



**ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
ΠΕΡΙΦΕΡΕΙΑ ΘΕΣΣΑΛΙΑΣ
ΝΟΜΟΣ ΜΑΓΝΗΣΙΑΣ
ΔΗΜΟΣ ΡΗΓΑ ΦΕΡΑΙΟΥ**

*Δ/ΝΣΗ ΤΕΧΝΙΚΩΝ ΥΠΗΡΕΣΙΩΝ &
ΠΕΡΙΒΑΛΛΟΝΤΟΣ
ΤΕΧΝΙΚΗ ΥΠΗΡΕΣΙΑ*

ΕΡΓΟ :

**ΑΝΑΒΑΘΜΙΣΗ ΤΟΥ ΕΠΑ.Λ.
ΒΕΛΕΣΤΙΝΟΥ ΤΟΥ ΔΗΜΟΥ ΡΗΓΑ
ΦΕΡΑΙΟΥ ΣΕ ΠΡΟΤΥΠΟ ΕΠΑ.Λ.**

Αρ. Μελέτης: 6 /2023

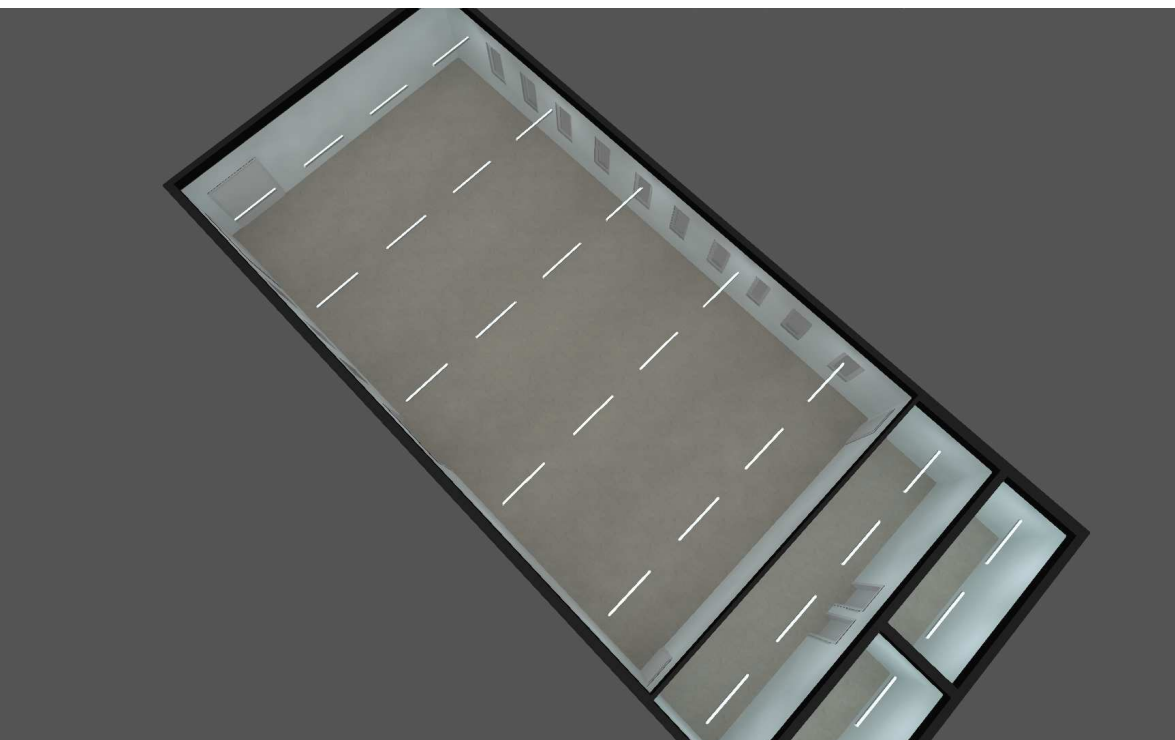
ΠΡΟΫΠΟΛΟΓΙΣΜΟΥ: 480.000,00 €

ΣΥΜΠΕΡΙΛΑΜΒΑΝΕΤΕ Ο ΦΠΑ

Αρ. Πρωτ: 530/19-01-2023

**ΧΡΗΜΑΤΟΔΟΤΗΣΗ :
ΤΑΜΕΙΟ ΑΝΑΚΑΜΨΗΣ**

**ΦΩΤΟΜΕΤΡΙΚΗ ΜΕΛΕΤΗ
ΑΙΘΟΥΣΑ ΠΟΛΛΑΠΛΩΝ ΧΡΗΣΕΩΝ**



Αίθουσα πολλαπλών χρήσεων

Preliminary remarks

Notes on planning:

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

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Story 1

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Site 1 - Building 2 - Story 1

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Site 1 - Building 2 - Story 1

Room 6

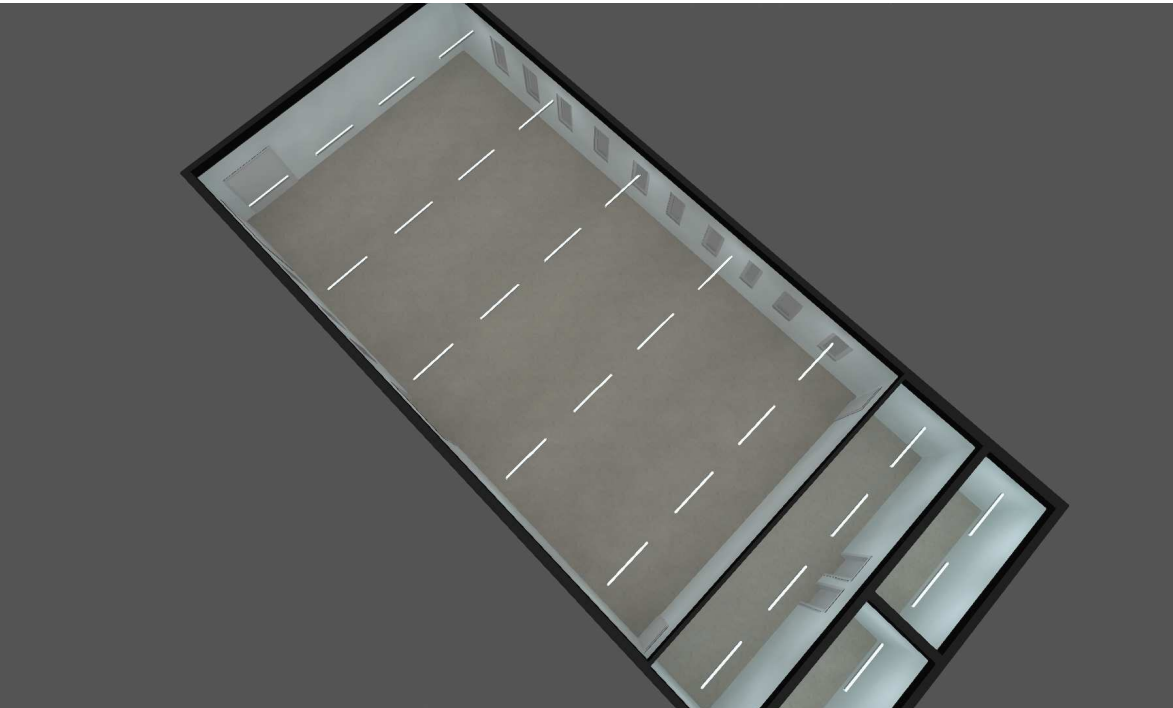
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Description

Luminaire list

Φ_{total} 106400 lm	P_{total} 840.0 W	Luminous efficacy 126.7 lm/W
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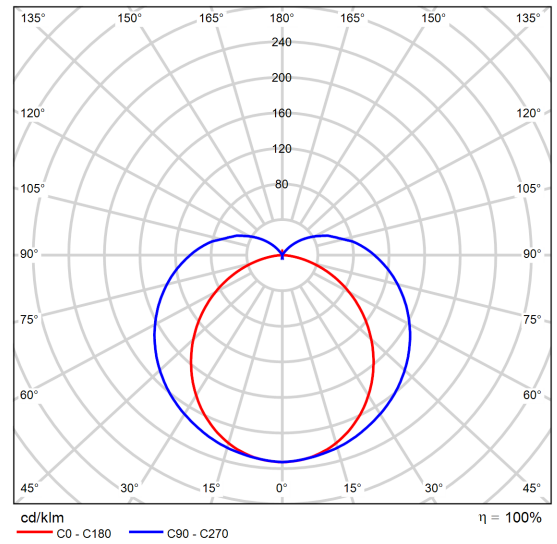
pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
28	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm	126.7 lm/W

Product data sheet

LEDVANCE - LN UO 1500 30W/4000K



Article No.	4058075122208
P	30.0 W
Φ_{Lamp}	3800 lm
$\Phi_{Luminaire}$	3800 lm
η	100.00 %
Luminous efficacy	126.7 lm/W
CCT	4000 K
CRI	80



Polar LDC

Glare evaluation according to UGR												
p Ceiling	70	70	50	50	30	70	70	50	50	30	30	
p Walls	50	30	50	30	20	50	30	50	30	20	20	
p 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	18.4	19.7	18.9	20.2	20.7	21.0	22.3	21.5	22.8	23.3	
	3H	19.9	21.1	20.4	21.6	22.2	23.8	24.9	24.3	25.5	26.0	
	4H	20.5	21.6	21.0	22.1	22.7	25.3	26.4	25.8	26.9	27.5	
	6H	20.9	21.9	21.4	22.5	23.1	27.0	28.0	27.5	28.6	29.2	
	8H	21.0	22.0	21.6	22.6	23.2	27.9	28.9	28.5	29.5	30.1	
	12H	21.1	22.0	21.6	22.6	23.3	28.9	29.9	29.5	30.5	31.1	
4H	2H	19.8	20.9	20.3	21.4	22.0	21.6	22.7	22.2	23.3	23.9	
	3H	21.6	22.5	22.1	23.1	23.8	24.6	25.6	25.2	26.2	26.8	
	4H	22.4	23.2	23.0	23.8	24.5	26.4	27.3	27.0	27.9	28.5	
	6H	23.0	23.8	23.6	24.4	25.1	28.3	29.1	28.9	29.7	30.4	
	8H	23.2	23.9	23.8	24.5	25.3	29.4	30.1	30.0	30.7	31.4	
	12H	23.3	24.0	24.0	24.6	25.4	30.5	31.2	31.2	31.9	32.6	
8H	4H	23.6	24.4	24.3	25.0	25.7	26.8	27.5	27.4	28.1	28.9	
	6H	24.7	25.3	25.4	26.0	26.7	29.0	29.6	29.7	30.3	31.0	
	8H	25.1	25.7	25.8	26.4	27.2	30.3	30.8	31.0	31.5	32.3	
	12H	25.5	26.0	26.2	26.7	27.5	31.7	32.2	32.4	32.9	33.7	
12H	4H	24.0	24.7	24.7	25.4	26.1	26.8	27.5	27.5	28.1	28.9	
	6H	25.4	25.9	26.1	26.6	27.4	29.1	29.7	29.8	30.4	31.1	
	8H	26.0	26.5	26.7	27.2	28.0	30.5	31.0	31.2	31.7	32.5	
Variation of the observer position for the luminaire distances S												
S = 1.0H		+0.1 / -0.1					+0.2 / -0.2					
S = 1.5H		+0.2 / -0.2					+0.3 / -0.3					
S = 2.0H		+0.3 / -0.5					+0.4 / -0.5					
Standard table		BK13					---					
Correction Summand		9.0					---					
Corrected glare indices referring to 3800lm Total luminous flux												

UGR diagram (SHR: 0.25)

Building 2

Luminaire list

Φ_{total} 106400 lm	P_{total} 840.0 W	Luminous efficacy 126.7 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
28	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm	126.7 lm/W

Building 2 · Story 1 (Light scene 1)

Room List

Room 7	Room 6	Room 5
		Room 3

Building 2 · Story 1 (Light scene 1)

Room List

Room 3

P_{total} 60.0 W	A_{Room} 9.60 m ²	Lighting power density 6.25 W/m ² = 1.17 W/m ² /100 lx (Room)	$\bar{E}_{perpendicular}$ (Working plane) 535 lx
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pcs.	Manufacturer	Article No.	Article name	P	$\Phi_{Luminaire}$
2	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm

Room 5

P_{total} 60.0 W	A_{Room} 9.50 m ²	Lighting power density 6.32 W/m ² = 1.17 W/m ² /100 lx (Room)	$\bar{E}_{perpendicular}$ (Working plane) 538 lx
-----------------------	-----------------------------------	--	---

pcs.	Manufacturer	Article No.	Article name	P	$\Phi_{Luminaire}$
2	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm

Room 6

P_{total} 120.0 W	A_{Room} 24.50 m ²	Lighting power density 4.90 W/m ² = 1.06 W/m ² /100 lx (Room)	$\bar{E}_{perpendicular}$ (Working plane) 463 lx
------------------------	------------------------------------	--	---

pcs.	Manufacturer	Article No.	Article name	P	$\Phi_{Luminaire}$
4	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm

Building 2 · Story 1 (Light scene 1)

Room List

Room 7

P_{total} 600.0 W	A_{Room} 181.24 m ²	Lighting power density 3.31 W/m ² = 0.83 W/m ² /100 lx (Room)	$E_{perpendicular}$ (Working plane) 397 lx
------------------------	-------------------------------------	--	---

pcs.	Manufacturer	Article No.	Article name	P	$\Phi_{Luminaire}$
20	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm

Building 2 · Story 1

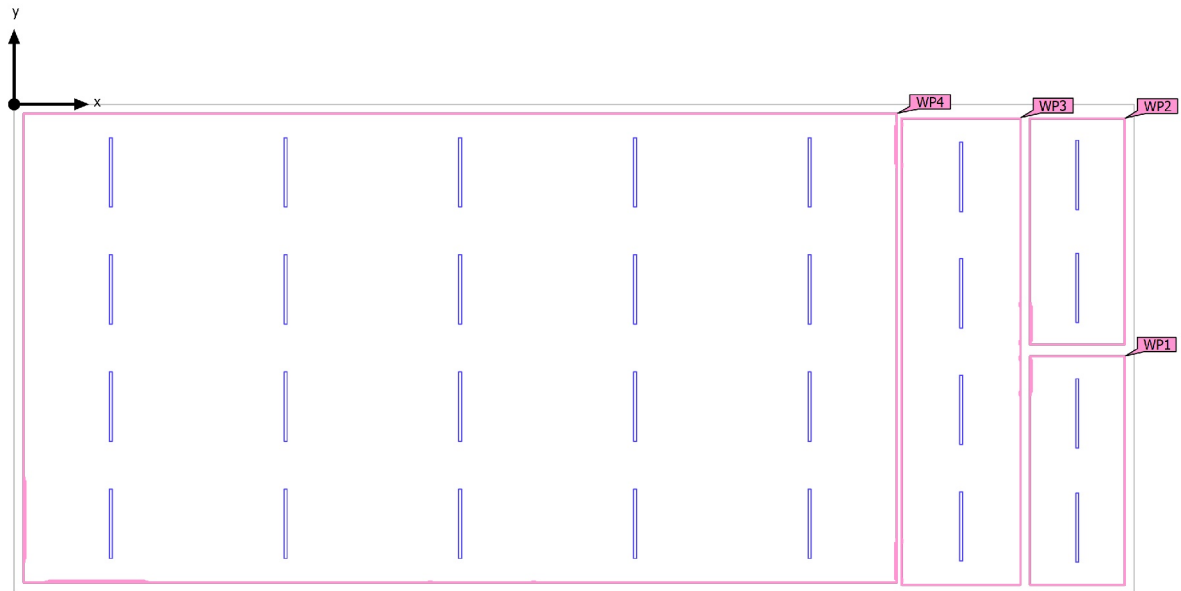
Luminaire list

Φ_{total} 106400 lm	P_{total} 840.0 W	Luminous efficacy 126.7 lm/W
------------------------------------	-------------------------------	---------------------------------

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
28	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm	126.7 lm/W

Building 2 · Story 1 (Light scene 1)

Calculation objects



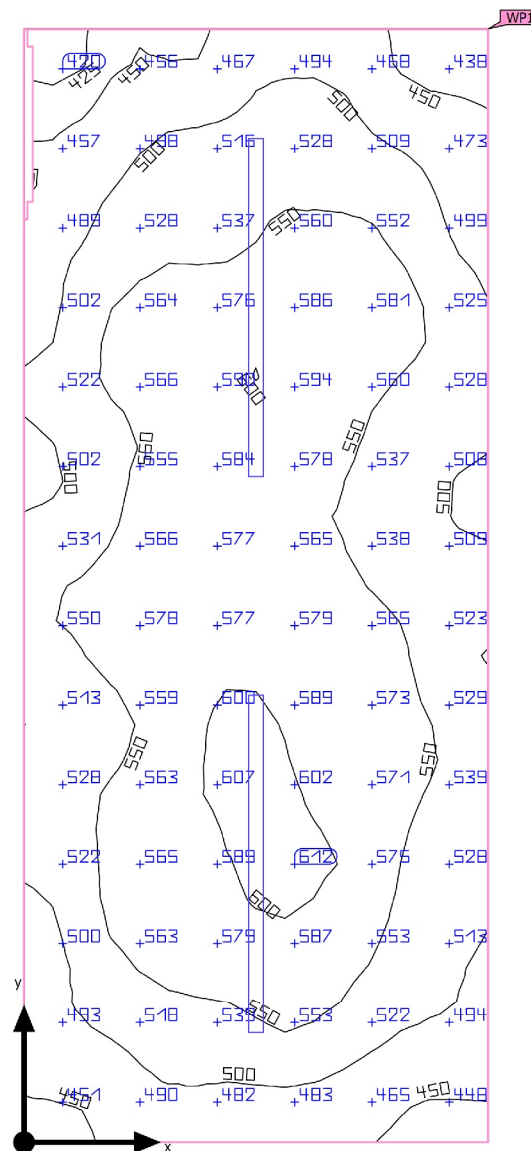
Building 2 · Story 1 (Light scene 1)

Calculation objects

Working planes

Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Working plane (Room 3) Perpendicular illuminance (adaptive) Height: 0.800 m, Wall zone: 0.000 m	535 lx (≥ 500 lx) ✓	412 lx	613 lx	0.77	0.67	WP1
Working plane (Room 5) Perpendicular illuminance (adaptive) Height: 0.800 m, Wall zone: 0.000 m	538 lx (≥ 500 lx) ✓	402 lx	617 lx	0.75	0.65	WP2
Working plane (Room 6) Perpendicular illuminance (adaptive) Height: 0.800 m, Wall zone: 0.000 m	463 lx (≥ 500 lx) ✗	331 lx	540 lx	0.71	0.61	WP3
Working plane (Room 7) Perpendicular illuminance (adaptive) Height: 0.800 m, Wall zone: 0.000 m	397 lx (≥ 500 lx) ✗	264 lx	498 lx	0.66	0.53	WP4

Building 2 · Story 1 · Room 3 (Light scene 1)

Summary

Building 2 · Story 1 · Room 3 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$E_{\text{perpendicular}}$	535 lx	≥ 500 lx	✓	WP1
	g_1	0.77	-	-	WP1
Consumption values	Consumption	170 kWh/a	max. 350 kWh/a	✓	
Room	Lighting power density	6.25 W/m ²	-	-	
		1.17 W/m ² /100 lx	-	-	

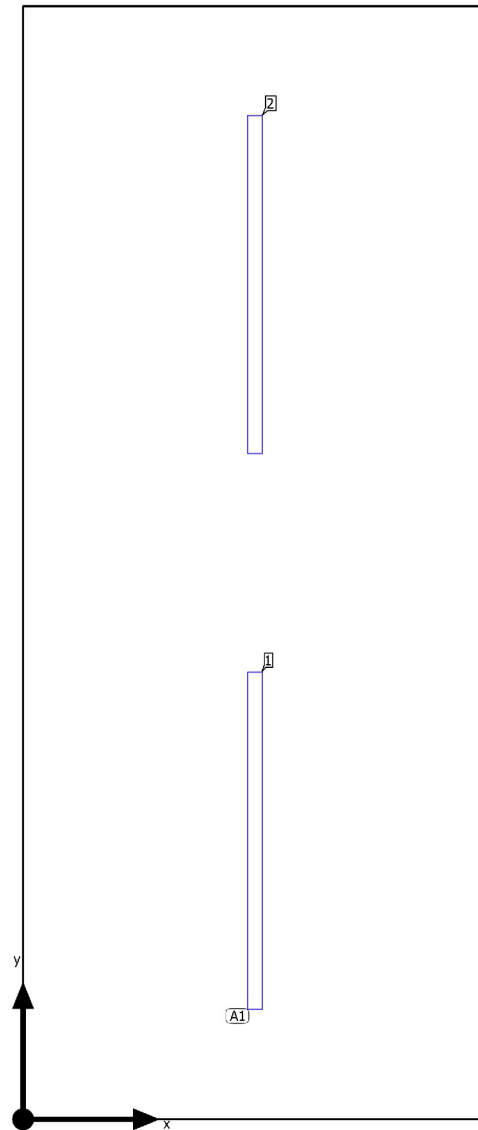
Utilization profile: DIALux presetting, Standard (office)

Luminaire list

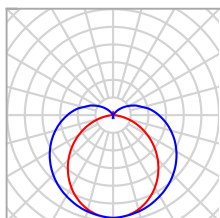
pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
2	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm	126.7 lm/W

Building 2 · Story 1 · Room 3

Luminaire layout plan



Building 2 · Story 1 · Room 3

Luminaire layout plan

Manufacturer	LEDVANCE	P	30.0 W
Article No.	4058075122208	$\Phi_{\text{Luminaire}}$	3800 lm
Article name	LN UO 1500 30W/4000K		
Fitting	1x LED 4000K/ CRI >= 80		

2 x LEDVANCE LN UO 1500 30W/4000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.000 m / 1.200 m / 2.670 m	1.000 m	1.200 m	2.670 m	1
X-direction	1 pcs., Center - center, 2.000 m	1.000 m	3.600 m	2.670 m	2
Y-direction	2 pcs., Center - center, 2.400 m				
Arrangement	A1				

Building 2 · Story 1 · Room 3

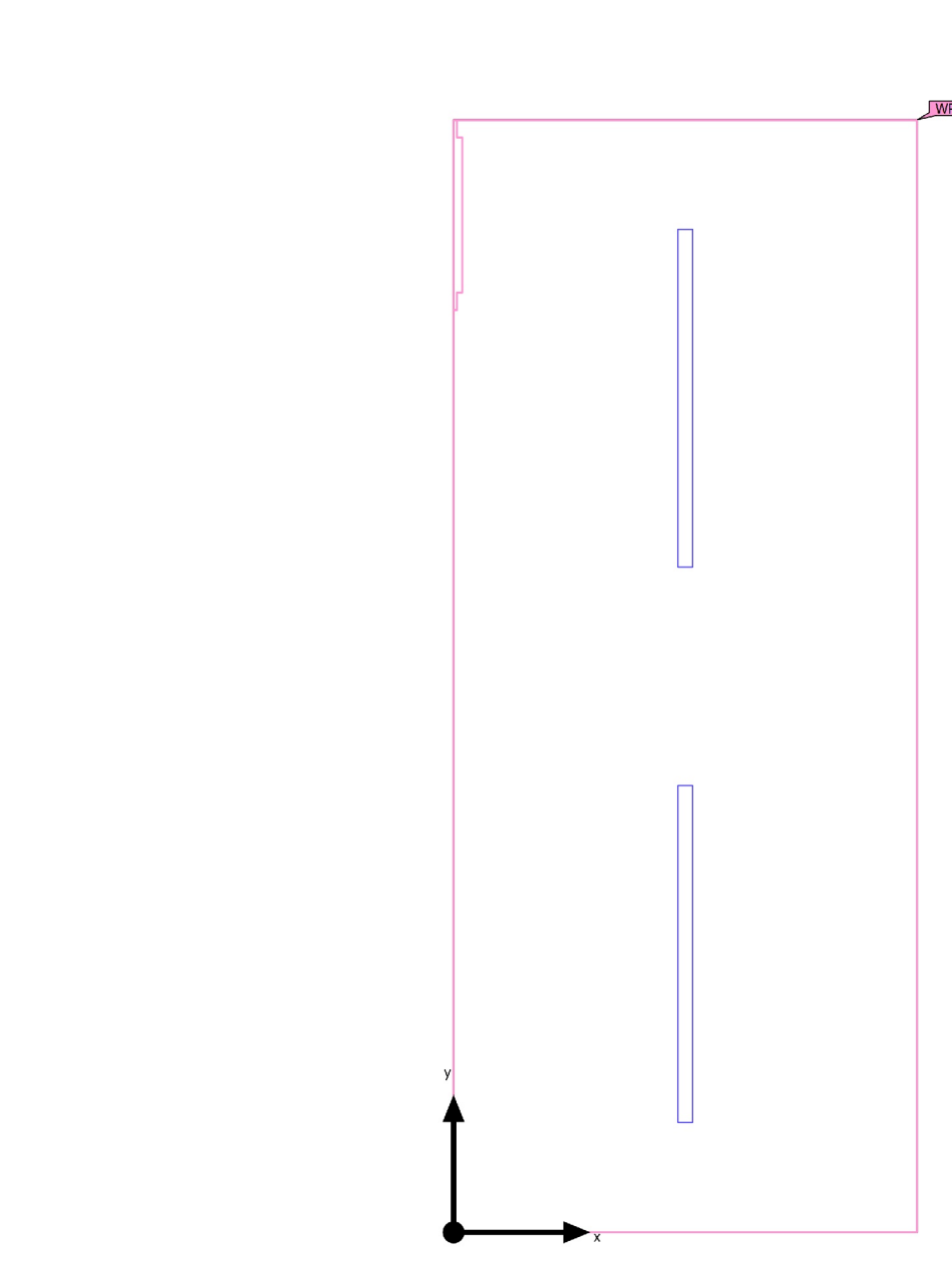
Luminaire list

Φ_{total} 7600 lm	P_{total} 60.0 W	Luminous efficacy 126.7 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
2	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm	126.7 lm/W

Building 2 · Story 1 · Room 3 (Light scene 1)

Calculation objects



Building 2 · Story 1 · Room 3 (Light scene 1)

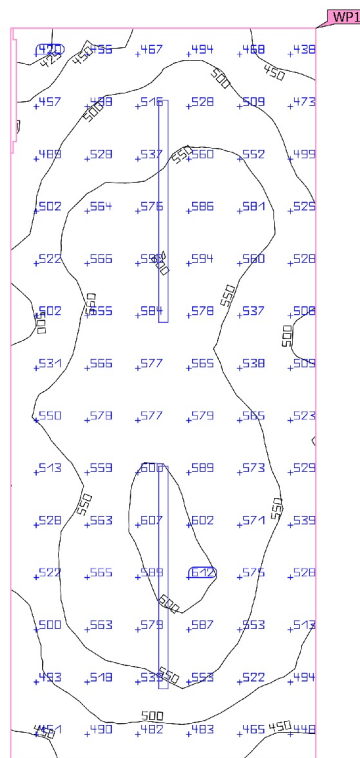
Calculation objects

Working planes

Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Working plane (Room 3) Perpendicular illuminance (adaptive) Height: 0.800 m, Wall zone: 0.000 m	535 lx (≥ 500 lx) ✓	412 lx	613 lx	0.77	0.67	WP1

Utilization profile: DIALux presetting, Standard (office)

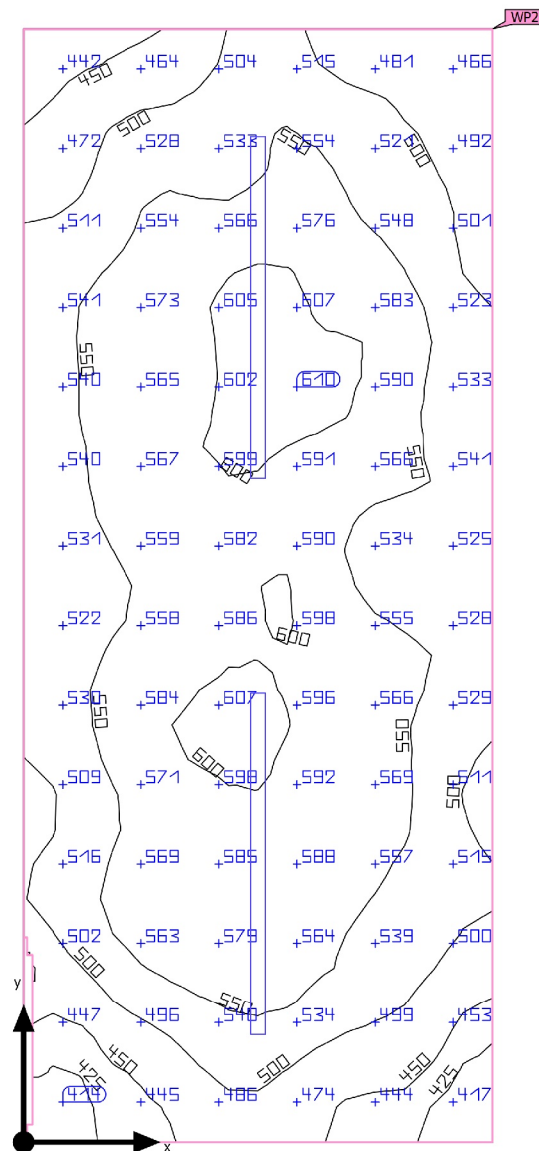
Building 2 · Story 1 · Room 3 (Light scene 1)

Working plane (Room 3)

Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Working plane (Room 3) Perpendicular illuminance (adaptive) Height: 0.800 m, Wall zone: 0.000 m	535 lx (≥ 500 lx) ✓	412 lx	613 lx	0.77	0.67	WP1

Utilization profile: DIALux presetting, Standard (office)

Building 2 · Story 1 · Room 5 (Light scene 1)

Summary

Building 2 · Story 1 · Room 5 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$E_{\text{perpendicular}}$	538 lx	≥ 500 lx	✓	WP2
	g_1	0.75	-	-	WP2
Consumption values	Consumption	170 kWh/a	max. 350 kWh/a	✓	
Room	Lighting power density	6.32 W/m ²	-	-	
		1.17 W/m ² /100 lx	-	-	

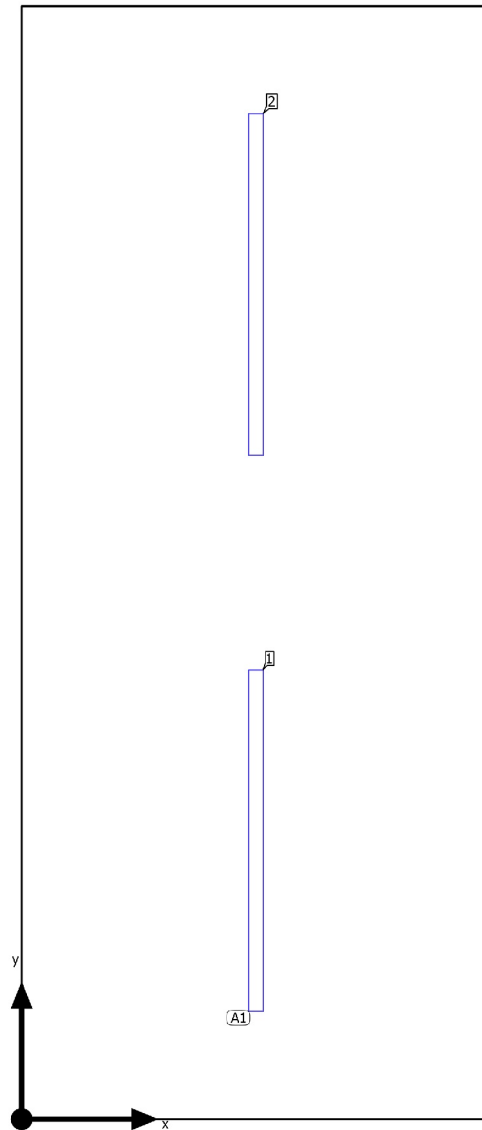
Utilization profile: DIALux presetting, Standard (office)

Luminaire list

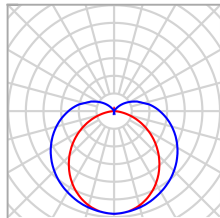
pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
2	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm	126.7 lm/W

Building 2 · Story 1 · Room 5

Luminaire layout plan



Building 2 · Story 1 · Room 5

Luminaire layout plan

Manufacturer	LEDVANCE	P	30.0 W
Article No.	4058075122208	$\Phi_{\text{Luminaire}}$	3800 lm
Article name	LN UO 1500 30W/4000K		
Fitting	1x LED 4000K/ CRI >= 80		

2 x LEDVANCE LN UO 1500 30W/4000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.000 m / 1.188 m / 2.670 m	1.000 m	1.188 m	2.670 m	1
X-direction	1 pcs., Center - center, 2.000 m	1.000 m	3.563 m	2.670 m	2
Y-direction	2 pcs., Center - center, 2.375 m				
Arrangement	A1				

Building 2 · Story 1 · Room 5

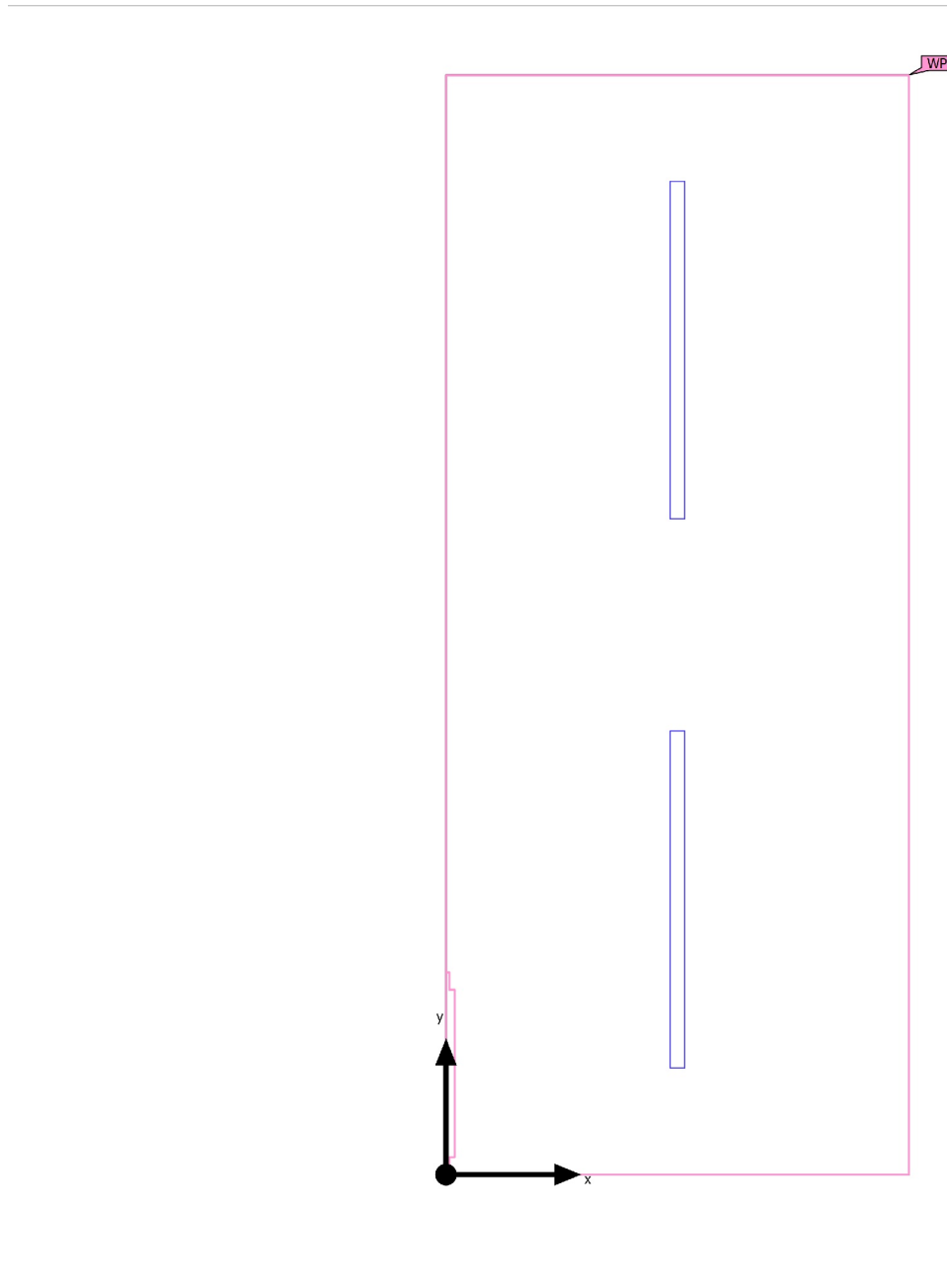
Luminaire list

Φ_{total} 7600 lm	P_{total} 60.0 W	Luminous efficacy 126.7 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
2	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm	126.7 lm/W

Building 2 · Story 1 · Room 5 (Light scene 1)

Calculation objects



Building 2 · Story 1 · Room 5 (Light scene 1)

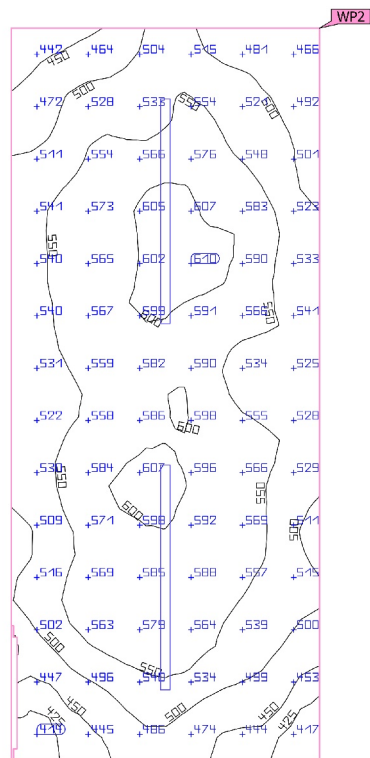
Calculation objects

Working planes

Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Working plane (Room 5) Perpendicular illuminance (adaptive) Height: 0.800 m, Wall zone: 0.000 m	538 lx (≥ 500 lx) ✓	402 lx	617 lx	0.75	0.65	WP2

Utilization profile: DIALux presetting, Standard (office)

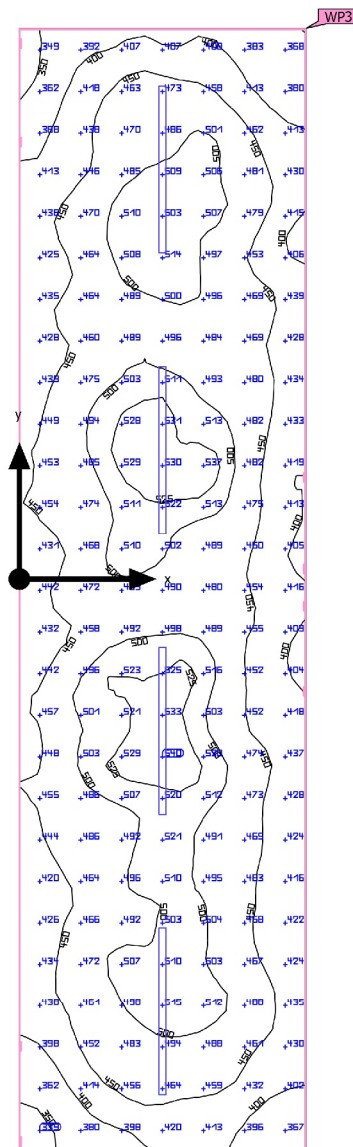
Building 2 · Story 1 · Room 5 (Light scene 1)

Working plane (Room 5)

Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Working plane (Room 5) Perpendicular illuminance (adaptive) Height: 0.800 m, Wall zone: 0.000 m	538 lx (≥ 500 lx) ✓	402 lx	617 lx	0.75	0.65	WP2

Utilization profile: DIALux presetting, Standard (office)

Building 2 · Story 1 · Room 6 (Light scene 1)

Summary

Building 2 · Story 1 · Room 6 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$E_{\text{perpendicular}}$	463 lx	≥ 500 lx	✗	WP3
	g_1	0.71	-	-	WP3
Consumption values	Consumption	330 kWh/a	max. 900 kWh/a	✓	
Room	Lighting power density	4.90 W/m ²	-	-	
		1.06 W/m ² /100 lx	-	-	

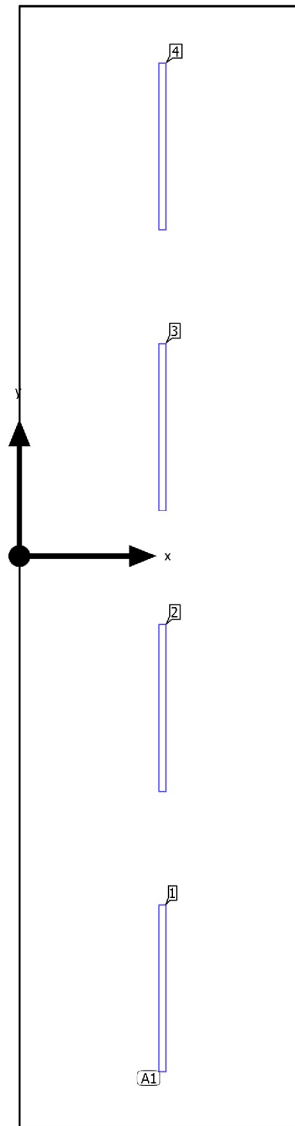
Utilization profile: DIALux presetting, Standard (office)

Luminaire list

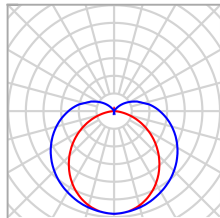
pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
4	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm	126.7 lm/W

Building 2 · Story 1 · Room 6

Luminaire layout plan



Building 2 · Story 1 · Room 6

Luminaire layout plan

Manufacturer	LEDVANCE	P	30.0 W
Article No.	4058075122208	$\Phi_{\text{Luminaire}}$	3800 lm
Article name	LN UO 1500 30W/4000K		
Fitting	1x LED 4000K/ CRI >= 80		

4 x LEDVANCE LN UO 1500 30W/4000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.250 m / -3.775 m / 2.670 m	1.250 m	-3.775 m	2.670 m	1
X-direction	1 pcs., Center - center, 2.500 m	1.250 m	-1.325 m	2.670 m	2
Y-direction	4 pcs., Center - center, 2.450 m	1.250 m	1.125 m	2.670 m	3
		1.250 m	3.575 m	2.670 m	4
Arrangement	A1				

Building 2 · Story 1 · Room 6

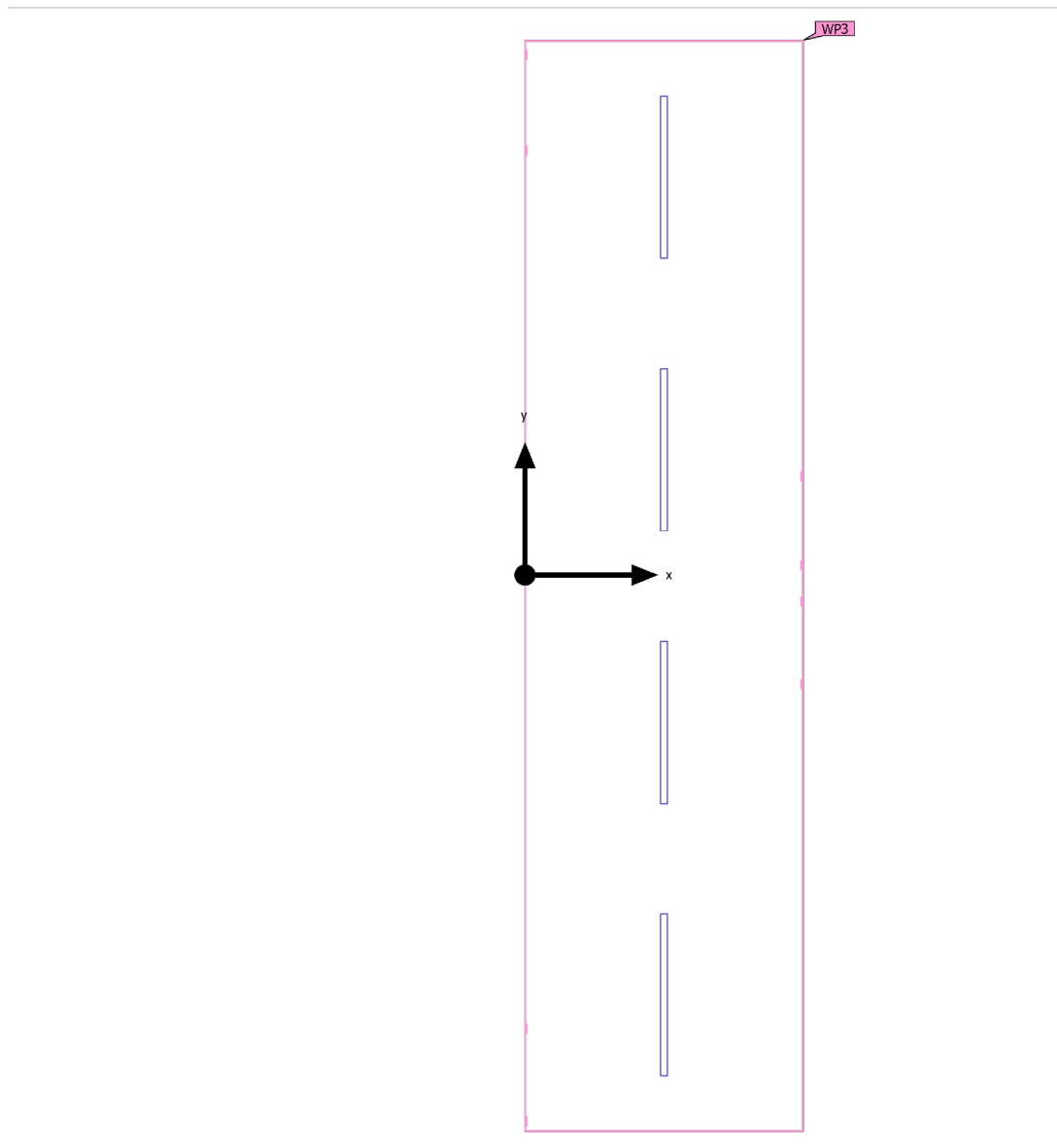
Luminaire list

Φ_{total} 15200 lm	P_{total} 120.0 W	Luminous efficacy 126.7 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
4	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm	126.7 lm/W

Building 2 · Story 1 · Room 6 (Light scene 1)

Calculation objects



Building 2 · Story 1 · Room 6 (Light scene 1)

Calculation objects

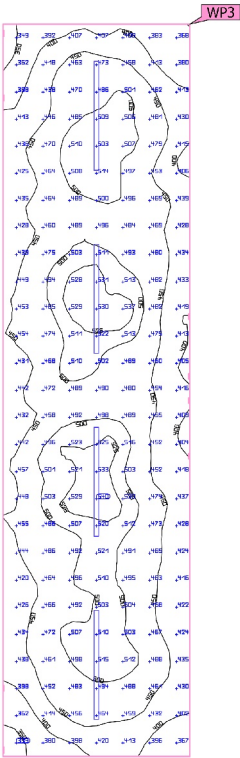
Working planes

Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Working plane (Room 6) Perpendicular illuminance (adaptive) Height: 0.800 m, Wall zone: 0.000 m	463 lx (≥ 500 lx) ✗	331 lx	540 lx	0.71	0.61	WP3

Utilization profile: DIALux presetting, Standard (office)

Building 2 · Story 1 · Room 6 (Light scene 1)

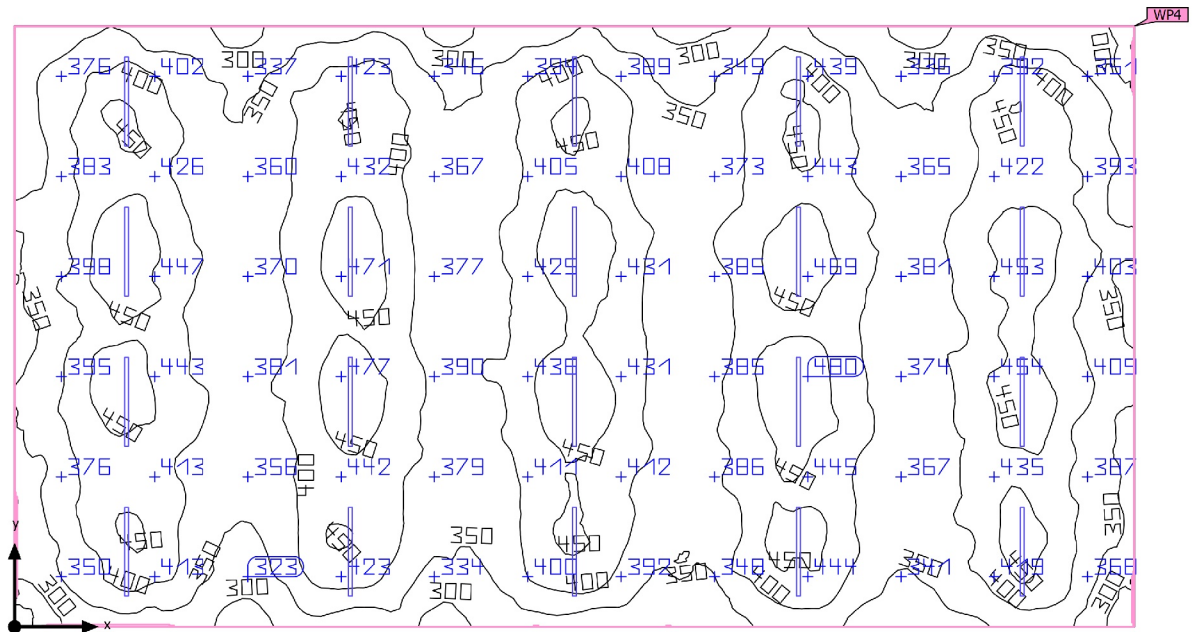
Working plane (Room 6)



Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Working plane (Room 6) Perpendicular illuminance (adaptive) Height: 0.800 m, Wall zone: 0.000 m	463 lx (≥ 500 lx) ✗	331 lx	540 lx	0.71	0.61	WP3

Utilization profile: DIALux presetting, Standard (office)

Building 2 · Story 1 · Room 7 (Light scene 1)

Summary

Building 2 · Story 1 · Room 7 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$E_{\text{perpendicular}}$	397 lx	≥ 500 lx	✗	WP4
	g_1	0.66	-	-	WP4
Consumption values	Consumption	[1050 - 1650] kWh/a	max. 6350 kWh/a	✓	
Room	Lighting power density	3.31 W/m ²	-	-	
		0.83 W/m ² /100 lx	-	-	

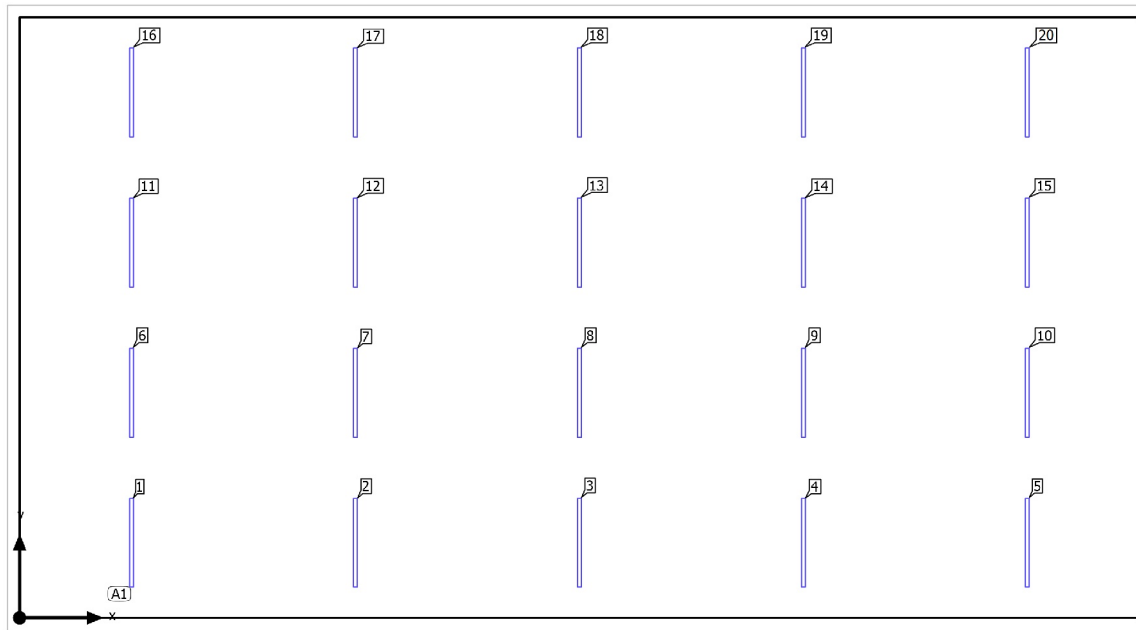
Utilization profile: DIALux presetting, Standard (office)

Luminaire list

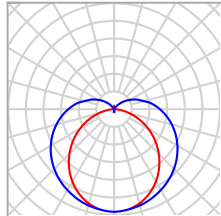
pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
20	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm	126.7 lm/W

Building 2 · Story 1 · Room 7

Luminaire layout plan



Building 2 · Story 1 · Room 7

Luminaire layout plan

Manufacturer	LEDVANCE	P	30.0 W
Article No.	4058075122208	Φ _{Luminaire}	3800 lm
Article name	LN UO 1500 30W/4000K		
Fitting	1x LED 4000K/ CRI >= 80		

20 x LEDVANCE LN UO 1500 30W/4000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.840 m / 1.231 m / 2.670 m	1.840 m	1.231 m	2.670 m	1
X-direction	5 pcs., Center - center, 3.680 m	5.520 m	1.231 m	2.670 m	2
		9.200 m	1.231 m	2.670 m	3
Y-direction	4 pcs., Center - center, 2.463 m	12.880 m	1.231 m	2.670 m	4
		16.560 m	1.231 m	2.670 m	5
Arrangement	A1	1.840 m	3.694 m	2.670 m	6
		5.520 m	3.694 m	2.670 m	7
		9.200 m	3.694 m	2.670 m	8
		12.880 m	3.694 m	2.670 m	9
		16.560 m	3.694 m	2.670 m	10
		1.840 m	6.156 m	2.670 m	11
		5.520 m	6.156 m	2.670 m	12
		9.200 m	6.156 m	2.670 m	13

Building 2 · Story 1 · Room 7

Luminaire layout plan

X	Y	Mounting height	Luminaire
12.880 m	6.156 m	2.670 m	14
16.560 m	6.156 m	2.670 m	15
1.840 m	8.619 m	2.670 m	16
5.520 m	8.619 m	2.670 m	17
9.200 m	8.619 m	2.670 m	18
12.880 m	8.619 m	2.670 m	19
16.560 m	8.619 m	2.670 m	20

Building 2 · Story 1 · Room 7

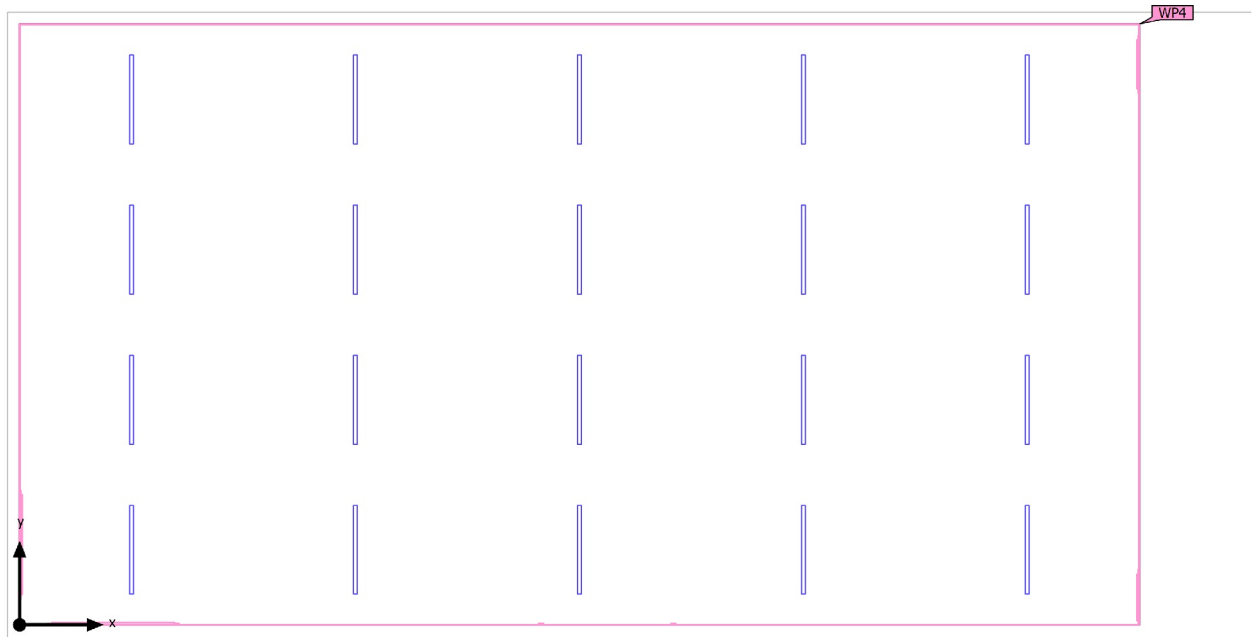
Luminaire list

Φ_{total} 76000 lm	P_{total} 600.0 W	Luminous efficacy 126.7 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
20	LEDVANCE	405807512 2208	LN UO 1500 30W/4000K	30.0 W	3800 lm	126.7 lm/W

Building 2 · Story 1 · Room 7 (Light scene 1)

Calculation objects



Building 2 · Story 1 · Room 7 (Light scene 1)

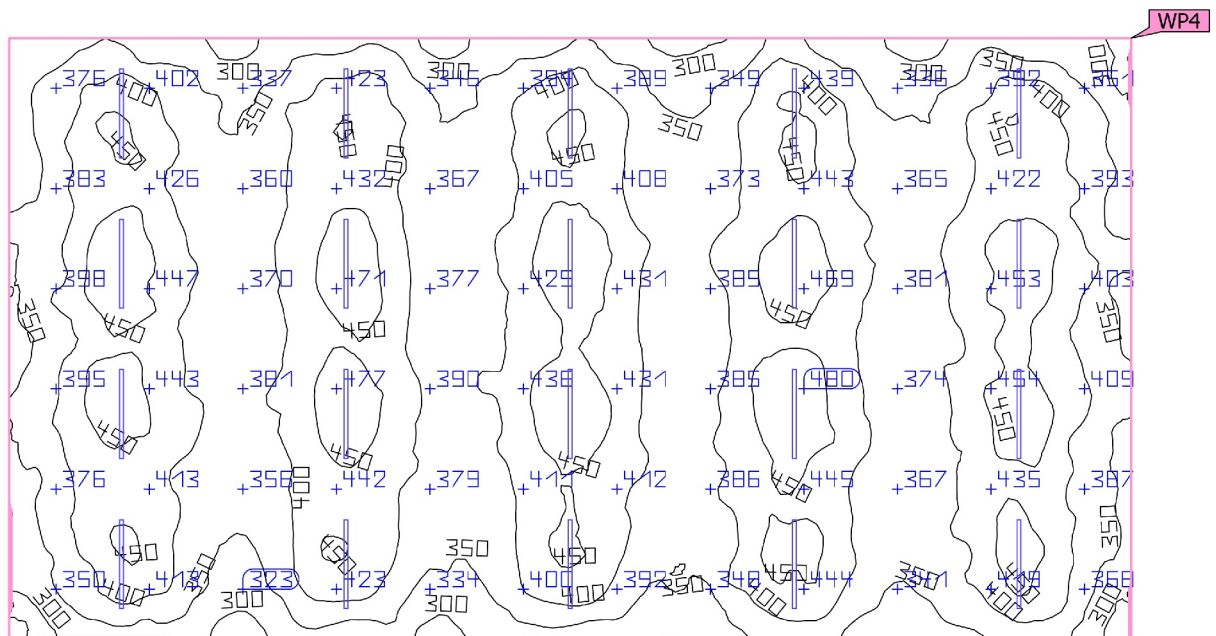
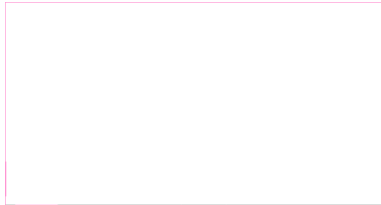
Calculation objects

Working planes

Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Working plane (Room 7) Perpendicular illuminance (adaptive) Height: 0.800 m, Wall zone: 0.000 m	397 lx (≥ 500 lx) ✗	264 lx	498 lx	0.66	0.53	WP4

Utilization profile: DIALux presetting, Standard (office)

Building 2 · Story 1 · Room 7 (Light scene 1)

Working plane (Room 7)

Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Working plane (Room 7)	397 lx	264 lx	498 lx	0.66	0.53	WP4
Perpendicular illuminance (adaptive)	(≥ 500 lx)					
Height: 0.800 m, Wall zone: 0.000 m	✗					

Utilization profile: DIALux presetting, 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>(correlated color temperature)</p> <p>Body temperature of a thermal radiator that serves to describe its light color. Unit: Kelvin [K]. The lesser the numerical value the redder; the greater the numerical value the bluer the light color. The color temperature of gas-discharge lamps and semi-conductors are termed "correlated color temperature" in contrast to the color temperature of thermal radiators.</p> <p>Allocation of the light colors to the color temperature ranges acc. to EN 12464-1:</p> <p>Light color - color 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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CRI	<p>(color rendering index)</p> <p>Designation for the color rendering index of a luminaire or a lamp acc. to DIN 6169: 1976 or CIE 13.3: 1995.</p> <p>The general color 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 colors (see DIN 6169 or CIE 1974) to a reference light source.</p>
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D

Daylight factor	<p>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.</p> <p>Formula symbol: D (daylight factor) Unit: %</p>
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Glossary

Daylight quotient effective area	A calculation surface within which the daylight quotient is calculated.
E	
Eta (η)	<p>(light output ratio)</p> <p>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>
G	
g_1	<p>Often also U_o (overall uniformity)</p> <p>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.</p>
g_2	<p>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.</p>
I	
Illuminance	<p>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.</p> <p>Unit: Lux Abbreviation: lx Formula symbol: E</p>
Illuminance, adaptive	<p>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.</p>
Illuminance, horizontal	<p>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.</p>
Illuminance, perpendicular	<p>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.</p>

Glossary

Illuminance, vertical	<p>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.</p>
L	
LENI	<p>(lighting energy numeric indicator) Lighting energy numeric indicator acc. to EN 15193</p> <p>Unit: kWh/m² year</p>
Light loss factor	See MF
LLMF	<p>(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>(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>(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 meter 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>

Glossary

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>
M	
MF	<p>(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	
P	<p>(power) Electric power consumption</p> <p>Unit: watt Abbreviation: W</p>
R	
Reflection factor	<p>The reflection factor of a surface describes how much of the striking light is reflected back. The reflection factor is defined by the color of the surface.</p>

Glossary

RMF	(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.
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 that 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.

Ο Συντάξας
Λεωνίδας Λάβδας
Πολιτικός Μηχανικός Τ.Ε

Ελέγχθηκε – Θεωρήθηκε
Η Προϊσταμένη Δ/σης
Τεχνικών Υπηρεσιών & Περιβάλλοντος
Καλλιόπης- Στούκι Αποστολία
Π.Ε. Πολιτικών Μηχανικών