



Ingeniería Básica y de Detalle para la Implementación de la 4ta y 5ta UCG en la E°C° Colpa

Anexo B: Área de Almacenes Exterior e Interior

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Site 1 - Almacén / Taller de Repuestos

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Almacen de Repuesto



Almacen de Lubricantes



LAVANDERIA Y BAÑOS

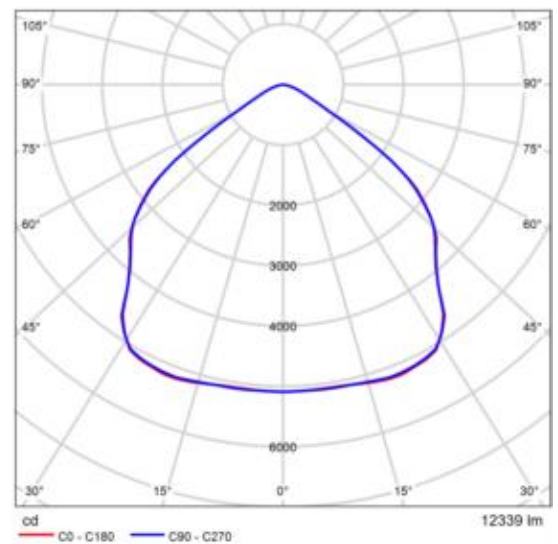


Product data sheet

Eaton's Crouse-Hinds Business - VMVL Low Lumen (3-13L)



Article No.	VMVL-13-W-UNV1-M2
P	92.2 W
$\Phi_{\text{Luminaire}}$	12339 lm
Luminous efficacy	133.8 lm/W
CCT	3000 K
CRI	80



Polar LDC

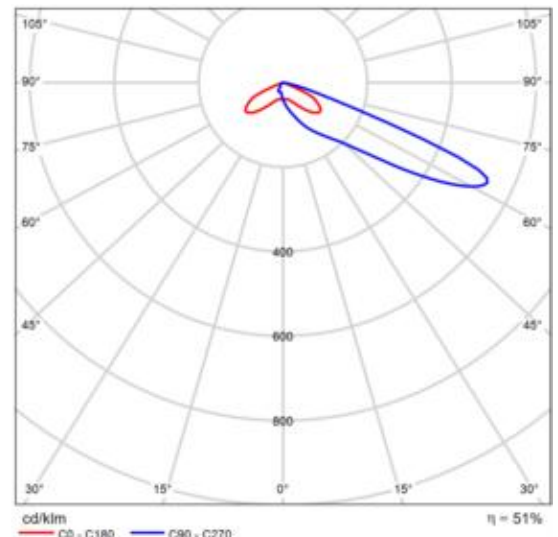
Champ VMVL LED Hazardous Area Light

Product data sheet

Philips - BVP650 T35 1 xLED380-4S/740 DX51



P	235.0 W
Φ_{Lamp}	38000 lm
$\Phi_{\text{Luminaire}}$	19190 lm
η	50.50 %
Luminous efficacy	81.7 lm/W
CCT	4000 K
CRI	70



Polar LDC

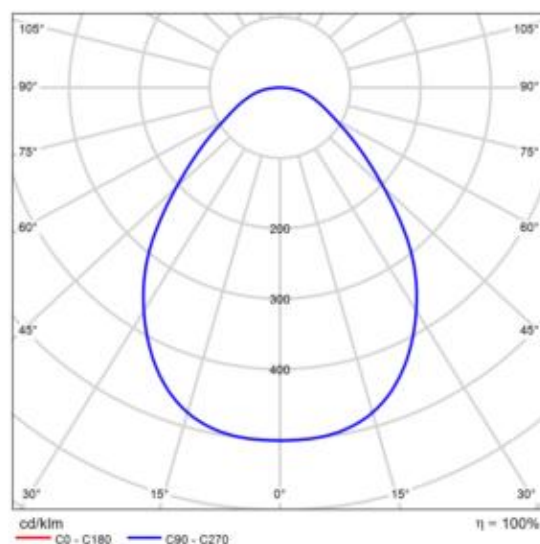
The optimized TCO solution for general areas and recreational sports projects ClearFlood is a range of floodlights that enables you to choose the exact lumen rating that you need for your specific application. Designed around state-of-the-art LEDs and extremely high-efficiency optics, this very competitive solution offers an industry-leading lux per euro ratio and significant energy savings. The choice of different optics in the ClearFlood range opens new application possibilities for LEDs. ClearFlood BVP650 is also easy to install and to maintain.

Product data sheet

Philips - DN145C D217 1 xLED20S/840



P	21.0 W
Φ_{Lamp}	2100 lm
$\Phi_{\text{Luminaire}}$	2100 lm
η	99.99 %
Luminous efficacy	100.0 lm/W
CCT	4000 K
CRI	80



Polar LDC

For every project where light really matters. A slim fit CoreLine SlimDownlight delivers on the CoreLine promise of innovative, easy to use and high-quality indoor LED downlights. CoreLine SlimDownlight is an innovative range of recessed and surface-mounted luminaires that is designed to provide uniform lighting across multiple application areas. With instant energy savings and a longer lifetime, this is an environmentally-friendly and cost-saving solution. Our slim LED downlights fit the same size cut-out, making then simple and easy to install, while the minimal built-in depth of 34mm means they are an ideal space-saving solution, especially for projects with limited space for installation. An Interact ready option with integrated wireless communications is available in this family, which can be used with Interact gateways, sensors and software.

Glare evaluation according to UGR												
Plane		70	75	80	85	90	70	75	80	85	90	30
z Ceiling		50	50	50	50	50	50	50	50	50	50	30
z Walls		20	20	20	20	20	20	20	20	20	20	20
z Floor		20	20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis					
2H	2H	22.0	23.2	22.3	23.5	23.7	22.0	23.2	22.3	23.5	23.7	
	3H	23.0	24.1	23.4	24.4	24.6	23.0	24.1	23.4	24.4	24.6	
	4H	23.6	24.6	23.9	24.9	25.1	23.6	24.6	23.9	24.9	25.1	
	6H	24.1	25.0	24.4	25.3	25.6	24.1	25.0	24.4	25.3	25.6	
	8H	24.3	25.2	24.6	25.5	25.8	24.3	25.2	24.6	25.5	25.8	
	12H	24.4	25.3	24.8	25.6	25.9	24.4	25.3	24.8	25.6	25.9	
4H	2H	22.4	23.5	22.8	23.7	24.0	22.4	23.5	22.8	23.7	24.0	
	3H	23.7	24.5	24.1	24.9	25.2	23.7	24.5	24.1	24.9	25.2	
	4H	24.4	25.1	24.8	25.5	25.9	24.4	25.1	24.8	25.5	25.9	
	6H	25.0	25.7	25.5	26.1	26.5	25.0	25.7	25.5	26.1	26.5	
	8H	25.3	26.0	25.8	26.3	26.8	25.3	26.0	25.8	26.3	26.8	
	12H	25.5	26.1	26.0	26.5	27.0	25.5	26.1	26.0	26.5	27.0	
6H	4H	24.7	25.3	25.1	25.7	26.1	24.7	25.3	25.1	25.7	26.1	
	6H	25.5	26.0	26.0	26.4	26.9	25.5	26.0	26.0	26.4	26.9	
	8H	25.9	26.4	26.4	26.8	27.3	25.9	26.4	26.4	26.8	27.3	
	12H	26.2	26.6	26.7	27.1	27.6	26.2	26.6	26.7	27.1	27.6	
	4H	24.7	25.3	25.1	25.7	26.1	24.7	25.3	25.1	25.7	26.1	
	6H	25.8	26.1	26.1	26.5	27.0	25.8	26.1	26.1	26.5	27.0	
12H	8H	26.0	26.4	26.5	26.9	27.4	26.0	26.4	26.5	26.9	27.4	
	12H	26.0	26.4	26.5	26.9	27.4	26.0	26.4	26.5	26.9	27.4	
Variation of the observer position for the luminaire distances S												
S = 1.0H		+0.2 / - 0.3					+0.2 / - 0.3					
S = 1.5H		+0.4 / - 0.6					+0.4 / - 0.6					
S = 2.0H		+0.9 / - 1.0					+0.9 / - 1.0					
Standard table		BK05					BK05					
Correction surround		8.2					8.2					
Corrected glare indices referring to 2100lm Total luminous flux												

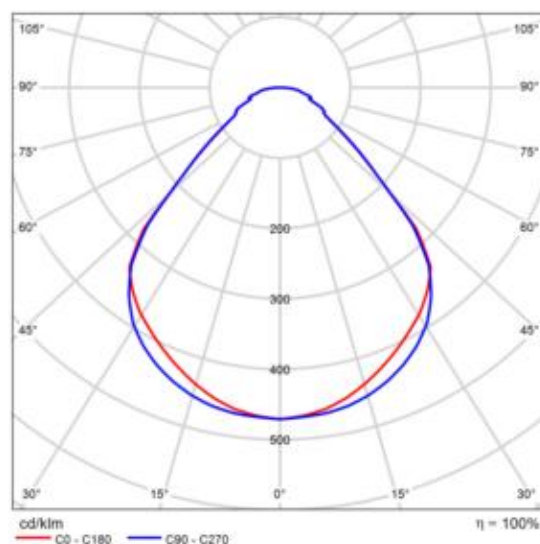
UGR diagram (SHR: 0.25)

Product data sheet

Philips - RC400B PSU W60L60 1 xLED42S/840



P	39.5 W
Φ_{Lamp}	4200 lm
$\Phi_{Luminaire}$	4197 lm
η	99.93 %
Luminous efficacy	106.3 lm/W
CCT	4000 K
CRI	80



Polar LDC

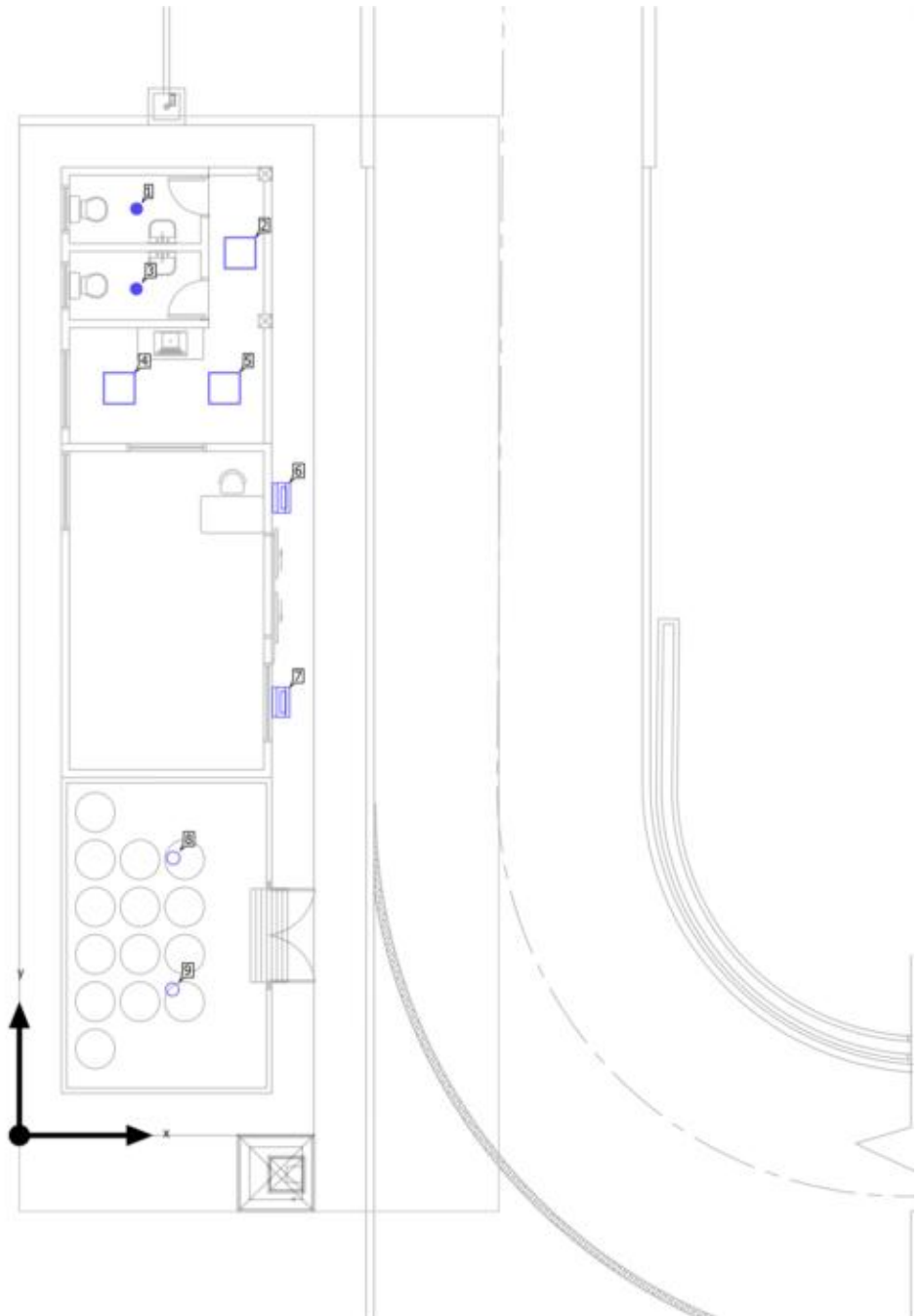
SlimBlend Square - High performance, advanced control Office norm-compliant lighting with good quality of light is in demand. Moreover, there is also an increasing need for comfort-enhancing effects such as diffused lighting and lighting smoothly blending into the ceiling architecture. That's why 'surface of light' solutions are becoming more and more popular. But parallel to these needs, are the demands to reduce energy and maintenance costs. SlimBlend answers all these needs and more. Not only does it provide glare-free comfort with a diffuse effect and clutter-free aesthetics thanks to integrated control options, it also creates a special blending of light. It uses the 'trapped' light under the masking to create a subtle glow, with a soft transition to the edge, lowering the brightness perception and blending the light into the ceiling. SlimBlend can also be part of a connected lighting system and integrated into the IT infrastructure enabling data on usage to be collected to help reduce energy costs and enhance employee comfort further. Also, thanks to the slim design, it enables technical equipment to be more easily installed in the plenum. Moreover, thanks to the variety of ways of mounting, various ceiling types can take advantage of this luminaire family. SlimBlend comes in square, rectangular and can be either recessed, surface-mounted, suspended. It offers a good balance between initial cost and ROI, making it the ideal choice for delivering excellent quality of light and a fast Return on Investment for offices.

Glare evaluation according to UGR													
Plane		70	70	50	50	30	70	70	50	50	30	30	
e. Ceiling													
e. Walls		50	30	50	30	30	50	30	50	30	30	30	
e. Floor		20	20	20	20	20	20	20	20	20	20	20	
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis						
2H	2H	15.2	16.4	15.5	16.6	16.9	15.2	16.4	15.5	16.7	16.9		
	3H	15.9	17.0	16.2	17.2	17.5	15.9	17.0	16.3	17.3	17.5		
	4H	16.4	17.4	16.7	17.7	18.0	16.4	17.5	16.8	17.7	18.0		
	6H	16.9	17.8	17.2	18.1	18.4	16.9	17.9	17.3	18.2	18.5		
	8H	17.1	18.0	17.5	18.3	18.7	17.2	18.1	17.5	18.4	18.7		
4H	12H	17.4	18.2	17.7	18.5	18.9	17.4	18.3	17.8	18.6	18.9		
	2H	15.5	16.5	15.8	16.8	17.1	15.5	16.5	15.9	16.8	17.1		
	3H	16.5	17.3	16.8	17.6	18.0	16.5	17.3	16.9	17.7	18.0		
	4H	17.1	17.9	17.5	18.2	18.6	17.2	18.0	17.6	18.3	18.7		
	6H	17.8	18.5	18.2	18.9	19.2	17.8	18.5	18.3	18.9	19.3		
8H	8H	18.2	18.8	18.6	19.2	19.6	18.2	18.8	18.6	19.2	19.6		
	12H	18.5	19.0	18.9	19.4	19.9	18.5	19.1	18.9	19.5	19.9		
	4H	17.4	18.0	17.8	18.4	18.9	17.5	18.1	17.9	18.5	18.9		
	6H	18.3	18.8	18.7	19.2	19.7	18.3	18.8	18.8	19.2	19.7		
	8H	18.7	19.2	19.2	19.6	20.1	18.8	19.2	19.3	19.7	20.2		
12H	12H	19.2	19.6	19.7	20.0	20.5	19.2	19.6	19.7	20.1	20.6		
	4H	17.4	18.0	17.9	18.4	18.9	17.5	18.1	17.9	18.5	18.9		
	6H	18.4	18.8	18.8	19.3	19.8	18.4	18.9	18.9	19.3	19.8		
	8H	18.9	19.3	19.4	19.8	20.3	18.9	19.3	19.4	19.8	20.3		
	Variation of the observer position for the luminaire distances S												
S = 1.0H		+0.4 / -0.4					+0.4 / -0.4						1.1
S = 1.5H		+0.8 / -0.8					+0.8 / -0.8						
S = 2.0H		+1.6 / -1.3					+1.6 / -1.3						
Standard table		BK05					BK05						1.1
Correction surround		1.0					1.0						
Corrected glare indices referring to 4200lm Total luminous flux													

UGR diagram (SHR: 0.25)

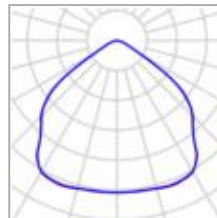
Site 1

Luminaire layout plan



Site 1

Luminaire layout plan



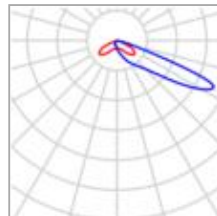
Manufacturer	Eaton's Crouse-Hinds Business	P	92.2 W
Article No.	VMVL-13-W-UNV1-M2	$\Phi_{\text{Luminaire}}$	12339 lm
Article name	VMVL Low Lumen (3-13L)		
Fitting	1x VMVL-13-W-UNV1-M2		

Individual luminaires

X	Y	Mounting height	MF	Luminaire
2.927 m	5.270 m	2.900 m	0.80	8
2.909 m	2.774 m	2.900 m	0.80	9

Site 1

Luminaire layout plan



Manufacturer	Philips	P	235.0 W
Article name	BVP650 T35 1 xLED380-4S/740 DX51	$\Phi_{\text{Luminaire}}$	19190 lm
Fitting	1x		

Individual luminaires

X	Y	Mounting height	MF	Luminaire
5.027 m	12.115 m	3.000 m	0.80	6
5.019 m	8.233 m	3.000 m	0.80	7

Site 1

Luminaire layout plan



Manufacturer	Philips	P	21.0 W
Article name	DN145C D217 1 xLED20S/840	$\Phi_{\text{Luminaire}}$	2100 lm
Fitting	1x		

Individual luminaires

X	Y	Mounting height	MF	Luminaire
2.229 m	17.611 m	2.800 m	0.80	1
2.224 m	16.089 m	2.800 m	0.80	3

Site 1

Luminaire layout plan



Manufacturer	Philips	P	39.5 W
Article name	RC400B PSU W60L60 1 xLED42S/840	$\Phi_{\text{Luminaire}}$	4197 lm
Fitting	1x		

Individual luminaires

X	Y	Mounting height	MF	Luminaire
4.199 m	16.771 m	2.800 m	0.80	2
1.900 m	14.200 m	2.800 m	0.80	4
3.900 m	14.200 m	2.800 m	0.80	5

Site 1

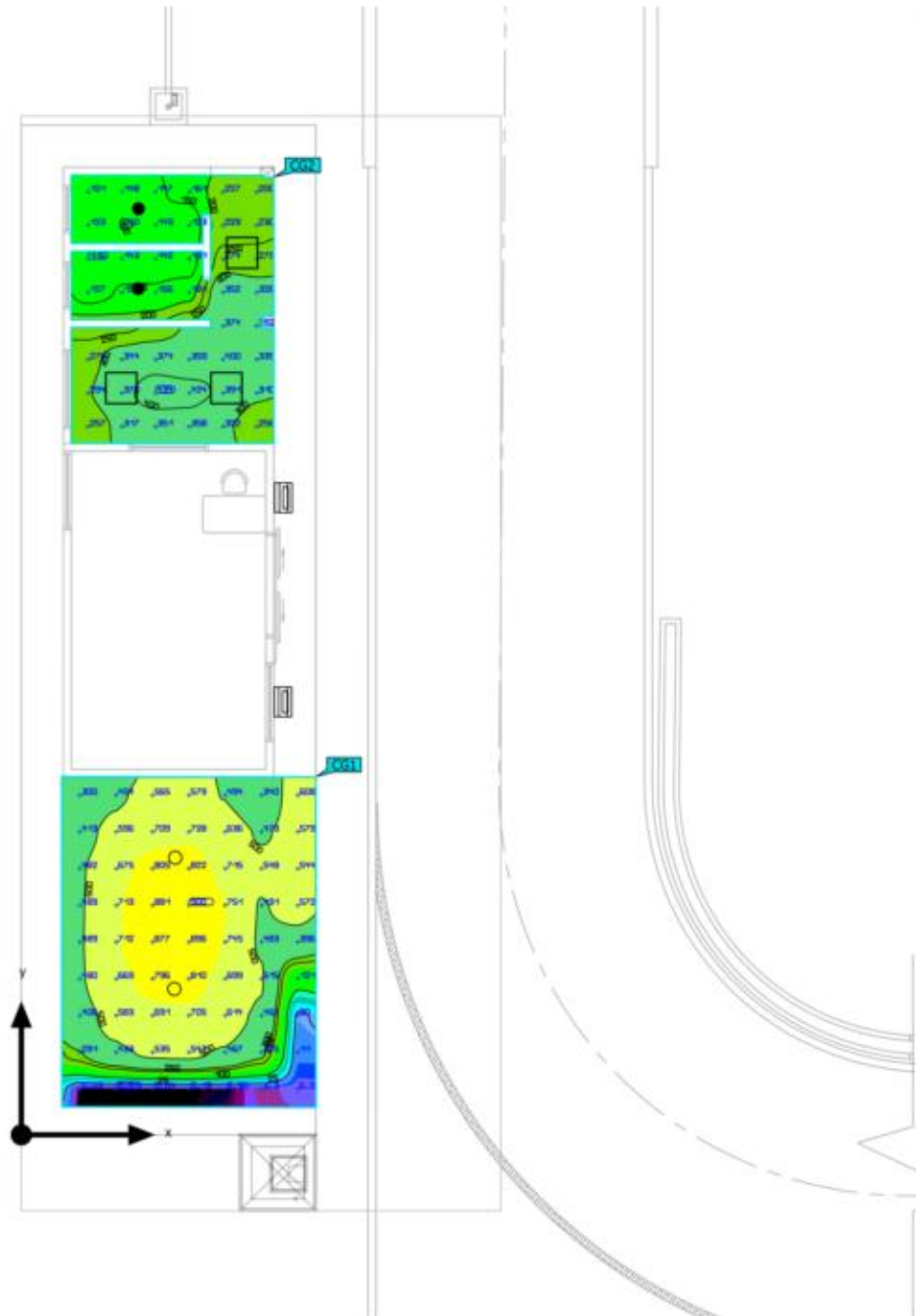
Luminaire list

Φ_{total} 79849 lm	P_{total} 814.9 W	Luminous efficacy 98.0 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
2	Eaton's Crouse-Hinds Business	VMVL-13- W-UNV1- M2	VMVL Low Lumen (3-13L)	92.2 W	12339 lm	133.8 lm/W
2	Philips		BVP650 T35 1 xLED380-4S/740 DX51	235.0 W	19190 lm	81.7 lm/W
2	Philips		DN145C D217 1 xLED20S/840	21.0 W	2100 lm	100.0 lm/W
3	Philips		RC400B PSU W60L60 1 xLED42S/840	39.5 W	4197 lm	106.3 lm/W

Site 1 (Light scene 1)

Calculation objects



Site 1 (Light scene 1)

Calculation objects

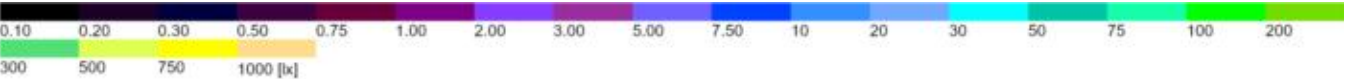
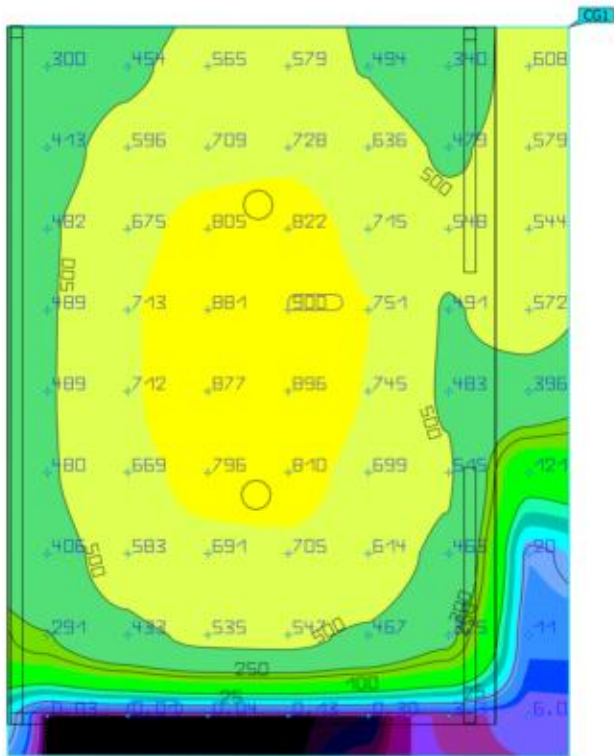
Calculation surfaces

Properties	\bar{E}	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Almacen de Lubricantes Perpendicular illuminance Height: 0.050 m	503 lx	0.008 lx	900 lx	0.000	0.000	CG1
Área de Banos y Lavanderia Perpendicular illuminance Height: 0.000 m	257 lx	116 lx	434 lx	0.45	0.27	CG2

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

Site 1 (Light scene 1)

Almacen de Lubiricantes

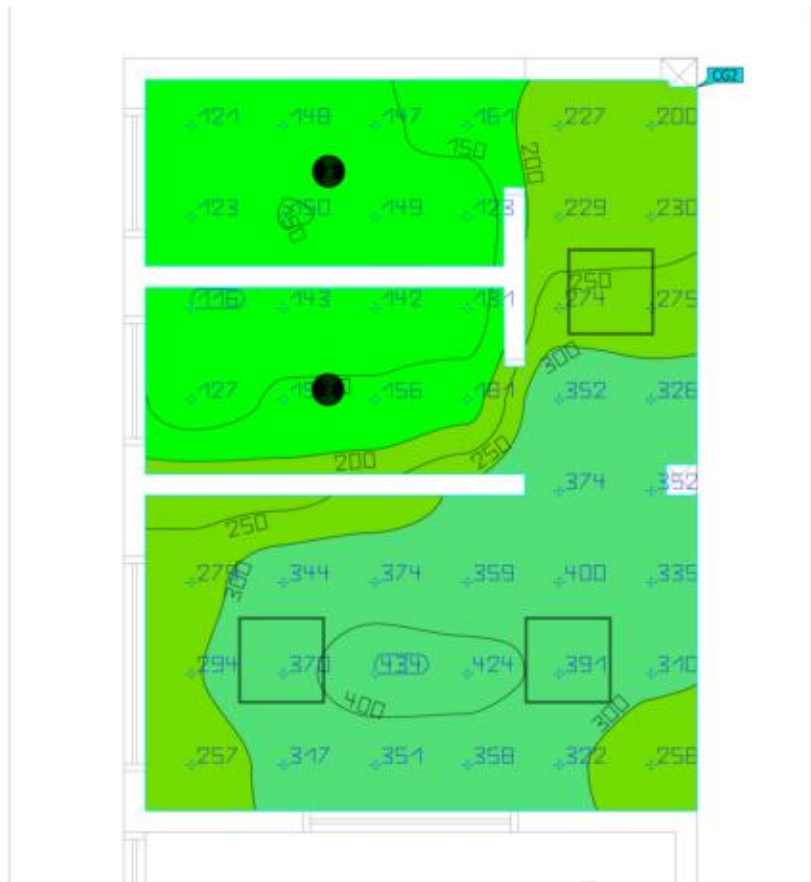


Properties	\bar{E}	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Almacen de Lubiricantes Perpendicular illuminance Height: 0.050 m	503 lx	0.008 lx	900 lx	0.000	0.000	CG1

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

Site 1 (Light scene 1)

Área de Banos y Lavanderia



Properties	\bar{E}	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
Área de Banos y Lavanderia	257 lx	116 lx	434 lx	0.45	0.27	CG2
Perpendicular illuminance						
Height: 0.000 m						

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

Almacén / Taller de Repuestos

Luminaire list

Φ_{total} 16788 lm	P_{total} 158.0 W	Luminous efficacy 106.3 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
4	Philips		RC400B PSU W60L60 1 xLED42S/840	39.5 W	4197 lm	106.3 lm/W

Almacen / Taller de Repuestos · Storey 1 (Light scene 1)

Room list



Almacén / Taller de Repuestos · Storey 1 (Light scene 1)

Room list

Room 3

P_{total} 158.0 W	A_{Room} 22.38 m ²	Lighting power density 7.06 W/m ² = 1.54 W/m ² /100 lx (Room)	$\bar{E}_{perpendicular}$ (Working plane) 459 lx
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pcs.	Manufacturer	Article No.	Article name	P	$\Phi_{Luminaire}$
4	Philips		RC400B PSU W60L60 1 xLED42S/840	39.5 W	4197 lm

Almacen / Taller de Repuestos · Storey 1

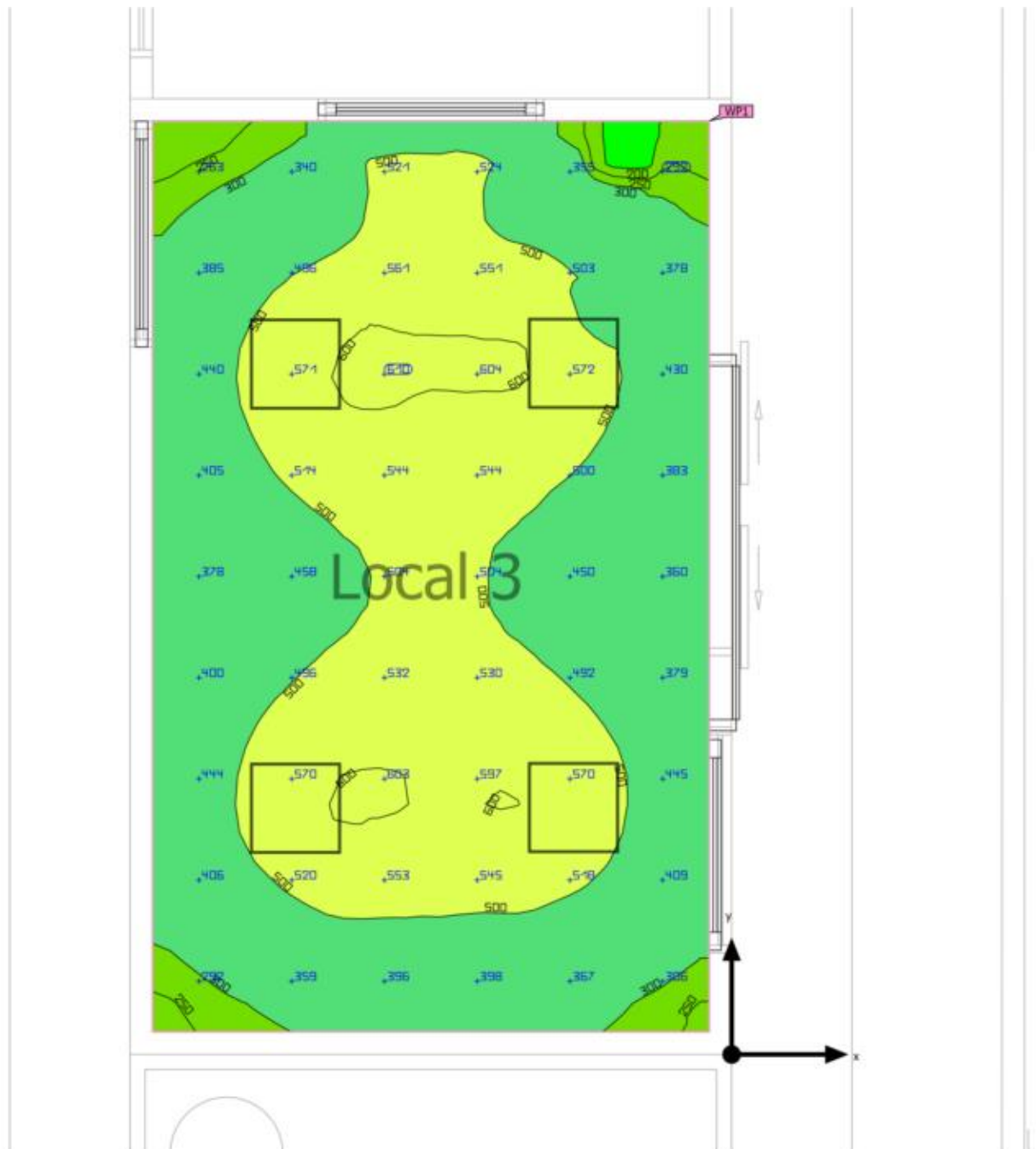
Luminaire list

Φ_{total} 16788 lm	P_{total} 158.0 W	Luminous efficacy 106.3 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
4	Philips		RC400B PSU W60L60 1 xLED42S/840	39.5 W	4197 lm	106.3 lm/W

Almacén / Taller de Repuestos · Storey 1 (Light scene 1)

Calculation objects



Almacén / Taller de Repuestos · Storey 1 (Light scene 1)

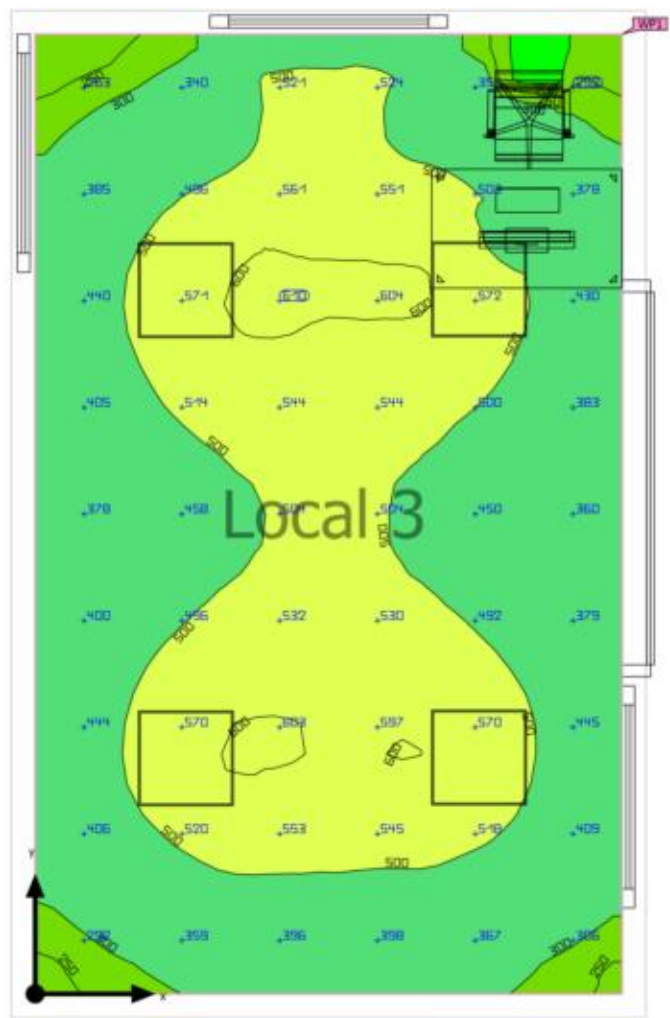
Calculation objects

Working planes

Properties	\bar{E} (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Almacén / Taller de Repuestos Perpendicular illuminance (adaptive) Height: 0.760 m, Wall zone: 0.000 m	459 lx (≥ 500 lx) ✗	174 lx	610 lx	0.38 (≥ 0.60) ✗	0.29	WP1

Almacén / Taller de Repuestos · Storey 1 · Room 3 (Light scene 1)

Summary



Ground area	22.38 m²
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %
Maintenance factor	0.80 (fixed)

Clearance height	3.000 m
Mounting height	2.800 m
Height _{Working plane}	0.760 m
Wall zone _{Working plane}	0.000 m

Almacen / Taller de Repuestos · Storey 1 · Room 3 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	459 lx	≥ 500 lx	✗	WP1
	$U_o (g_1)$	0.38	≥ 0.60	✗	WP1
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	16	≤ 19	✓	
Energy estimation ⁽²⁾	Consumption	[246.40 - 391.05] kWh/a	max. 800 kWh/a	✓	
Room	Lighting power density	7.06 W/m ²	–		
		1.54 W/m ² /100 lx	–		

(1) Based on a rectangular space of 6.050 m x 3.700 m and SHR of 0.25.

(2) Calculated using DIN:18599-4.

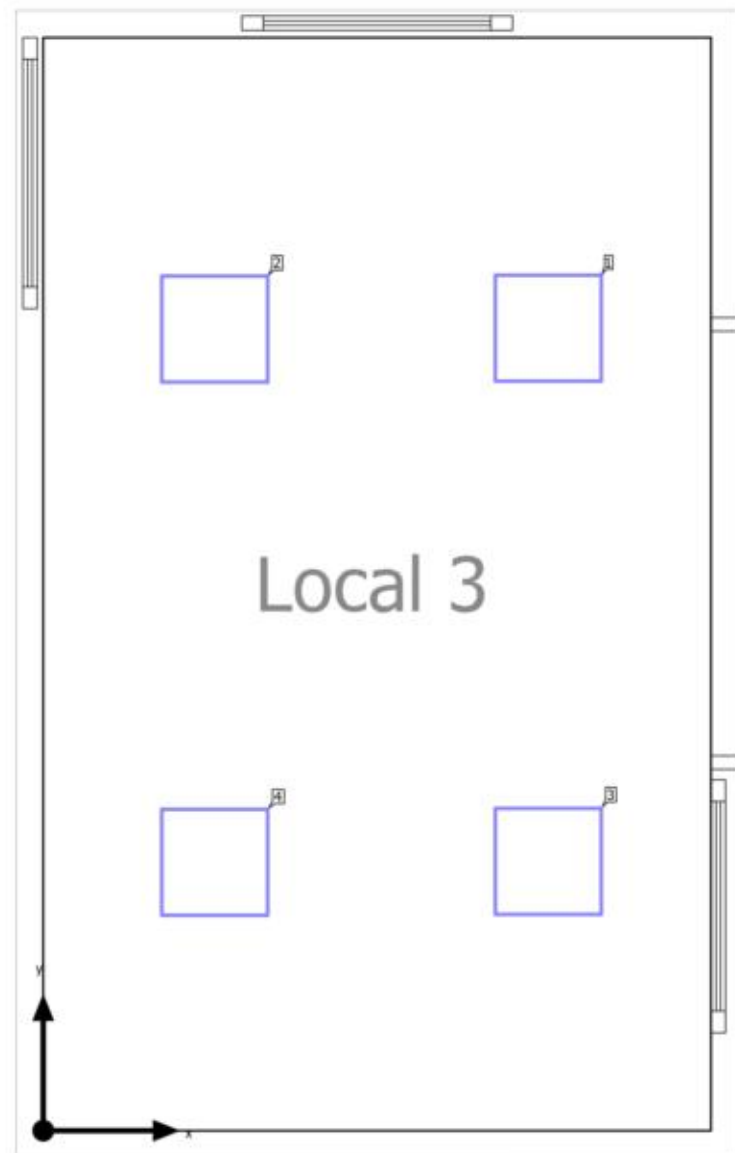
Utilisation profile: DIALux presetting (34.2 Standard (office))

Luminaire list

pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
4	Philips		RC400B PSU W60L60 1 xLED42S/840	16	39.5 W	4197 lm	106.3 lm/W

Almacen / Taller de Repuestos · Storey 1 · Room 3

Luminaire layout plan



Almacén / Taller de Repuestos · Storey 1 · Room 3

Luminaire layout plan



Manufacturer	Philips	P	39.5 W
Article name	RC400B PSU W60L60 1 xLED42S/840	Φ _{Luminaire}	4197 lm
Fitting	1x		

Individual luminaires

X	Y	Mounting height	Luminaire
2.799 m	4.442 m	2.800 m	1
0.950 m	4.437 m	2.800 m	2
2.799 m	1.491 m	2.800 m	3
0.950 m	1.485 m	2.800 m	4

Almacén / Taller de Repuestos · Storey 1 · Room 3

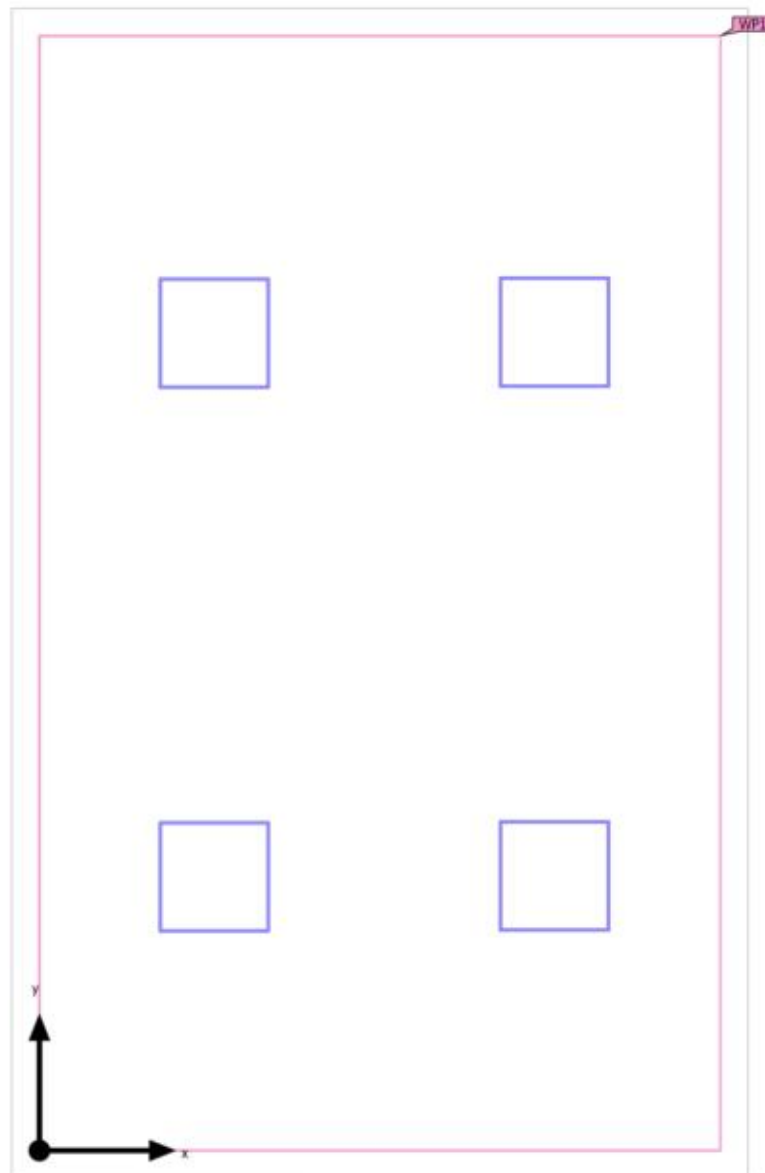
Luminaire list

Φ_{total} 16788 lm	P_{total} 158.0 W	Luminous efficacy 106.3 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
4	Philips		RC400B PSU W60L60 1 xLED42S/840	39.5 W	4197 lm	106.3 lm/W

Almacen / Taller de Repuestos · Storey 1 · Room 3 (Light scene 1)

Calculation objects



Almacén / Taller de Repuestos · Storey 1 · Room 3 (Light scene 1)

Calculation objects

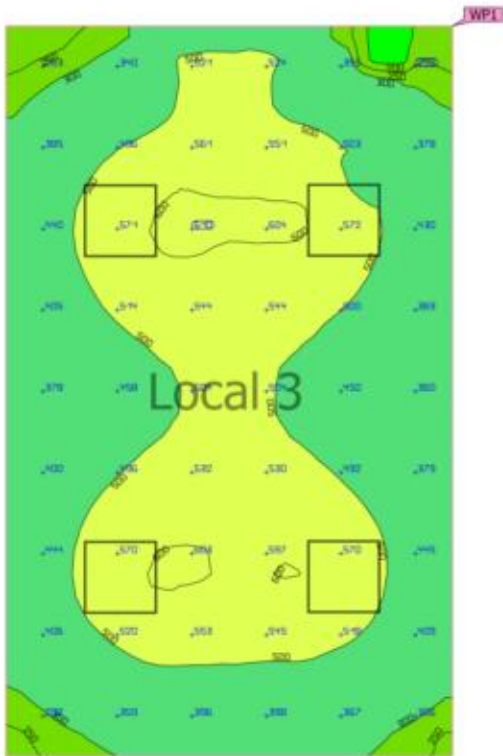
Working planes

Properties	\bar{E} (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Almacén / Taller de Repuestos Perpendicular illuminance (adaptive) Height: 0.760 m, Wall zone: 0.000 m	459 lx (≥ 500 lx) ✗	174 lx	610 lx	0.38 (≥ 0.60) ✗	0.29	WP1

Utilisation profile: DIALux presetting (34.2 Standard (office))

Almacen / Taller de Repuestos · Storey 1 · Room 3 (Light scene 1)

Álmacen / Taller de Repuestos



Properties	\bar{E} (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Álmacen / Taller de Repuestos Perpendicular illuminance (adaptive) Height: 0.760 m, Wall zone: 0.000 m	459 lx (≥ 500 lx) ✗	174 lx	610 lx	0.38 (≥ 0.60) ✗	0.29	WP1

Utilisation profile: DIALux presetting (34.2 Standard (office))

Glossary

A

A	Formula symbol for a surface in the geometry
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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.
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C

CCT	<p>(Engl. correlated colour temperature)</p> <p>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.</p> <p>Allocation of the light colours to the colour temperature ranges acc. to EN 12464-1:</p> <p>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</p>
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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).
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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.
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CRI	<p>(Engl. colour rendering index)</p> <p>Designation for the colour rendering index of a luminaire or a lamp acc. to DIN 6169: 1976 or CIE 13.3: 1995.</p> <p>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.</p>
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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)	<p>(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.</p> <p>Unit: %</p>

Glossary

G

g_1	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.
g_2	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 ($lm/m^2 = lx$). 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: $kWh/(m^2 \cdot a)$
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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	<p>(Engl. maintenance factor)/acc. to CIE 97: 2005</p> <p>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.</p> <p>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

P	<p>(Engl. power)</p> <p>Electric power consumption</p> <p>Unit: watt</p> <p>Abbreviation: W</p>
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R

$R_{(UG)} \max$	<p>Measure of the psychological glare in indoor spaces.</p> <p>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.</p>
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	<p>(Engl. room maintenance factor)/acc. to CIE 97: 2005</p> <p>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).</p>

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.
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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.
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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.