



*Progetto Definitivo ed Esecutivo per l'efficientamento energetico della sede dell'Ente Parco in loc. Enfolà n. 16 Portoferraio (LI) CUP: E92G20000270001; CIG: 8270964768;*

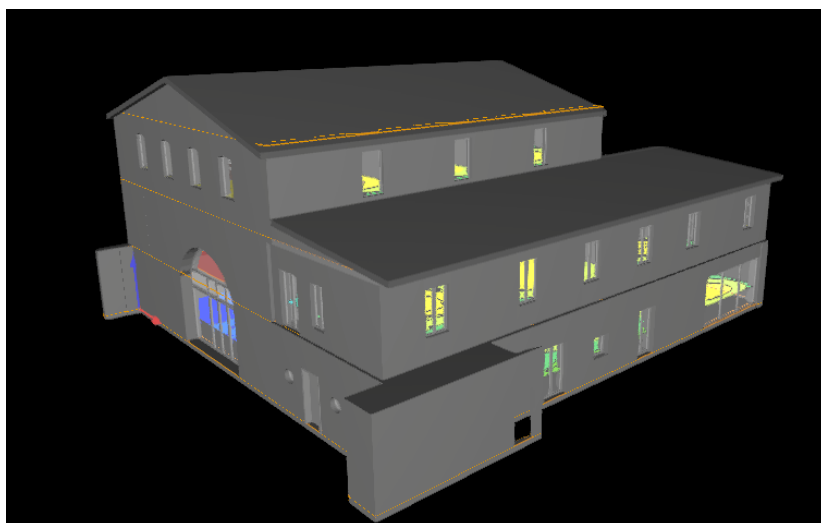
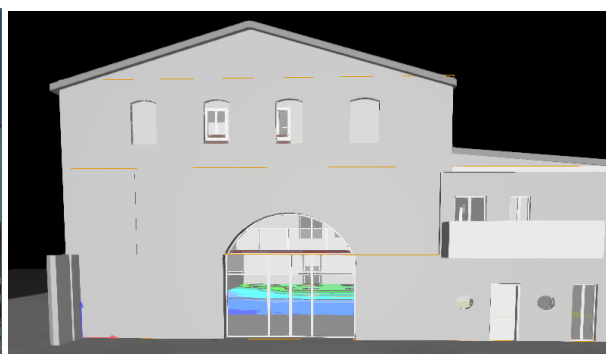
PROGETTO DEFINITIVO - ESECUTIVO  
**CALCOLO IMPIANTO ILLUMINOTECNICO**  
**ART. 35-37 DPR 207/2010**  
Dicembre 2020

**STUDIO AARC.IT+STUDIO INGEO**  
via G.M. Terreni, 32 Livorno 57122 tel  
+3905861690806 fax +380586014808  
mail aarc@aarc.it web www.aarc.it

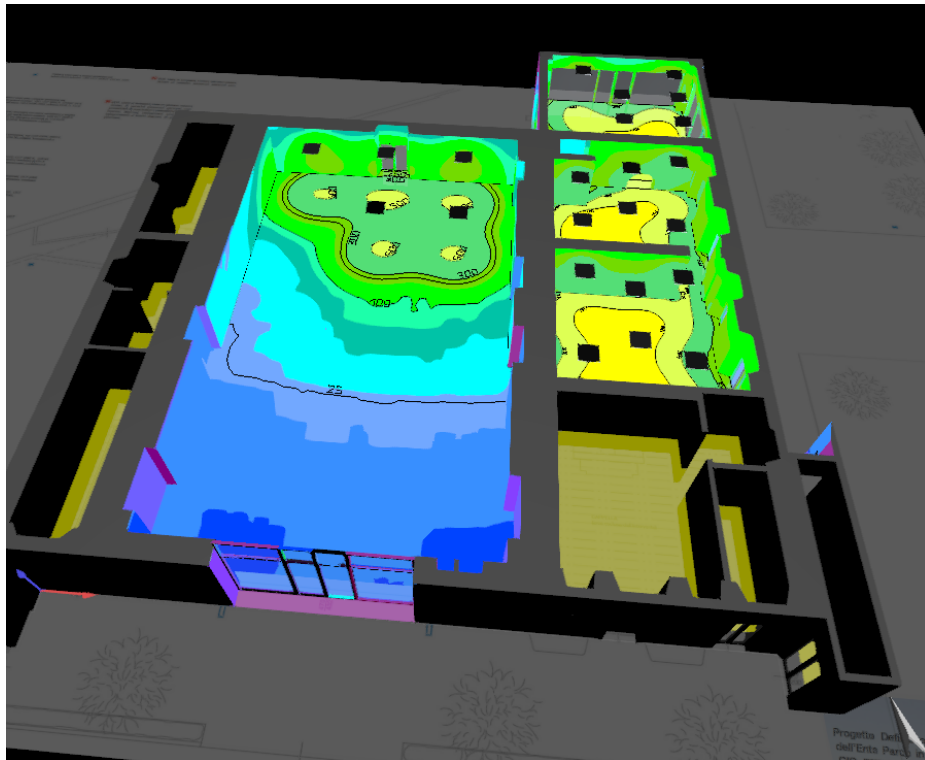


**PARCO NAZIONALE  
ARCIPELAGO TOSCANO**  
RUP Arch. Giovanni De Luca, Località  
Enfolà - 57037 Portoferraio (LI)  
deluca@islepark.it - +39 335  
8062499

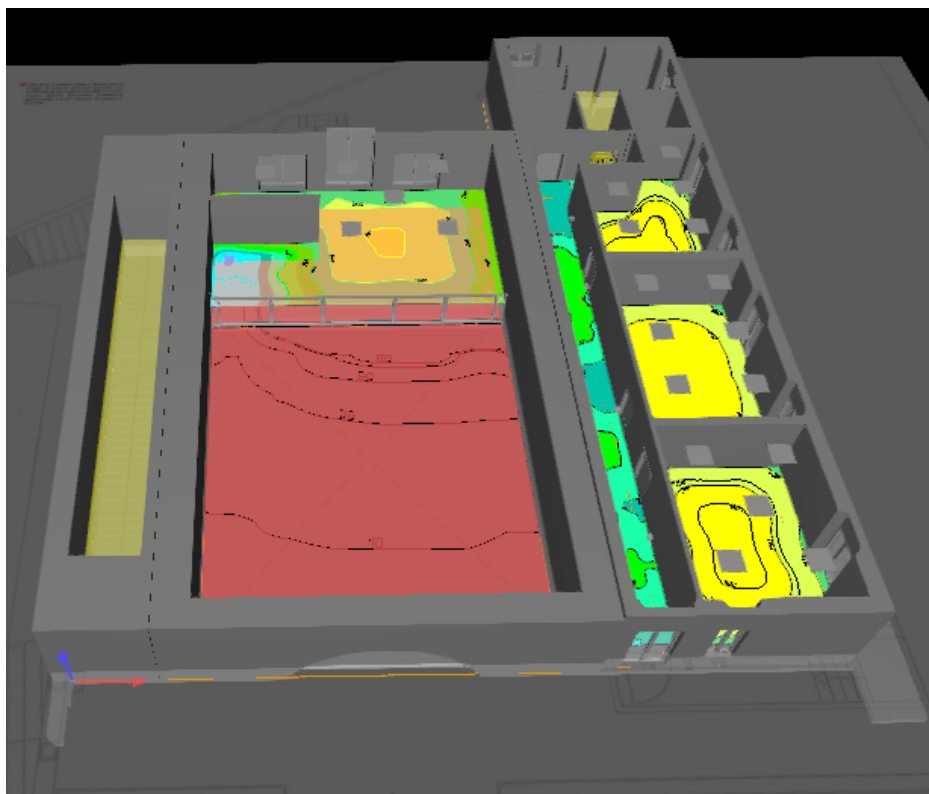
## Calcoli illuminotecnici



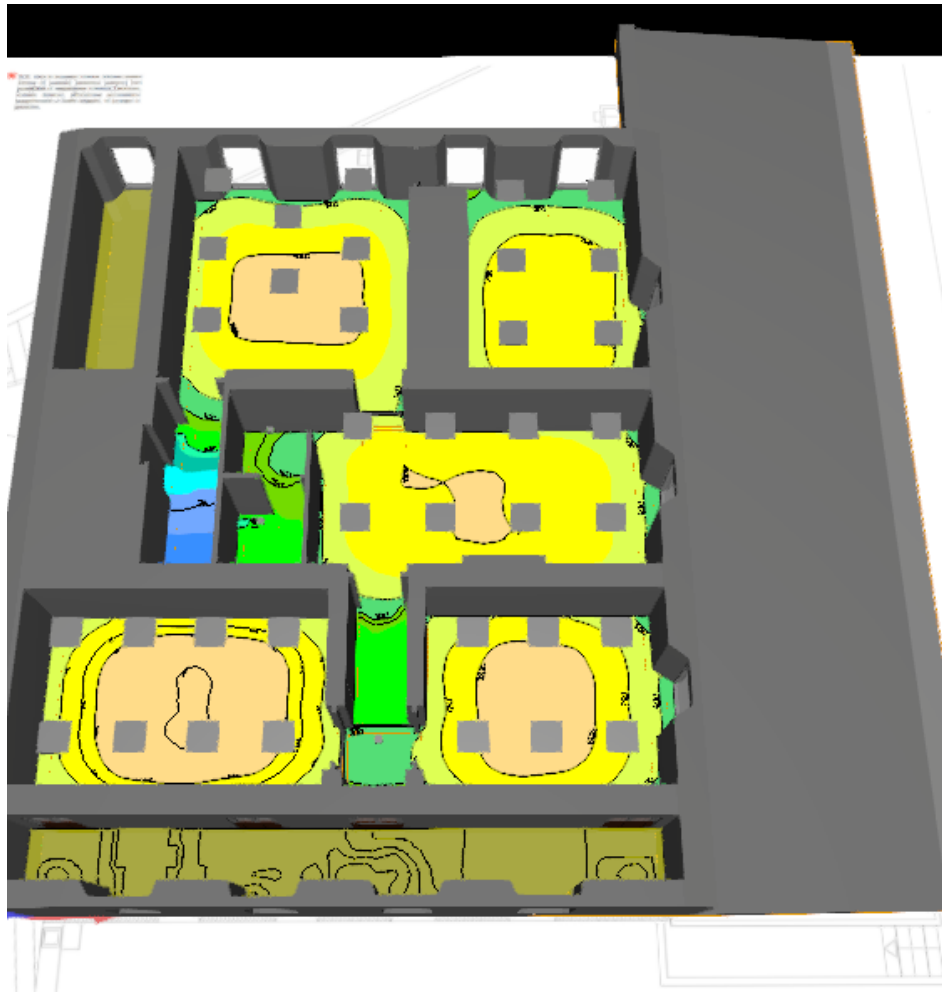
Ground floor



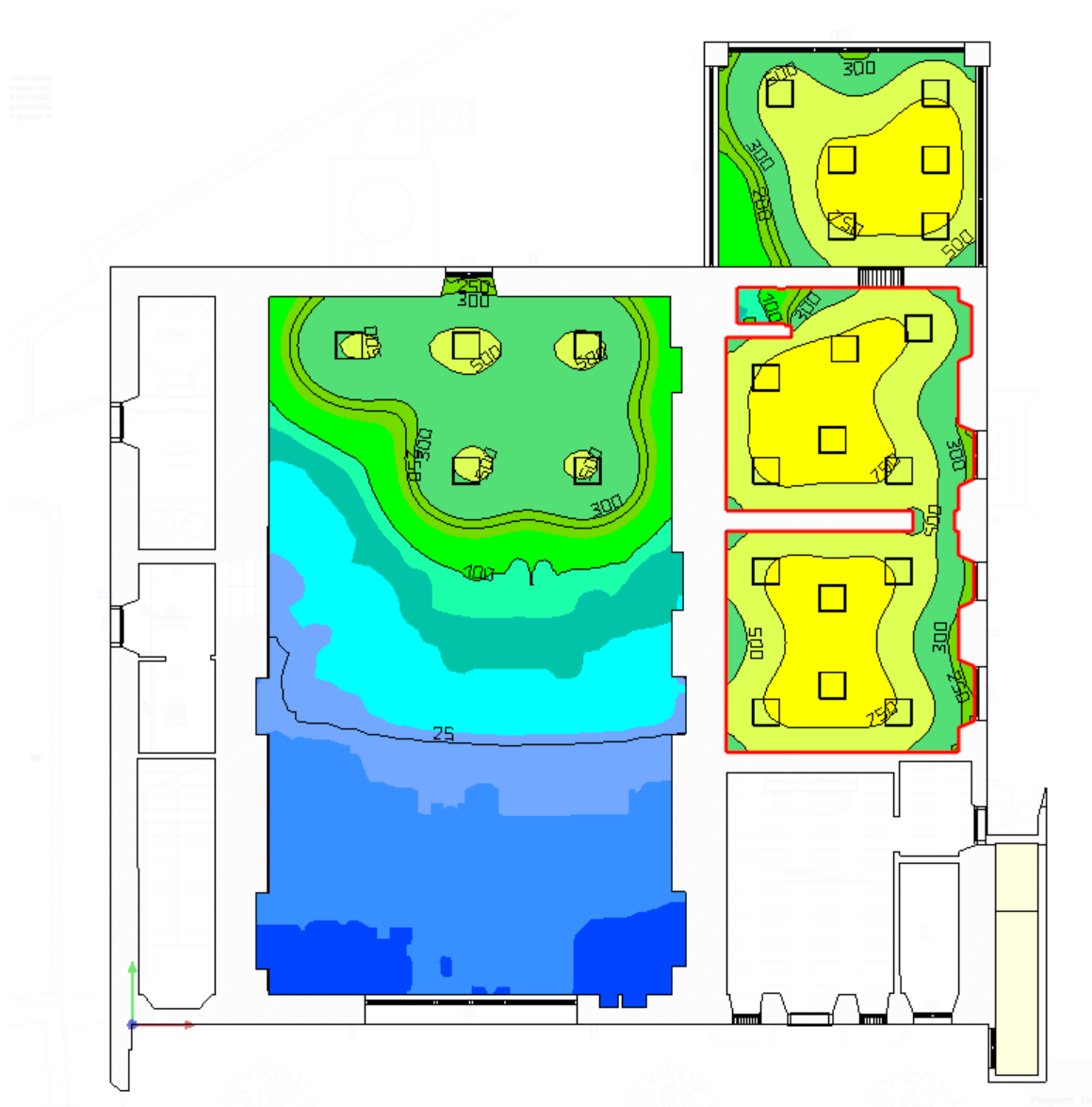
2nd floor



3rd floor



Ground floor:



6 HCL BIOLUX Panels 600 x 600 in area relax T1

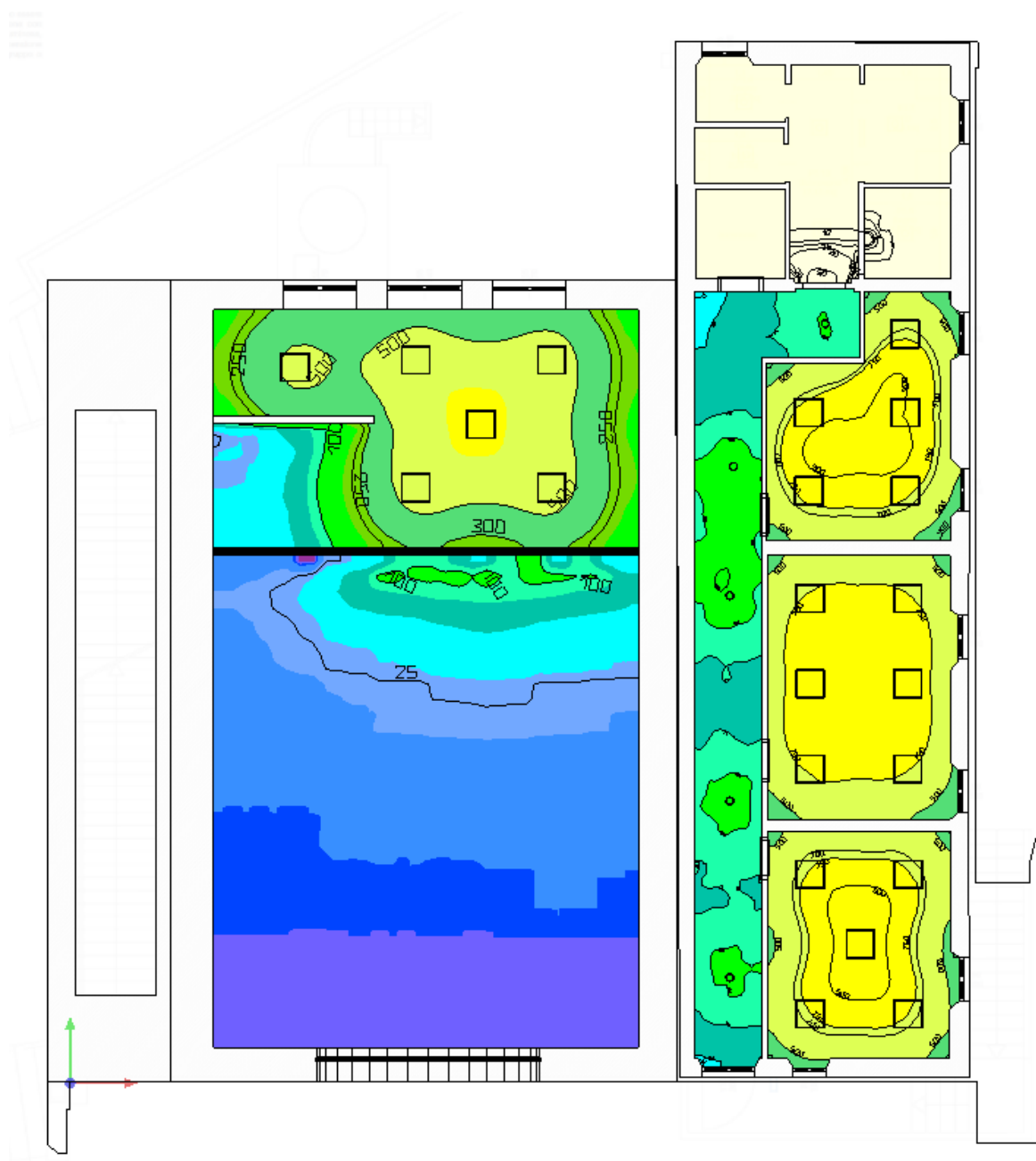
6 HCL BIOLUX Panels 600 x 600 in ufficio T2

6 HCL BIOLUX Panels 600 x 600 in ufficio T3

5 HCL BIOLUX Panels in the rear part of the big hall (sala riunioni)

The function of this space needs to be clarified. If this is an area where people do not spend much time, BIOLUX is not necessary

## 1<sup>st</sup> floor



6 HCL BIOLUX Panels 600 x 600 in ufficio P1.3

5 HCL BIOLUX Panel 600 x 600 in ufficio P1.4

5 HCL BIOLUX Panel 600 x 600 in ufficio P1.2

6 HCL BIOLUX Panels 600 x 600 in area above big hall (soppalco P1.1)

This area requires a more detailed planning with exact knowledge of ceiling height, curvature of ceiling, position of work places and other details.

In the corridor P1.4, four Luminaires type Tibe Mini Tunable white have been planned (works with Biolux Control Unit). Just as a proposal. The color is in synchronicity with the Panels.

## 2nd floor

progetto  
piano 0



6 HCL BIOLUX Panels 600 x 600 in ufficio P2.12

6 HCL BIOLUX Panels 600 x 600 in Sala P2.2

6 HCL BIOLUX Panels 600 x 600 in Sala P2.3

8 HCL BIOLUX Panels 600 x 600 in ufficio P2.11

8 HCL BIOLUX Panels 600 x 600 in Sala P2.5

Additional remarks:

Presence sensors can be added to the electrical power circuit for the luminaires.

The sensor is connected in series to the mains light switch in the room.

Each room requires one presence sensor. The electrical power to the luminaire is switched on and off by this sensor. For this application simple switching sensors can be used, as no control signal needs to be transmitted to the HCL Control unit. Just the luminaires are switched on and off.

Such sensors are not a part of the BIOLUX system, but any external sensors can be used, if they allow to switch the electrical power to the luminaire.

Daylight sensors are not required. Because of the thick walls which cause deep openings of windows daylight harvesting for energy saving is not useful.

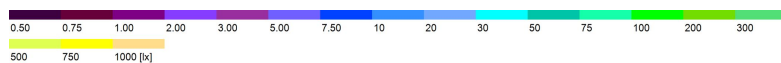
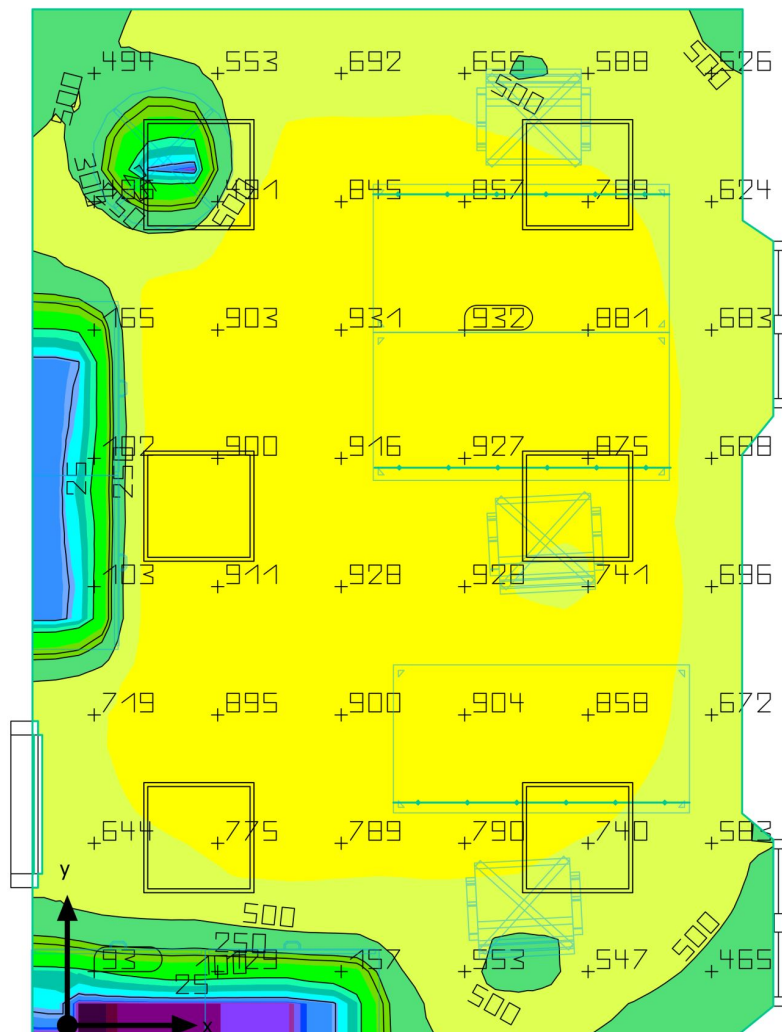
The Tibe Mini (Tibe-M) Tunable White can be used as lamp/luminaire to illuminate rooms like corridors, bathrooms or comparable areas. They should not be used in direct view to work places, because they do not meet UGR 19 specification for workplaces.

The Tibe lamp is controllable via the HCL Control Unit and gives the same light color as the Panels connected to the same Control Unit. This allows to match the Color Temperature without installation of additional panels.



Gebäude 1 · Etage 2 · Ufficio P1.3

## Zusammenfassung



Grundfläche: 21.64 m<sup>2</sup> | Reflexionsgrade: Decke: 70.0 %, Wände: 50.0 %, Boden: 20.0 % | Wartungsfaktor: 0.80 (pauschal) | Lichte  
Raumhöhe: 2.800 m | Montagehöhe: 2.800 m

Gebäude 1 · Etage 2 · Ufficio P1.3

## Zusammenfassung

### Ergebnisse

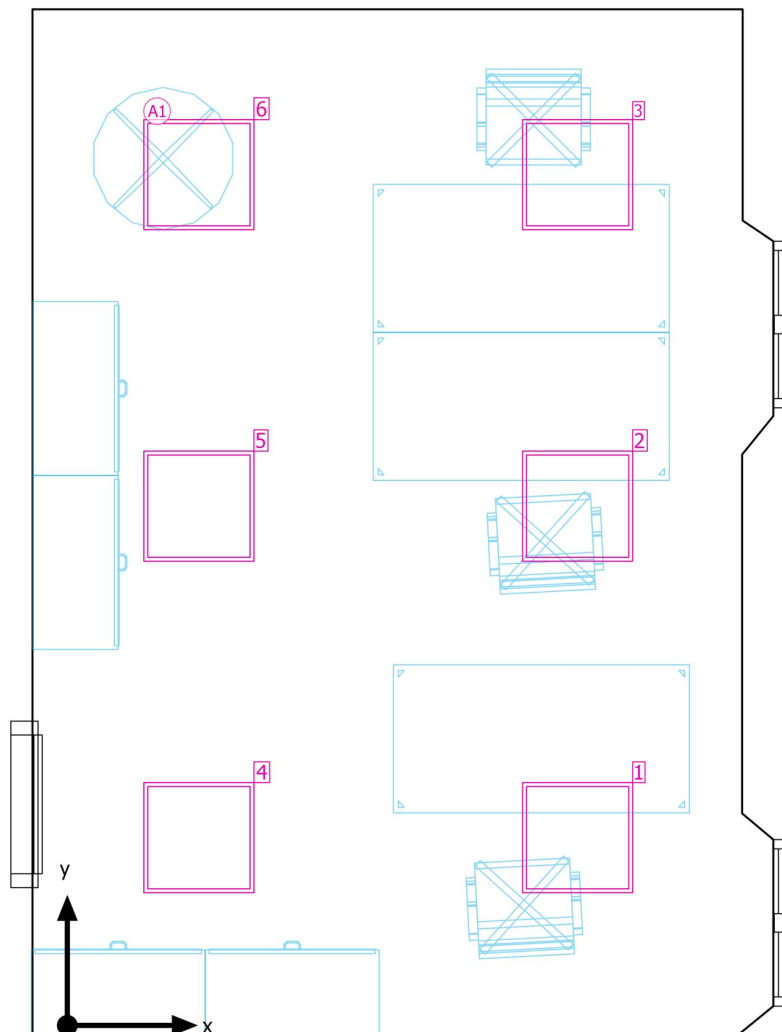
	Größe	Berechnet	Soll	Check
Nutzebene	Ē	681 lx	≥ 500 lx	✓
	g <sub>1</sub>	0.001	-	-
Verbrauchsgrößen	Verbrauch	[450 - 710] kWh/a	max. 800 kWh/a	✓
	LENI	[21 - 33] kWh/a/m <sup>2</sup>	max. 35 kWh/a/m <sup>2</sup>	✓
	Kosten	[134 - 213] €/a	-	-
Spezifischer Anschlusswert	Raum	11.92 W/m <sup>2</sup>	-	-
		1.75 W/m <sup>2</sup> /100 lx	-	-

Nutzungsprofil: DIALux Voreinstellung, Standard (Büro)

### Leuchtenliste

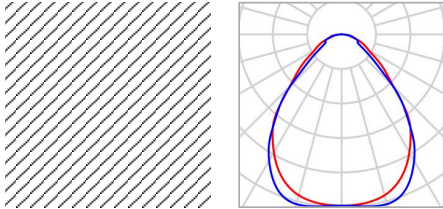
Stk.	Hersteller	Artikel-Nr.	Artikelname	P	Φ	Lichtausbeute
6	LEDVANCE GmbH	40580753 64547	BIOLUX HCL PL 600 ZB 43W 4000K	43.0 W	4400 lm	102.3 lm/W

Gebäude 1 · Etage 2 · Ufficio P1.3

**Leuchtenlageplan**

Gebäude 1 · Etage 2 · Ufficio P1.3

## Leuchtenlageplan



Hersteller	LEDVANCE GmbH
Artikel-Nr.	4058075364547
Artikelname	BIOLUX HCL PL 600 ZB 43W 4000K

6 x LEDVANCE GmbH BIOLUX HCL PL 600 ZB 43W 4000K

Typ	Feldanordnung	X	Y	Montagehöhe	Leuchte
1. Leuchte (X/Y/Z)	2.758 m, 1.015 m, 2.800 m	2.758 m	1.015 m	2.800 m	<span style="border: 1px solid black; padding: 0 5px;">1</span>
		2.758 m	2.806 m	2.800 m	<span style="border: 1px solid black; padding: 0 5px;">2</span>
		2.758 m	4.598 m	2.800 m	<span style="border: 1px solid black; padding: 0 5px;">3</span>
X-Richtung	3 Stk., Mitte - Mitte, Abstände ungleich				
Y-Richtung	2 Stk., Mitte - Mitte, Abstände ungleich	0.711 m	1.015 m	2.800 m	<span style="border: 1px solid black; padding: 0 5px;">4</span>
		0.711 m	2.806 m	2.800 m	<span style="border: 1px solid black; padding: 0 5px;">5</span>
		0.711 m	4.598 m	2.800 m	<span style="border: 1px solid black; padding: 0 5px;">6</span>
Anordnung	A1				

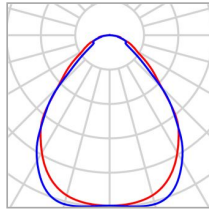
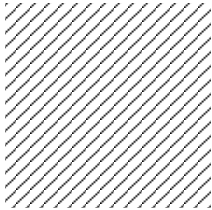
Gebäude 1 · Etage 2 · Ufficio P1.3

## Leuchtenliste

$\Phi_{\text{gesamt}}$   
26400 lm

$P_{\text{gesamt}}$   
258.0 W

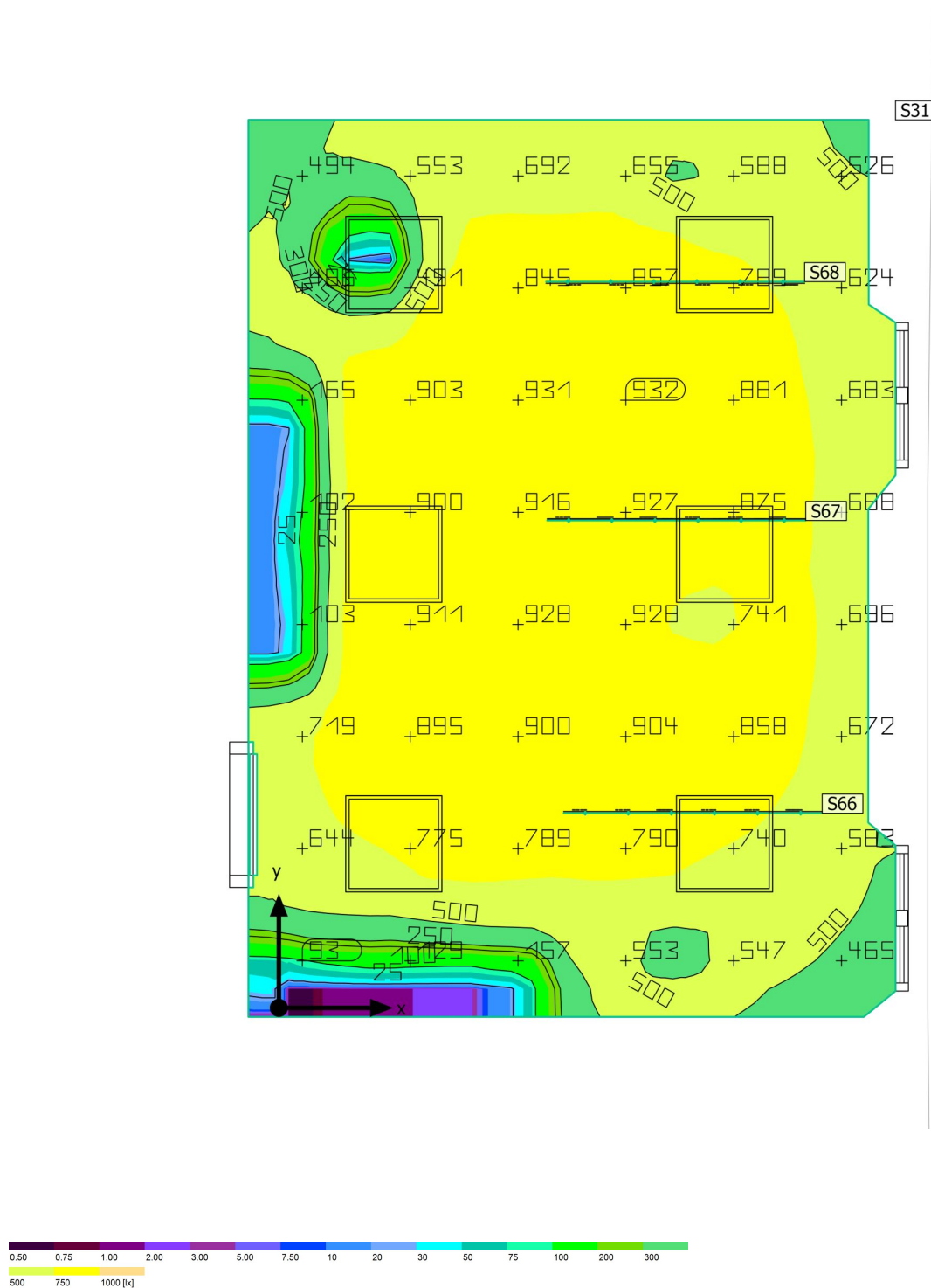
Lichtausbeute  
102.3 lm/W



Stk.	6	P	43.0 W
Hersteller	LEDVANCE GmbH	$\Phi_{\text{Lampe}}$	4400 lm
Artikel-Nr.	4058075364547	$\Phi_{\text{Leuchte}}$	4400 lm
Artikelname	BIOLUX HCL PL 600 ZB 43W 4000K	$\eta$	100.00 %
Bestückung	1x LED / CRI >= 90	Lichtausbeute	102.3 lm/W
		CCT	6400 K
		CRI	93

Gebäude 1 · Etage 2 · Ufficio P1.3

## Berechnungsobjekte



Gebäude 1 · Etage 2 · Ufficio P1.3

## Berechnungsobjekte

Nutzebenen

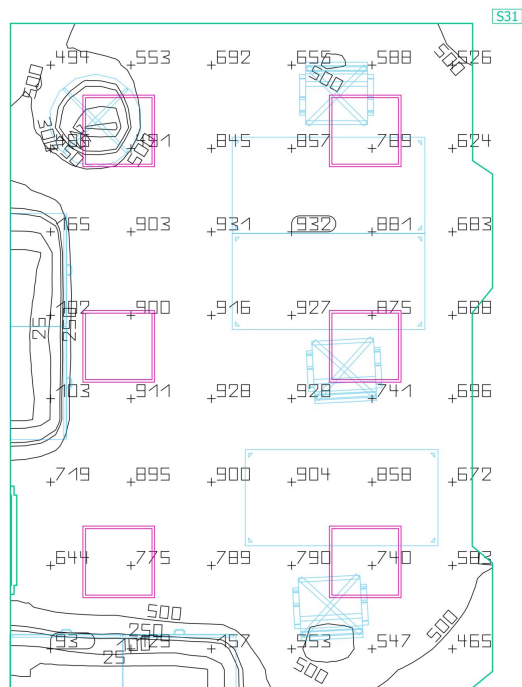
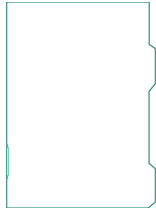
Eigenschaften	$\bar{E}$ (Soll)	$E_{min}$	$E_{max}$	$g_1$	$g_2$	Index
Nutzebene (Ufficio P1.3) Senkrechte Beleuchtungsstärke (adaptiv) Höhe: 0.720 m, Randzone: 0.000 m	681 lx ( $\geq 500$ lx) ✓	0.65 lx	938 lx	0.001	0.001	S31

Berechnungsflächen

Eigenschaften	$\bar{E}$	$E_{min}$	$E_{max}$	$g_1$	$g_2$	Index
Berechnungsfläche 2 Senkrechte Beleuchtungsstärke Höhe: 1.220 m	362 lx	307 lx	432 lx	0.85	0.71	S66
Berechnungsfläche 3 Senkrechte Beleuchtungsstärke Höhe: 1.220 m	357 lx	285 lx	430 lx	0.80	0.66	S67
Berechnungsfläche 4 Senkrechte Beleuchtungsstärke Höhe: 1.220 m	373 lx	302 lx	437 lx	0.81	0.69	S68

Nutzungsprofil: DIALux Voreinstellung, Standard (Büro)

Gebäude 1 · Etage 2 · Ufficio P1.3

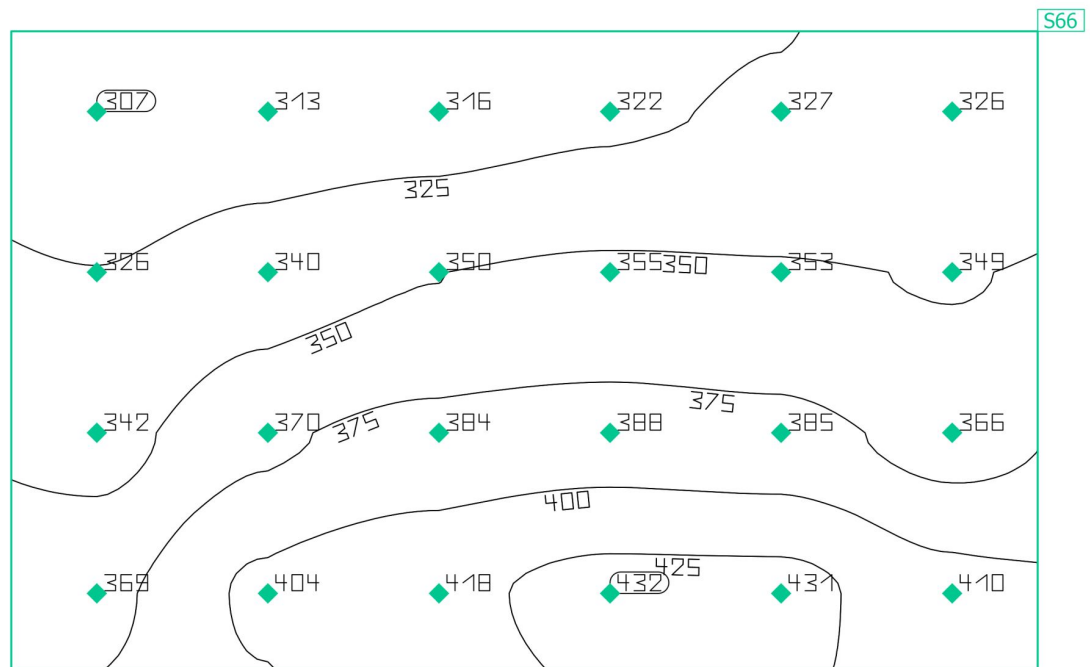
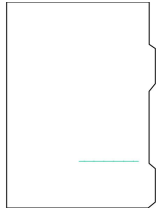
**Nutzebene (Ufficio P1.3)**

Eigenschaften	$\bar{E}$ (Soll)	$E_{min}$	$E_{max}$	$g_1$	$g_2$	Index
Nutzebene (Ufficio P1.3)	681 lx	0.65 lx	938 lx	0.001	0.001	S31
Senkrechte Beleuchtungsstärke (adaptiv)	( $\geq 500$ lx)					
Höhe: 0.720 m, Randzone: 0.000 m	✓					

Nutzungsprofil: DIALux Voreinstellung, Standard (Büro)



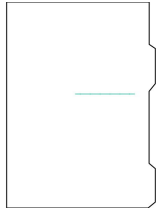
Gebäude 1 · Etage 2 · Ufficio P1.3

**Berechnungsfläche 2**

Eigenschaften	$\bar{E}$	$E_{min}$	$E_{max}$	$g_1$	$g_2$	Index
Berechnungsfläche 2	362 lx	307 lx	432 lx	0.85	0.71	S66
Senkrechte Beleuchtungsstärke						
Höhe: 1.220 m						

Nutzungsprofil: DIALux Voreinstellung, Standard (Büro)

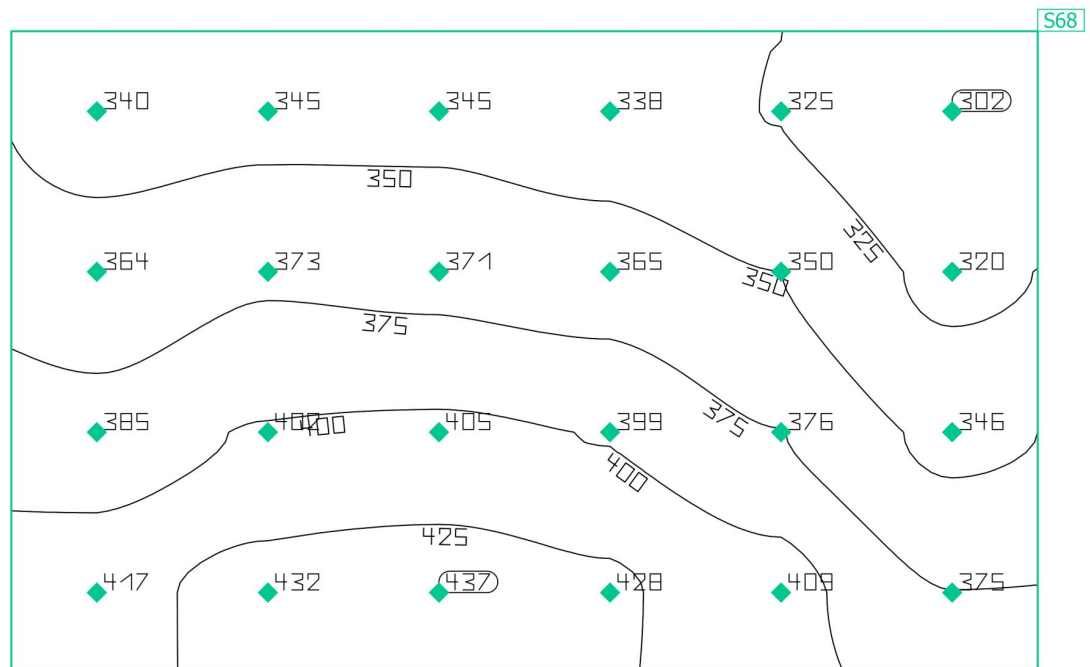
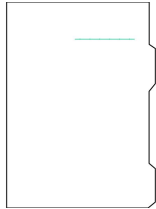
Gebäude 1 · Etage 2 · Ufficio P1.3

**Berechnungsfläche 3**

Eigenschaften	$\bar{E}$	$E_{min}$	$E_{max}$	$g_1$	$g_2$	Index
Berechnungsfläche 3 Senkrechte Beleuchtungsstärke Höhe: 1.220 m	357 lx	285 lx	430 lx	0.80	0.66	S67

Nutzungsprofil: DIALux Voreinstellung, Standard (Büro)

Gebäude 1 · Etage 2 · Ufficio P1.3

**Berechnungsfläche 4**

Eigenschaften	$\bar{E}$	$E_{min}$	$E_{max}$	$g_1$	$g_2$	Index
Berechnungsfläche 4 Senkrechte Beleuchtungsstärke Höhe: 1.220 m	373 lx	302 lx	437 lx	0.81	0.69	S68

Nutzungsprofil: DIALux Voreinstellung, Standard (Büro)