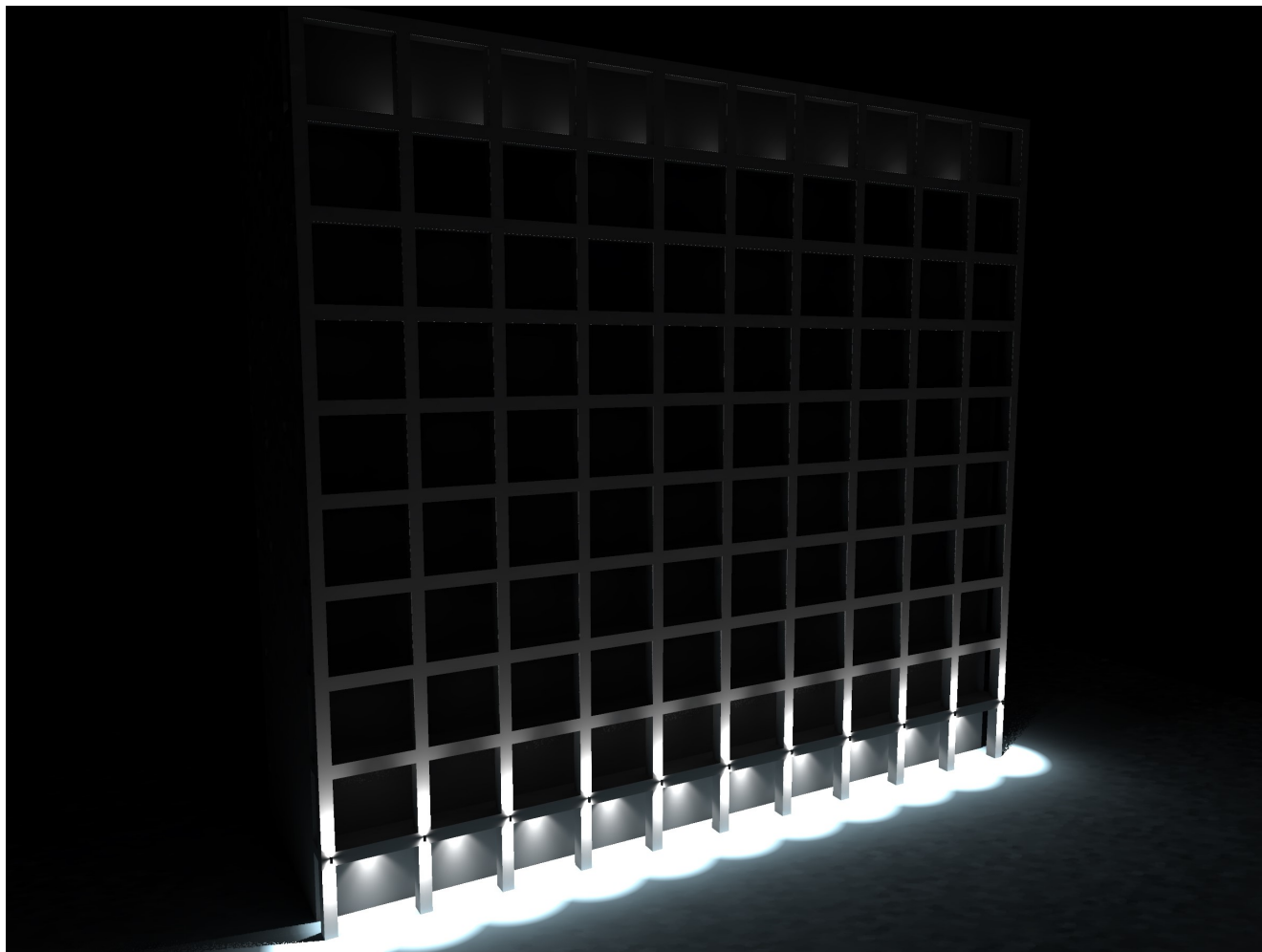
Artificial light calculation : Direct part, with 6 inter-reflections

Object : Old Granada Studio's
Installation : Exterior
Project number : QP10036-Rev01
Date : 27.07.2021



1.4 Calculation results, Exterior 1

1.4.2 3D luminance (raytracing), Variable view



Luminance in the illustration:

Minimum: : 0 cd/m²

Maximum: : 4830 cd/m²

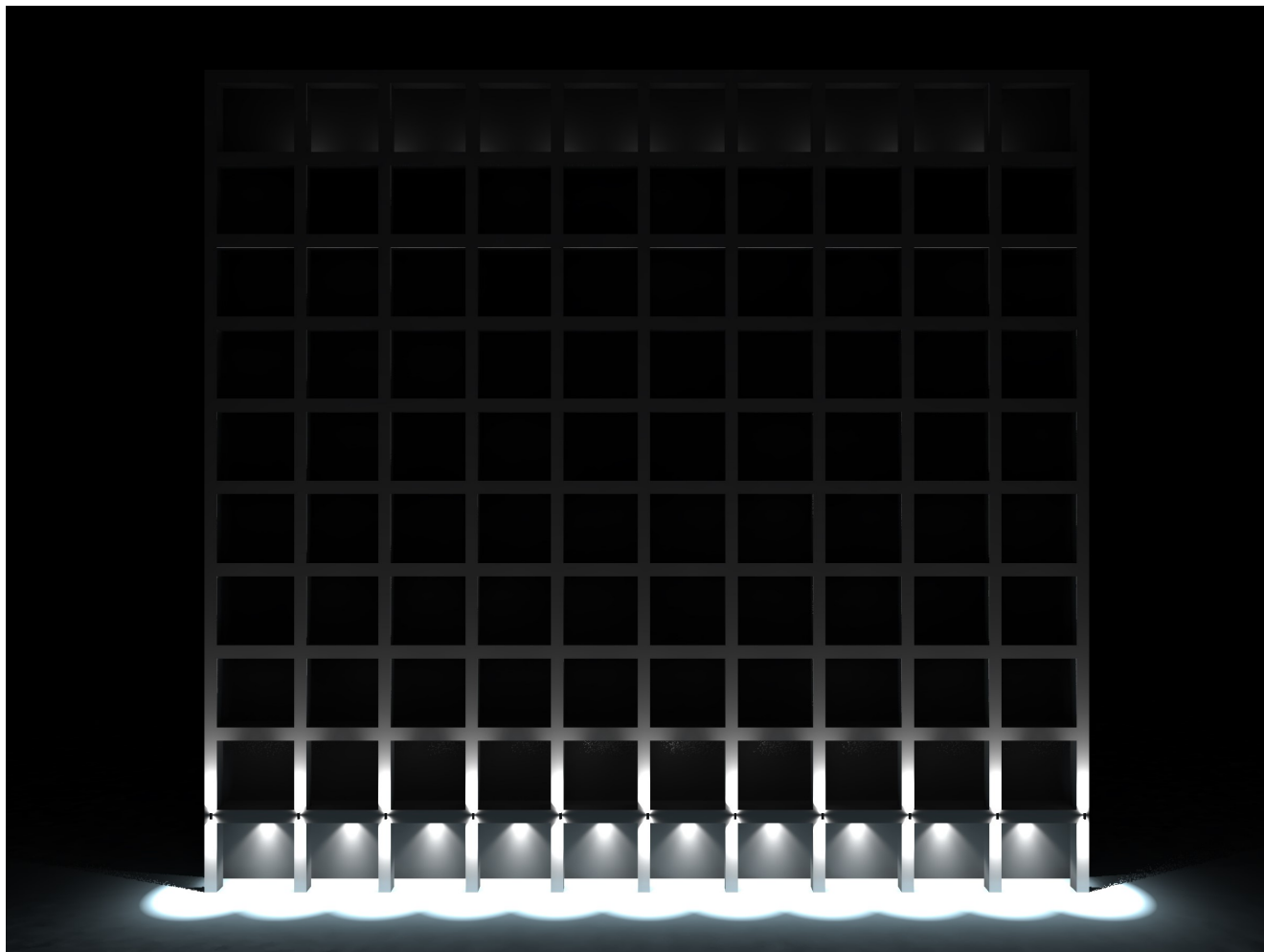
Artificial light calculation : Direct part, with 6 inter-reflections

Object : Old Granada Studio's
Installation : Exterior
Project number : QP10036-Rev01
Date : 27.07.2021



1.4 Calculation results, Exterior 1

1.4.3 3D luminance (raytracing), View from the front



Luminance in the illustration:

Minimum: : 0 cd/m²

Maximum: : 5850 cd/m²

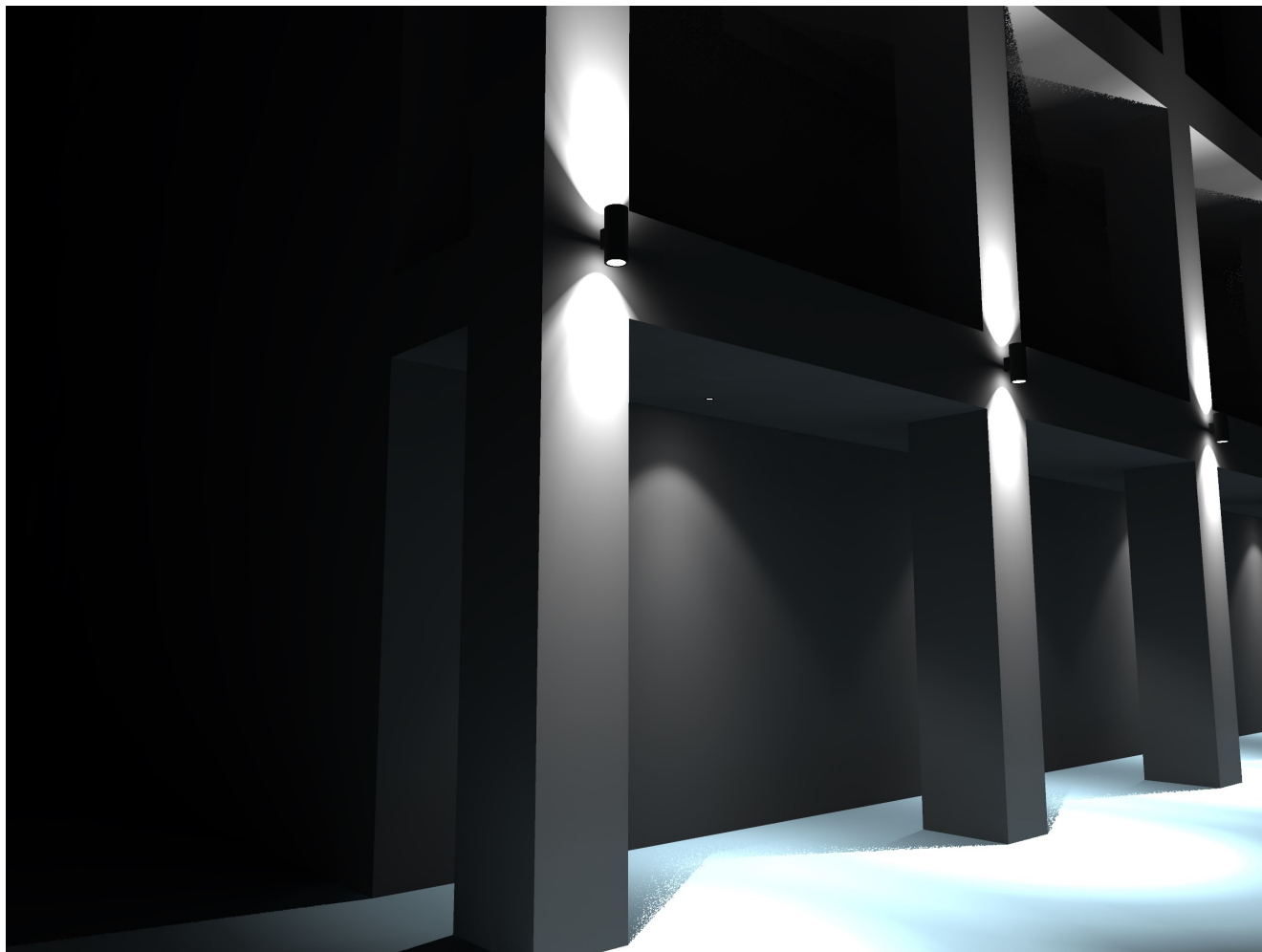
Artificial light calculation : Direct part, with 6 inter-reflections

Object : Old Granada Studio's
Installation : Exterior
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1.4 Calculation results, Exterior 1

1.4.4 3D luminance (raytracing), Variable view



Luminance in the illustration:

Minimum: : 0 cd/m²

Maximum: : 49600 cd/m²

Artificial light calculation : Direct part, with 6 inter-reflections

Object : Old Granada Studio's
Installation : Exterior
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1.4 Calculation results, Exterior 1

1.4.5 3D luminance (raytracing), Variable view



Luminance in the illustration:

Minimum: : 0 cd/m²

Maximum: : 66100 cd/m²

Artificial light calculation : Direct part, with 6 inter-reflections