

**AMCA Architects - Grove Retail, 2C Pathhead, New
Cumnock - External - V1 - JdB20230111**

Preface

No rights can be derived from this lighting simulation or design. It is the clients and installers responsibility to ensure that all Bever products are installed and used in compliance with any local codes or regulations in the country of use including but not confined to any electrical, hazardous zone and environmental considerations.

Notes on planning:

The energy consumption quantities do not take into account light scenes and their dimming levels.

Table of Contents

Cover	1
Preface	2
Table of Contents	3
Contacts	4
Images	5
Luminaire list	7

Site 1

Images	9
Luminaire layout plan	11
Calculation objects / Light scene 1	22

Site 1

Canopy

Summary / Light scene 1	26
Calculation objects / Light scene 1	28

Glossary	30
----------------	----

Contacts



Sales Director UK
Howell Griffiths

Bever Innovations B.V
Techniekweg 2
4301 RT
Zierikzee (NL)

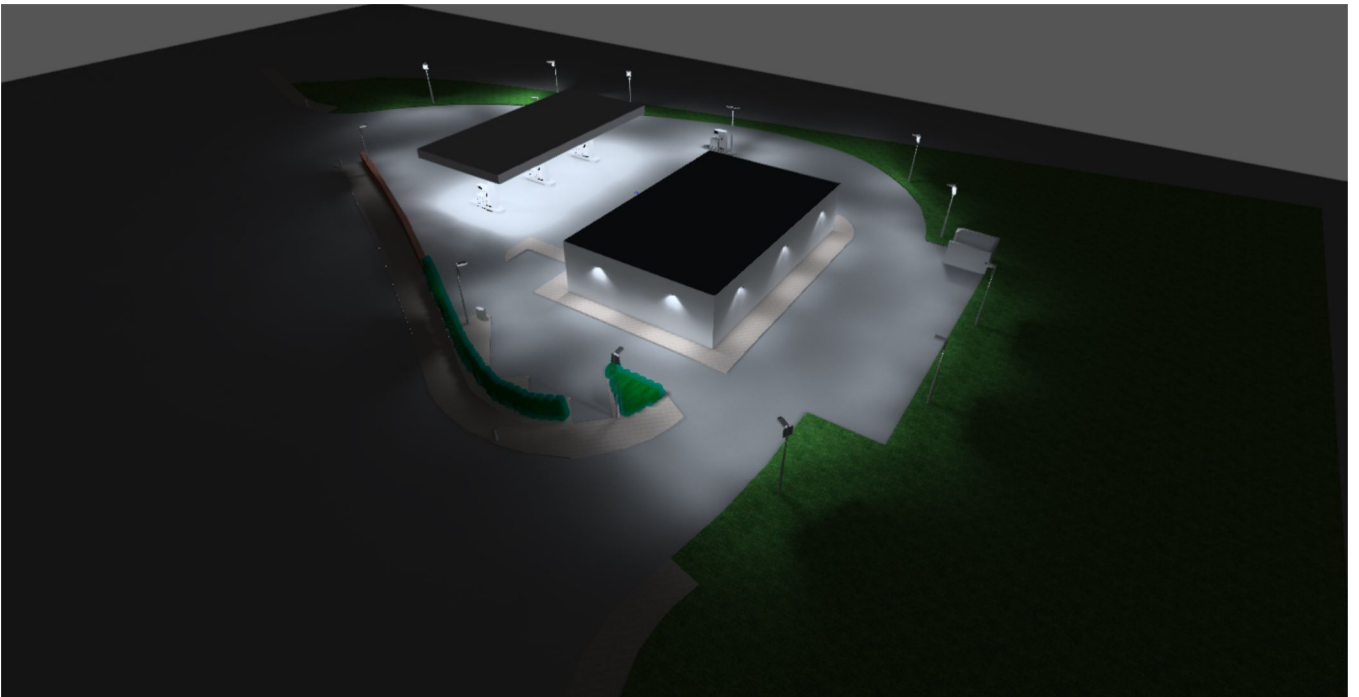
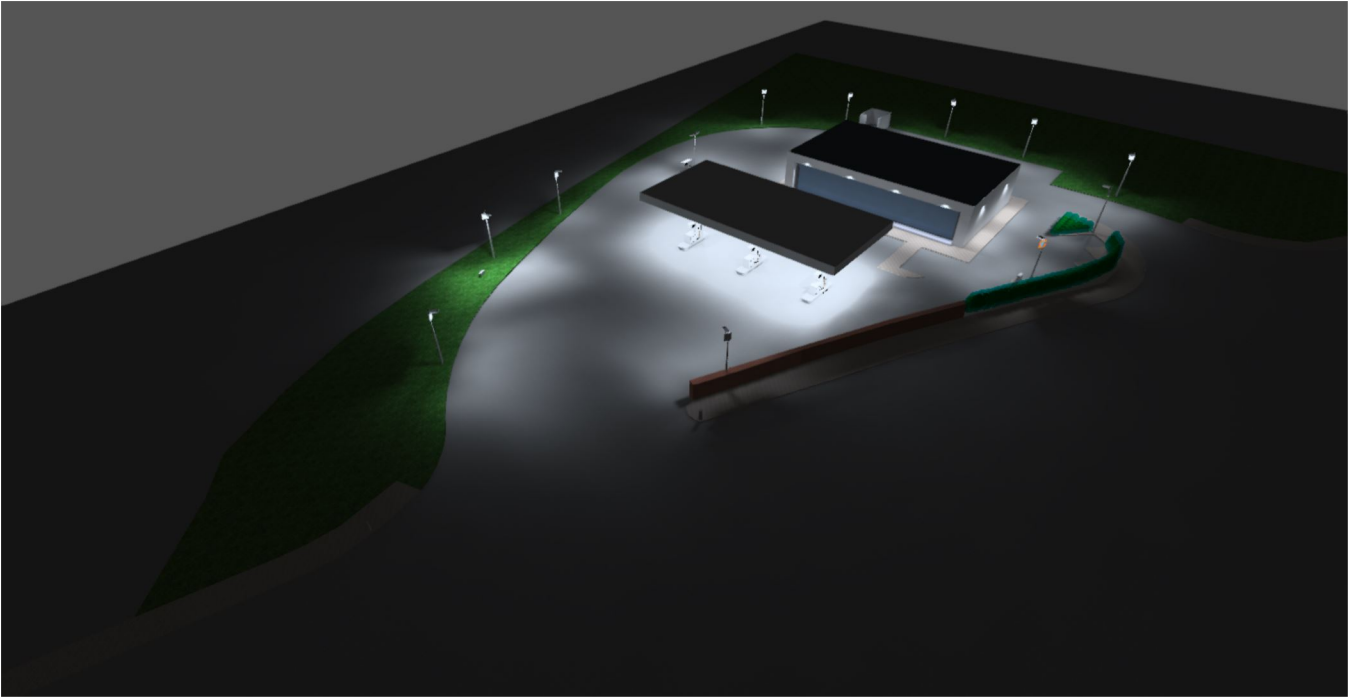
T 0044 7860 82 88 88
hgr@beverinnovations.com

Sales assistent
John den Braber

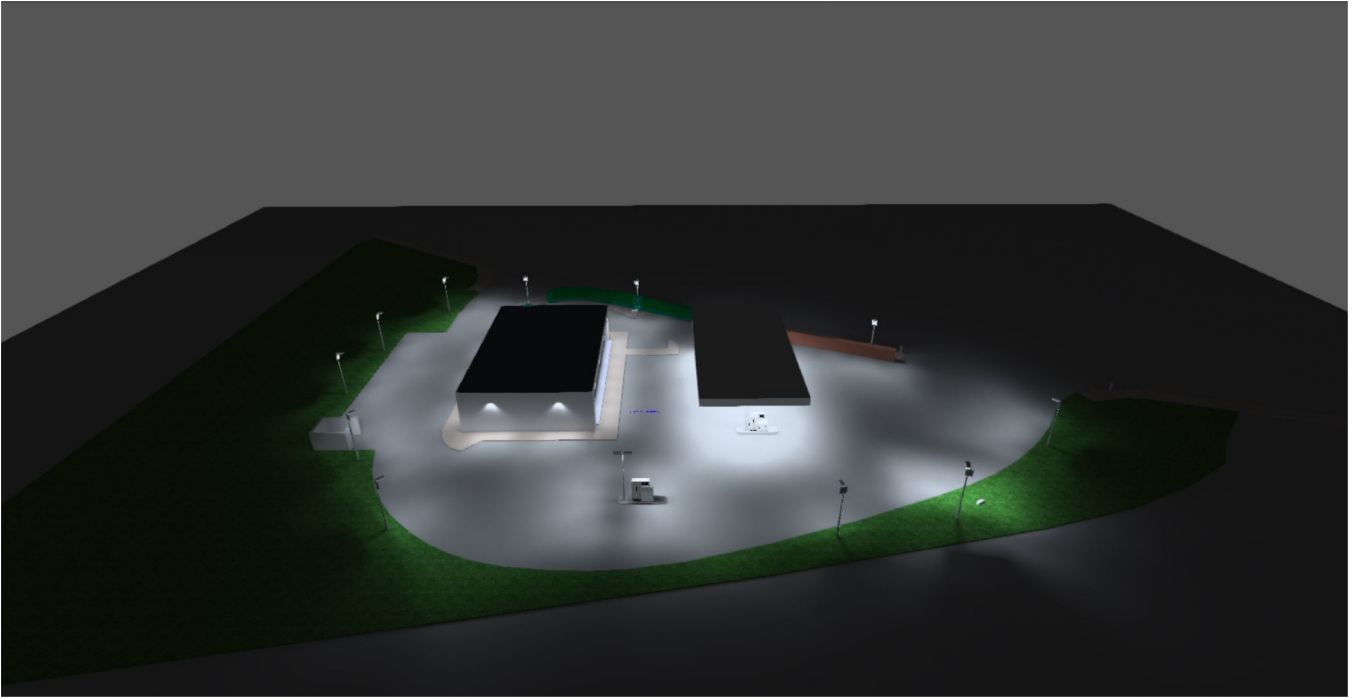
Bever Innovations B.V
Techniekweg 2
4301 RT
Zierikzee (NL)

T 0031 111 745400
jdb@beverinnovations.com

Images



Images



Luminaire list

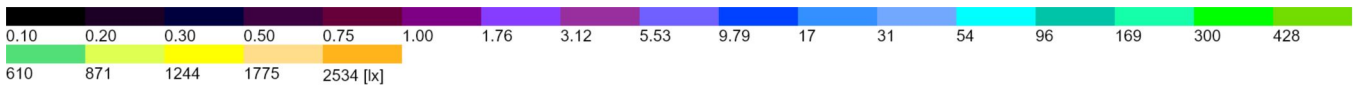
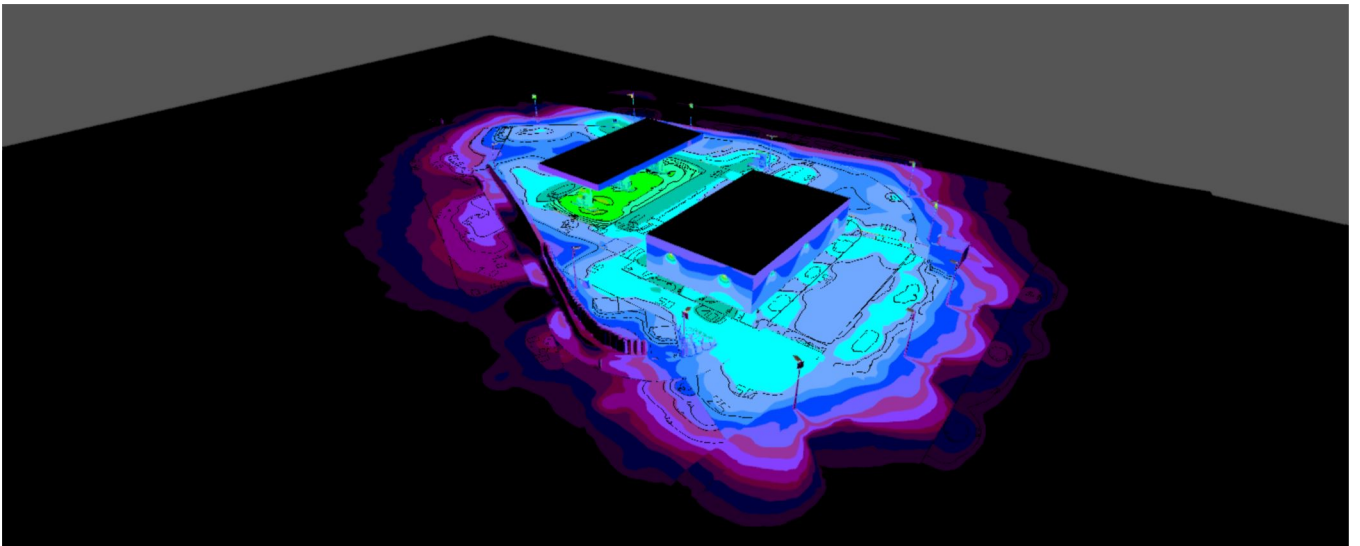
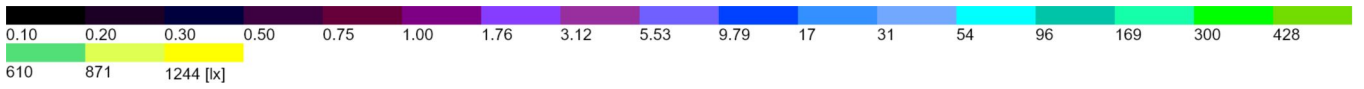
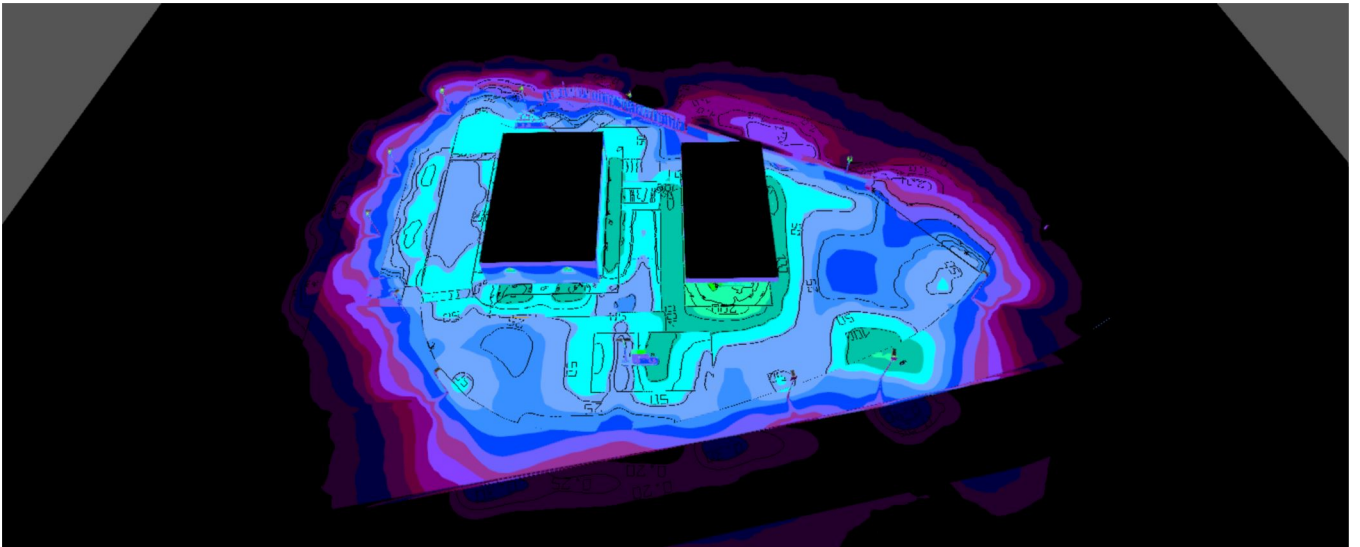
Φ_{total} 186225 lm	P_{total} 1564.2 W	Luminous efficacy 119.1 lm/W
-----------------------------	-------------------------	---------------------------------

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
2	Not yet a DIALux member	#19330	CubiQ01-WM01-A-MB02-13LED-48V-25W (EOS, 4000K)	15.9 W	1865 lm	117.3 lm/W
2	Not yet a DIALux member	#19330	CubiQ01-WM01-A-MB02-13LED-48V-25W (EOS, 4000K)	20.0 W	2415 lm	120.8 lm/W
3	Not yet a DIALux member	#19330	CubiQ01-WM01-A-MB02-13LED-48V-25W (EOS, 4000K)	10.8 W	1274 lm	118.0 lm/W
6	Not yet a DIALux member	16764	LS Downlight. Symm. 80W default - 50LEDs. White. Medium Beam. 4000K. Smart	80.0 W	11155 lm	139.4 lm/W
2	Not yet a DIALux member	16868	LS Downlight. ASymm. 80W default - 50LEDs. White. Medium Beam. 4000K. Smart	80.0 W	11279 lm	141.0 lm/W
8	Not yet a DIALux member	16881	Luci Series Ambiente. A-Symm. Wide Beam. 25LED - N0. 50W default. 4000K. EOS2.	50.0 W	5128 lm	102.6 lm/W
2	Not yet a DIALux member	16883	Luci Series Ambiente. A-Symm. Wide Beam. 40LED - N0. 70W default. 4000K. EOS2.	70.0 W	7558 lm	108.0 lm/W
1	Not yet a DIALux member	16885	Luci Series Ambiente XL. A-Symm. Wide Beam. 50LED - N0. 120W default. 4000K. EOS2.	120.0 W	10759 lm	89.7 lm/W
		[Ambiente 01XL-A-WB01-50LED-N0-120W (EOS2 4000K)]				
2	Not yet a DIALux member	19382	Ambiente. A-Symm. Street light Beam 1. 16LED - N0. Default 40W. 4000K. EOS2. With PIR sensor	40.0 W	3898 lm	97.4 lm/W

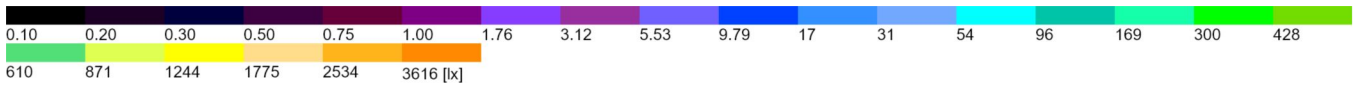
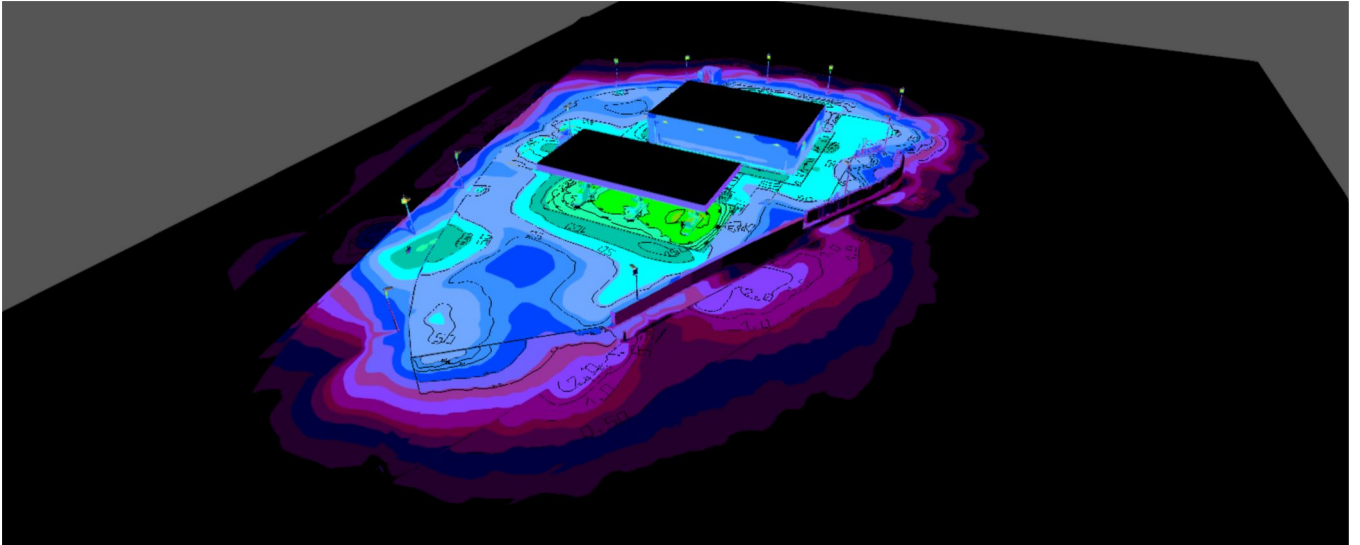
Luminaire list

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
4	Not yet a DIALux member	19451	CubiQ01-A-MB02-13LED-48V-25W (EOS, 4000K)	20.0 W	2415 lm	120.8 lm/W

Site 1
Images

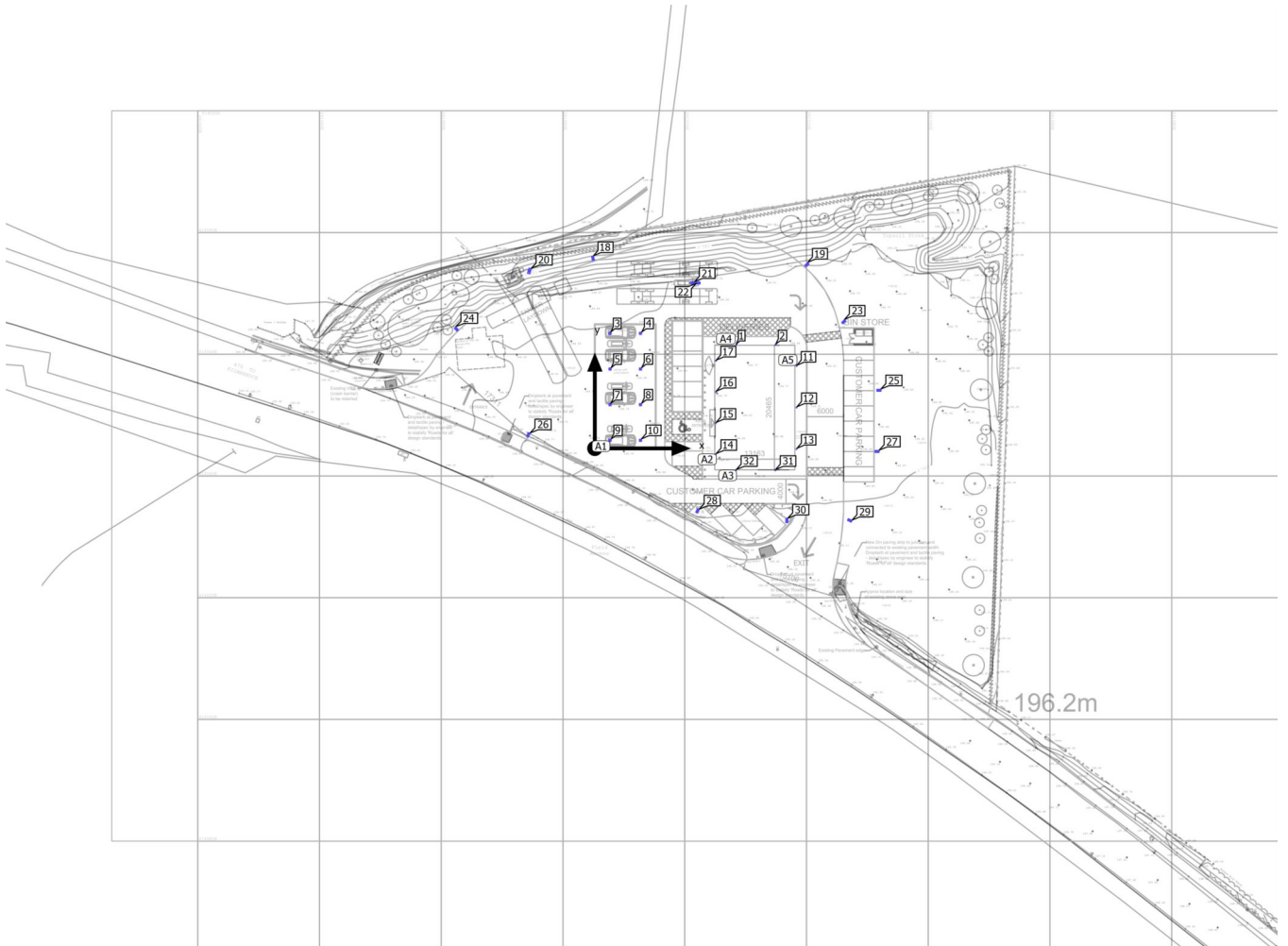


Site 1
Images



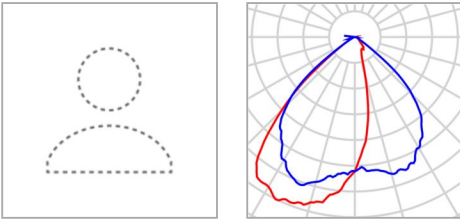
Site 1

Luminaire layout plan



Site 1

Luminaire layout plan



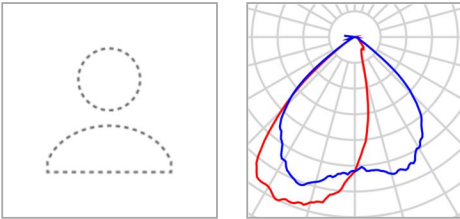
Manufacturer	Not yet a DIALux member	P	15.9 W
Article No.	#19330	$\Phi_{\text{Luminaire}}$	1865 lm
Article name	CubiQ01-WM01-A-MB02-13LED-48V-25W (EOS, 4000K)		
Fitting	1x 60% (15,9W)		

2 x Not yet a DIALux member CubiQ01-WM01-A-MB02-13LED-48V-25W (EOS, 4000K)

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	29.629 m / -3.597 m / 3.500 m	29.629 m	-3.597 m	3.500 m	31
X-direction	2 pcs., Centre - centre, 6.468 m	23.161 m	-3.597 m	3.500 m	32
Arrangement	A3				

Site 1

Luminaire layout plan



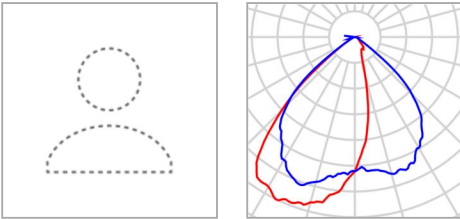
Manufacturer	Not yet a DIALux member	P	20.0 W
Article No.	#19330	$\Phi_{\text{Luminaire}}$	2415 lm
Article name	CubiQ01-WM01-A-MB02-13LED-48V-25W (EOS, 4000K)		
Fitting	1x 80% (20W) - Default		

2 x Not yet a DIALux member CubiQ01-WM01-A-MB02-13LED-48V-25W (EOS, 4000K)

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	23.237 m / 17.003 m / 3.500 m	23.237 m	17.003 m	3.500 m	1
X-direction	2 pcs., Centre - centre, 6.468 m	29.705 m	17.003 m	3.500 m	2
Arrangement	A4				

Site 1

Luminaire layout plan



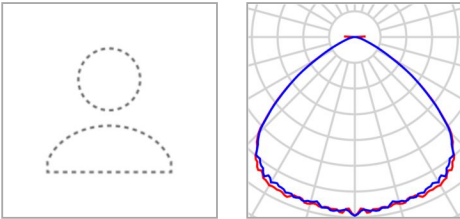
Manufacturer	Not yet a DIALux member	P	10.8 W
Article No.	#19330	$\Phi_{\text{Luminaire}}$	1274 lm
Article name	CubiQ01-WM01-A-MB02-13LED-48V-25W (EOS, 4000K)		
Fitting	1x 40% (10,8W)		

3 x Not yet a DIALux member CubiQ01-WM01-A-MB02-13LED-48V-25W (EOS, 4000K)

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	33.129 m / 13.541 m / 3.500 m	33.129 m	13.541 m	3.500 m	11
X-direction	3 pcs., Centre - centre, 6.822 m	33.129 m	6.719 m	3.500 m	12
Arrangement	A5	33.129 m	-0.103 m	3.500 m	13

Site 1

Luminaire layout plan



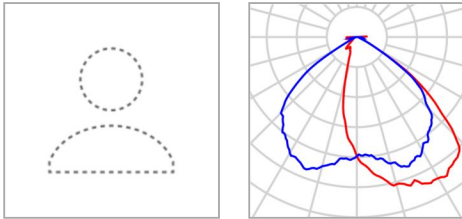
Manufacturer	Not yet a DIALux member	P	80.0 W
Article No.	16764	$\Phi_{\text{Luminaire}}$	11155 lm
Article name	LS Downlight. Symm. 80W default - 50LEDs. White. Medium Beam. 4000K. Smart		
Fitting	1x 80% (80W) - Default		

8 x Not yet a DIALux member LS Downlight. ASymm. 80W default - 50LEDs. White. Medium Beam. 4000K. Smart

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	2.500 m / 7.187 m / 5.000 m	2.500 m	18.904 m	5.000 m	3
X-direction	2 pcs., Centre - centre, Distances not equal	7.500 m	18.904 m	5.000 m	4
		2.500 m	13.045 m	5.000 m	5
Y-direction	4 pcs., Centre - centre, Distances not equal	7.500 m	13.045 m	5.000 m	6
		2.500 m	7.187 m	5.000 m	7
Arrangement	A1	7.500 m	7.187 m	5.000 m	8

Site 1

Luminaire layout plan



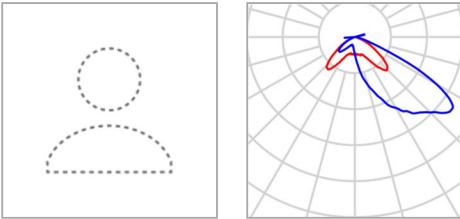
Manufacturer	Not yet a DIALux member	P	80.0 W
Article No.	16868	$\Phi_{\text{Luminaire}}$	11279 lm
Article name	LS Downlight. ASymm. 80W default - 50LEDs. White. Medium Beam. 4000K. Smart		
Fitting	1x 80% (80W) - Default		

8 x Not yet a DIALux member LS Downlight. ASymm. 80W default - 50LEDs. White. Medium Beam. 4000K. Smart

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	2.500 m / 1.329 m / 5.000 m	2.500 m	1.329 m	5.000 m	9
X-direction	2 pcs., Centre - centre, Distances not equal	7.500 m	1.329 m	5.000 m	10
Y-direction	4 pcs., Centre - centre, Distances not equal				
Arrangement	A1				

Site 1

Luminaire layout plan



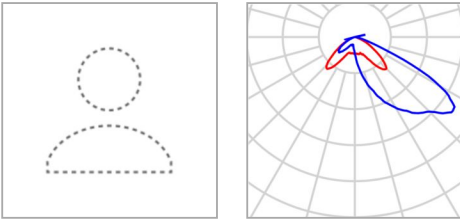
Manufacturer	Not yet a DIALux member	P	50.0 W
Article No.	16881	$\Phi_{\text{Luminaire}}$	5128 lm
Article name	Luci Series Ambiente. A-Symm. Wide Beam. 25LED - NO. 50W default. 4000K. EOS2.		
Fitting	1x 100% (50W) - Default		

Individual luminaires

X	Y	Mounting height	Luminaire
40.896 m	20.811 m	5.000 m	23
-22.743 m	19.604 m	5.000 m	24
46.674 m	9.545 m	5.000 m	25
-10.928 m	2.218 m	5.000 m	26
46.373 m	-0.503 m	5.000 m	27
16.868 m	-10.266 m	5.000 m	28
41.881 m	-11.833 m	5.000 m	29
31.544 m	-11.866 m	5.000 m	30

Site 1

Luminaire layout plan



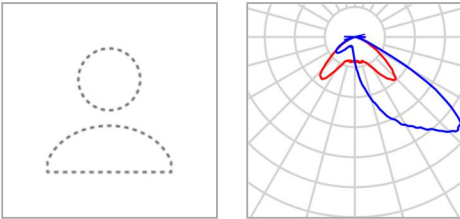
Manufacturer	Not yet a DIALux member	P	70.0 W
Article No.	16883	Φ _{Luminaire}	7558 lm
Article name	Luci Series Ambiente. A-Symm. Wide Beam. 40LED - NO. 70W default. 4000K. EOS2.		
Fitting	1x 100% (70W) - Default		

Individual luminaires

X	Y	Mounting height	Luminaire
16.076 m	27.180 m	5.000 m	21
16.943 m	27.180 m	5.000 m	22

Site 1

Luminaire layout plan



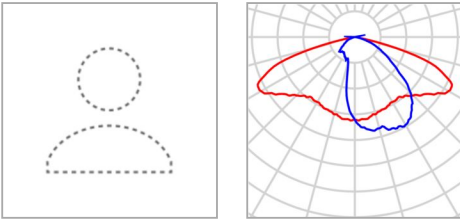
Manufacturer	Not yet a DIALux member	P	120.0 W
Article No.	16885 [Ambiente01XL-A-WB01-50LED-N0-120W (EOS2 4000K)]	Φ _{Luminaire}	10759 lm
Article name	Luci Series Ambiente XL. A-Symm. Wide Beam. 50LED - N0. 120W default. 4000K. EOS2.		
Fitting	1x 100% (120W) - Default		

Individual luminaires

X	Y	Mounting height	Luminaire
-10.754 m	29.145 m	5.000 m	20

Site 1

Luminaire layout plan



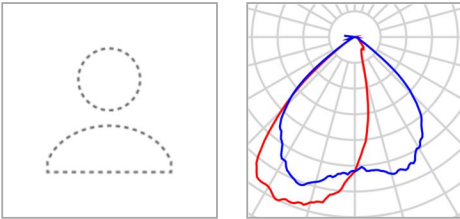
Manufacturer	Not yet a DIALux member	P	40.0 W
Article No.	19382	Φ Luminaire	3898 lm
Article name	Ambiente. A-Symm. Street light Beam 1. 16LED - N0. Default 40W. 4000K. EOS2. With PIR sensor		
Fitting	1x 100% (40W) - Default		

Individual luminaires

X	Y	Mounting height	Luminaire
-0.305 m	31.238 m	5.000 m	18
34.847 m	30.188 m	5.000 m	19

Site 1

Luminaire layout plan



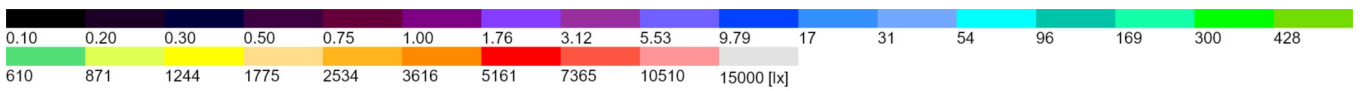
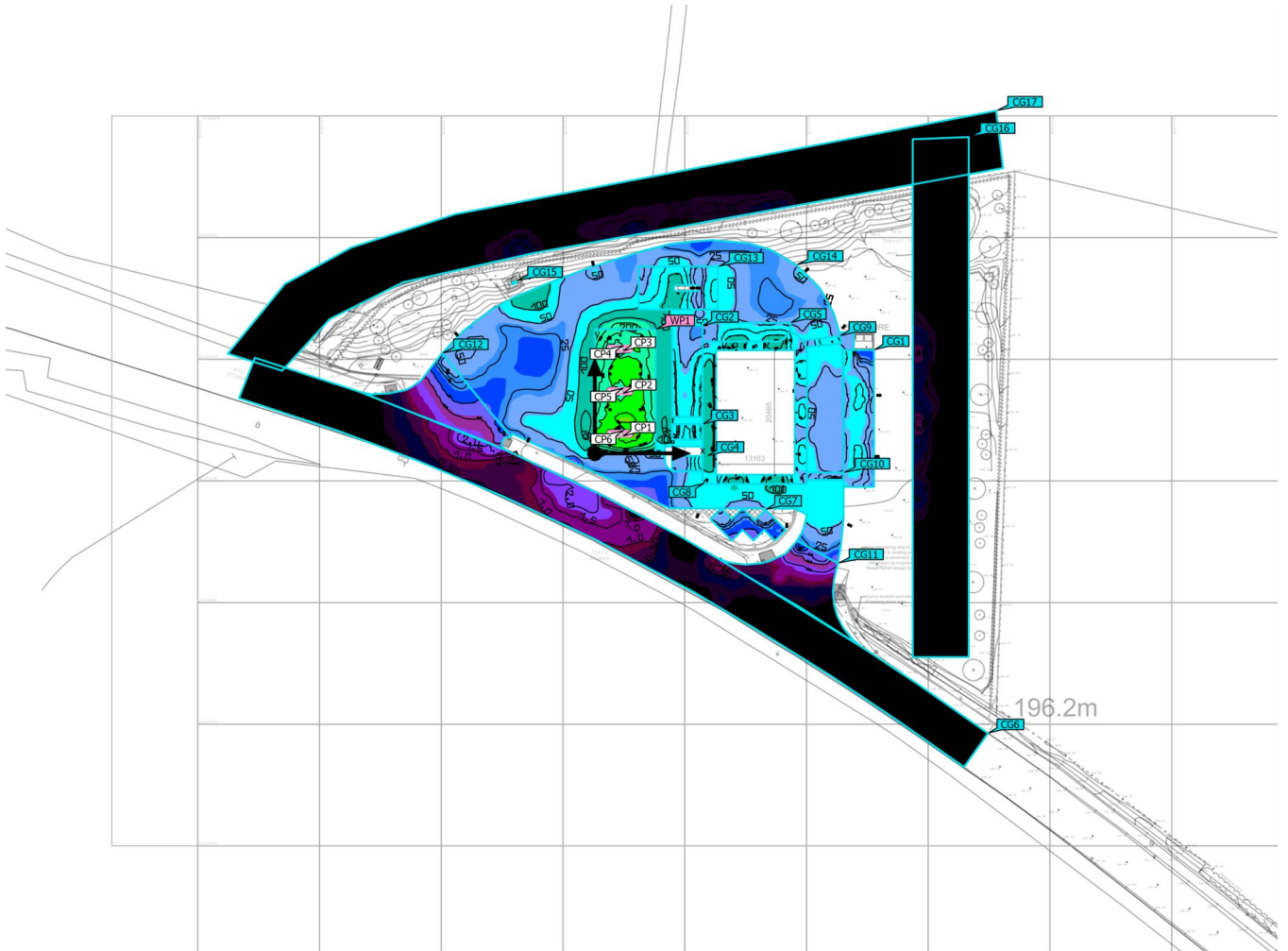
Manufacturer	Not yet a DIALux member	P	20.0 W
Article No.	19451	$\Phi_{\text{Luminaire}}$	2415 lm
Article name	CubiQ01-A-MB02-13LED-48V-25W (EOS, 4000K)		
Fitting	1x 80% (20W) - Default		

4 x Not yet a DIALux member CubiQ01-A-MB02-13LED-48V-25W (EOS, 4000K)

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	19.877 m / -0.955 m / 4.000 m	19.877 m	-0.955 m	4.000 m	14
X-direction	4 pcs., Centre - centre, 5.116 m	19.877 m	4.161 m	4.000 m	15
		19.877 m	9.277 m	4.000 m	16
Arrangement	A2	19.877 m	14.393 m	4.000 m	17

Site 1 (Light scene 1)

Calculation objects



Site 1 (Light scene 1)

Calculation objects

Working planes

Properties	\bar{E}	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Working plane (Canopy) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	290 lx	106 lx	453 lx	0.37	0.23	WP1

Calculation surfaces

Properties	\bar{E}	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Customer Car Parking Perpendicular illuminance Height: 0.000 m	49.2 lx	11.5 lx	63.4 lx	0.23	0.18	CG1
Customer Car Parking Perpendicular illuminance Height: 0.000 m	61.1 lx	26.5 lx	104 lx	0.43	0.25	CG2
Disabled Parking Space Perpendicular illuminance Height: 0.000 m	75.2 lx	57.0 lx	101 lx	0.76	0.56	CG3
Customer Car Parking Perpendicular illuminance Height: 0.000 m	57.4 lx	28.2 lx	95.4 lx	0.49	0.30	CG4
Delivery Bay Perpendicular illuminance Height: 0.000 m	72.8 lx	29.4 lx	126 lx	0.40	0.23	CG5
Spill plot - A76 Perpendicular illuminance Height: 0.000 m	0.46 lx	0.001 lx	2.54 lx	0.002	0.000	CG6
Customer Car Parking Perpendicular illuminance Height: 0.000 m	21.9 lx	6.31 lx	54.5 lx	0.29	0.12	CG7
Area around the shop Perpendicular illuminance Height: 0.100 m	84.5 lx	1.74 lx	144 lx	0.021	0.012	CG8
Crossing Perpendicular illuminance Height: -0.000 m	59.2 lx	37.9 lx	70.3 lx	0.64	0.54	CG9

Site 1 (Light scene 1)

Calculation objects

Crossing Perpendicular illuminance Height: -0.000 m	51.3 lx	48.4 lx	56.3 lx	0.94	0.86	CG10
Exit Perpendicular illuminance Height: -0.000 m	1.69 lx	0.028 lx	13.5 lx	0.017	0.002	CG11
Entrance Perpendicular illuminance Height: 0.100 m	7.32 lx	0.18 lx	36.3 lx	0.025	0.005	CG12
Truck area Perpendicular illuminance Height: -0.000 m	72.2 lx	31.5 lx	126 lx	0.44	0.25	CG13
Main area Perpendicular illuminance Height: -0.000 m	53.0 lx	0.00 lx	230 lx	0.00	0.00	CG14
Filling points Perpendicular illuminance Height: 0.400 m	165 lx	157 lx	172 lx	0.95	0.91	CG15
Spill Plot - East Perpendicular illuminance Height: 0.100 m	0.12 lx	0.023 lx	0.66 lx	0.19	0.035	CG16
Spill plot - North Perpendicular illuminance Height: 0.100 m	0.11 lx	0.017 lx	0.49 lx	0.15	0.035	CG17

Site 1 (Light scene 1)

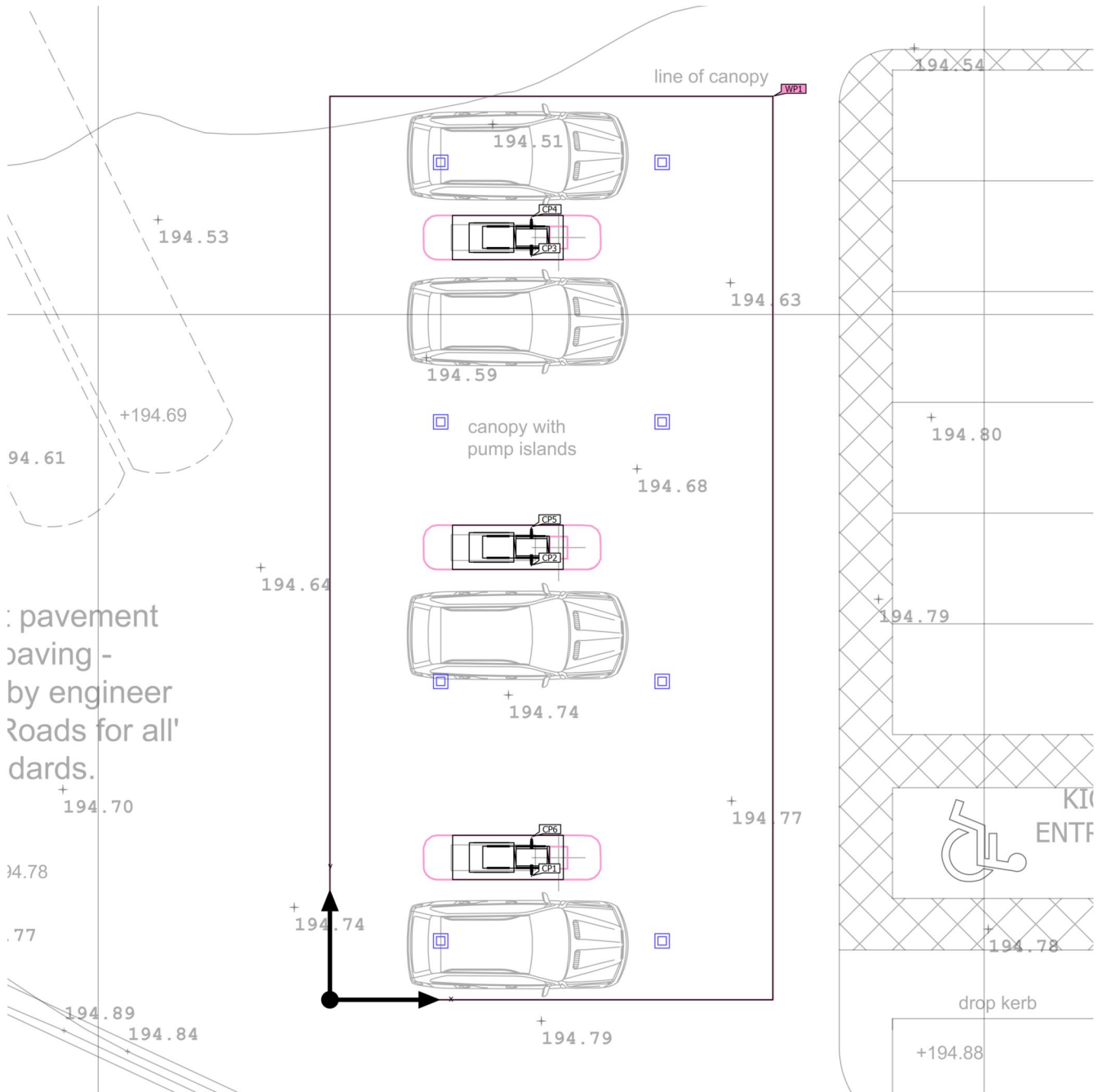
Calculation objects

Calculation points

Properties	Calculated	Index
Nozzle Vertical illuminance Rotation: 270.1°, Height: 1.500 m	234 lx	CP1
Nozzle Vertical illuminance Rotation: 270.1°, Height: 1.500 m	218 lx	CP2
Nozzle Vertical illuminance Rotation: 270.1°, Height: 1.500 m	183 lx	CP3
Nozzle Vertical illuminance Rotation: 90.0°, Height: 1.500 m	143 lx	CP4
Nozzle Vertical illuminance Rotation: 90.0°, Height: 1.500 m	219 lx	CP5
Nozzle Vertical illuminance Rotation: 90.0°, Height: 1.500 m	197 lx	CP6

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Canopy (Light scene 1) Summary



Ground area	203.94 m ²	Mounting height	4.900 m
Maintenance factor	1.00 (fixed)	Height _{Working plane}	0.000 m
		Wall zone _{Working plane}	0.000 m

Canopy (Light scene 1) Summary

Results

	Symbol	Calculated
Working plane	$\bar{E}_{\text{perpendicular}}$	290 lx
	$U_o (g_1)$	0.37
Energy estimation ⁽²⁾	Consumption	2803 kWh/a
Space	Lighting power density	3.14 W/m ²
		1.08 W/m ² /100 lx

(1) Based on a rectangular space of 20.394 m x 10.000 m and SHR of 0.25.

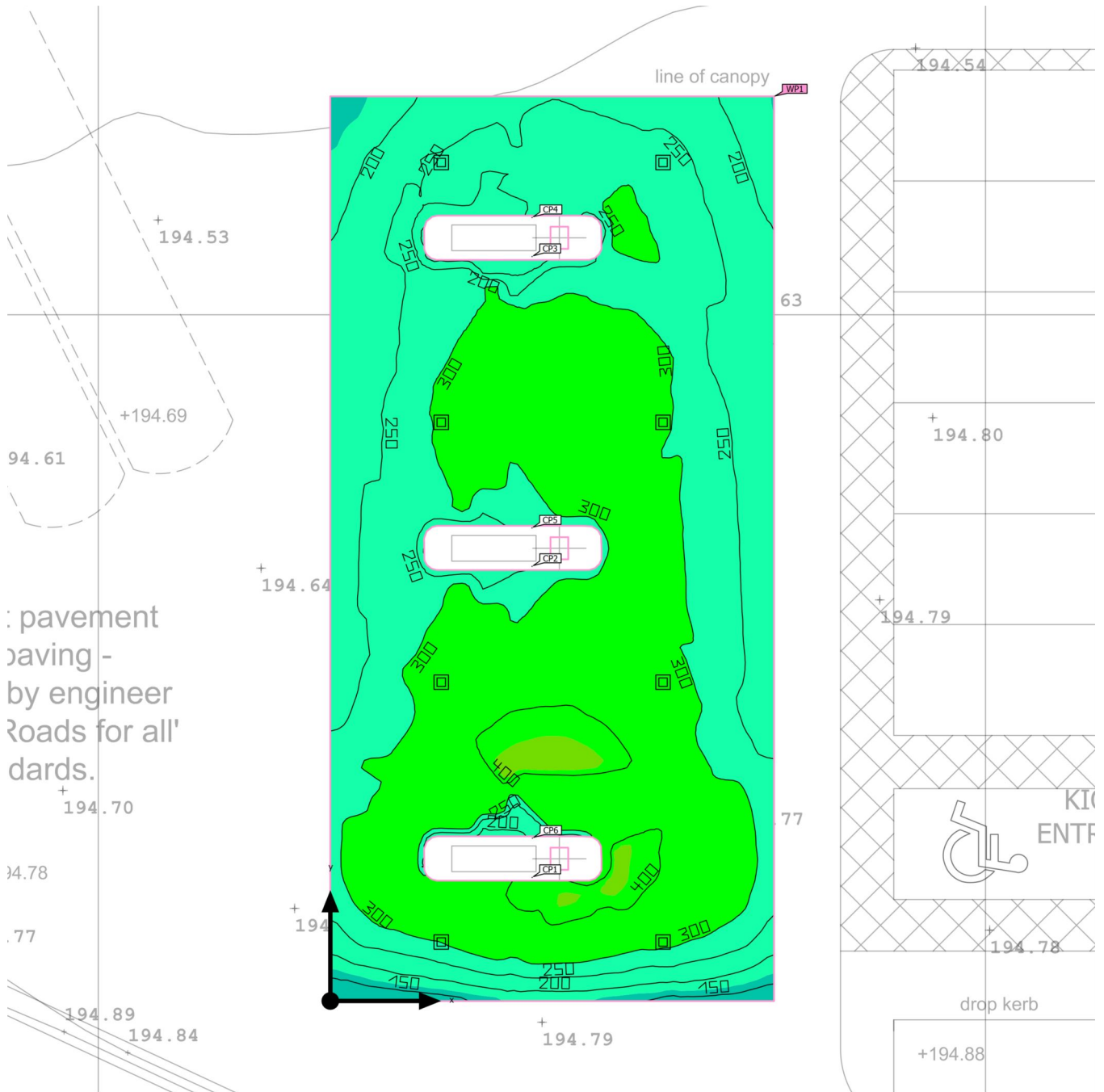
(2) Calculated using DIN:18599-4.

Utilisation profile: Shell (5.6.5 Shell canopy)

Luminaire list

pcs.	Manufacturer	Article No.	Article name	R _{UG}	P	Φ	Luminous efficacy
6	Not yet a DIALux member	16764	LS Downlight. Symm. 80W default - 50LEDs. White. Medium Beam. 4000K. Smart	28	80.0 W	11155 lm	139.4 lm/W
2	Not yet a DIALux member	16868	LS Downlight. ASymm. 80W default - 50LEDs. White. Medium Beam. 4000K. Smart	-	80.0 W	11279 lm	141.0 lm/W

Canopy (Light scene 1) Calculation objects



Canopy (Light scene 1)

Calculation objects

Working planes

Properties	\bar{E}	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Working plane (Canopy) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	290 lx	106 lx	453 lx	0.37	0.23	WP1

Calculation points

Properties	Calculated	Index
Nozzle Vertical illuminance Rotation: 270.1°, Height: 1.500 m	234 lx	CP1
Nozzle Vertical illuminance Rotation: 270.1°, Height: 1.500 m	218 lx	CP2
Nozzle Vertical illuminance Rotation: 270.1°, Height: 1.500 m	183 lx	CP3
Nozzle Vertical illuminance Rotation: 90.0°, Height: 1.500 m	143 lx	CP4
Nozzle Vertical illuminance Rotation: 90.0°, Height: 1.500 m	219 lx	CP5
Nozzle Vertical illuminance Rotation: 90.0°, Height: 1.500 m	197 lx	CP6

(1) Based on a rectangular space of 20.394 m x 10.000 m and SHR of 0.25.

Utilisation profile: Shell (5.6.5 Shell canopy)

Glossary

A

A Formula symbol for a surface in the geometry

B

Background area The background area borders the direct ambient area according to DIN EN 12464-1 and reaches up to the borders of the room. In larger rooms, the background area is at least 3 m wide. It is located horizontally at floor level.

C

CCT (Engl. correlated colour temperature)
Body temperature of a thermal radiator which serves to describe its light colour. Unit: Kelvin [K]. The lesser the numerical value the redder; the greater the numerical value the bluer the light colour. The colour temperature of gas-discharge lamps and semi-conductors are termed "correlated colour temperature" in contrast to the colour temperature of thermal radiators.

Allocation of the light colours to the colour temperature ranges acc. to EN 12464-1:

Light colour - colour temperature [K]
warm white (ww) < 3,300 K
neutral white (nw) ≥ 3,300 – 5,300 K
daylight white (dw) > 5,300 K

Clearance height The designation for the distance between upper edge of the floor and bottom edge of the ceiling (in the completely furnished status of room).

Control group A group of luminaires that are dimmed and controlled together. For each lighting scene, a control group provides its own dimming value. All luminaires within a control group share this dimming value. The control groups with their luminaires are automatically determined by DIALux on the basis of the created light scenes and their luminaire groups.

CRI (Engl. colour rendering index)
Designation for the colour rendering index of a luminaire or a lamp acc. to DIN 6169: 1976 or CIE 13.3: 1995.

The general colour rendering index Ra (or CRI) is a dimensionless figure that describes the quality of a white light source in regards to its similarity with the remission spectra of defined 8 test colours (see DIN 6169 or CIE 1974) to a reference light source.

Glossary

D

Daylight autonomy	Describes what percentage of the daily working time the required illuminance is met by daylight. The nominal illuminance is used from the room profile, unlike described in EN 17037. The calculation is not done in the centre of the room but at the placed sensor measuring point. A room is considered sufficiently supplied with daylight if it achieves at least 50% daylight autonomy.
Daylight factor	Ratio of the illuminance achieved solely by daylight incidence at a point in the inside to the horizontal illuminance in the outer area under an unobstructed sky. Formula symbol: D (Engl. daylight factor) Unit: %
Daylight quotient effective area	A calculation surface within which the daylight quotient is calculated.

E

Energy evaluation	<p>Based on an hourly calculation procedure for daylight in indoor spaces, considering the project geometry and any existing daylight control systems. Orientation and location of the project are also considered. The calculation uses the specified system power of the luminaires to determine the energy demand. A linear relationship between power and luminous flux in the dimmed state is assumed for daylight-controlled luminaires. Times of use and nominal illuminance are determined from the usage profiles of the spaces. Switched-on luminaires that are explicitly excluded from control also consider the specified times-of-use. The daylight control systems use a simplified control logic that closes them at an outdoor horizontal illuminance of 27,500lx.</p> <p>The calendar year 2022 is used as a reference only. It is not a simulation of this year. The reference year is only used to assign the days of the week to the calculated results. The changeover to summer time is not considered. The reference sky type used is the average sky described in CIE 110 without direct sunlight.</p> <p>The method was developed together with the Fraunhofer Institute for Building Physics and is available for review by the Joint Working Group 1 ISO TC 274 as an extension of the previous annual regression-based method.</p>
Eta (η)	(light output ratio) The light output ratio describes what percentage of the luminous flux of a free radiating lamp (or LED module) is emitted by the luminaire when installed. Unit: %

Glossary

G

g₁	Often also U _o (Engl. overall uniformity) Designates the overall uniformity of the illuminance on a surface. It is the quotient from E _{min} to \bar{E} and is required, for instance, in standards for illumination of workstations.
g₂	Actually it designates the "non-uniformity" of the illuminance on a surface. It is the quotient of E _{min} to E _{max} and is generally only relevant for certifying the emergency lighting acc. to EN 1838.

I

Illuminance	Describes the ratio of the luminous flux that strikes a certain surface to the size of this surface ($\text{lm}/\text{m}^2 = \text{lx}$). The illuminance is not tied to an object surface. It can be determined anywhere in space (inside or outside). The illuminance is not a product feature because it is a recipient value. Luxometers are used for measuring. Unit: Lux Abbreviation: lx Formula symbol: E
Illuminance, adaptive	For the determining of the middle adaptive illuminance on a surface, this is rastered "adaptively". In the area of large illuminance differences within the surface, the raster is subdivided finer; within lesser differences, a rougher classification is made.
Illuminance, horizontal	Illuminance that is calculated or measured on a horizontal (level) surface (this can be for example a table top or the floor). The horizontal illuminance is usually identified by the formula letter E _h .
Illuminance, perpendicular	Illuminance that is calculated or measured plumb-vertical to a surface. This needs to be taken into account for tilted surfaces. If the surface is horizontal or vertical, then there is no difference between the perpendicular and the horizontal or vertical illuminance.
Illuminance, vertical	Illuminance that is calculated or measured on a vertical surface (this can be for example the front of some shelves). The vertical illuminance is usually identified by the formula letter E _v .

L

LENI	(Engl. lighting energy numeric indicator) Lighting energy numeric indicator acc. to EN 15193 Unit: kWh/(m ² * a)
-------------	---------------------------------------------------------------------------------------------------------------------------------------

Glossary

LLMF	<p>(Engl. lamp lumen maintenance factor)/acc. to CIE 97: 2005 Lamp flux maintenance factor that takes the luminous flux reduction into account of a luminaire or an LED module in the course of the operating time. The lamp flux maintenance factor is specified as a decimal digit and can have a maximum value of 1 (no luminous flux reduction existing).</p>
LMF	<p>(Engl. luminaire maintenance factor)/acc. to CIE 97: 2005 Luminaire maintenance factor that takes the soiling into account of the luminaire in the course of the operating time. The luminaire maintenance factor is specified as a decimal digit and can have a maximum value of 1 (no soiling existing).</p>
LSF	<p>(Engl. lamp survival factor)/acc. to CIE 97: 2005 Lamp survival factor that takes the total failure into account of a luminaire in the course of the operating time. The lamp survival factor is specified as a decimal digit and can have a maximum value of 1 (no failures existing within the time concerned or prompt replacement after the failure).</p>
Luminance	<p>Dimension for the "brightness impression" that the human eye has of a surface. The surface itself can emit light thereby or light striking it can be reflected (emitter value). It is the only photometric value that the human eye can perceive.</p> <p>Unit: Candela per square metre Abbreviation: cd/m² Formula symbol: L</p>
Luminous efficacy	<p>Ratio of the emitted luminous flux Φ [lm] to the absorbed electrical power P [W] Unit: lm/W.</p> <p>This ratio can be formed for the lamp or LED module (lamp or module light output), the lamp or module with control gear (system light output) and the complete luminaire (luminaire light output).</p>
Luminous flux	<p>Dimension for the total light output that is emitted from one light source in all directions. It is thus an "emitter value" that specifies the entire emitting output. The luminous flux of a light source can only be determined in a laboratory. A difference is made between the lamp or LED module luminous flux and the luminaire luminous flux.</p> <p>Unit: Lumen Abbreviation: lm Formula symbol: Φ</p>
Luminous intensity	<p>Describes the intensity of the light in a certain direction (emitter value). The luminous intensity is a matter of the luminous flux Φ that is emitted in a certain spherical angle Ω. The radiation characteristics of a light source are presented graphically in a light distribution curve (LDC). The luminous intensity is an SI base unit.</p> <p>Unit: Candela Abbreviation: cd Formula symbol: I</p>

Glossary

M

Maintenance factor	See MF
MF	(Engl. maintenance factor)/acc. to CIE 97: 2005 Maintenance factor as decimal number between 0 and 1 that describes the ratio of the new value of a photometric planning parameter (e.g. of the illuminance) to a maintenance value after a certain time. The maintenance factor takes into account the soiling of luminaires and rooms as well as the luminous flux reduction and the failure of light sources. The maintenance factor is taken into account either overall or determined in detail acc. to CIE 97: 2005 by the formula $RMF \times LMF \times LLMF \times LSF$.

P

P	(Engl. power) Electric power consumption Unit: watt Abbreviation: W
---	----------------------------------------------------------------------------------

R

$R_{(UG)} \max$	Measure of the psychological glare in indoor spaces. In addition to the luminance of luminaires, the level of the $R_{(UG)}$ value also depends on the observer position, the viewing direction and the ambient luminance. The calculation is made according to the table method, see CIE 117. Among other things, EN 12464-1:2021 specifies maximum permissible $R_{(UG)}$ -values $R_{(UGL)}$ for various indoor workplaces.
Reflection factor	The reflection factor of a surface describes how much of the striking light is reflected back. The reflection factor is defined by the colour of the surface.
RMF	(Engl. room maintenance factor)/acc. to CIE 97: 2005 Room maintenance factor that takes the soiling into account of the space encompassing surfaces in the course of the operating time. The room maintenance factor is specified as a decimal digit and can have a maximum value of 1 (no soiling existing).

S

Surrounding area	The ambient area directly borders the area of the visual task and should be planned with a width of at least 0.5 m according to DIN EN 12464-1. It is at the same height as the area of the visual task.
------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Glossary

U

UGR (max)	(unified glare rating) Measure for the psychological glare effect in interiors. In addition to luminaire luminance, the UGR value also depends on the position of the observer, the viewing direction and the ambient luminance. Among other things, EN 12464-1 specifies maximum permissible UGR values for various indoor workplaces.
-----------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

UGR observer	Calculation point in the room, for the DIALux the UGR value is determined. The location and height of the calculation point should correspond to the typical observer position (position and eye level of the user).
--------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

V

Visual task area	The area that is needed for carrying out the visual task in accordance with DIN EN 12464 -1. The height corresponds with the height at which the visual task is executed.
------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------

W

Wall zone	Circumferential area between working plane and walls which is not taken into account for the calculation.
-----------	-----------------------------------------------------------------------------------------------------------

Working plane	Virtual measuring or calculation surface at the height of the visual task that generally follows the room geometry. The working plane may also feature a wall zone.
---------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------
