



In addition to any information included in this drawing or the model from which it is derived, refer also to the project CDM Risk Register for information on residual risks'

- The drawing does not necessarily show all the information needed to interpret the design intent or the construction details.
- The drawing contains information from more than one source and must be read in conjunction with all relevant specifications.
- Any apparent drafting errors and differences between other drawings and specifications shall be brought to our attention.

1. ALL LUMINAIRES TO BE COORDINATED WITH LANDSCAPE DESIGN, FINAL SETTING OUT TO BE CONFIRMED BY ARCHITECT / LANDSCAPE DESIGN SPECIALIST
2. CCTV CAMERAS TO BE POSITIONED TO ACHIEVE OBJECTIVES SET OUT IN W42 PARTICULAR SPECIFICATION
3. DRAWING TO BE READ IN CONJUNCTION WITH COMBINED EXTERNAL SERVICES LAYOUT

B39-HOA-AB--XX-GA-U-690-8504

 DOME CCTV CAMERA (COLOUR, FIXED, IP) AND ASSOCIATED DATA POINT

 ILLX2 IP66 RATED 41W LED ARCHITECTURAL AMBIENT LANTERN MOUNTED ON 4M COLUMN

 HL6 IP65 RATED SURFACE MOUNTED LINEAR LUMINAIRE

 ACCESS CONTROLLED DOOR

 DOOR CONTROLLER

 INDICATIVE ROUTE FOR INGROUND CABLEWAYS FOR LV COLUMNS

T1	TENDER ISSUE	DN	PRC	PRC	NOV 18
Index	Description	Designed	Reviewed	Authorised	Date

HOARE LEA 

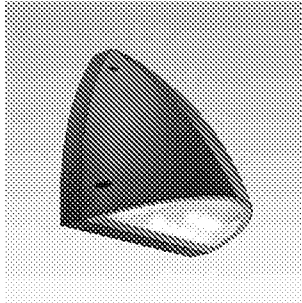
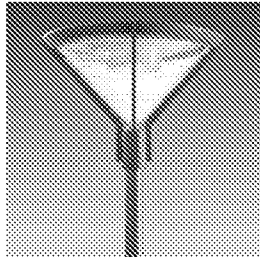
PROJECT TITLE:
UNIVERSITY OF CHICHESTER TECH PARK
STUDENT ACCOMMODATION
PHASE ONE

TENDER ISSUE

PERSON RESPONSIBLE FOR:			
Design: DN	Review: PRC	Authorising Issue: PRC	
Project No: 0709859	Date: JUNE 2018	Scale @ A1: 1:200	
DRAWING NUMBER:			Revision:
B39-HOA-AB-XX-GA-E-690-8501			T1

UNIVERSITY OF CHICHESTER STUDENT ACCOMMODATION - PHASE 1

MECHANICAL, ELECTRICAL AND PUBLIC HEALTH ENGINEERING SYSTEMS

REF.	DESCRIPTION		MANUFACTURER'S DETAILS	IMAGE	LOCATION
HLX1	Product Name Description Mounting Lamp Wattage Lamp Type Lumen Output Colour Temperature Dimensions Finish IP rating Control gear	Piazza II LED Robust polycarbonate luminaire Wall mounted 25W LED 2910 lm 4000K 383 x 306mm, 195mm depth Anthracite IP65 Non dimmable	Thorn Zumtobel Tom Fealy tom.fealy@zumtobelgroup.com T: 01388 420 042 M: 07785 257 256		External over doors
HLX2	Product Name Description Mounting Lamp Wattage Lamp Type Lumen Output Colour Temperature Dimensions Finish IP rating Control gear	Avenue F2 Post top decorative amenity luminaire with symmetric distribution Column mounted on 4m poles 21W LED 2120lm 4000K 700mm diameter, 500mm height Dark Sandy Grey IP66 Integral power reduction circuit	Thorn Zumtobel Tom Fealy tom.fealy@zumtobelgroup.com T: 01388 420 042 M: 07785 257 256		External

UNIVERSITY OF CHICHESTER STUDENT ACCOMMODATION - PHASE 1

MECHANICAL, ELECTRICAL AND PUBLIC HEALTH ENGINEERING SYSTEMS

Notes

1. All luminaires to be supplied complete with lamps of the colour temperature specified.
2. All emergency luminaires to be able to accommodate an integral changeover relay module to switch to the emergency battery system on mains failure condition.
3. Allow for all necessary interfaces to allow luminaires to interface with the lighting control system specified including any additional control gear and systems.
4. All luminaires must be installed in line with manufacturer's recommendations. Contractors should obtain and verify manufacturers installation details prior starting luminaires installation on site
5. All emergency luminaires shall be DALI EMPro and be centrally monitored.
6. All Exit signage directions to be co-ordinated and agreed with Architect and Building Control.
7. All luminaire information and references are to be checked with the lighting manufacturer prior to ordering to ensure information is current.
8. Should any discrepancy arise between the luminaire schedule and any other Hoare Lea Documentation it should be brought to the attention of the Engineer immediately, in writing.

THE LUMINAIRES IN THE ABOVE SCHEDULE HAVE BEEN SELECTED IN CONJUNCTION WITH THE CLIENT, ARCHITECT AND DESIGN TEAM. THE CONTRACTOR MAY PROPOSE ALTERNATIVE LUMINAIRES / MANUFACTURERS OTHER THAN THOSE ABOVE, WHICH THE TENDER DESIGN IS BASED UPON. ANY CHANGES TO THE LUMINAIRE SELECTION WHICH DEVIATE FROM THOSE THAT THE DESIGN IS BASED UPON SHALL REQUIRE THAT THE ORIGINAL DESIGN CRITERIA ARE WHOLLY FULFILLED. AFFECTED AREAS SHALL RE-DESIGNED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR COMMENT WITH THE COST OF ANY ADDITIONAL LUMINAIRES, SHOULD THEY BE REQUIRED, INCLUDED IN THE CONTRACTORS TENDER. ALL ALTERNATIVE LUMINAIRES WILL BE SUBJECT TO APPROVAL OF A WORKING SAMPLE TO BE PRESENTED BY THE CONTRACTOR

Installation : UoC Student Residential Block

Project number : 07/09859
Customer :
Processed by : Dan Newton
Date : 07.11.2018

Project description:

The proposed external lighting scheme has been designed to adhere to the following design standards and guidance:

BS 5489 Code of practice for the design of road lighting
CIBSE SLL Lighting Guide 6: The outdoor environment
ILPGN01 Guidance Notes for the Reduction of Obtrusive Light

The specific lighting level to which the footpaths have been illuminated is an average of 20 lux.

The design has been developed to reduce light spill where ever practicable by use of hooded luminaires with downward illuminating characteristics only.

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.

1 Luminaire data

1.1 Thorn, AVN F2 LED 18L35 R/S BPSW CL1 D... (96265462)

1.1.1 Data sheet

Manufacturer: Thorn

96265462

AVN F2 LED 18L35 R/S BPSW CL1 D60 L730 [STD]

Decorative post-top lantern with symmetric distribution. Equipped with 50% power reduction circuit, effective 3 hours before and 5 hours after a calculated midnight. It can be deactivated at installation with an easily accessible internal switch. Class I electrical, IP66, IK08. Base and arms: die-cast aluminium (LM6), Canopy: spun aluminium, all powder coated dark sandy grey 900 (close to RAL7043). Diffuser: clear polycarbonate. Screw fixings: stainless steel. Supplied complete in one box. Complete with 3000K LED

Post top mounted on a spigot of Ø60mm, length 100mm.

Dimensions: Ø700/700 x 500 mm

Total power: 21 W

Weight: 9 kg

Scx: 0.17 m²

Luminaire efficacy: 101 lm/W

Luminaire data

Absolute Photometry

Luminaire efficacy : 100.96 lm/W

Classification : A11 ↓97.2% ↑2.8%

CIE Flux Codes : 12 34 76 97 100

UGR 4H 8H : 22.9 / 22.9

Power : 21 W

Luminous flux : 2120.1 lm

Dimensions : Ø700 mm x 500 mm

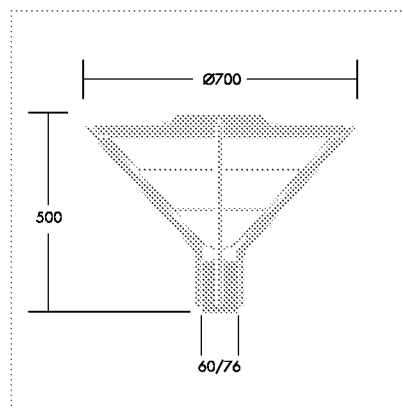
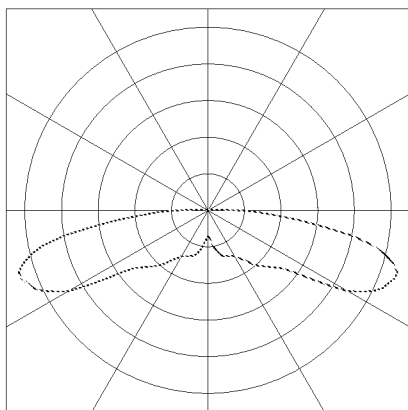
Equipped with

Quantity : 1

Designation :

Colour : 3000

Colour reproduction : 70



1 Luminaire data

1.2 Thorn, PIAZZA II LED 2700-840 HF ANT [... (96666261)

1.2.1 Data sheet

Manufacturer: Thorn

96666261 wall PIAZZA II LED 2700-840 HF ANT [STD]

A robust wall mounted luminaire. Electronic, fixed output control gear. Back plate: die-cast aluminium, painted anthracite. Body: anthracite polycarbonate. Ø20mm cable entry via rear or side conduit entries, BESA compatible. IP65, IK10. Complete with 4000K LED.

Dimensions: 383 x 195 x 306 mm

Total power: 25 W

Luminaire luminous flux: 2910 lm

Luminaire efficacy: 116 lm/W

Weight: 2.8 kg

Luminaire data

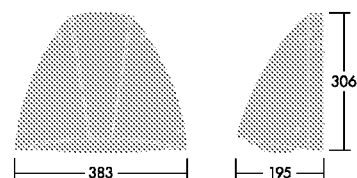
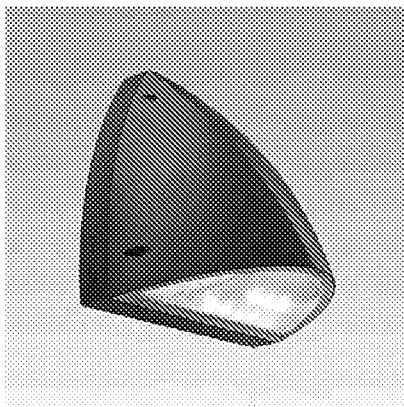
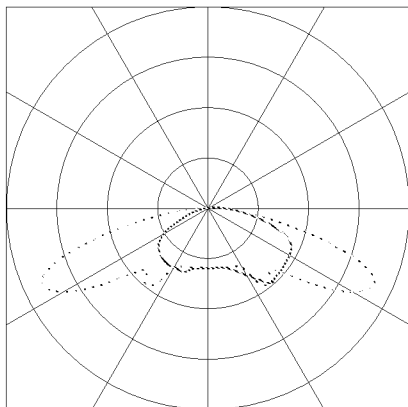
Absolute Photometry

Luminaire efficacy : 116.4 lm/W
 Classification : A21 ↓97.6% ↑2.4%
 CIE Flux Codes : 23 53 86 98 100
 UGR 4H 8H : 34.6 / 41.0
 Power : 25 W
 Luminous flux : 2910 lm

Equipped with

Quantity : 1
 Designation : TL_PIA2
 Colour : 4000
 Colour reproduction : 80

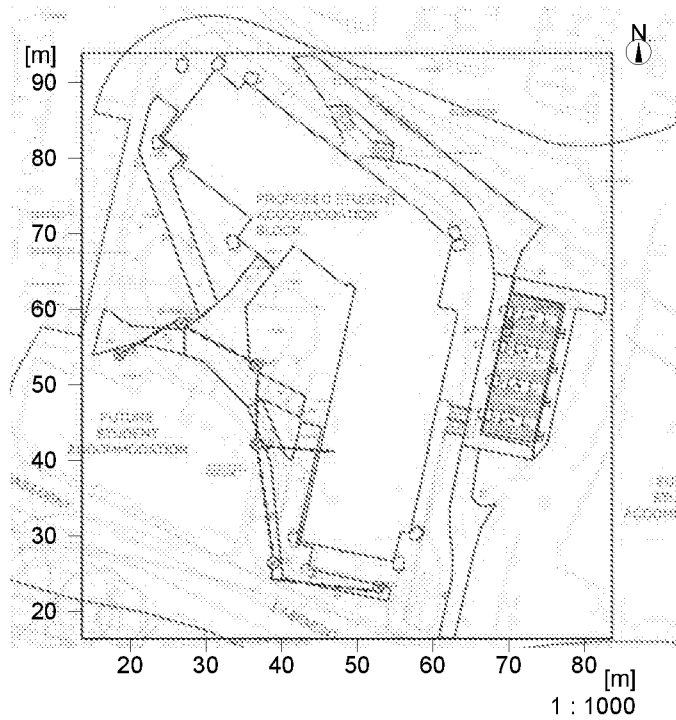
Dimensions : 383 mm x 195 mm x 306 mm



2 Exterior 1

2.1 Description, Exterior 1

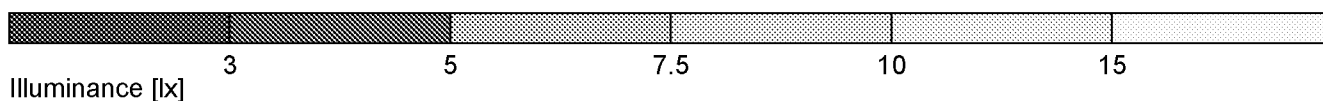
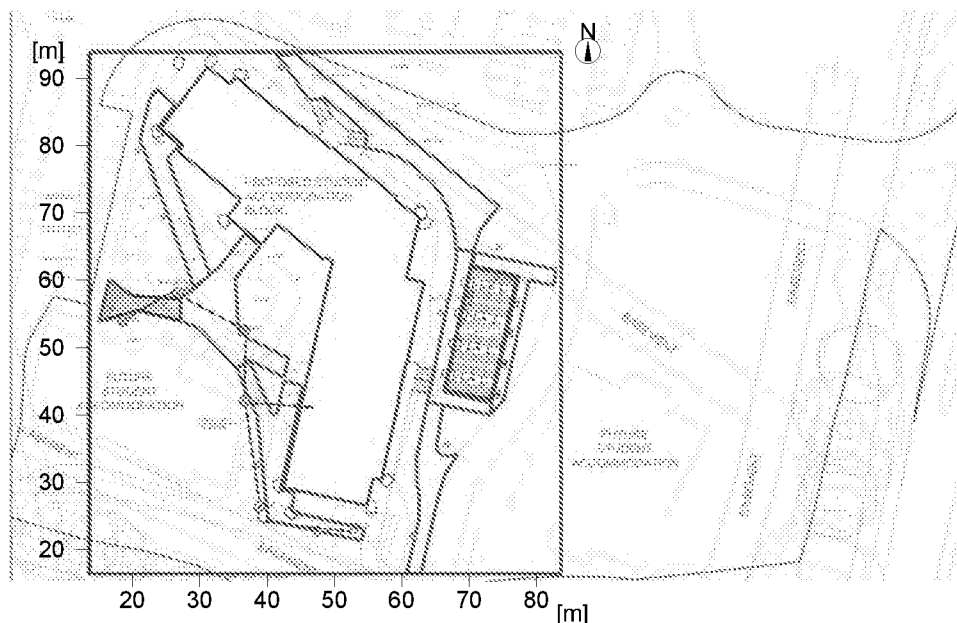
2.1.1 Floor plan



2 Exterior 1

2.2 Summary, Exterior 1

2.2.1 Result overview, Boardwalk 1



General

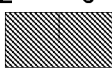
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80

Total luminous flux of all lamps	47112 lm
Total power	444 W
Total power per area (5424.02 m²)	0.08 W/m²

Illuminance

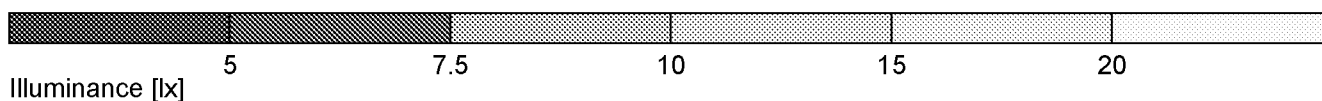
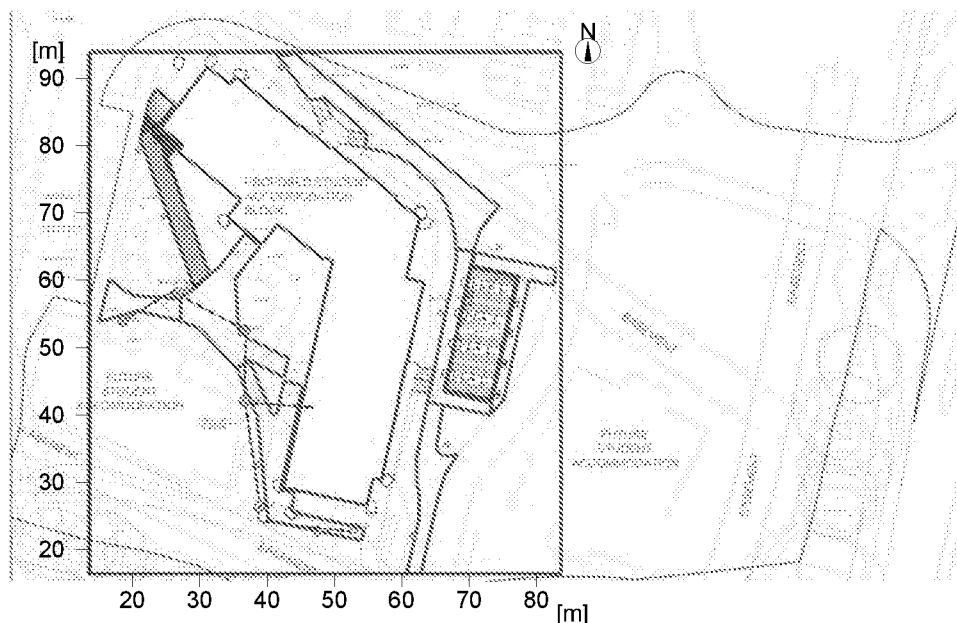
Average illuminance	Eav	8.2 lx
Minimum illuminance	Emin	5.7 lx
Maximum illuminance	Emax	10.3 lx
Uniformity Uo	Emin/Emax	1:1.44 (0.69)
Diversity Ud	Emin/Emax	1:1.8 (0.56)

Type No.\Make

- | | |
|---|---|
| Thorn | |
| 1 | 14 |
|  | Order No. : 96265462 |
| | Luminaire name : AVN F2 LED 18L35 R/S BPSW CL1 D60 L730 [STD] |
| | Equipment : 1 x AVF2_18L35_RS_3K 21 W / 2118 lm |
| Piazza II | |
| 2 | 6 |
|  | Order No. : 96666261 |
| | Luminaire name : PIAZZA II LED 2700-840 HF ANT [STD] |
| | Equipment : 1 x TL_PIA2 25 W / 2910 lm |

2.2 Summary, Exterior 1

2.2.2 Result overview, Boardwalk 2



General

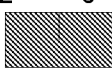
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80

Total luminous flux of all lamps	47112 lm
Total power	444 W
Total power per area (5424.02 m²)	0.08 W/m²

Illuminance

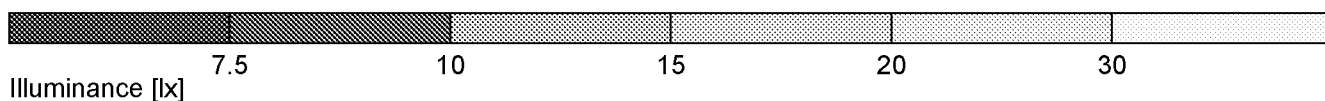
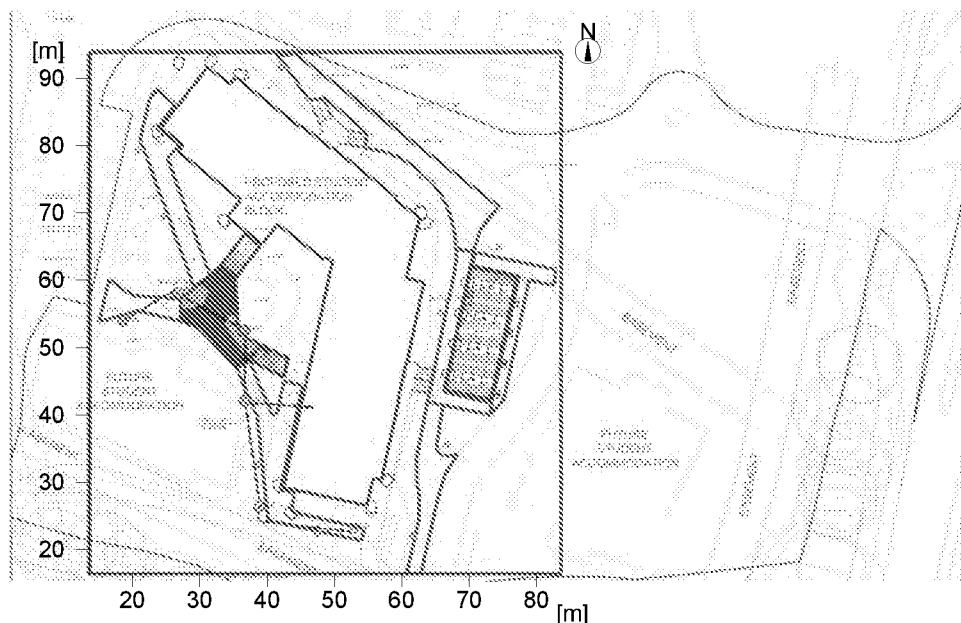
Average illuminance	Eav	8.9 lx
Minimum illuminance	Emin	6.9 lx
Maximum illuminance	Emax	14.6 lx
Uniformity Uo	Emin/Em	1:1.28 (0.78)
Diversity Ud	Emin/Emax	1:2.1 (0.48)

Type No.\Make

- | | |
|---|--|
| Thorn | |
| 1 | 14 |
|  | Order No. : 96265462
Luminaire name : AVN F2 LED 18L35 R/S BPSW CL1 D60 L730 [STD]
Equipment : 1 x AVF2_18L35_RS_3K 21 W / 2118 lm |
| Piazza II | |
| 2 | 6 |
|  | Order No. : 96666261
Luminaire name : PIAZZA II LED 2700-840 HF ANT [STD]
Equipment : 1 x TL_PIA2 25 W / 2910 lm |

2.2 Summary, Exterior 1

2.2.3 Result overview, Boardwalk 3



General

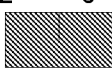
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80

Total luminous flux of all lamps	47112 lm
Total power	444 W
Total power per area (5424.02 m²)	0.08 W/m²

Illuminance

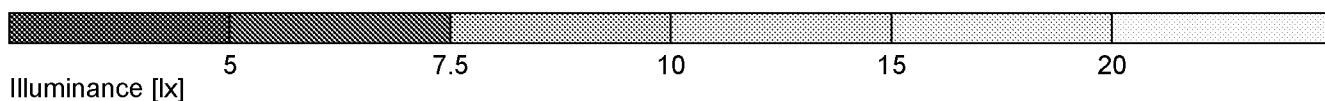
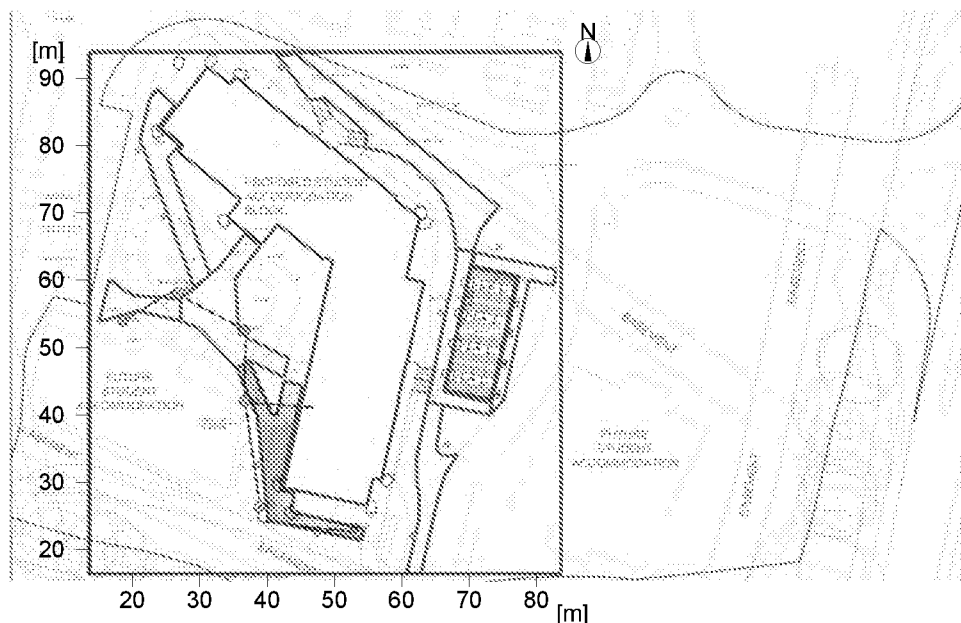
Average illuminance	Eav	14.3 lx
Minimum illuminance	Emin	8.5 lx
Maximum illuminance	Emax	76 lx
Uniformity Uo	Emin/Em	1:1.68 (0.6)
Diversity Ud	Emin/Emax	1:8.93 (0.11)

Type No.\Make

- | | | | |
|---|----|---|---|
| 1 | 14 |  | Thorn |
| | | | Order No. : 96265462 |
| | | | Luminaire name : AVN F2 LED 18L35 R/S BPSW CL1 D60 L730 [STD] |
| | | | Equipment : 1 x AVF2_18L35_RS_3K 21 W / 2118 lm |
| 2 | 6 |  | PIAZZA II |
| | | | Order No. : 96666261 |
| | | | Luminaire name : PIAZZA II LED 2700-840 HF ANT [STD] |
| | | | Equipment : 1 x TL_PIA2 25 W / 2910 lm |

2.2 Summary, Exterior 1

2.2.4 Result overview, Boardwalk 4



General

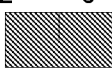
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80

Total luminous flux of all lamps	47112 lm
Total power	444 W
Total power per area (5424.02 m²)	0.08 W/m²

Illuminance

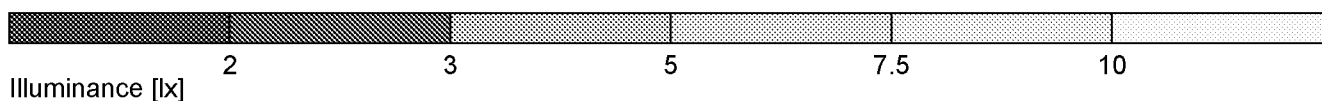
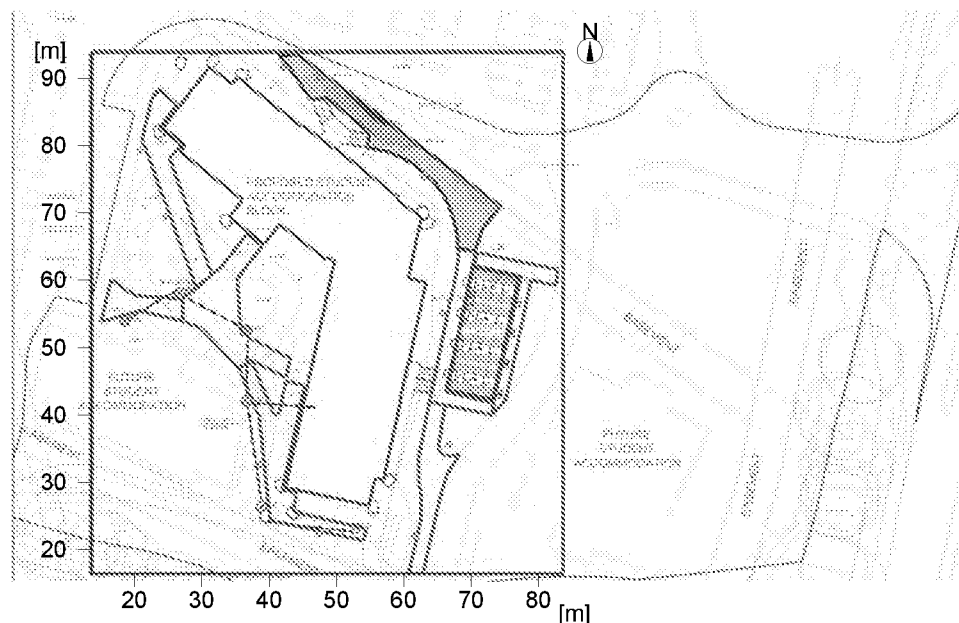
Average illuminance	Eav	12.3 lx
Minimum illuminance	Emin	6.6 lx
Maximum illuminance	Emax	48.2 lx
Uniformity Uo	Emin/Em	1:1.87 (0.54)
Diversity Ud	Emin/Emax	1:7.31 (0.14)

Type No.\Make

Thorn		
1	14	Order No. : 96265462
		Luminaire name : AVN F2 LED 18L35 R/S BPSW CL1 D60 L730 [STD]
		Equipment : 1 x AVF2_18L35_RS_3K 21 W / 2118 lm
Piazza II		
2	6	Order No. : 96666261
		Luminaire name : PIAZZA II LED 2700-840 HF ANT [STD]
		Equipment : 1 x TL_PIA2 25 W / 2910 lm

2.2 Summary, Exterior 1

2.2.5 Result overview, Walkway 1



General

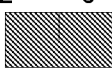
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80

Total luminous flux of all lamps	47112 lm
Total power	444 W
Total power per area (5424.02 m²)	0.08 W/m²

Illuminance

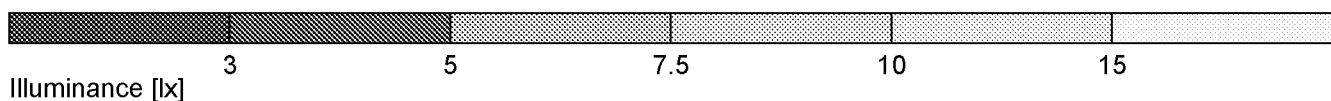
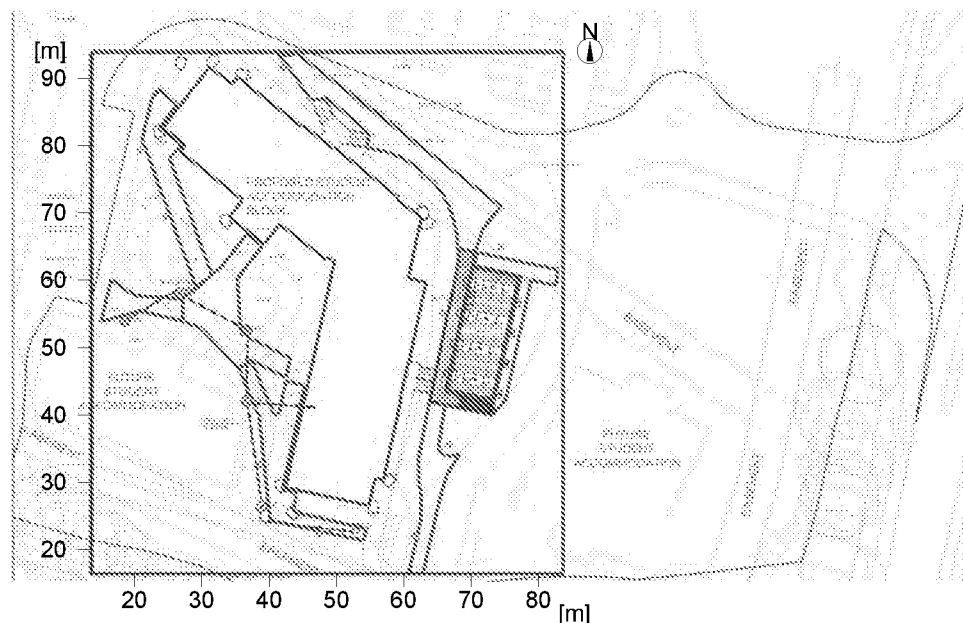
Average illuminance	Eav	5.28 lx
Minimum illuminance	Emin	2.44 lx
Maximum illuminance	Emax	7.86 lx
Uniformity Uo	Emin/Em	1:2.17 (0.46)
Diversity Ud	Emin/Emax	1:3.23 (0.31)

Type No.\Make

- | | |
|---|---|
| Thorn | |
| 1 | Order No. : 96265462 |
| 14 | Luminaire name : AVN F2 LED 18L35 R/S BPSW CL1 D60 L730 [STD] |
|  | Equipment : 1 x AVF2_18L35_RS_3K 21 W / 2118 lm |
| Piazza II | |
| 2 | Order No. : 96666261 |
| 6 | Luminaire name : PIAZZA II LED 2700-840 HF ANT [STD] |
|  | Equipment : 1 x TL_PIA2 25 W / 2910 lm |

2.2 Summary, Exterior 1

2.2.6 Result overview, Walkway 2



General

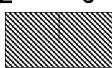
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80

Total luminous flux of all lamps	47112 lm
Total power	444 W
Total power per area (5424.02 m²)	0.08 W/m²

Illuminance

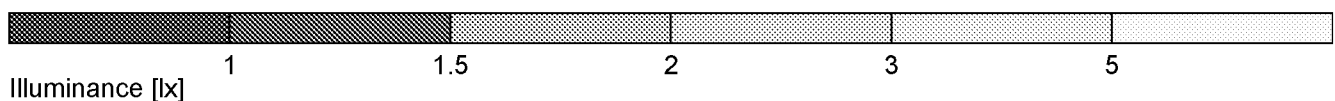
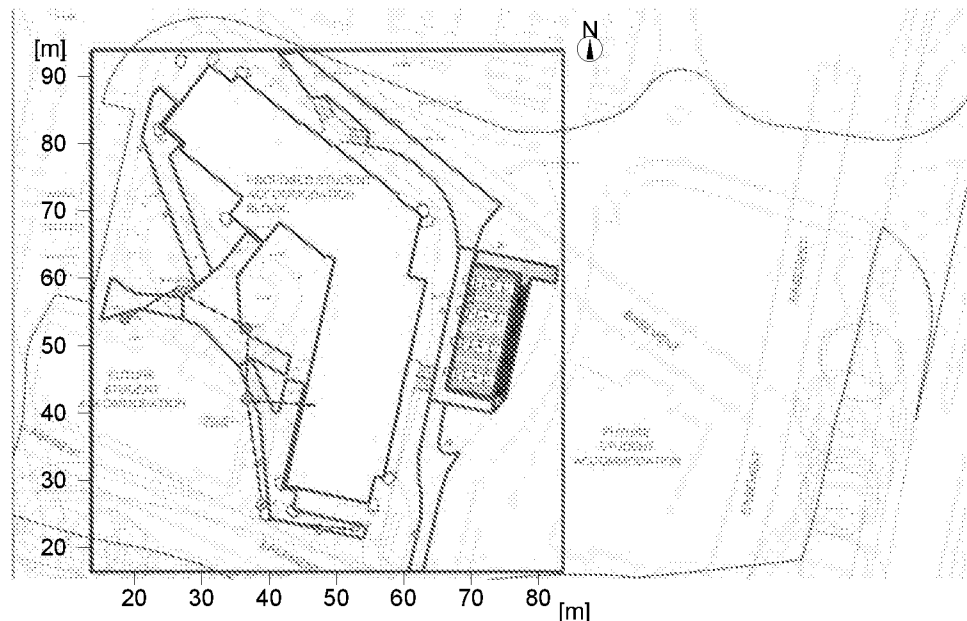
Average illuminance	Eav	7.4 lx
Minimum illuminance	Emin	2.8 lx
Maximum illuminance	Emax	12.4 lx
Uniformity Uo	Emin/Em	1:2.7 (0.37)
Diversity Ud	Emin/Emax	1:4.49 (0.22)

Type No.\Make

Thorn	
1	14
	
Order No.	: 96265462
Luminaire name	: AVN F2 LED 18L35 R/S BPSW CL1 D60 L730 [STD]
Equipment	: 1 x AVF2_18L35_RS_3K 21 W / 2118 lm
PIAZZA II	
2	6
	
Order No.	: 96666261
Luminaire name	: PIAZZA II LED 2700-840 HF ANT [STD]
Equipment	: 1 x TL_PIA2 25 W / 2910 lm

2.2 Summary, Exterior 1

2.2.7 Result overview, Walkway 3



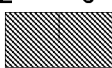
General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80
Total luminous flux of all lamps	47112 lm
Total power	444 W
Total power per area (5424.02 m²)	0.08 W/m²

Illuminance

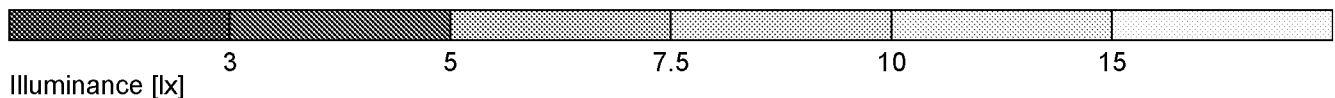
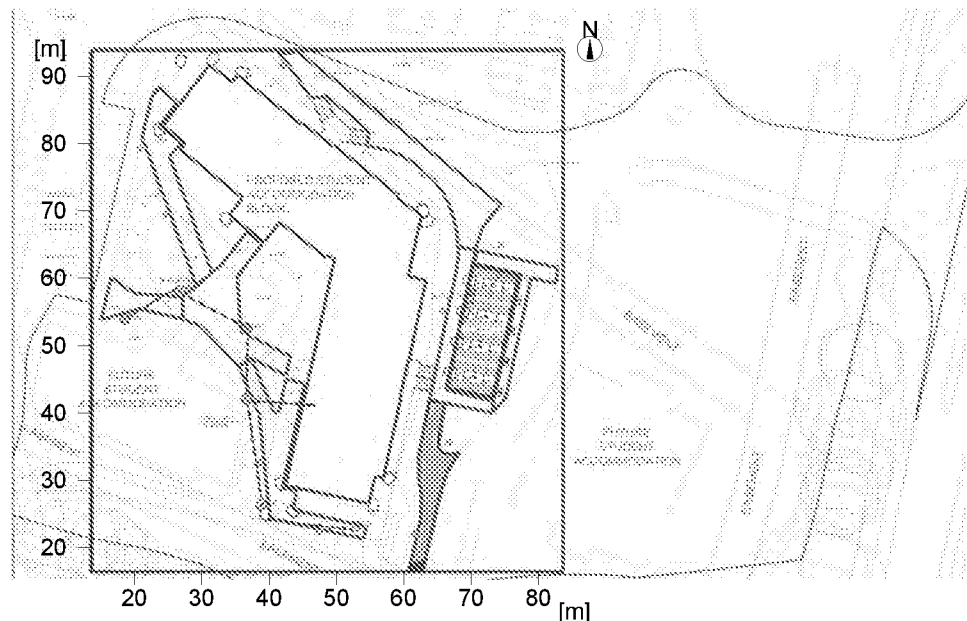
Average illuminance	Eav	2.33 lx
Minimum illuminance	Emin	0 lx
Maximum illuminance	Emax	7.58 lx
Uniformity Uo	Emin/Em	1:--- (---)
Diversity Ud	Emin/Emax	1:--- (---)

Type No.\Make

1		14	Thorn
			Order No. : 96265462 Luminaire name : AVN F2 LED 18L35 R/S BPSW CL1 D60 L730 [STD] Equipment : 1 x AVF2_18L35_RS_3K 21 W / 2118 lm
2		6	Piazza II
			Order No. : 96666261 Luminaire name : PIAZZA II LED 2700-840 HF ANT [STD] Equipment : 1 x TL_PIA2 25 W / 2910 lm

2.2 Summary, Exterior 1

2.2.8 Result overview, Walkway 4



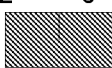
General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Maintenance factor	0.80
Total luminous flux of all lamps	47112 lm
Total power	444 W
Total power per area (5424.02 m²)	0.08 W/m²

Illuminance

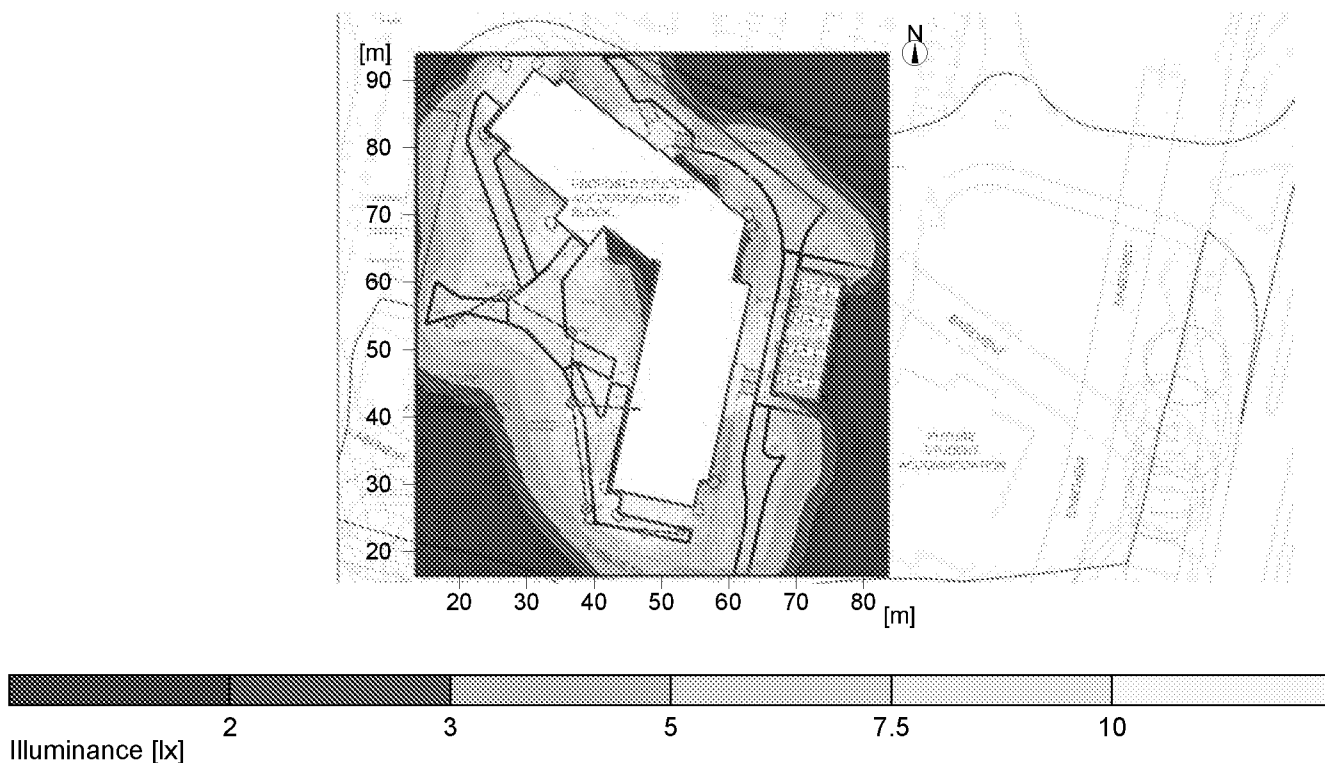
Average illuminance	Eav	6.51 lx
Minimum illuminance	Emin	4.27 lx
Maximum illuminance	Emax	8.19 lx
Uniformity Uo	Emin/Em	1:1.52 (0.66)
Diversity Ud	Emin/Emax	1:1.92 (0.52)

Type No.\Make

1		14	Thorn
			Order No. : 96265462 Luminaire name : AVN F2 LED 18L35 R/S BPSW CL1 D60 L730 [STD] Equipment : 1 x AVF2_18L35_RS_3K 21 W / 2118 lm
2		6	PIAZZA II
			Order No. : 96666261 Luminaire name : PIAZZA II LED 2700-840 HF ANT [STD] Equipment : 1 x TL_PIA2 25 W / 2910 lm

2.2 Summary, Exterior 1

2.2.9 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction
Maintenance factor	0.80
Total luminous flux of all lamps	47112 lm
Total power	444.0 W
Total power per area (5424.02 m²)	0.08 W/m² (1.57 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

	Horizontal
Em	5.21 lx
Emin	0.1 lx
Emin/Eav (Uo)	0.02
Emin/Emax (Ud)	0.00
Position	0.00 m

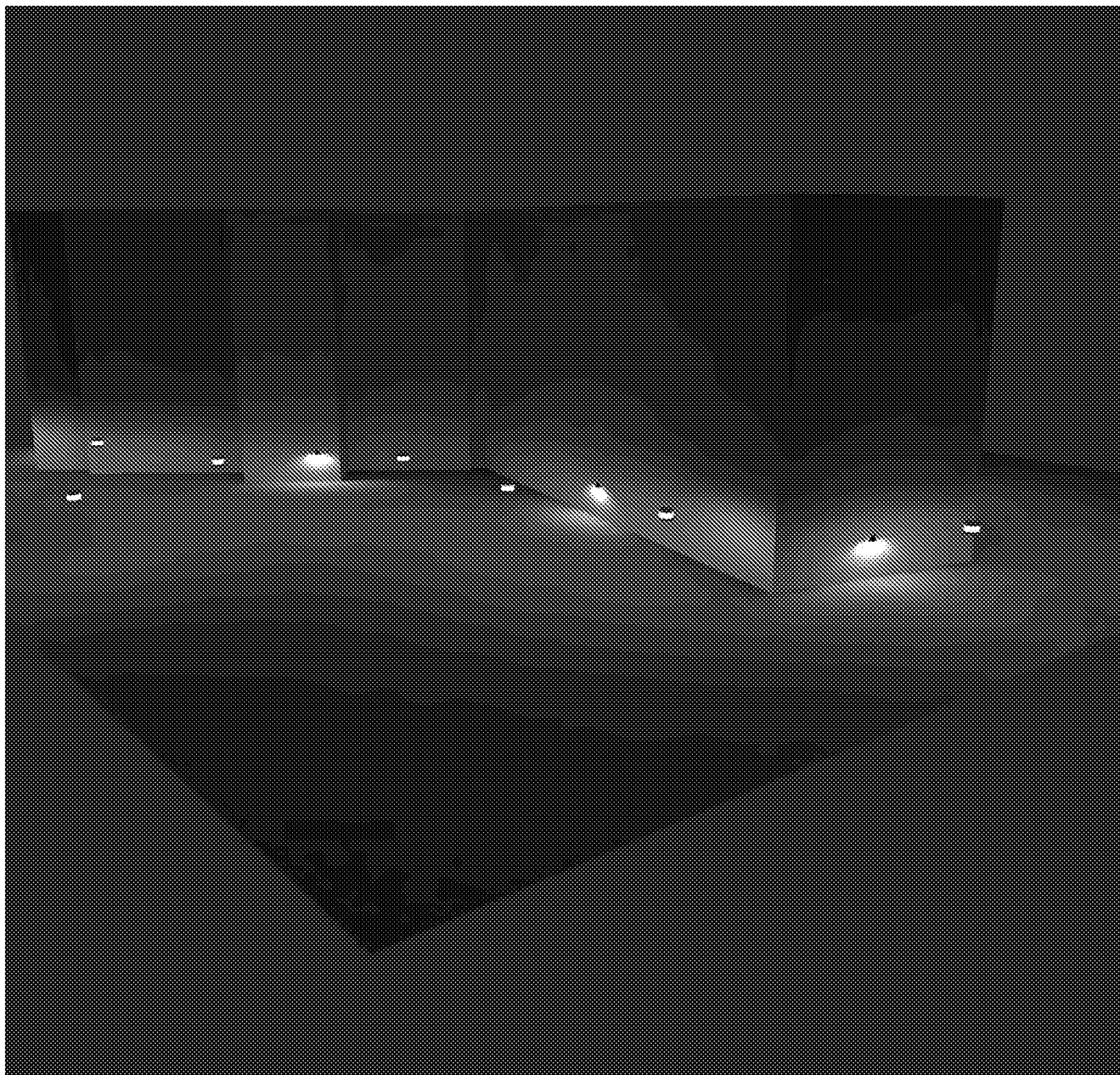
Type No.\Make

1	14		Thorn	Order No.	: 96265462
			Luminaire name	: AVN F2 LED 18L35 R/S BPSW CL1 D60 L730 [STD]	
			Equipment	: 1 x AVF2_18L35_RS_3K 21 W / 2118 lm	
2	6			Order No.	: 96666261
			Luminaire name	: PIAZZA II LED 2700-840 HF ANT [STD]	
			Equipment	: 1 x TL_PIA2 25 W / 2910 lm	

2 Exterior 1

2.3 Calculation results, Exterior 1

2.3.1 3D luminance, View 1



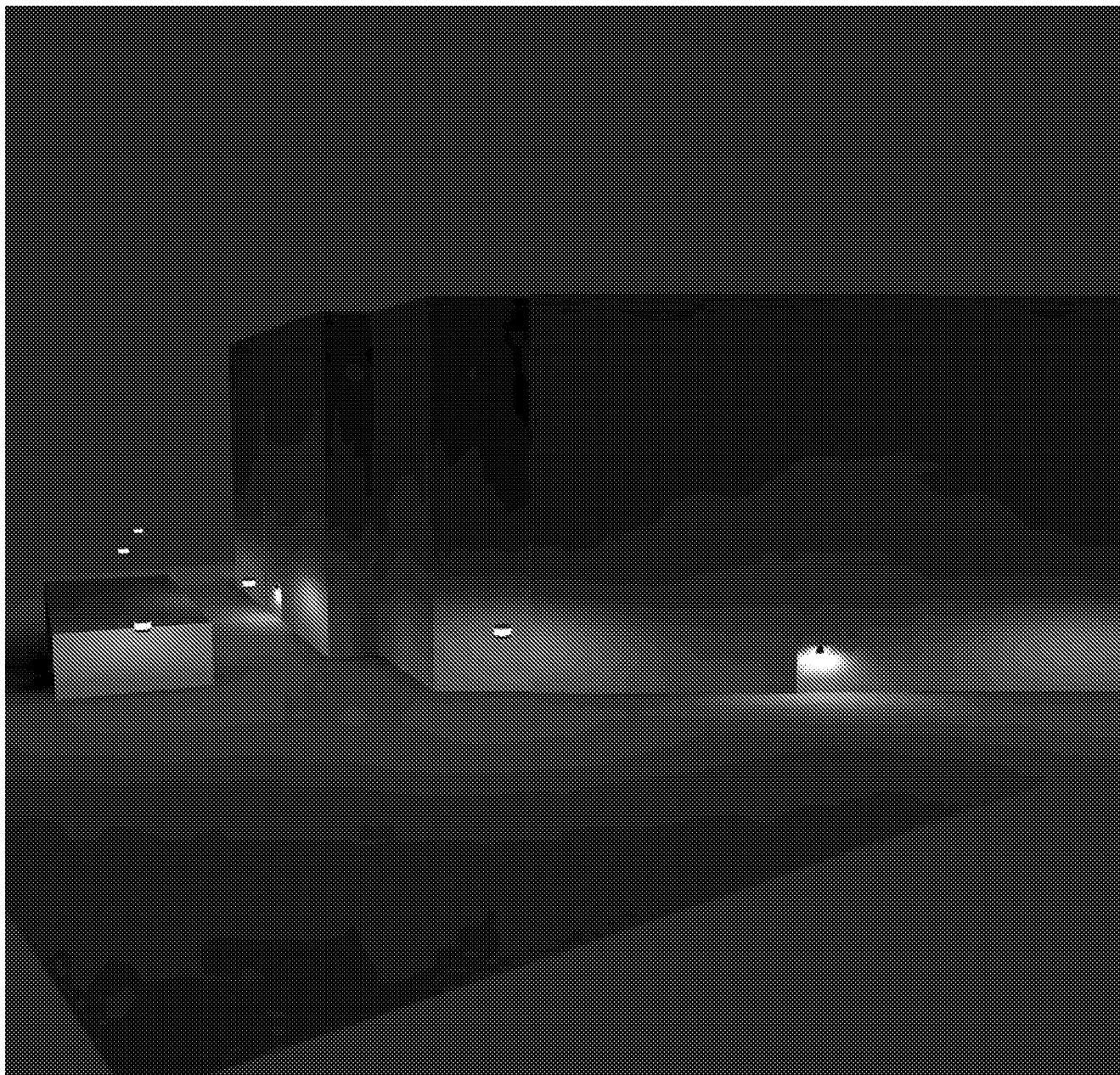
Luminance in the scene

Minimum: : 0 cd/m²

Maximum: : 819 cd/m²

2.3 Calculation results, Exterior 1

2.3.2 3D luminance, View 2



Luminance in the scene

Minimum: : 0 cd/m²

Maximum: : 819 cd/m²