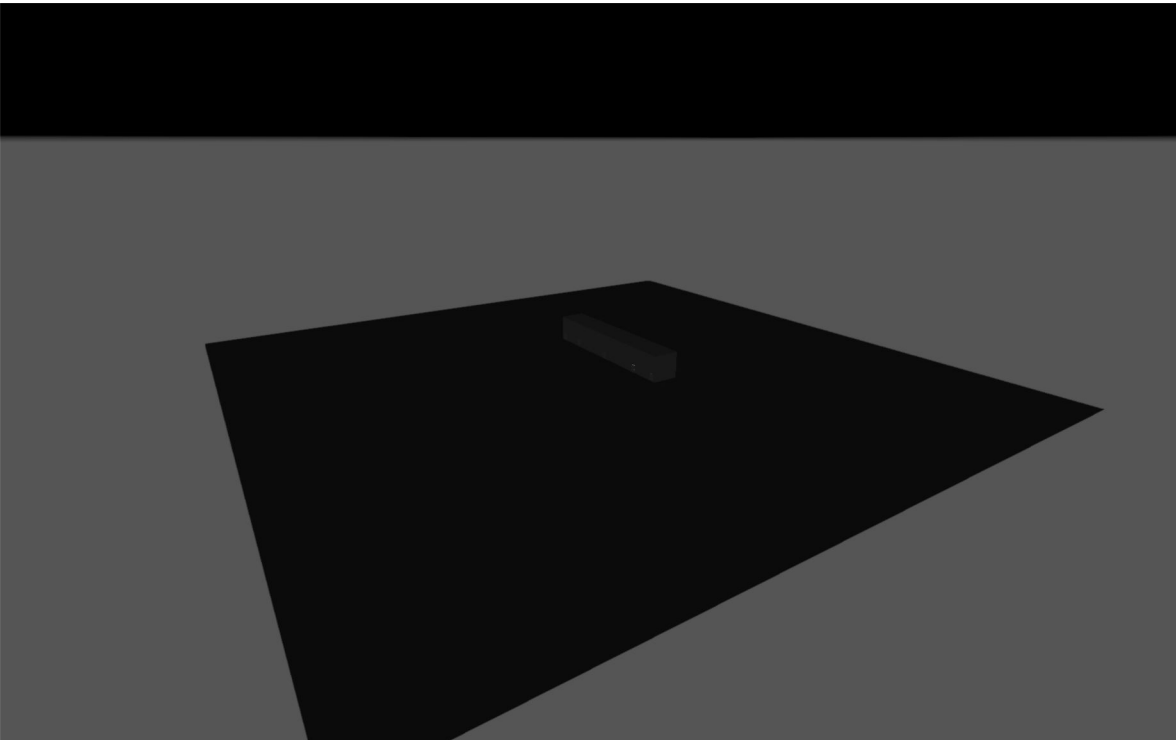




Warehouse Proxsid

Petro Electric company

Preface

Notes on planning:

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

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Warehouse Proxsid

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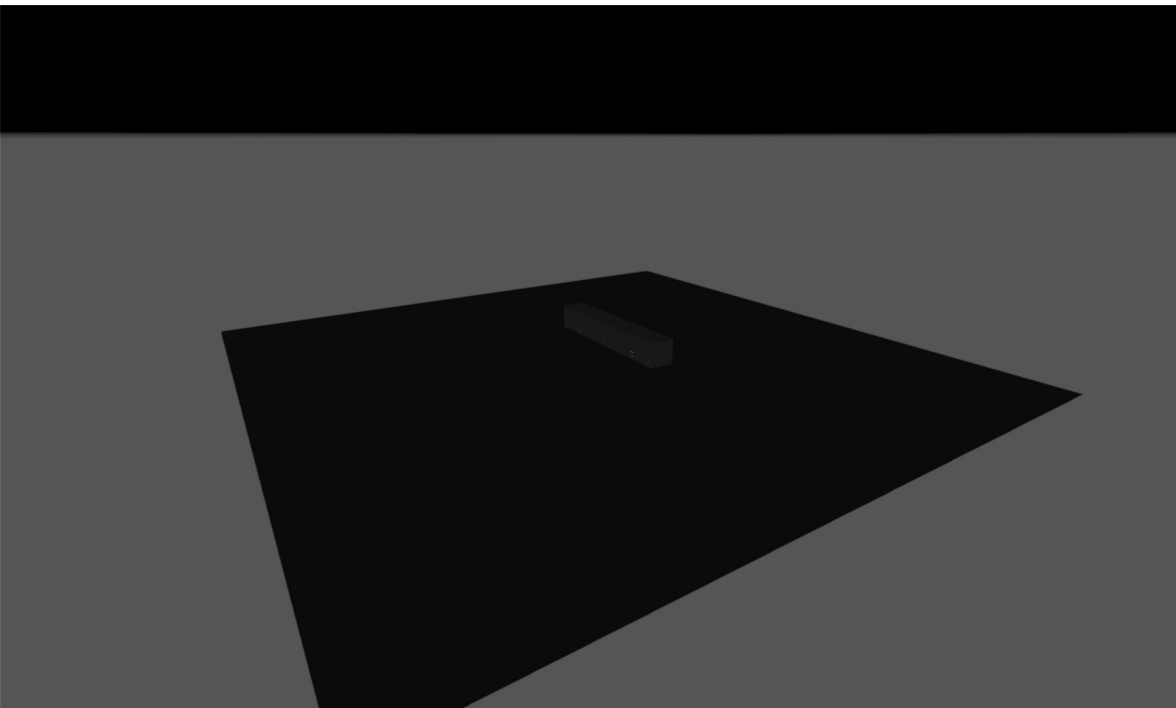
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Contacts



Javad Lotfi

Mehram Sanat



Description

Javad Lotfi

Mehrsam Sanat

Luminaire list

 Φ_{total}

1387200 lm

 P_{total}

8160.0 W

Luminous efficacy

170.0 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
136	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Dimming values

Control group	CG 1
---------------	------

Light scene 1	100
---------------	-----

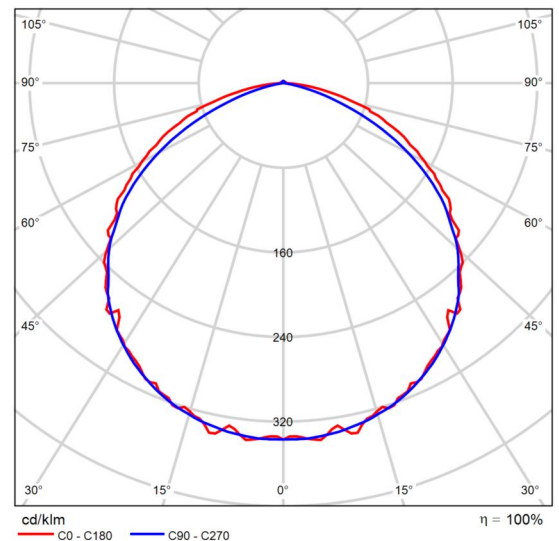
Dimming values [%]

Product data sheet

Golnoor - ASTERIA NL_60W_40000K



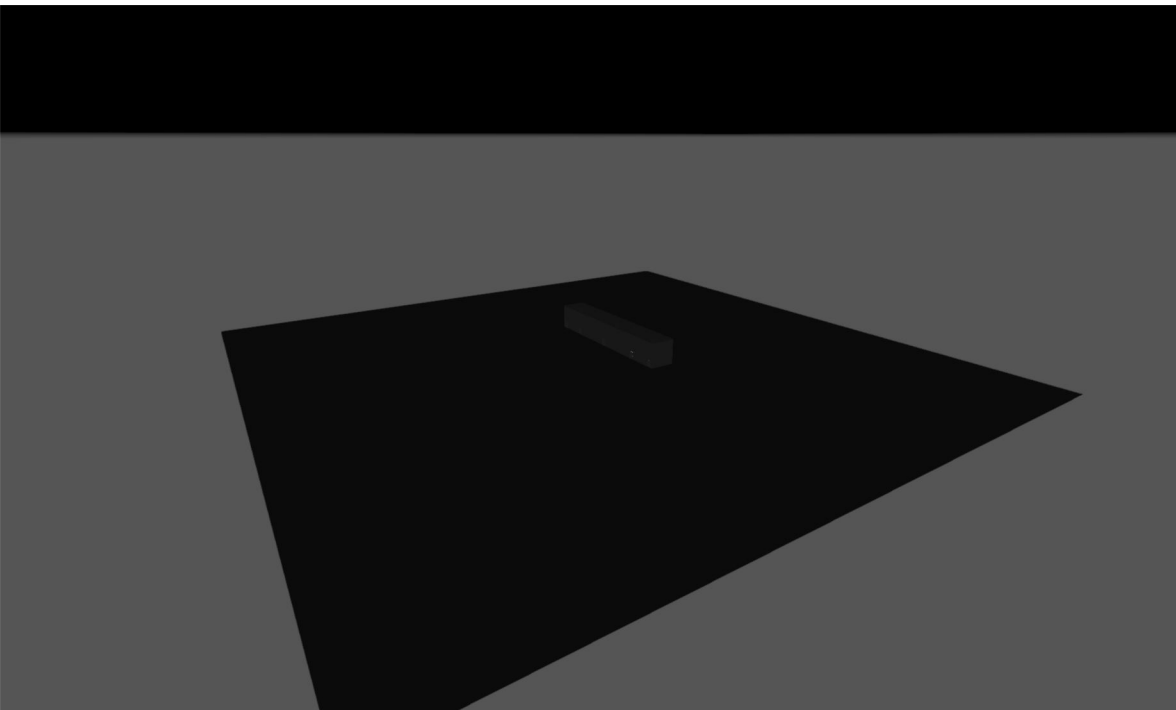
Article No.	412110
P	60.0 W
Φ_{Lamp}	10200 lm
$\Phi_{\text{Luminaire}}$	10200 lm
η	100.00 %
Luminous efficacy	170.0 lm/W
CCT	3000 K
CRI	100



Polar LDC

Glare evaluation according to RUG												
p Ceiling	70	70	50	50	30	70	70	50	50	30		
p Walls	50	30	50	30	30	50	30	50	30	30		
p Floor	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	23.9	25.3	24.2	25.5	25.8	22.4	23.8	22.8	24.0	24.3	
	3H	25.4	26.7	25.8	27.0	27.2	23.3	24.5	23.8	24.8	25.1	
	4H	26.0	27.2	26.4	27.5	27.8	23.4	24.6	23.8	24.9	25.2	
	6H	26.4	27.5	26.8	27.8	28.1	23.4	24.5	23.8	24.8	25.2	
	8H	26.5	27.5	26.9	27.9	28.2	23.4	24.4	23.8	24.8	25.1	
	12H	26.5	27.5	26.9	27.9	28.2	23.3	24.3	23.7	24.7	25.0	
4H	2H	24.3	25.5	24.7	25.8	26.1	23.2	24.3	23.5	24.6	24.9	
	3H	26.0	27.0	26.4	27.3	27.7	24.2	25.2	24.6	25.5	25.9	
	4H	26.7	27.6	27.1	28.0	28.3	24.5	25.4	24.9	25.7	26.1	
	6H	27.2	27.9	27.6	28.3	28.8	24.6	25.3	25.0	25.7	26.2	
	8H	27.3	28.0	27.7	28.4	28.9	24.5	25.3	25.0	25.7	26.1	
	12H	27.4	28.0	27.8	28.4	28.9	24.5	25.2	25.0	25.6	26.1	
8H	4H	26.8	27.5	27.3	27.9	28.4	24.8	25.5	25.2	25.9	26.4	
	6H	27.3	27.9	27.8	28.4	28.9	25.0	25.6	25.5	26.0	26.5	
	8H	27.5	28.0	28.0	28.5	29.0	25.0	25.5	25.5	26.0	26.5	
	12H	27.6	28.1	28.1	28.6	29.1	25.0	25.4	25.5	25.9	26.5	
12H	4H	26.8	27.4	27.2	27.9	28.3	24.8	25.5	25.3	25.9	26.3	
	6H	27.3	27.9	27.8	28.3	28.8	25.0	25.5	25.5	26.0	26.5	
	8H	27.5	28.0	28.0	28.5	29.0	25.1	25.5	25.6	26.0	26.5	
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					+0.4 / -0.9					
S = 2.0H		+0.8 / -0.8					+0.8 / -1.8					
Standard table		BK05					BK03					
Correction summand		10.4					7.1					
Corrected glare indices referring to 10200lm Total luminous flux												

RUG diagram (SHR: 0.25)



Warehouse Proxsid

Description



Warehouse (1-8)

Description

Warehouse (1-8)

Luminaire list Φ_{total}

897600 lm

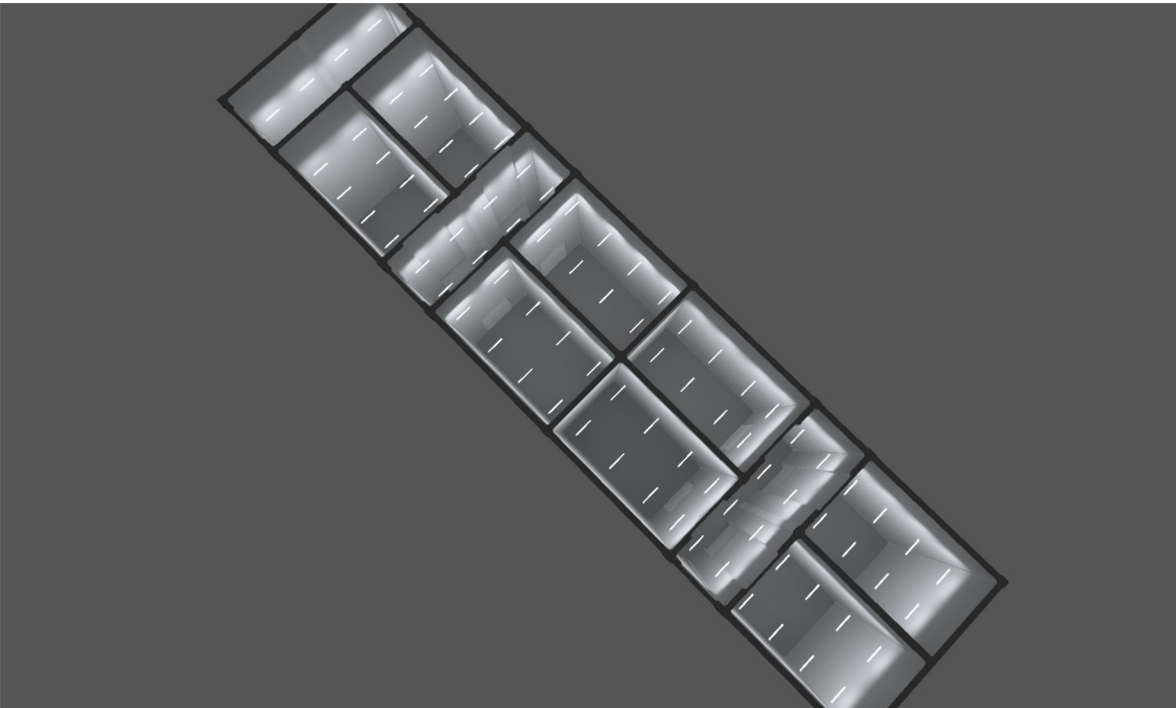
 P_{total}

5280.0 W

Luminous efficacy

170.0 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
88	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

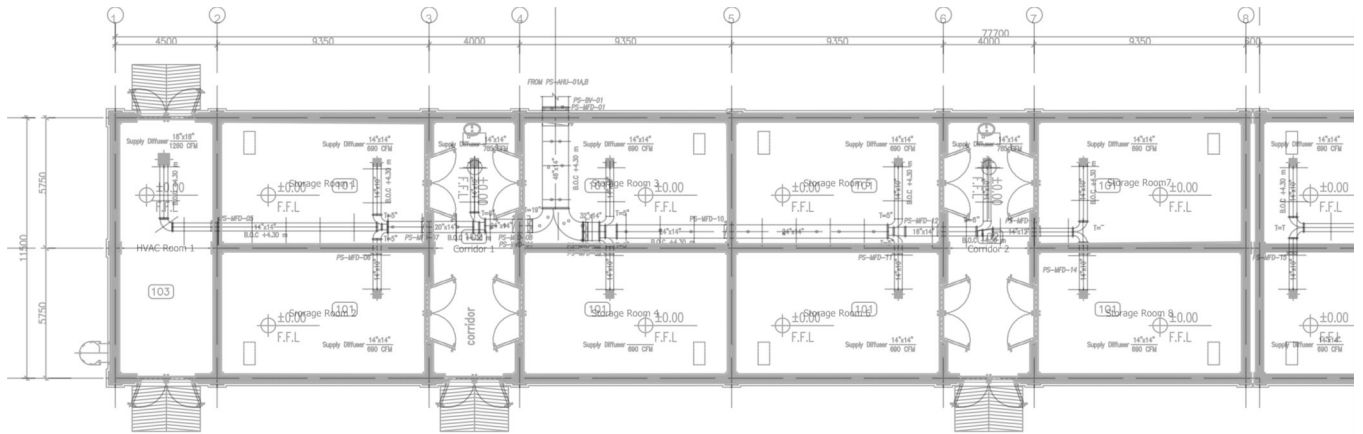


Warehouse (1-8) · Ground Floor

Description

Warehouse (1-8) · Ground Floor (Light scene 1)

Room list



Warehouse (1-8) · Ground Floor (Light scene 1)

Room list

Corridor 1

P_{total} 480.0 W	A_{Room} 42.66 m ²	Lighting power density 11.25 W/m ² = 4.25 W/m ² /100 lx (Space)	E_{perpendicular} (Working plane) 264 lx
-------------------------------------	---	---	--

pcs.	Manufacturer	Article No.	Article name	P	Φ _{Luminaire}
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Corridor 2

P_{total} 480.0 W	A_{Room} 42.75 m ²	Lighting power density 11.23 W/m ² = 4.22 W/m ² /100 lx (Space)	E_{perpendicular} (Working plane) 266 lx
-------------------------------------	---	---	--

pcs.	Manufacturer	Article No.	Article name	P	Φ _{Luminaire}
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

HVAC Room 1

P_{total} 480.0 W	A_{Room} 46.70 m ²	Lighting power density 10.28 W/m ² = 3.89 W/m ² /100 lx (Space)	E_{perpendicular} (Working plane) 264 lx
-------------------------------------	---	---	--

pcs.	Manufacturer	Article No.	Article name	P	Φ _{Luminaire}
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Warehouse (1-8) · Ground Floor (Light scene 1)

Room list

Storage Room 2

P_{total} 480.0 W	A_{Room} 48.69 m ²	Lighting power density 9.86 W/m ² = 3.46 W/m ² /100 lx (Space)	E_{perpendicular} (Working plane) 285 lx
-------------------------------------	---	--	--

pcs.	Manufacturer	Article No.	Article name	P	Φ _{Luminaire}
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Storage Room 1

P_{total} 480.0 W	A_{Room} 48.26 m ²	Lighting power density 9.95 W/m ² = 3.49 W/m ² /100 lx (Space)	E_{perpendicular} (Working plane) 285 lx
-------------------------------------	---	--	--

pcs.	Manufacturer	Article No.	Article name	P	Φ _{Luminaire}
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Storage Room 3

P_{total} 480.0 W	A_{Room} 48.47 m ²	Lighting power density 9.90 W/m ² = 3.56 W/m ² /100 lx (Space)	E_{perpendicular} (Working plane) 278 lx
-------------------------------------	---	--	--

pcs.	Manufacturer	Article No.	Article name	P	Φ _{Luminaire}
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Warehouse (1-8) · Ground Floor (Light scene 1)

Room list

Storage Room 4

P_{total} 480.0 W	A_{Room} 48.62 m ²	Lighting power density 9.87 W/m ² = 3.59 W/m ² /100 lx (Space)	E_{perpendicular} (Working plane) 275 lx
-------------------------------------	---	--	--

pcs.	Manufacturer	Article No.	Article name	P	Φ _{Luminaire}
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Storage Room 5

P_{total} 480.0 W	A_{Room} 48.63 m ²	Lighting power density 9.87 W/m ² = 3.48 W/m ² /100 lx (Space)	E_{perpendicular} (Working plane) 284 lx
-------------------------------------	---	--	--

pcs.	Manufacturer	Article No.	Article name	P	Φ _{Luminaire}
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Storage Room 6

P_{total} 480.0 W	A_{Room} 48.63 m ²	Lighting power density 9.87 W/m ² = 4.40 W/m ² /100 lx (Space)	E_{perpendicular} (Working plane) 224 lx
-------------------------------------	---	--	--

pcs.	Manufacturer	Article No.	Article name	P	Φ _{Luminaire}
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Warehouse (1-8) · Ground Floor (Light scene 1)

Room list

Storage Room 8

P_{total}
480.0 W

A_{Room}
48.56 m²

Lighting power density
9.89 W/m² = 3.49 W/m²/100 lx (Space)

$\bar{E}_{\text{perpendicular (Working plane)}}$
283 lx

pcs.	Manufacturer	Article No.	Article name	P	$\Phi_{\text{Luminaire}}$
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Storage Room7

P_{total}
480.0 W

A_{Room}
48.20 m²

Lighting power density
9.96 W/m² = 3.53 W/m²/100 lx (Space)

$\bar{E}_{\text{perpendicular (Working plane)}}$
282 lx

pcs.	Manufacturer	Article No.	Article name	P	$\Phi_{\text{Luminaire}}$
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Warehouse (1-8) · Ground Floor

Luminaire list Φ_{total}

897600 lm

 P_{total}

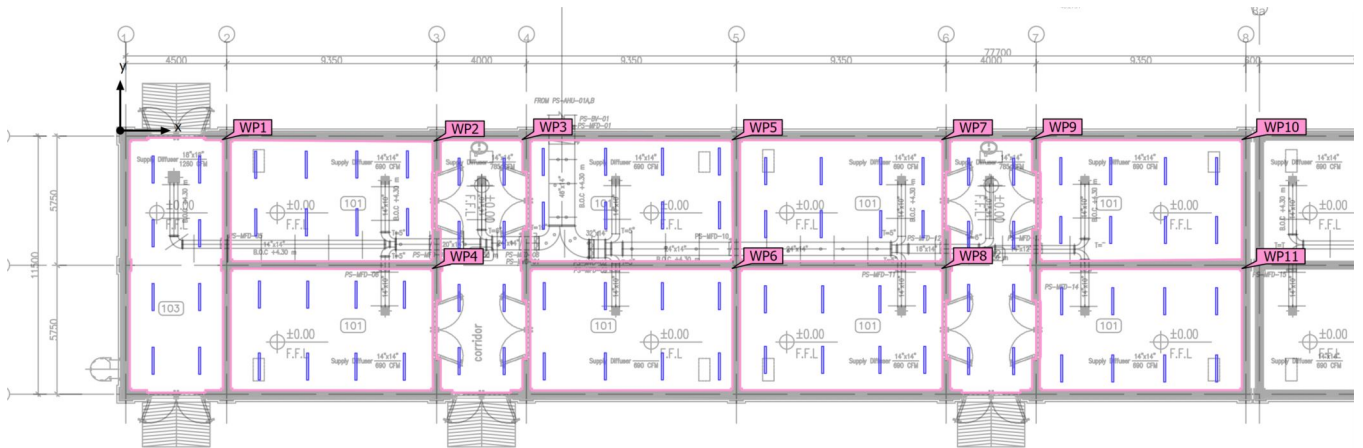
5280.0 W

Luminous efficacy

170.0 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
88	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor (Light scene 1)

Calculation objects

Warehouse (1-8) · Ground Floor (Light scene 1)

Calculation objects

Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Corridor 1) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	264 lx (≥ 200 lx) ✓	134 lx	296 lx	0.51 (≥ 0.40) ✓	0.45	WP3
Working plane (Corridor 2) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	266 lx (≥ 200 lx) ✓	133 lx	294 lx	0.50 (≥ 0.40) ✓	0.45	WP9
Working plane (HVAC Room 1) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	264 lx (≥ 200 lx) ✓	218 lx	290 lx	0.83 (≥ 0.50) ✓	0.75	WP1
Working plane (Storage Room 2) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	285 lx (≥ 200 lx) ✓	181 lx	320 lx	0.64 (≥ 0.50) ✓	0.57	WP4
Working plane (Storage Room 1) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	285 lx (≥ 200 lx) ✓	237 lx	326 lx	0.83 (≥ 0.50) ✓	0.73	WP2
Working plane (Storage Room 3) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	278 lx (≥ 200 lx) ✓	151 lx	317 lx	0.54 (≥ 0.50) ✓	0.48	WP5
Working plane (Storage Room 4) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	275 lx (≥ 200 lx) ✓	230 lx	304 lx	0.84 (≥ 0.50) ✓	0.76	WP6
Working plane (Storage Room 5) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	284 lx (≥ 200 lx) ✓	238 lx	321 lx	0.84 (≥ 0.50) ✓	0.74	WP7
Working plane (Storage Room 6) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	224 lx (≥ 200 lx) ✓	188 lx	247 lx	0.84 (≥ 0.50) ✓	0.76	WP8
Working plane (Storage Room 8) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	283 lx (≥ 200 lx) ✓	237 lx	316 lx	0.84 (≥ 0.50) ✓	0.75	WP11

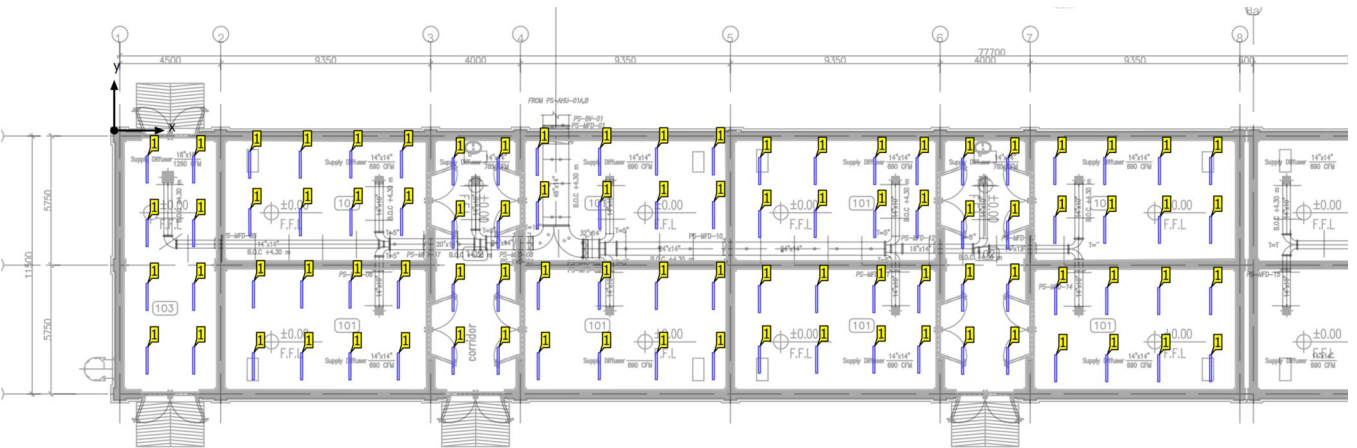
Warehouse (1-8) · Ground Floor (Light scene 1)

Calculation objects

Working plane (Storage Room7)	282 lx	235 lx	325 lx	0.83	0.72	WP10
Perpendicular illuminance (adaptive)	(≥ 200 lx)			(≥ 0.50)		
Height: 0.000 m, Wall zone: 0.000 m	✓			✓		

Warehouse (1-8) · Ground Floor

Control group CG 1



Warehouse (1-8) · Ground Floor

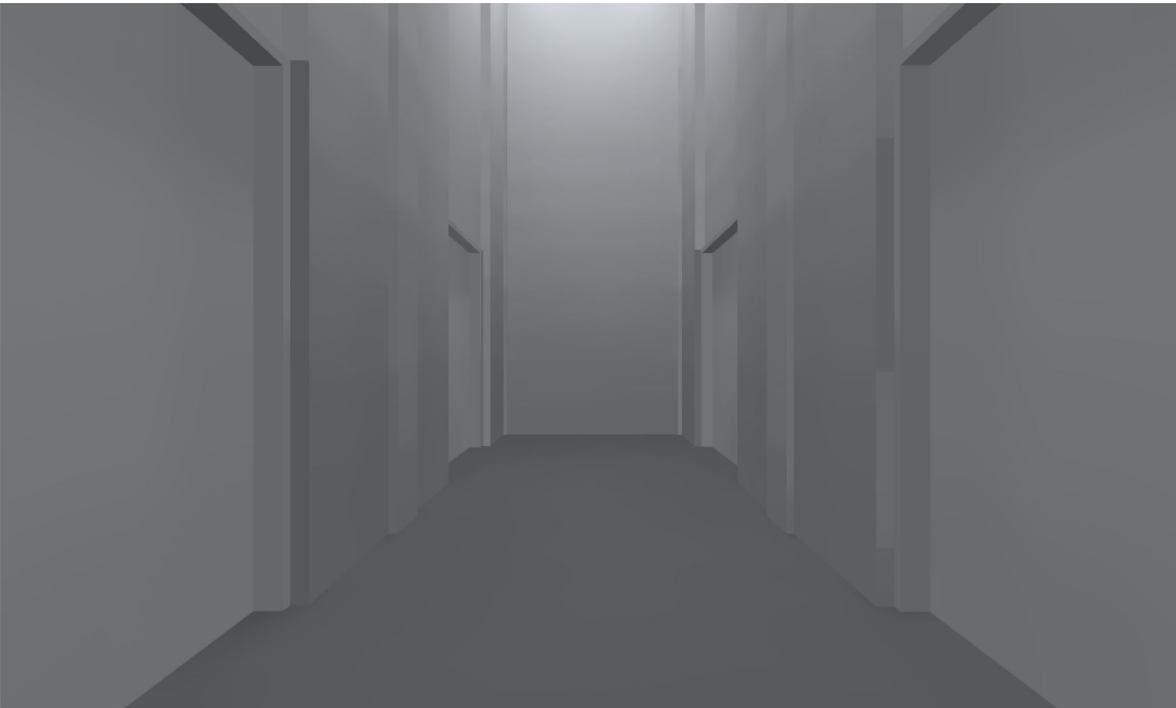
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
88	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1

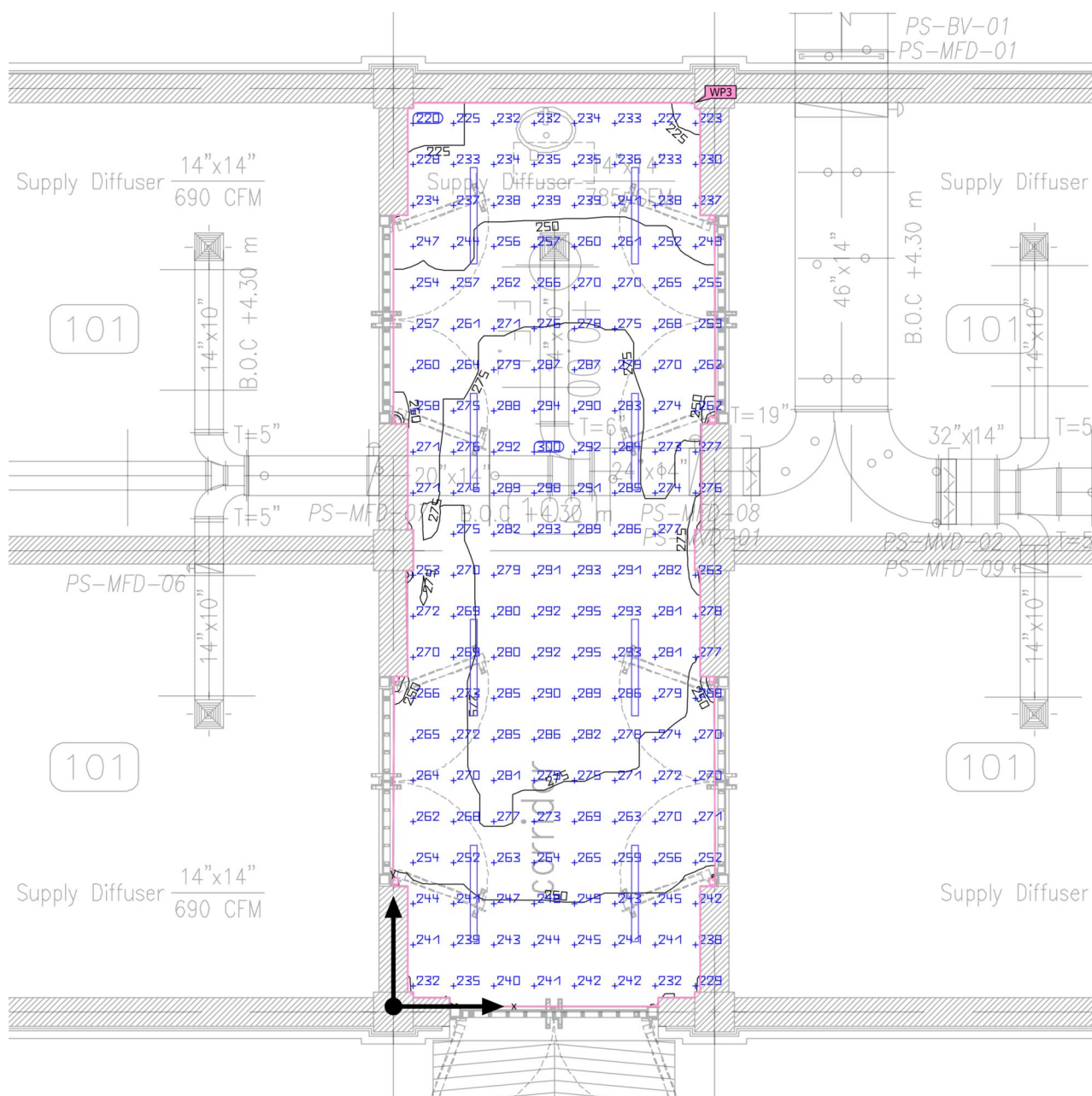


Warehouse (1-8) · Ground Floor · Corridor 1

Description

Warehouse (1-8) · Ground Floor · Corridor 1 (Light scene 1)

Summary



Ground area	42.66 m ²	Clearance height	12.000 m
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %	Mounting height	10.000 m
Maintenance factor	0.80 (fixed)	Height _{Working plane}	0.000 m
		Wall zone _{Working plane}	0.000 m

Warehouse (1-8) · Ground Floor · Corridor 1 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	264 lx	≥ 200 lx	✓	WP3
	$U_o (g_1)$	0.51	≥ 0.40	✓	WP3
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 28	✓	
Energy estimation ⁽²⁾	Consumption	528 kWh/a	max. 1500 kWh/a	✓	
Space	Lighting power density	11.25 W/m ²	–		
		4.25 W/m ² /100 lx	–		

(1) Based on a rectangular space of 4.013 m x 11.252 m and SHR of 0.25.

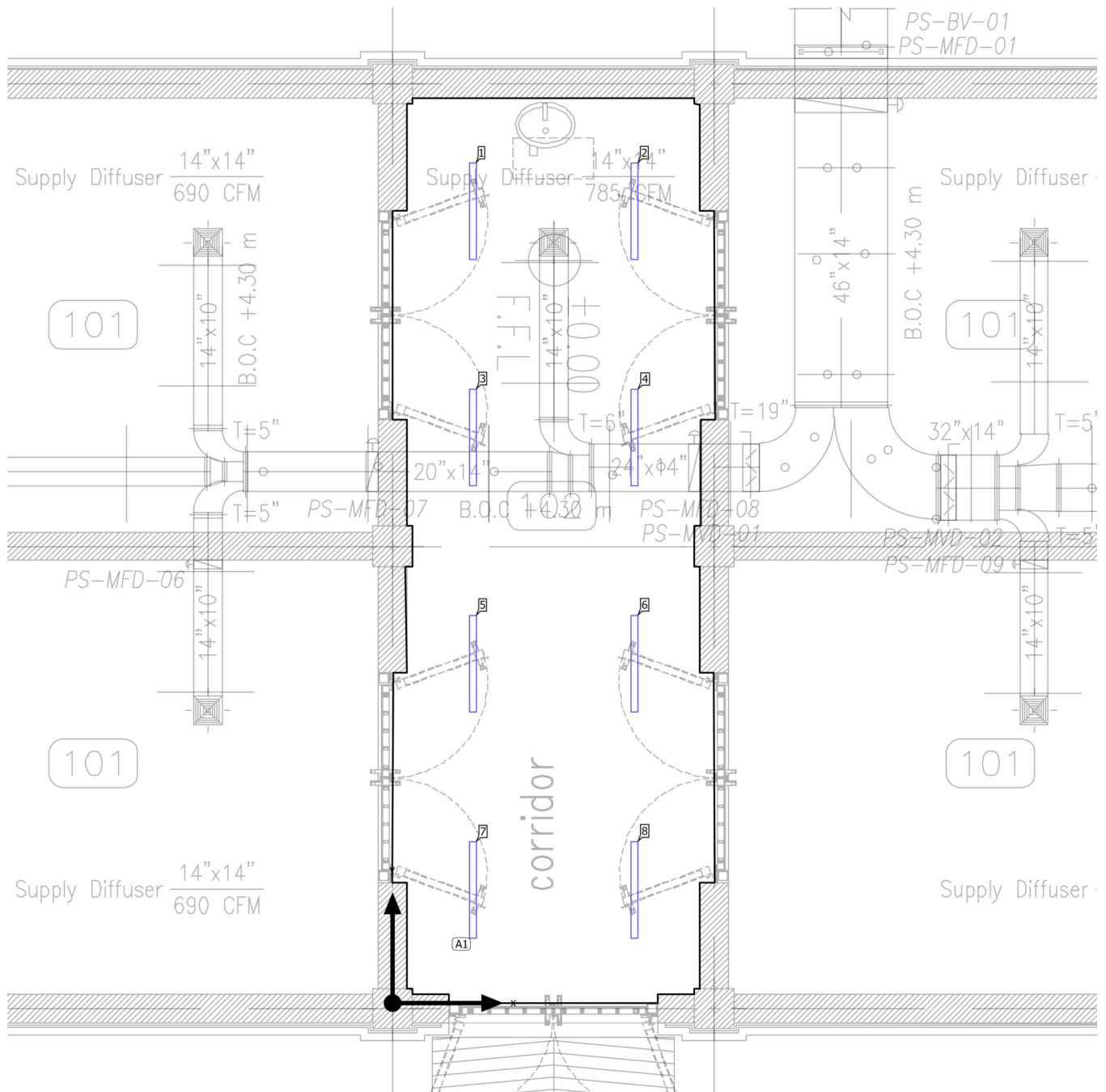
(2) Calculated using DIN:18599-4.

Utilisation profile: Traffic zones inside buildings (9.1 Circulation areas and corridors)

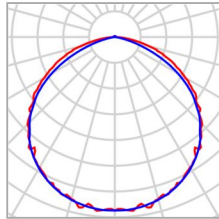
Luminaire list

pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Corridor 1

Luminaire layout plan

Warehouse (1-8) · Ground Floor · Corridor 1

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	0.999 m / 1.406 m / 10.000 m	0.999 m	9.845 m	10.000 m	1
X-direction	2 pcs., Centre - centre, 2.008 m	3.007 m	9.845 m	10.000 m	2
Y-direction	4 pcs., Centre - centre, 2.813 m	0.999 m	7.032 m	10.000 m	3
		3.007 m	7.032 m	10.000 m	4
Arrangement	A1	0.999 m	4.219 m	10.000 m	5
		3.007 m	4.219 m	10.000 m	6
		0.999 m	1.406 m	10.000 m	7
		3.007 m	1.406 m	10.000 m	8

Warehouse (1-8) · Ground Floor · Corridor 1

Luminaire list Φ_{total}

81600 lm

 P_{total}

480.0 W

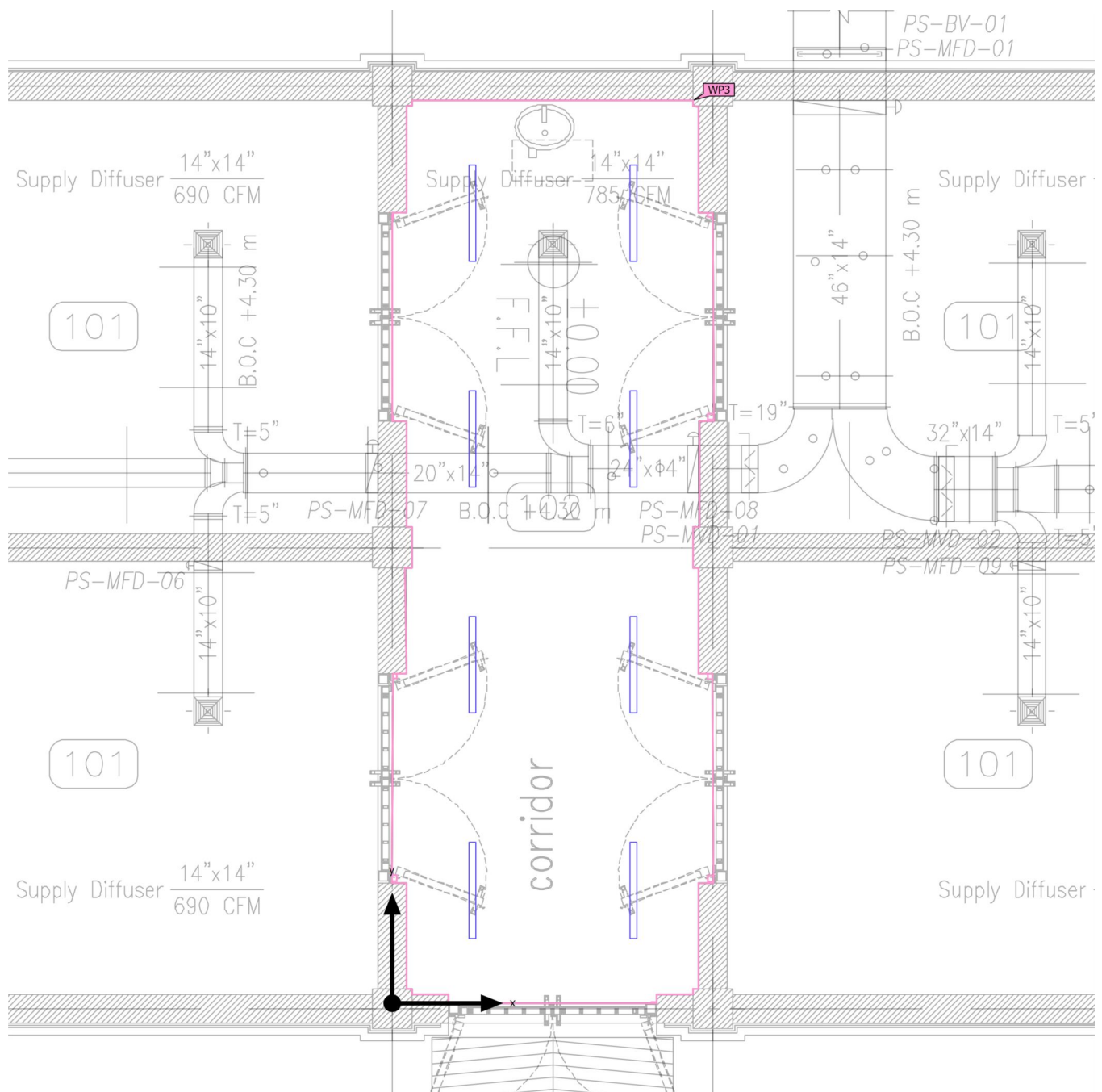
Luminous efficacy

170.0 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Corridor 1 (Light scene 1)

Calculation objects



Warehouse (1-8) · Ground Floor · Corridor 1 (Light scene 1)

Calculation objects

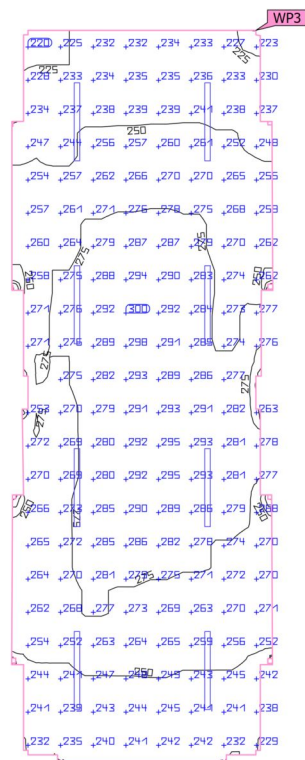
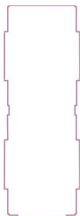
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Corridor 1) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	264 lx (≥ 200 lx) ✓	134 lx	296 lx	0.51 (≥ 0.40) ✓	0.45	WP3

Utilisation profile: Traffic zones inside buildings (9.1 Circulation areas and corridors)

Warehouse (1-8) · Ground Floor · Corridor 1 (Light scene 1)

Working plane (Corridor 1)

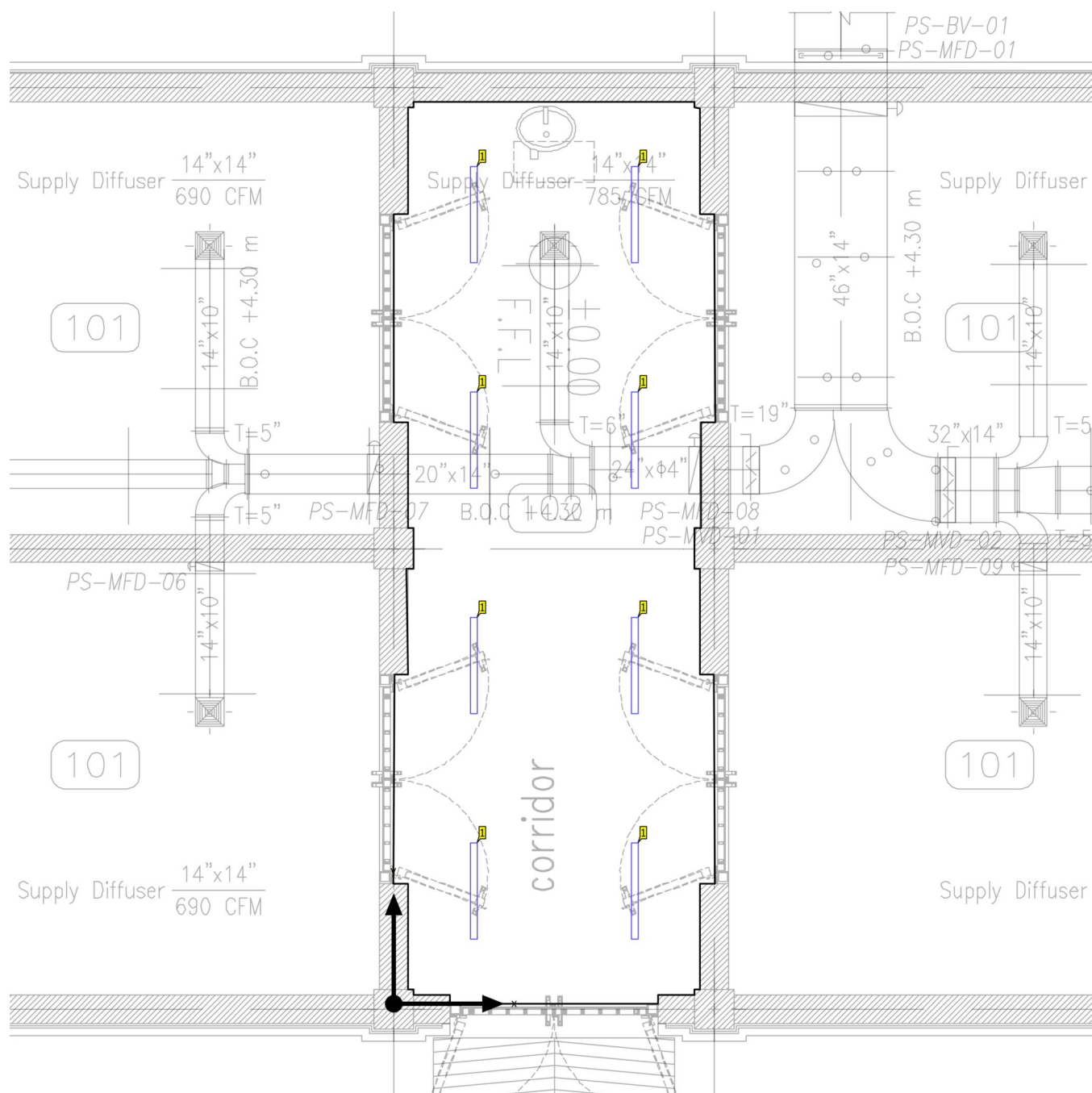


Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Corridor 1) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	264 lx (≥ 200 lx) ✓	134 lx	296 lx	0.51 (≥ 0.40) ✓	0.45	WP3

Utilisation profile: Traffic zones inside buildings (9.1 Circulation areas and corridors)

Warehouse (1-8) · Ground Floor · Corridor 1

Control group CG 1



Warehouse (1-8) · Ground Floor · Corridor 1

Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

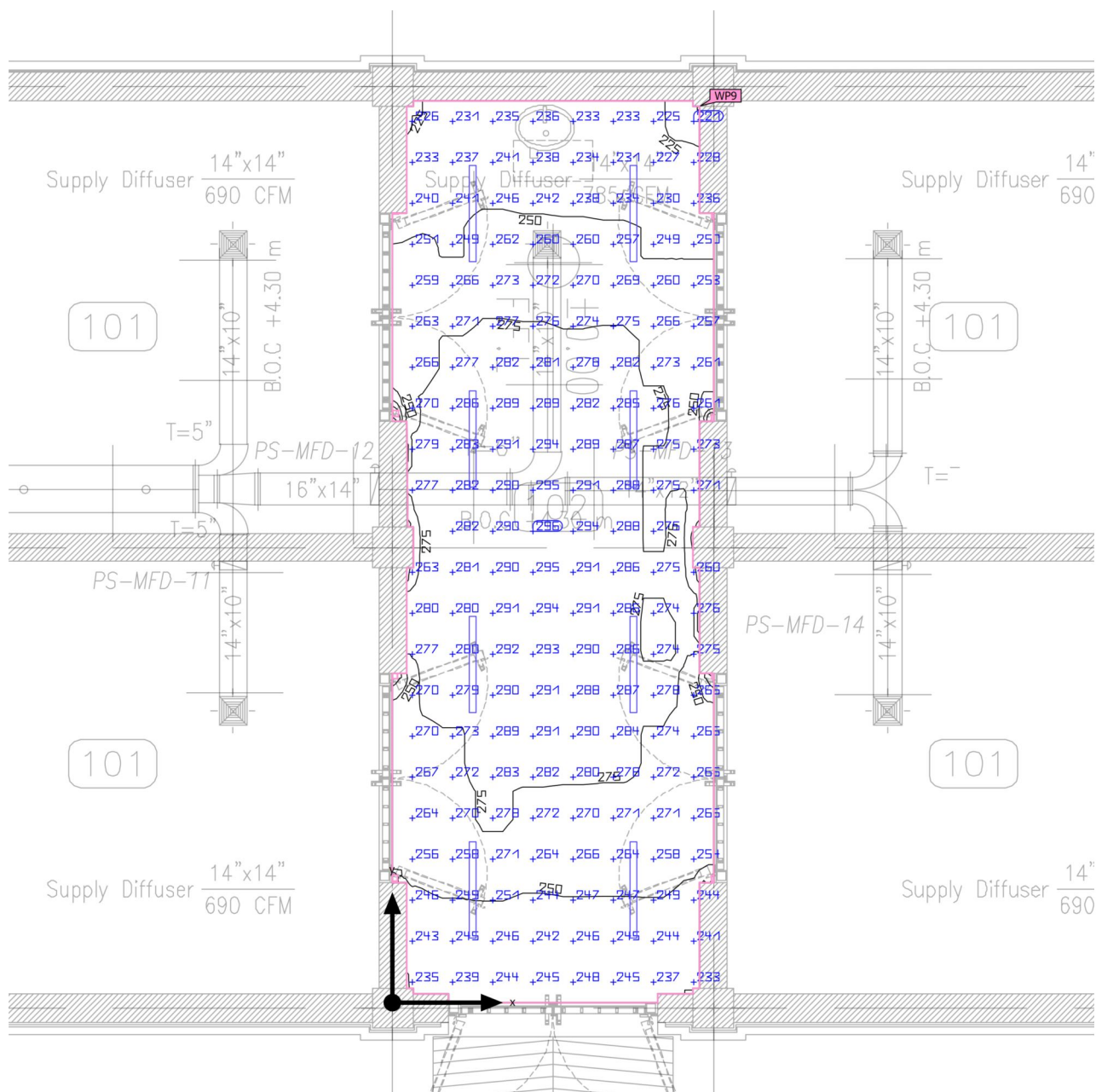
pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1



Warehouse (1-8) · Ground Floor · Corridor 2

Description

Warehouse (1-8) · Ground Floor · Corridor 2 (Light scene 1)

Summary

Ground area	42.75 m ²	Clearance height	12.000 m
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %	Mounting height	10.000 m
Maintenance factor	0.80 (fixed)	Height _{Working plane}	0.000 m
		Wall zone _{Working plane}	0.000 m

Warehouse (1-8) · Ground Floor · Corridor 2 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	266 lx	≥ 200 lx	✓	WP9
	$U_o (g_1)$	0.50	≥ 0.40	✓	WP9
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 28	✓	
Energy estimation ⁽²⁾	Consumption	528 kWh/a	max. 1500 kWh/a	✓	
Space	Lighting power density	11.23 W/m ²	–		
		4.22 W/m ² /100 lx	–		

(1) Based on a rectangular space of 4.013 m x 11.251 m and SHR of 0.25.

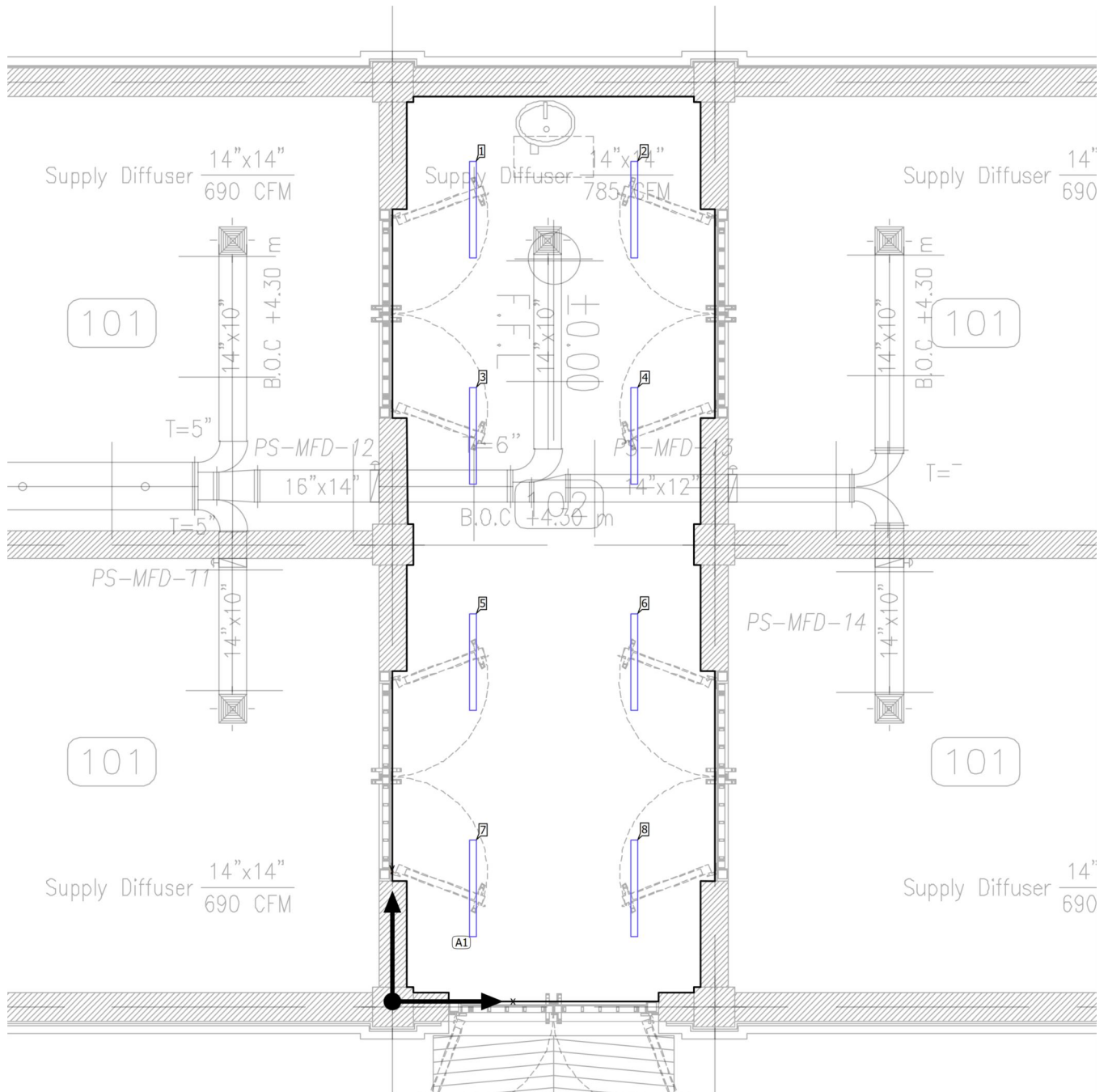
(2) Calculated using DIN:18599-4.

Utilisation profile: Traffic zones inside buildings (9.1 Circulation areas and corridors)

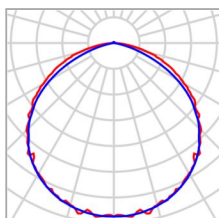
Luminaire list

pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Corridor 2

Luminaire layout plan

Warehouse (1-8) · Ground Floor · Corridor 2

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.002 m / 1.406 m / 10.000 m	1.002 m	9.845 m	10.000 m	1
X-direction	2 pcs., Centre - centre, 2.006 m	3.008 m	9.845 m	10.000 m	2
Y-direction	4 pcs., Centre - centre, 2.813 m	1.002 m	7.032 m	10.000 m	3
		3.008 m	7.032 m	10.000 m	4
Arrangement	A1	1.002 m	4.219 m	10.000 m	5
		3.008 m	4.219 m	10.000 m	6
		1.002 m	1.406 m	10.000 m	7
		3.008 m	1.406 m	10.000 m	8

Warehouse (1-8) · Ground Floor · Corridor 2

Luminaire list Φ_{total}

81600 lm

 P_{total}

480.0 W

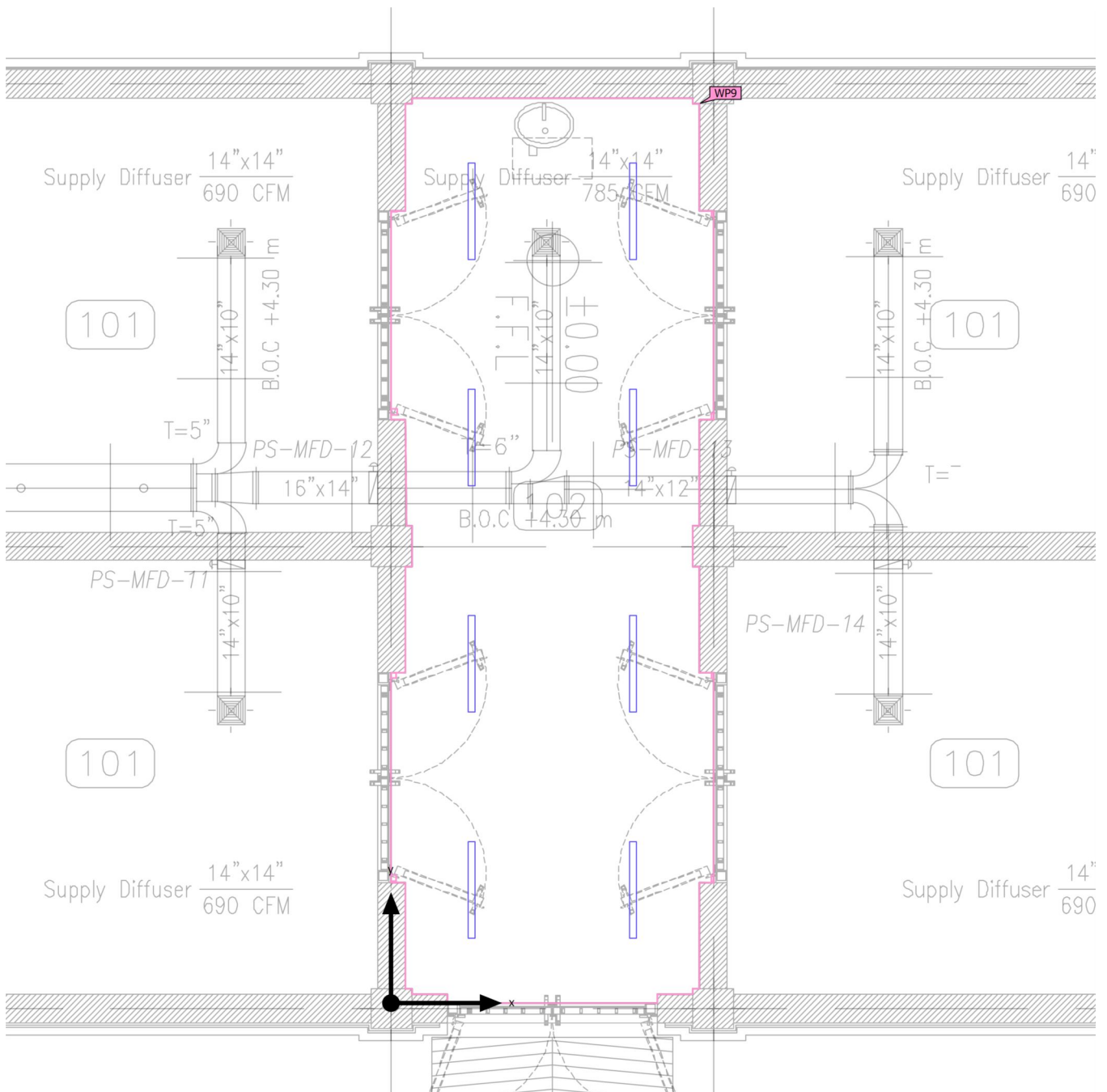
Luminous efficacy

170.0 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Corridor 2 (Light scene 1)

Calculation objects



Warehouse (1-8) · Ground Floor · Corridor 2 (Light scene 1)

Calculation objects

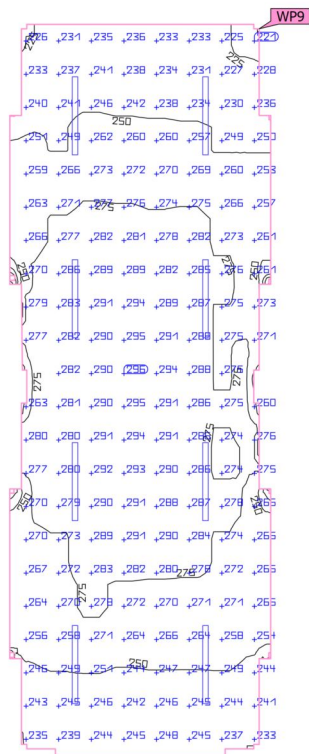
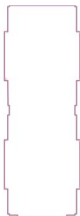
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Corridor 2) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	266 lx (≥ 200 lx) ✓	133 lx	294 lx	0.50 (≥ 0.40) ✓	0.45	WP9

Utilisation profile: Traffic zones inside buildings (9.1 Circulation areas and corridors)

Warehouse (1-8) · Ground Floor · Corridor 2 (Light scene 1)

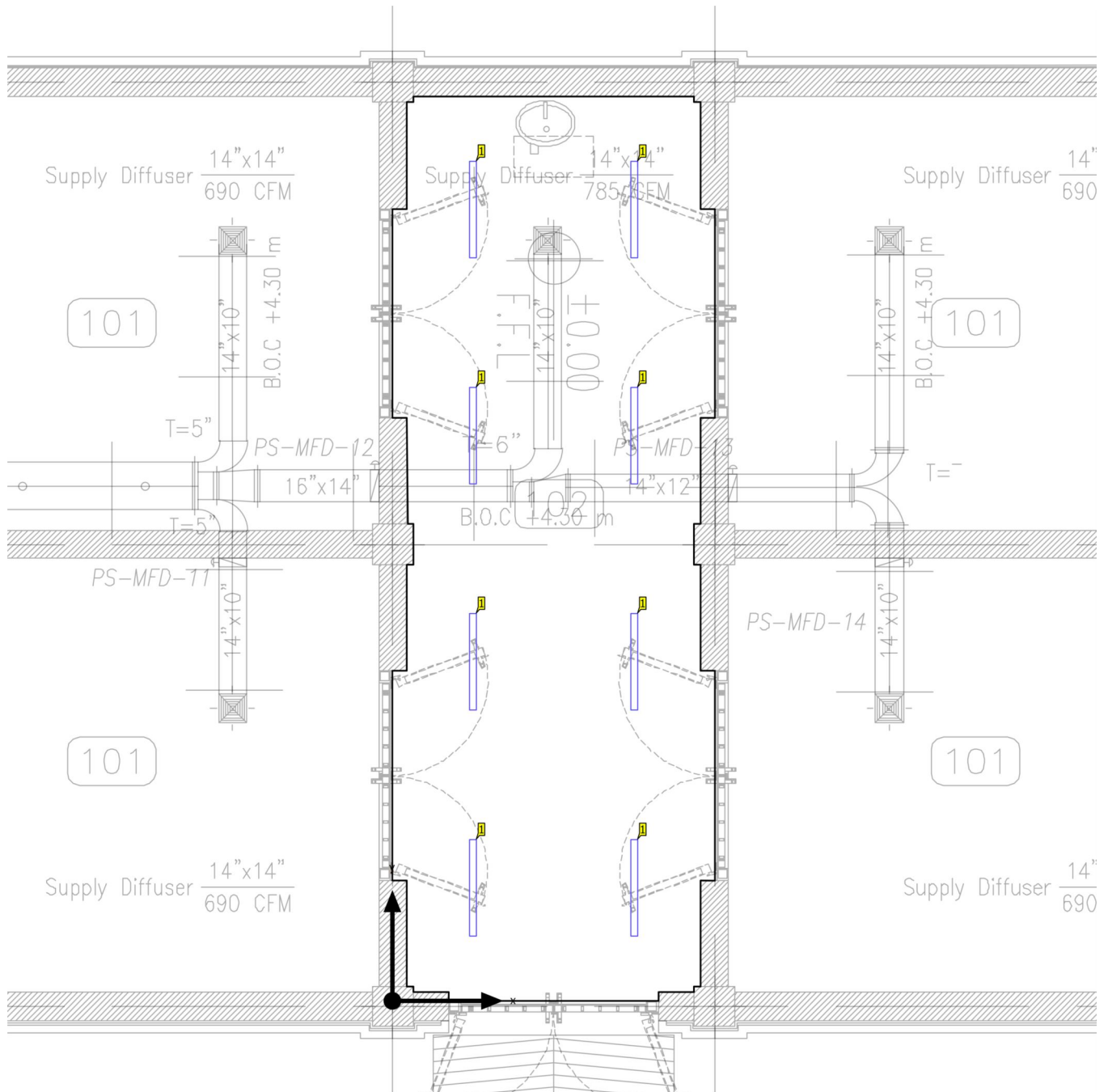
Working plane (Corridor 2)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Corridor 2) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	266 lx (≥ 200 lx) ✓	133 lx	294 lx	0.50 (≥ 0.40) ✓	0.45	WP9

Utilisation profile: Traffic zones inside buildings (9.1 Circulation areas and corridors)

Warehouse (1-8) · Ground Floor · Corridor 2

Control group CG 1

Warehouse (1-8) · Ground Floor · Corridor 2

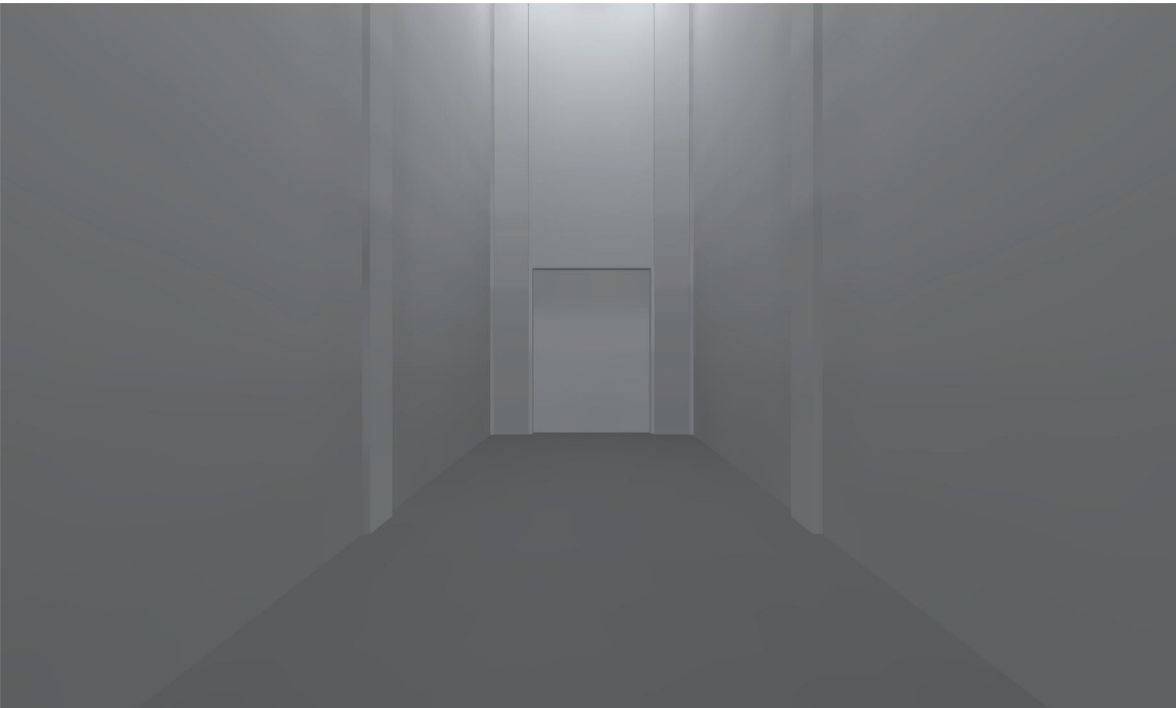
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1

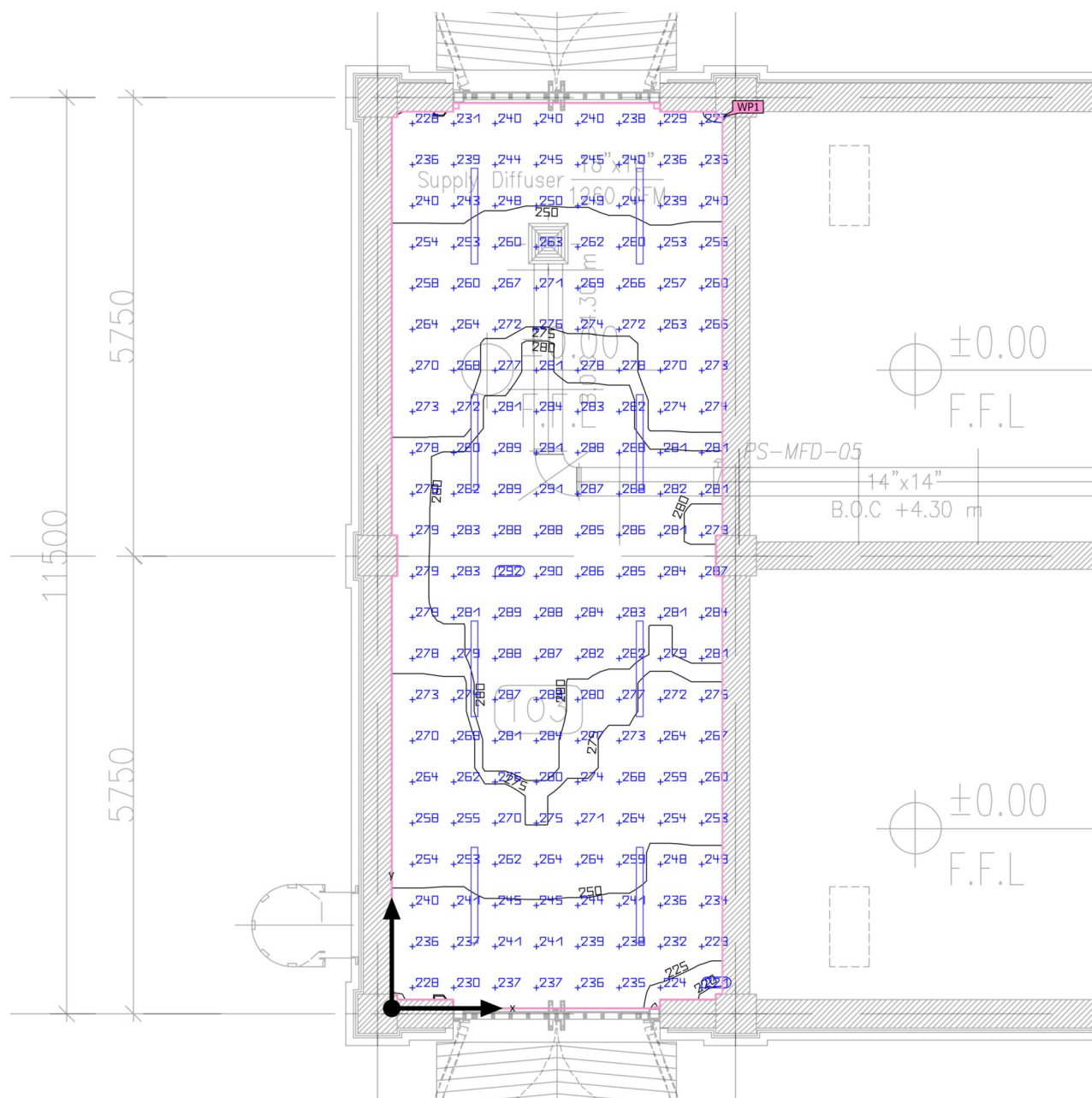


Warehouse (1-8) · Ground Floor · HVAC Room 1

Description

Warehouse (1-8) · Ground Floor · HVAC Room 1 (Light scene 1)

Summary



Ground area	46.70 m ²	Clearance height	12.000 m
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %	Mounting height	10.000 m
Maintenance factor	0.80 (fixed)	Height _{Working plane}	0.000 m
		Wall zone _{Working plane}	0.000 m

Warehouse (1-8) · Ground Floor · HVAC Room 1 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	264 lx	≥ 200 lx	✓	WP1
	$U_o (g_1)$	0.83	≥ 0.50	✓	WP1
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1650 kWh/a	✗	
Space	Lighting power density	10.28 W/m ²	–		
		3.89 W/m ² /100 lx	–		

(1) Based on a rectangular space of 11.361 m x 4.149 m and SHR of 0.25.

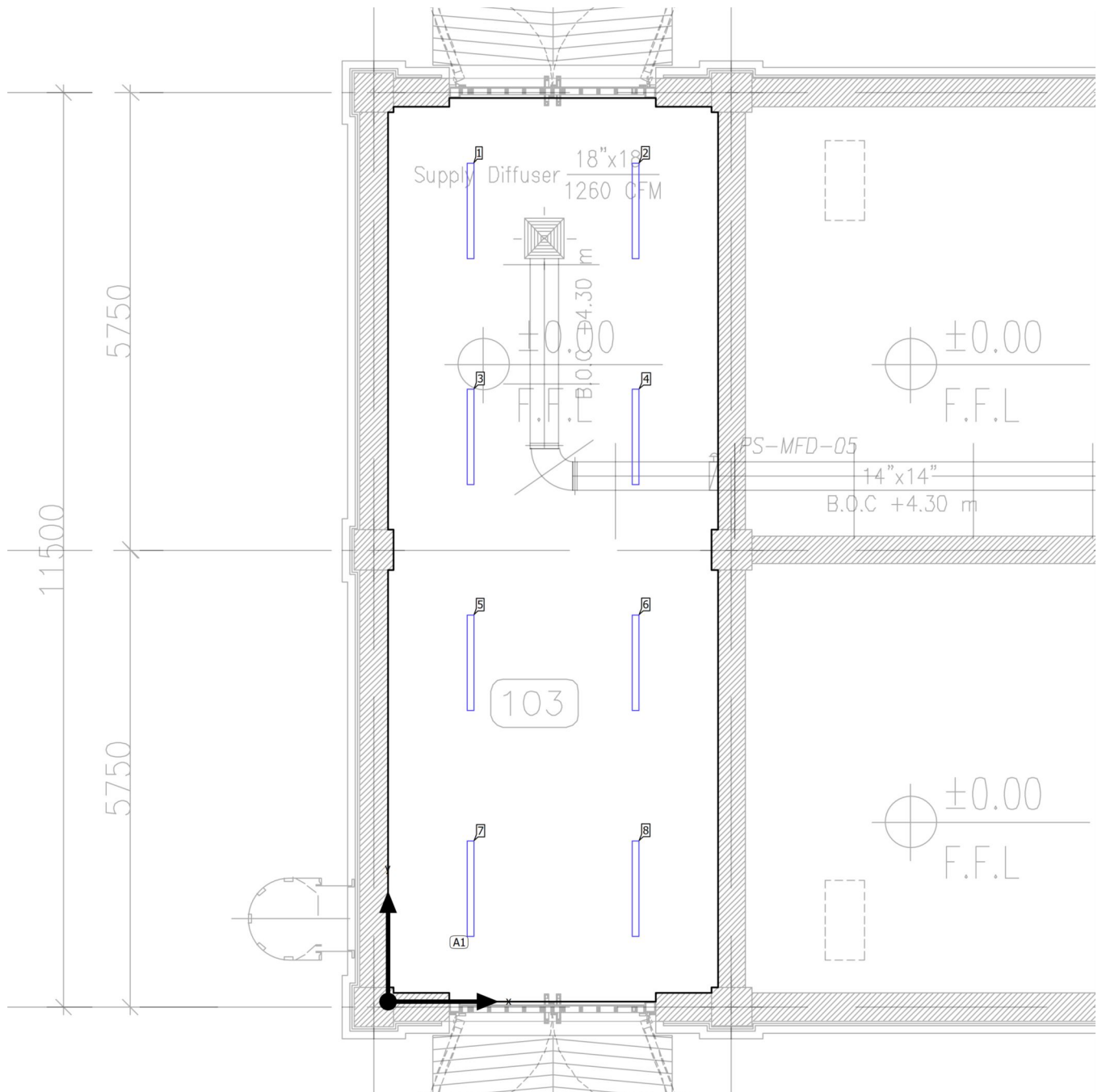
(2) Calculated using DIN:18599-4.

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

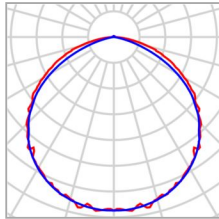
Luminaire list

pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · HVAC Room 1

Luminaire layout plan

Warehouse (1-8) · Ground Floor · HVAC Room 1

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.037 m / 1.420 m / 10.000 m	1.037 m	9.941 m	10.000 m	1
X-direction	2 pcs., Centre - centre, 2.074 m	3.112 m	9.941 m	10.000 m	2
Y-direction	4 pcs., Centre - centre, 2.840 m	1.037 m	7.101 m	10.000 m	3
		3.112 m	7.101 m	10.000 m	4
Arrangement	A1	1.037 m	4.260 m	10.000 m	5
		3.112 m	4.260 m	10.000 m	6
		1.037 m	1.420 m	10.000 m	7
		3.112 m	1.420 m	10.000 m	8

Warehouse (1-8) · Ground Floor · HVAC Room 1

Luminaire list Φ_{total}

81600 lm

 P_{total}

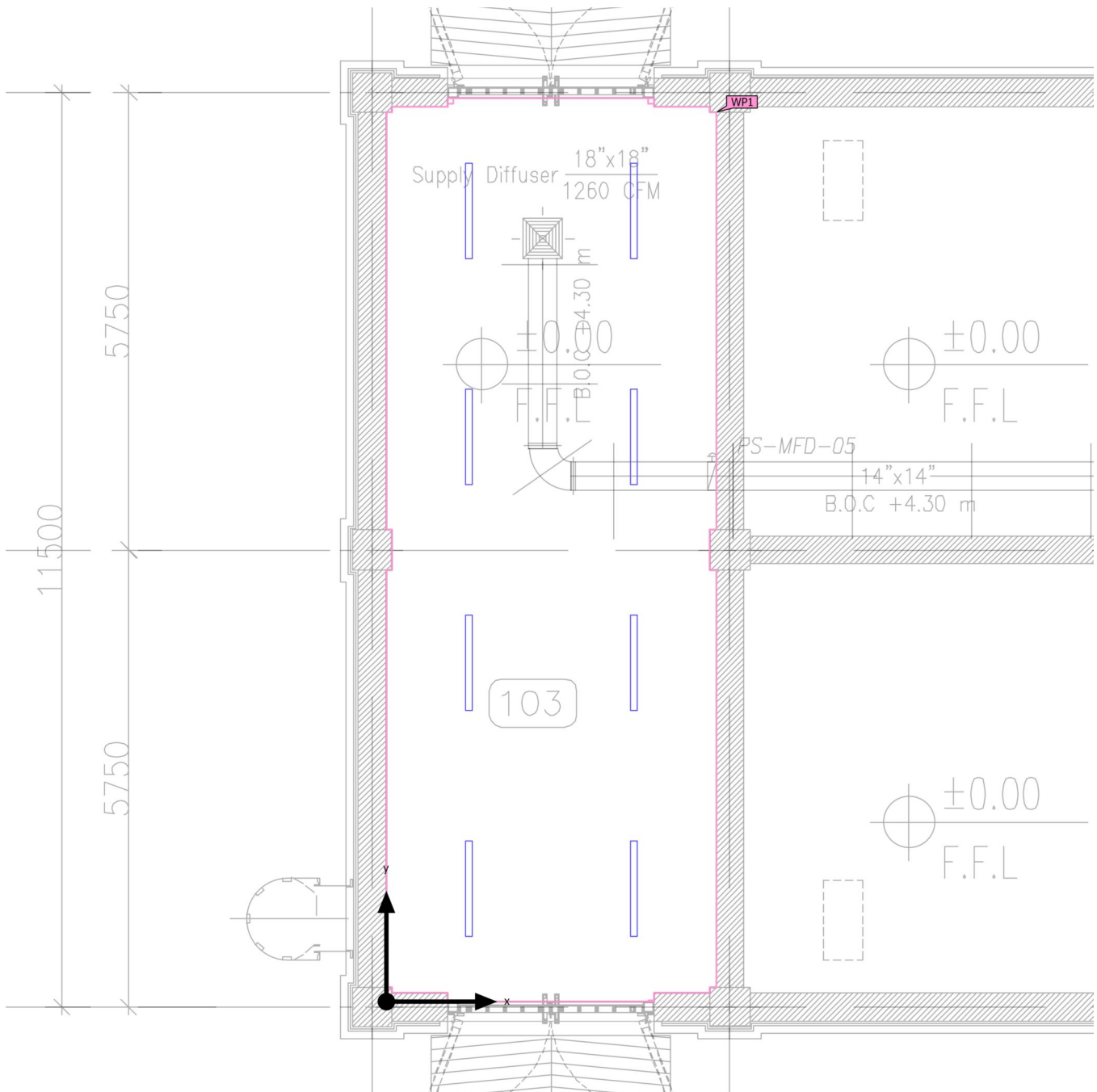
480.0 W

Luminous efficacy

170.0 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · HVAC Room 1 (Light scene 1)

Calculation objects

Warehouse (1-8) · Ground Floor · HVAC Room 1 (Light scene 1)

Calculation objects

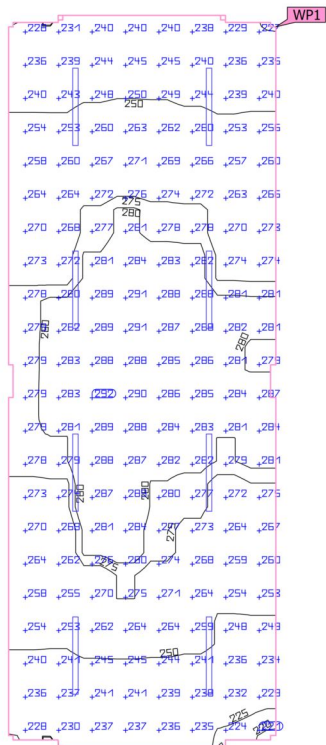
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (HVAC Room 1) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	264 lx (≥ 200 lx) ✓	218 lx	290 lx	0.83 (≥ 0.50) ✓	0.75	WP1

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · HVAC Room 1 (Light scene 1)

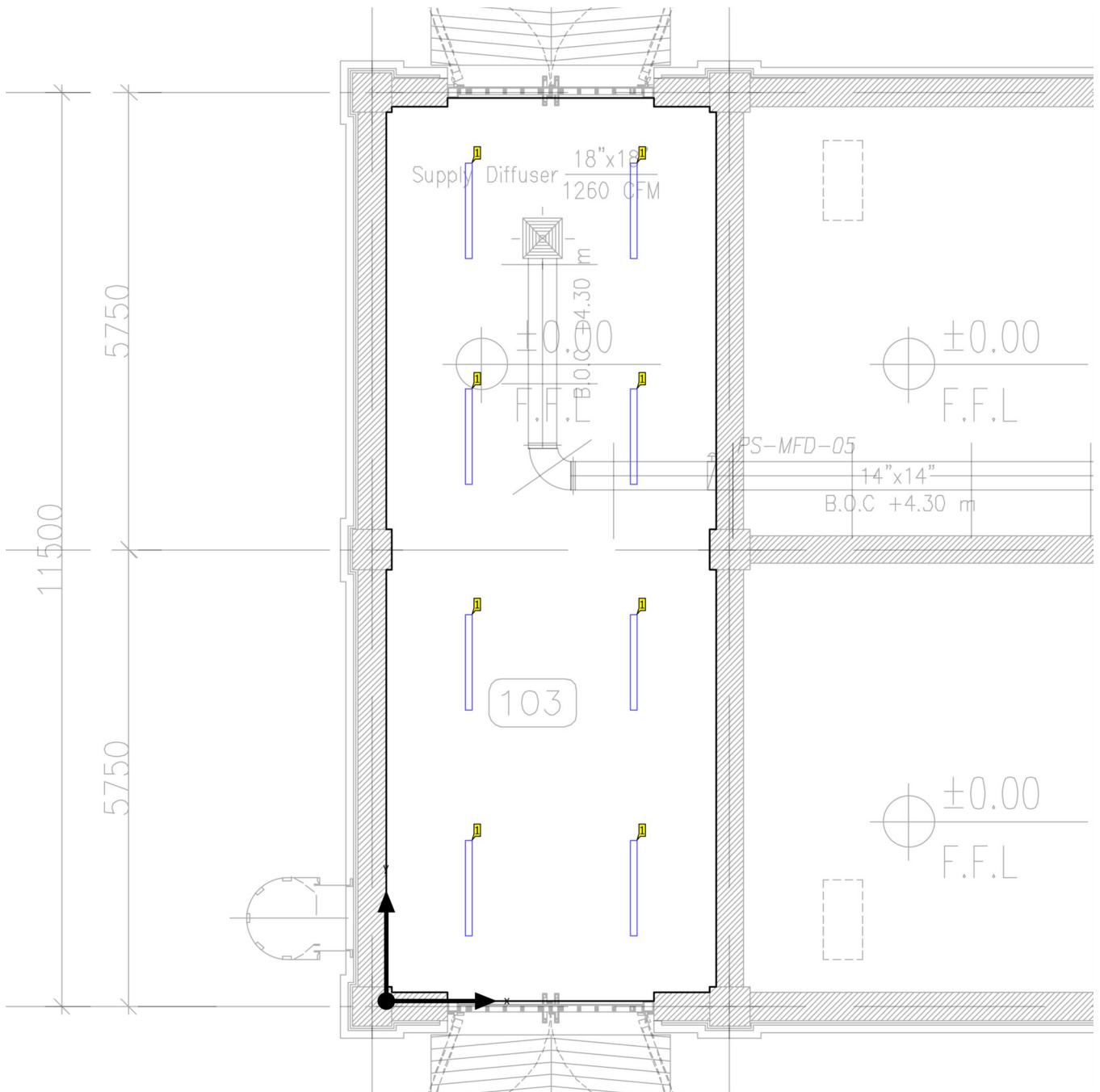
Working plane (HVAC Room 1)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (HVAC Room 1) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	264 lx (≥ 200 lx) ✓	218 lx	290 lx	0.83 (≥ 0.50) ✓	0.75	WP1

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · HVAC Room 1

Control group CG 1

Warehouse (1-8) · Ground Floor · HVAC Room 1

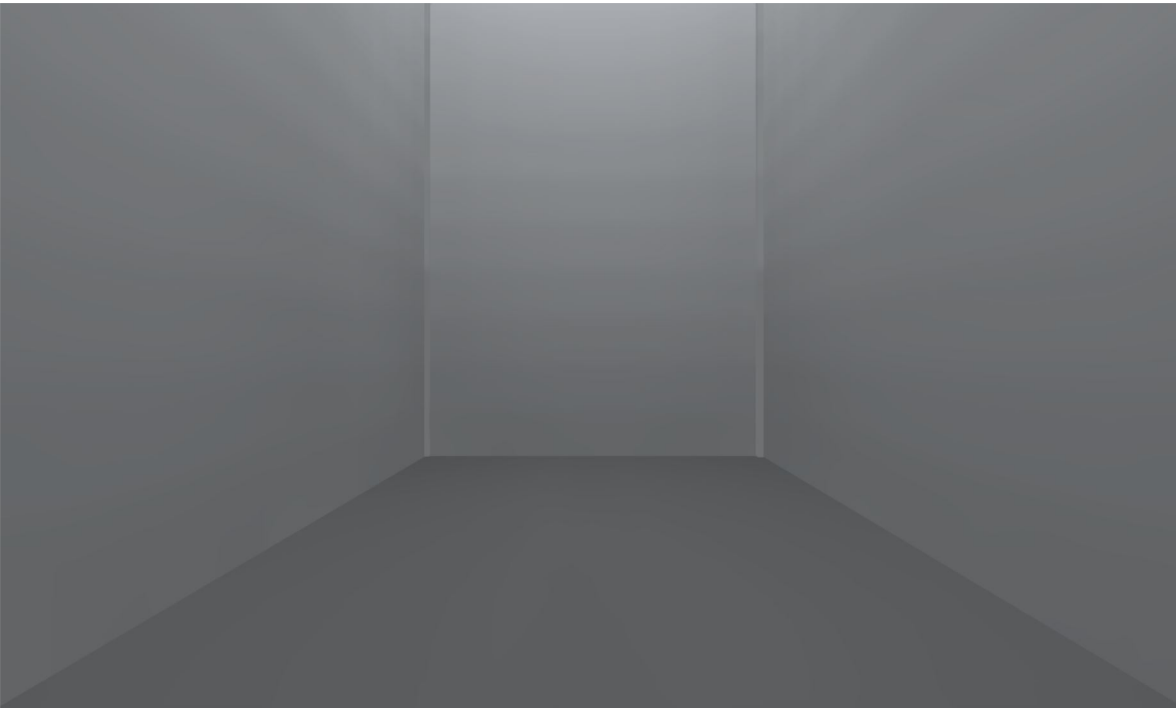
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1

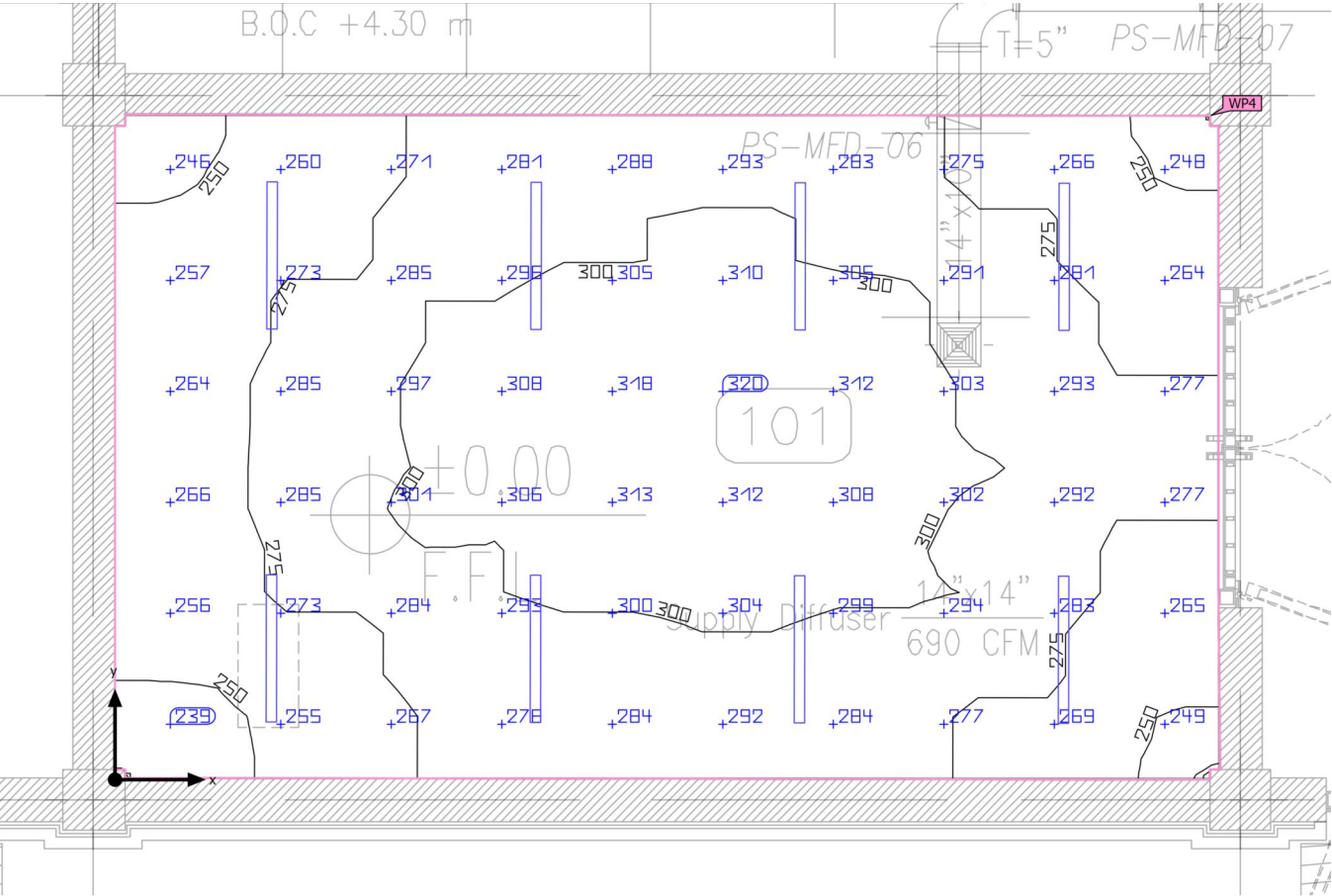


Warehouse (1-8) · Ground Floor · Storage Room 2

Description

Warehouse (1-8) · Ground Floor · Storage Room 2 (Light scene 1)

Summary



Ground area	48.69 m ²
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %
Maintenance factor	0.80 (fixed)

Clearance height	12.000 m
Mounting height	10.000 m
Height _{Working plane}	0.000 m
Wall zone _{Working plane}	0.000 m

Warehouse (1-8) · Ground Floor · Storage Room 2 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	285 lx	≥ 200 lx	✓	WP4
	$U_o (g_1)$	0.64	≥ 0.50	✓	WP4
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1750 kWh/a	✗	
Space	Lighting power density	9.86 W/m ²	–		
		3.46 W/m ² /100 lx	–		

(1) Based on a rectangular space of 9.020 m x 5.413 m and SHR of 0.25.

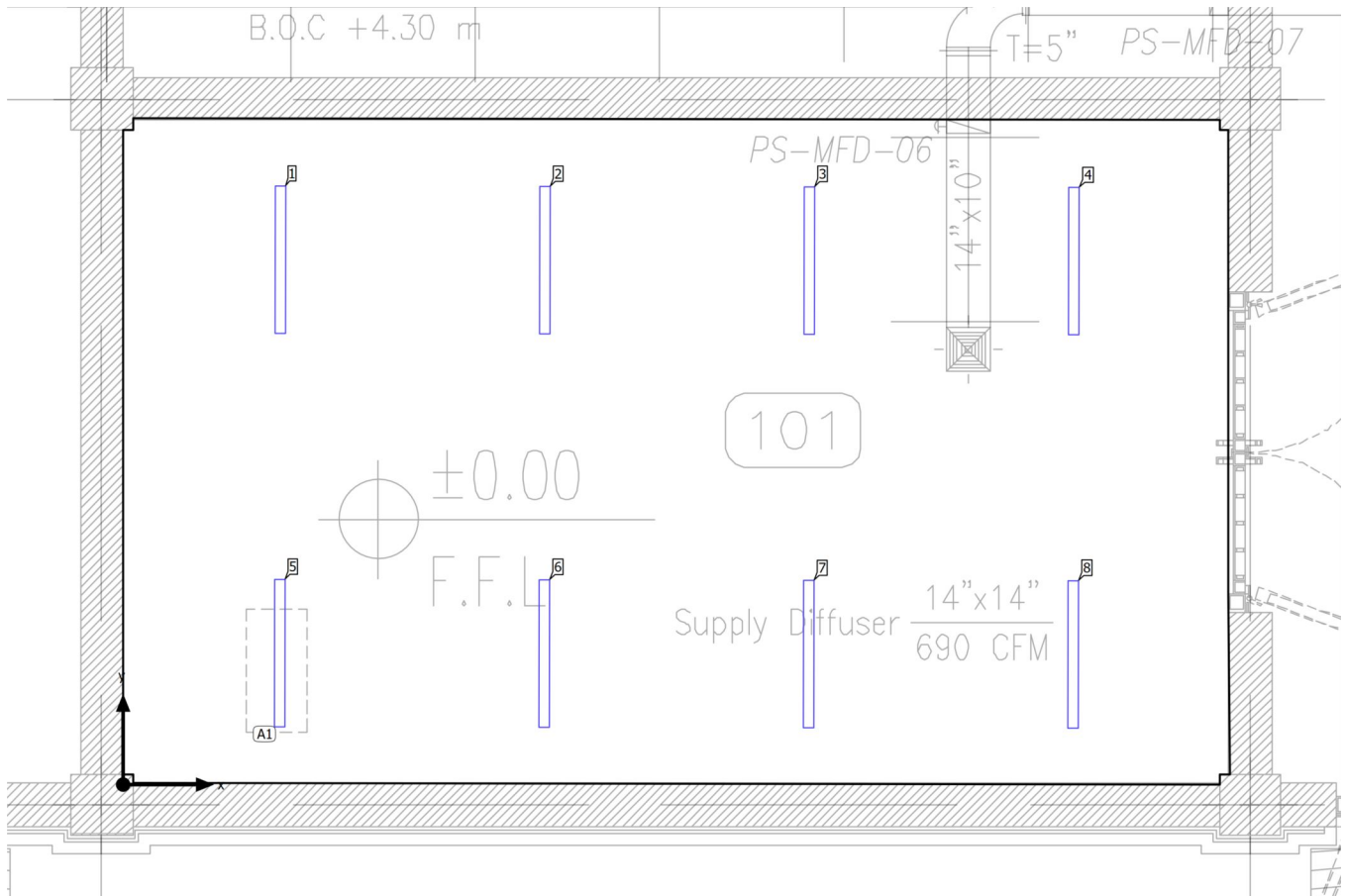
(2) Calculated using DIN:18599-4.

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

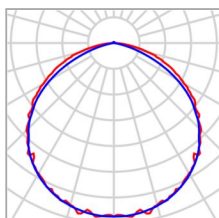
Luminaire list

pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 2

Luminaire layout plan

Warehouse (1-8) · Ground Floor · Storage Room 2

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.281 m / 4.274 m / 10.000 m	1.281 m	4.274 m	10.000 m	1
X-direction	4 pcs., Centre - centre, Distances not equal	3.434 m	4.270 m	10.000 m	2
		5.587 m	4.267 m	10.000 m	3
Y-direction	2 pcs., Centre - centre, Distances not equal	7.741 m	4.263 m	10.000 m	4
		1.276 m	1.070 m	10.000 m	5
Arrangement	A1	3.429 m	1.067 m	10.000 m	6
		5.582 m	1.063 m	10.000 m	7
		7.735 m	1.059 m	10.000 m	8

Warehouse (1-8) · Ground Floor · Srorage Room 2

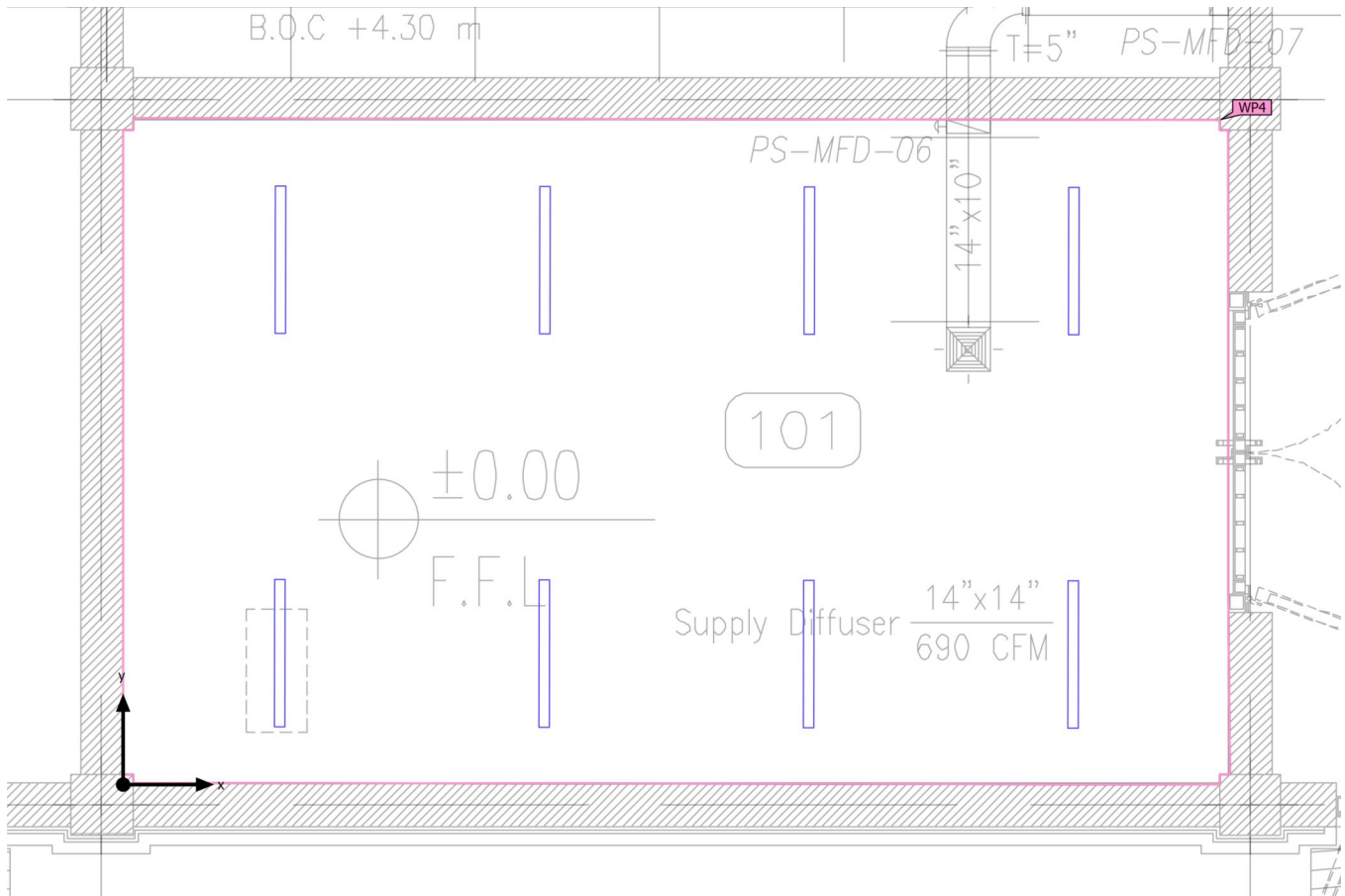
Luminaire list

Φ_{total} 81600 lm	P_{total} 480.0 W	Luminous efficacy 170.0 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 2 (Light scene 1)

Calculation objects



Warehouse (1-8) · Ground Floor · Storage Room 2 (Light scene 1)

Calculation objects

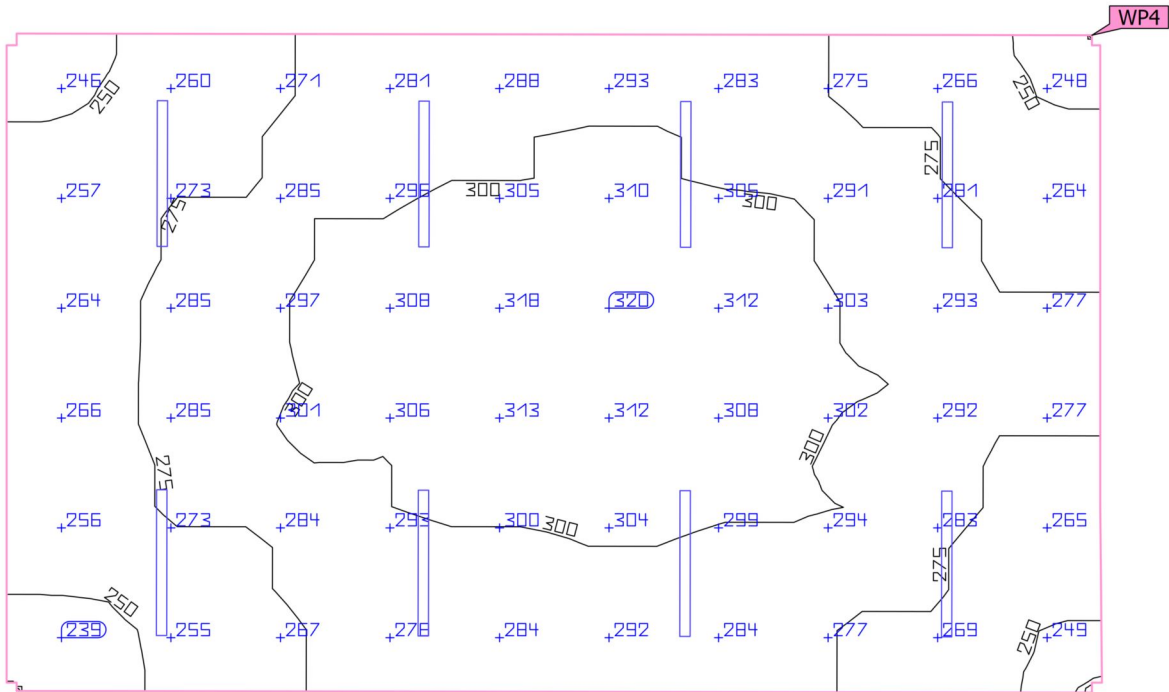
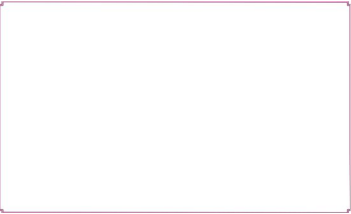
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 2) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	285 lx (≥ 200 lx) ✓	181 lx	320 lx	0.64 (≥ 0.50) ✓	0.57	WP4

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Sstorage Room 2 (Light scene 1)

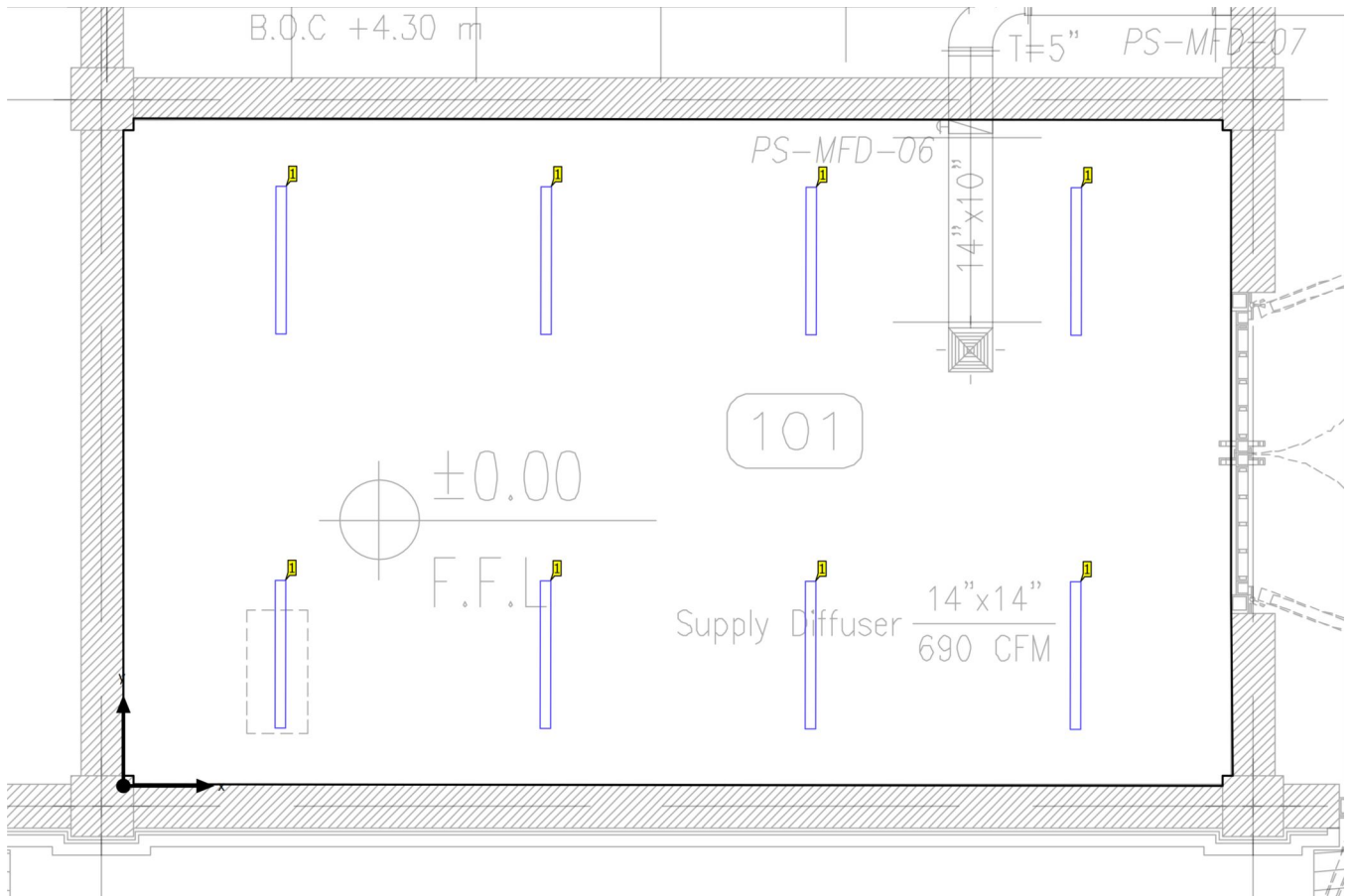
Working plane (Sstorage Room 2)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Sstorage Room 2) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	285 lx (≥ 200 lx) ✓	181 lx	320 lx	0.64 (≥ 0.50) ✓	0.57	WP4

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room 2

Control group CG 1

Warehouse (1-8) · Ground Floor · Srorage Room 2

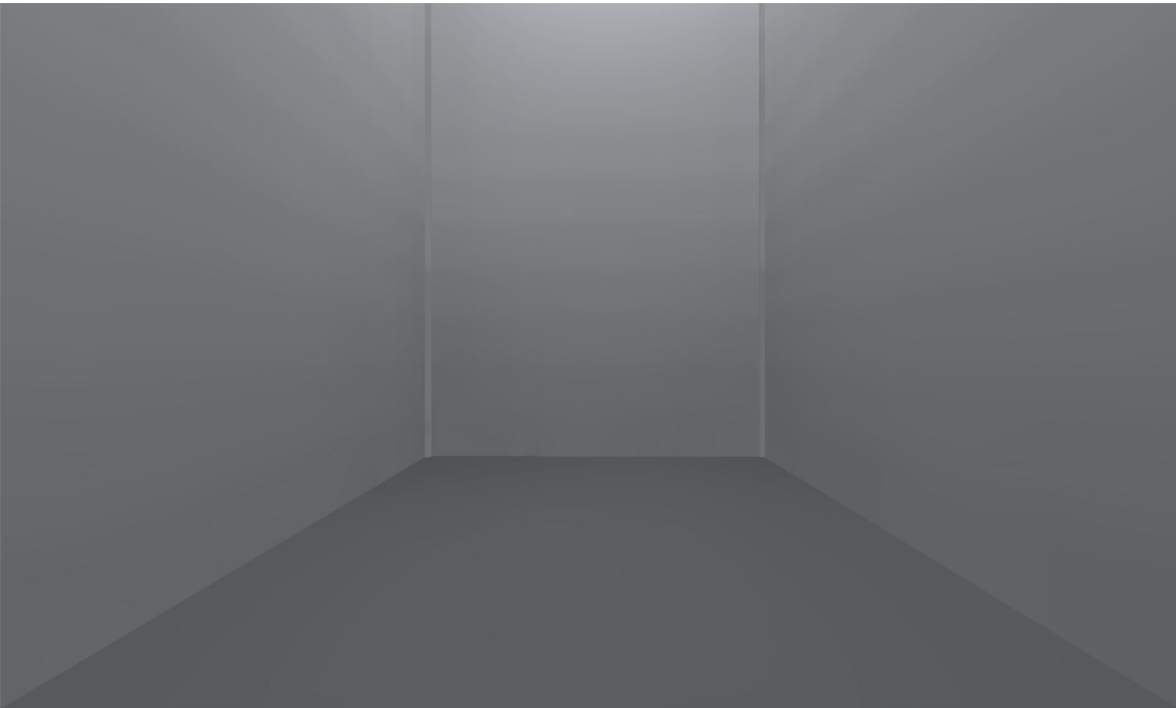
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

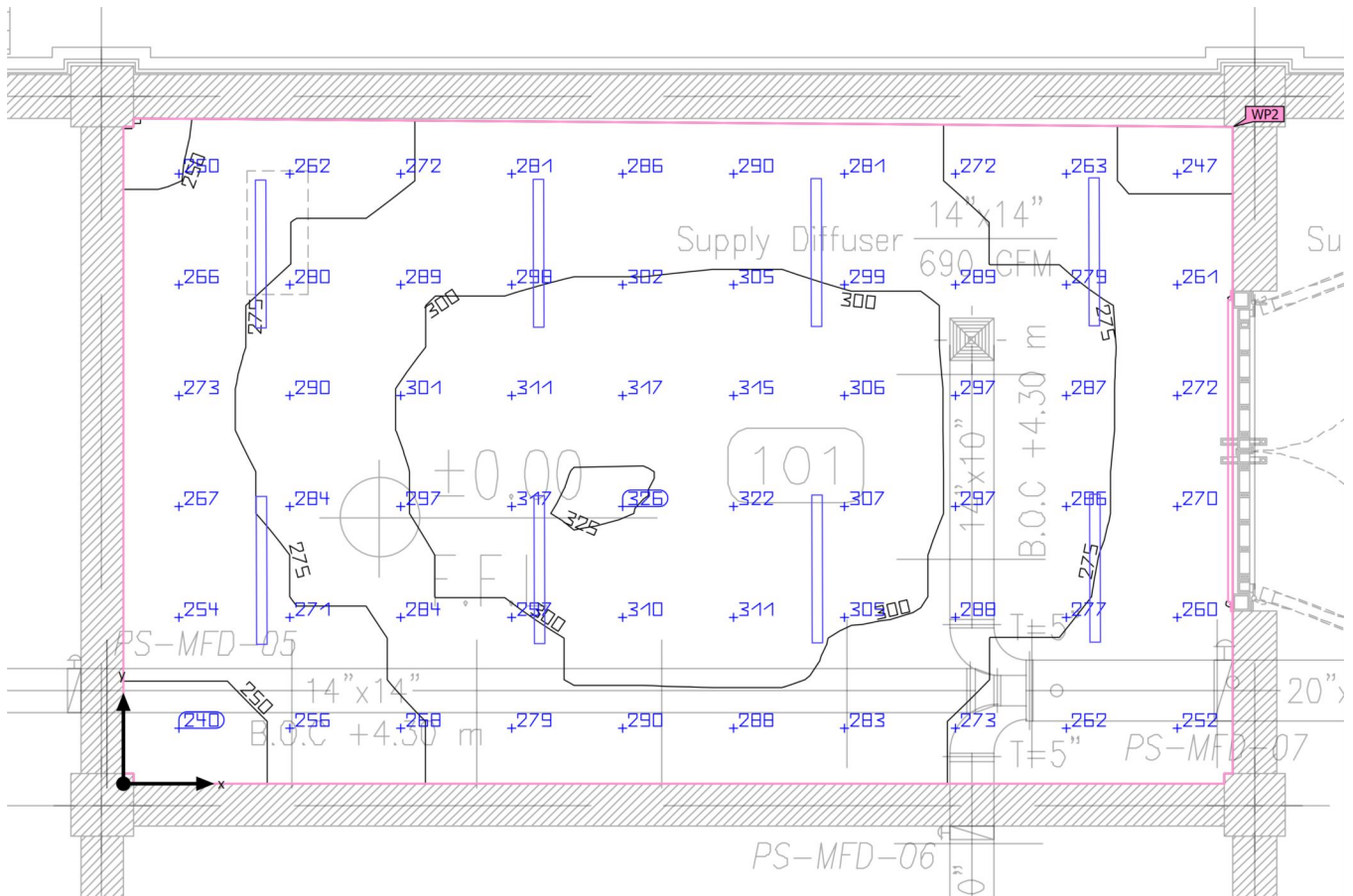
pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1



Warehouse (1-8) · Ground Floor · Storage Room 1

Description

Warehouse (1-8) · Ground Floor · Storage Room 1 (Light scene 1)

Summary

Ground area	48.26 m ²	Clearance height	12.000 m
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %	Mounting height	10.000 m
Maintenance factor	0.80 (fixed)	Height _{Working plane}	0.000 m
		Wall zone _{Working plane}	0.000 m

Warehouse (1-8) · Ground Floor · Storage Room 1 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	285 lx	≥ 200 lx	✓	WP2
	$U_o (g_1)$	0.83	≥ 0.50	✓	WP2
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1700 kWh/a	✗	
Space	Lighting power density	9.95 W/m ²	–		
		3.49 W/m ² /100 lx	–		

(1) Based on a rectangular space of 5.399 m x 8.998 m and SHR of 0.25.

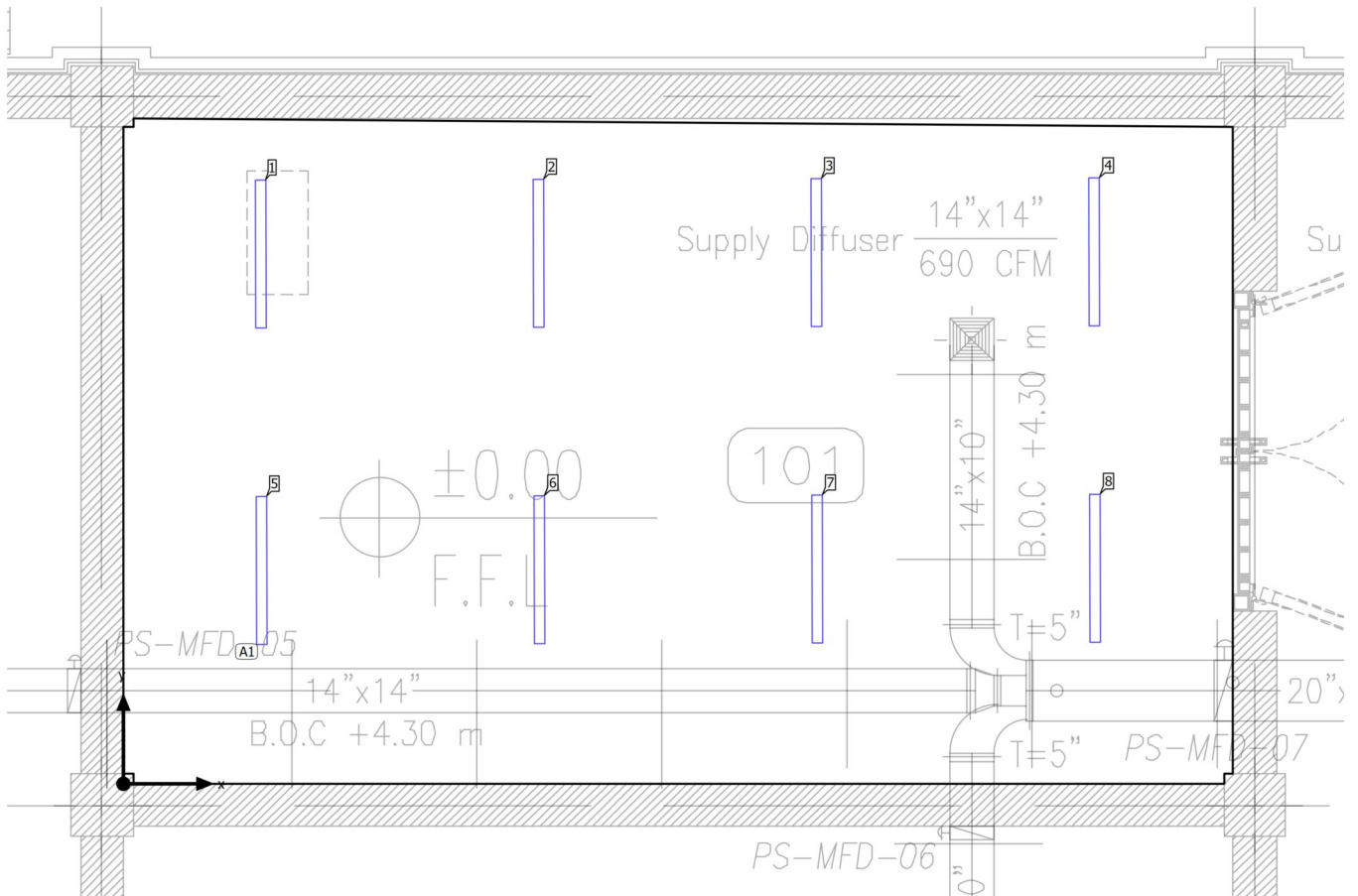
(2) Calculated using DIN:18599-4.

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

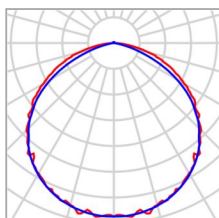
Luminaire list

pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 1

Luminaire layout plan

Warehouse (1-8) · Ground Floor · Storage Room 1

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.121 m / 1.731 m / 10.000 m	1.115 m	4.299 m	10.000 m	1
X-direction	4 pcs., Centre - centre, Distances not equal	3.368 m	4.304 m	10.000 m	2
		5.621 m	4.310 m	10.000 m	3
Y-direction	2 pcs., Centre - centre, Distances not equal	7.874 m	4.316 m	10.000 m	4
		1.121 m	1.731 m	10.000 m	5
Arrangement	A1	3.374 m	1.737 m	10.000 m	6
		5.628 m	1.743 m	10.000 m	7
		7.881 m	1.749 m	10.000 m	8

Warehouse (1-8) · Ground Floor · Storage Room 1

Luminaire list Φ_{total}

81600 lm

 P_{total}

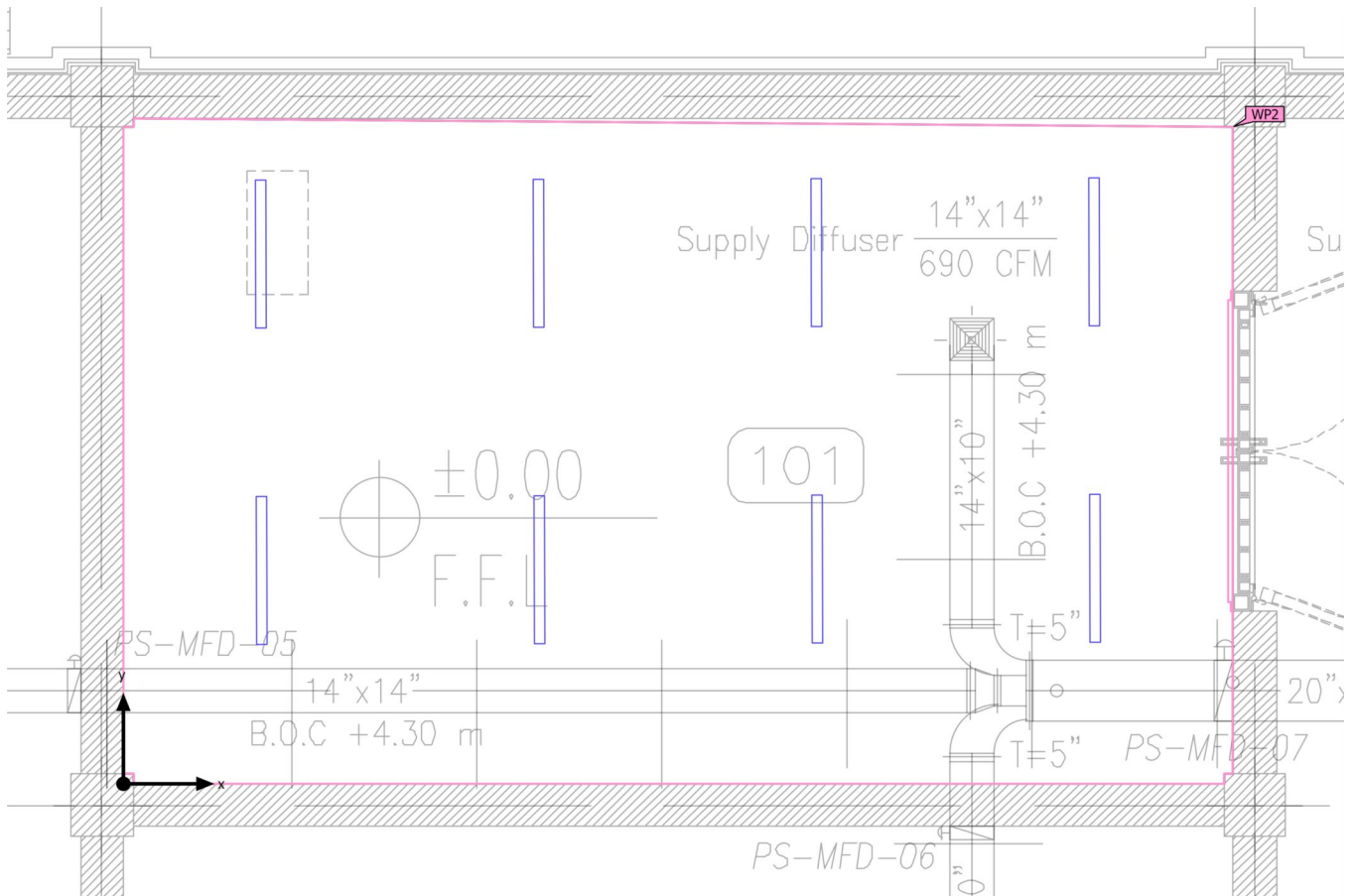
480.0 W

Luminous efficacy

170.0 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 1 (Light scene 1)

Calculation objects

Warehouse (1-8) · Ground Floor · Storage Room 1 (Light scene 1)

Calculation objects

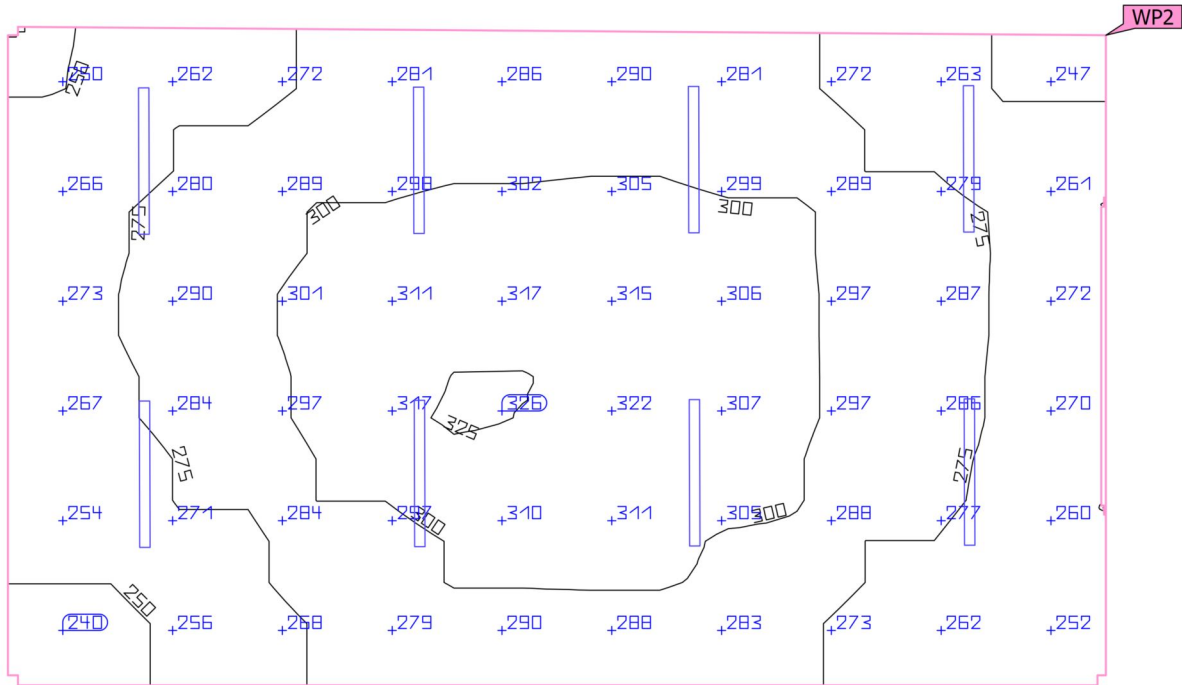
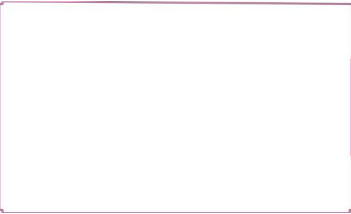
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 1) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	285 lx (≥ 200 lx) ✓	237 lx	326 lx	0.83 (≥ 0.50) ✓	0.73	WP2

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room 1 (Light scene 1)

Working plane (Storage Room 1)

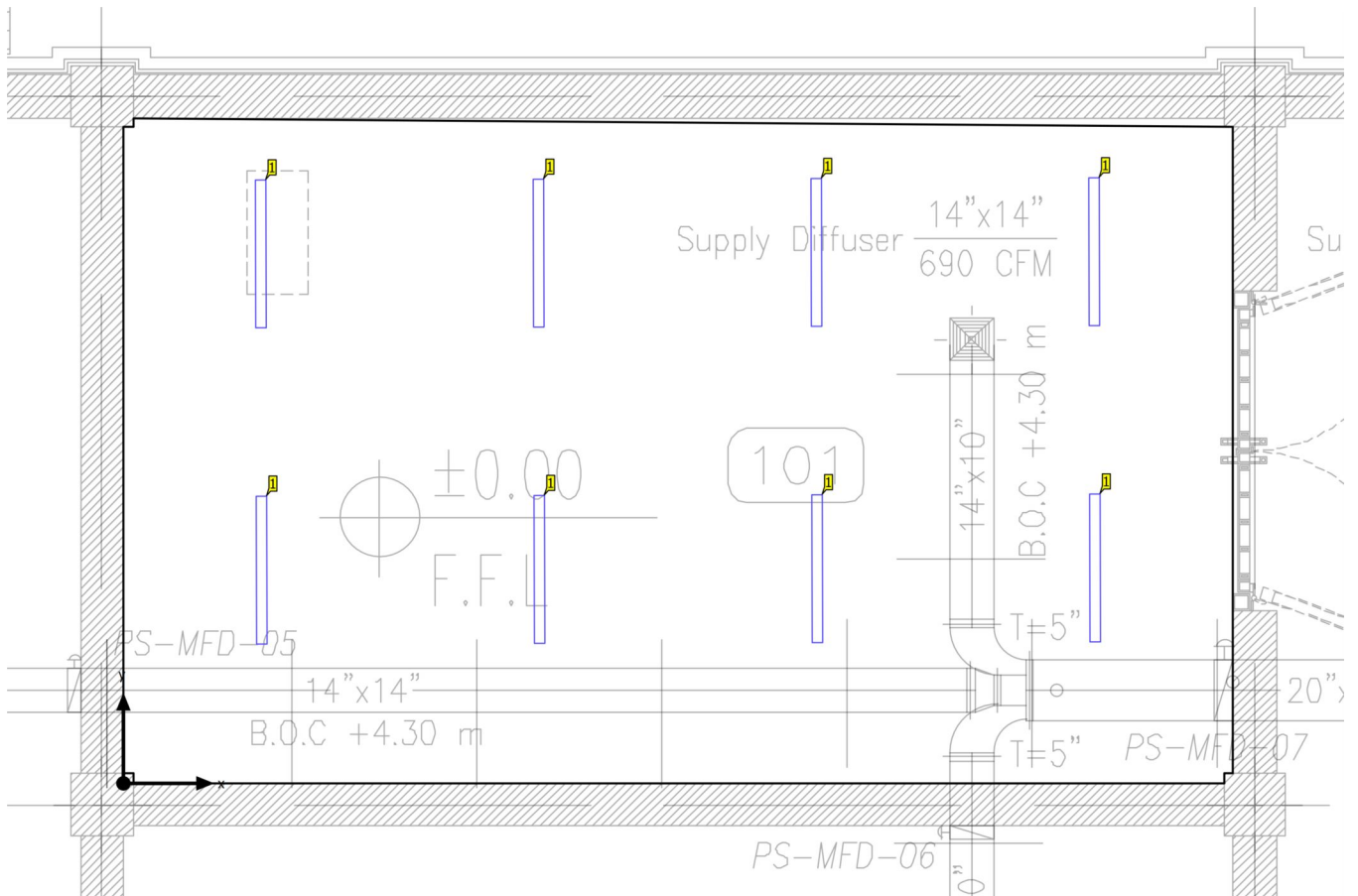


Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 1) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	285 lx (≥ 200 lx) ✓	237 lx	326 lx	0.83 (≥ 0.50) ✓	0.73	WP2

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room 1

Control group CG 1



Warehouse (1-8) · Ground Floor · Storage Room 1

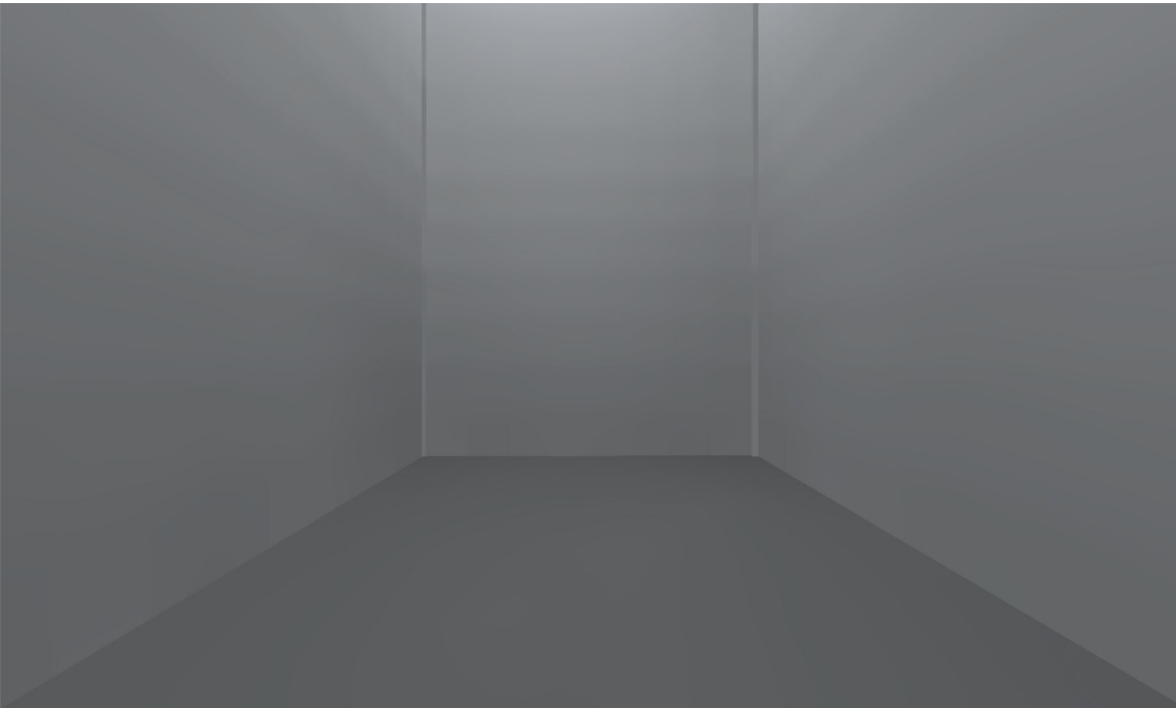
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1

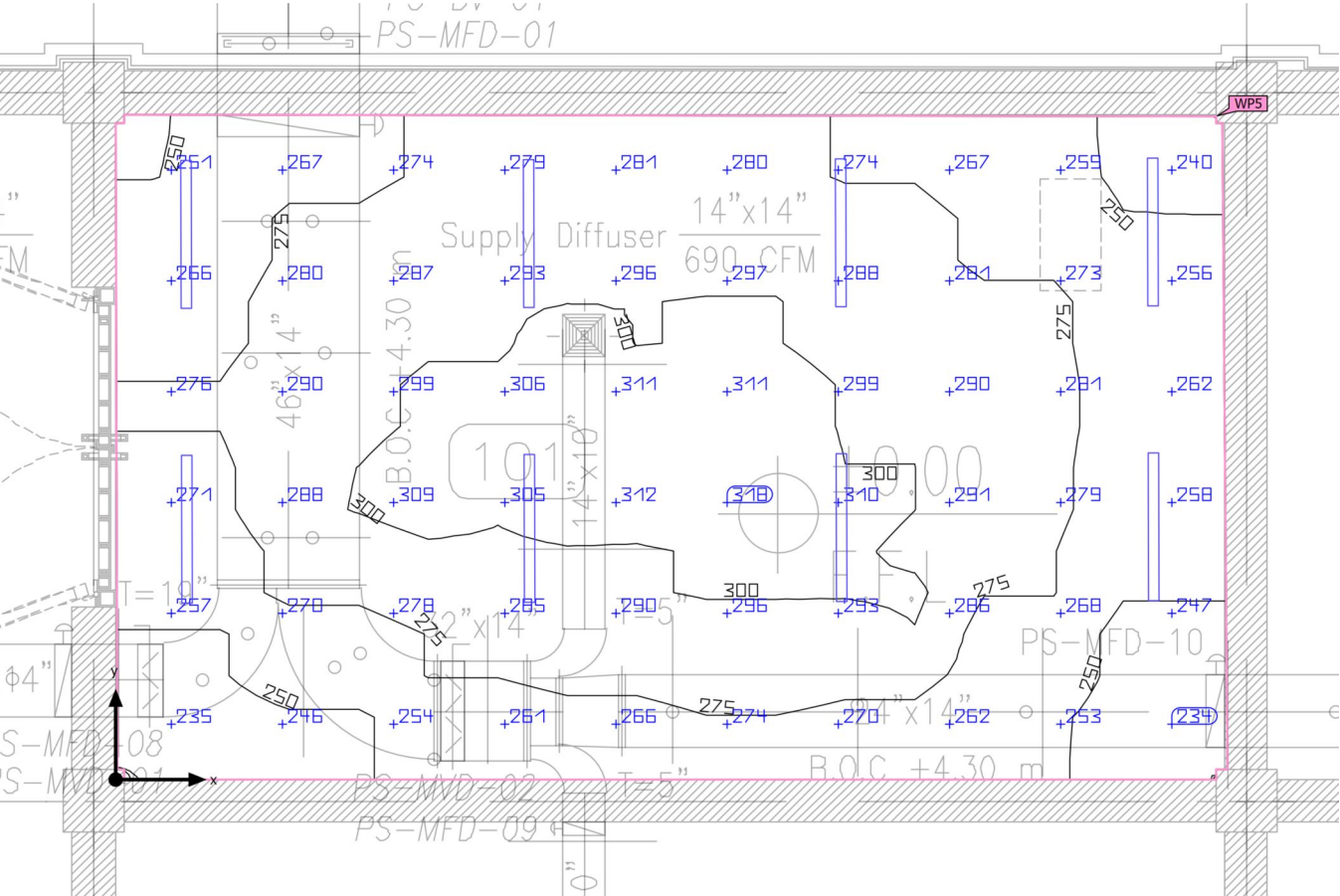


Warehouse (1-8) · Ground Floor · Storage Room 3

Description

Warehouse (1-8) · Ground Floor · Storage Room 3 (Light scene 1)

Summary



Ground area	48.47 m²
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %
Maintenance factor	0.80 (fixed)

Clearance height	12.000 m
Mounting height	10.000 m
Height _{Working plane}	0.000 m
Wall zone _{Working plane}	0.000 m

Warehouse (1-8) · Ground Floor · Storage Room 3 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	278 lx	≥ 200 lx	✓	WP5
	$U_o (g_1)$	0.54	≥ 0.50	✓	WP5
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1700 kWh/a	✗	
Space	Lighting power density	9.90 W/m ²	–		
		3.56 W/m ² /100 lx	–		

(1) Based on a rectangular space of 5.399 m x 9.021 m and SHR of 0.25.

(2) Calculated using DIN:18599-4.

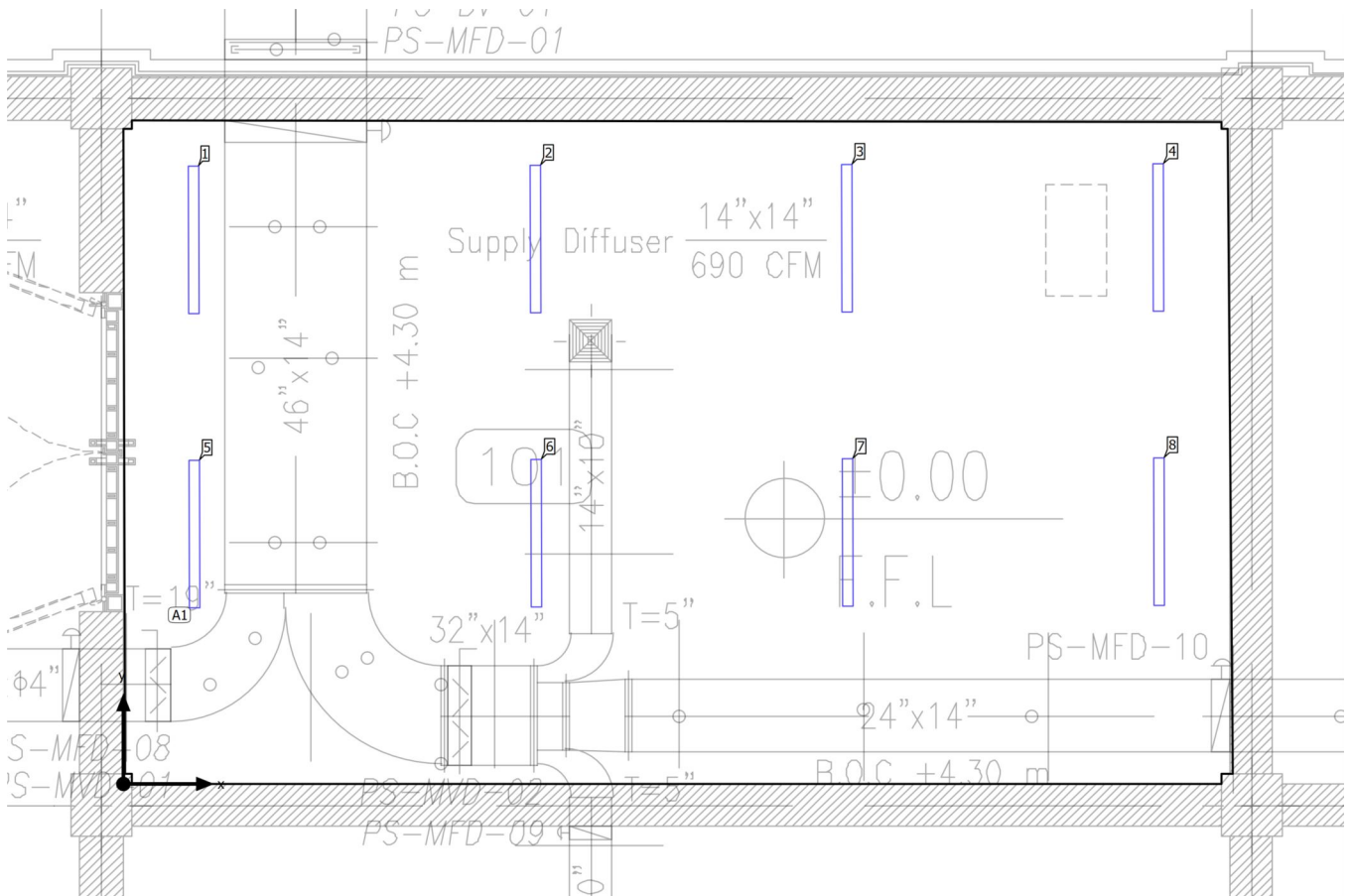
Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Luminaire list

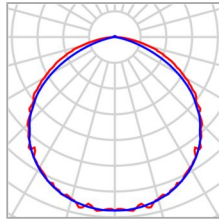
pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 3

Luminaire layout plan



Warehouse (1-8) · Ground Floor · Storage Room 3

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	0.578 m / 2.033 m / 10.000 m	0.572 m	4.427 m	10.000 m	1
X-direction	4 pcs., Centre - centre, Distances not equal	3.351 m	4.434 m	10.000 m	2
		5.884 m	4.440 m	10.000 m	3
Y-direction	2 pcs., Centre - centre, Distances not equal	8.416 m	4.446 m	10.000 m	4
		0.578 m	2.033 m	10.000 m	5
Arrangement	A1	3.357 m	2.040 m	10.000 m	6
		5.890 m	2.046 m	10.000 m	7
		8.422 m	2.052 m	10.000 m	8

Warehouse (1-8) · Ground Floor · Storage Room 3

Luminaire list Φ_{total}

81600 lm

 P_{total}

480.0 W

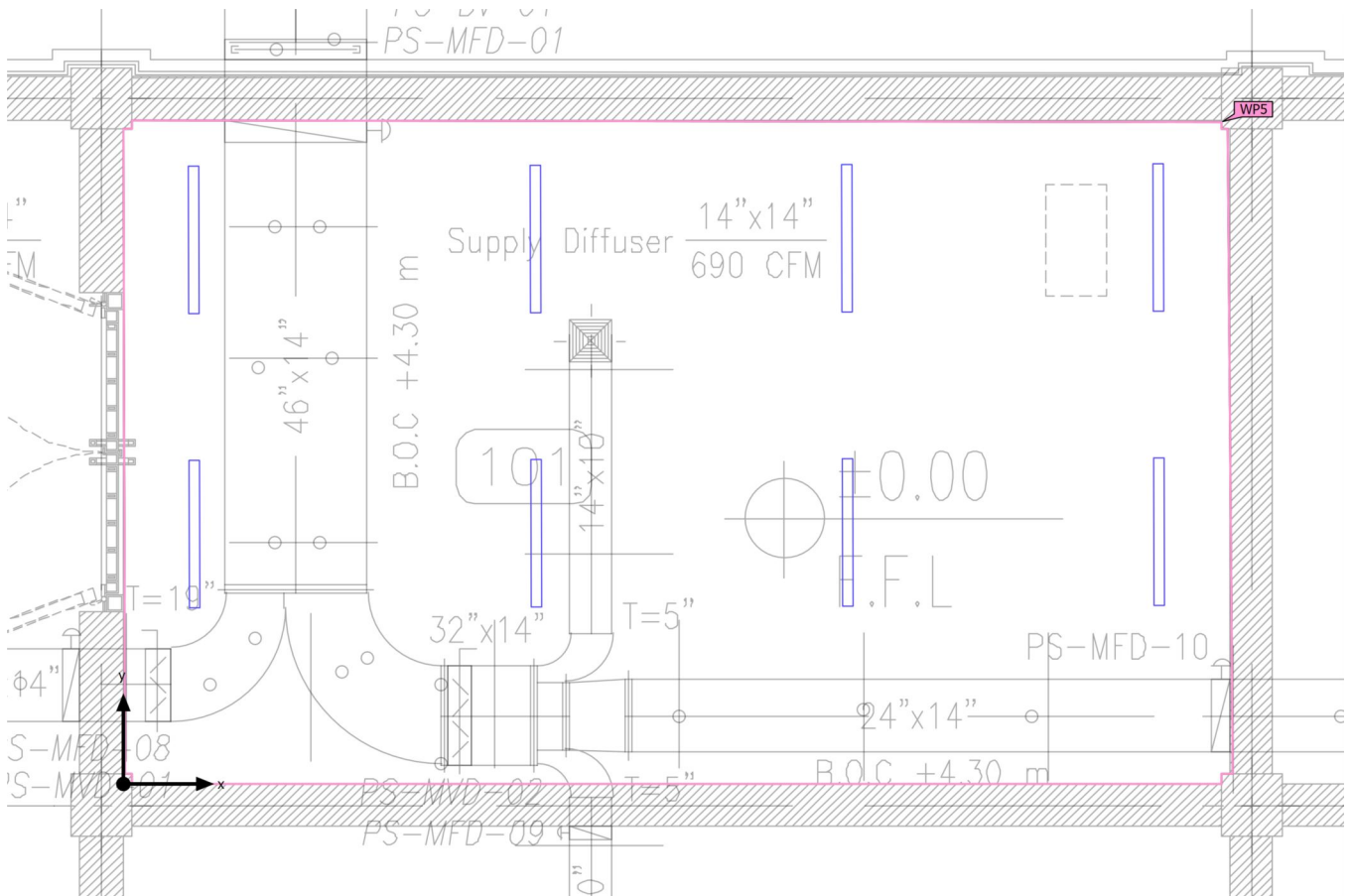
Luminous efficacy

170.0 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 3 (Light scene 1)

Calculation objects



Warehouse (1-8) · Ground Floor · Storage Room 3 (Light scene 1)

Calculation objects

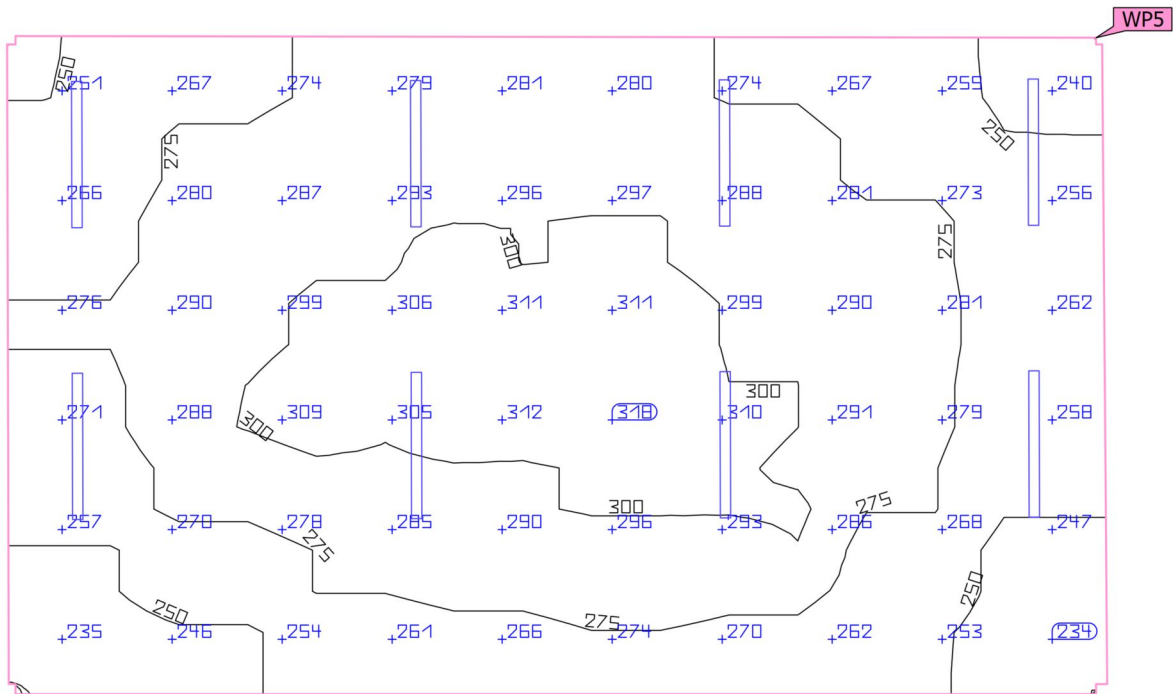
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 3) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	278 lx (≥ 200 lx) ✓	151 lx	317 lx	0.54 (≥ 0.50) ✓	0.48	WP5

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room 3 (Light scene 1)

Working plane (Storage Room 3)

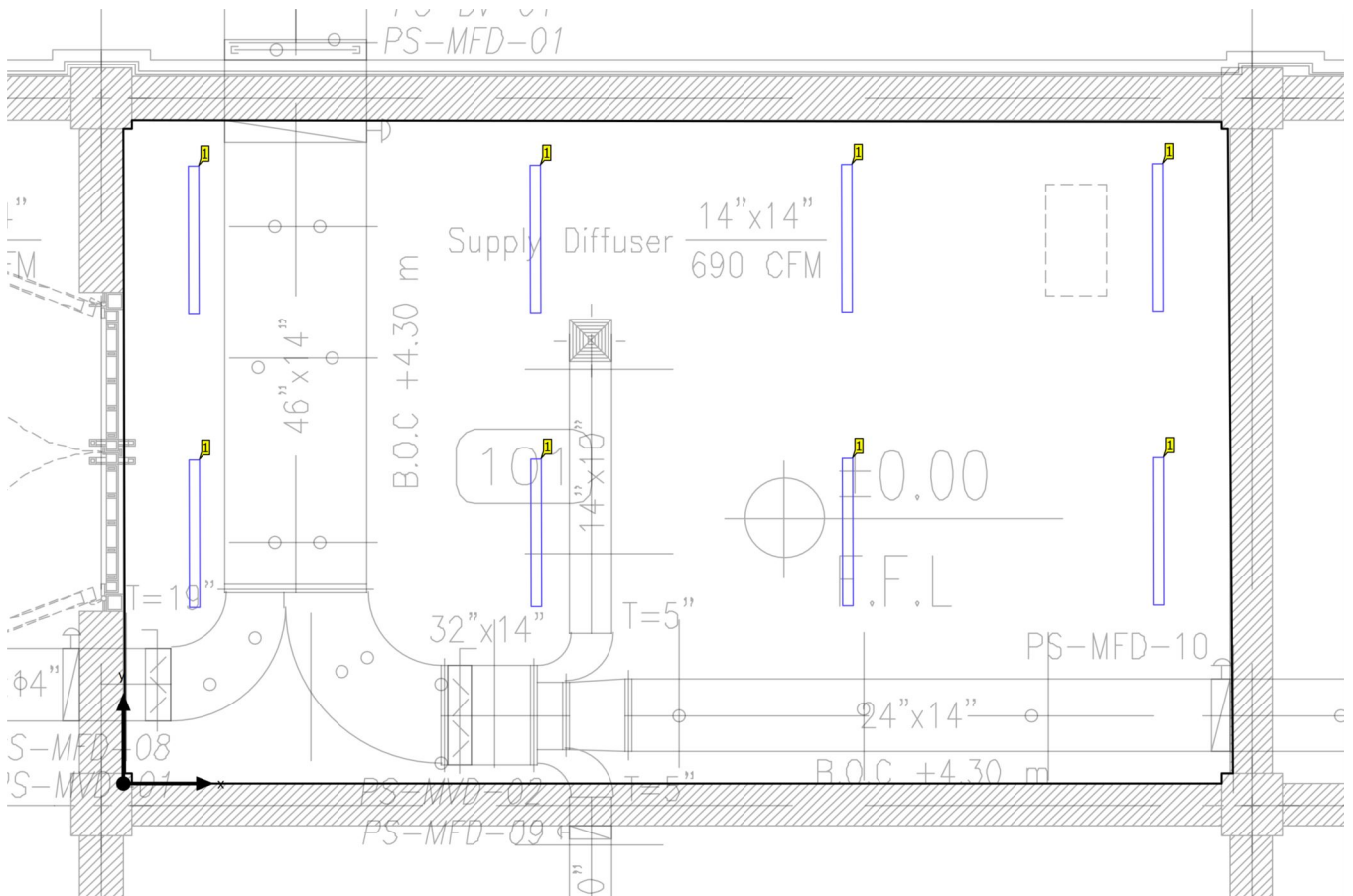


Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 3) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	278 lx (≥ 200 lx) ✓	151 lx	317 lx	0.54 (≥ 0.50) ✓	0.48	WP5

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room 3

Control group CG 1



Warehouse (1-8) · Ground Floor · Storage Room 3

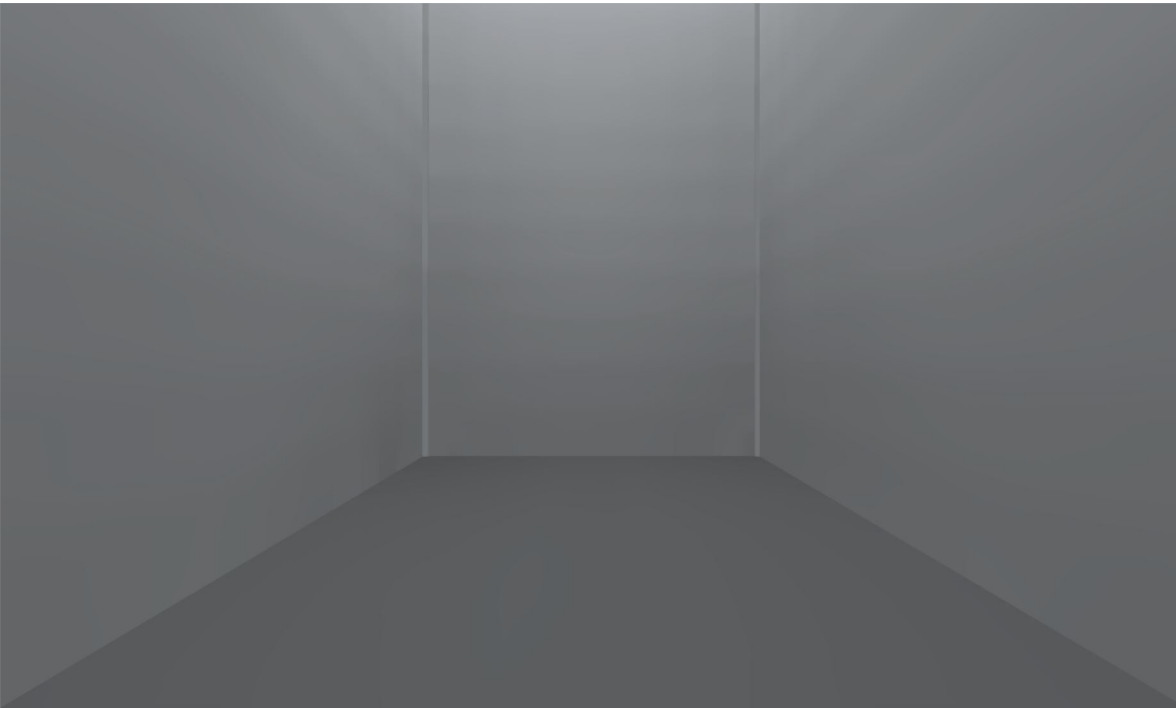
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

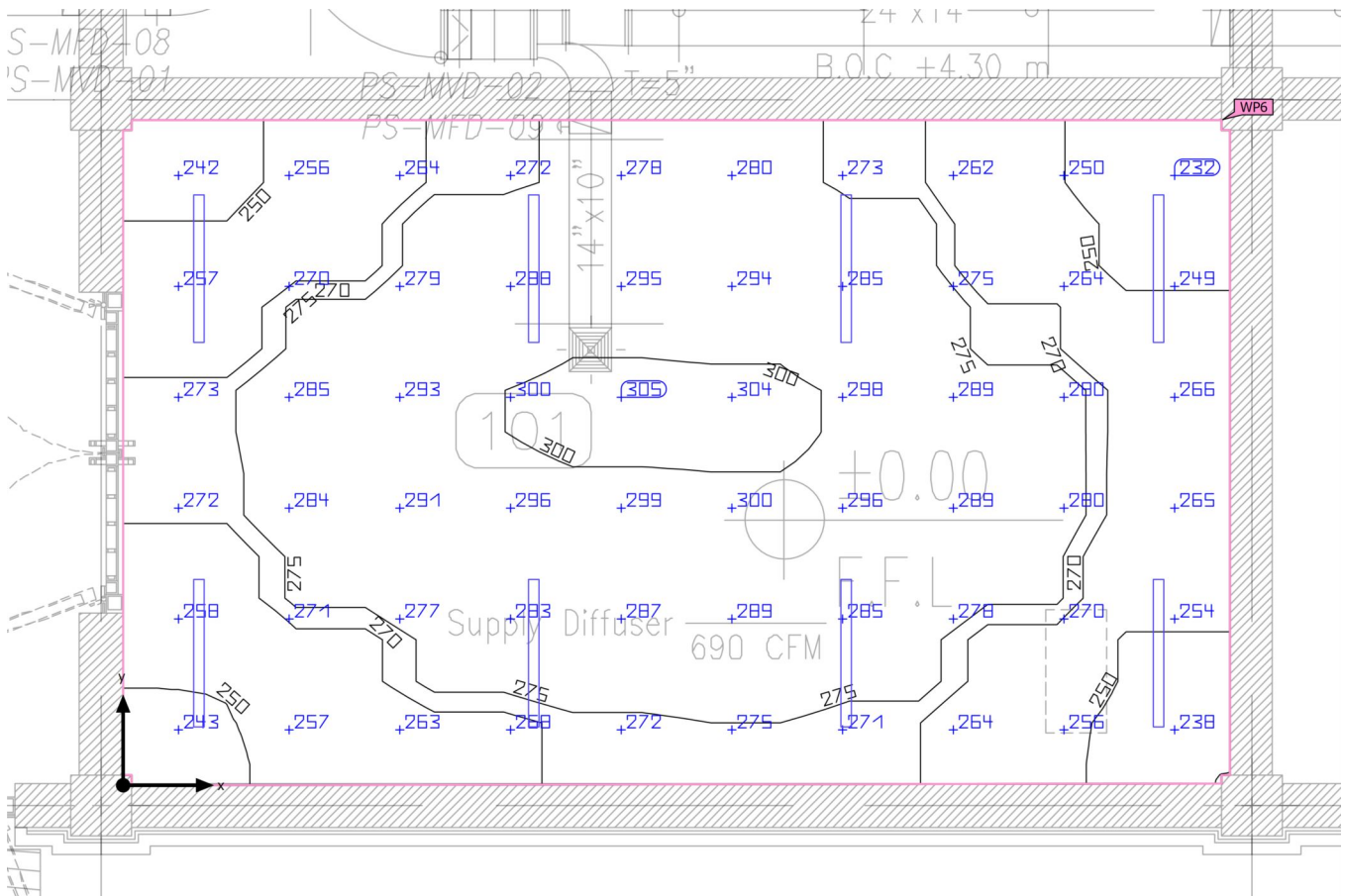
pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1



Warehouse (1-8) · Ground Floor · Storage Room 4

Description

Warehouse (1-8) · Ground Floor · Storage Room 4 (Light scene 1)

Summary

Ground area	48.62 m ²	Clearance height	12.000 m
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %	Mounting height	10.000 m
Maintenance factor	0.80 (fixed)	Height _{Working plane}	0.000 m
		Wall zone _{Working plane}	0.000 m

Warehouse (1-8) · Ground Floor · Storage Room 4 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	275 lx	≥ 200 lx	✓	WP6
	$U_o (g_1)$	0.84	≥ 0.50	✓	WP6
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1750 kWh/a	✗	
Space	Lighting power density	9.87 W/m ²	–		
		3.59 W/m ² /100 lx	–		

(1) Based on a rectangular space of 5.413 m x 8.998 m and SHR of 0.25.

(2) Calculated using DIN:18599-4.

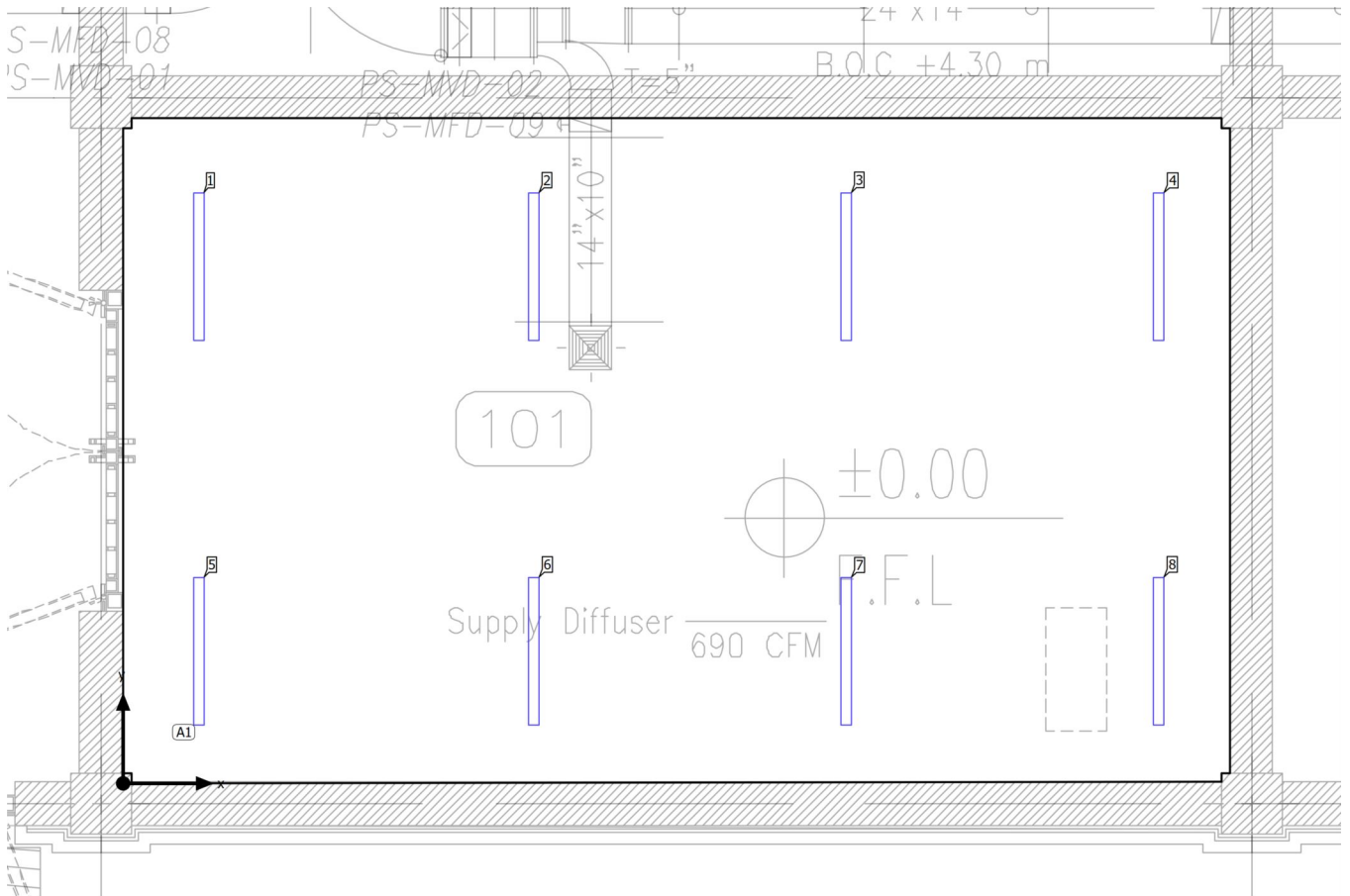
Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Luminaire list

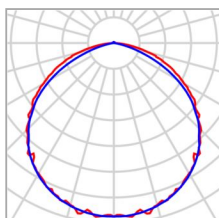
pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 4

Luminaire layout plan



Warehouse (1-8) · Ground Floor · Storage Room 4

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	0.616 m / 4.204 m / 10.000 m	0.616 m	4.204 m	10.000 m	1
X-direction	4 pcs., Centre - centre, Distances not equal	3.338 m	4.204 m	10.000 m	2
		5.878 m	4.204 m	10.000 m	3
Y-direction	2 pcs., Centre - centre, Distances not equal	8.418 m	4.204 m	10.000 m	4
		0.616 m	1.075 m	10.000 m	5
Arrangement	A1	3.338 m	1.075 m	10.000 m	6
		5.878 m	1.075 m	10.000 m	7
		8.418 m	1.075 m	10.000 m	8

Warehouse (1-8) · Ground Floor · Storage Room 4

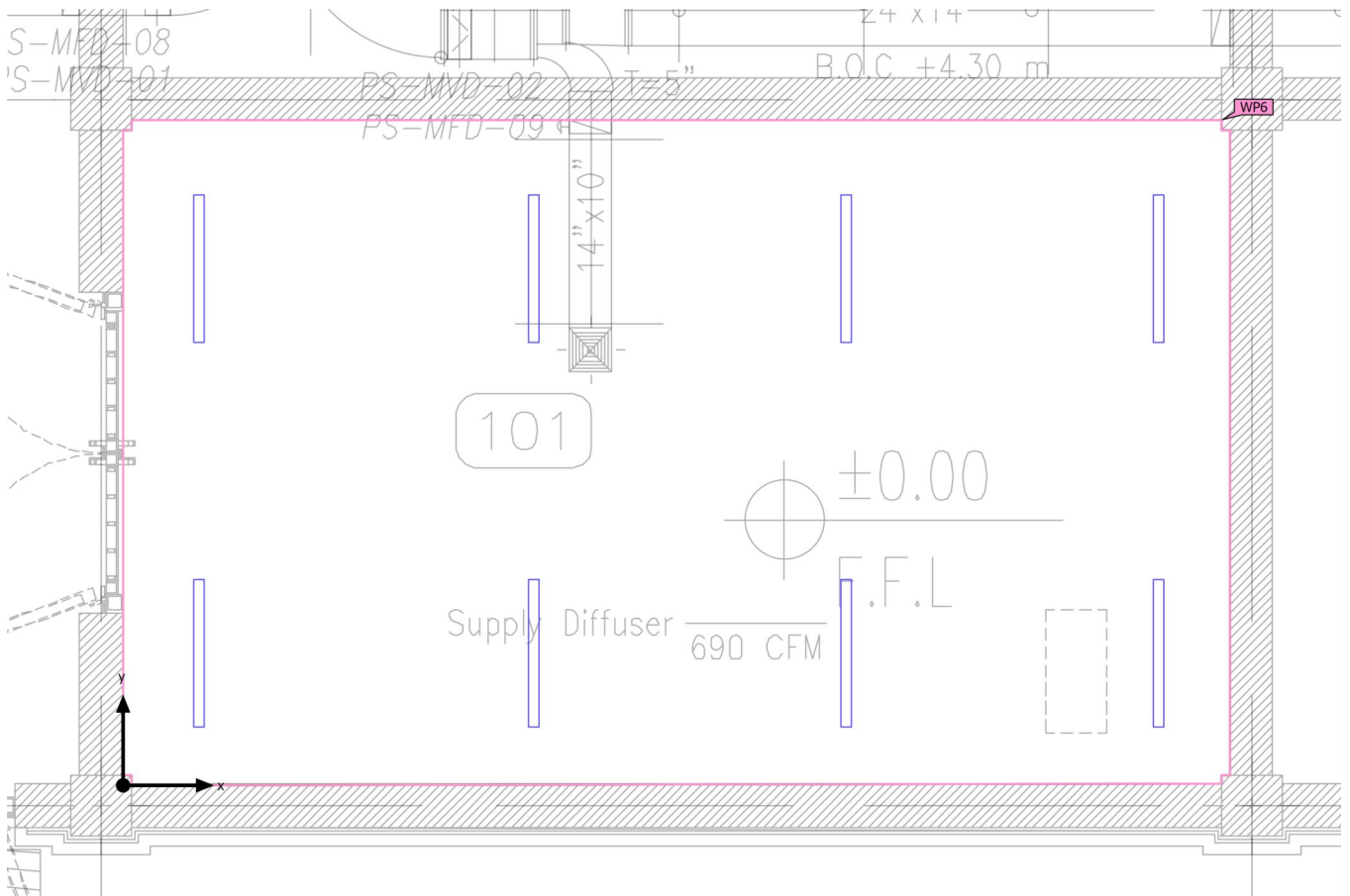
Luminaire list

Φ_{total} 81600 lm	P_{total} 480.0 W	Luminous efficacy 170.0 lm/W
----------------------------	------------------------	---------------------------------

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 4 (Light scene 1)

Calculation objects



Warehouse (1-8) · Ground Floor · Storage Room 4 (Light scene 1)

Calculation objects

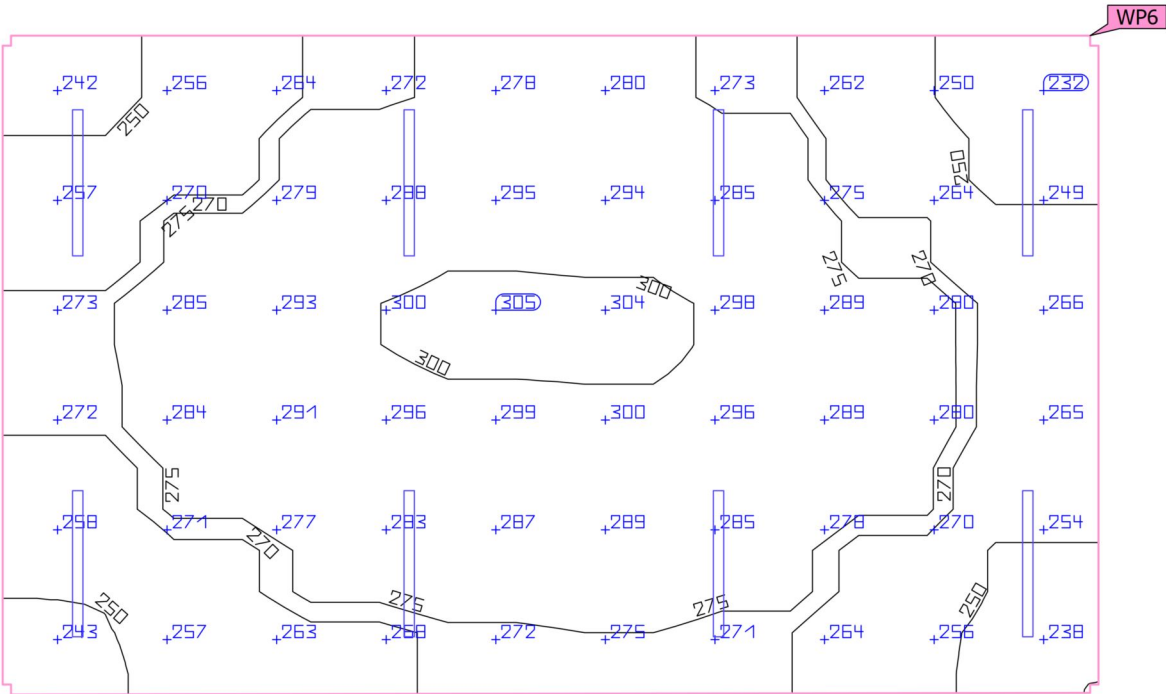
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 4) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	275 lx (≥ 200 lx) ✓	230 lx	304 lx	0.84 (≥ 0.50) ✓	0.76	WP6

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room 4 (Light scene 1)

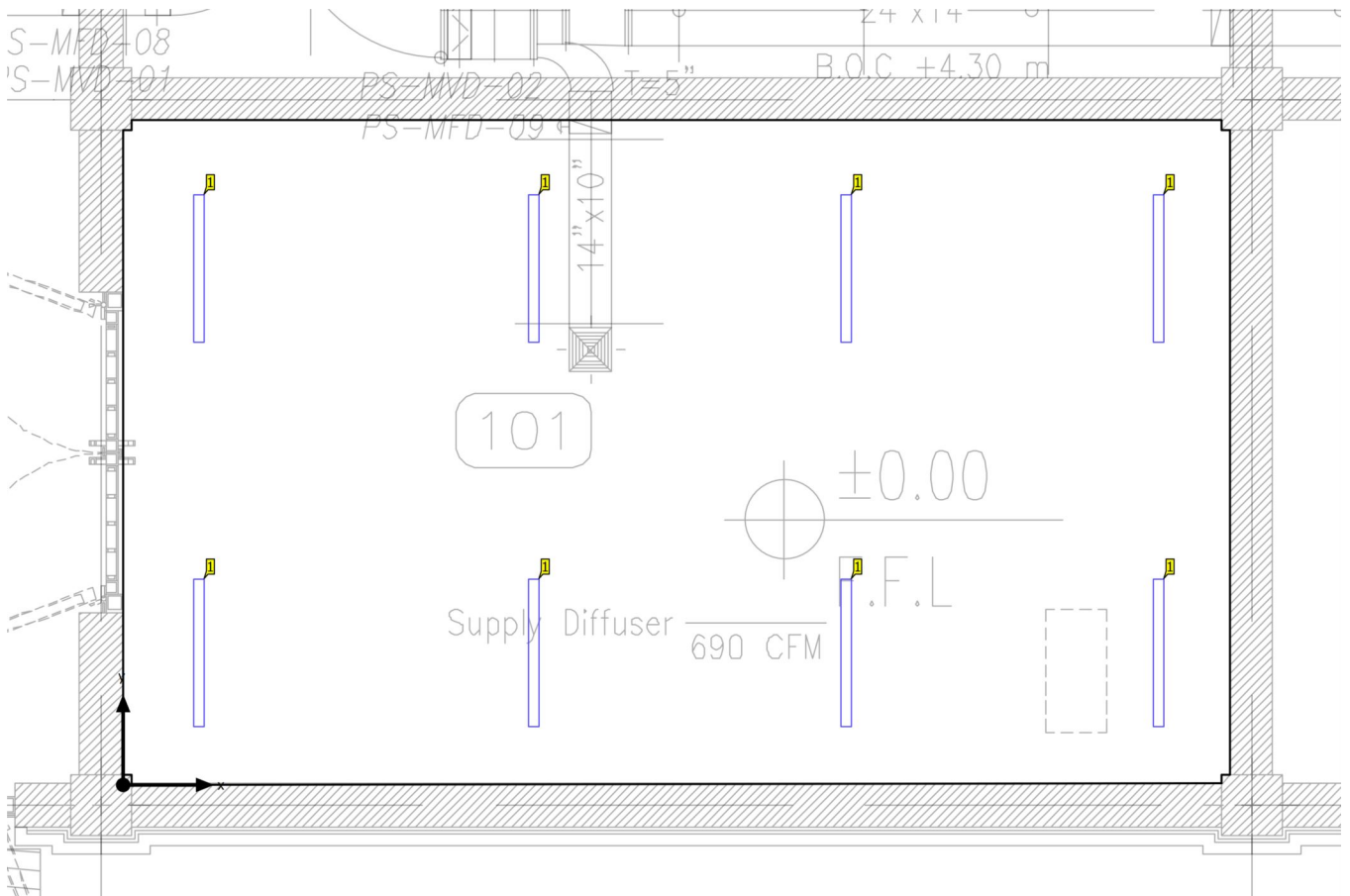
Working plane (Storage Room 4)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 4) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	275 lx (≥ 200 lx) ✓	230 lx	304 lx	0.84 (≥ 0.50) ✓	0.76	WP6

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room 4

Control group CG 1

Warehouse (1-8) · Ground Floor · Storage Room 4

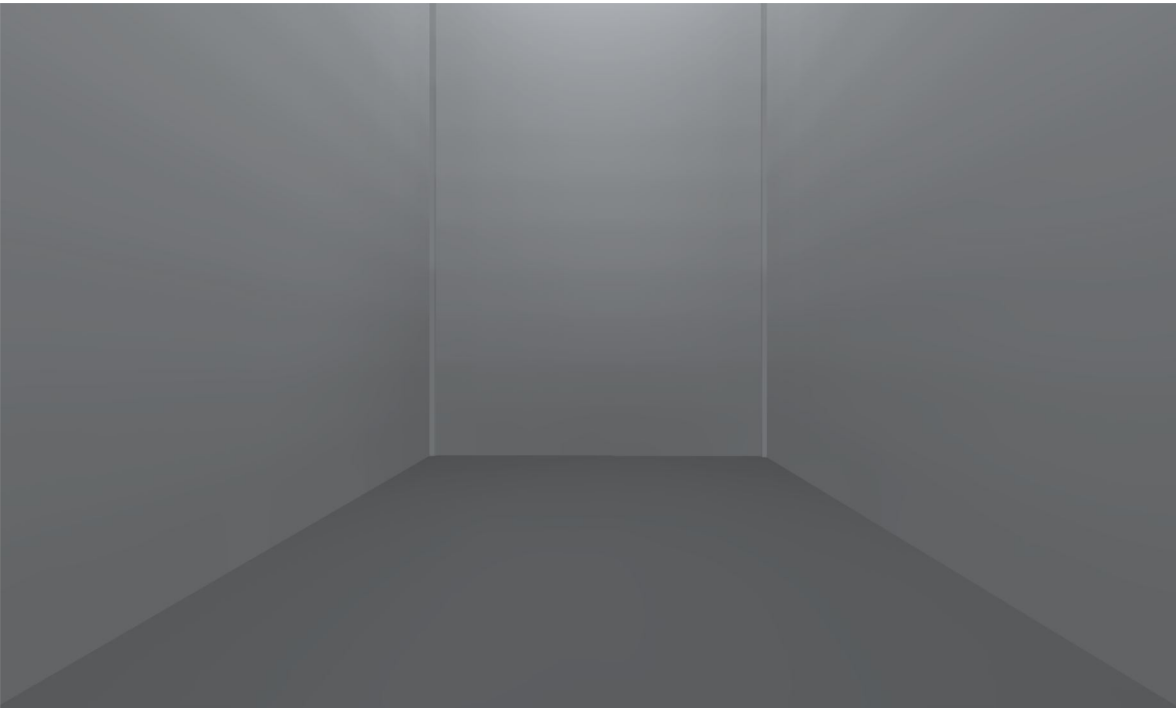
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1

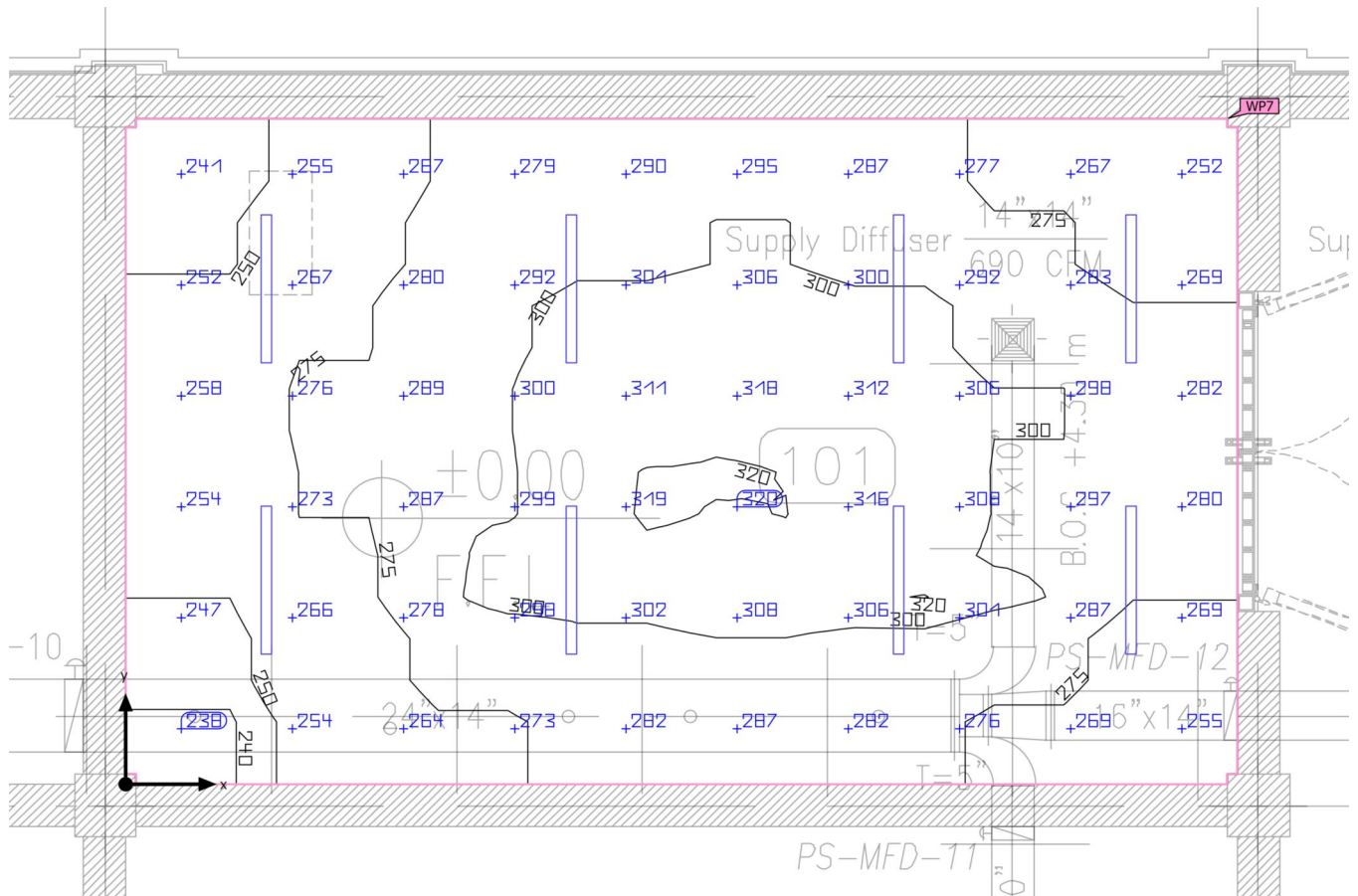


Warehouse (1-8) · Ground Floor · Storage Room 5

Description

Warehouse (1-8) · Ground Floor · Storage Room 5 (Light scene 1)

Summary



Ground area	48.63 m ²	Clearance height	12.000 m
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %	Mounting height	10.000 m
Maintenance factor	0.80 (fixed)	Height _{Working plane}	0.000 m
		Wall zone _{Working plane}	0.000 m

Warehouse (1-8) · Ground Floor · Storage Room 5 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	284 lx	≥ 200 lx	✓	WP7
	$U_o (g_1)$	0.84	≥ 0.50	✓	WP7
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1750 kWh/a	✗	
Space	Lighting power density	9.87 W/m ²	–		
		3.48 W/m ² /100 lx	–		

(1) Based on a rectangular space of 5.399 m x 9.012 m and SHR of 0.25.

(2) Calculated using DIN:18599-4.

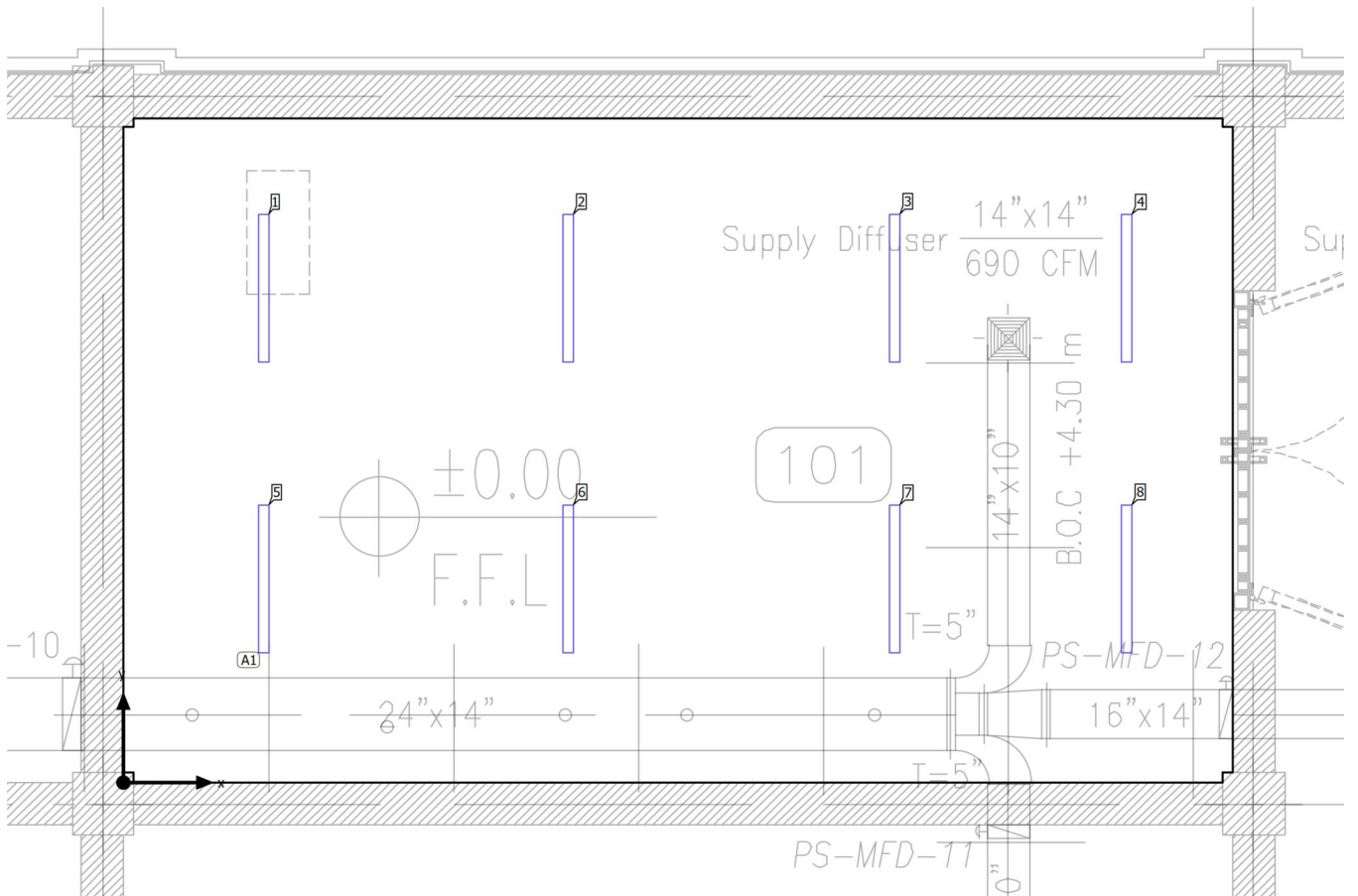
Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Luminaire list

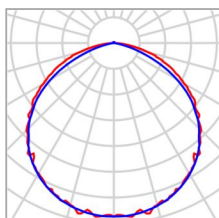
pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 5

Luminaire layout plan



Warehouse (1-8) · Ground Floor · Storage Room 5

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.140 m / 1.655 m / 10.000 m	1.140 m	4.018 m	10.000 m	1
X-direction	4 pcs., Centre - centre, Distances not equal	3.613 m	4.018 m	10.000 m	2
		6.266 m	4.018 m	10.000 m	3
Y-direction	2 pcs., Centre - centre, Distances not equal	8.150 m	4.018 m	10.000 m	4
		1.140 m	1.655 m	10.000 m	5
Arrangement	A1	3.613 m	1.655 m	10.000 m	6
		6.266 m	1.655 m	10.000 m	7
		8.150 m	1.655 m	10.000 m	8

Warehouse (1-8) · Ground Floor · Storage Room 5

Luminaire list Φ_{total}

81600 lm

 P_{total}

480.0 W

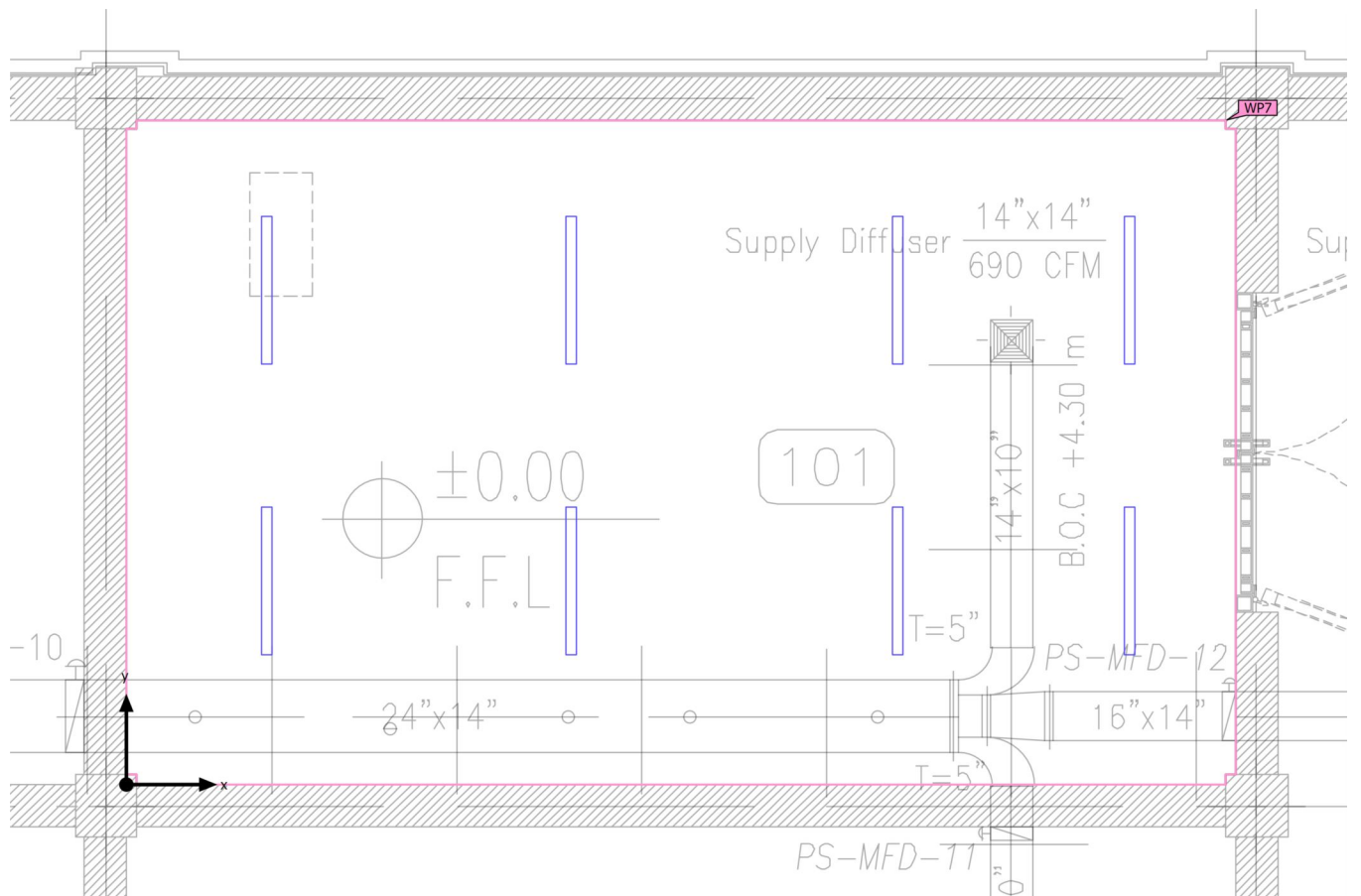
Luminous efficacy

170.0 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 5 (Light scene 1)

Calculation objects



Warehouse (1-8) · Ground Floor · Storage Room 5 (Light scene 1)

Calculation objects

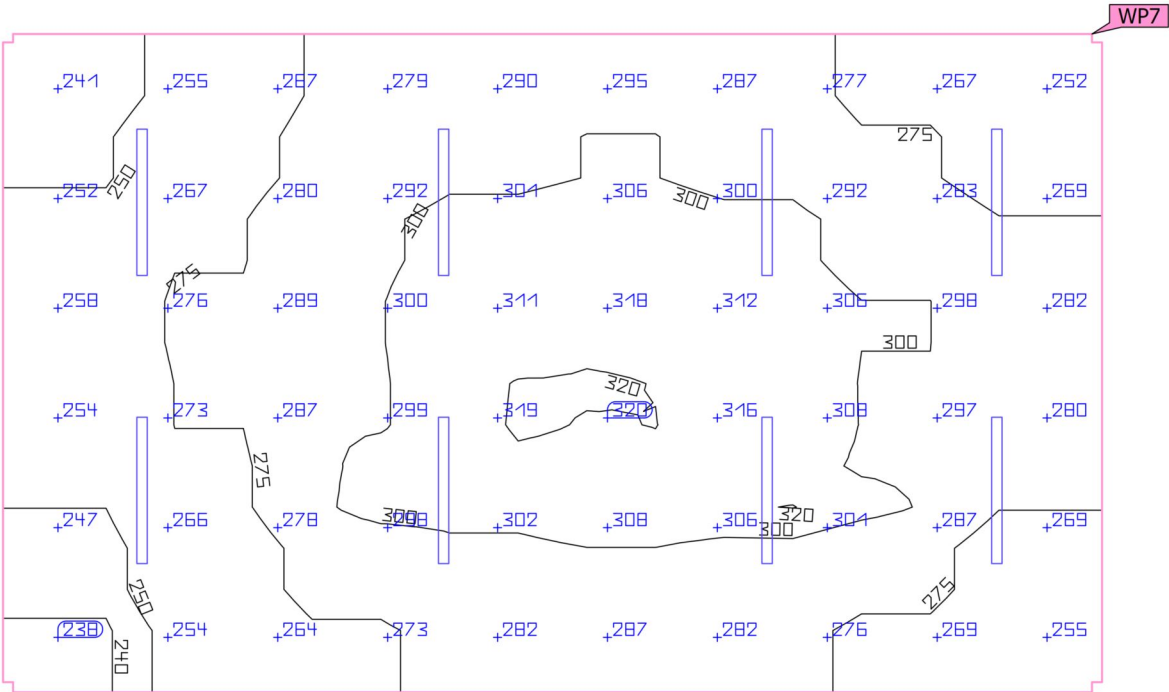
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 5) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	284 lx (≥ 200 lx) ✓	238 lx	321 lx	0.84 (≥ 0.50) ✓	0.74	WP7

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room 5 (Light scene 1)

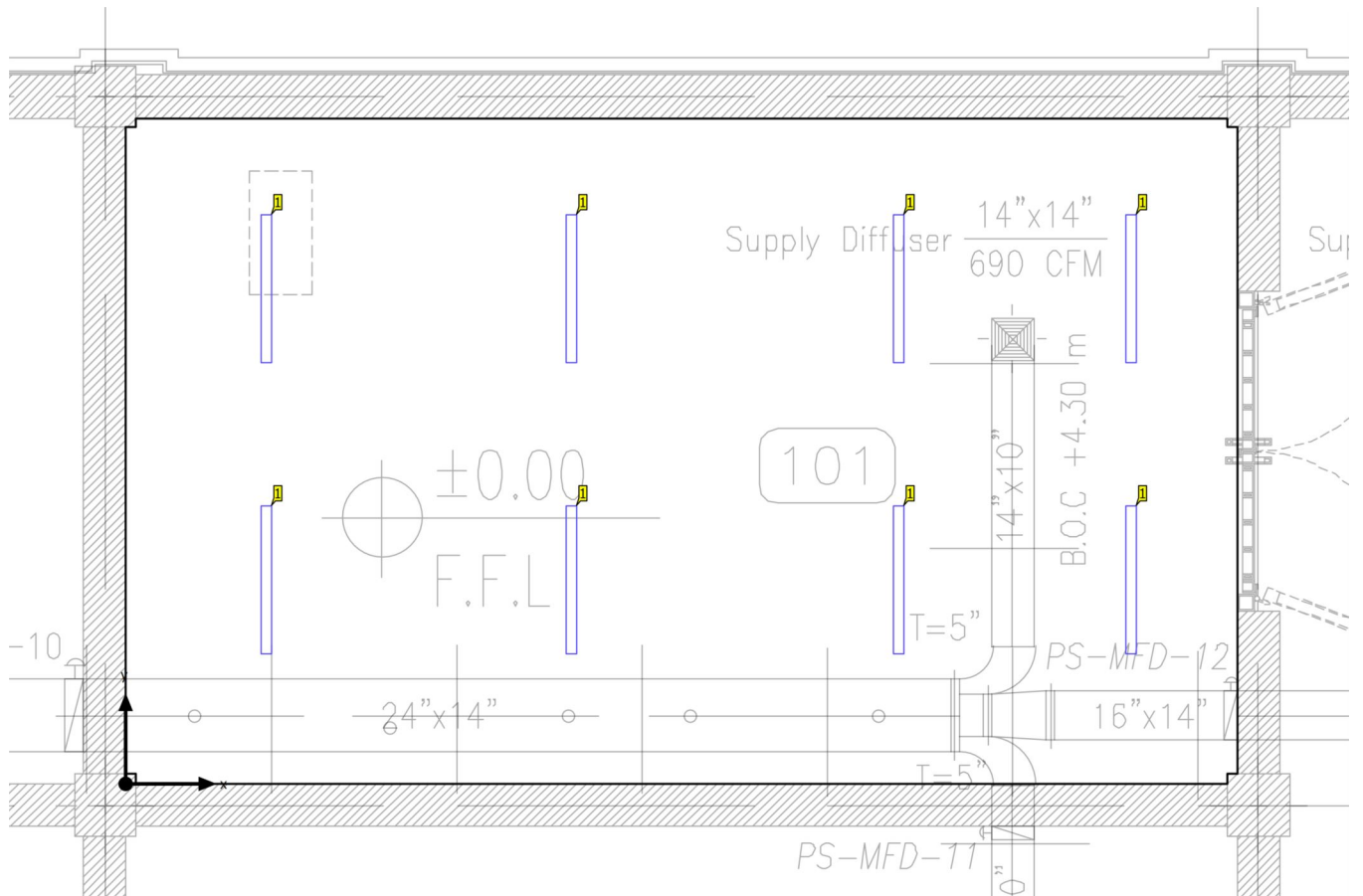
Working plane (Storage Room 5)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 5) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	284 lx (≥ 200 lx) ✓	238 lx	321 lx	0.84 (≥ 0.50) ✓	0.74	WP7

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room 5

Control group CG 1

Warehouse (1-8) · Ground Floor · Storage Room 5

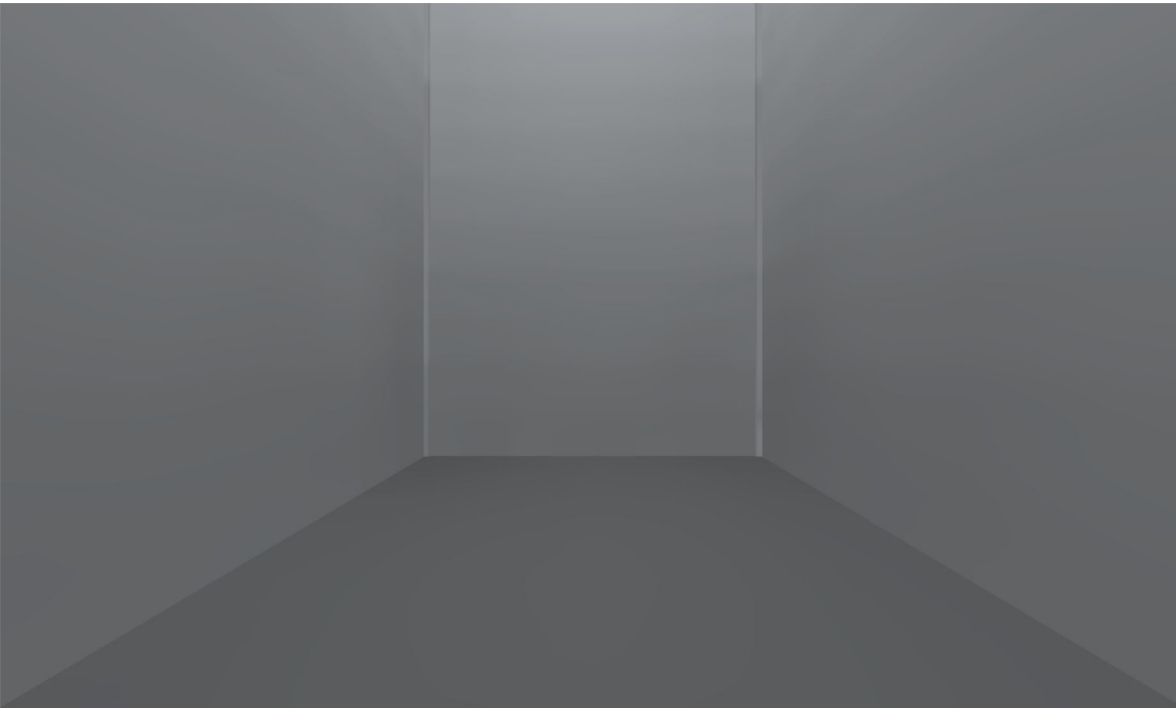
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1

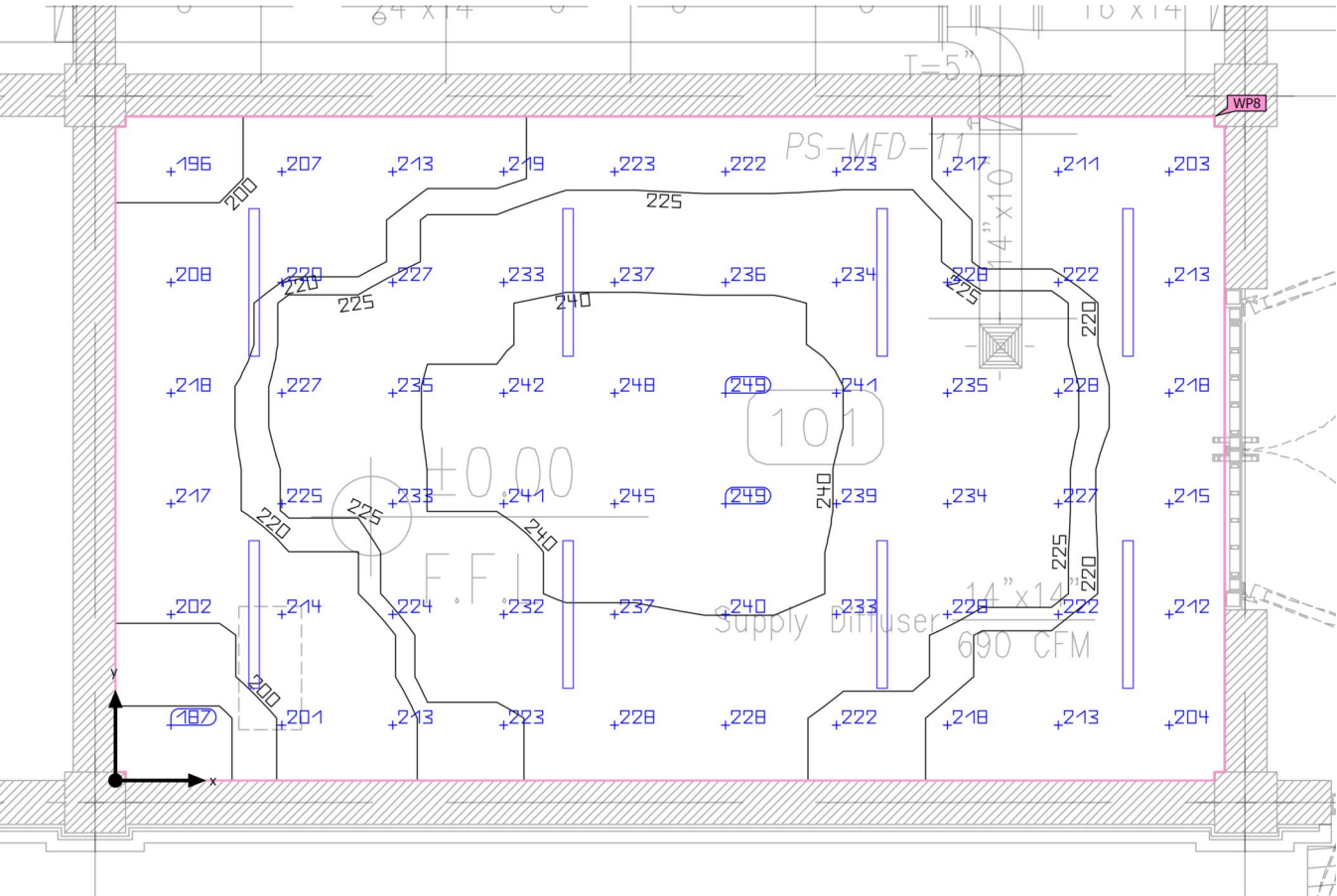


Warehouse (1-8) · Ground Floor · Storage Room 6

Description

Warehouse (1-8) · Ground Floor · Storage Room 6 (Light scene 1)

Summary



Ground area	48.63 m²
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %
Maintenance factor	0.80 (fixed)

Clearance height	12.000 m
Mounting height	12.000 m
Height _{Working plane}	0.000 m
Wall zone _{Working plane}	0.000 m

Warehouse (1-8) · Ground Floor · Storage Room 6 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	224 lx	≥ 200 lx	✓	WP8
	$U_o (g_1)$	0.84	≥ 0.50	✓	WP8
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1750 kWh/a	✗	
Space	Lighting power density	9.87 W/m ²	–		
		4.40 W/m ² /100 lx	–		

(1) Based on a rectangular space of 5.399 m x 9.012 m and SHR of 0.25.

(2) Calculated using DIN:18599-4.

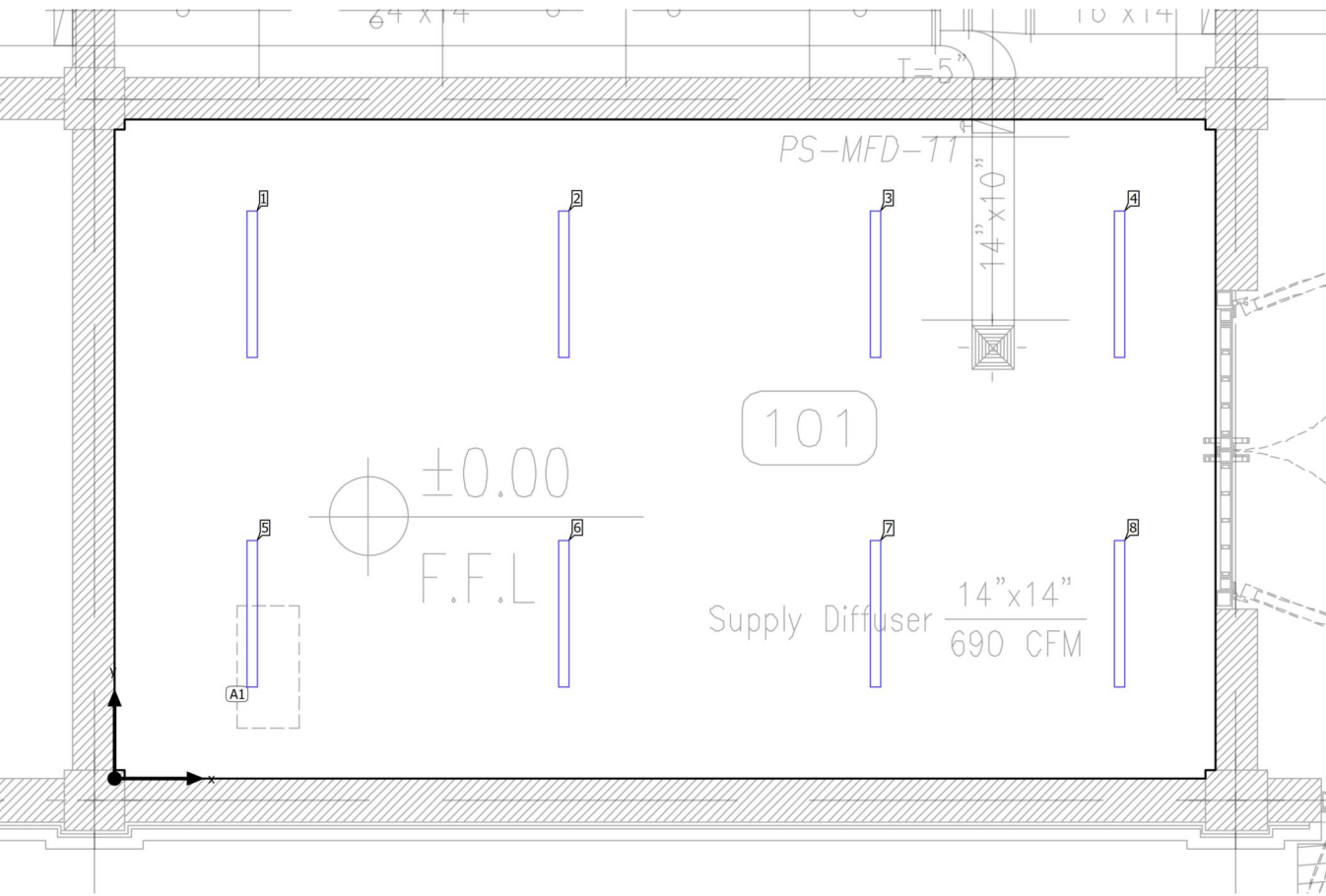
Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Luminaire list

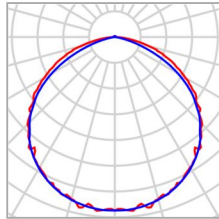
pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 6

Luminaire layout plan



Warehouse (1-8) · Ground Floor · Storage Room 6

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.126 m / 1.350 m / 12.000 m	1.126 m	4.049 m	12.000 m	1
X-direction	4 pcs., Centre - centre, Distances not equal	3.678 m	4.049 m	12.000 m	2
		6.229 m	4.049 m	12.000 m	3
Y-direction	2 pcs., Centre - centre, Distances not equal	8.226 m	4.049 m	12.000 m	4
		1.126 m	1.350 m	12.000 m	5
Arrangement	A1	3.678 m	1.350 m	12.000 m	6
		6.229 m	1.350 m	12.000 m	7
		8.226 m	1.350 m	12.000 m	8

Warehouse (1-8) · Ground Floor · Storage Room 6

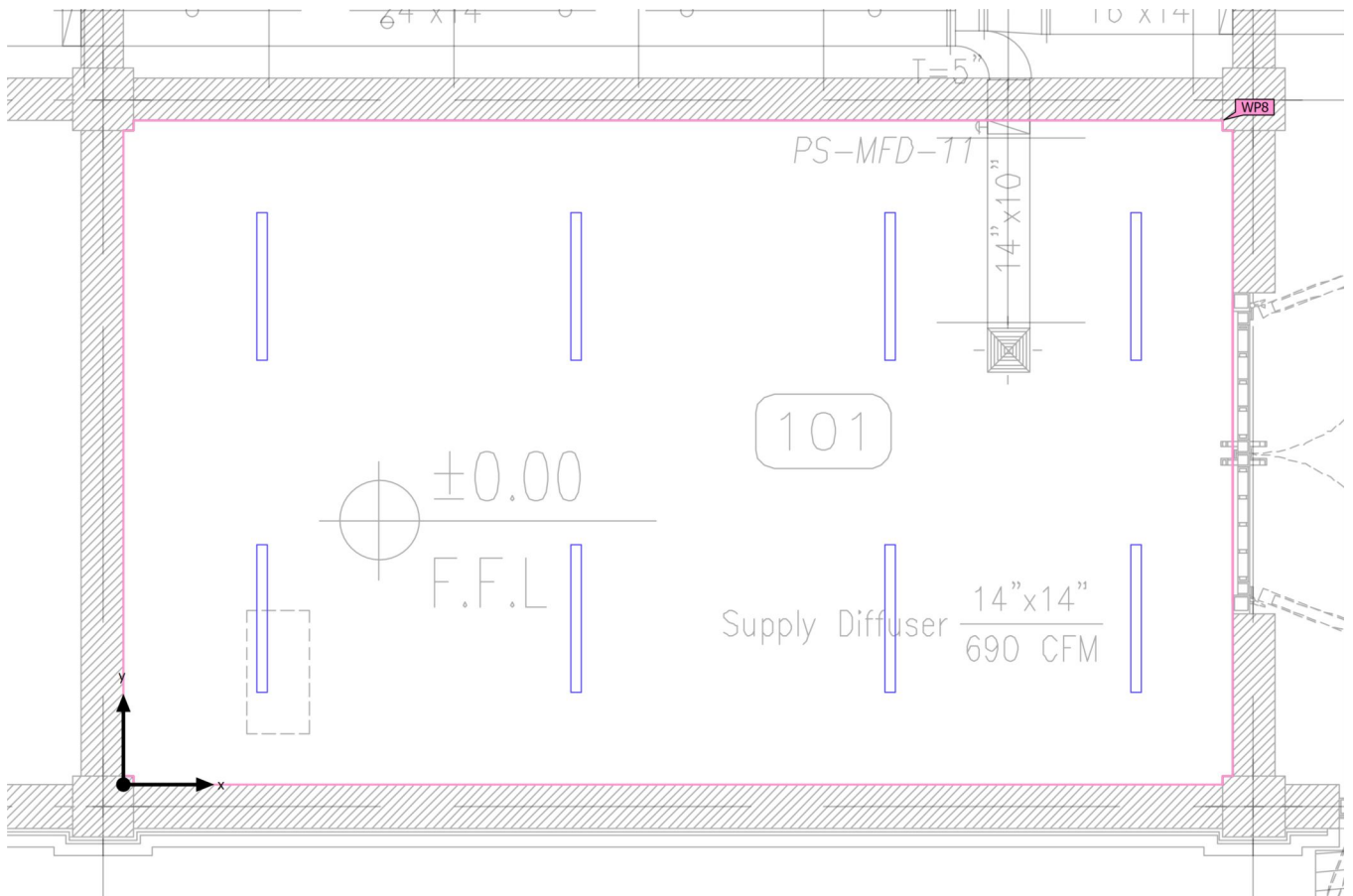
Luminaire list

Φ_{total} 81600 lm	P_{total} 480.0 W	Luminous efficacy 170.0 lm/W
----------------------------	------------------------	---------------------------------

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 6 (Light scene 1)

Calculation objects



Warehouse (1-8) · Ground Floor · Storage Room 6 (Light scene 1)

Calculation objects

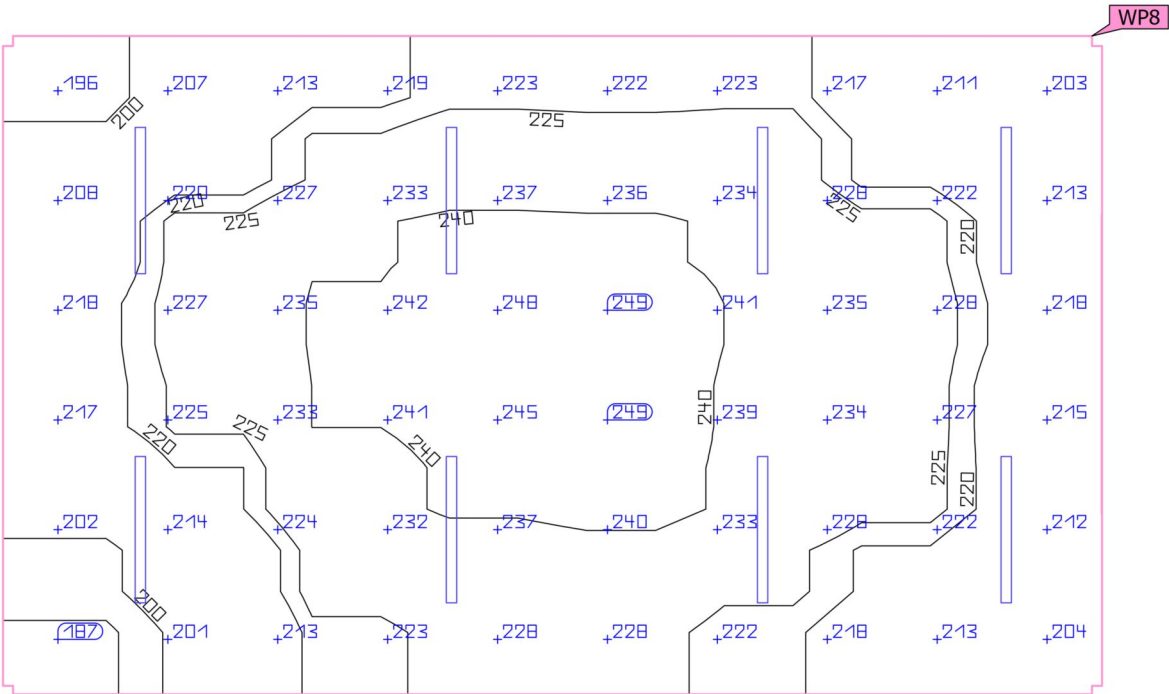
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 6) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	224 lx (≥ 200 lx) ✓	188 lx	247 lx	0.84 (≥ 0.50) ✓	0.76	WP8

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room 6 (Light scene 1)

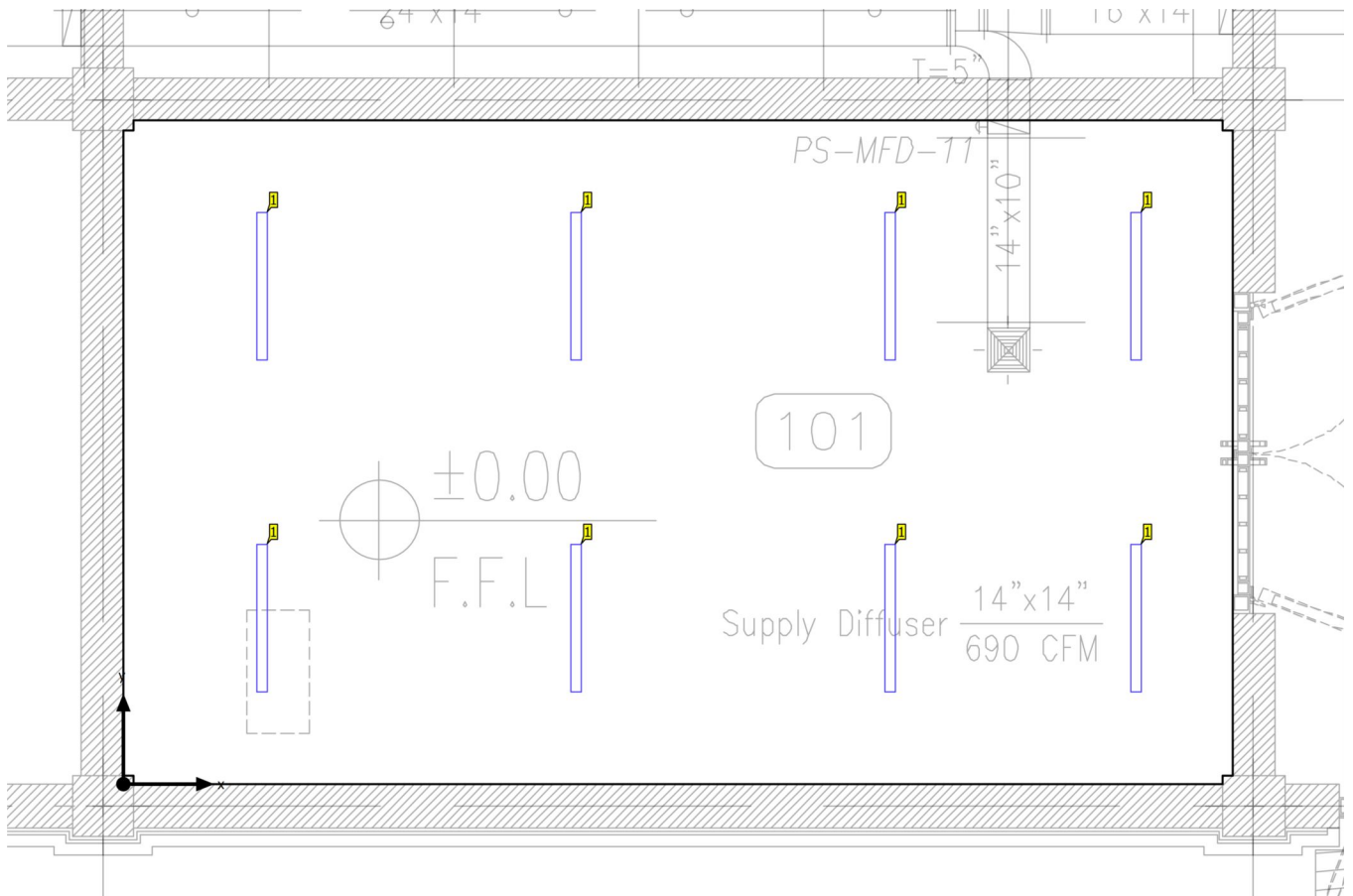
Working plane (Storage Room 6)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 6) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	224 lx (≥ 200 lx) ✓	188 lx	247 lx	0.84 (≥ 0.50) ✓	0.76	WP8

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room 6

Control group CG 1

Warehouse (1-8) · Ground Floor · Storage Room 6

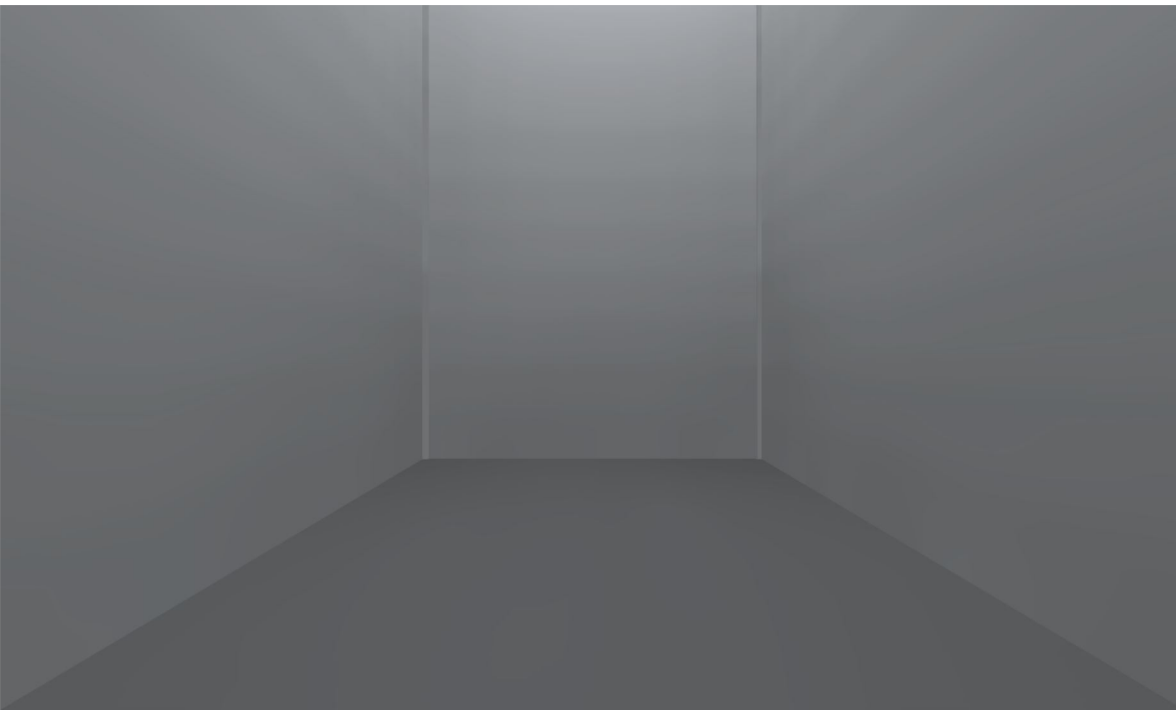
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

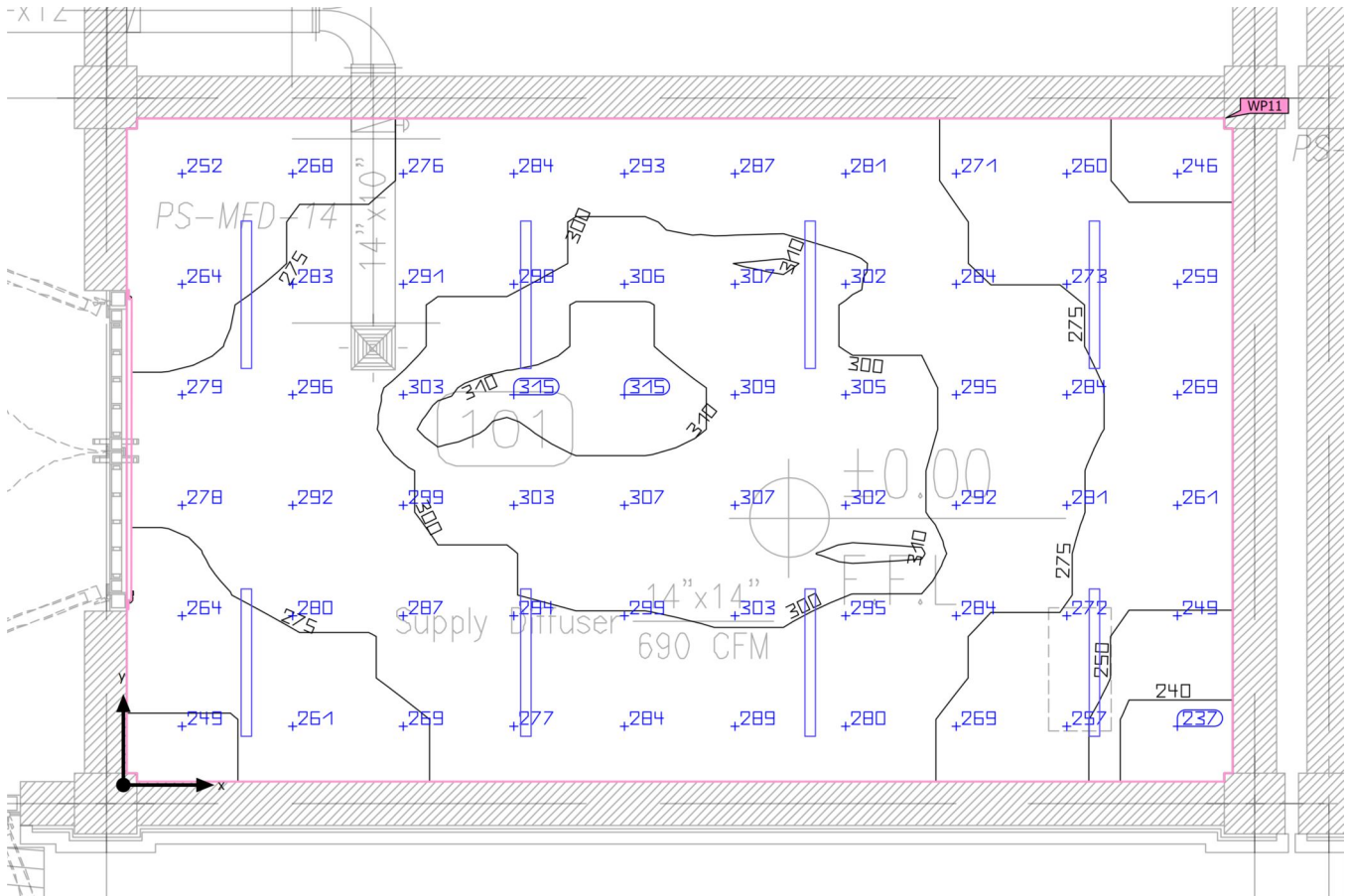
pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1



Warehouse (1-8) · Ground Floor · Storage Room 8

Description

Warehouse (1-8) · Ground Floor · Storage Room 8 (Light scene 1)

Summary

Ground area	48.56 m ²	Clearance height	12.000 m
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %	Mounting height	10.000 m
Maintenance factor	0.80 (fixed)	Height _{Working plane}	0.000 m
		Wall zone _{Working plane}	0.000 m

Warehouse (1-8) · Ground Floor · Storage Room 8 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	283 lx	≥ 200 lx	✓	WP11
	$U_o (g_1)$	0.84	≥ 0.50	✓	WP11
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1750 kWh/a	✗	
Space	Lighting power density	9.89 W/m ²	–		
		3.49 W/m ² /100 lx	–		

(1) Based on a rectangular space of 8.998 m x 5.399 m and SHR of 0.25.

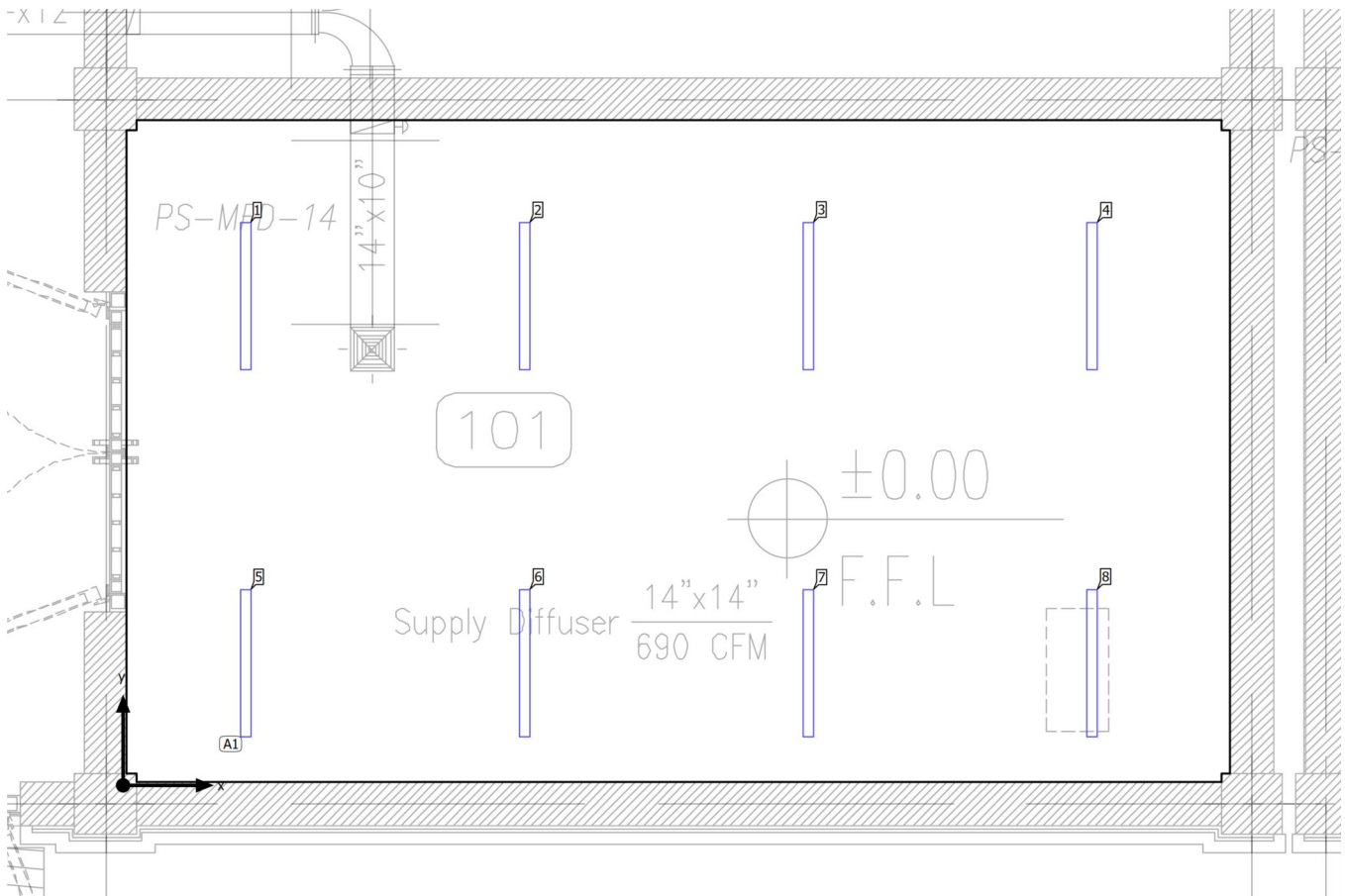
(2) Calculated using DIN:18599-4.

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

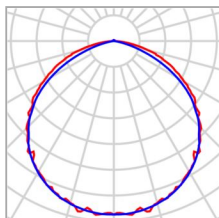
Luminaire list

pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 8

Luminaire layout plan

Warehouse (1-8) · Ground Floor · Storage Room 8

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.000 m / 3.991 m / 10.000 m	1.000 m	3.991 m	10.000 m	1
X-direction	4 pcs., Centre - centre, Distances not equal	3.275 m	3.991 m	10.000 m	2
		5.588 m	3.991 m	10.000 m	3
Y-direction	2 pcs., Centre - centre, Distances not equal	7.901 m	3.991 m	10.000 m	4
		1.000 m	0.996 m	10.000 m	5
Arrangement	A1	3.275 m	0.996 m	10.000 m	6
		5.588 m	0.996 m	10.000 m	7
		7.901 m	0.996 m	10.000 m	8

Warehouse (1-8) · Ground Floor · Storage Room 8

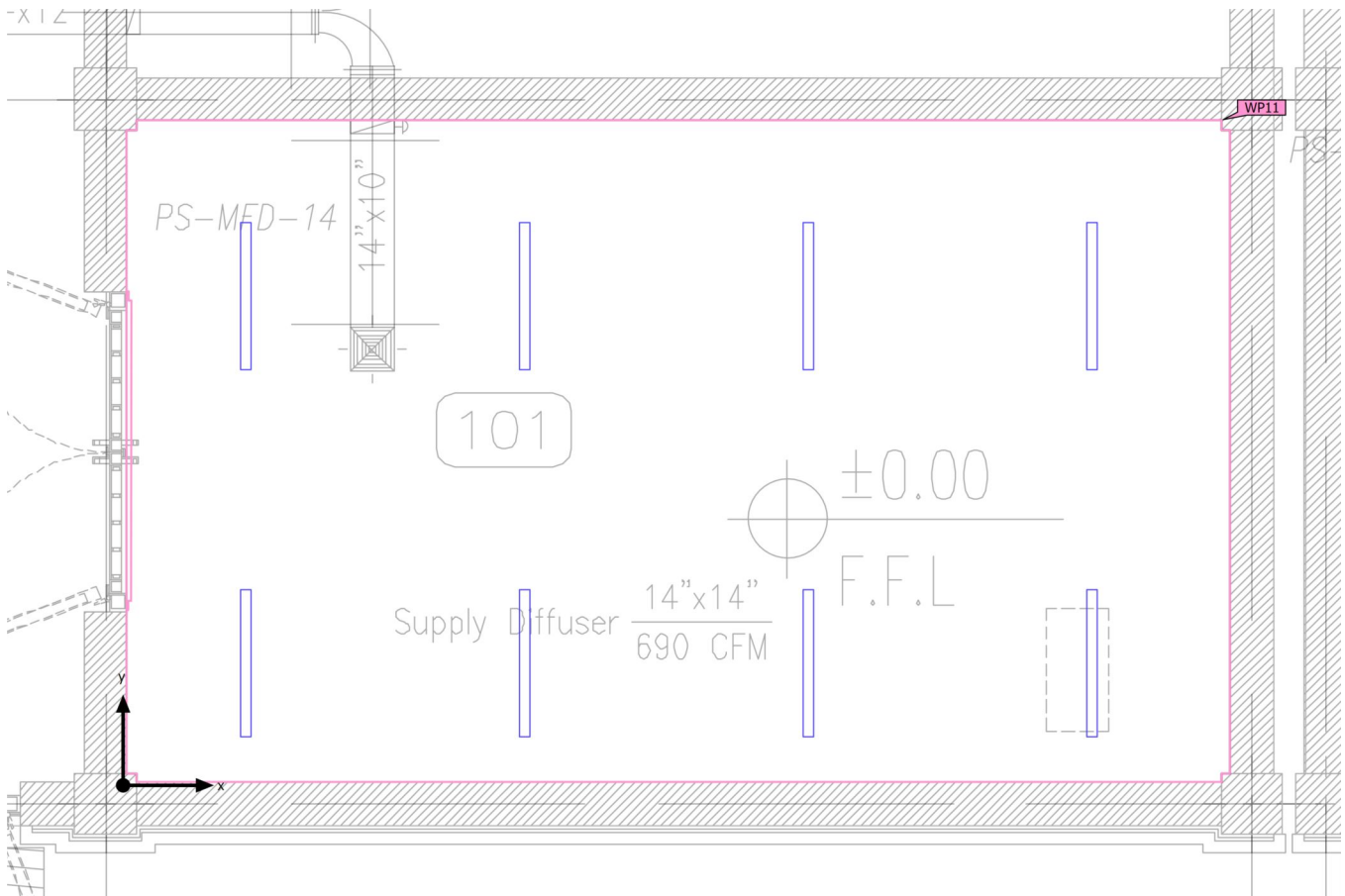
Luminaire list

Φ_{total} 81600 lm	P_{total} 480.0 W	Luminous efficacy 170.0 lm/W
----------------------------	------------------------	---------------------------------

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room 8 (Light scene 1)

Calculation objects



Warehouse (1-8) · Ground Floor · Storage Room 8 (Light scene 1)

Calculation objects

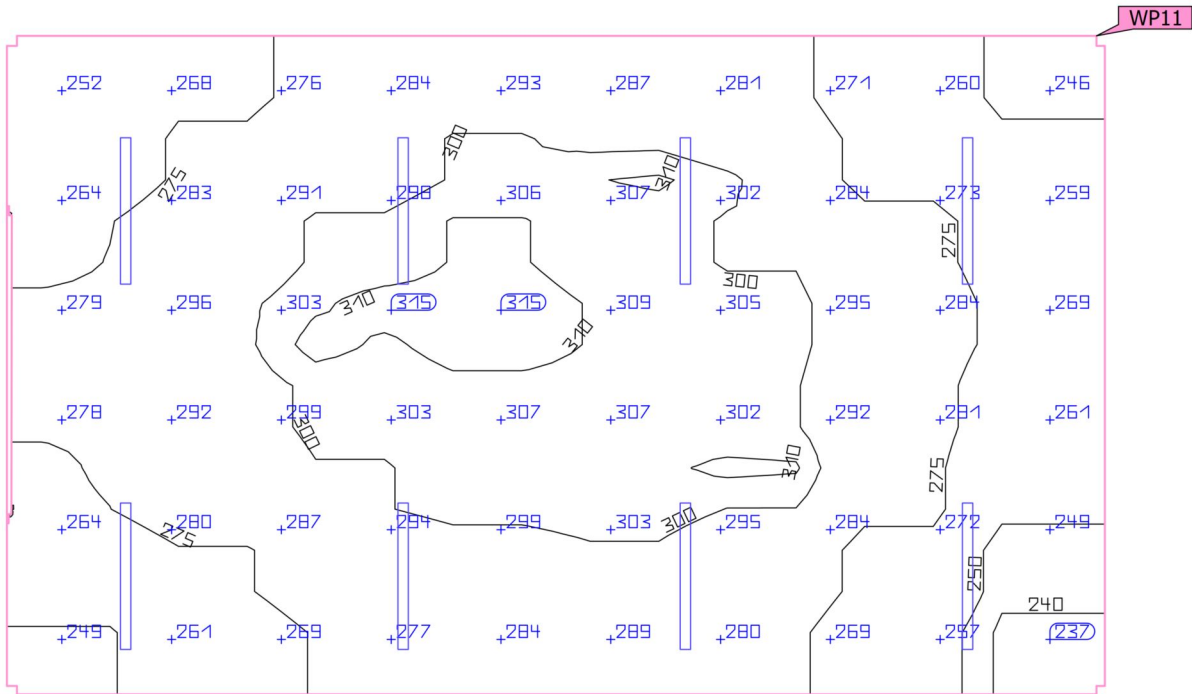
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 8) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	283 lx (≥ 200 lx) ✓	237 lx	316 lx	0.84 (≥ 0.50) ✓	0.75	WP11

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room 8 (Light scene 1)

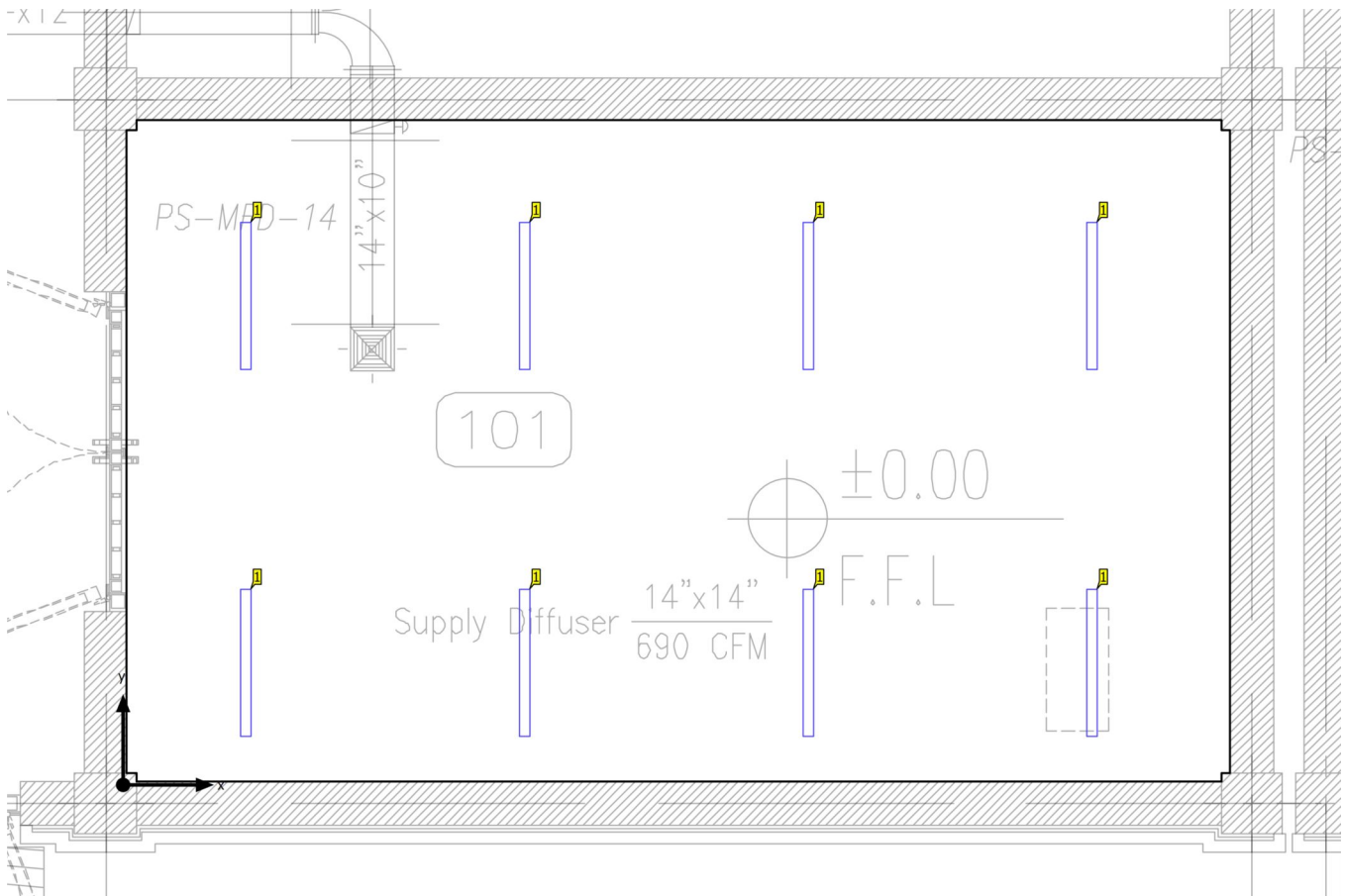
Working plane (Storage Room 8)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 8) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	283 lx (≥ 200 lx) ✓	237 lx	316 lx	0.84 (≥ 0.50) ✓	0.75	WP11

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room 8

Control group CG 1

Warehouse (1-8) · Ground Floor · Storage Room 8

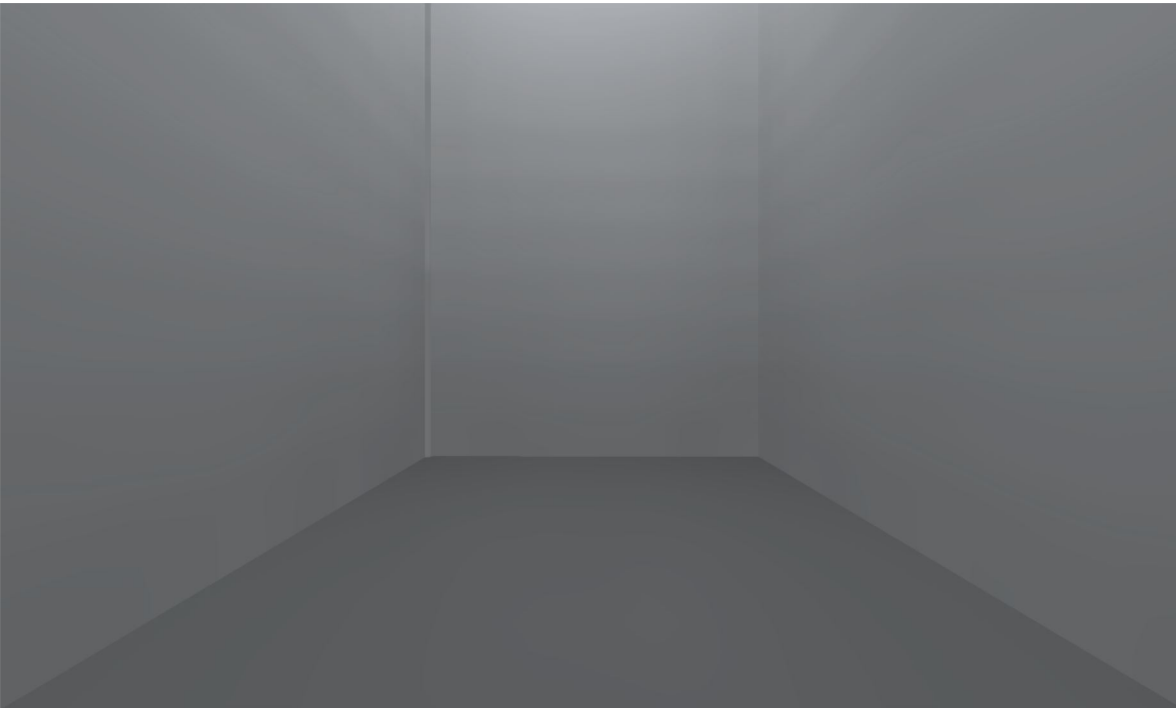
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1

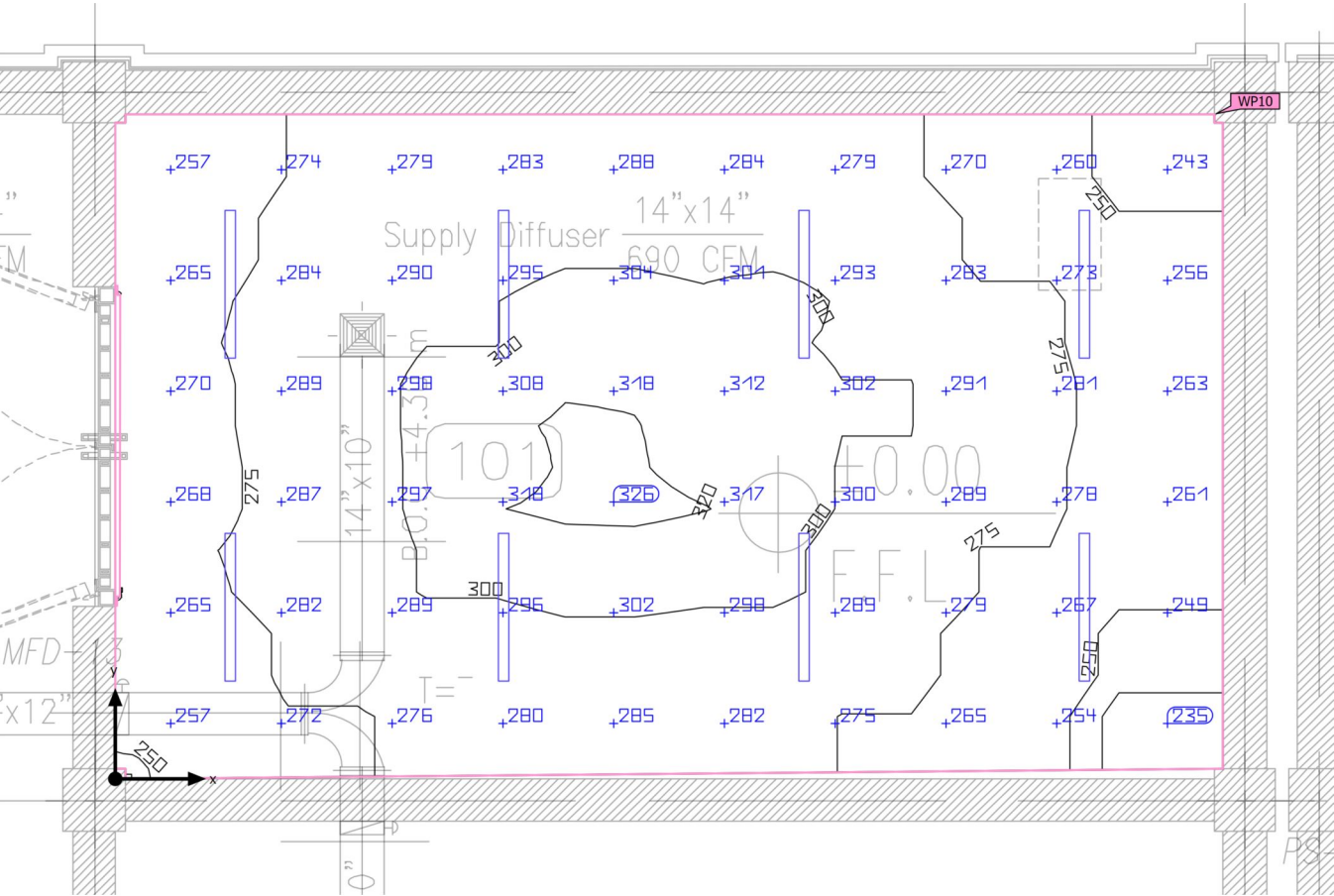


Warehouse (1-8) · Ground Floor · Storage Room7

Description

Warehouse (1-8) · Ground Floor · Storage Room7 (Light scene 1)

Summary



Ground area	48.20 m ²
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %
Maintenance factor	0.80 (fixed)

Clearance height	12.000 m
Mounting height	10.000 m
Height _{Working plane}	0.000 m
Wall zone _{Working plane}	0.000 m

Warehouse (1-8) · Ground Floor · Storage Room7 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	282 lx	≥ 200 lx	✓	WP10
	$U_o (g_1)$	0.83	≥ 0.50	✓	WP10
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1700 kWh/a	✗	
Space	Lighting power density	9.96 W/m ²	–		
		3.53 W/m ² /100 lx	–		

(1) Based on a rectangular space of 5.399 m x 8.998 m and SHR of 0.25.

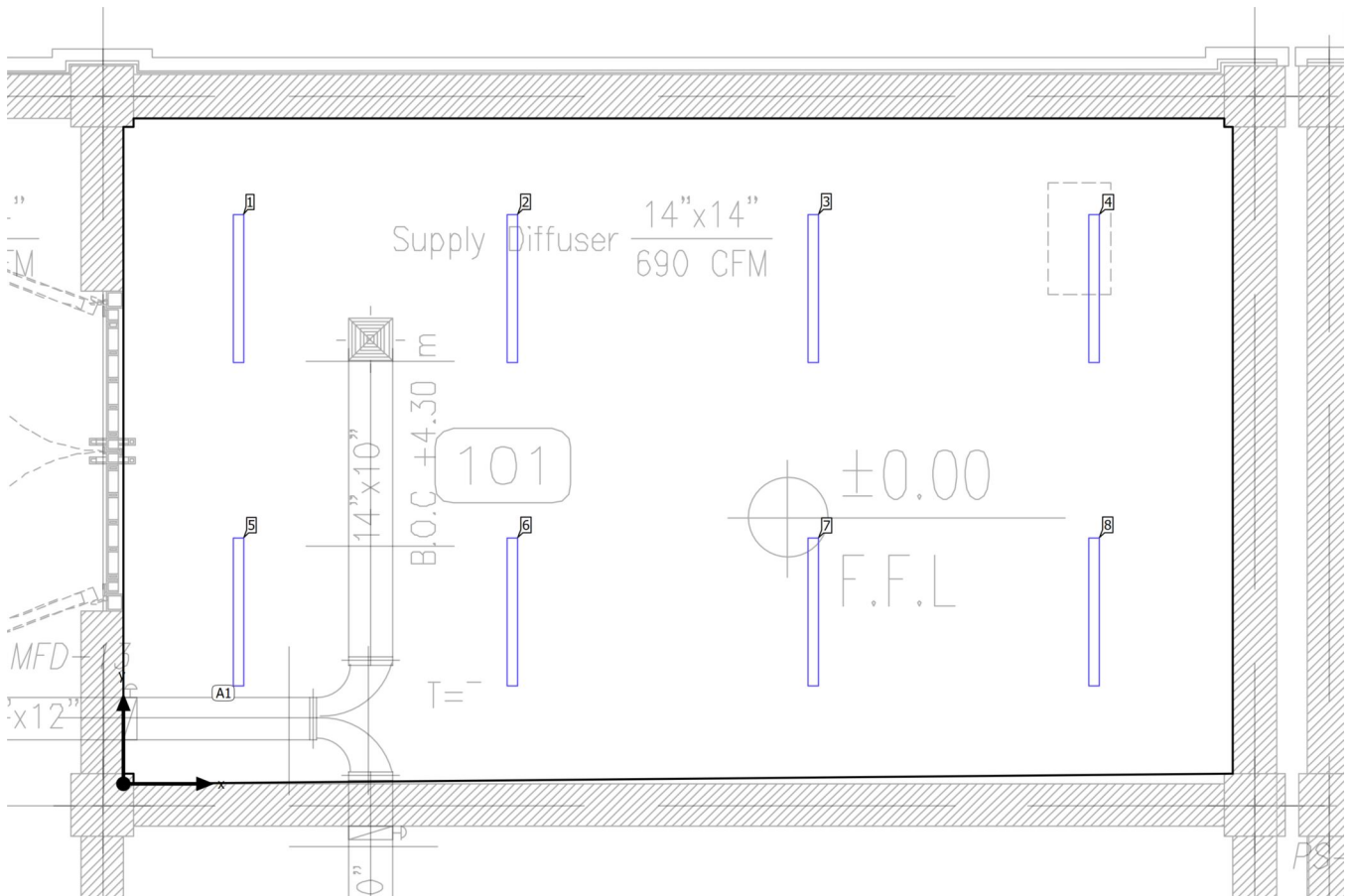
(2) Calculated using DIN:18599-4.

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

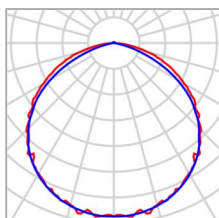
Luminaire list

pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room7

Luminaire layout plan

Warehouse (1-8) · Ground Floor · Storage Room7

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	0.934 m / 1.394 m / 10.000 m	0.934 m	4.018 m	10.000 m	1
X-direction	4 pcs., Centre - centre, Distances not equal	3.155 m	4.018 m	10.000 m	2
		5.596 m	4.018 m	10.000 m	3
		7.873 m	4.018 m	10.000 m	4
Y-direction	2 pcs., Centre - centre, Distances not equal	0.934 m	1.394 m	10.000 m	5
		3.155 m	1.394 m	10.000 m	6
		5.596 m	1.394 m	10.000 m	7
Arrangement	A1	7.873 m	1.394 m	10.000 m	8

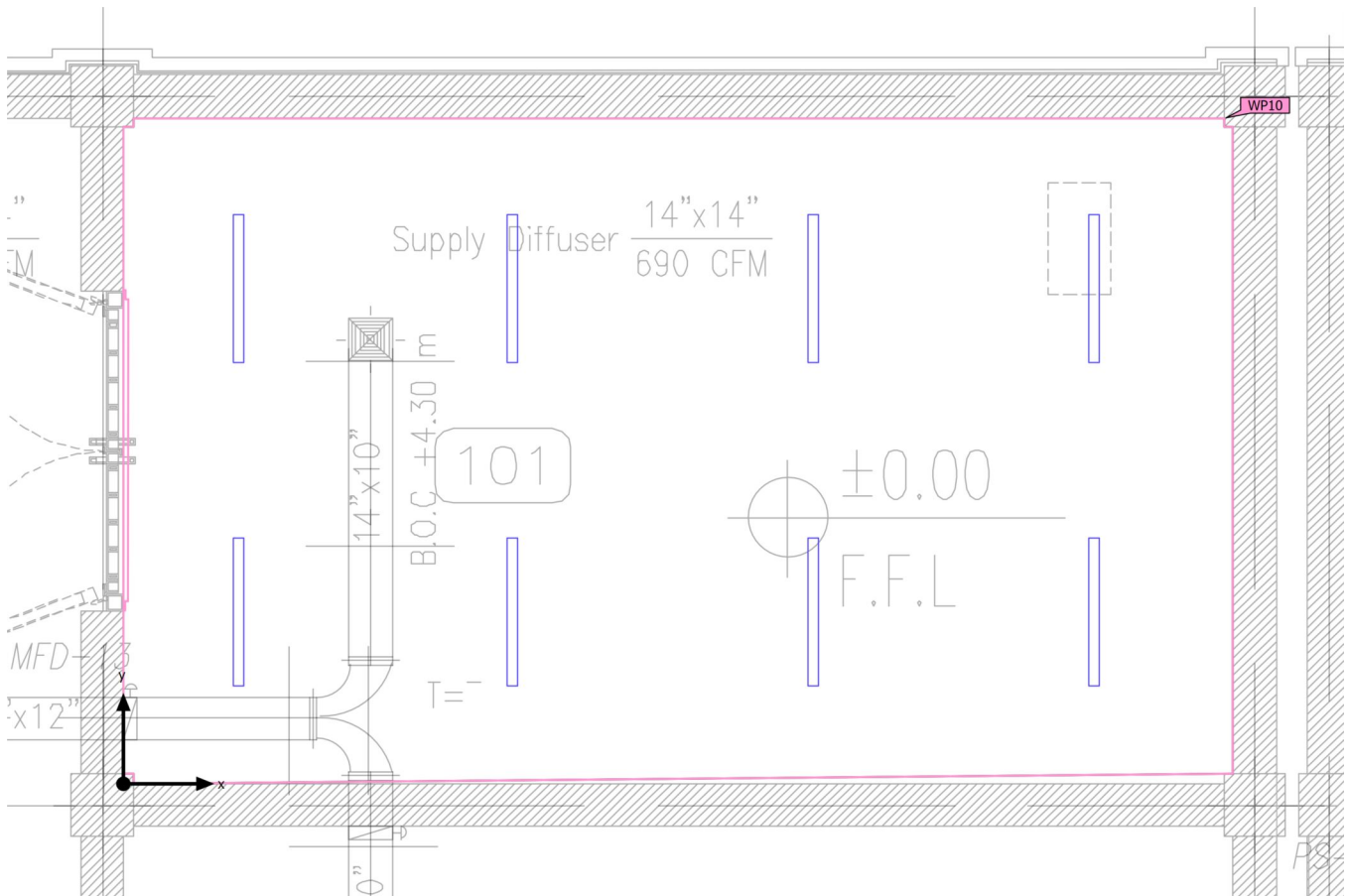
Warehouse (1-8) · Ground Floor · Storage Room7

Luminaire list

Φ_{total} 81600 lm	P_{total} 480.0 W	Luminous efficacy 170.0 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (1-8) · Ground Floor · Storage Room7 (Light scene 1)

Calculation objects

Warehouse (1-8) · Ground Floor · Storage Room7 (Light scene 1)

Calculation objects

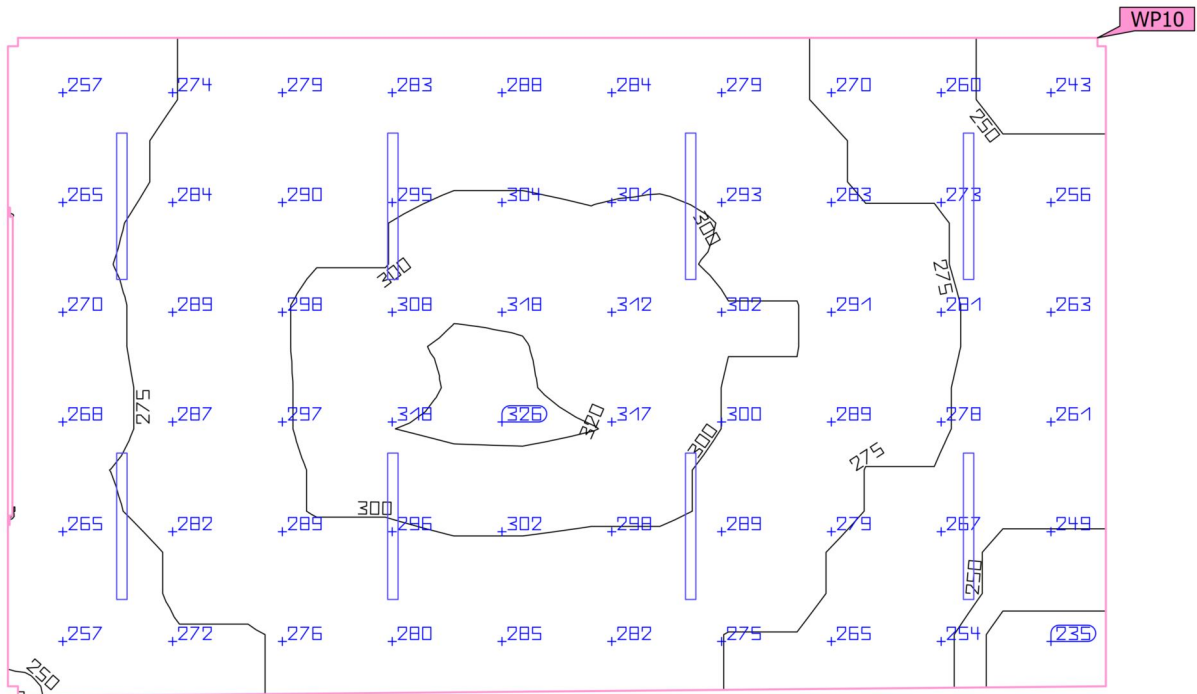
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room7) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	282 lx (≥ 200 lx) ✓	235 lx	325 lx	0.83 (≥ 0.50) ✓	0.72	WP10

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room7 (Light scene 1)

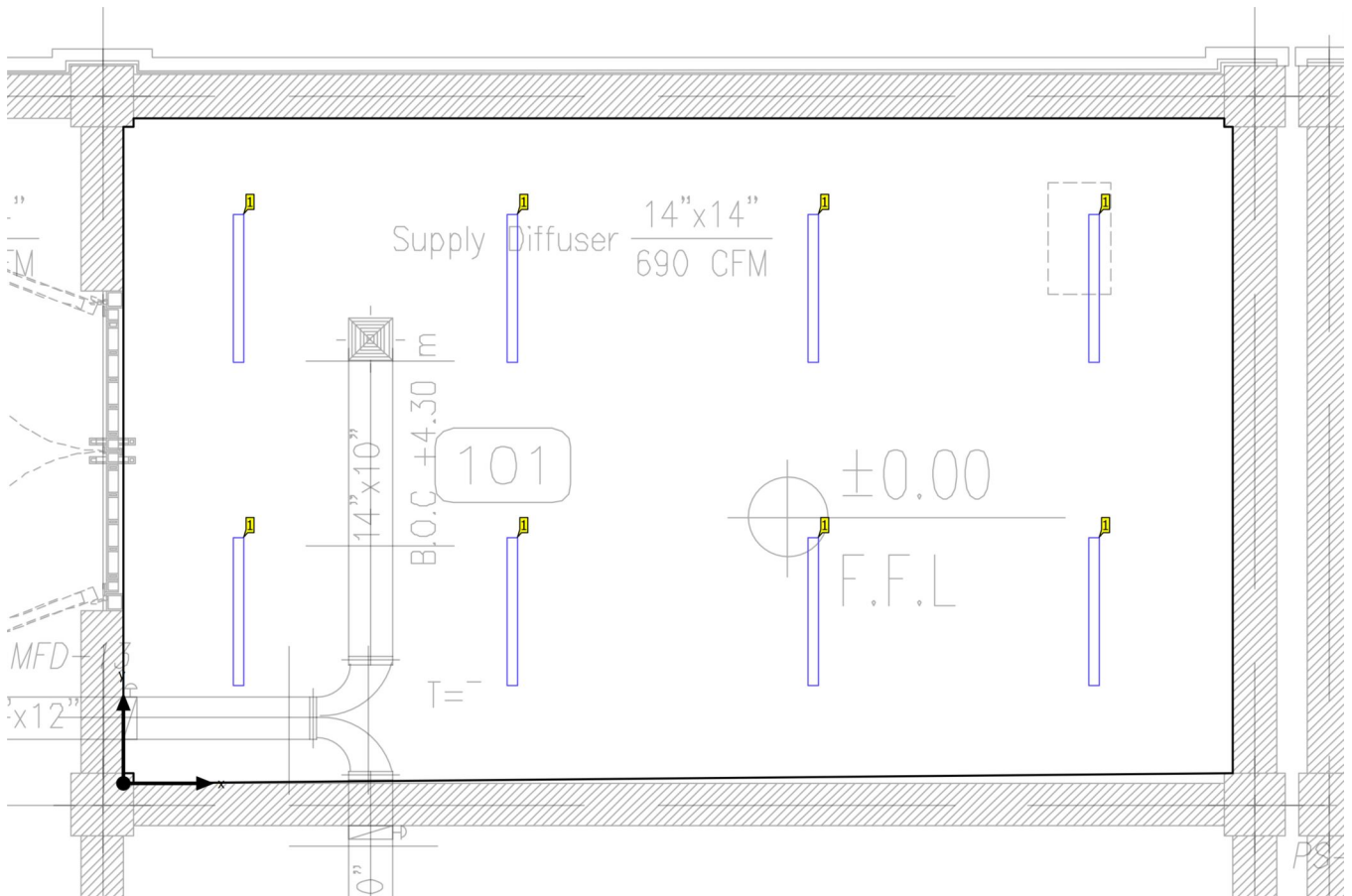
Working plane (Storage Room7)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room7) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	282 lx (≥ 200 lx) ✓	235 lx	325 lx	0.83 (≥ 0.50) ✓	0.72	WP10

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (1-8) · Ground Floor · Storage Room7

Control group CG 1

Warehouse (1-8) · Ground Floor · Storage Room7

Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1



Warehouse (8a-12)

Description

Warehouse (8a-12)

Luminaire list Φ_{total}

489600 lm

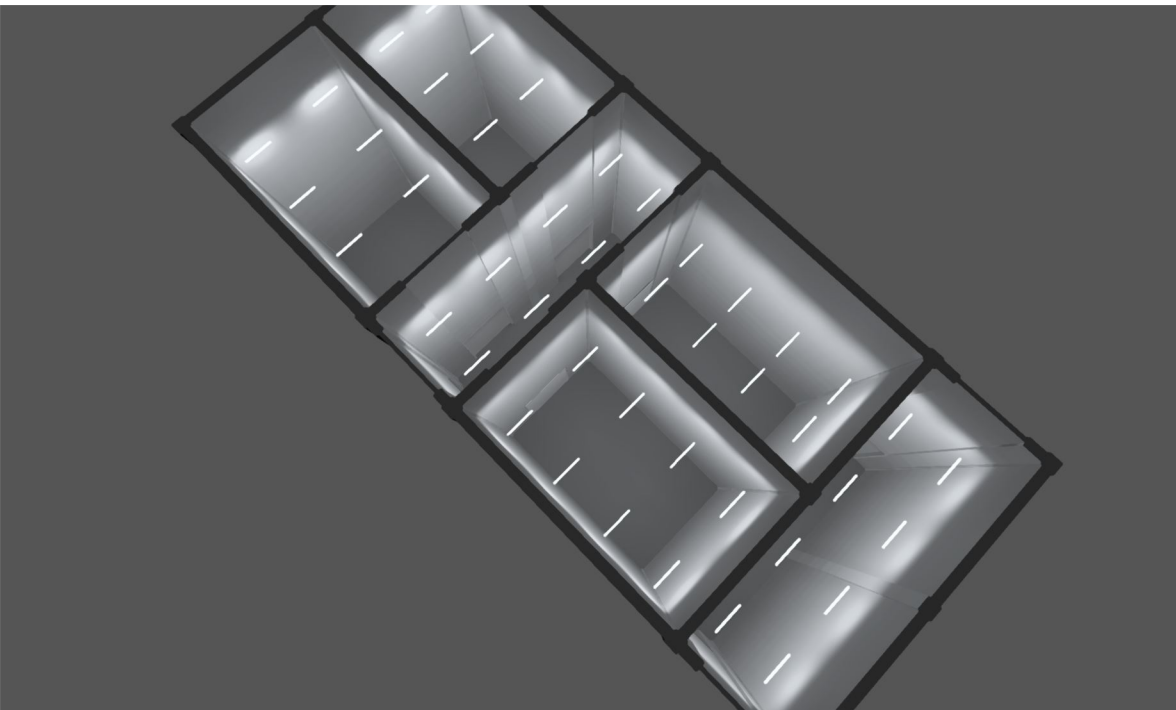
 P_{total}

2880.0 W

Luminous efficacy

170.0 lm/W

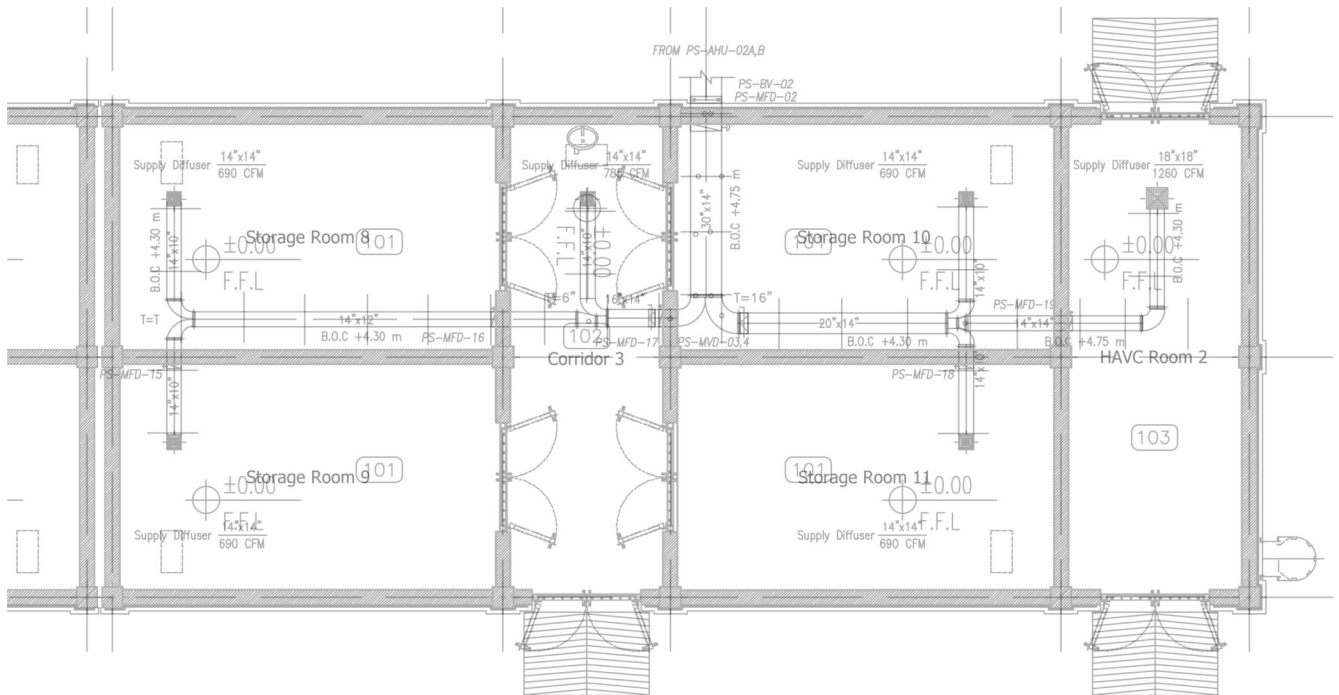
pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
48	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W



Warehouse (8a-12) · Ground Floor

Description

Warehouse (8a-12) · Ground Floor (Light scene 1)

Room list

Warehouse (8a-12) · Ground Floor (Light scene 1)

Room list

Corridor 3

P_{total}
480.0 W

A_{Room}
41.87 m²

Lighting power density
11.46 W/m² = 4.30 W/m²/100 lx (Space)

$\bar{E}_{\text{perpendicular (Working plane)}}$
267 lx

pcs.	Manufacturer	Article No.	Article name	P	$\Phi_{\text{Luminaire}}$
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

HAVC Room 2

P_{total}
480.0 W

A_{Room}
46.71 m²

Lighting power density
10.28 W/m² = 3.88 W/m²/100 lx (Space)

$\bar{E}_{\text{perpendicular (Working plane)}}$
265 lx

pcs.	Manufacturer	Article No.	Article name	P	$\Phi_{\text{Luminaire}}$
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Storage Room 8

P_{total}
480.0 W

A_{Room}
48.92 m²

Lighting power density
9.81 W/m² = 3.49 W/m²/100 lx (Space)

$\bar{E}_{\text{perpendicular (Working plane)}}$
281 lx

pcs.	Manufacturer	Article No.	Article name	P	$\Phi_{\text{Luminaire}}$
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Warehouse (8a-12) · Ground Floor (Light scene 1)

Room list

Storage Room 9

P_{total}
480.0 W

A_{Room}
48.83 m²

Lighting power density
9.83 W/m² = 3.56 W/m²/100 lx (Space)

$\bar{E}_{\text{perpendicular (Working plane)}}$
276 lx

pcs.	Manufacturer	Article No.	Article name	P	$\Phi_{\text{Luminaire}}$
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Storage Room 10

P_{total}
480.0 W

A_{Room}
48.94 m²

Lighting power density
9.81 W/m² = 3.39 W/m²/100 lx (Space)

$\bar{E}_{\text{perpendicular (Working plane)}}$
289 lx

pcs.	Manufacturer	Article No.	Article name	P	$\Phi_{\text{Luminaire}}$
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Storage Room 11

P_{total}
480.0 W

A_{Room}
48.69 m²

Lighting power density
9.86 W/m² = 3.49 W/m²/100 lx (Space)

$\bar{E}_{\text{perpendicular (Working plane)}}$
283 lx

pcs.	Manufacturer	Article No.	Article name	P	$\Phi_{\text{Luminaire}}$
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm

Warehouse (8a-12) · Ground Floor

Luminaire list Φ_{total}

489600 lm

 P_{total}

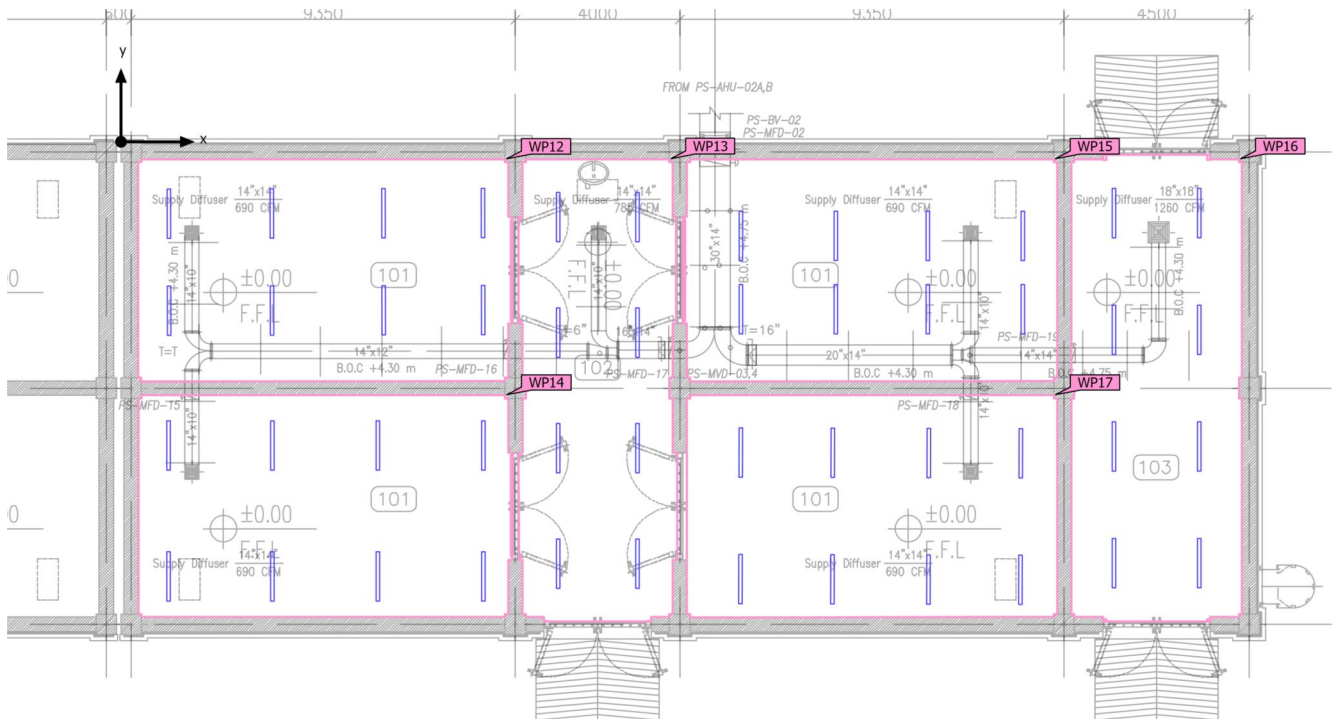
2880.0 W

Luminous efficacy

170.0 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
48	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (8a-12) · Ground Floor (Light scene 1)

Calculation objects

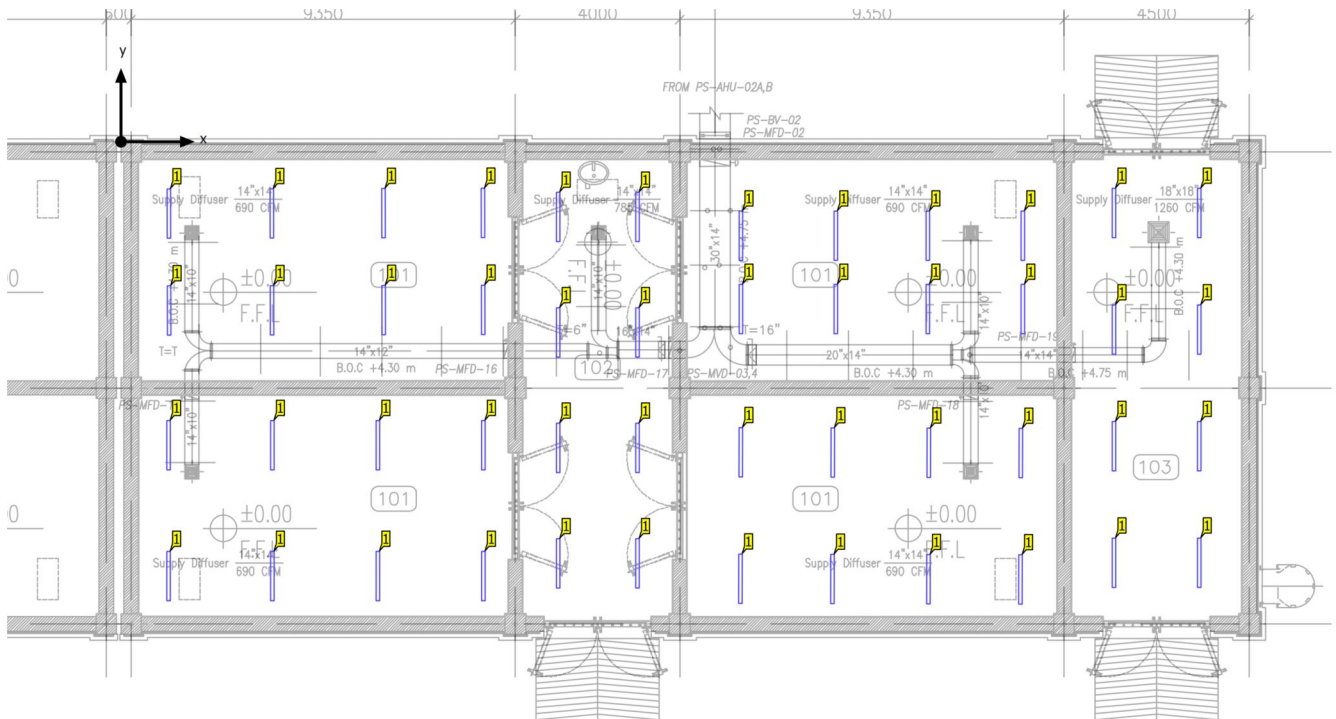
Warehouse (8a-12) · Ground Floor (Light scene 1)

Calculation objects

Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Corridor 3) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	267 lx (≥ 200 lx) ✓	137 lx	299 lx	0.51 (≥ 0.40) ✓	0.46	WP13
Working plane (HAVC Room 2) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	265 lx (≥ 200 lx) ✓	190 lx	298 lx	0.72 (≥ 0.50) ✓	0.64	WP16
Working plane (Storage Room 10) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	289 lx (≥ 200 lx) ✓	210 lx	336 lx	0.73 (≥ 0.50) ✓	0.63	WP15
Working plane (Storage Room 11) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	283 lx (≥ 200 lx) ✓	232 lx	319 lx	0.82 (≥ 0.50) ✓	0.73	WP17
Working plane (Storage Room 8) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	281 lx (≥ 200 lx) ✓	214 lx	318 lx	0.76 (≥ 0.50) ✓	0.67	WP12
Working plane (Storage Room 9) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	276 lx (≥ 200 lx) ✓	125 lx	318 lx	0.45 (≥ 0.40) ✓	0.39	WP14

Warehouse (8a-12) · Ground Floor

Control group CG 1

Warehouse (8a-12) · Ground Floor

Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
48	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1

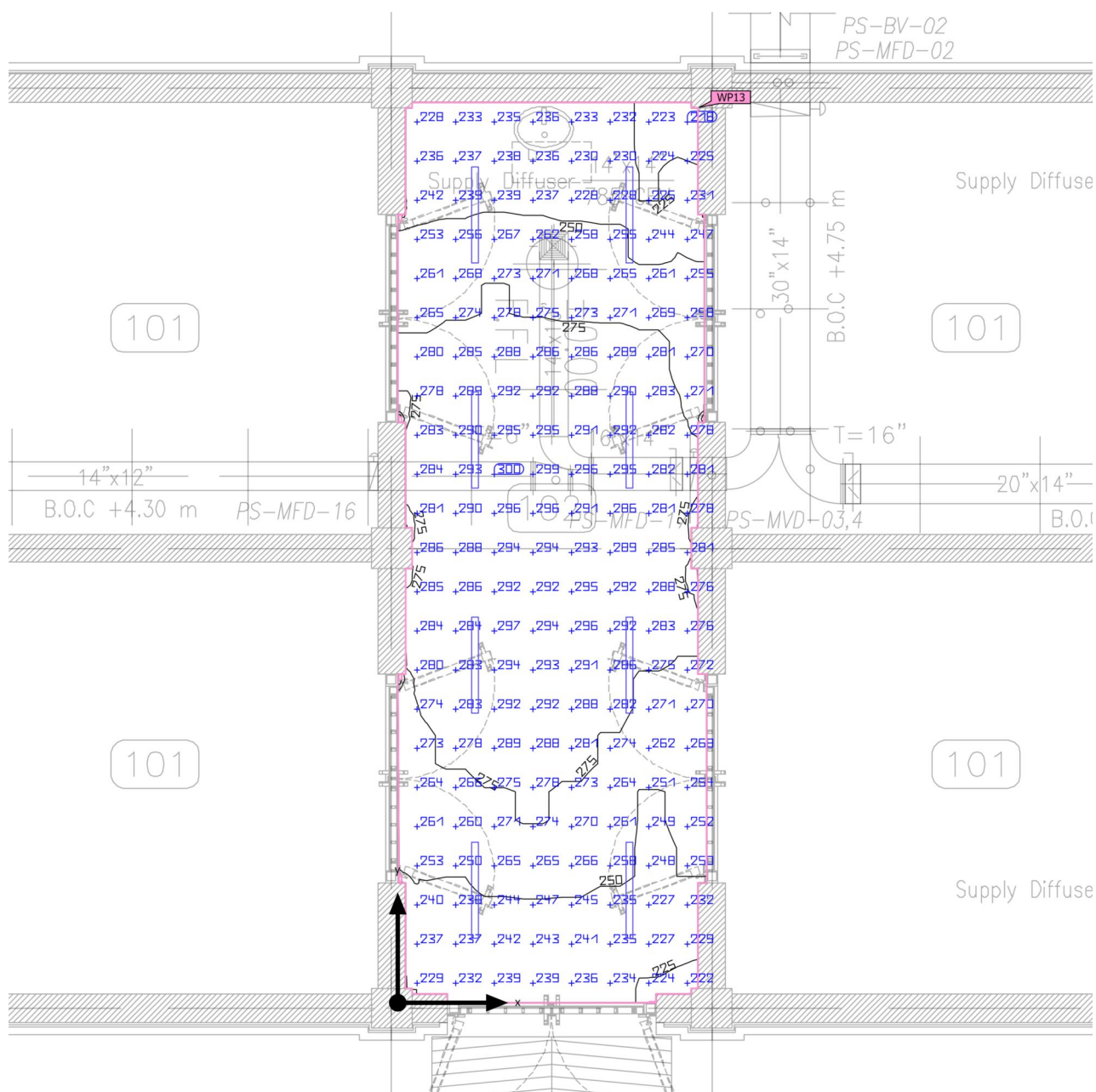


Warehouse (8a-12) · Ground Floor · Corridor 3

Description

Warehouse (8a-12) · Ground Floor · Corridor 3 (Light scene 1)

Summary



Ground area	41.87 m ²	Clearance height	12.000 m
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %	Mounting height	10.000 m
Maintenance factor	0.80 (fixed)	Height _{Working plane}	0.000 m
		Wall zone _{Working plane}	0.000 m

Warehouse (8a-12) · Ground Floor · Corridor 3 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	267 lx	≥ 200 lx	✓	WP13
	$U_o (g_1)$	0.51	≥ 0.40	✓	WP13
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 28	✓	
Energy estimation ⁽²⁾	Consumption	528 kWh/a	max. 1500 kWh/a	✓	
Space	Lighting power density	11.46 W/m ²	–		
		4.30 W/m ² /100 lx	–		

(1) Based on a rectangular space of 3.861 m x 11.251 m and SHR of 0.25.

(2) Calculated using DIN:18599-4.

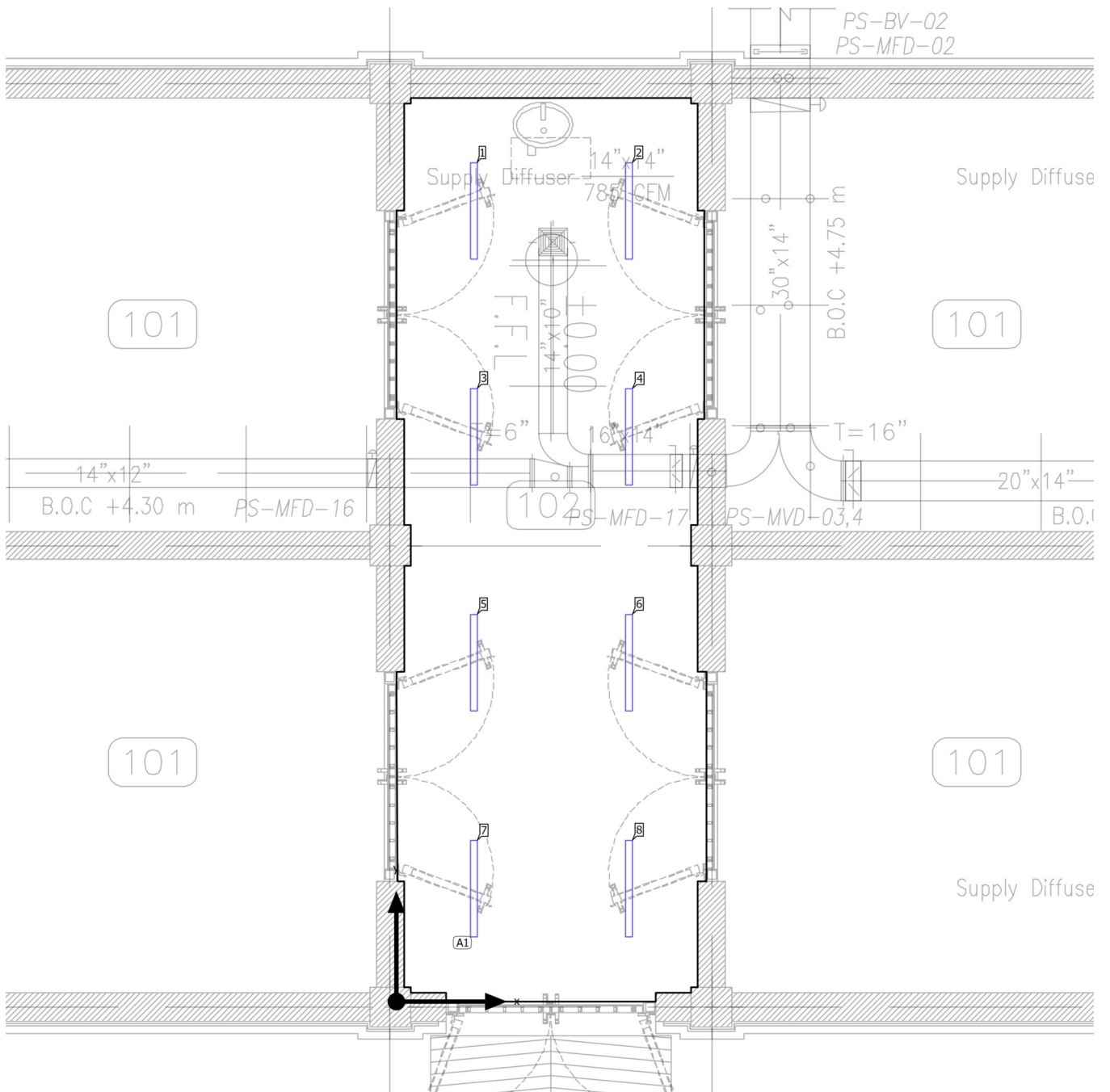
Utilisation profile: Traffic zones inside buildings (9.1 Circulation areas and corridors)

Luminaire list

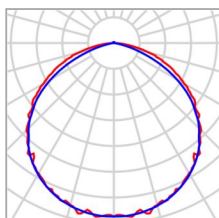
pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (8a-12) · Ground Floor · Corridor 3

Luminaire layout plan



Warehouse (8a-12) · Ground Floor · Corridor 3

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	0.965 m / 1.406 m / 10.000 m	0.965 m	9.845 m	10.000 m	1
X-direction	2 pcs., Centre - centre, 1.931 m	2.896 m	9.845 m	10.000 m	2
Y-direction	4 pcs., Centre - centre, 2.813 m	0.965 m	7.032 m	10.000 m	3
		2.896 m	7.032 m	10.000 m	4
Arrangement	A1	0.965 m	4.219 m	10.000 m	5
		2.896 m	4.219 m	10.000 m	6
		0.965 m	1.406 m	10.000 m	7
		2.896 m	1.406 m	10.000 m	8

Warehouse (8a-12) · Ground Floor · Corridor 3

Luminaire list Φ_{total}

81600 lm

 P_{total}

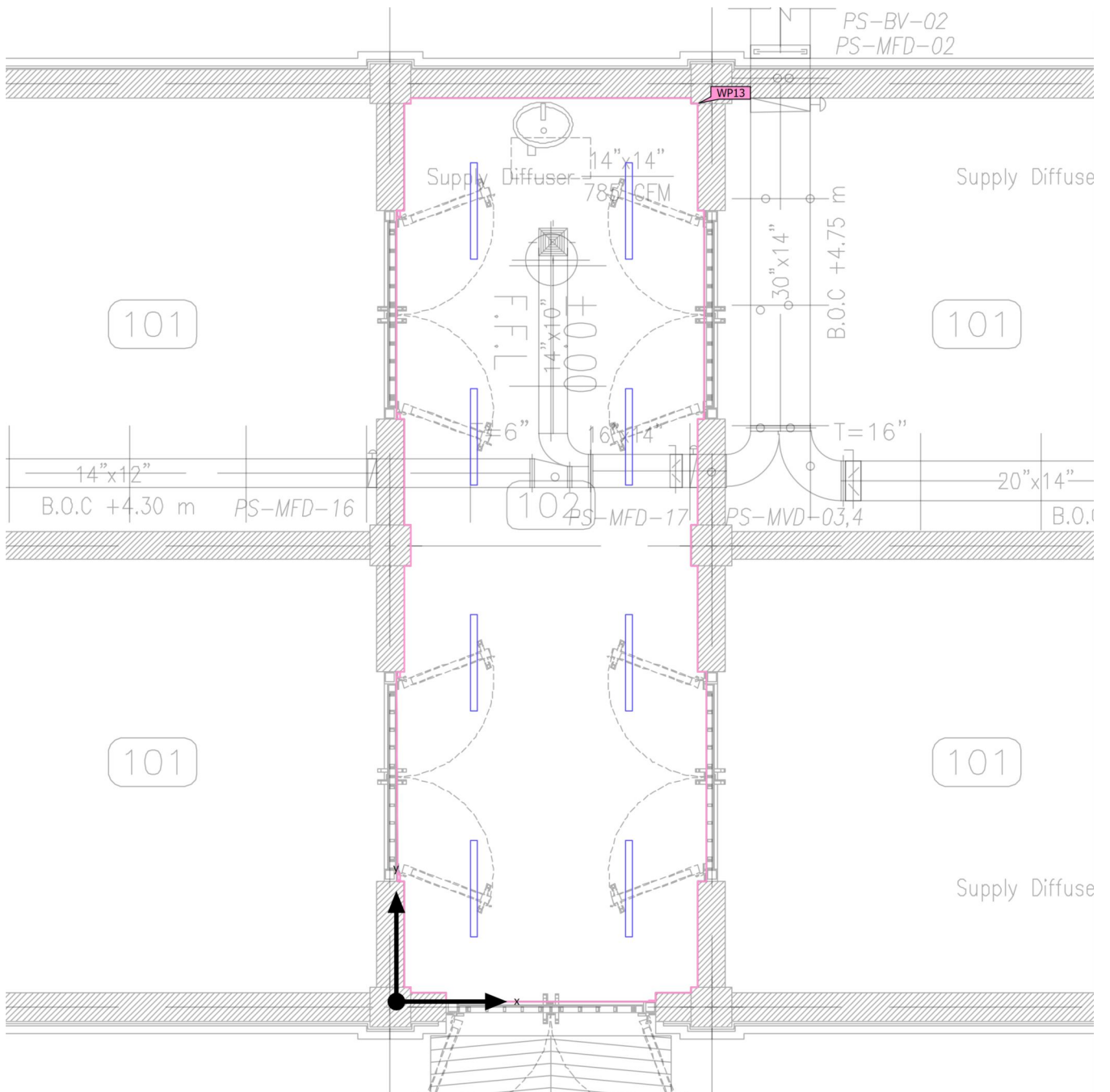
480.0 W

Luminous efficacy

170.0 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (8a-12) · Ground Floor · Corridor 3 (Light scene 1)

Calculation objects

Warehouse (8a-12) · Ground Floor · Corridor 3 (Light scene 1)

Calculation objects

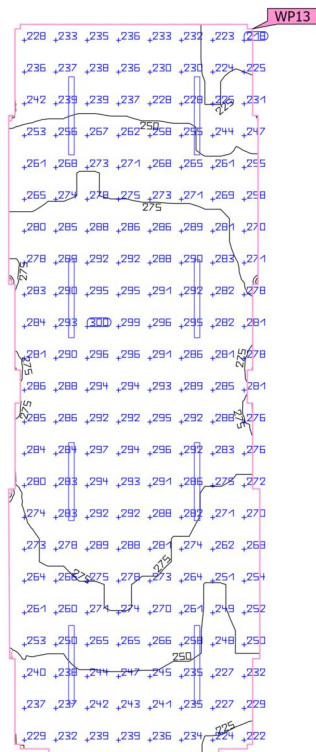
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Corridor 3) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	267 lx (≥ 200 lx) ✓	137 lx	299 lx	0.51 (≥ 0.40) ✓	0.46	WP13

Utilisation profile: Traffic zones inside buildings (9.1 Circulation areas and corridors)

Warehouse (8a-12) · Ground Floor · Corridor 3 (Light scene 1)

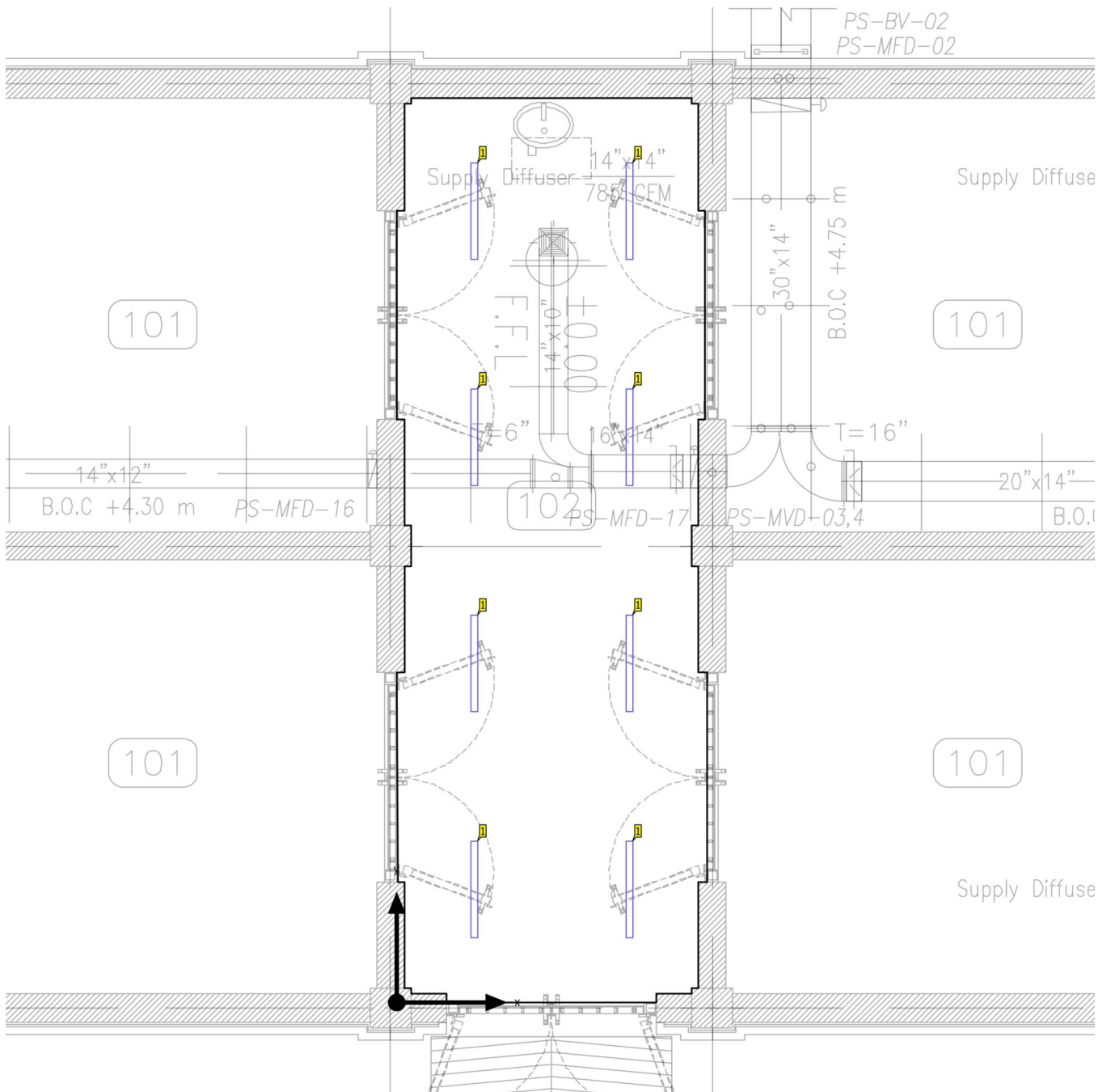
Working plane (Corridor 3)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Corridor 3) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	267 lx (≥ 200 lx) ✓	137 lx	299 lx	0.51 (≥ 0.40) ✓	0.46	WP13

Utilisation profile: Traffic zones inside buildings (9.1 Circulation areas and corridors)

Warehouse (8a-12) · Ground Floor · Corridor 3

Control group CG 1

Warehouse (8a-12) · Ground Floor · Corridor 3

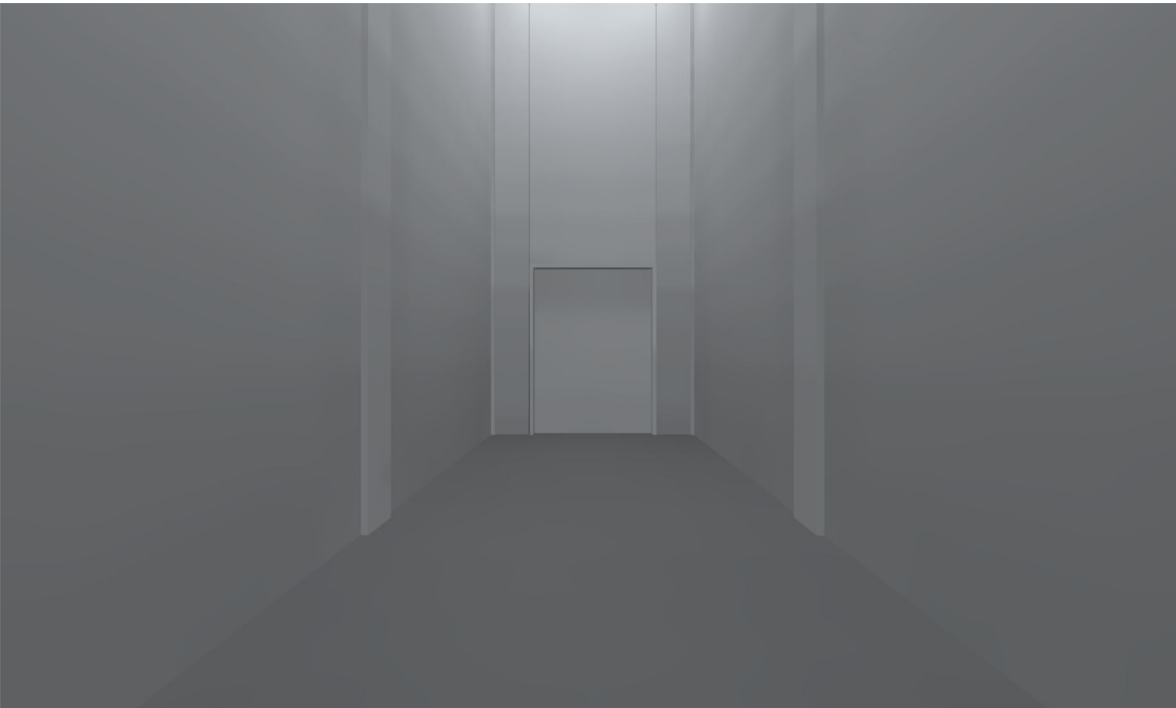
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1

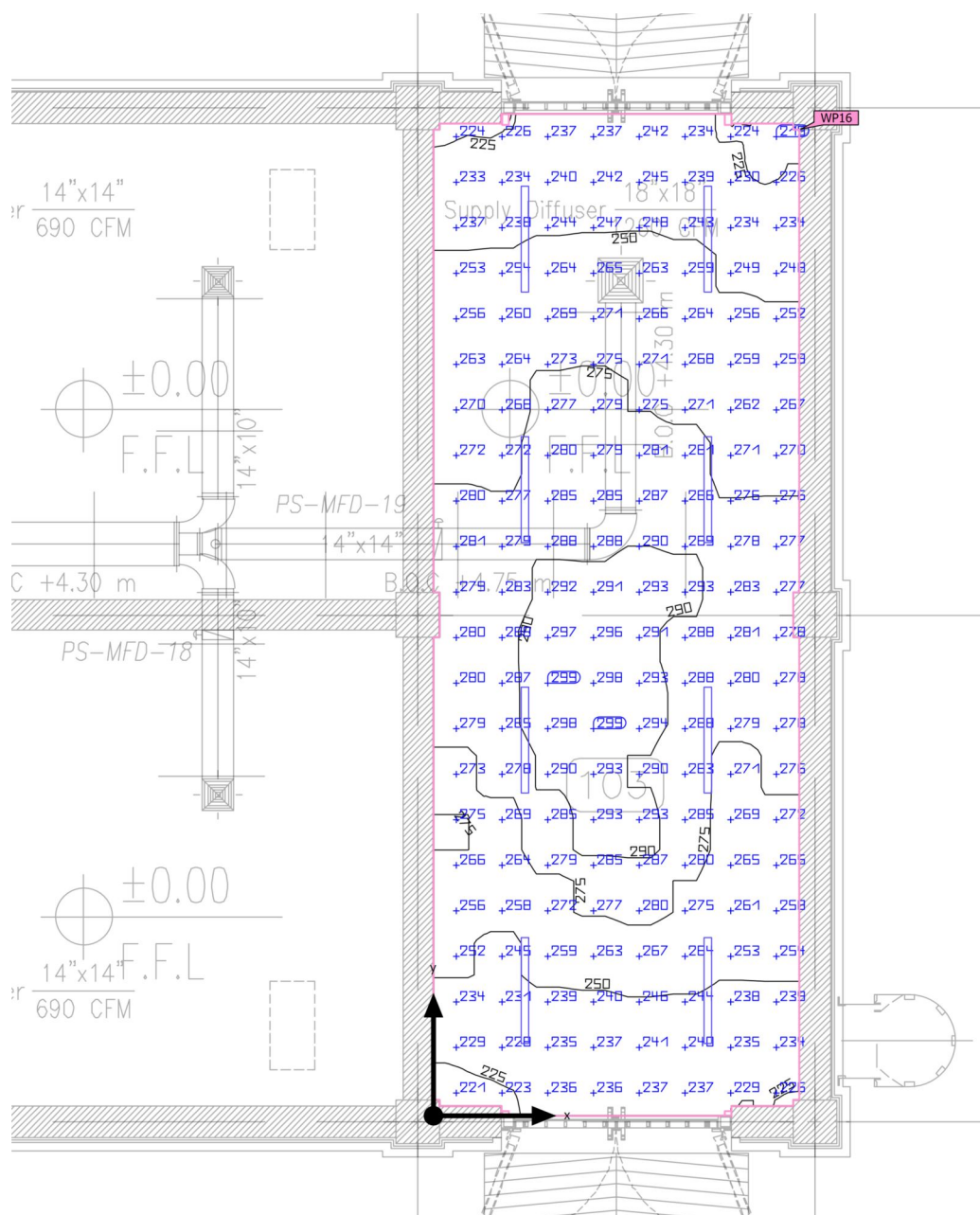


Warehouse (8a-12) · Ground Floor · HAVC Room 2

Description

Warehouse (8a-12) · Ground Floor · HAVC Room 2 (Light scene 1)

Summary



Ground area	46.71 m ²	Clearance height	12.000 m
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %	Mounting height	10.000 m
Maintenance factor	0.80 (fixed)	Height _{Working plane}	0.000 m
		Wall zone _{Working plane}	0.000 m

Warehouse (8a-12) · Ground Floor · HAVC Room 2 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	265 lx	≥ 200 lx	✓	WP16
	$U_o (g_1)$	0.72	≥ 0.50	✓	WP16
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1650 kWh/a	✗	
Space	Lighting power density	10.28 W/m ²	–		
		3.88 W/m ² /100 lx	–		

(1) Based on a rectangular space of 4.149 m x 11.361 m and SHR of 0.25.

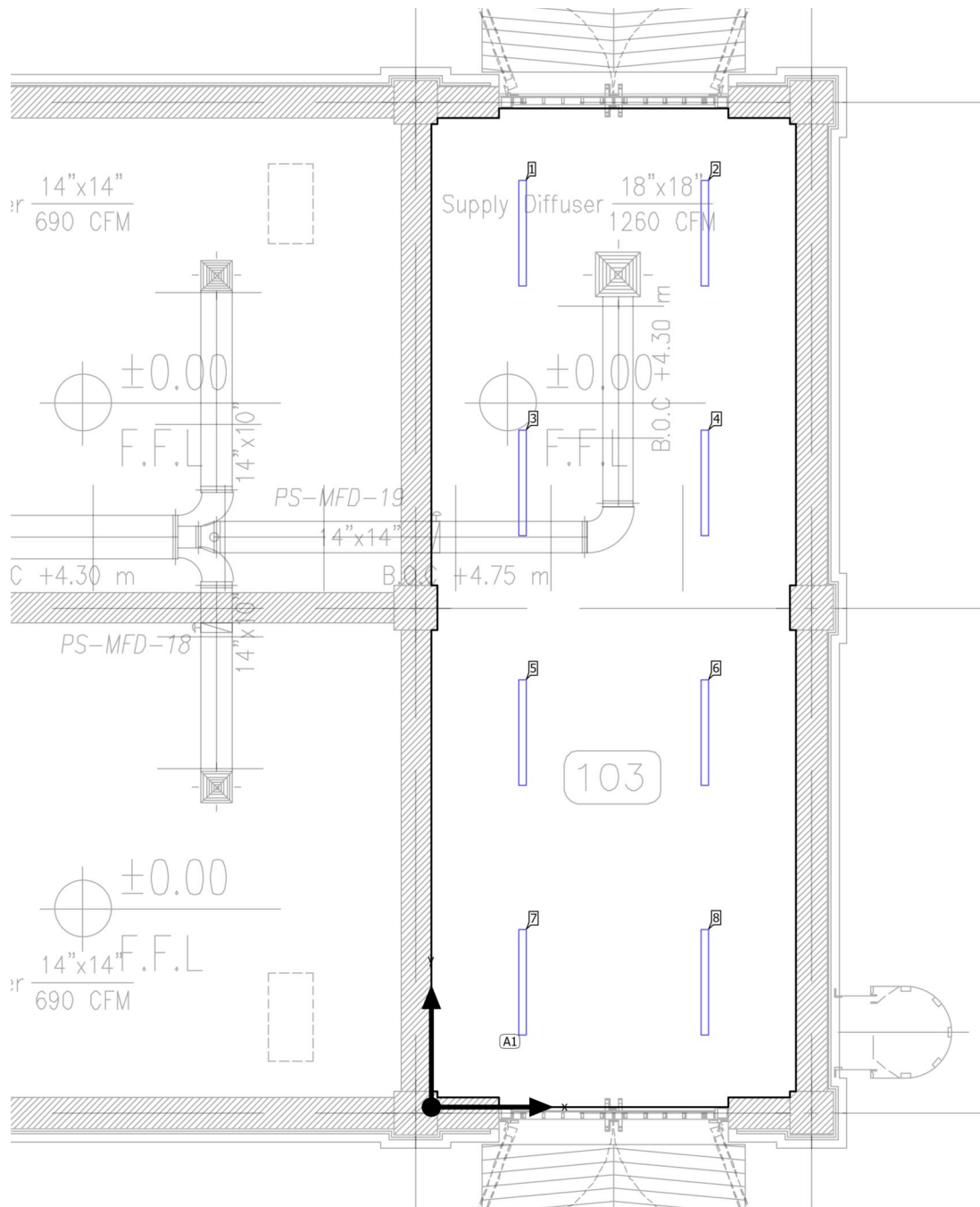
(2) Calculated using DIN:18599-4.

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

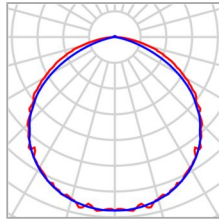
Luminaire list

pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (8a-12) · Ground Floor · HAVC Room 2

Luminaire layout plan

Warehouse (8a-12) · Ground Floor · HAVC Room 2

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.037 m / 1.420 m / 10.000 m	1.037 m	9.941 m	10.000 m	1
X-direction	2 pcs., Centre - centre, 2.074 m	3.112 m	9.941 m	10.000 m	2
Y-direction	4 pcs., Centre - centre, 2.840 m	1.037 m	7.101 m	10.000 m	3
		3.112 m	7.101 m	10.000 m	4
Arrangement	A1	1.037 m	4.260 m	10.000 m	5
		3.112 m	4.260 m	10.000 m	6
		1.037 m	1.420 m	10.000 m	7
		3.112 m	1.420 m	10.000 m	8

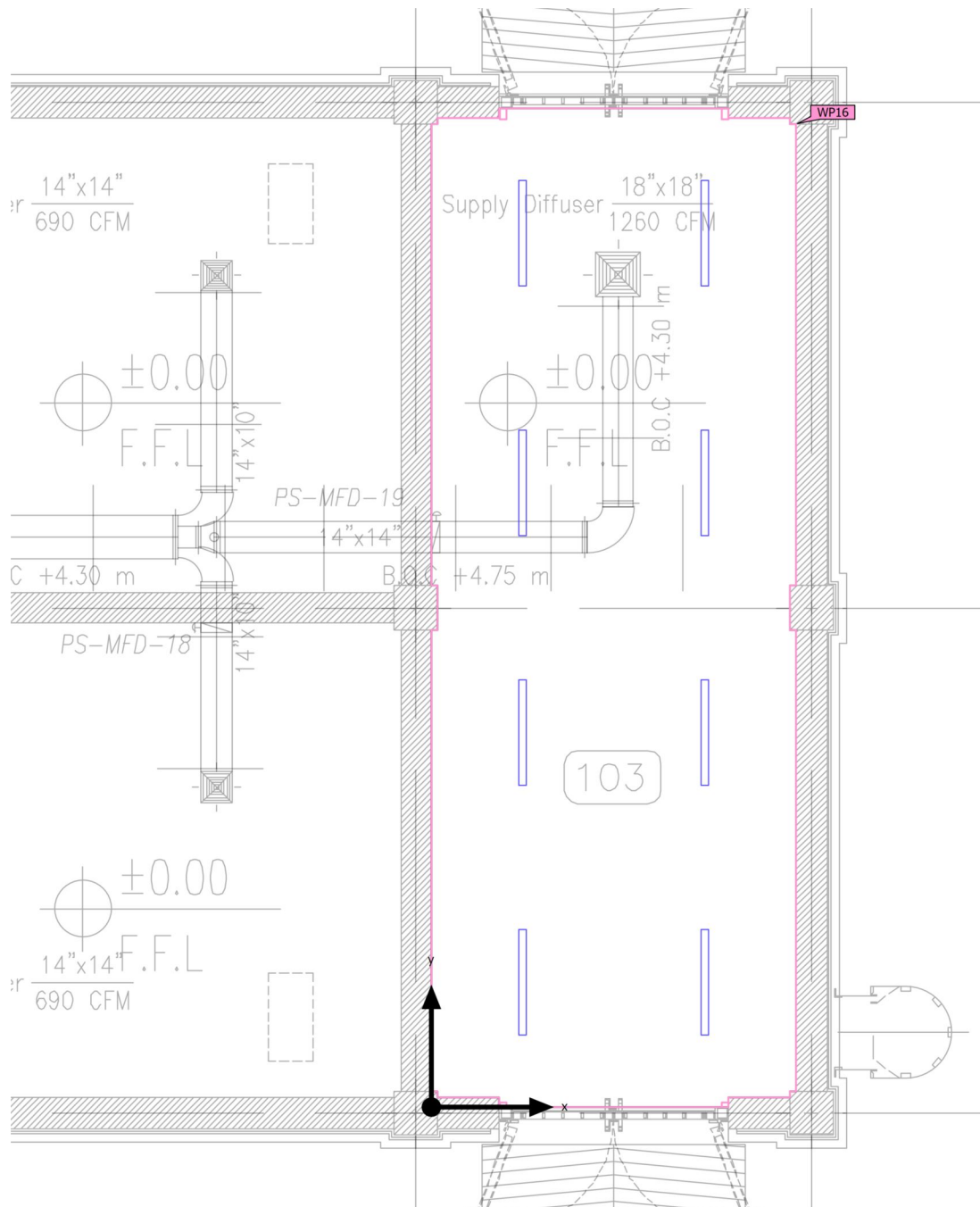
Warehouse (8a-12) · Ground Floor · HAVC Room 2

Luminaire list

Φ_{total} 81600 lm	P_{total} 480.0 W	Luminous efficacy 170.0 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (8a-12) · Ground Floor · HAVC Room 2 (Light scene 1)

Calculation objects

Warehouse (8a-12) · Ground Floor · HAVC Room 2 (Light scene 1)

Calculation objects

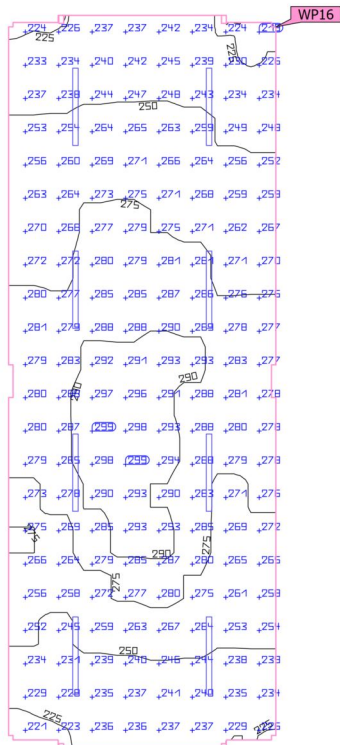
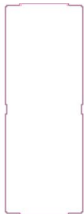
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (HAVC Room 2) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	265 lx (≥ 200 lx) ✓	190 lx	298 lx	0.72 (≥ 0.50) ✓	0.64	WP16

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (8a-12) · Ground Floor · HAVC Room 2 (Light scene 1)

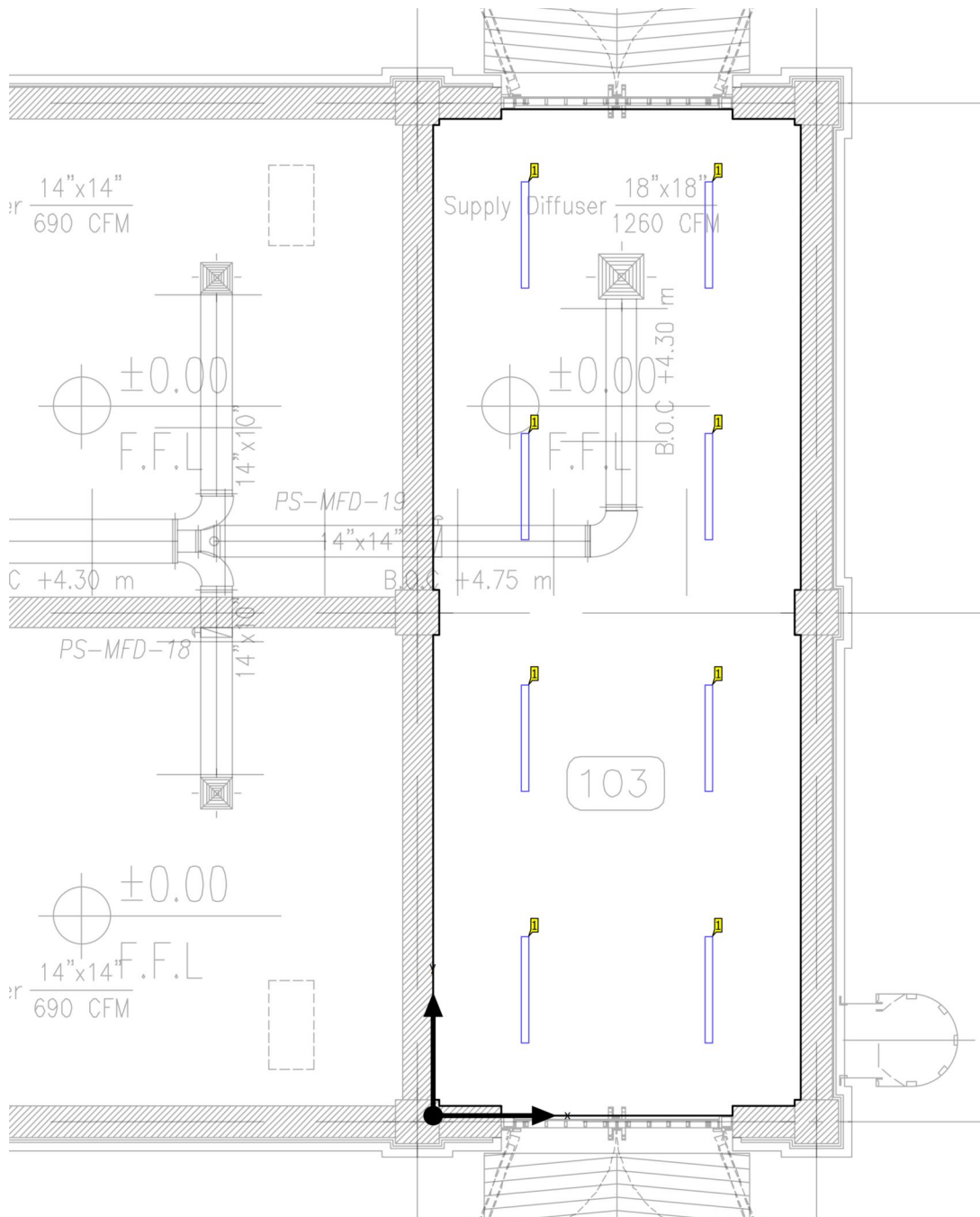
Working plane (HAVC Room 2)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (HAVC Room 2) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	265 lx (≥ 200 lx) ✓	190 lx	298 lx	0.72 (≥ 0.50) ✓	0.64	WP16

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (8a-12) · Ground Floor · HAVC Room 2

Control group CG 1

Warehouse (8a-12) · Ground Floor · HAVC Room 2

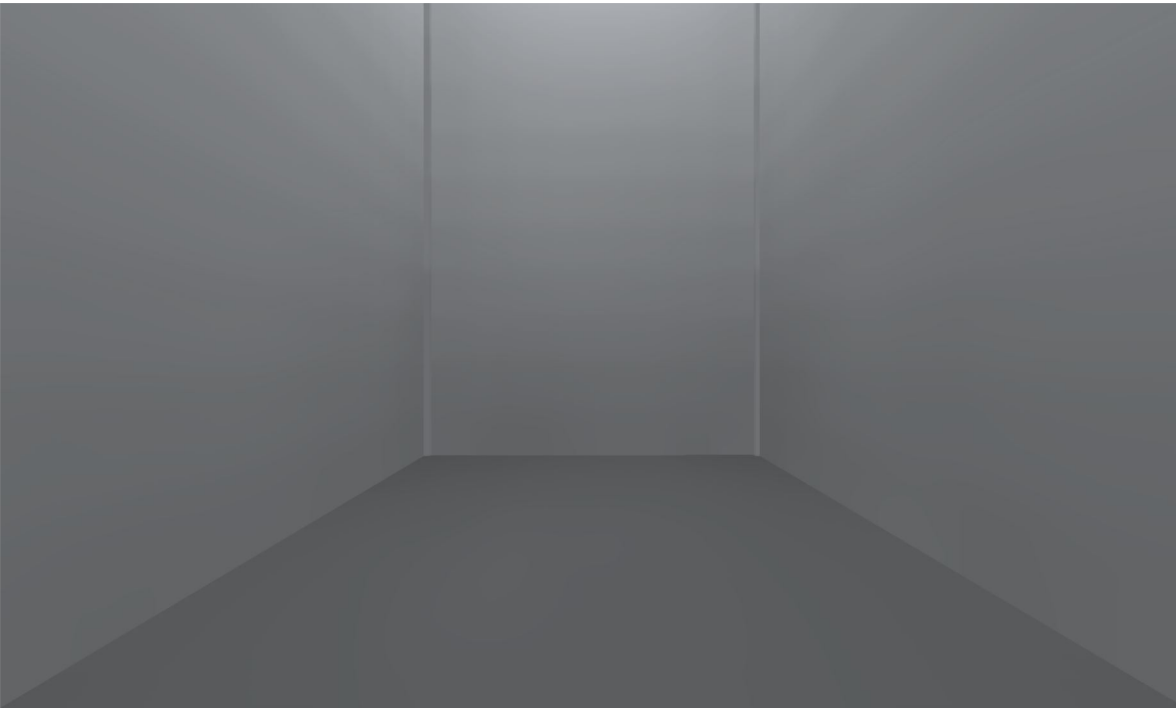
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

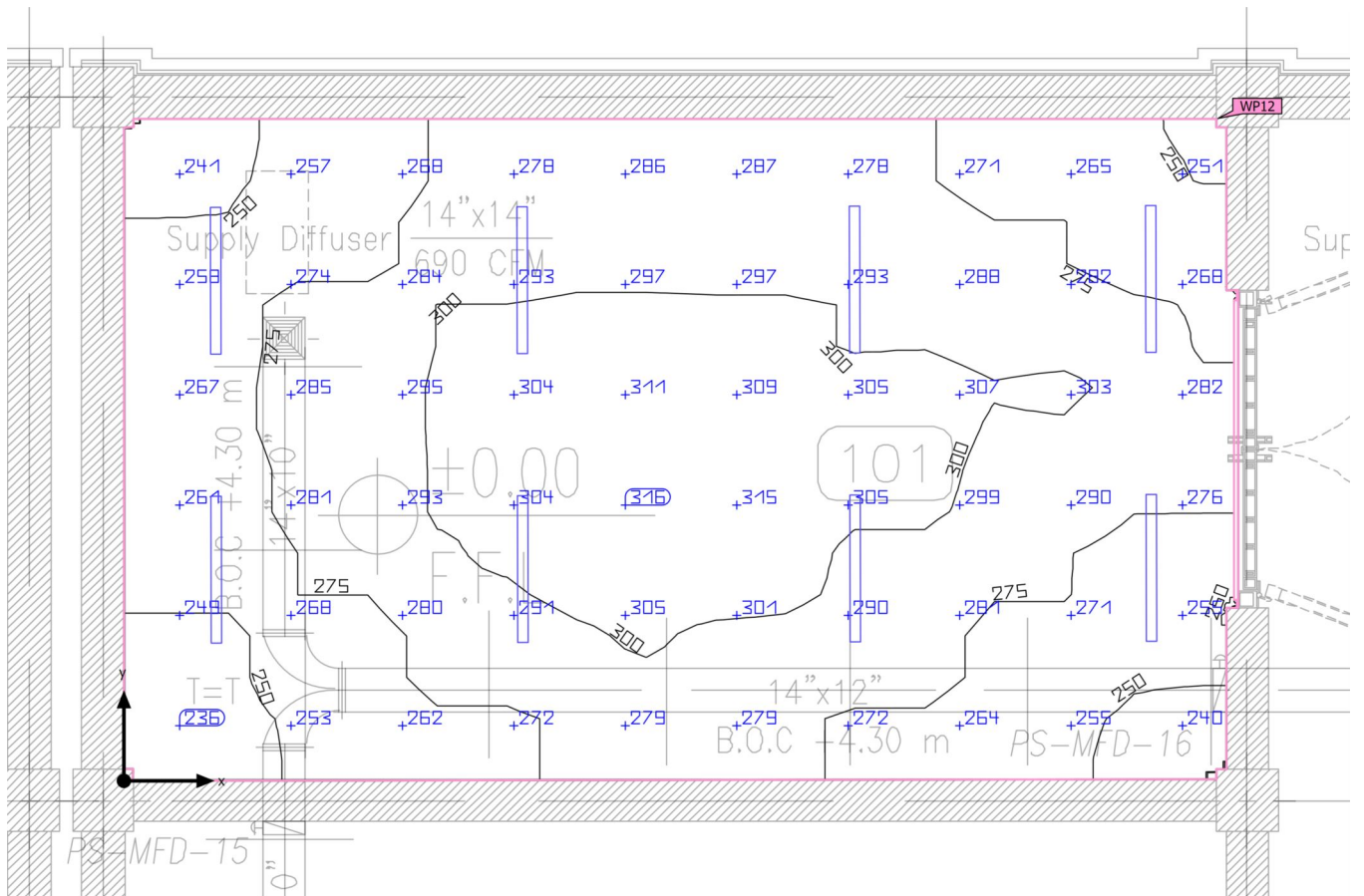
pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1



Warehouse (8a-12) · Ground Floor · Storage Room
8

Description

Warehouse (8a-12) · Ground Floor · Storage Room 8 (Light scene 1)

Summary

Ground area	48.92 m ²	Clearance height	12.000 m
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %	Mounting height	10.000 m
Maintenance factor	0.80 (fixed)	Height _{Working plane}	0.000 m
		Wall zone _{Working plane}	0.000 m

Warehouse (8a-12) · Ground Floor · Storage Room 8 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	281 lx	≥ 200 lx	✓	WP12
	$U_o (g_1)$	0.76	≥ 0.50	✓	WP12
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1750 kWh/a	✗	
Space	Lighting power density	9.81 W/m ²	–		
		3.49 W/m ² /100 lx	–		

(1) Based on a rectangular space of 5.412 m x 9.104 m and SHR of 0.25.

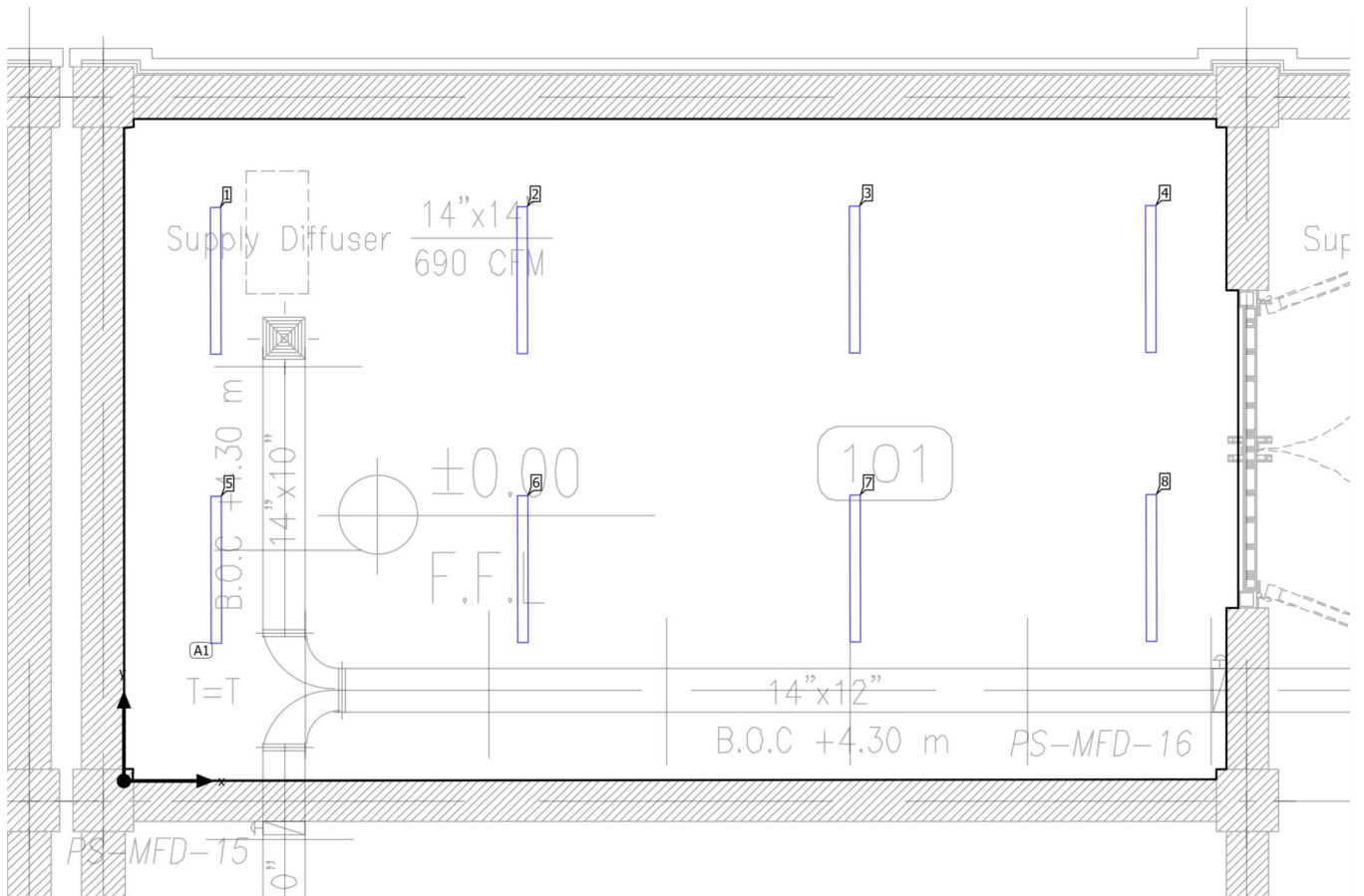
(2) Calculated using DIN:18599-4.

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

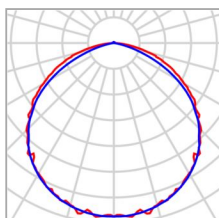
Luminaire list

pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (8a-12) · Ground Floor · Storage Room 8

Luminaire layout plan

Warehouse (8a-12) · Ground Floor · Storage Room 8

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	0.755 m / 1.727 m / 10.000 m	0.750 m	4.089 m	10.000 m	1
X-direction	4 pcs., Centre - centre, Distances not equal	3.255 m	4.094 m	10.000 m	2
		5.970 m	4.099 m	10.000 m	3
Y-direction	2 pcs., Centre - centre, Distances not equal	8.390 m	4.104 m	10.000 m	4
		0.755 m	1.727 m	10.000 m	5
Arrangement	A1	3.259 m	1.732 m	10.000 m	6
		5.975 m	1.737 m	10.000 m	7
		8.395 m	1.742 m	10.000 m	8

Warehouse (8a-12) · Ground Floor · Storage Room 8

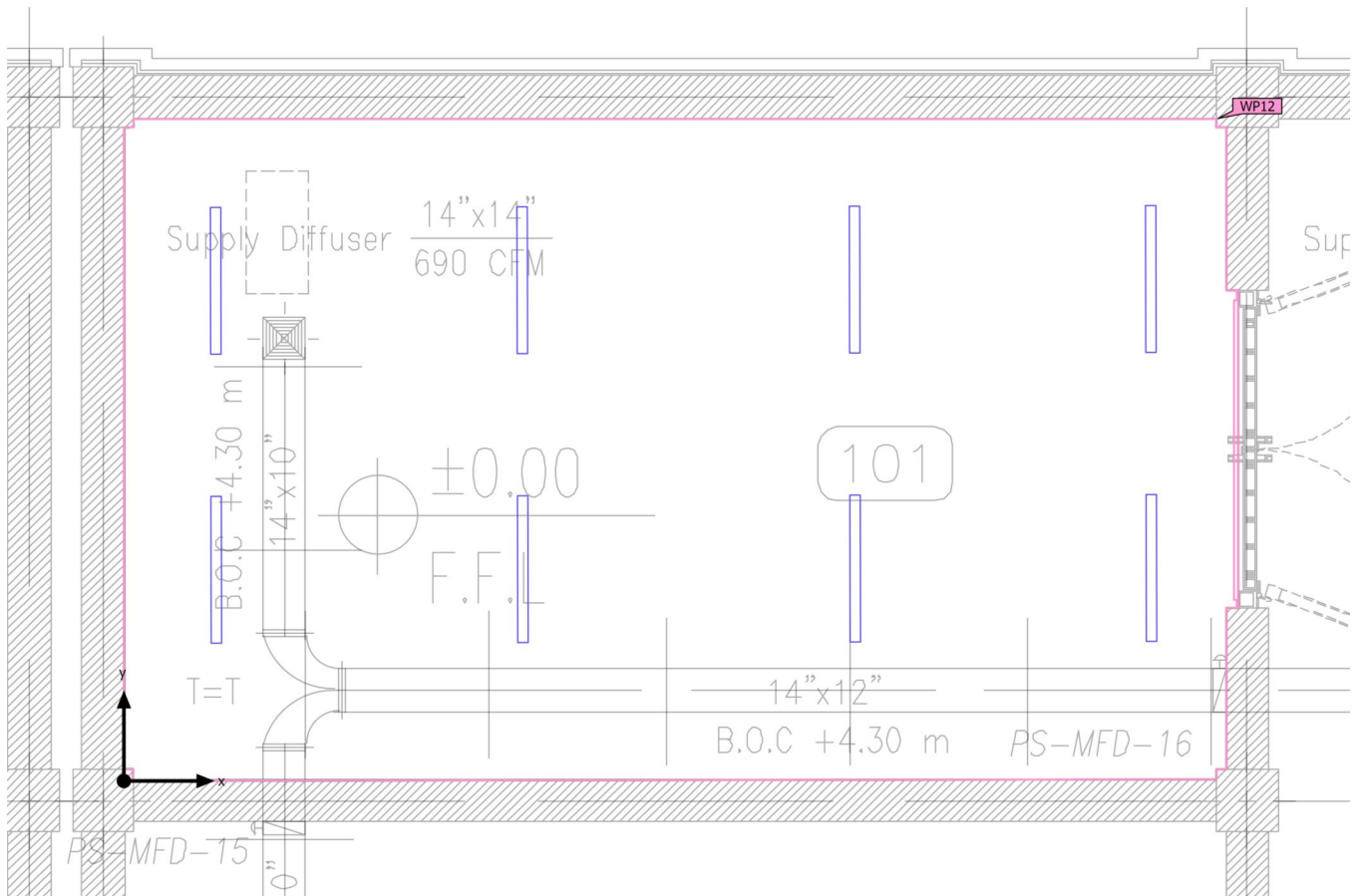
Luminaire list

Φ_{total} 81600 lm	P_{total} 480.0 W	Luminous efficacy 170.0 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (8a-12) · Ground Floor · Storage Room 8 (Light scene 1)

Calculation objects



Warehouse (8a-12) · Ground Floor · Storage Room 8 (Light scene 1)

Calculation objects

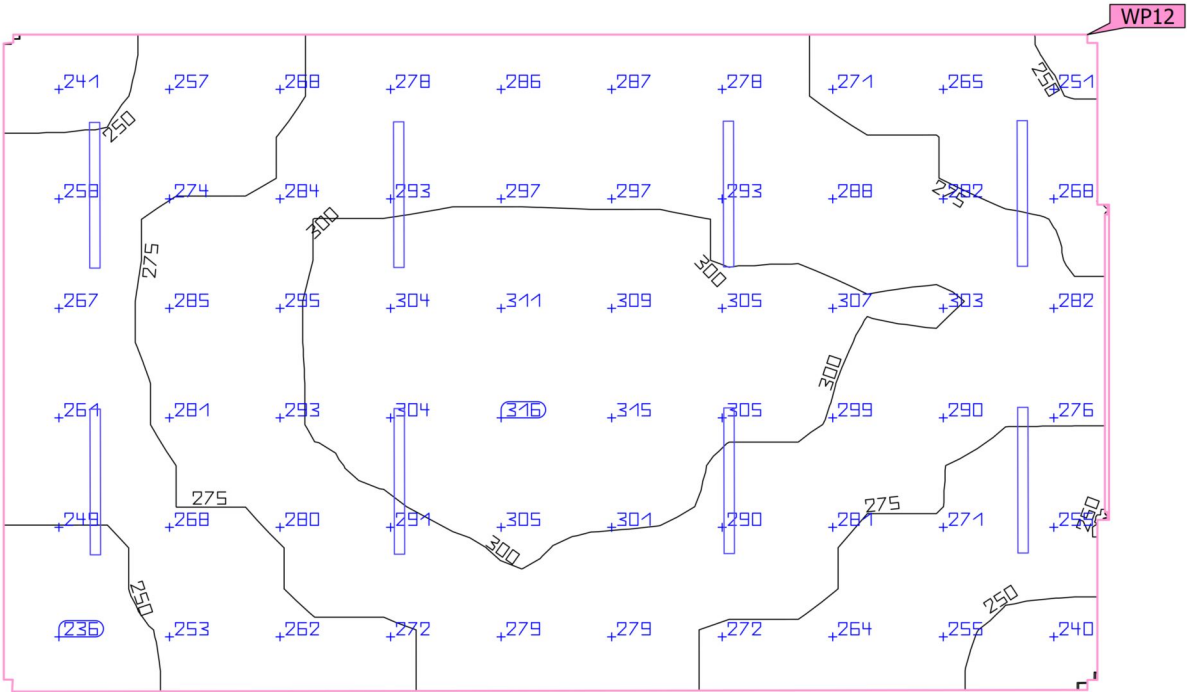
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 8) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	281 lx (≥ 200 lx) ✓	214 lx	318 lx	0.76 (≥ 0.50) ✓	0.67	WP12

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (8a-12) · Ground Floor · Storage Room 8 (Light scene 1)

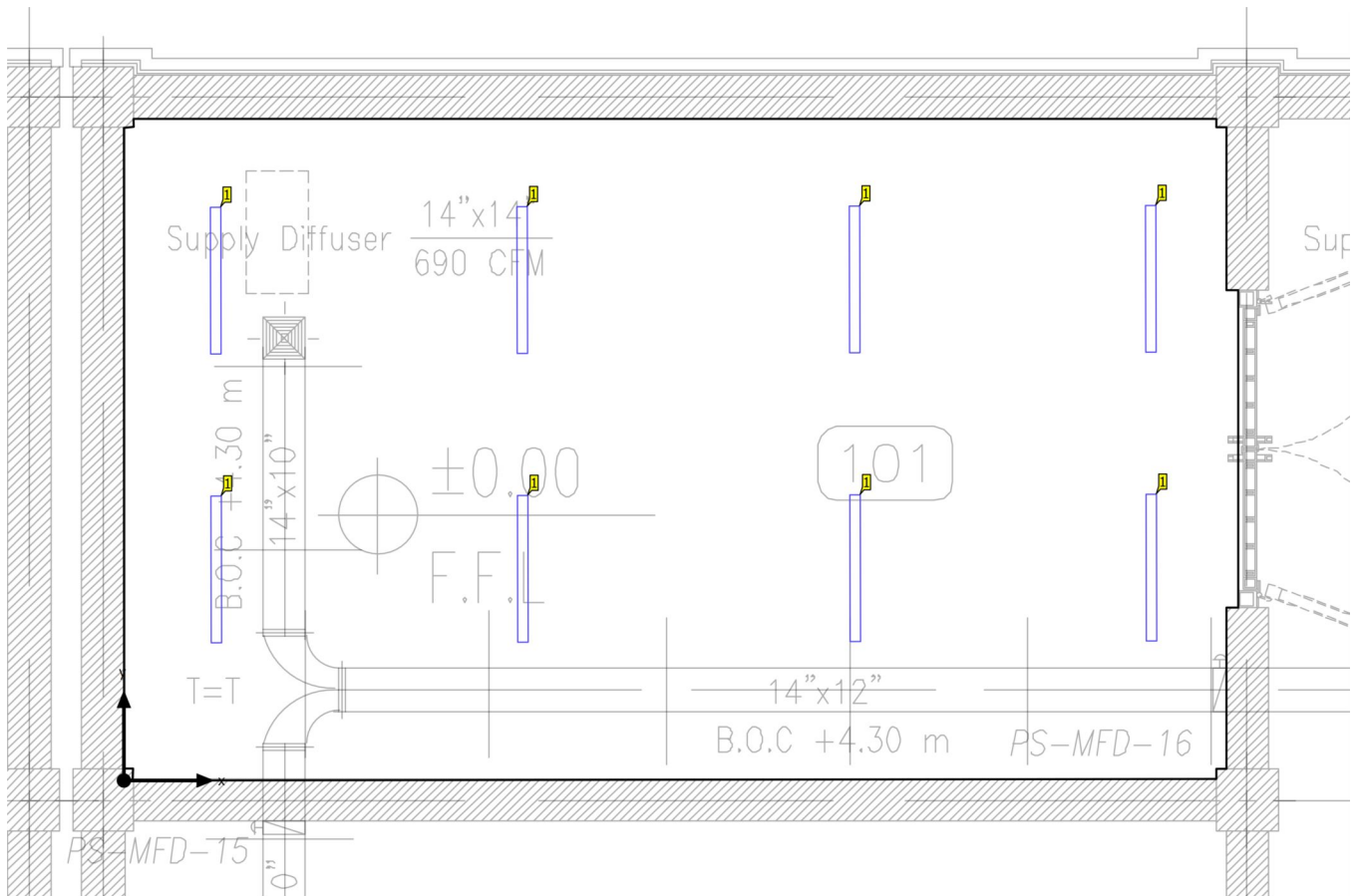
Working plane (Storage Room 8)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 8) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	281 lx (≥ 200 lx) ✓	214 lx	318 lx	0.76 (≥ 0.50) ✓	0.67	WP12

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (8a-12) · Ground Floor · Storage Room 8

Control group CG 1

Warehouse (8a-12) · Ground Floor · Storage Room 8

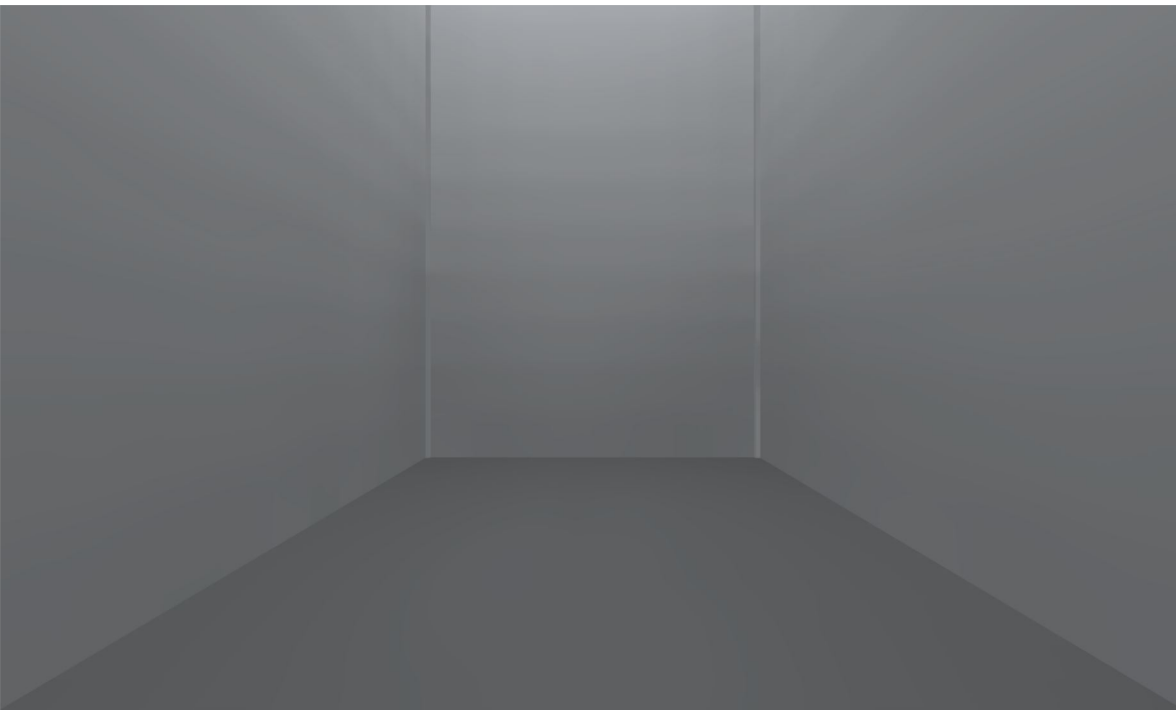
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1

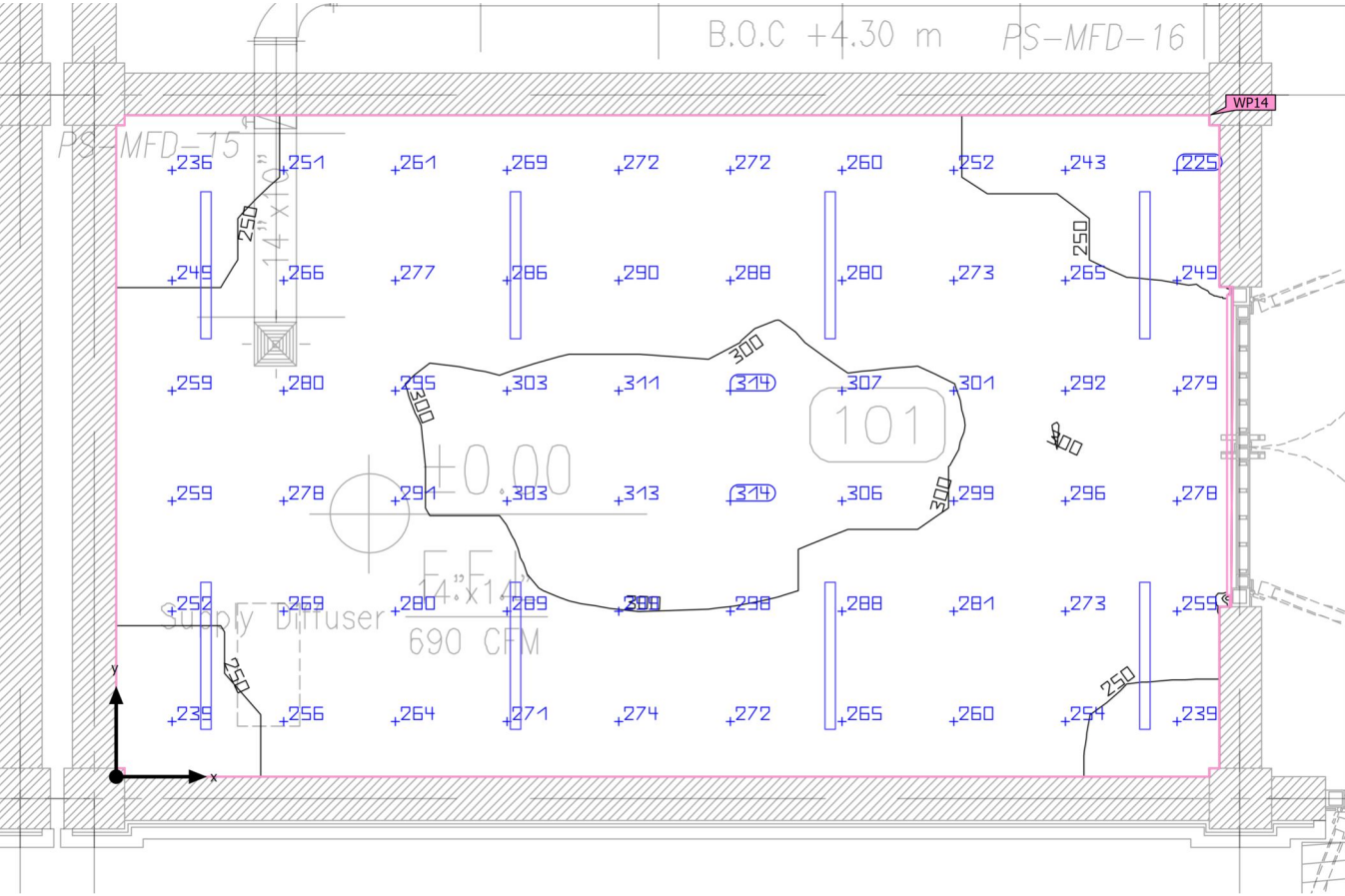


Warehouse (8a-12) · Ground Floor · Storage Room
9

Description

Warehouse (8a-12) · Ground Floor · Storage Room 9 (Light scene 1)

Summary



Ground area	48.83 m ²
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %
Maintenance factor	0.80 (fixed)

Clearance height	12.000 m
Mounting height	10.000 m
Height _{Working plane}	0.000 m
Wall zone _{Working plane}	0.000 m

Warehouse (8a-12) · Ground Floor · Storage Room 9 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	276 lx	≥ 200 lx	✓	WP14
	$U_o (g_1)$	0.45	≥ 0.40	✓	WP14
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1750 kWh/a	✗	
Space	Lighting power density	9.83 W/m ²	–		
		3.56 W/m ² /100 lx	–		

(1) Based on a rectangular space of 5.399 m x 9.108 m and SHR of 0.25.

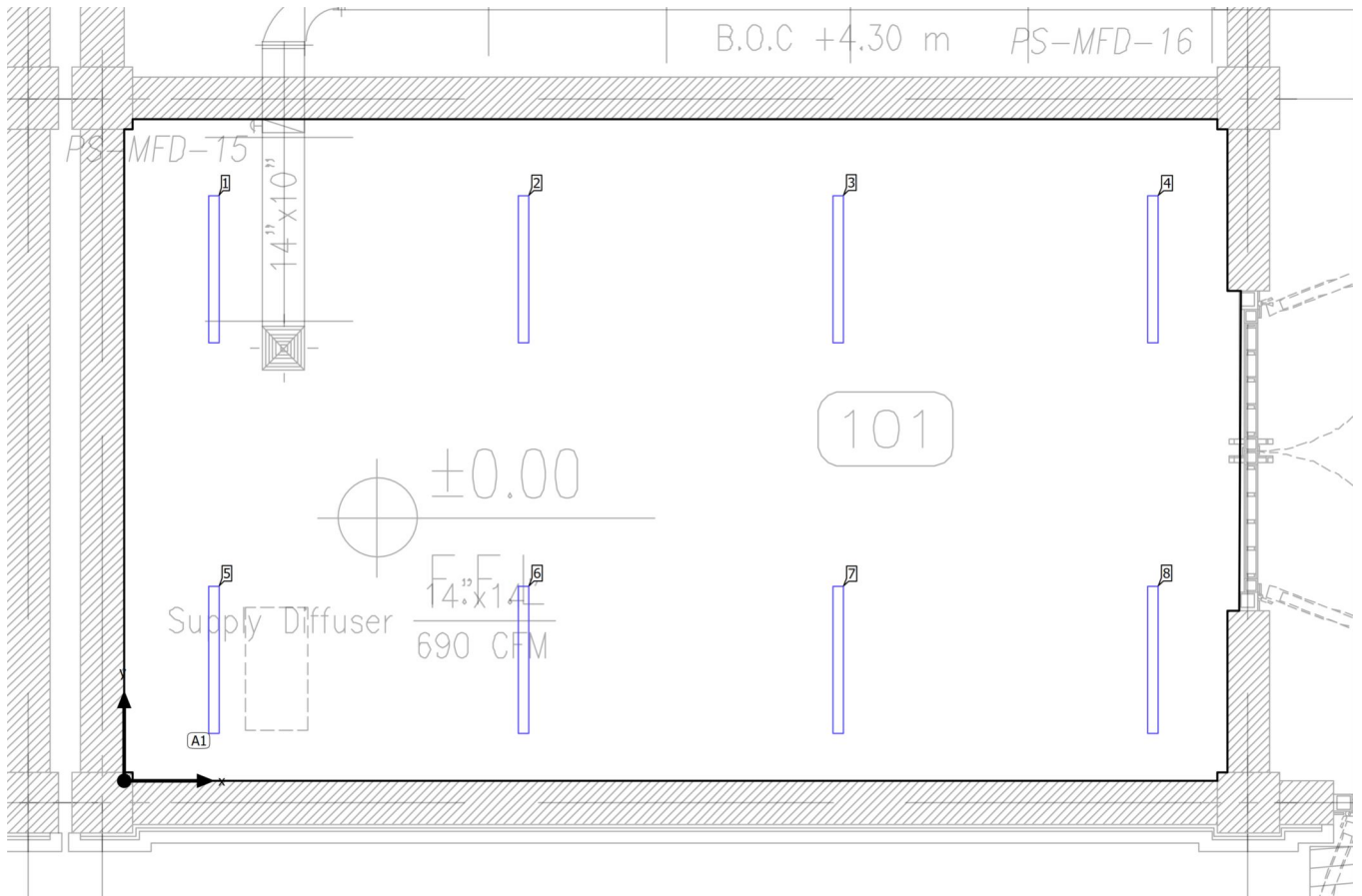
(2) Calculated using DIN:18599-4.

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

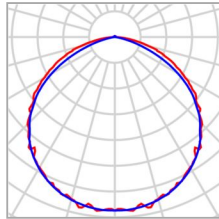
Luminaire list

pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (8a-12) · Ground Floor · Storage Room 9

Luminaire layout plan

Warehouse (8a-12) · Ground Floor · Storage Room 9

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	0.732 m / 0.987 m / 10.000 m	0.732 m	4.174 m	10.000 m	1
X-direction	4 pcs., Centre - centre, Distances not equal	3.257 m	4.174 m	10.000 m	2
		5.824 m	4.174 m	10.000 m	3
		8.390 m	4.174 m	10.000 m	4
Y-direction	2 pcs., Centre - centre, Distances not equal	0.732 m	0.987 m	10.000 m	5
		3.257 m	0.987 m	10.000 m	6
		5.824 m	0.987 m	10.000 m	7
Arrangement	A1	8.390 m	0.987 m	10.000 m	8

Warehouse (8a-12) · Ground Floor · Storage Room 9

Luminaire list Φ_{total}

81600 lm

 P_{total}

480.0 W

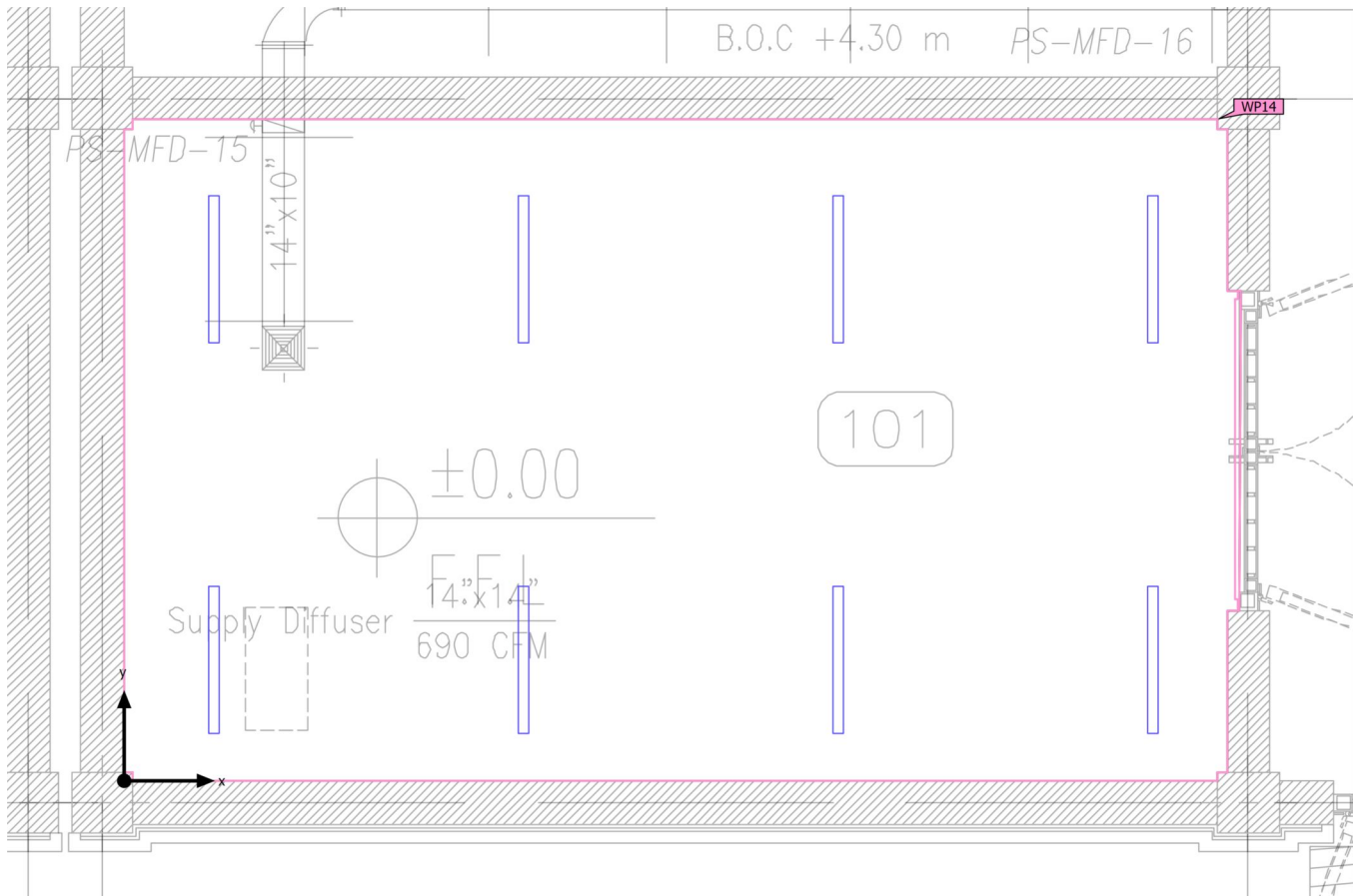
Luminous efficacy

170.0 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (8a-12) · Ground Floor · Storage Room 9 (Light scene 1)

Calculation objects



Warehouse (8a-12) · Ground Floor · Storage Room 9 (Light scene 1)

Calculation objects

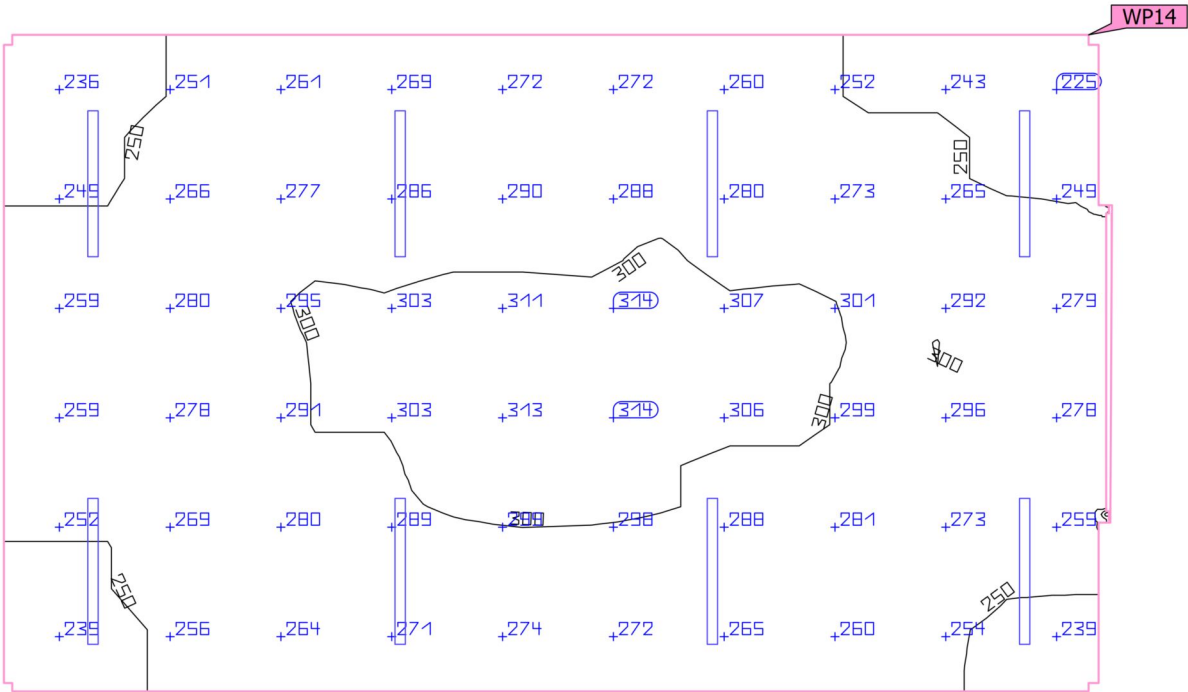
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 9) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	276 lx (≥ 200 lx) ✓	125 lx	318 lx	0.45 (≥ 0.40) ✓	0.39	WP14

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (8a-12) · Ground Floor · Storage Room 9 (Light scene 1)

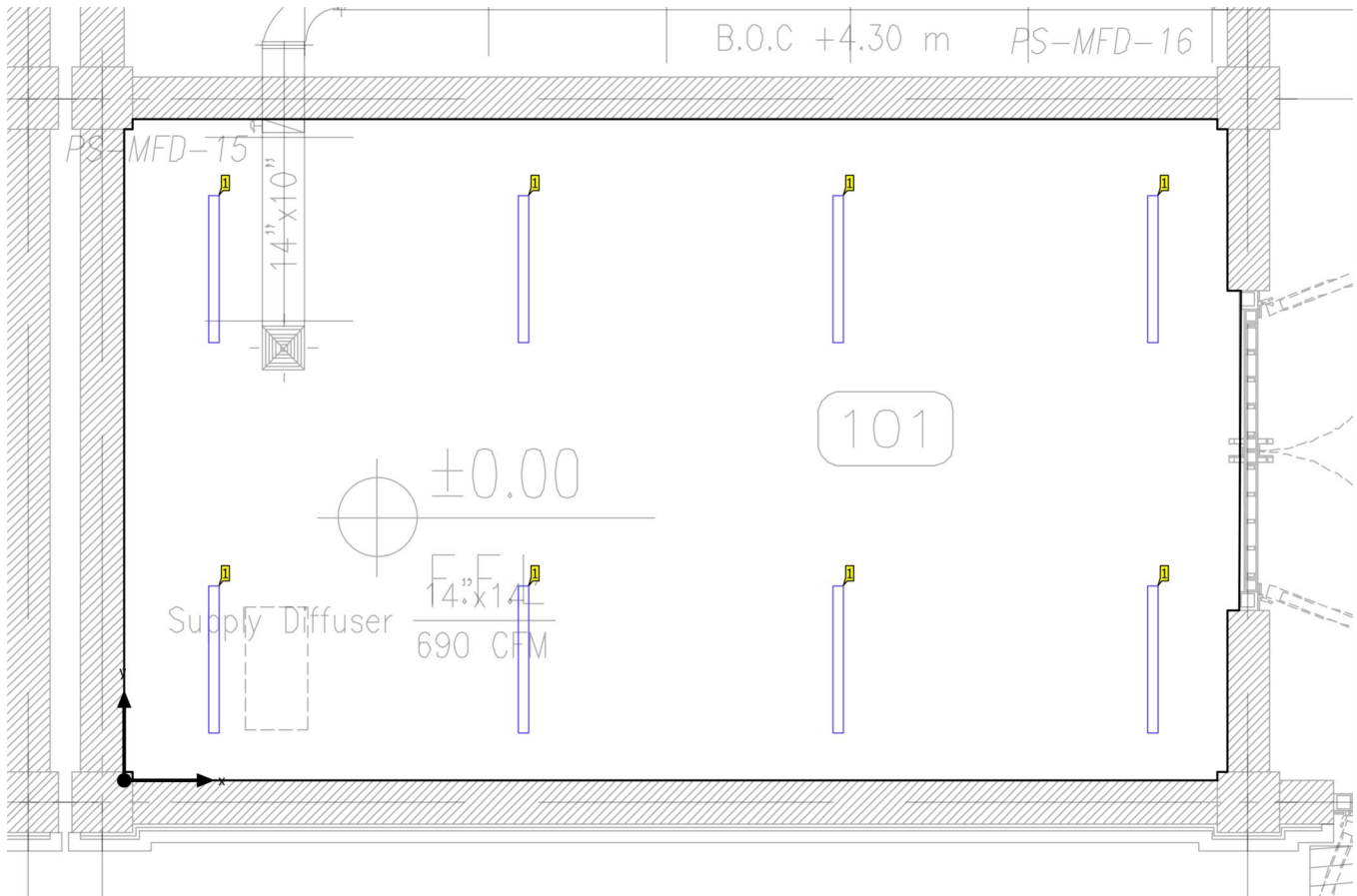
Working plane (Storage Room 9)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 9) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	276 lx (≥ 200 lx) ✓	125 lx	318 lx	0.45 (≥ 0.40) ✓	0.39	WP14

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (8a-12) · Ground Floor · Storage Room 9

Control group CG 1

Warehouse (8a-12) · Ground Floor · Storage Room 9

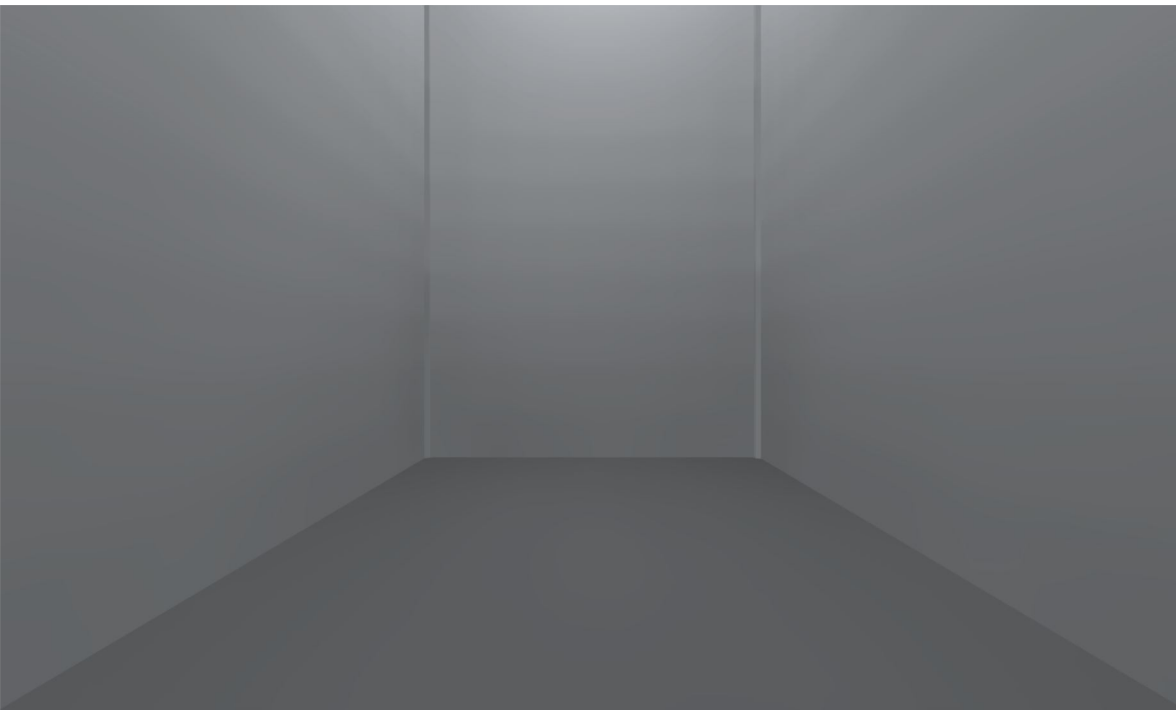
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1

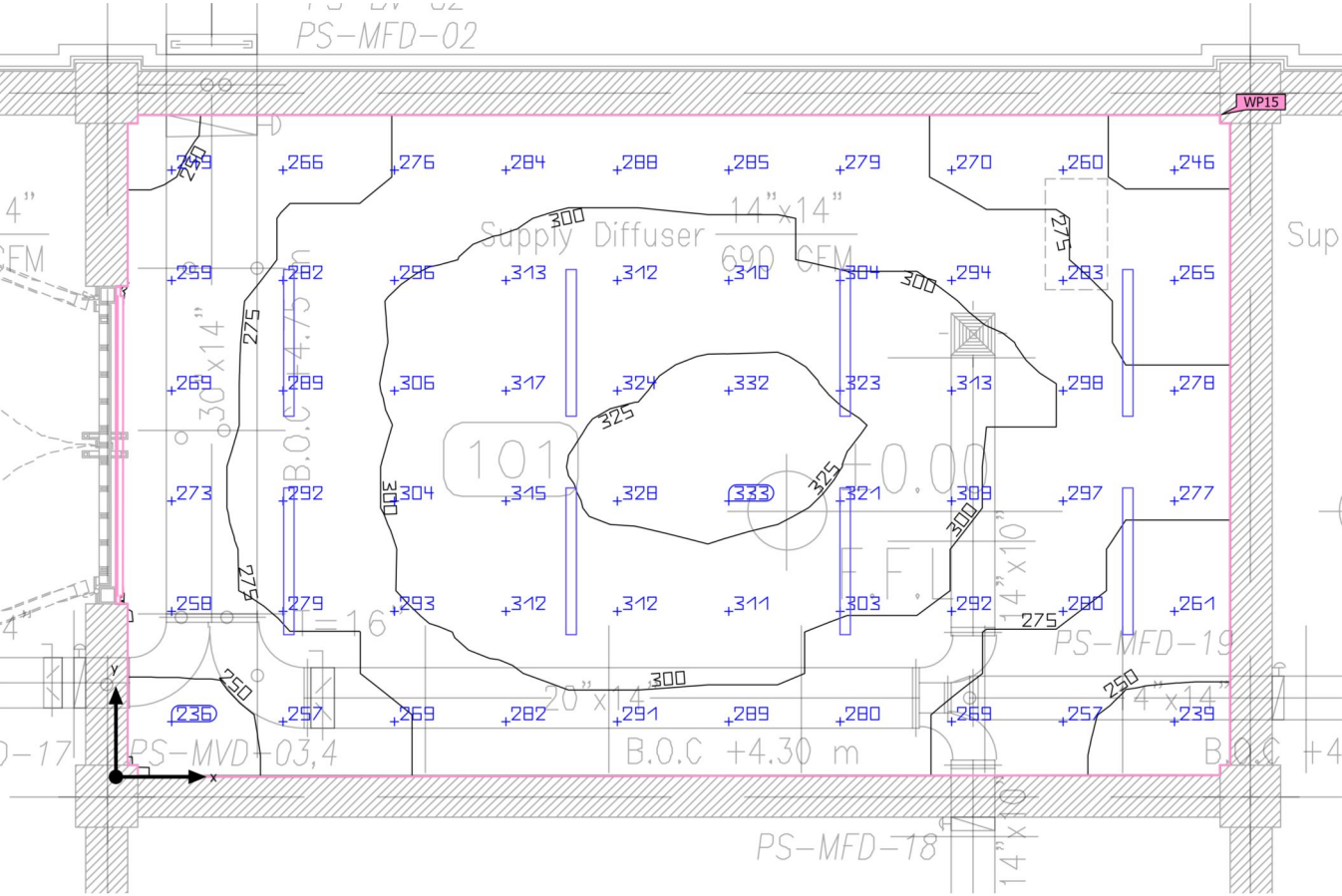


Warehouse (8a-12) · Ground Floor · Storage Room
10

Description

Warehouse (8a-12) · Ground Floor · Storage Room 10 (Light scene 1)

Summary



Ground area	48.94 m²
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %
Maintenance factor	0.80 (fixed)

Clearance height	12.000 m
Mounting height	10.000 m
Height Working plane	0.000 m
Wall zone Working plane	0.000 m

Warehouse (8a-12) · Ground Floor · Storage Room 10 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	289 lx	≥ 200 lx	✓	WP15
	$U_o (g_1)$	0.73	≥ 0.50	✓	WP15
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1750 kWh/a	✗	
Space	Lighting power density	9.81 W/m ²	–		
		3.39 W/m ² /100 lx	–		

(1) Based on a rectangular space of 5.413 m x 9.108 m and SHR of 0.25.

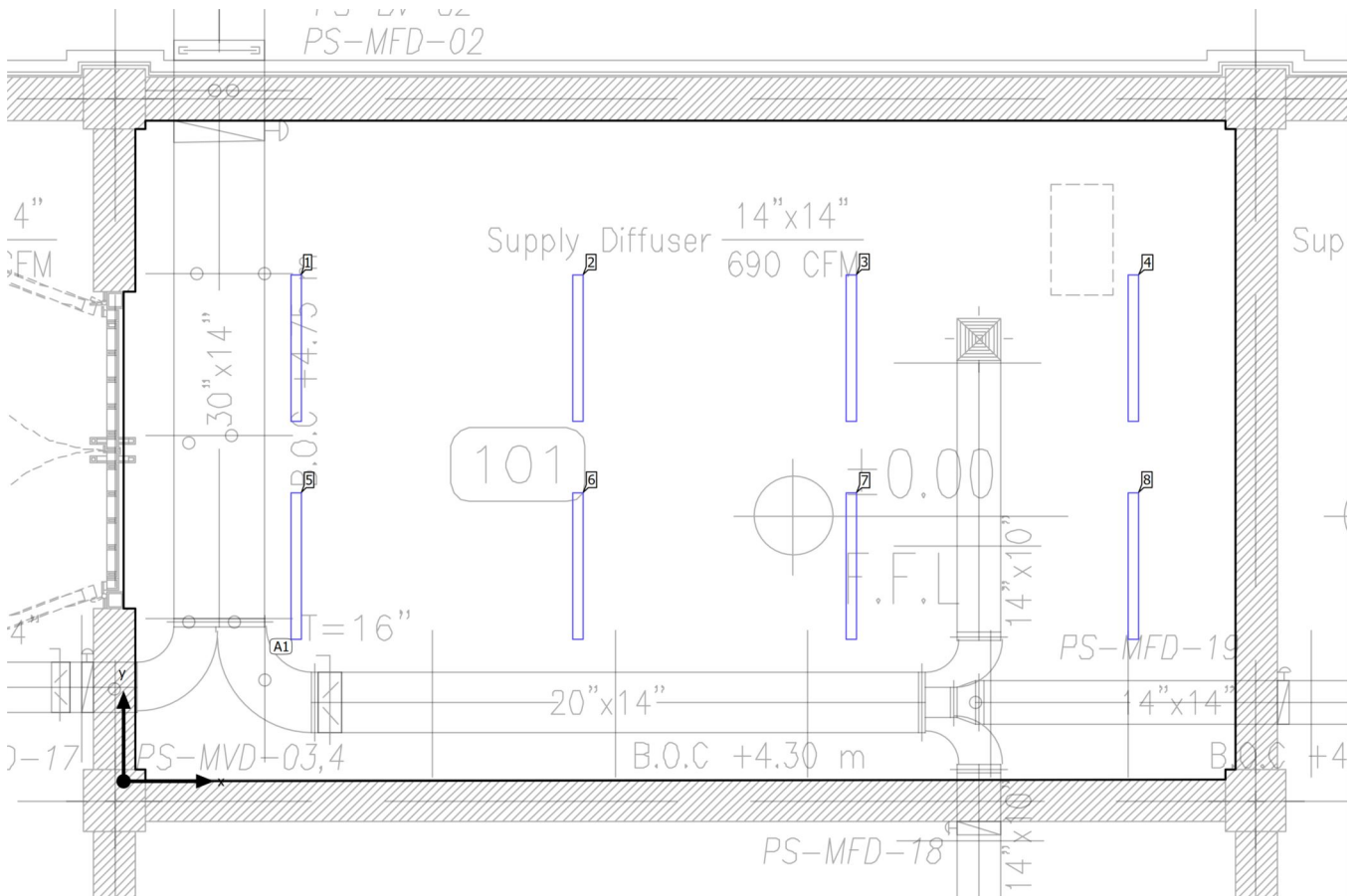
(2) Calculated using DIN:18599-4.

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

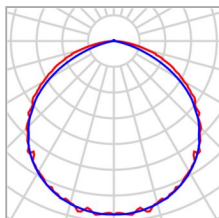
Luminaire list

pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (8a-12) · Ground Floor · Storage Room 10

Luminaire layout plan

Warehouse (8a-12) · Ground Floor · Storage Room 10

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.414 m / 1.763 m / 10.000 m	1.414 m	3.549 m	10.000 m	1
X-direction	4 pcs., Centre - centre, Distances not equal	3.722 m	3.549 m	10.000 m	2
		5.961 m	3.549 m	10.000 m	3
Y-direction	2 pcs., Centre - centre, Distances not equal	8.271 m	3.549 m	10.000 m	4
		1.414 m	1.763 m	10.000 m	5
Arrangement	A1	3.722 m	1.763 m	10.000 m	6
		5.961 m	1.763 m	10.000 m	7
		8.271 m	1.763 m	10.000 m	8

Warehouse (8a-12) · Ground Floor · Storage Room 10

Luminaire list Φ_{total}

81600 lm

 P_{total}

480.0 W

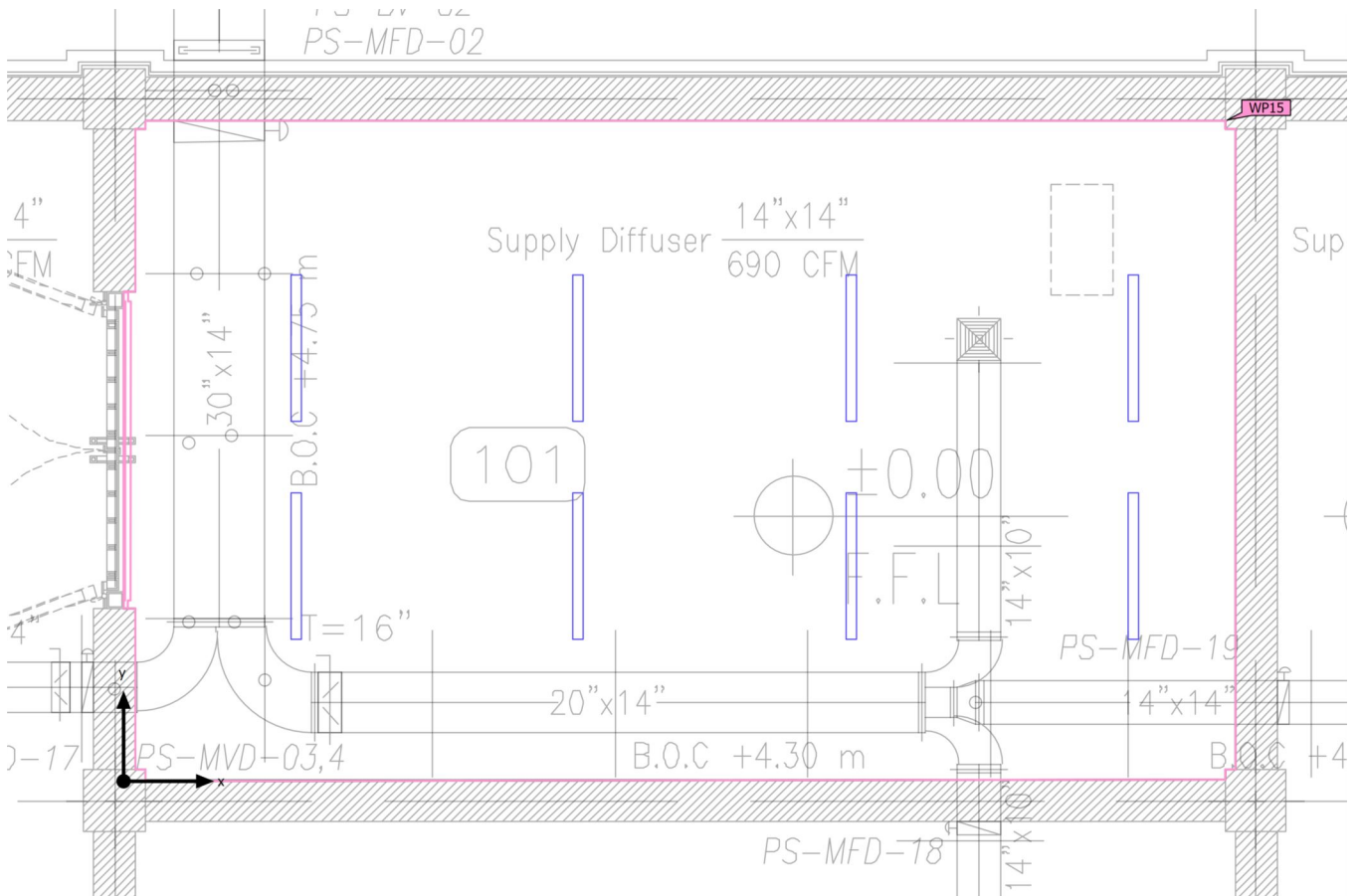
Luminous efficacy

170.0 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (8a-12) · Ground Floor · Storage Room 10 (Light scene 1)

Calculation objects



Warehouse (8a-12) · Ground Floor · Storage Room 10 (Light scene 1)

Calculation objects

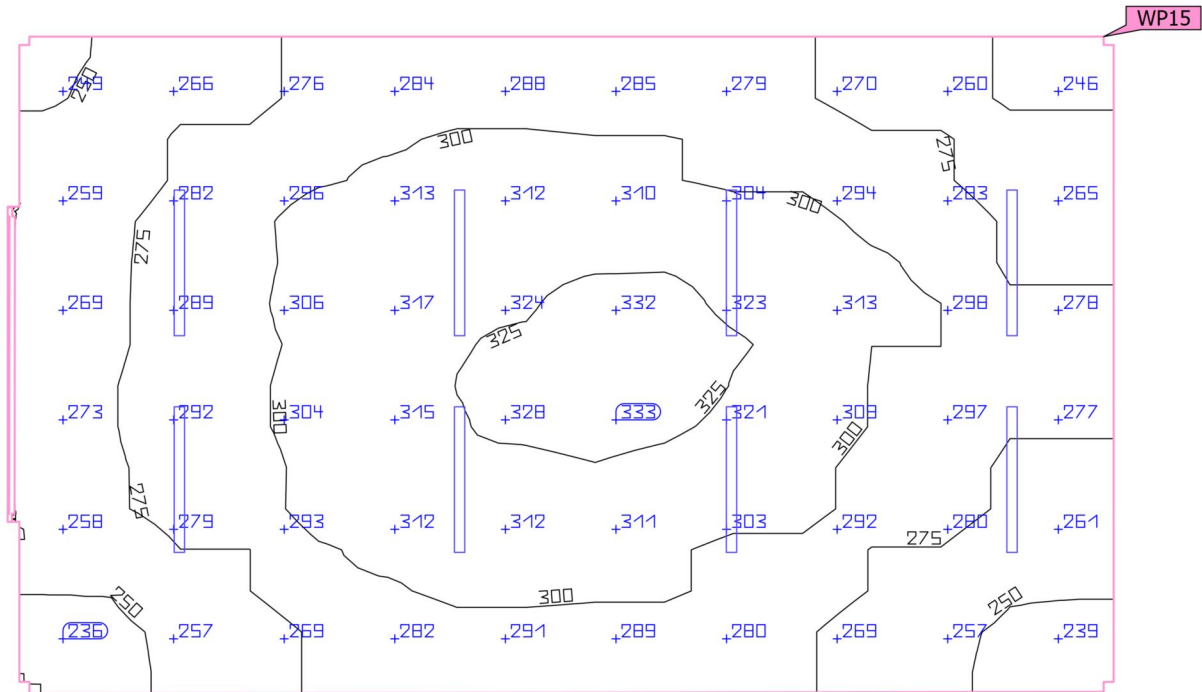
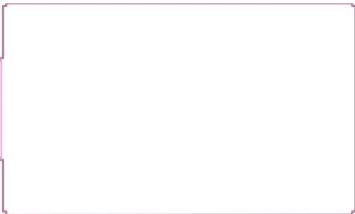
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 10) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	289 lx (≥ 200 lx) ✓	210 lx	336 lx	0.73 (≥ 0.50) ✓	0.63	WP15

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (8a-12) · Ground Floor · Storage Room 10 (Light scene 1)

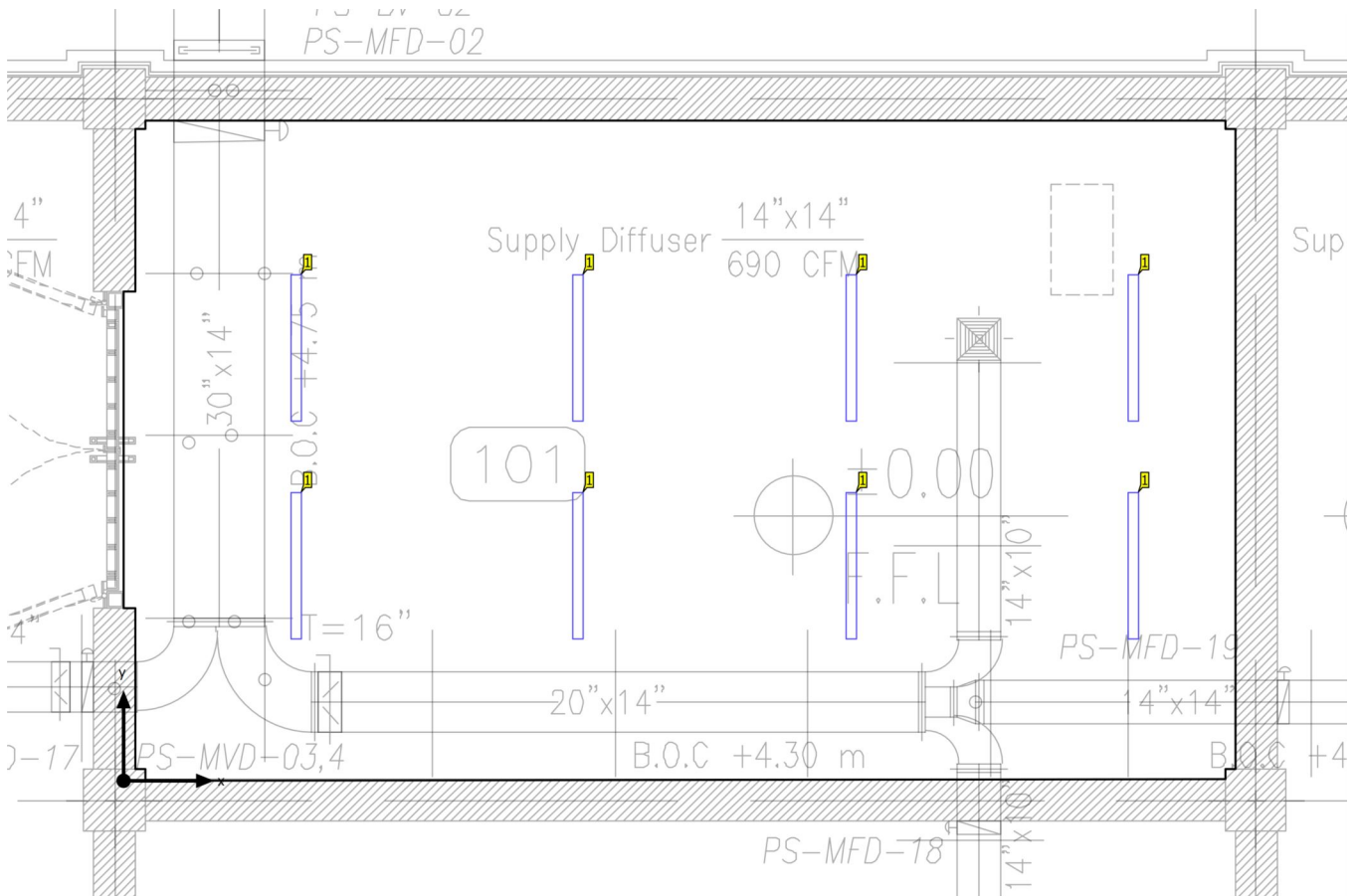
Working plane (Storage Room 10)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 10) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	289 lx (≥ 200 lx) ✓	210 lx	336 lx	0.73 (≥ 0.50) ✓	0.63	WP15

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (8a-12) · Ground Floor · Storage Room 10

Control group CG 1

Warehouse (8a-12) · Ground Floor · Storage Room 10

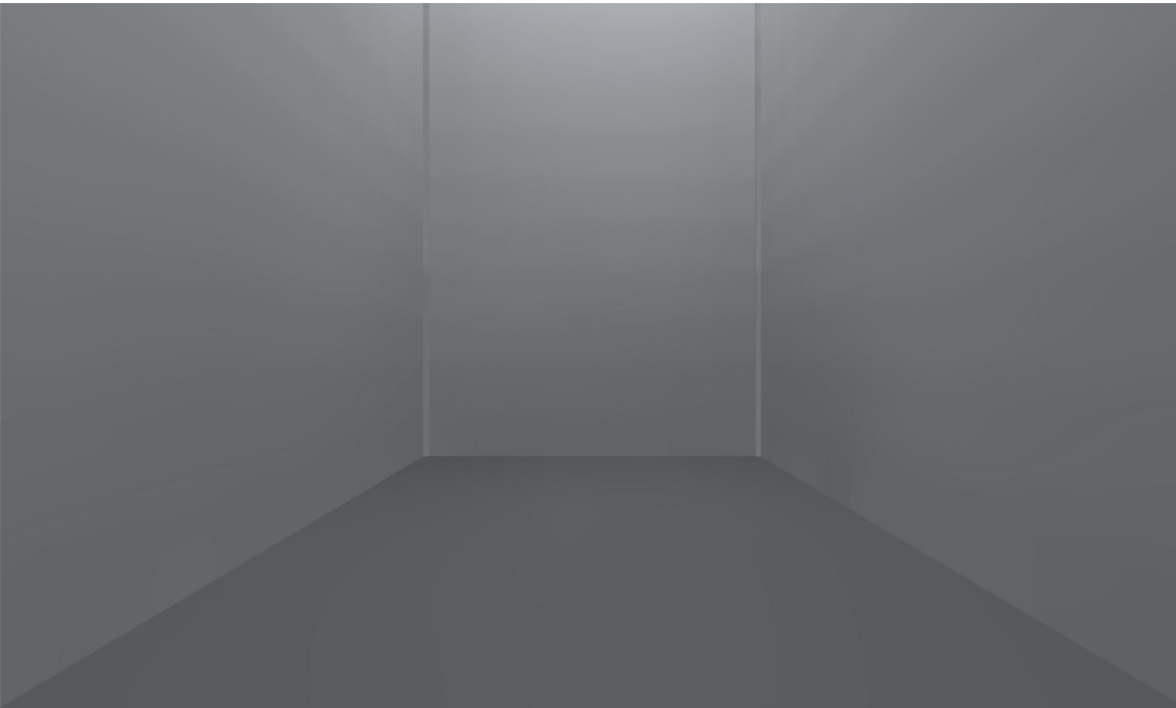
Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1

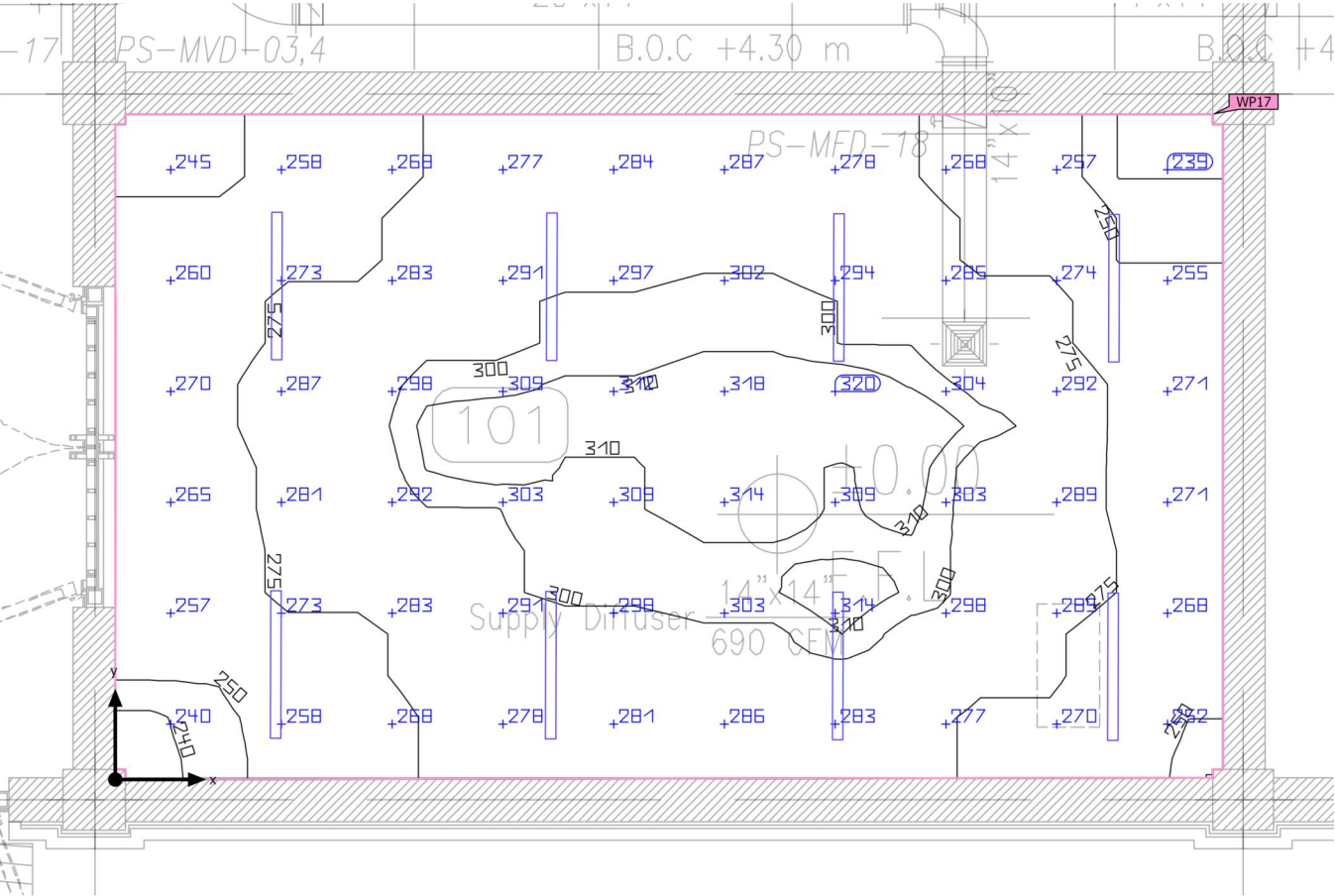


Warehouse (8a-12) · Ground Floor · Storage Room
11

Description

Warehouse (8a-12) · Ground Floor · Storage Room 11 (Light scene 1)

Summary



Ground area	48.69 m ²
Reflection factors	Ceiling: 70.0 %, Walls: 50.0 %, Floor: 20.0 %
Maintenance factor	0.80 (fixed)

Clearance height	12.000 m
Mounting height	10.000 m
Height _{Working plane}	0.000 m
Wall zone _{Working plane}	0.000 m

Warehouse (8a-12) · Ground Floor · Storage Room 11 (Light scene 1)

Summary

Results

	Symbol	Calculated	Target	Check	Index
Working plane	$\bar{E}_{\text{perpendicular}}$	283 lx	≥ 200 lx	✓	WP17
	$U_o (g_1)$	0.82	≥ 0.50	✓	WP17
Glare valuation ⁽¹⁾	$R_{UG, \text{max}}$	24	≤ 25	✓	
Energy estimation ⁽²⁾	Consumption	2523 kWh/a	max. 1750 kWh/a	✗	
Space	Lighting power density	9.86 W/m ²	–		
		3.49 W/m ² /100 lx	–		

(1) Based on a rectangular space of 5.413 m x 9.012 m and SHR of 0.25.

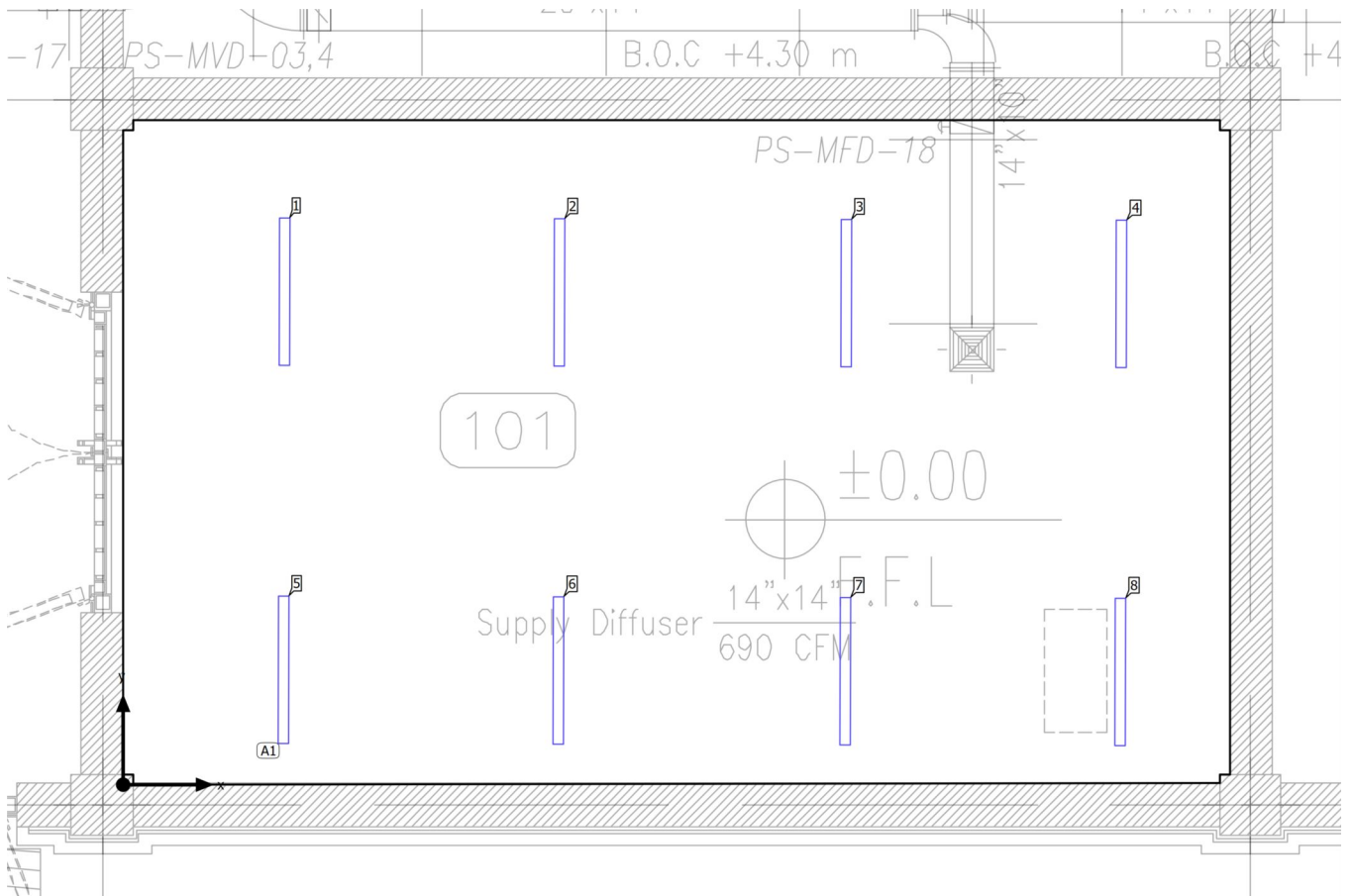
(2) Calculated using DIN:18599-4.

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

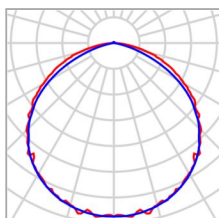
Luminaire list

pcs.	Manufacturer	Article No.	Article name	R_{UG}	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	24	60.0 W	10200 lm	170.0 lm/W

Warehouse (8a-12) · Ground Floor · Storage Room 11

Luminaire layout plan

Warehouse (8a-12) · Ground Floor · Storage Room 11

Luminaire layout plan

Manufacturer	Golnoor	P	60.0 W
Article No.	412110	$\Phi_{\text{Luminaire}}$	10200 lm
Article name	ASTERIA NL_60W_40000K		
Fitting	1x GM3030_ASTERIA		

8 x Golnoor ASTERIA NL_60W_40000K

Type	Field Arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	1.306 m / 0.936 m / 10.000 m	1.314 m	4.015 m	10.000 m	1
X-direction	4 pcs., Centre - centre, Distances not equal	3.552 m	4.010 m	10.000 m	2
		5.887 m	4.004 m	10.000 m	3
Y-direction	2 pcs., Centre - centre, Distances not equal	8.126 m	3.998 m	10.000 m	4
		1.306 m	0.936 m	10.000 m	5
Arrangement	A1	3.544 m	0.930 m	10.000 m	6
		5.879 m	0.924 m	10.000 m	7
		8.118 m	0.918 m	10.000 m	8

Warehouse (8a-12) · Ground Floor · Storage Room 11

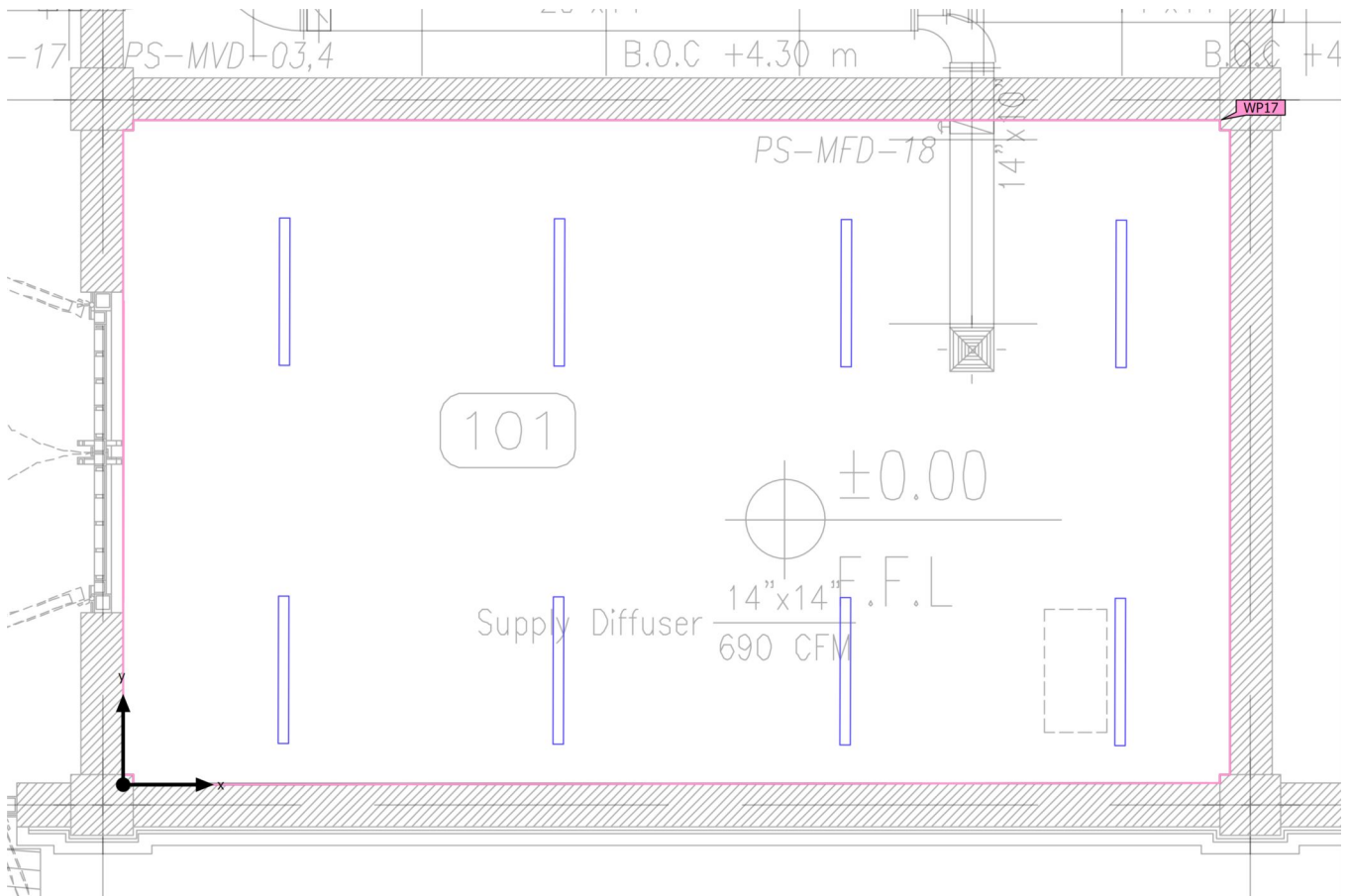
Luminaire list

Φ_{total} 81600 lm	P_{total} 480.0 W	Luminous efficacy 170.0 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	10200 lm	170.0 lm/W

Warehouse (8a-12) · Ground Floor · Storage Room 11 (Light scene 1)

Calculation objects



Warehouse (8a-12) · Ground Floor · Storage Room 11 (Light scene 1)

Calculation objects

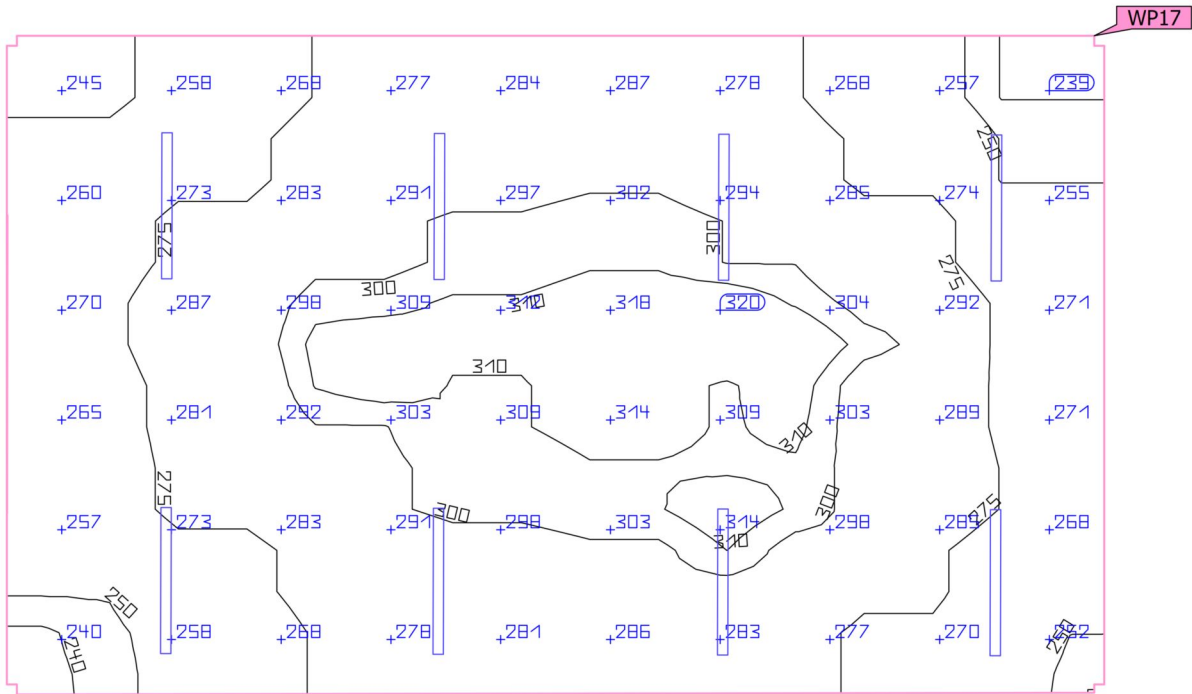
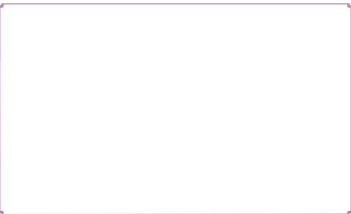
Working planes

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 11) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	283 lx (≥ 200 lx) ✓	232 lx	319 lx	0.82 (≥ 0.50) ✓	0.73	WP17

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (8a-12) · Ground Floor · Storage Room 11 (Light scene 1)

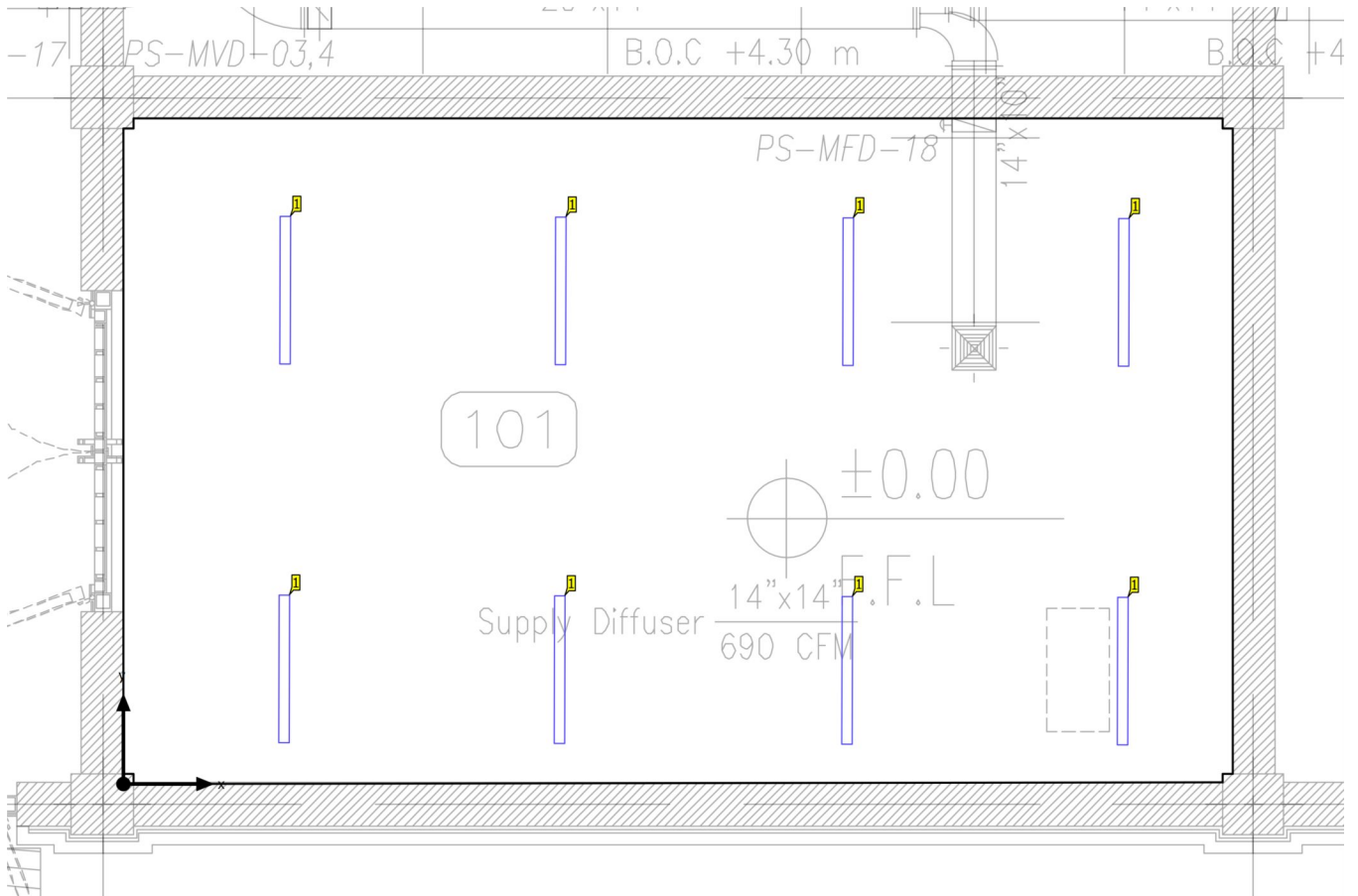
Working plane (Storage Room 11)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	$U_o (g_1)$ (Target)	g_2	Index
Working plane (Storage Room 11) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	283 lx (≥ 200 lx) ✓	232 lx	319 lx	0.82 (≥ 0.50) ✓	0.73	WP17

Utilisation profile: Logistics and warehouse (13.5 Shelf storage - floor)

Warehouse (8a-12) · Ground Floor · Storage Room 11

Control group CG 1

Warehouse (8a-12) · Ground Floor · Storage Room 11

Control groups

Control group CG 1

Light scene 1 100

Dimming values [%]

pcs.	Manufacturer	Article No.	Article name	P	Index
8	Golnoor	412110	ASTERIA NL_60W_40000K	60.0 W	1

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	(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
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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	(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.
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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	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. 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. 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.
Environmental zones	The assessment of intrusive light and light immission depends on the environment of the lighting installation. Depending on the standard, 4-6 different zones are defined, ranging from highly protected areas in natural settings to urban areas, commercial zones, and industrial zones.
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

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 .

K

k_s	The glare effect of a light source can be described by the glare metric k_s . It relates the solid angle of the glaring light source as seen from the point of immission, the ambient luminance, and the maximum allowable luminance.
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Glossary

L

LENI	(Engl. lighting energy numeric indicator) Lighting energy numeric indicator acc. to EN 15193 Unit: kWh/(m² * a)
LLMF	(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).
LMF	(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).
LSF	(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).
Luminance	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. Unit: Candela per square metre Abbreviation: cd/m² Formula symbol: L
Luminous efficacy	Ratio of the emitted luminous flux Φ [lm] to the absorbed electrical power P [W] Unit: lm/W. 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).
Luminous flux	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. Unit: Lumen Abbreviation: lm Formula symbol: Φ

Glossary

Luminous intensity	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. Unit: Candela Abbreviation: cd Formula symbol: I
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 $RMF \times LMF \times LLMF \times LSF$.
O	
Obtrusive light/Light immission	To protect the nocturnal environment and minimize problems for humans, flora, and fauna, it is necessary to limit obtrusive light (also known as light pollution), which can cause serious physiological and ecological issues for individuals and the environment. Light immission refers to the disturbing influence of emitted light from artificial light sources.
Operating times	The assessment of obtrusive light and light immission depends on the operating times of the lighting installation. Depending on the standard, 1-3 different operating times are specified. In the absence of specific details, an operating time between 06:00 and 22:00 can be assumed.
P	
P	(Engl. power) Electric power consumption Unit: watt Abbreviation: W

Glossary

R

$R_{(UG)} \text{ max}$	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.
R_{DLO}	The ratio of the luminous flux emitted below the horizontal plane to the total lamp luminous flux of a luminaire or lighting installation in its operational position.
R_G	The glare directly caused by luminaires of an outdoor lighting installation is determined using the CIE Glare Rating (RG) method. To calculate this, the equivalent veiling luminance of the surroundings is needed. There are four options for determining this: • An exact calculation according to CIE 112, based on the scene area. • A simplified method according to EN 12464-2, based on the scene area. • Using a custom calculation area to determine the equivalent veiling luminance. • Specifying a fixed value for easy comparability.
R_{UF}	upward flux ratio The ratio of the luminous flux emitted directly or reflected above the horizontal plane to the luminous flux that cannot be avoided under ideal conditions to achieve the illuminance level on a deliberately illuminated area.
R_{UL}	upward light ratio The ratio of the luminous flux emitted above the horizontal plane to the luminous flux of a luminaire or lighting installation in its operational position. The luminaire efficiency is considered in this calculation.
R_{ULO}	upward light output ratio The ratio of the luminous flux emitted above the horizontal plane to the total lamp luminous flux of a luminaire or lighting installation in its operational position.
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).
$RUG \text{ (max)}$	(unified glare rating) Measure for the psychological glare effect in interiors. In addition to luminaire luminance, the RUG 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 RUG values for various indoor workplaces.

Glossary

RUG observer	Calculation point in the room, for the DIALux the RUG 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).
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.
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.