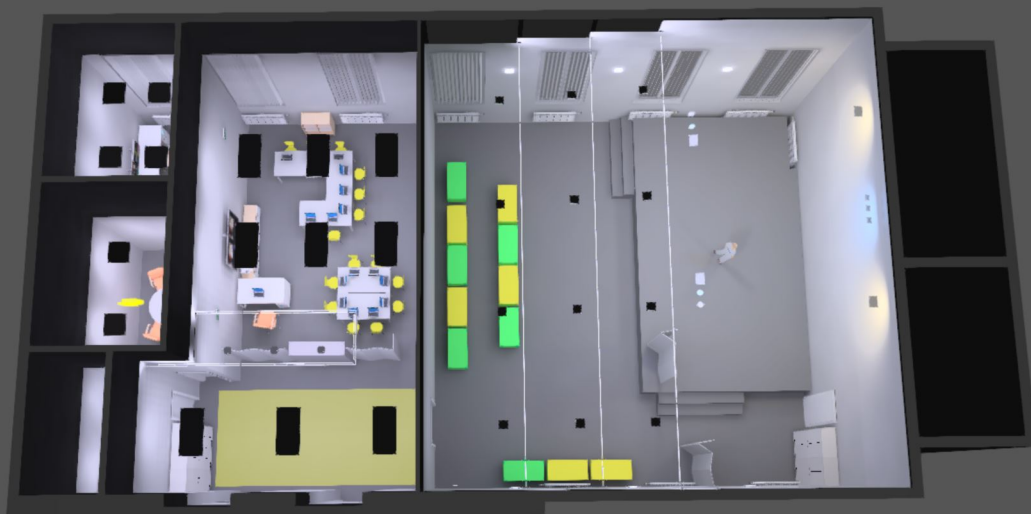




Светотехнически изчисления

ПРОМЯНА ПРЕДНАЗНАЧЕНИЕ НА АКТОВА ЗАЛА В
STEM „Център за технологии в креативните
индустрии“, ОУ "Димитър Благоев", гр. В.Търново,
ул. Христо Смирненски" 1А

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Site 1 - Building 1 - Storey 1

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Site 1 - Building 1 - Storey 1

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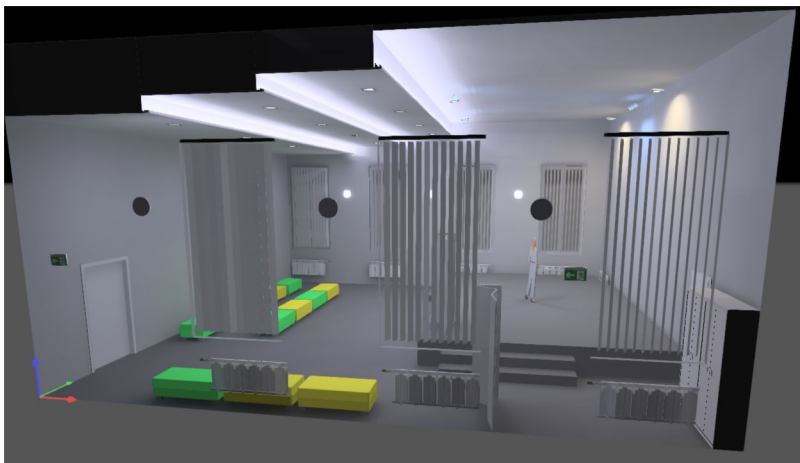
ТЕХНИЧЕСКО ПОМЕЩЕНИЕ

Working plane (ТЕХНИЧЕСКО ПОМЕЩЕНИЕ) / Освещение / Perpendicular illuminance (adaptive) 25

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АКТОВА ЗАЛА - зона "НА ВЪРХА"

За основното осветление са подбрани подходящи осветителни тела тип квадратни луни разположени в/у стъпаловидния окачен таван. Допълнително на всяко ниво в окачения таван е предвидена ниша в която са предвидени линейни светодиодни осветителни тела, които имат възможност да създадат непрекъсната светеща линия. В зоната на сцената са предвидени RGB прожектори с възможност за димиране и регулиране на цвета.



КАБИНЕТ - зона "ПРЕЖИВЯВАНЕ"

Осветлението в тази зона е реализирано посредством светодиодни LED панели за растерен окачен таван с размери 1200 x 600 мм. В зоната с параваните с различни принтове има понижение на окачения таван в който има инсталирани 3 бр. висящи осветителни тела. Допълнително по периферията на окачения таван има предвидени линейни осветителни тела, които формират непрекъсната светеща линия с индиректно осветление.



СТУДИО ВИДЕОЗАПИС - зона "ОГНИЩЕ"

Осветлението в това помещение, както и в съседното студио за звукозапис и обработка - зона "ОГНИЩЕ" е реализирано със светодиодни осветителни тела тип LED панели за растерен окачен таван с размери 600 x 600 мм. За да се гарантира равномерна осветеност без заслепяване, всички LED панели са избрани с UGR <19. В светотехническите изчисления има направени допълнителни изчисления за камера.



Luminaire list

Φ_{total} 239794 lm	P_{total} 2668.0 W	Luminous efficacy 89.9 lm/W	$\Phi_{\text{Emergency lighting}}$ 44 lm	$P_{\text{Emergency lighting}}$ 8.0 W
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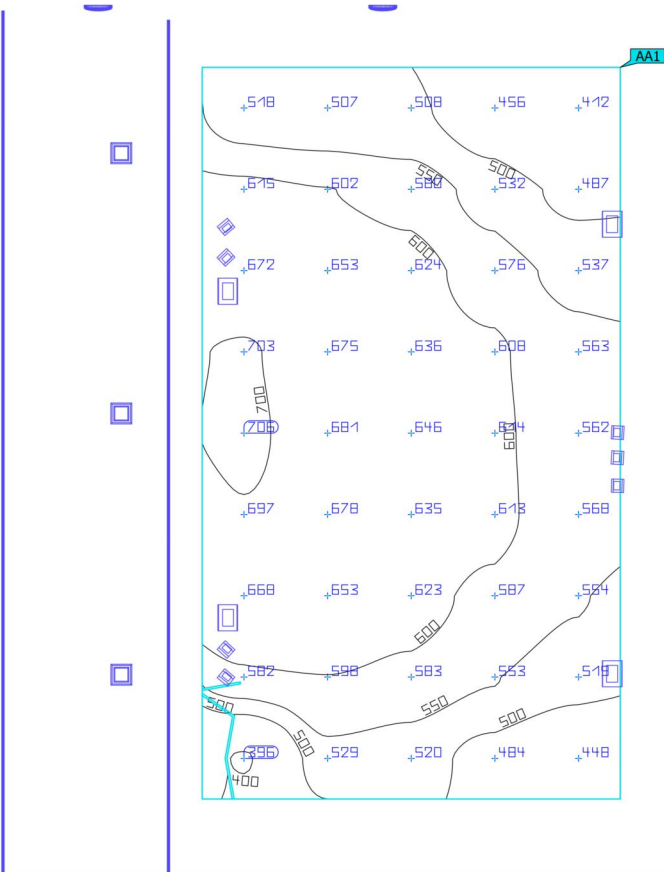
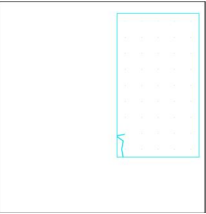
pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
6	LEDVANCE	40580750 62221	SURFACE COMPACT IK10 24 W 4000 K IP65 WT	24.0 W	1920 lm	80.0 lm/W
12	LEDVANCE	40580750 79359	DOWNLIGHT SLIM SQUARE 210 18 W 4000 K WT	18.0 W	1530 lm	85.0 lm/W
1	LEDVANCE	40580750 99715	LINEAR COMPACT BATTEN 600 10 W 4000 K	10.0 W	1000 lm	100.0 lm/W
5	LEDVANCE	40580750 99753	LINEAR COMPACT BATTEN 1200 20 W 4000 K	20.0 W	2000 lm	100.0 lm/W
26	LEDVANCE	40580750 99791	LINEAR COMPACT BATTEN 1500 25 W 4000 K	25.0 W	2500 lm	100.0 lm/W
9	LEDVANCE	40580753 84361	PANEL VALUE 1200x600 TPB 65 W 4000 K WT	65.0 W	5850 lm	90.0 lm/W
10	LEDVANCE	40581181 42200	PANEL VALUE 600 UGR < 19 36 W 4000 K WT	36.0 W	3600 lm	100.0 lm/W
4	V-TAC	412	V-TAC 100W LED Floodlight SMD SAMSUNG CHIP Black Body 3000K	100.0 W	8000 lm	80.0 lm/W
2	V-TAC	5984	V-TAC 20W LED Floodlight With Bluetooth Black Body RGB + White	20.0 W	1400 lm	70.0 lm/W
1	V-TAC	5984	V-TAC 20W LED Floodlight With Bluetooth Black Body RGB + White	20.0 W	1400 lm	70.0 lm/W
2	V-TAC	5984	V-TAC 20W LED Floodlight With Bluetooth Black Body RGB + White	20.0 W	1400 lm	70.0 lm/W
1	V-TAC	5984	V-TAC 20W LED Floodlight With Bluetooth Black Body RGB + White	20.0 W	1400 lm	70.0 lm/W
1	V-TAC	5984	V-TAC 20W LED Floodlight With Bluetooth Black Body RGB + White	20.0 W	1400 lm	70.0 lm/W
3	V-TAC	7969	V-TAC 15W LED Linear Hanging Suspension Light IP20 24V Black 4000K	15.0 W	1000 lm	66.7 lm/W

Luminaire list

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
4	ZUMTOBEL	Set	42180911 PURESIGN/COMSIGN 150 RSI NT1 + 22168682 COMSIGN 150 ASI/ESI/RSI15 RZ-2LR [STD]	4.5 W	116 lm	25.8 lm/W
				 2.0 W	11 lm (100 %)	-

Building 1 · Storey 1 · АКТОВА ЗАЛА (Осветление)

Сцена



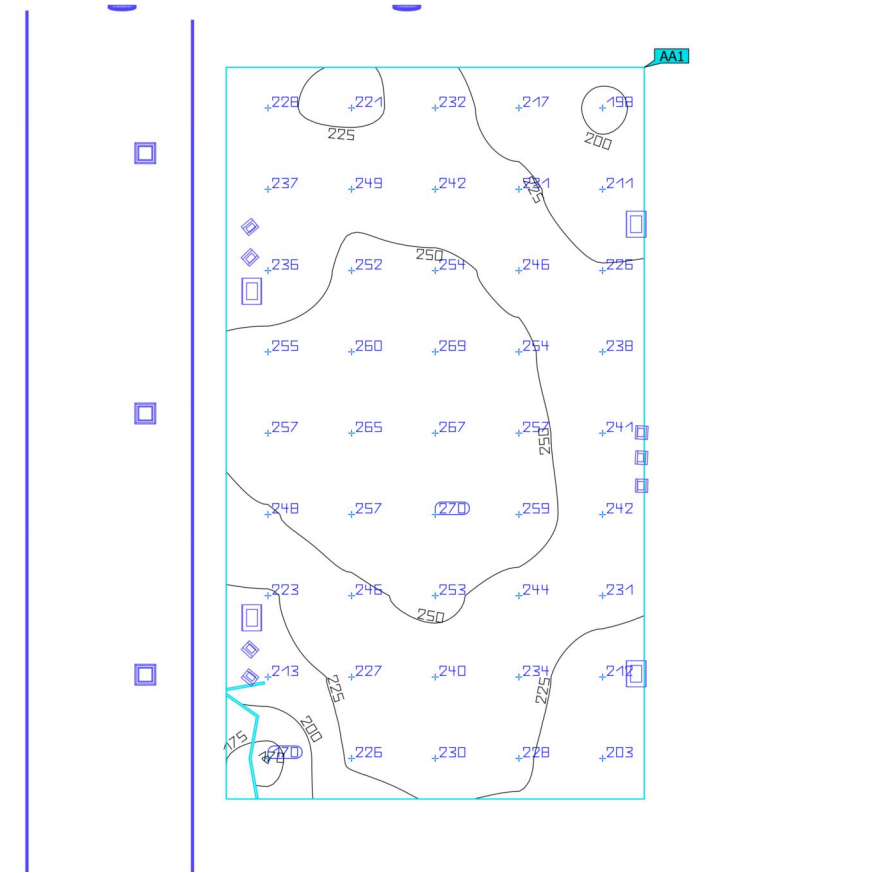
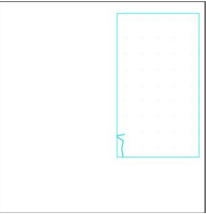
Properties	Ø	min	max	g ₁	g ₂	Index
Сцена Horizontal illuminance Height: 1.600 m	581 lx	396 lx	706 lx	0.68	0.56	AA1

Utilisation profile: Places of public assembly - Theatres, concert halls, cinemas, entertainment venues (38.3 Seating areas - Maintenance, cleaning)

Notes on planning:
The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.

Building 1 · Storey 1 · АКТОВА ЗАЛА (Осветление)

Сцена

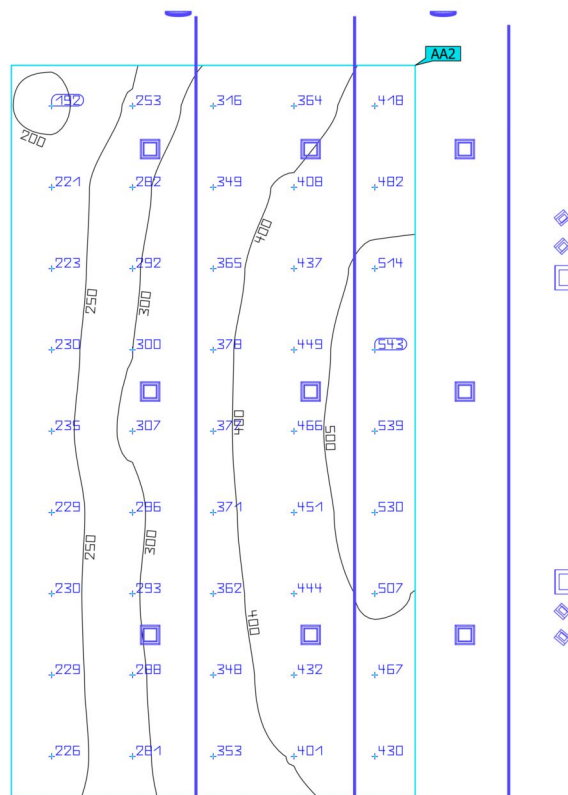
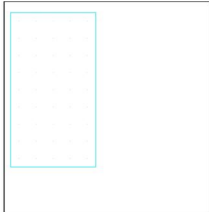


Properties	Ø (Target)	min	max	g ₁	g ₂	Index
Сцена Cylindrical illuminance Height: 1.600 m	238 lx (≥ 50.0 lx) ✓	170 lx	270 lx	0.71	0.63	AA1

Utilisation profile: Places of public assembly - Theatres, concert halls, cinemas, entertainment venues (38.3 Seating areas - Maintenance, cleaning)

Notes on planning:
The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.

Building 1 · Storey 1 · АКТОВА ЗАЛА (Осветление)

Актова зала - зона зрители

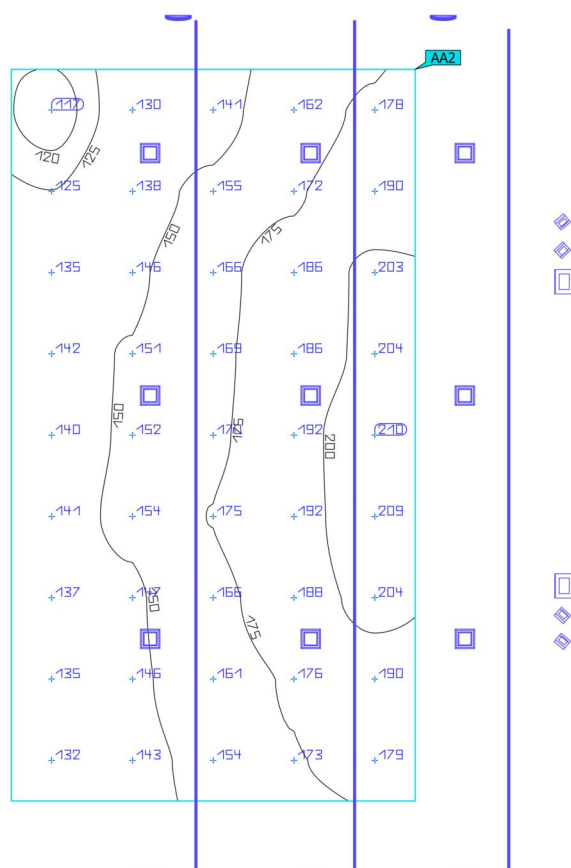
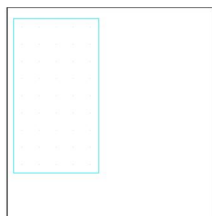
Properties	Ø	min	max	g ₁	g ₂	Index
Актова зала - зона зрители	358 lx	192 lx	543 lx	0.54	0.35	AA2
Horizontal illuminance						
Height: 1.200 m						

Utilisation profile: Places of public assembly - Theatres, concert halls, cinemas, entertainment venues (38.3 Seating areas - Maintenance, cleaning)

Notes on planning:

The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.

Building 1 · Storey 1 · АКТОВА ЗАЛА (Осветление)

Актова зала - зона зрители

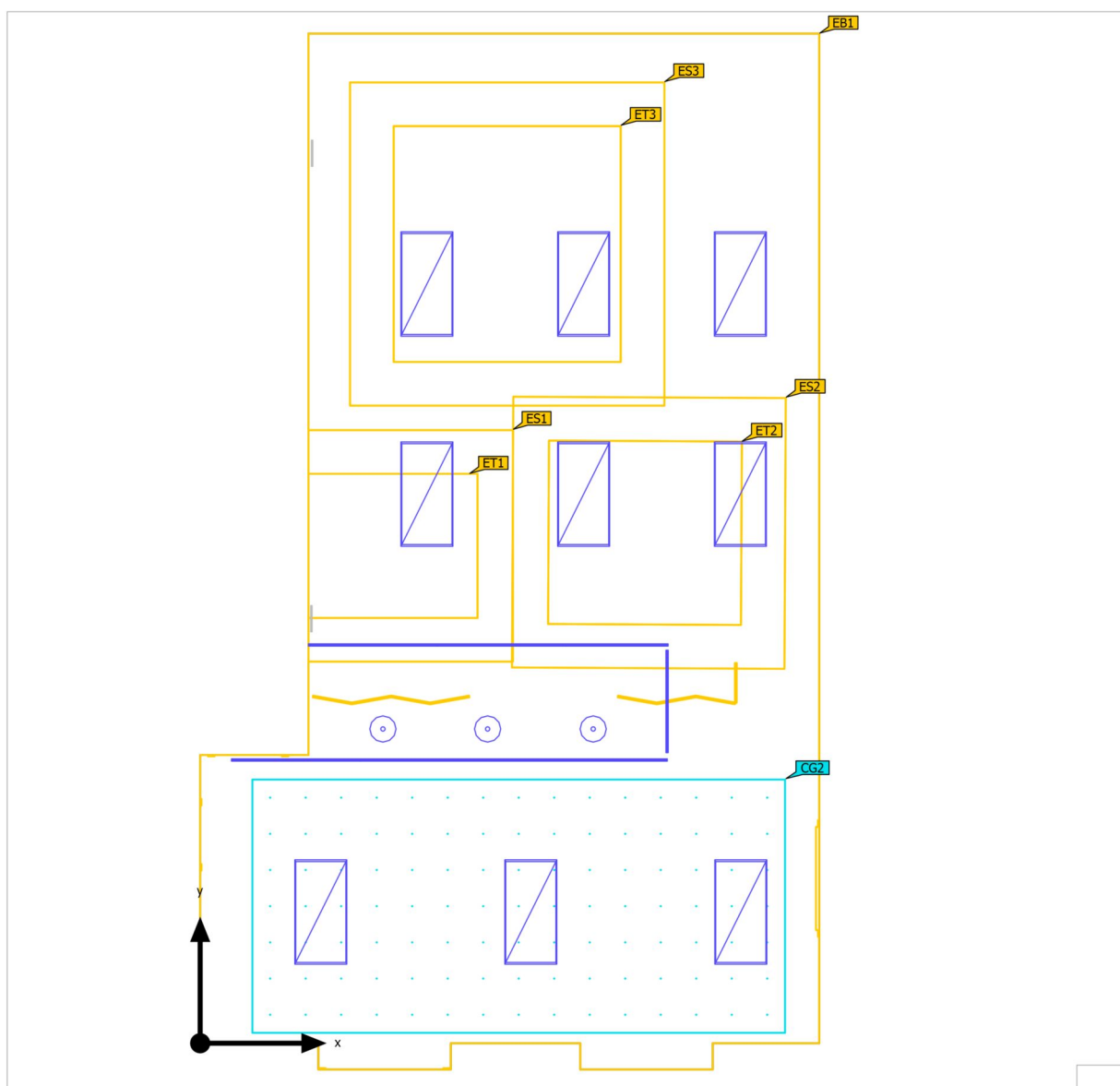
Properties	Ø (Target)	min	max	g ₁	g ₂	Index
Актова зала - зона зрители Cylindrical illuminance Height: 1.200 m	164 lx (≥ 50.0 lx) ✓	117 lx	210 lx	0.71	0.56	AA2

Utilisation profile: Places of public assembly - Theatres, concert halls, cinemas, entertainment venues (38.3 Seating areas - Maintenance, cleaning)

Notes on planning:

The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.

Building 1 · Storey 1 · КАБИНЕТ (Освещение)

Calculation objects

Building 1 · Storey 1 · КАБИНЕТ (Освещение)

Calculation objects

Visual task areas

Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	g_1 (Target)	g_2	Index
Зона преподавател Perpendicular illuminance Height: 0.800 m, Surrounding area: 0.500 m	465 lx (≥ 300 lx) ✓	331 lx	562 lx	0.71 (≥ 0.60) ✓	0.59	ET1
Surrounding area 1 Perpendicular illuminance Height: 0.800 m	475 lx (≥ 200 lx) ✓	301 lx	631 lx	0.63 (≥ 0.40) ✓	0.48	ES1
Background area 1 Perpendicular illuminance Height: 0.000 m, Wall zone: 0.500 m	381 lx (≥ 66.7 lx) ✓	219 lx	782 lx	0.57 (≥ 0.10) ✓	0.28	EB1
Зона ученици 2 Perpendicular illuminance Height: 0.800 m, Surrounding area: 0.500 m	554 lx (≥ 300 lx) ✓	424 lx	630 lx	0.77 (≥ 0.60) ✓	0.67	ET2
Surrounding area 2 Perpendicular illuminance Height: 0.800 m	524 lx (≥ 200 lx) ✓	375 lx	637 lx	0.72 (≥ 0.40) ✓	0.59	ES2
Background area 1 Perpendicular illuminance Height: 0.000 m, Wall zone: 0.500 m	377 lx (≥ 66.7 lx) ✓	219 lx	782 lx	0.58 (≥ 0.10) ✓	0.28	EB1
Зона ученици 1 Perpendicular illuminance Height: 0.800 m, Surrounding area: 0.500 m	477 lx (≥ 300 lx) ✓	323 lx	611 lx	0.68 (≥ 0.60) ✓	0.53	ET3
Surrounding area 3 Perpendicular illuminance Height: 0.800 m	446 lx (≥ 200 lx) ✓	261 lx	630 lx	0.59 (≥ 0.40) ✓	0.41	ES3
Background area 1 Perpendicular illuminance Height: 0.000 m, Wall zone: 0.500 m	380 lx (≥ 66.7 lx) ✓	219 lx	782 lx	0.58 (≥ 0.10) ✓	0.28	EB1

Building 1 · Storey 1 · КАБИНЕТ (Освещение)

Calculation objects

Calculation surfaces

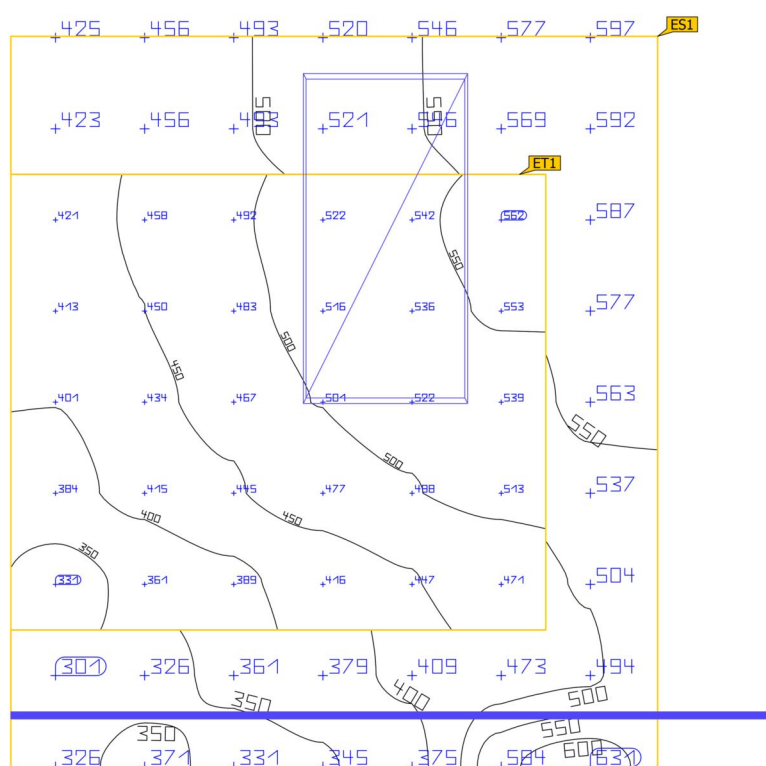
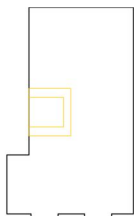
Properties	$\bar{E}$	E_{min}	E_{max}	g_1	g_2	Index
Зона "ЕЗЕРЦЕ" Perpendicular illuminance Height: 0.000 m	355 lx	250 lx	622 lx	0.70	0.40	CG2

Utilisation profile: Educational premises - Educational buildings (44.11 Computer practice rooms (menu-driven))

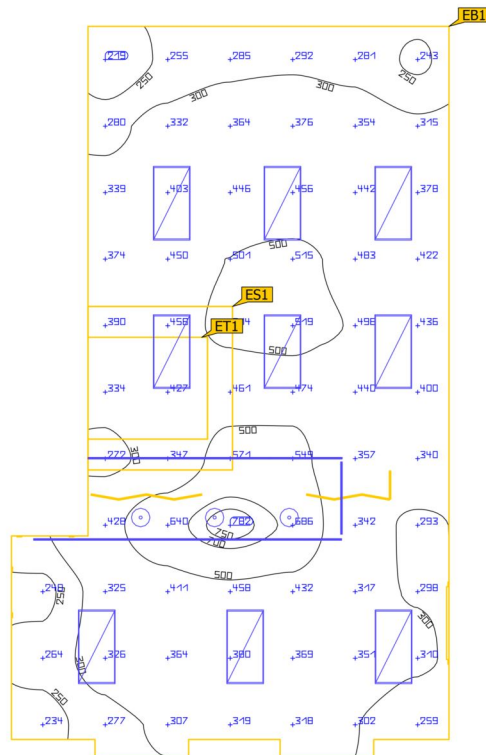
Notes on planning:

The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.

Building 1 · Storey 1 · КАБИНЕТ (Освещение)

Зона преподавател

Building 1 · Storey 1 · КАБИНЕТ (Освещение)

Зона преподавател

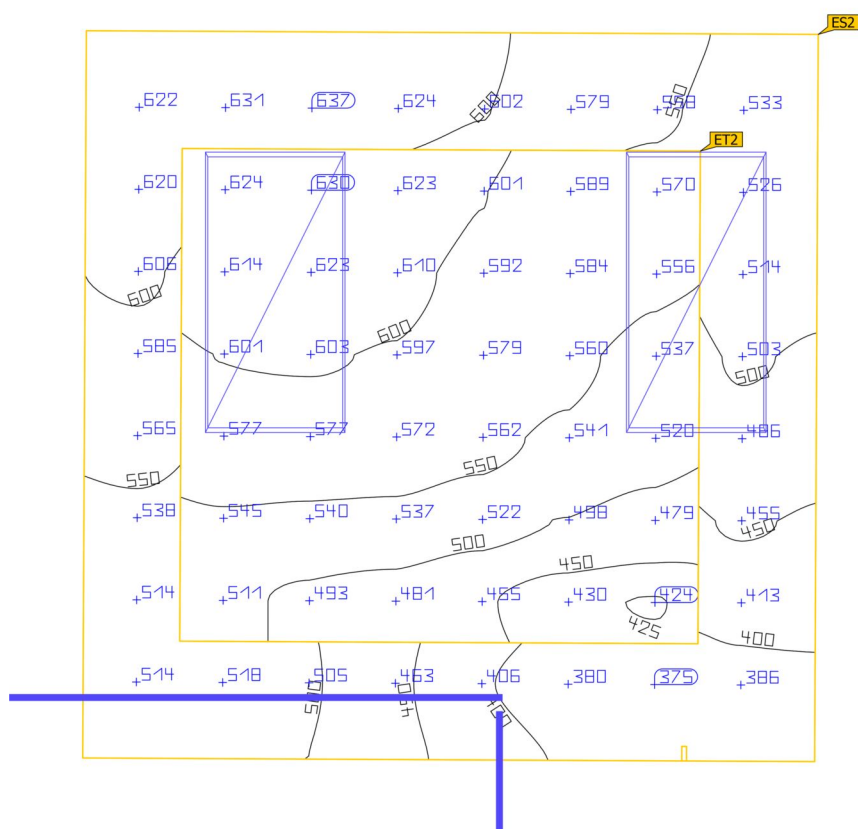
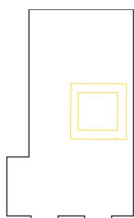
Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	g_1 (Target)	g_2	Index
Зона преподавател Perpendicular illuminance Height: 0.800 m, Surrounding area: 0.500 m	465 lx (≥ 300 lx) ✓	331 lx	562 lx	0.71 (≥ 0.60) ✓	0.59	ET1
Surrounding area 1 Perpendicular illuminance Height: 0.800 m	475 lx (≥ 200 lx) ✓	301 lx	631 lx	0.63 (≥ 0.40) ✓	0.48	ES1
Background area 1 Perpendicular illuminance Height: 0.000 m, Wall zone: 0.500 m	381 lx (≥ 66.7 lx) ✓	219 lx	782 lx	0.57 (≥ 0.10) ✓	0.28	EB1

Utilisation profile: Educational premises - Educational buildings (44.11 Computer practice rooms (menu-driven))

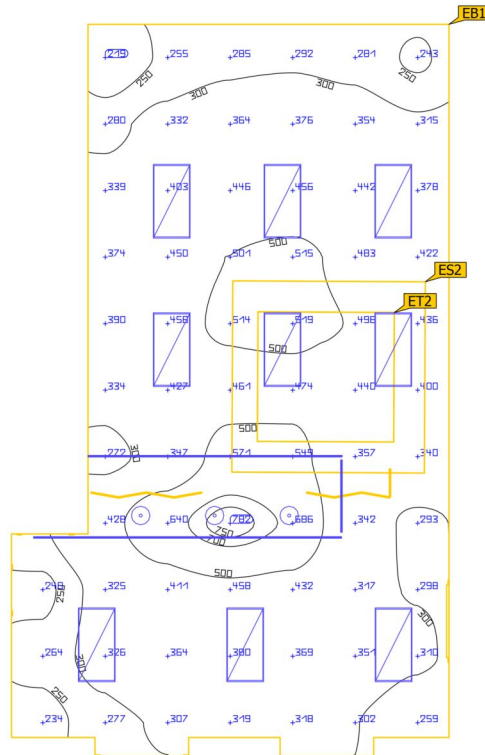
Notes on planning:

The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.

Зона ученици 2



Building 1 · Storey 1 · КАБИНЕТ (Освещение)

Зона ученици 2

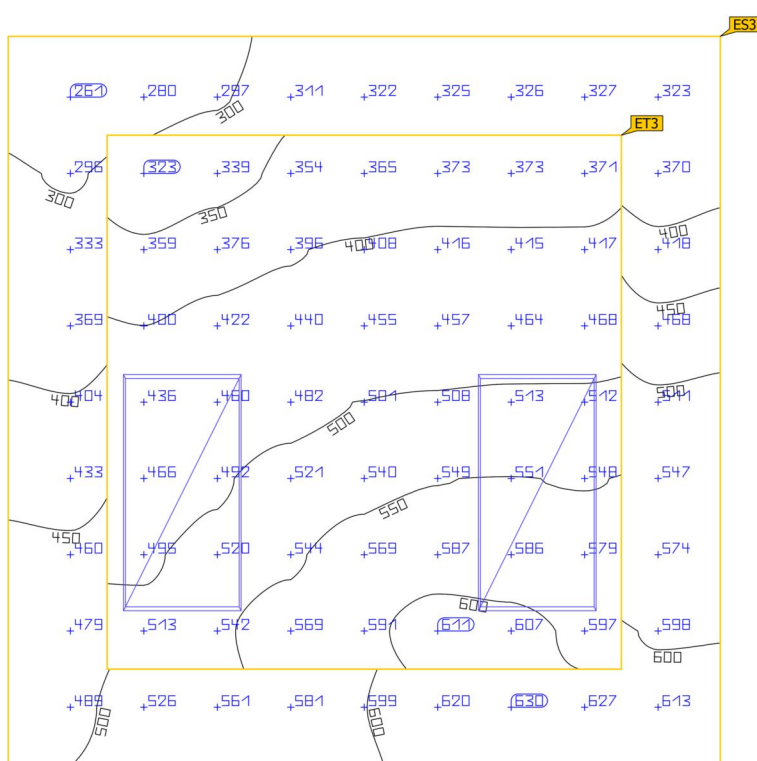
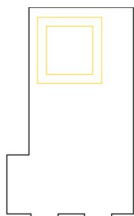
Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	g_1 (Target)	g_2	Index
Зона ученици 2 Perpendicular illuminance Height: 0.800 m, Surrounding area: 0.500 m	554 lx (≥ 300 lx) ✓	424 lx	630 lx	0.77 (≥ 0.60) ✓	0.67	ET2
Surrounding area 2 Perpendicular illuminance Height: 0.800 m	524 lx (≥ 200 lx) ✓	375 lx	637 lx	0.72 (≥ 0.40) ✓	0.59	ES2
Background area 1 Perpendicular illuminance Height: 0.000 m, Wall zone: 0.500 m	377 lx (≥ 66.7 lx) ✓	219 lx	782 lx	0.58 (≥ 0.10) ✓	0.28	EB1

Utilisation profile: Educational premises - Educational buildings (44.11 Computer practice rooms (menu-driven))

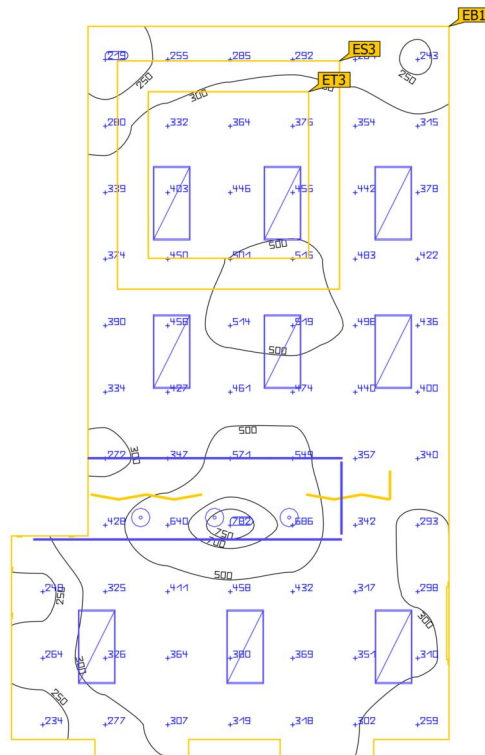
Notes on planning:

The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.

Building 1 · Storey 1 · КАБИНЕТ (Освещение)

Зона ученици 1

Building 1 · Storey 1 · КАБИНЕТ (Освещение)

Зона ученици 1

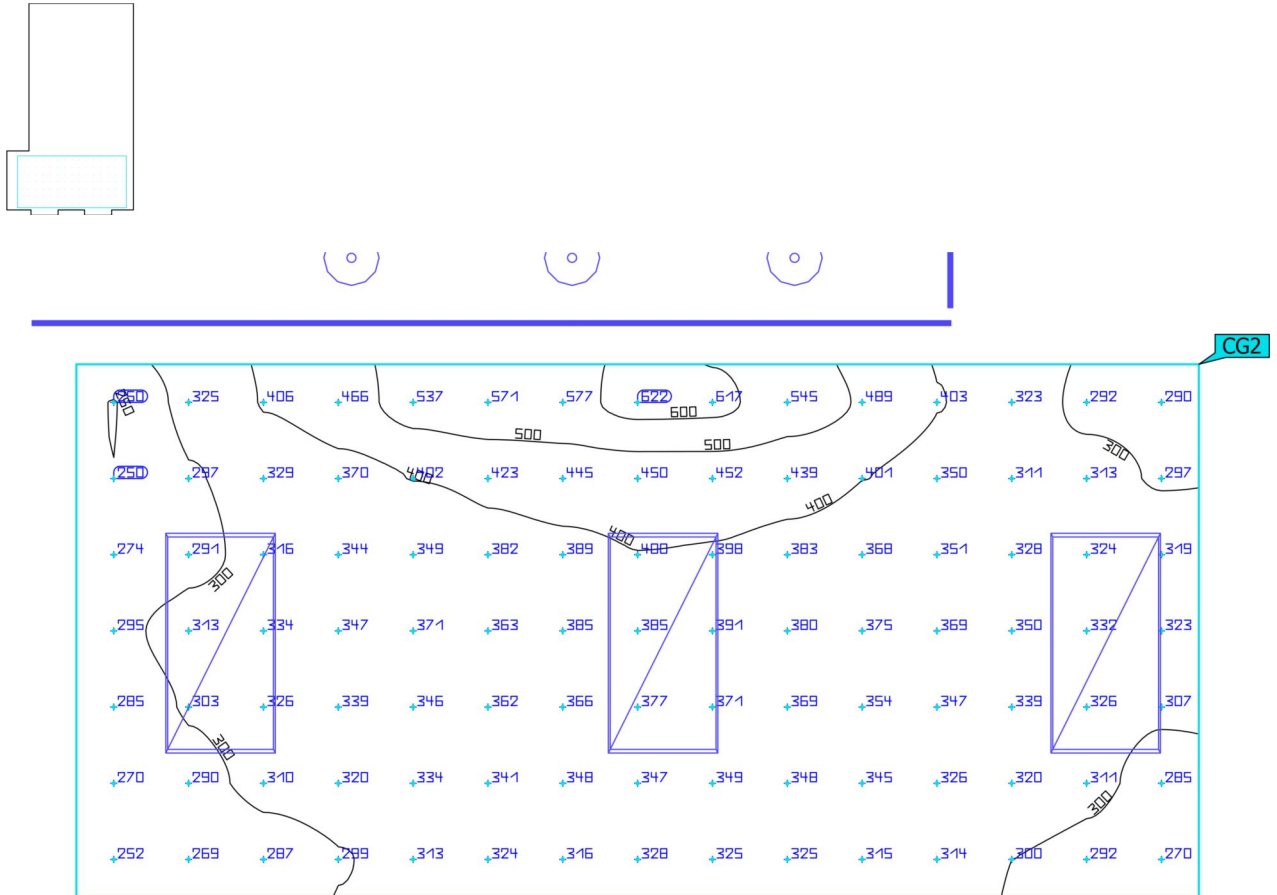
Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	g_1 (Target)	g_2	Index
Зона ученици 1 Perpendicular illuminance Height: 0.800 m, Surrounding area: 0.500 m	477 lx (≥ 300 lx) ✓	323 lx	611 lx	0.68 (≥ 0.60) ✓	0.53	ET3
Surrounding area 3 Perpendicular illuminance Height: 0.800 m	446 lx (≥ 200 lx) ✓	261 lx	630 lx	0.59 (≥ 0.40) ✓	0.41	ES3
Background area 1 Perpendicular illuminance Height: 0.000 m, Wall zone: 0.500 m	380 lx (≥ 66.7 lx) ✓	219 lx	782 lx	0.58 (≥ 0.10) ✓	0.28	EB1

Utilisation profile: Educational premises - Educational buildings (44.11 Computer practice rooms (menu-driven))

Notes on planning:

The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.

Building 1 · Storey 1 · КАБИНЕТ (Освещение)

Зона "ЕЗЕРЦЕ"

Properties	$\bar{E}$	$E_{\min}$	$E_{\max}$	g_1	g_2	Index
Зона "ЕЗЕРЦЕ"	355 lx	250 lx	622 lx	0.70	0.40	CG2
Perpendicular illuminance						
Height: 0.000 m						

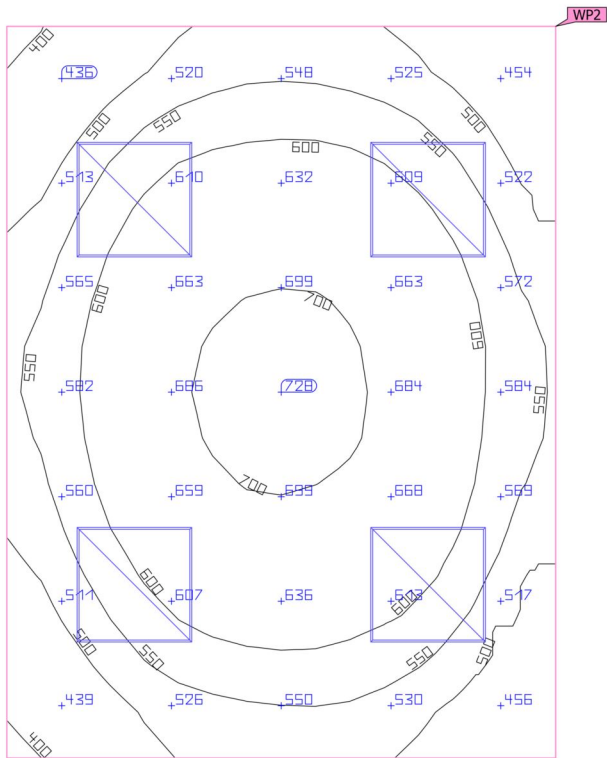
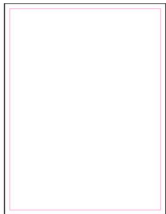
Utilisation profile: Educational premises - Educational buildings (44.11 Computer practice rooms (menu-driven))

Notes on planning:

The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.

Building 1 · Storey 1 · Студио видеозапис (Осветление)

Working plane (Студио видеозапис)



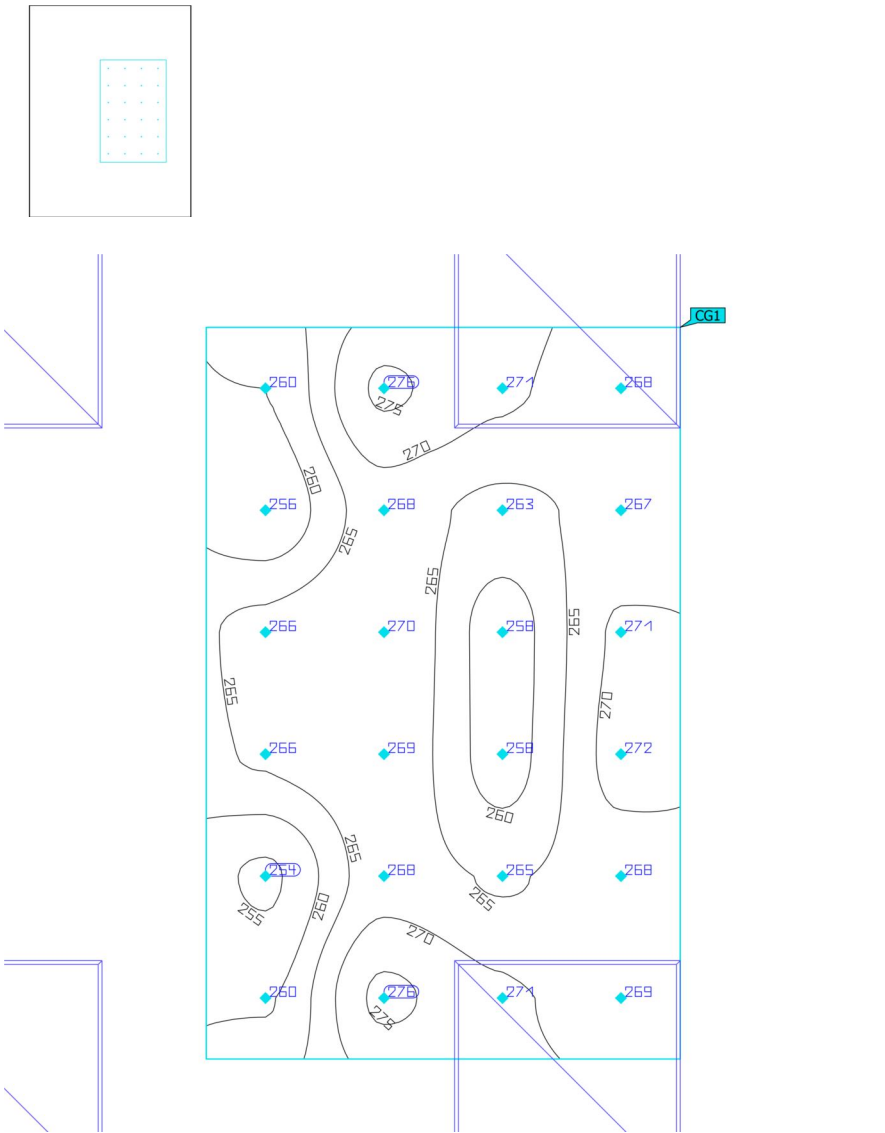
Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	g_1 (Target)	g_2	Index
Working plane (Студио видеозапис) Perpendicular illuminance (adaptive) Height: 0.800 m, Wall zone: 0.100 m	580 lx (≥ 500 lx) ✓	388 lx	727 lx	0.67 (≥ 0.60) ✓	0.53	WP2

Utilisation profile: Educational premises - Educational buildings (44.14 Practical rooms and laboratories)

Notes on planning:
The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.

Building 1 · Storey 1 · Студио видеозапис (Осветление)

Видеокамера



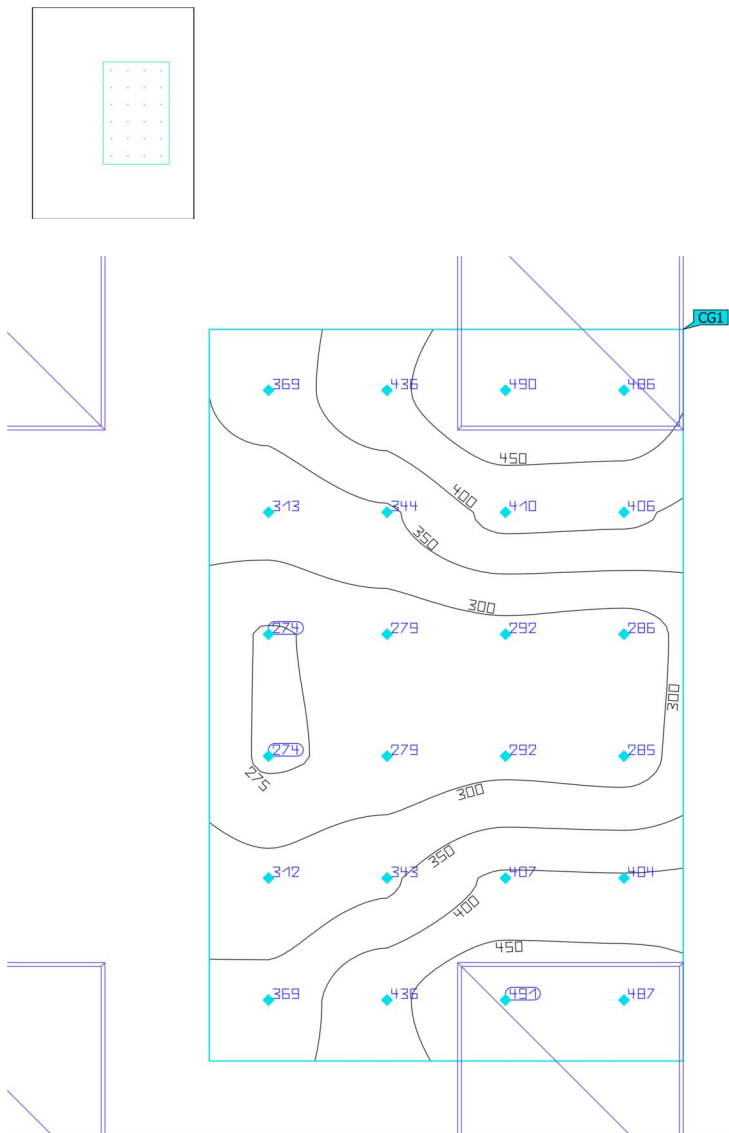
Properties	$\bar{E}$	E_{min}	E_{max}	g_1	g_2	Index
Видеокамера Camera-orientated illuminance Камера, Camera position: (0.525 m, 5.742 m, 1.300 m), Height: 1.300 m	266 lx	254 lx	276 lx	0.95	0.92	CG1

Utilisation profile: Educational premises - Educational buildings (44.14 Practical rooms and laboratories)

Notes on planning:
The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.

Building 1 · Storey 1 · Студио видеозапис (Осветление)

Видеокамера

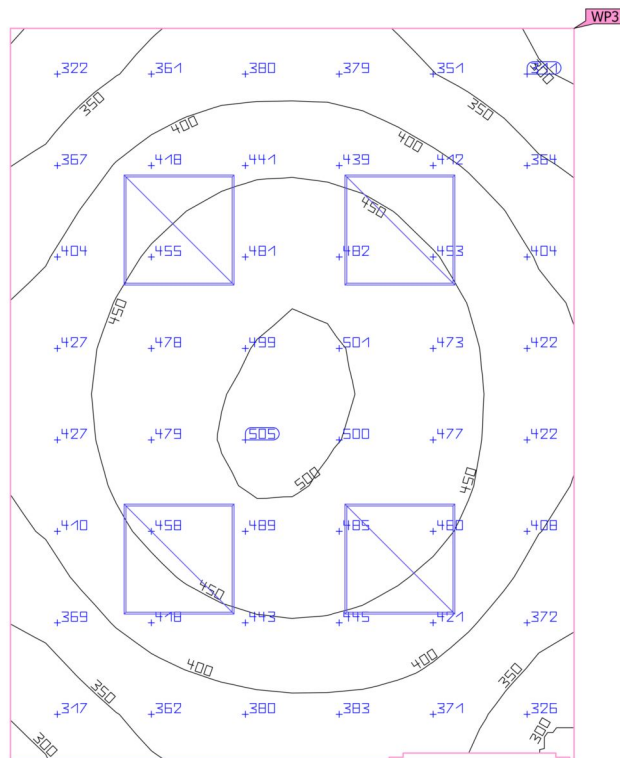
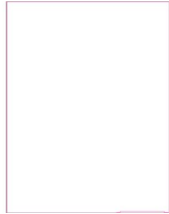


Properties	$\bar{E}$	E_{min}	E_{max}	g_1	g_2	Index
Видеокамера Cylindrical illuminance Height: 2.600 m	365 lx	274 lx	491 lx	0.75	0.56	CG1

Utilisation profile: Educational premises - Educational buildings (44.14 Practical rooms and laboratories)

Notes on planning:
The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.

Building 1 · Storey 1 · Студио Звукозапис и обработка (Осветление)

Working plane (Студио Звукозапис и обработка)

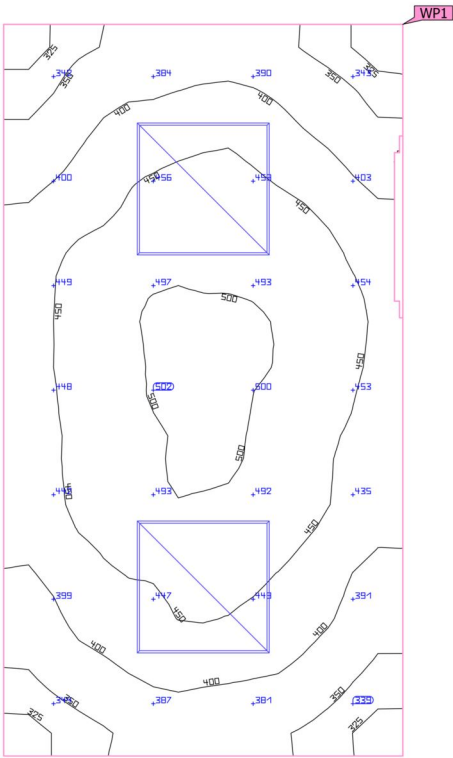
Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	g_1 (Target)	g_2	Index
Working plane (Студио Звукозапис и обработка)	420 lx	282 lx	507 lx	0.67	0.56	WP3
Perpendicular illuminance (adaptive)	(≥ 300 lx)			(≥ 0.60)		
Height: 0.800 m, Wall zone: 0.000 m	✓			✓		

Utilisation profile: Educational premises - Educational buildings (44.11 Computer practice rooms (menu-driven))

Notes on planning:

The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.

Building 1 · Storey 1 · ТЕХНИЧЕСКО ПОМЕЩЕНИЕ (Освещение)
Working plane (ТЕХНИЧЕСКО ПОМЕЩЕНИЕ)



Properties	$\bar{E}$ (Target)	E_{min}	E_{max}	g_1 (Target)	g_2	Index
Working plane (ТЕХНИЧЕСКО ПОМЕЩЕНИЕ) Perpendicular illuminance (adaptive) Height: 0.800 m, Wall zone: 0.000 m	428 lx (≥ 200 lx) ✓	311 lx	519 lx	0.73 (≥ 0.40) ✓	0.60	WP1

Utilisation profile: General areas inside buildings - Control rooms (11.1 Plant rooms, switchgear rooms)

Notes on planning:
The results were calculated without consideration of objects and furniture. No results were determined on their surfaces.