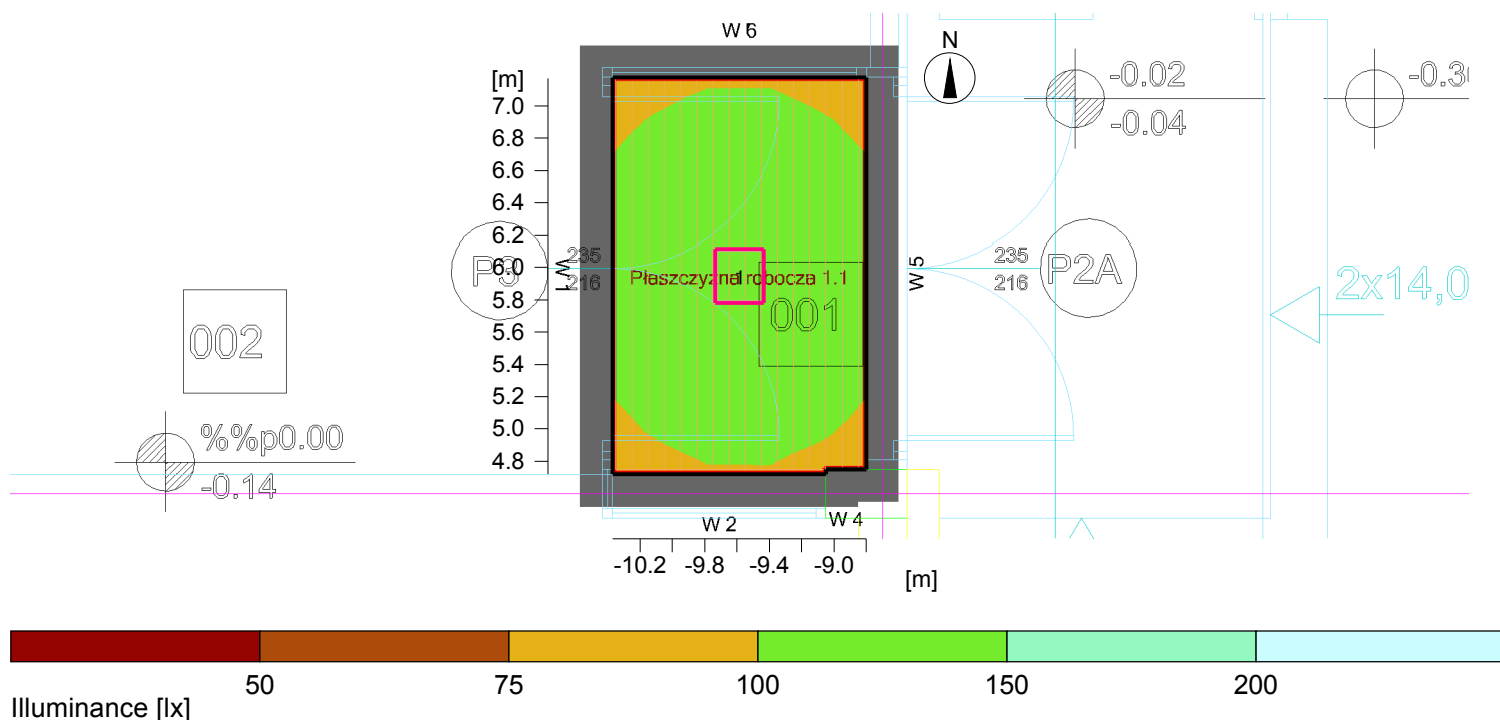


Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 1 Pomieszczenie 1

### 1.1 Summary, Pomieszczenie 1

#### 1.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 3.30 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (3.84 m<sup>2</sup>)

2700 lm  
 27.0 W  
 7.03 W/m<sup>2</sup> (6.17 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em  
 Emin  
 Emin/Eav (Uo)  
 Emin/Emax (Ud)  
 UGR (2.0H 2.0H)  
 Position

114 lx  
 97 lx  
 0.85  
 0.75  
 <=20.8  
 0.00 m

#### Type No.\Make

3 1

#### Miloo Electronics

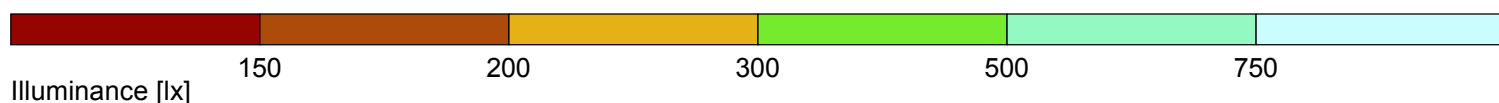
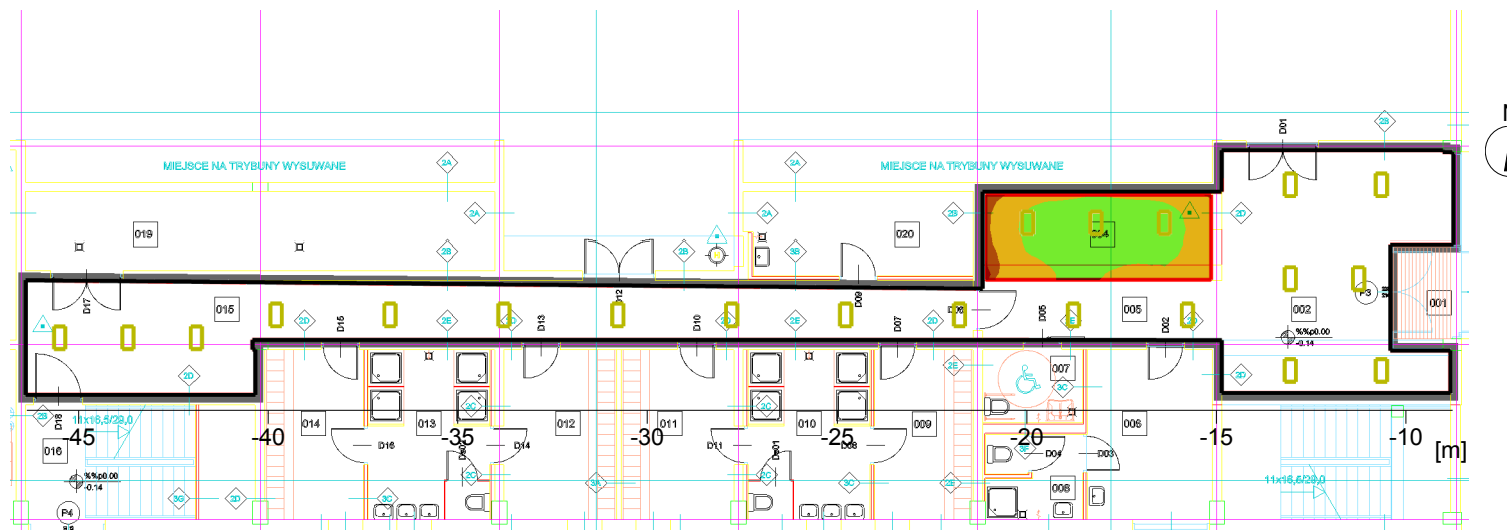
Order No. : LIST-NTH30x30 27W sD  
 Luminaire name : LIGHT STEP NTH30x30 27W sD  
 Equipment : 1 x LED / 2700 lm

Object : Hala gimnastyczna  
Installation :  
Project number : 1305  
Date : 28.02.2017

## 2 Pomieszczenie 2

### 2.1 Summary, Pomieszczenie 2

#### 2.1.1 Result overview, RECEPCJA



#### General

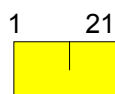
Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.85 m
Height of luminaire plane	2.70 m
Maintenance factor	0.80

Total luminous flux of all lamps	47250 lm
Total power	462 W
Total power per area (104.27 m <sup>2</sup> )	4.43 W/m <sup>2</sup>

#### Illuminance

Average illuminance	Eav	302 lx
Minimum illuminance	Emin	156 lx
Maximum illuminance	Emax	378 lx
Uniformity Uo	Emin/Em	1:1.94 (0.52)
Diversity Ud	Emin/Emax	1:2.42 (0.41)

#### Type No.\Make



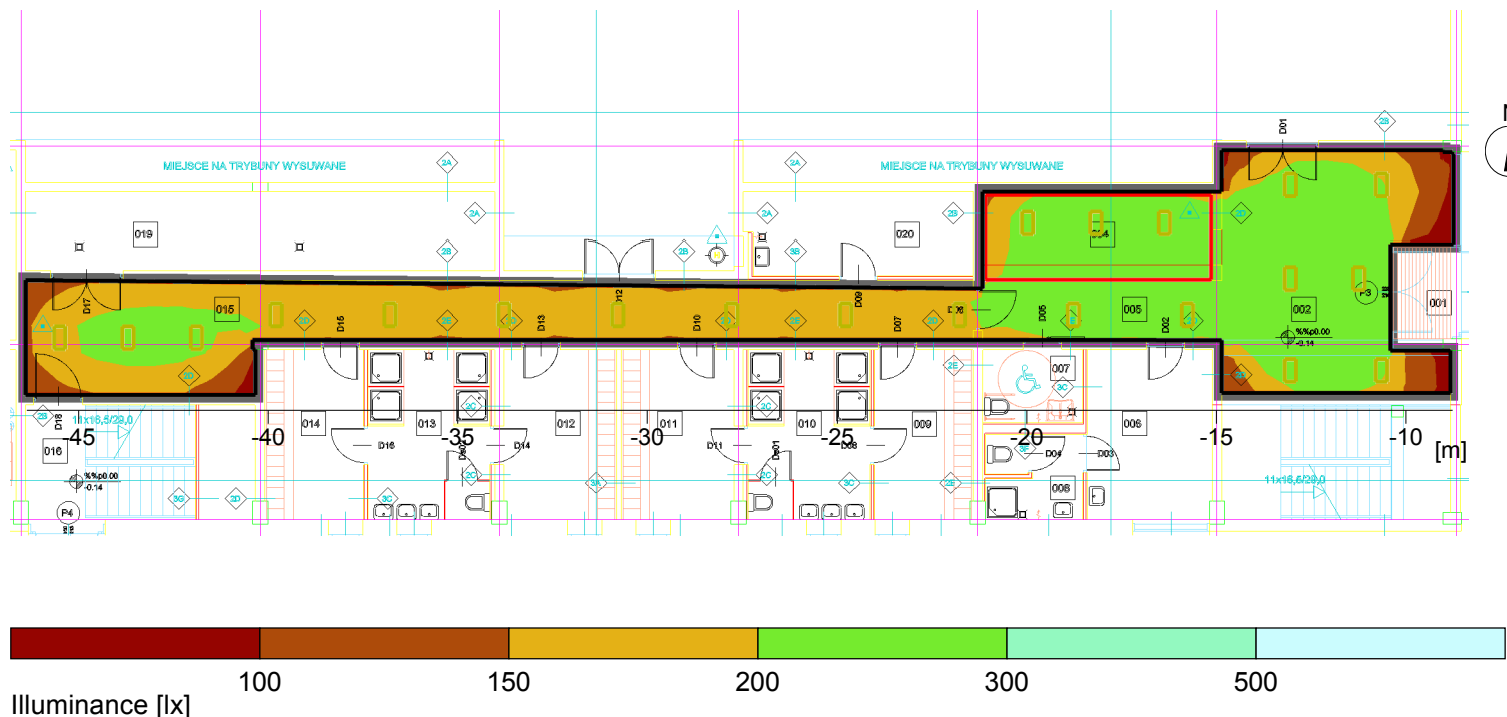
#### MILOO-ELECTRONICS

Order No.	: QUATFRESH-K60x30 20W 4000K D
Luminaire name	: QUATFRESH-K60x30 20W 4000K D
Equipment	: 1 x LED / 2250 lm

Object : Hala gimnastyczna  
Installation :  
Project number : 1305  
Date : 28.02.2017

## 2.1 Summary, Pomieszczenie 2

### 2.1.2 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
Height of luminaire plane  
Maintenance factor

Average indirect fraction  
2.70 m  
0.80

Total luminous flux of all lamps  
Total power  
Total power per area (104.27 m<sup>2</sup>)

47250 lm  
462.0 W  
4.43 W/m<sup>2</sup> (2.16 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
Em  
Emin  
Emin/Eav (Uo)  
Emin/Emax (Ud)  
Position

205 lx  
96 lx  
0.47  
0.33  
0.00 m

#### Type No./Make

#### MILOO-ELECTRONICS

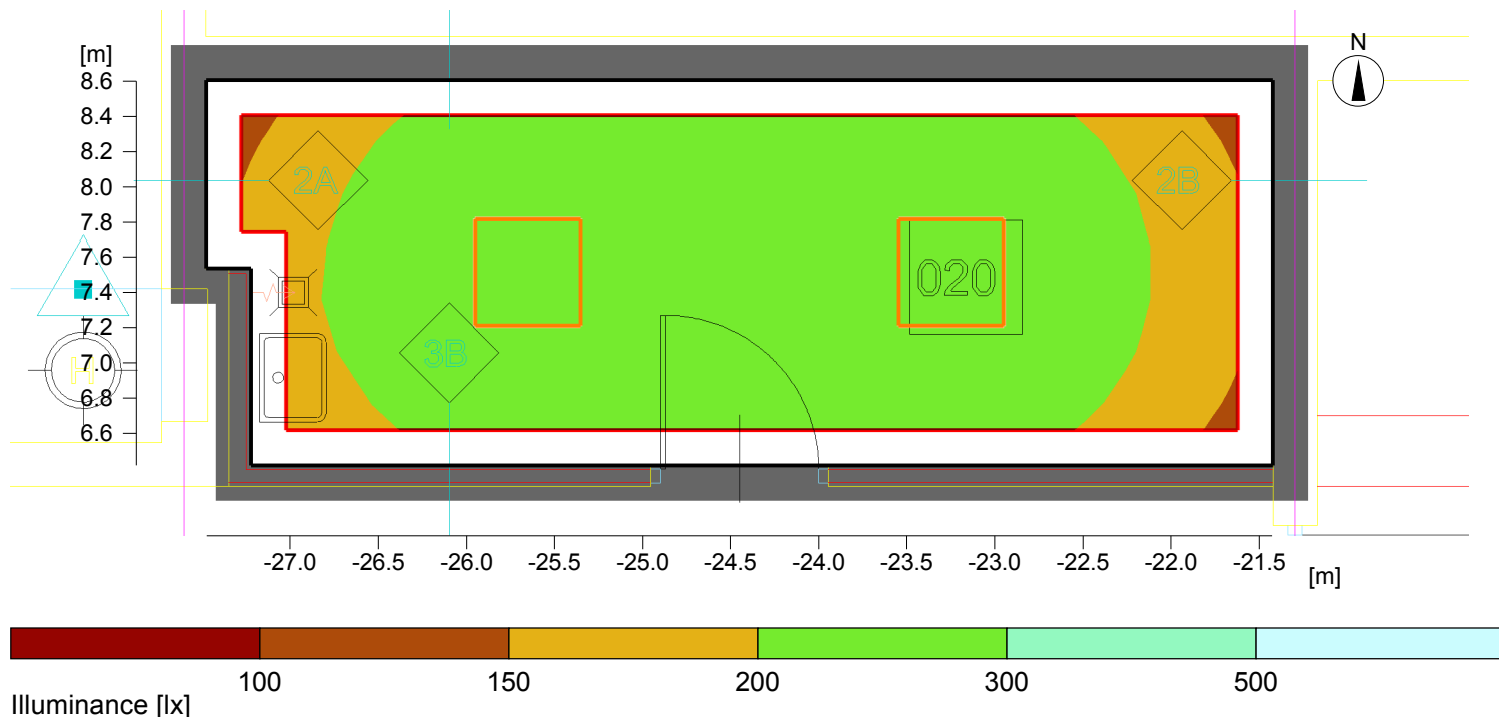
1 21  
Order No. : QUATFRESH-K60x30 20W 4000K D  
Luminaire name : QUATFRESH-K60x30 20W 4000K D  
Equipment : 1 x LED / 2250 lm

Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

### 3 Pomieszczenie 3

#### 3.1 Summary, Pomieszczenie 3

##### 3.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 2.70 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (12.90 m<sup>2</sup>)

8500 lm  
 80.0 W  
 6.20 W/m<sup>2</sup> (2.53 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em 245 lx  
 Emin 153 lx  
 Emin/Eav (Uo) 0.62  
 Emin/Emax (Ud) 0.52  
 UGR (1.5H 4.1H) ≤19.7  
 Position 0.00 m

#### Type No.\Make

4 2



#### MILOO-ELECTRONICS

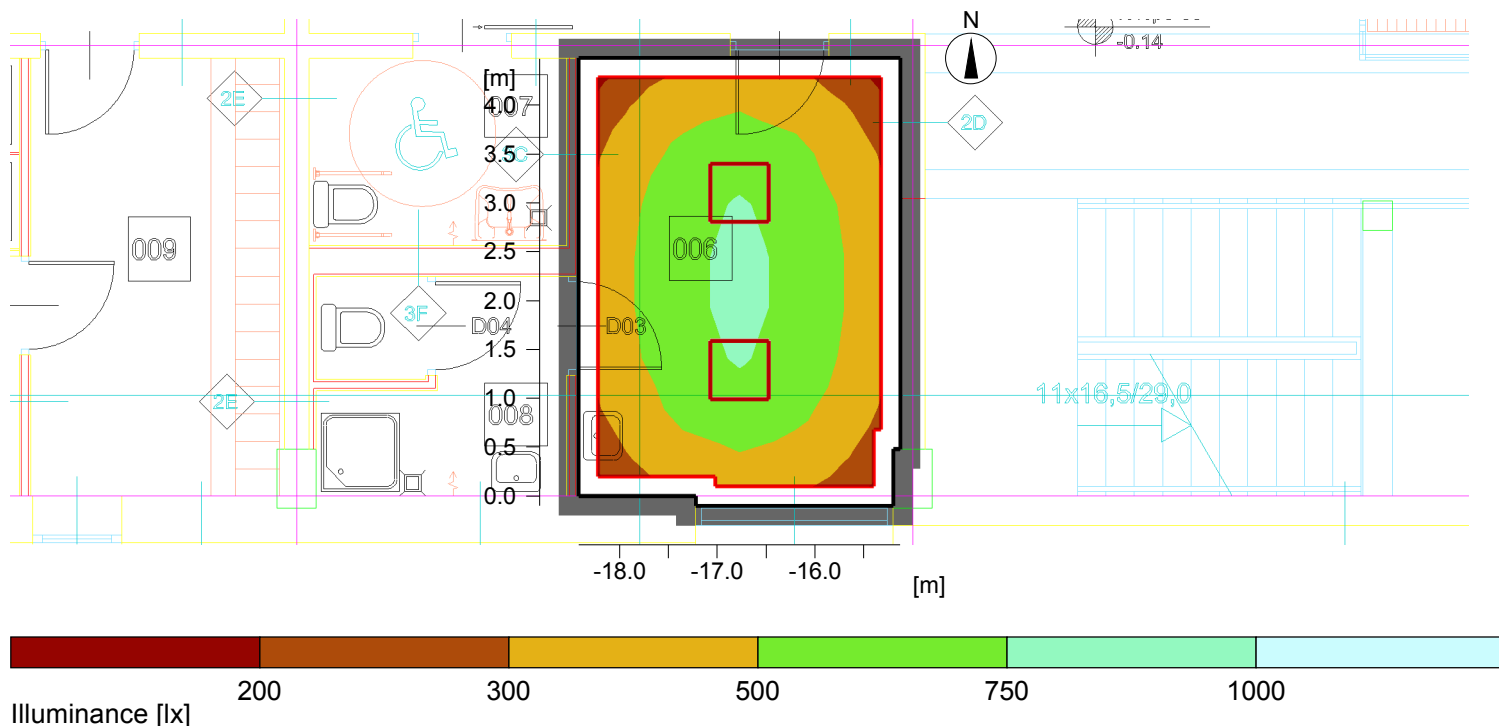
Order No. : QUATFRESH-K60x60 40W 4000K D  
 Luminaire name : QUATFRESH-K60x60 40W 4000K D  
 Equipment : 1 x LED / 4250 lm

Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 4 Pomieszczenie 4

### 4.1 Summary, Pomieszczenie 4

#### 4.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 2.70 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (14.91 m<sup>2</sup>)

10900 lm  
 100.0 W  
 6.71 W/m<sup>2</sup> (1.28 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em 524 lx  
 Emin 281 lx  
 Emin/Eav (Uo) 0.54  
 Emin/Emax (Ud) 0.35  
 UGR (2.2H 3.1H) ≤17.3  
 Position 0.85 m

#### Type No.\Make

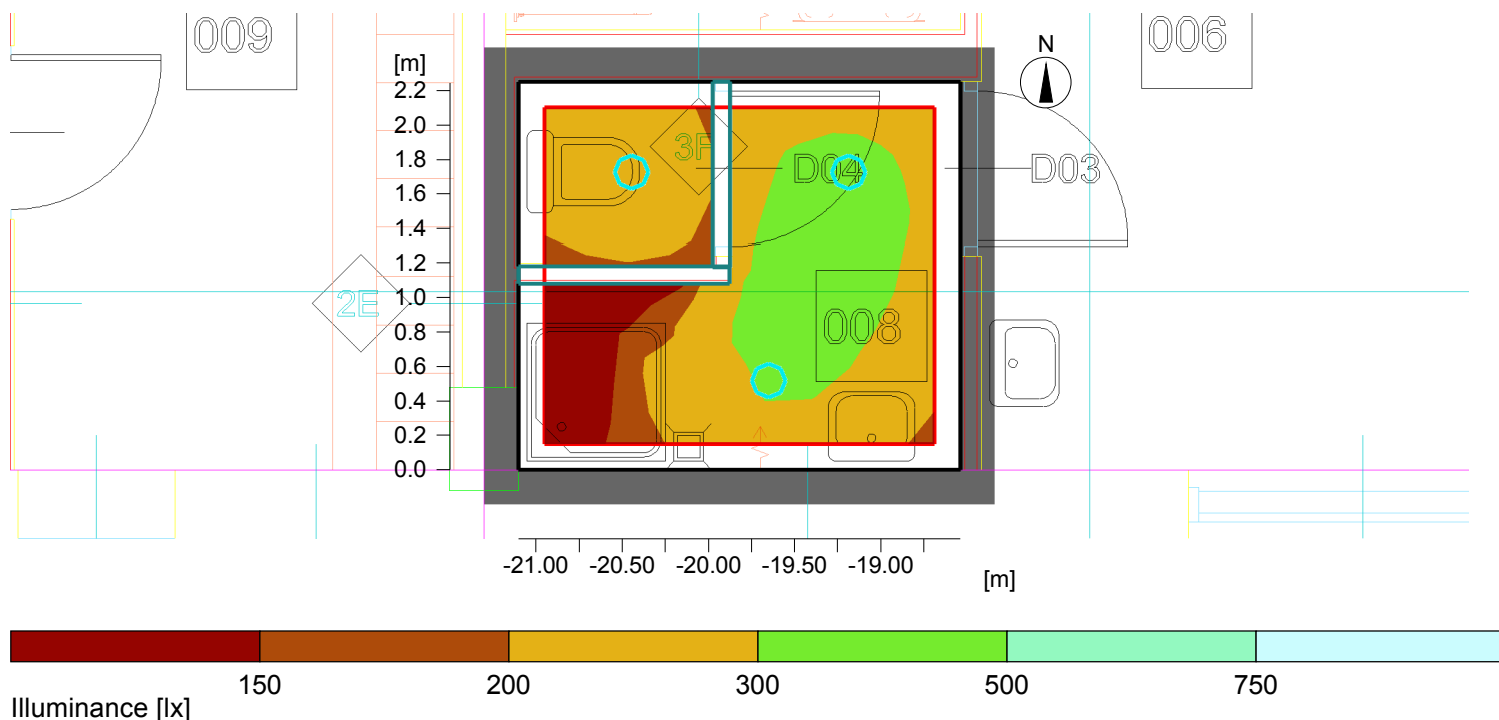
5 2 **MILOO-ELECTRONICS**  
 Order No. : QUATFRESH-K60x60 50W 4000K P  
 Luminaire name : QUATFRESH-K60x60 50W 4000K P  
 Equipment : 1 x LED / 5450 lm

Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 5 WC

### 5.1 Summary, WC

#### 5.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 2.70 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (5.75 m<sup>2</sup>)

4650 lm  
 45.0 W  
 7.83 W/m<sup>2</sup> (3.11 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em 251 lx  
 Emin 100 lx  
 Emin/Eav (Uo) 0.40  
 Emin/Emax (Ud) 0.29  
 UGR (2.0H 2.0H) ≤23.8  
 Position 0.85 m

#### Type No./Make

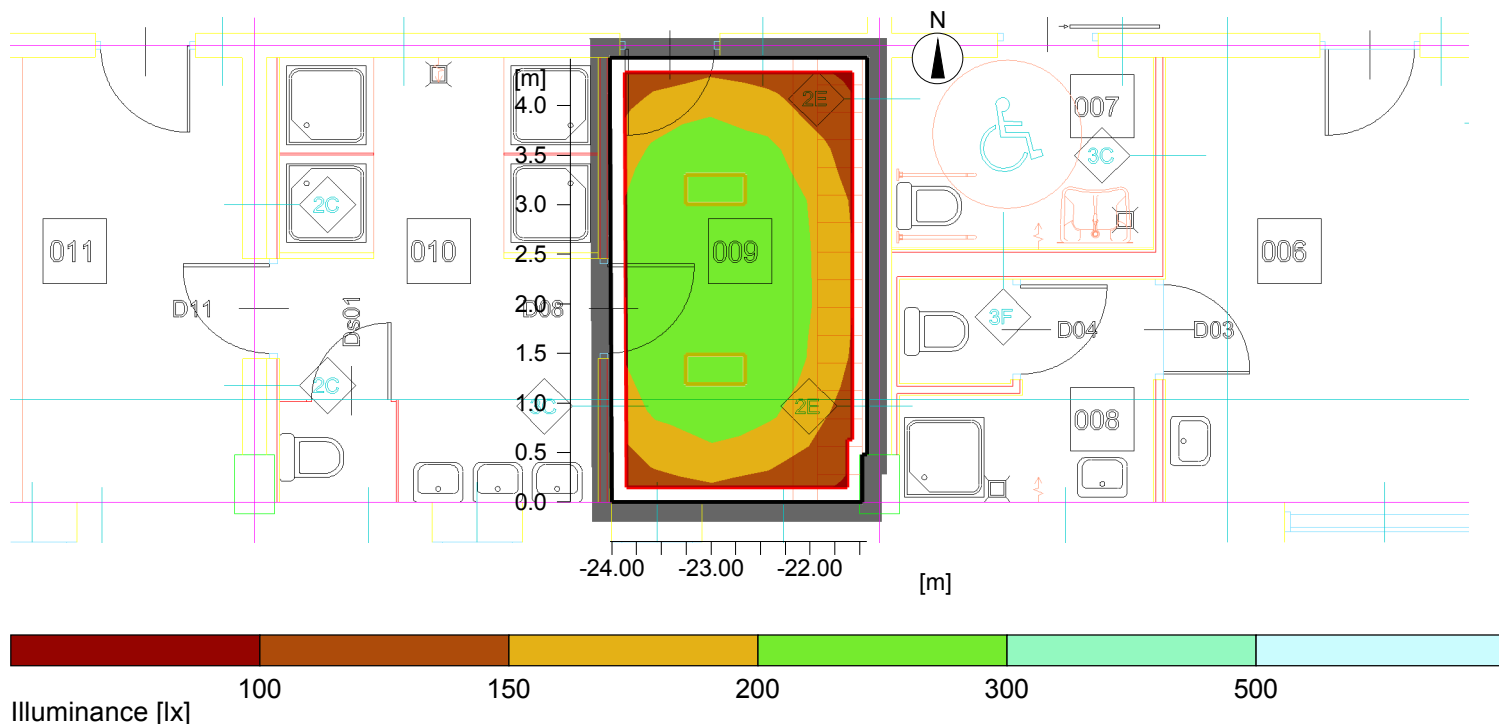
6 3 **Miloo Electronics**  
 Order No. : !CII-LED-M\_sD\_4000K 15W IP44  
 Luminaire name : CII-LED-M\_sD\_4000K  
 Equipment : 1 x LED / 1550 lm

Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 6 Pomieszczenie 6

### 6.1 Summary, Pomieszczenie 6

#### 6.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 2.70 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (11.54 m<sup>2</sup>)

4500 lm  
 44.0 W  
 3.81 W/m<sup>2</sup> (1.82 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em  
 Emin  
 Emin/Eav (Uo)  
 Emin/Emax (Ud)  
 UGR (1.8H 3.0H)  
 Position

209 lx  
 124 lx  
 0.59  
 0.44  
 ≤19.2  
 0.85 m

#### Type No. Make

#### MILOO-ELECTRONICS

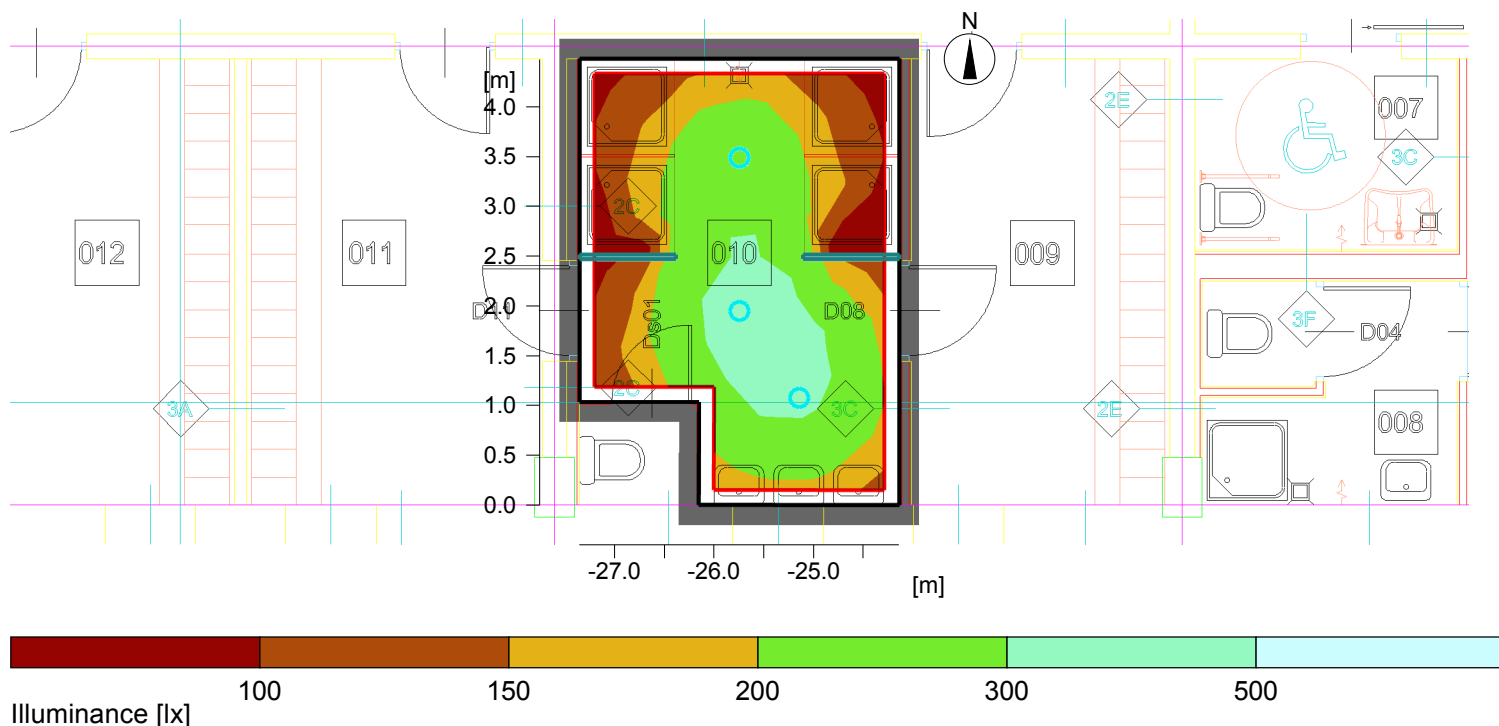
1	2	Order No.	: QUATFRESH-K60x30 20W 4000K D
		Luminaire name	: QUATFRESH-K60x30 20W 4000K D
		Equipment	: 1 x LED / 2250 lm

Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 7 Pomieszczenie 7

### 7.1 Summary, Pomieszczenie 7

#### 7.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 2.70 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (13.12 m<sup>2</sup>)

4650 lm  
 45.0 W  
 3.43 W/m<sup>2</sup> (1.54 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em 222 lx  
 Emin 107 lx  
 Emin/Eav (Uo) 0.48  
 Emin/Emax (Ud) 0.31  
 UGR (2.2H 3.0H) ≤24.9  
 Position 0.85 m

#### Type No.Make

6 3 **Miloo Electronics**  
 Order No. : !CII-LED-M\_sD\_4000K 15W IP44  
 Luminaire name : CII-LED-M\_sD\_4000K  
 Equipment : 1 x LED / 1550 lm

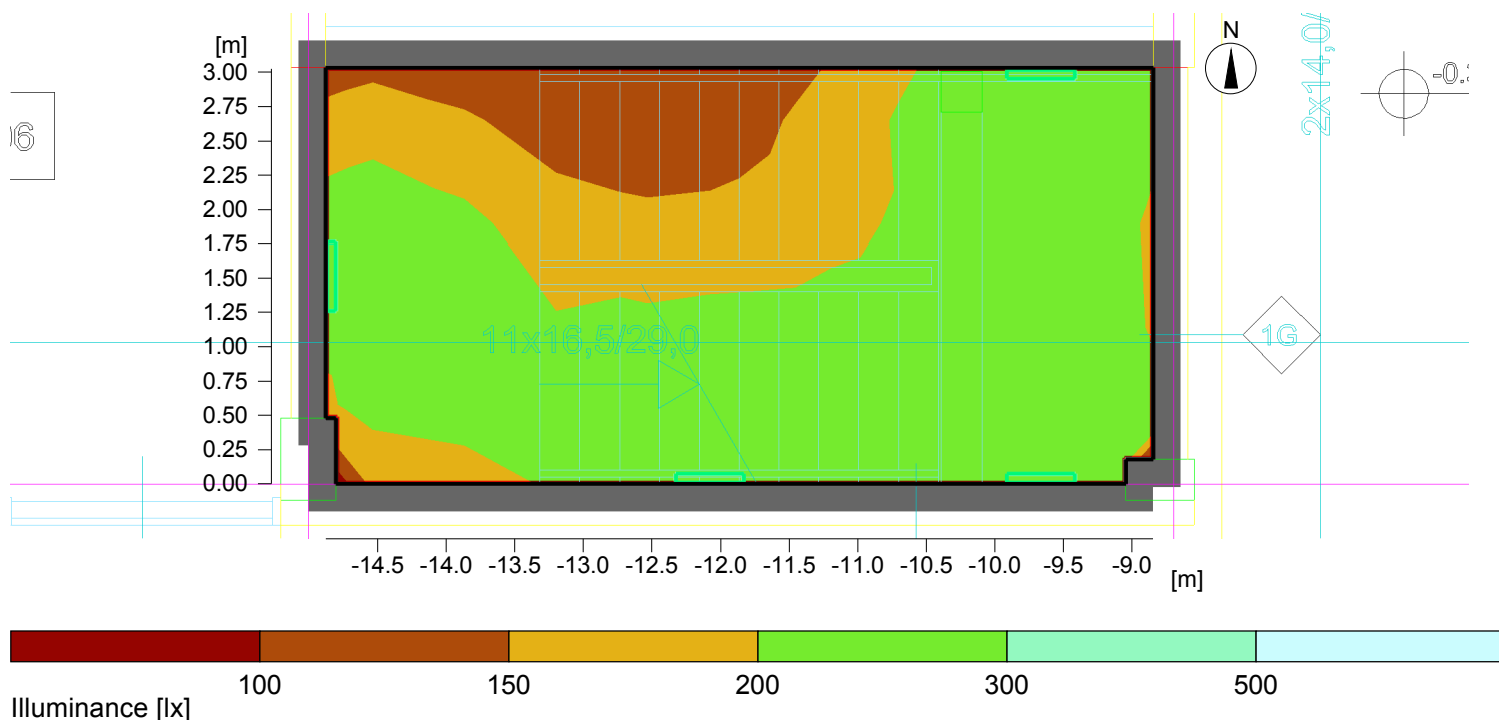


Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 8 Pomieszczenie 8

### 8.1 Summary, Pomieszczenie 8

#### 8.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Maintenance factor

Average indirect fraction  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (18.16 m<sup>2</sup>)

9000 lm  
 100.0 W  
 5.51 W/m<sup>2</sup> (2.57 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em 214 lx  
 Emin 123 lx  
 Emin/Eav (Uo) 0.57  
 Emin/Emax (Ud) 0.43  
 UGR (3.0H 5.9H) ≤24.0  
 Position 0.00 m

#### Type No./Make

#### Miloo Electronics

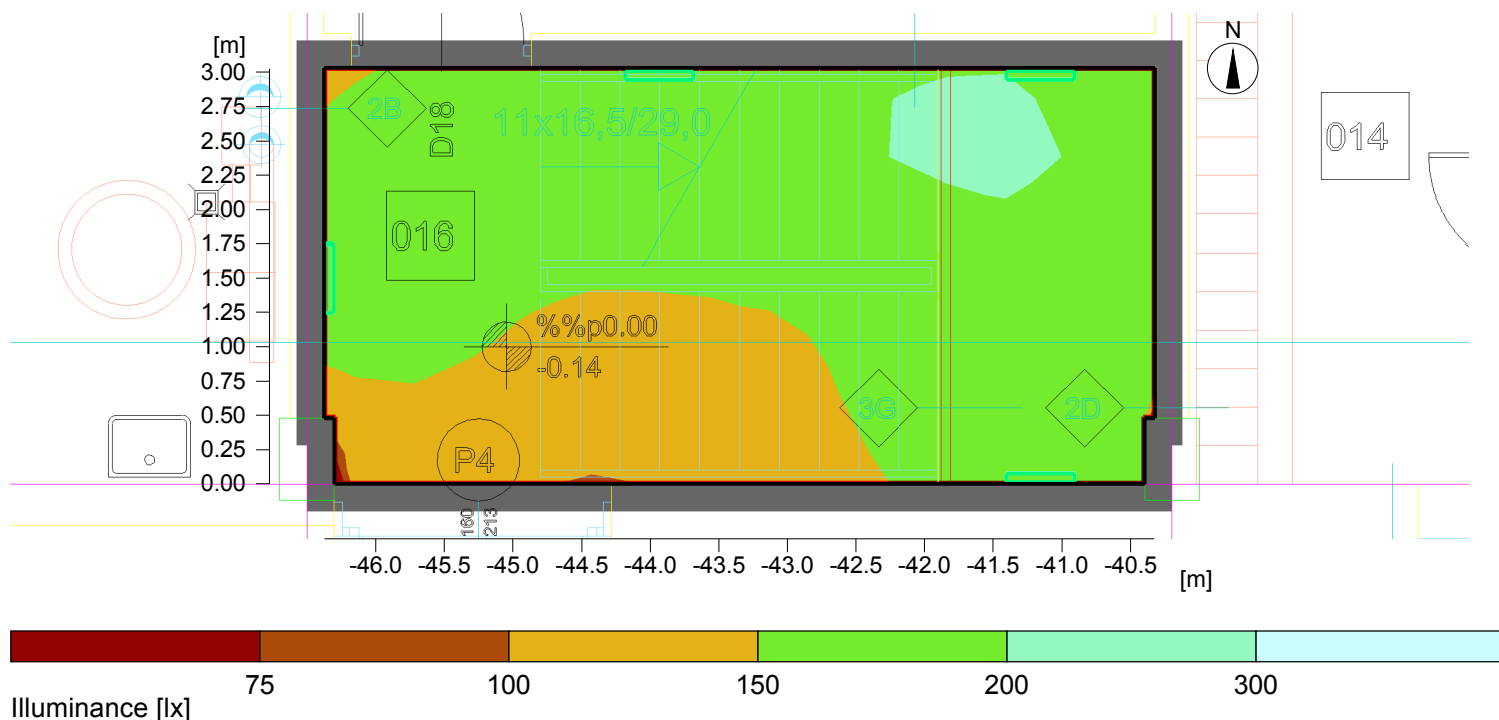
7 4  
 Order No. : COMMA-S490\_mP\_25W  
 Luminaire name : COMMA-S490\_mP\_25W  
 Equipment : 1 x LED / 2250 lm

Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 9 Pomieszczenie 9

### 9.1 Summary, Pomieszczenie 9

#### 9.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 2.80 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (18.24 m<sup>2</sup>)

9000 lm  
 100.0 W  
 5.48 W/m<sup>2</sup> (3.26 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em 168 lx  
 Emin 105 lx  
 Emin/Eav (Uo) 0.62  
 Emin/Emax (Ud) 0.51  
 UGR (1.9H 3.9H) <=23.6  
 Position 0.00 m

#### Type No./Make

#### Miloo Electronics

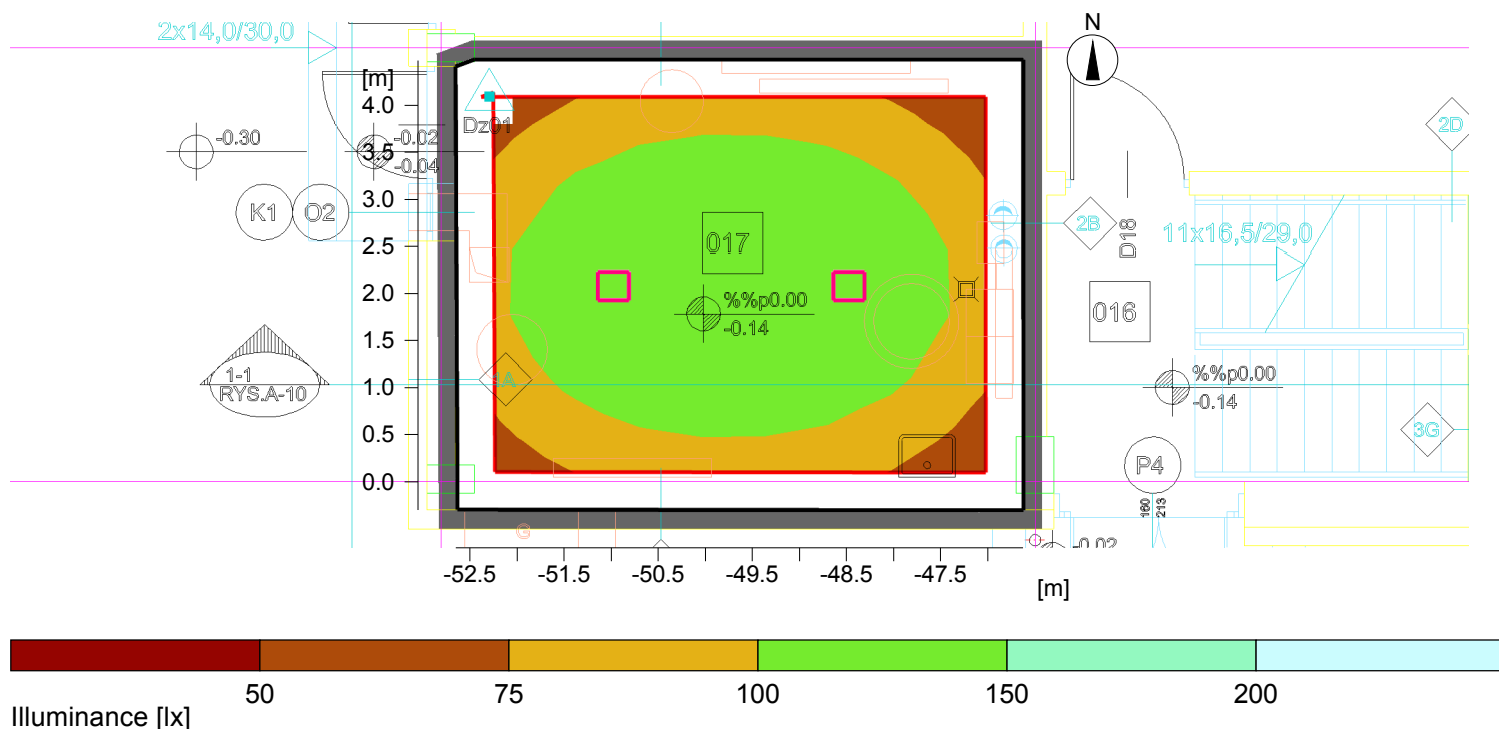
7 4  
 Order No. : COMMA-S490\_mP\_25W  
 Luminaire name : COMMA-S490\_mP\_25W  
 Equipment : 1 x LED / 2250 lm

Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 10 Pomieszczenie 10

### 10.1 Summary, Pomieszczenie 10

#### 10.1.1 Result overview, Evaluation area 1

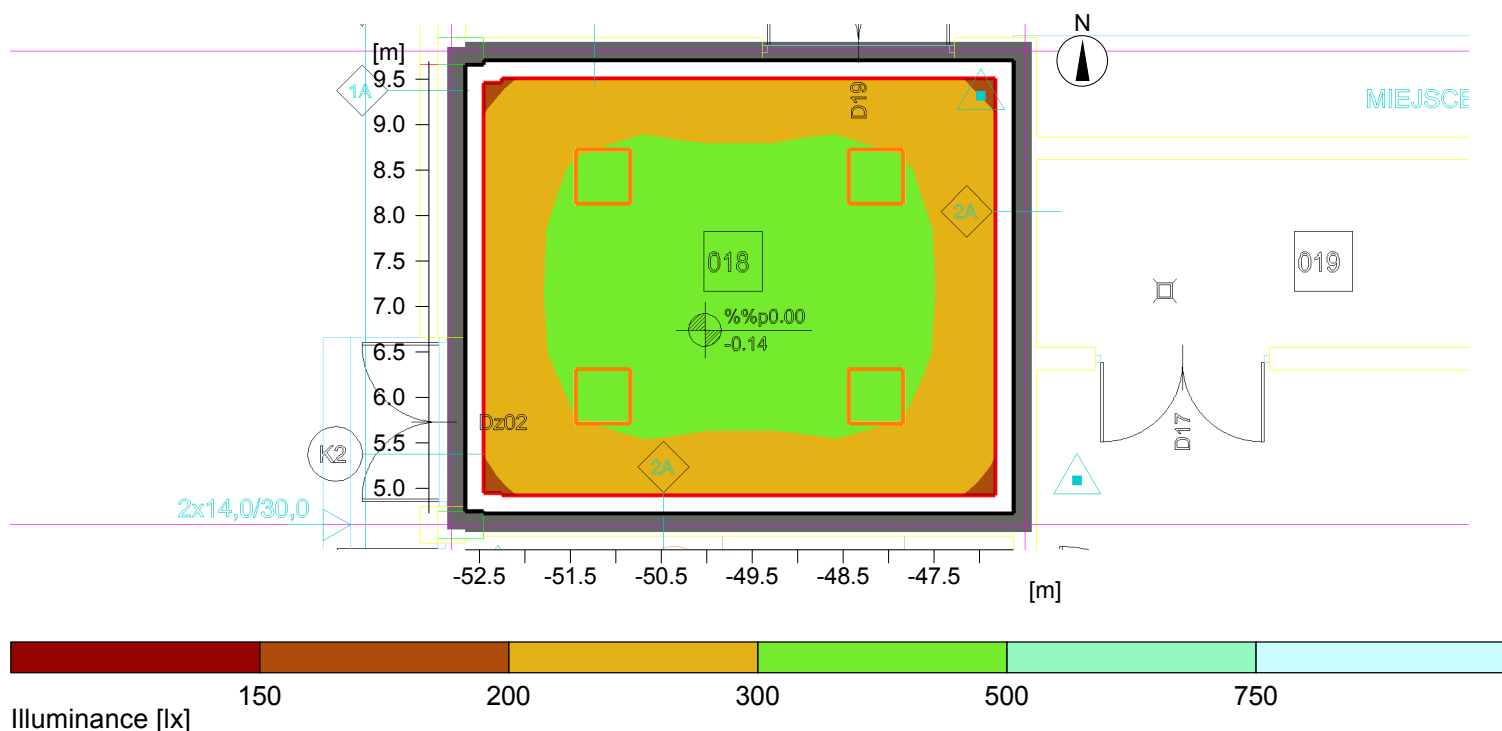


Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 11 Pomieszczenie 11

### 11.1 Summary, Pomieszczenie 11

#### 11.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 2.70 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (29.96 m<sup>2</sup>)

17000 lm  
 160.0 W  
 5.34 W/m<sup>2</sup> (1.80 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em 297 lx  
 Emin 216 lx  
 Emin/Eav (Uo) 0.73  
 Emin/Emax (Ud) 0.62  
 UGR (3.4H 4.1H) ≤20.3  
 Position 0.00 m

#### Type No.\Make

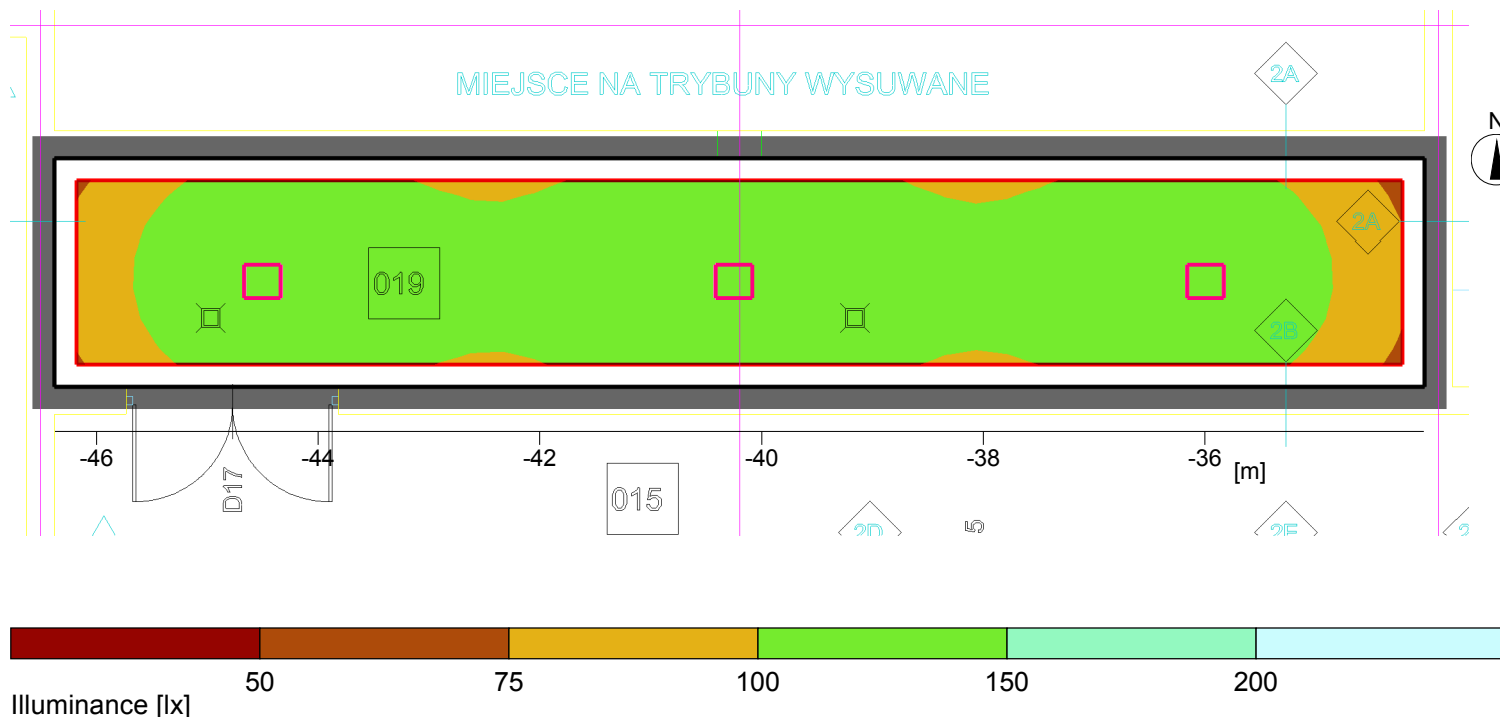
4 4 **MILOO-ELECTRONICS**  
 Order No. : QUATFRESH-K60x60 40W 4000K D  
 Luminaire name : QUATFRESH-K60x60 40W 4000K D  
 Equipment : 1 x LED / 4250 lm

Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 12 Pomieszczenie 12

### 12.1 Summary, Pomieszczenie 12

#### 12.1.1 Result overview, Evaluation area 1

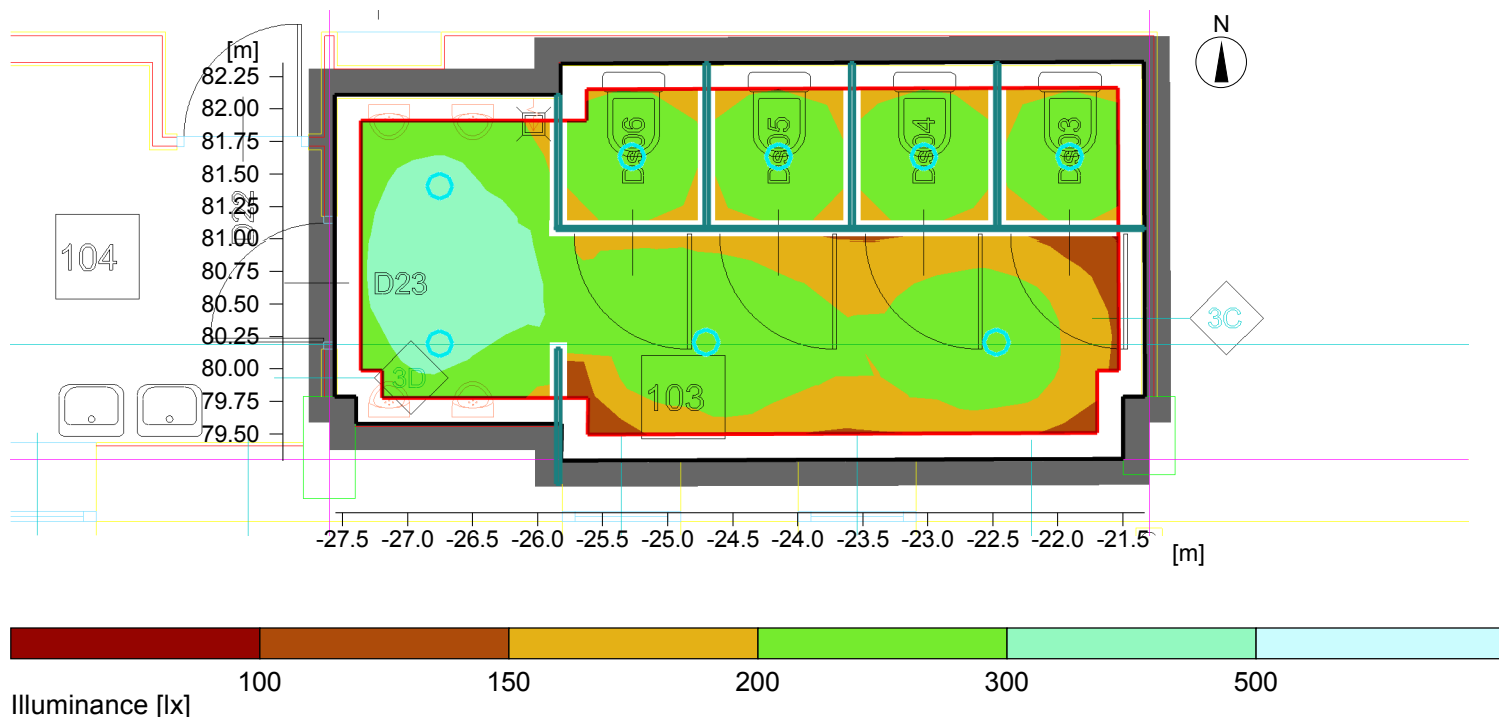


Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 13 Pomieszczenie 13

### 13.1 Summary, Pomieszczenie 13

#### 13.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 2.70 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (17.93 m<sup>2</sup>)

12400 lm  
 120.0 W  
 6.69 W/m<sup>2</sup> (2.90 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em  
 Emin  
 Emin/Eav (Uo)  
 Emin/Emax (Ud)  
 UGR (2.1H 4.2H)  
 Position

231 lx  
 128 lx  
 0.55  
 0.35  
 <=25.4  
 0.85 m

#### Type No.Make

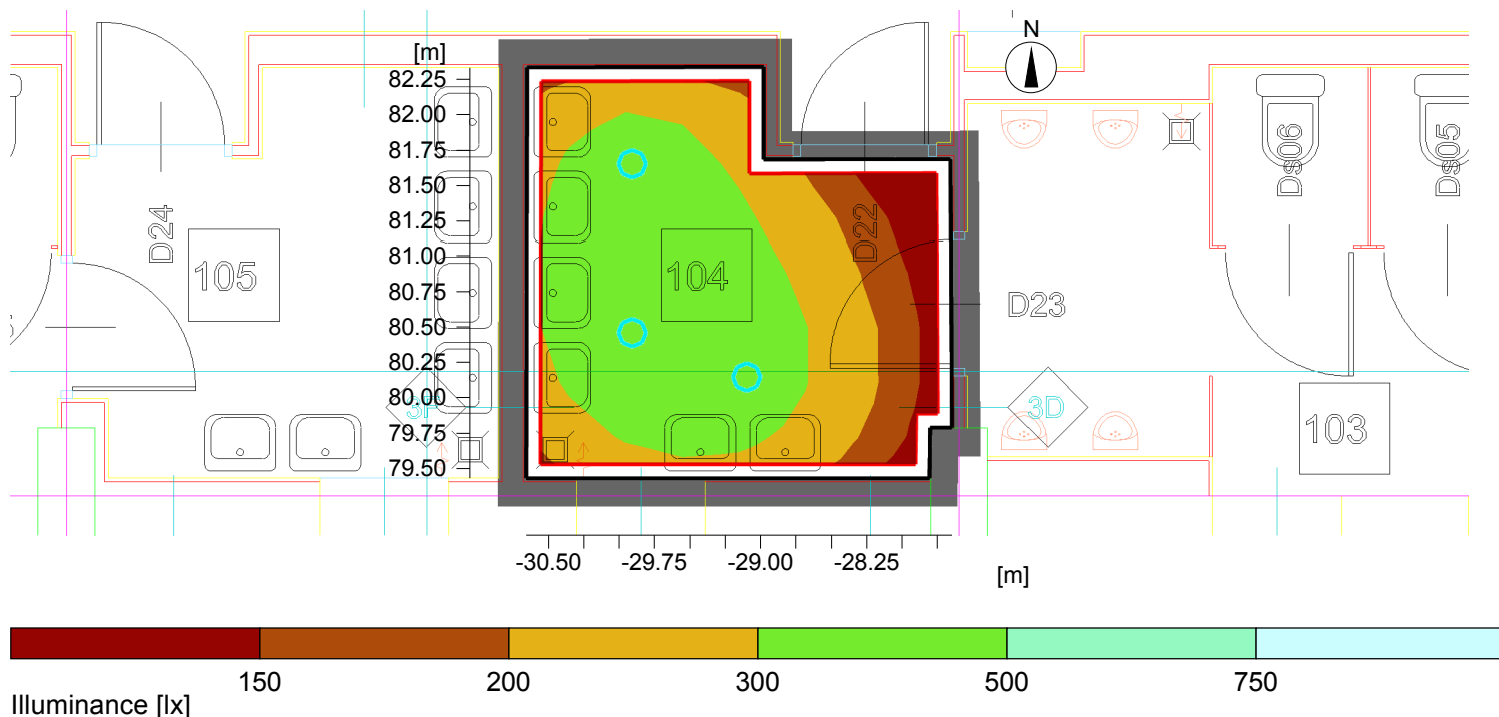
6 8 **Miloo Electronics**  
 Order No. : !CII-LED-M\_sD\_4000K 15W IP44  
 Luminaire name : CII-LED-M\_sD\_4000K  
 Equipment : 1 x LED / 1550 lm

Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 14 Pomieszczenie 14

### 14.1 Summary, Pomieszczenie 14

#### 14.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 2.70 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (7.77 m<sup>2</sup>)

4650 lm  
 45.0 W  
 5.79 W/m<sup>2</sup> (1.92 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em 302 lx  
 Emin 131 lx  
 Emin/Eav (Uo) 0.43  
 Emin/Emax (Ud) 0.30  
 UGR (2.0H 2.0H) ≤23.8  
 Position 0.85 m

#### Type No./Make

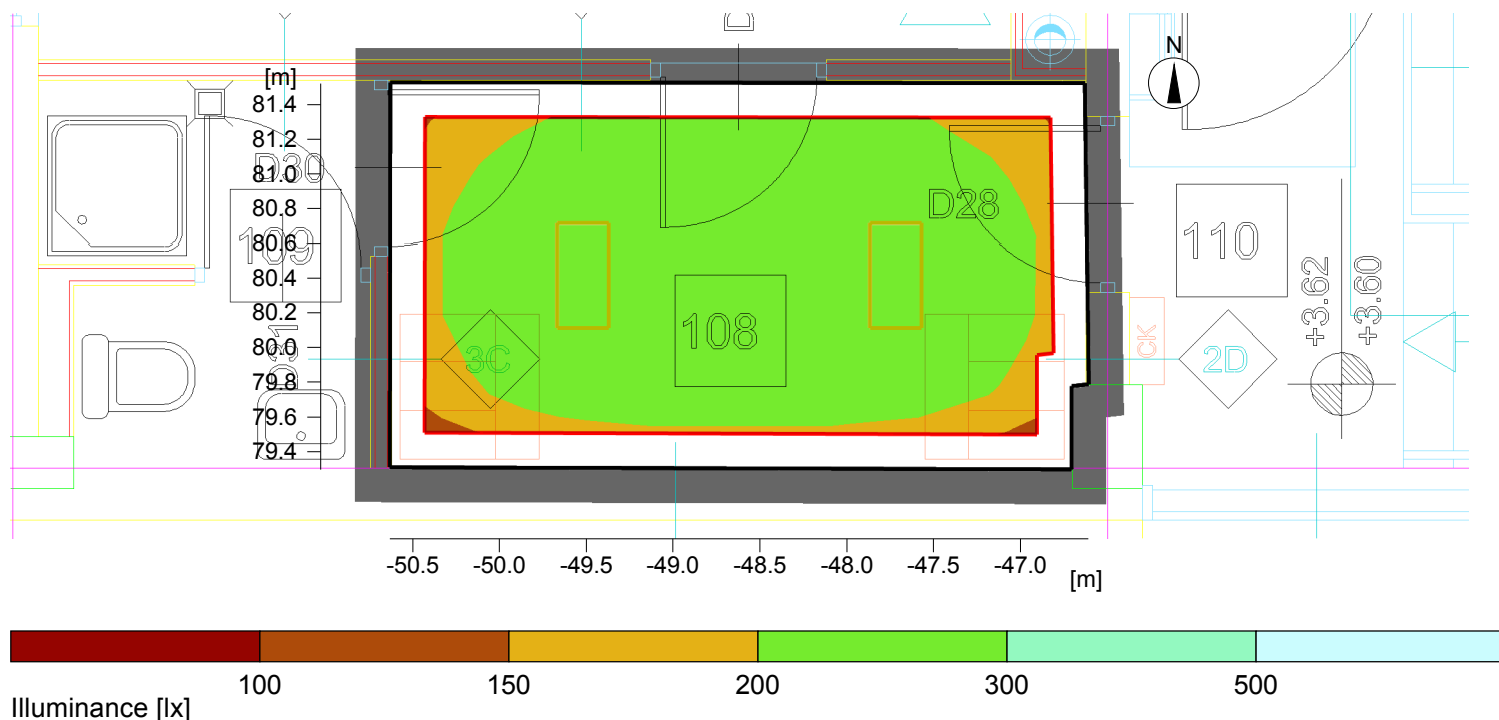
6 3 **Miloo Electronics**  
 Order No. : !CII-LED-M\_sD\_4000K 15W IP44  
 Luminaire name : CII-LED-M\_sD\_4000K  
 Equipment : 1 x LED / 1550 lm

Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 15 Pomieszczenie 15

### 15.1 Summary, Pomieszczenie 15

#### 15.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 2.70 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (8.84 m<sup>2</sup>)

4500 lm  
 44.0 W  
 4.98 W/m<sup>2</sup> (2.02 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em 246 lx  
 Emin 191 lx  
 Emin/Eav (Uo) 0.77  
 Emin/Emax (Ud) 0.66  
 UGR (1.5H 2.7H) ≤18.7  
 Position 0.85 m

#### Type No.\Make

#### MILOO-ELECTRONICS

1	2	Order No. : QUATFRESH-K60x30 20W 4000K D
		Luminaire name : QUATFRESH-K60x30 20W 4000K D
		Equipment : 1 x LED / 2250 lm

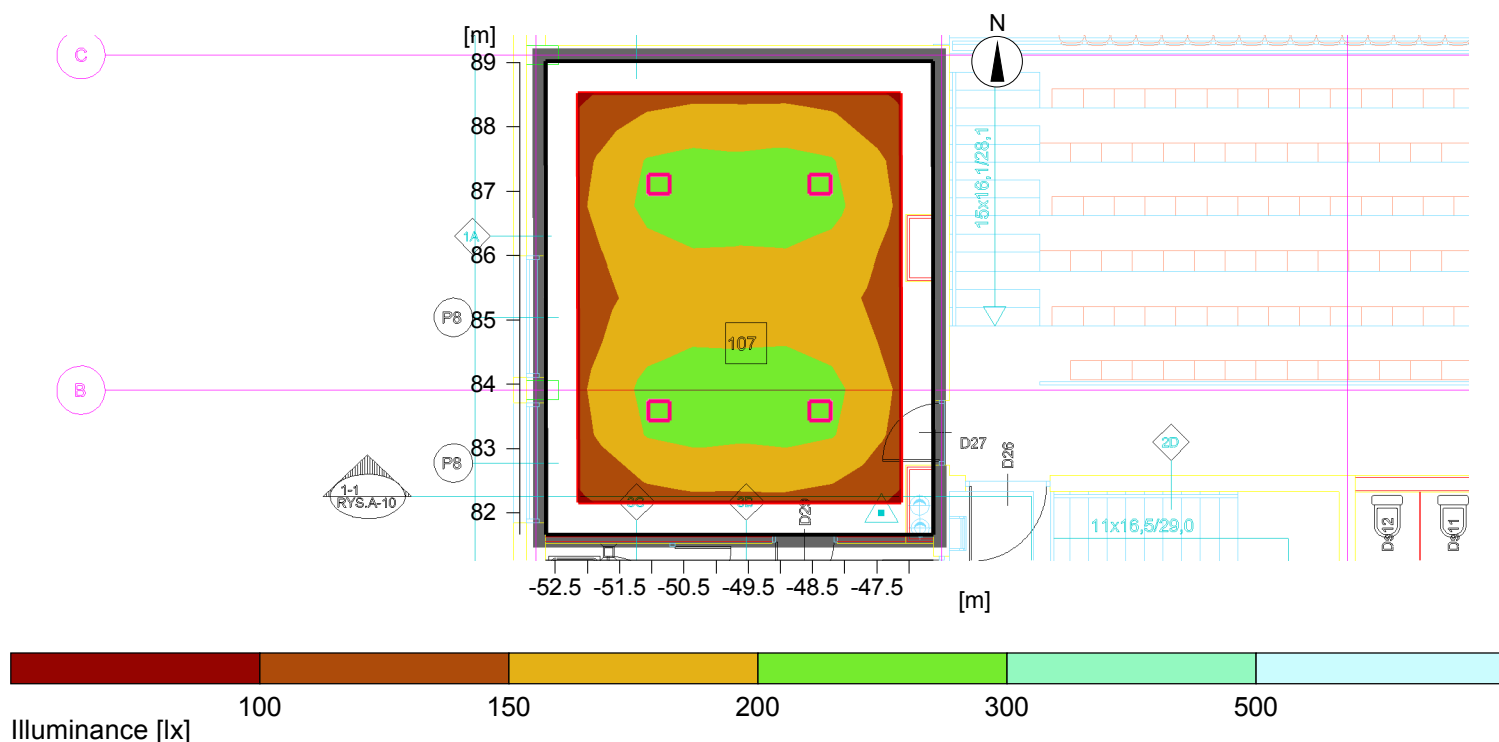


Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 16 Pomieszczenie 16

### 16.1 Summary, Pomieszczenie 16

#### 16.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 3.30 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (44.20 m<sup>2</sup>)

10800 lm  
 108.0 W  
 2.44 W/m<sup>2</sup> (1.35 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em 181 lx  
 Emin 123 lx  
 Emin/Eav (Uo) 0.68  
 Emin/Emax (Ud) 0.55  
 UGR (3.5H 2.9H) <=22.8  
 Position 0.85 m

#### Type No.\Make

3 4

#### Miloo Electronics

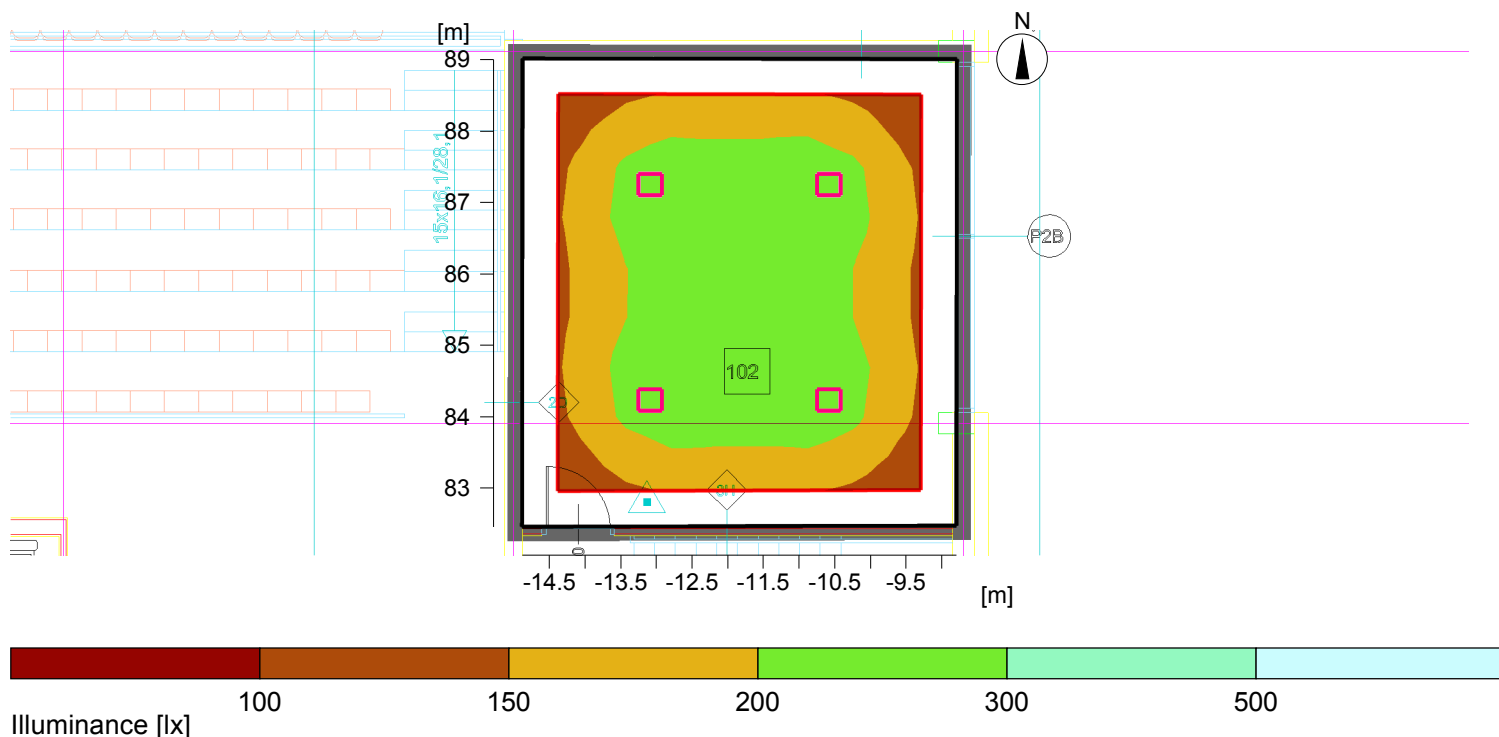
Order No. : LIST-NTH30x30 27W sD  
 Luminaire name : LIGHT STEP NTH30x30 27W sD  
 Equipment : 1 x LED / 2700 lm

Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 17 Pomieszczenie 17

### 17.1 Summary, Pomieszczenie 17

#### 17.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 3.30 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (39.77 m<sup>2</sup>)

10800 lm  
 108.0 W  
 2.72 W/m<sup>2</sup> (1.38 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em 197 lx  
 Emin 132 lx  
 Emin/Eav (Uo) 0.67  
 Emin/Emax (Ud) 0.56  
 UGR (3.2H 2.9H) ≤22.6  
 Position 0.85 m

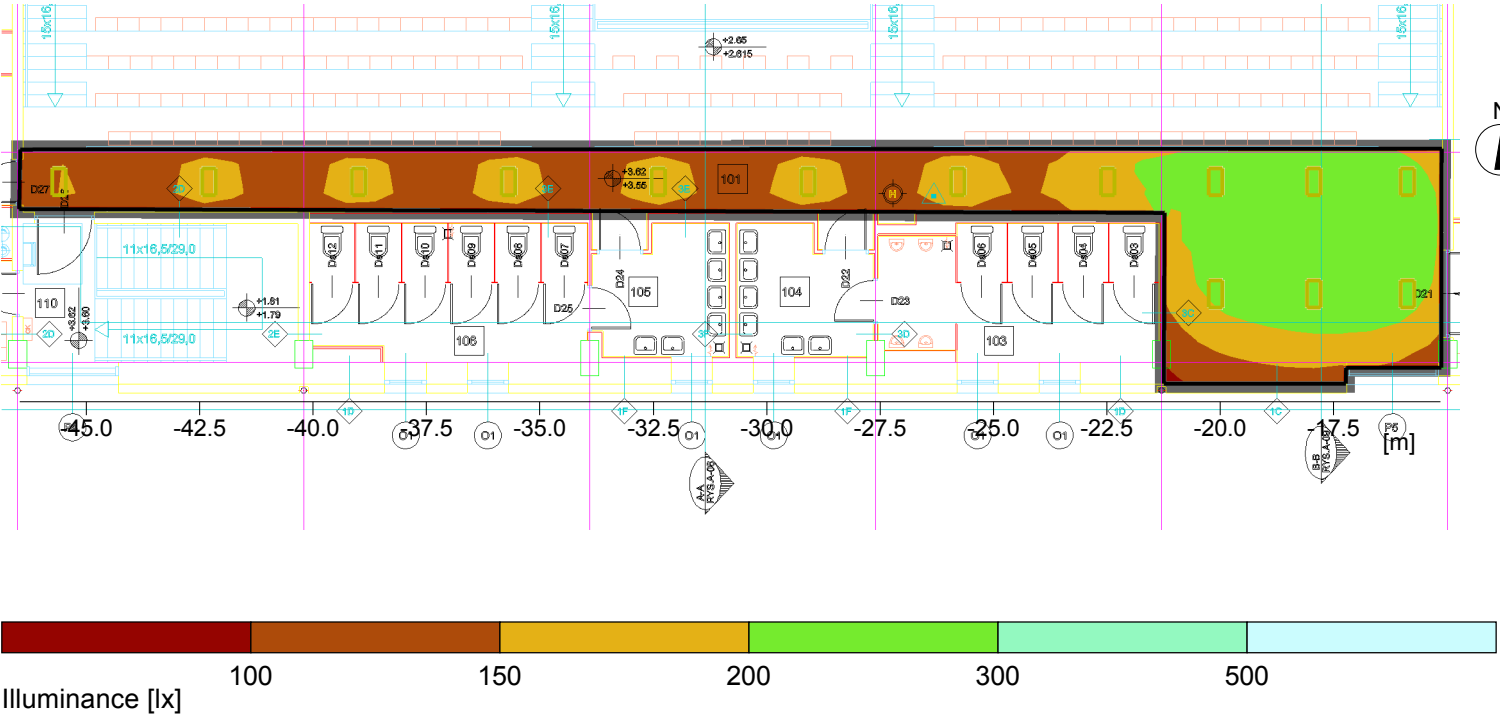
#### Type No./Make

3 4 **Miloo Electronics**  
 Order No. : LIST-NTH30x30 27W sD  
 Luminaire name : LIGHT STEP NTH30x30 27W sD  
 Equipment : 1 x LED / 2700 lm

18 Pomieszczenie 18

18.1 Summary, Pomieszczenie 18

18.1.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction
Height of luminaire plane	2.70 m
Maintenance factor	0.80
Total luminous flux of all lamps	31500 lm
Total power	308.0 W
Total power per area (65.19 m²)	4.72 W/m² (2.57 W/m²/100lx)

Evaluation area 1	Reference plane 1.1
	Horizontal
Em	184 lx
Emin	102 lx
Emin/Eav (Uo)	0.56
Emin/Emax (Ud)	0.37
Position	0.00 m (rot: 0°/0.04°)

Type No.\Make

MILOO-ELECTRONICS

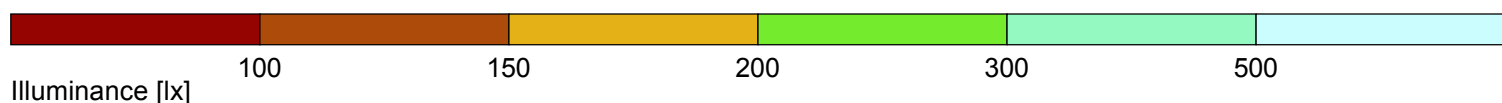
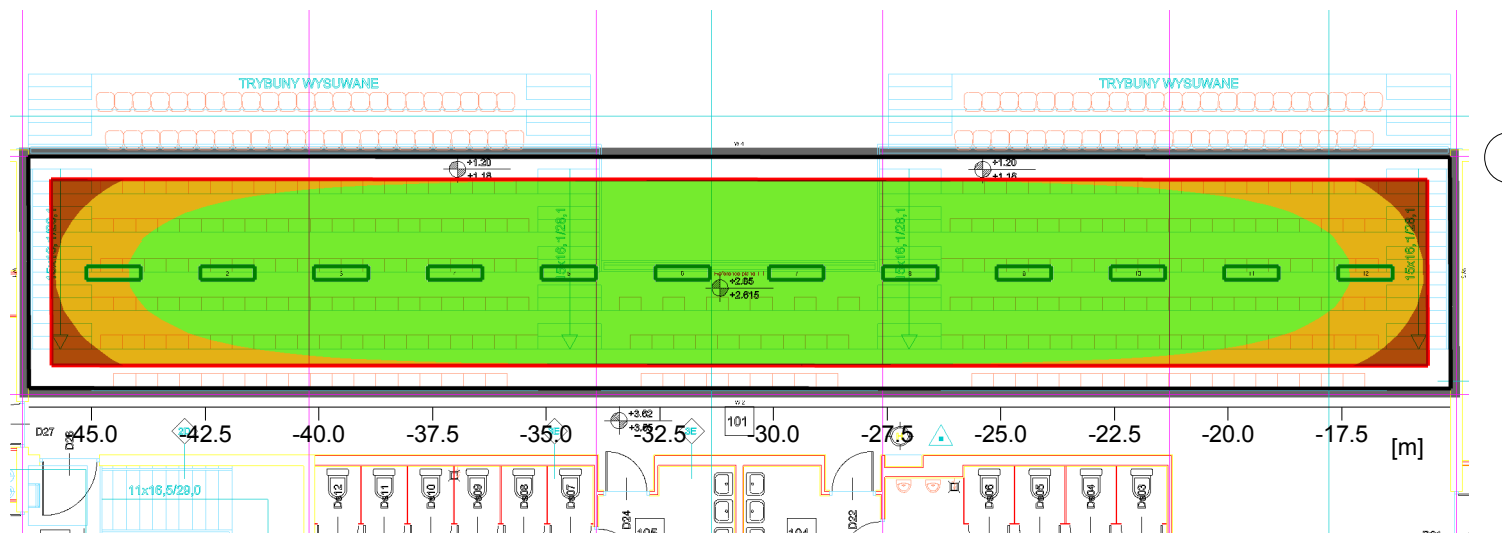
1	14	Order No.	: QUATFRESH-K60x30 20W 4000K D
		Luminaire name	: QUATFRESH-K60x30 20W 4000K D
		Equipment	: 1 x LED / 2250 lm

Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 19 TRYBUNY

### 19.1 Summary, TRYBUNY

#### 19.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 5.00 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (158.16 m<sup>2</sup>)

61800 lm  
 600.0 W  
 3.79 W/m<sup>2</sup> (1.73 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em 219 lx  
 Emin 126 lx  
 Emin/Eav (Uo) 0.57  
 Emin/Emax (Ud) 0.49  
 UGR (8.3H 1.3H) ≤20.7  
 Position 0.85 m

#### Type No./Make

#### MILOO-ELECTRONICS

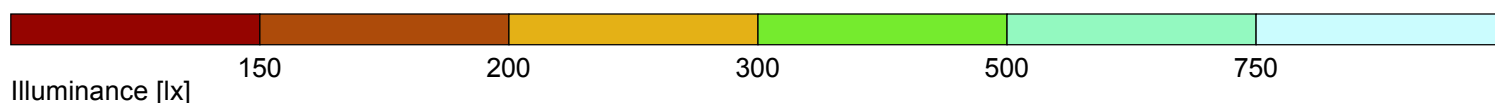
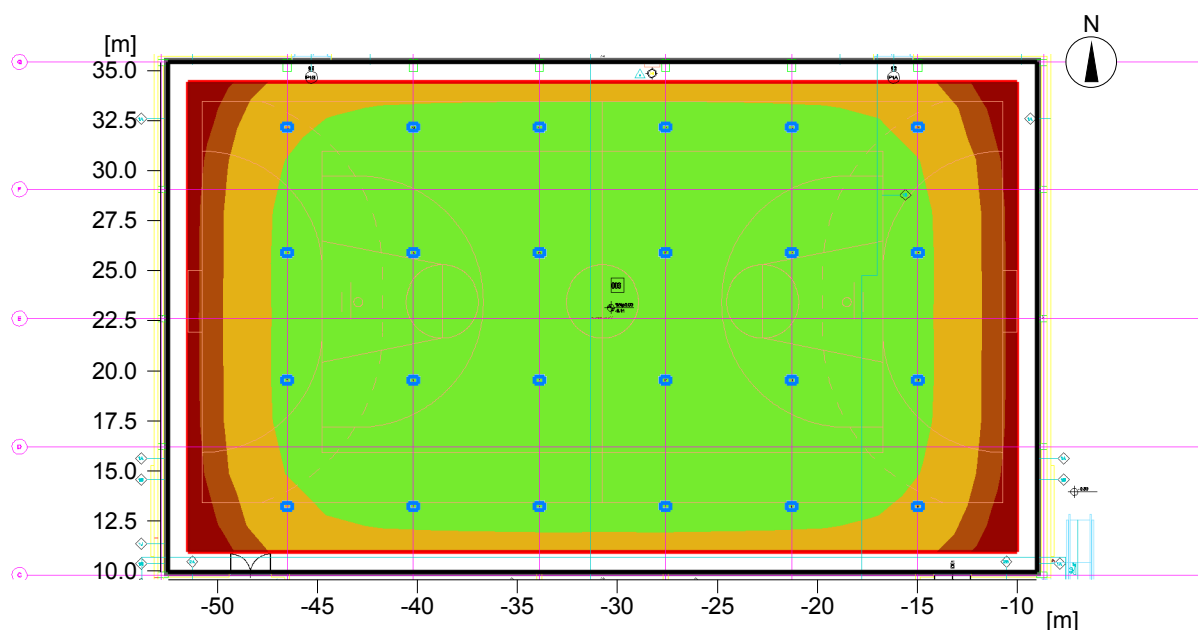
8 12 Order No. : QUATFRESH-NT120x30 50W 4000K D  
 Luminaire name : QUATFRESH-NT120x30 50W 4000K D  
 Equipment : 1 x LED / 5150 lm

Object : Hala gimnastyczna  
 Installation :  
 Project number : 1305  
 Date : 28.02.2017

## 20 SALA GIMNASTYCZNA

### 20.1 Summary, SALA GIMNASTYCZNA

#### 20.1.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Height of luminaire plane  
 Maintenance factor

Average indirect fraction  
 7.60 m  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (1104.53 m<sup>2</sup>)

415200 lm  
 3360.0 W  
 3.04 W/m<sup>2</sup> (0.94 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 Em 324 lx  
 Emin 145 lx  
 Emin/Eav (Uo) 0.45  
 Emin/Emax (Ud) 0.37  
 UGR (4.0H 6.9H) ≤23.1  
 Position 0.00 m

#### Type No.Make

#### Miloo Electronics

10 24



Order No. : SPACE-M-75\_140W\_4000K  
 Luminaire name : SPACE-M-75\_140W\_4000K  
 Equipment : 1 x LED / 17300 lm