

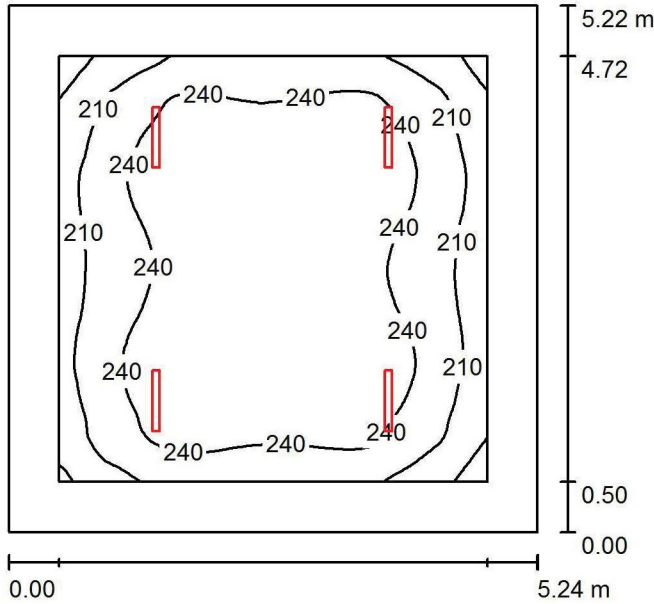


HUGAAS ENGINEERING COMPANY

**Kvernbit IL
LED LYSKONSEPT**

Operator
Telephone
Fax
e-Mail

Teknisk rom / Summary



Height of Room: 2.700 m, Mounting Height: 2.700 m, Light loss factor: 0.80

Values in Lux, Scale 1:75

| Surface | ρ [%] | E_{av} [lx] | E_{min} [lx] | E_{max} [lx] | u0 |
|-----------|------------|---------------|----------------|----------------|-------|
| Workplane | / | 234 | 162 | 266 | 0.692 |
| Floor | 20 | 187 | 117 | 230 | 0.625 |
| Ceiling | 70 | 69 | 37 | 781 | 0.540 |
| Walls (4) | 50 | 129 | 53 | 201 | / |

Workplane:

Height: 0.500 m
Grid: 64 x 64 Points
Boundary Zone: 0.500 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.566, Ceiling / Working Plane: 0.293.

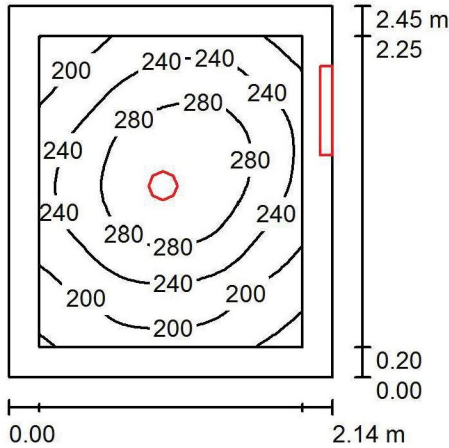
Luminaire Parts List

| No. | Pieces | Designation (Correction Factor) | Φ (Luminaire) [lm] | Φ (Lamps) [lm] | P [W] |
|-----|--------|-------------------------------------|-------------------------|---------------------|-------|
| 1 | 4 | DiLED DiLED-FK-TL06-NW18-M3 (1.000) | 2625 | 2626 | 18.5 |
| | | | Total: 10499 | Total: 10504 | 74.0 |

Specific connected load: $2.70 \text{ W/m}^2 = 1.15 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 27.36 m^2)

Operator
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Fax
e-Mail

HCWC x4 / Summary



Height of Room: 2.700 m, Light loss factor: 0.80

Values in Lux, Scale 1:50

| Surface | ρ [%] | E_{av} [lx] | E_{min} [lx] | E_{max} [lx] | u_0 |
|-----------|------------|---------------|----------------|----------------|-------|
| Workplane | / | 242 | 145 | 318 | 0.599 |
| Floor | 20 | 130 | 95 | 156 | 0.729 |
| Ceiling | 70 | 81 | 39 | 166 | 0.476 |
| Walls (4) | 50 | 117 | 44 | 254 | / |

Workplane:

Height: 1.000 m
Grid: 32 x 32 Points
Boundary Zone: 0.200 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.557, Ceiling / Working Plane: 0.337.

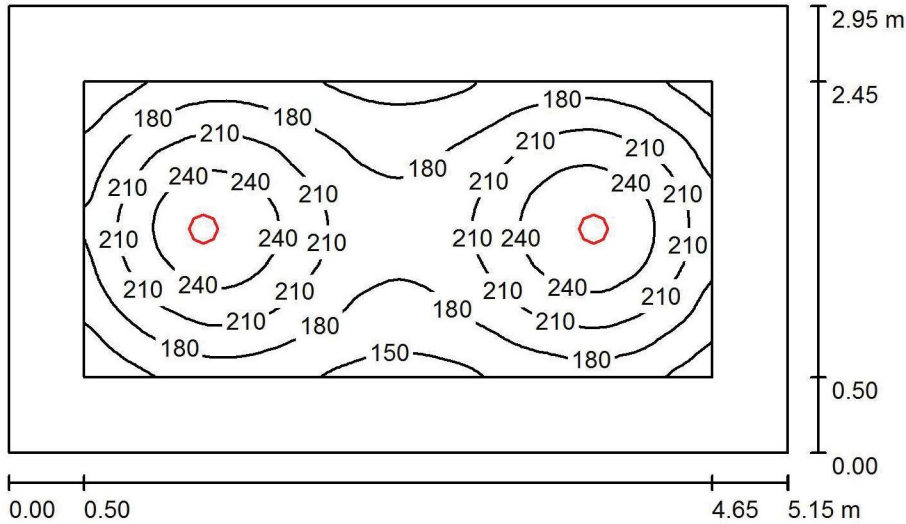
Luminaire Parts List

| No. | Pieces | Designation (Correction Factor) | Φ (Luminaire) [lm] | Φ (Lamps) [lm] | P [W] |
|--------|--------|--|-------------------------|---------------------|-------|
| 1 | 1 | DiLED DiLED FK-DL1700640 20W (1.000) | 2034 | 2035 | 20.3 |
| 2 | 1 | DiLED 70 070 000 502 Sabrina-9 LED 800 (1.000) | 659 | 800 | 9.0 |
| Total: | | | 2693 | 2835 | 29.3 |

Specific connected load: $5.60 \text{ W/m}^2 = 2.32 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 5.23 m^2)

Operator
Telephone
Fax
e-Mail

Dusj x4 / Summary



Height of Room: 2.700 m, Mounting Height: 2.700 m, Light loss factor: 0.80

Values in Lux, Scale 1:50

| Surface | ρ [%] | E_{av} [lx] | E_{min} [lx] | E_{max} [lx] | u_0 |
|-----------|------------|---------------|----------------|----------------|-------|
| Workplane | / | 198 | 124 | 268 | 0.625 |
| Floor | 20 | 117 | 74 | 145 | 0.633 |
| Ceiling | 70 | 32 | 22 | 37 | 0.699 |
| Walls (4) | 50 | 76 | 24 | 142 | / |

Workplane:

Height: 1.000 m
Grid: 128 x 64 Points
Boundary Zone: 0.500 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.388, Ceiling / Working Plane: 0.161.

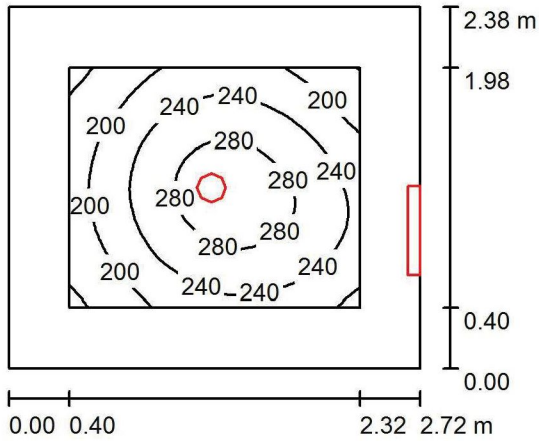
Luminaire Parts List

| No. | Pieces | Designation (Correction Factor) | Φ (Luminaire) [lm] | Φ (Lamps) [lm] | P [W] |
|-----|--------|--------------------------------------|-------------------------|---------------------|-------|
| 1 | 2 | DiLED DiLED FK-DL1700640 20W (1.000) | 2034 | 2035 | 20.3 |
| | | | Total: 4068 | Total: 4070 | 40.6 |

Specific connected load: $2.67 \text{ W/m}^2 = 1.35 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 15.20 m^2)

Operator
Telephone
Fax
e-Mail

HCWC / Summary



Height of Room: 2.700 m, Light loss factor: 0.80

Values in Lux, Scale 1:50

| Surface | ρ [%] | E_{av} [lx] | E_{min} [lx] | E_{max} [lx] | $u0$ |
|-----------|------------|---------------|----------------|----------------|-------|
| Workplane | / | 237 | 150 | 303 | 0.631 |
| Floor | 20 | 121 | 88 | 148 | 0.733 |
| Ceiling | 70 | 69 | 36 | 157 | 0.516 |
| Walls (4) | 50 | 99 | 38 | 221 | / |

Workplane:

Height: 1.000 m
Grid: 32 x 32 Points
Boundary Zone: 0.400 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.463, Ceiling / Working Plane: 0.290.

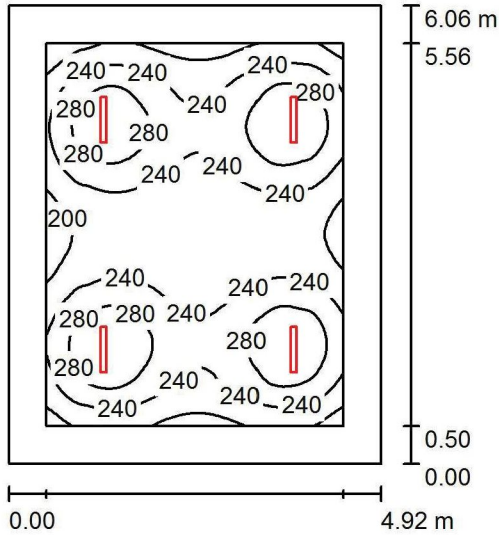
Luminaire Parts List

| No. | Pieces | Designation (Correction Factor) | Φ (Luminaire) [lm] | Φ (Lamps) [lm] | P [W] |
|--------|--------|--|-------------------------|---------------------|-------|
| 1 | 1 | DiLED DiLED FK-DL1700640 20W (1.000) | 2034 | 2035 | 20.3 |
| 2 | 1 | DiLED 70 070 000 502 Sabrina-9 LED 800 (1.000) | 659 | 800 | 9.0 |
| Total: | | | 2693 | 2835 | 29.3 |

Specific connected load: $4.52 \text{ W/m}^2 = 1.91 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 6.48 m^2)

Operator
Telephone
Fax
e-Mail

Hall / Summary



Height of Room: 2.700 m, Mounting Height: 2.700 m, Light loss factor: 0.80

Values in Lux, Scale 1:100

| Surface | ρ [%] | E_{av} [lx] | E_{min} [lx] | E_{max} [lx] | u_0 |
|-----------|------------|---------------|----------------|----------------|-------|
| Workplane | / | 245 | 165 | 319 | 0.673 |
| Floor | 20 | 173 | 107 | 206 | 0.621 |
| Ceiling | 70 | 63 | 35 | 760 | 0.553 |
| Walls (4) | 50 | 122 | 50 | 211 | / |

Workplane:

Height: 1.000 m
Grid: 64 x 64 Points
Boundary Zone: 0.500 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.523, Ceiling / Working Plane: 0.259.

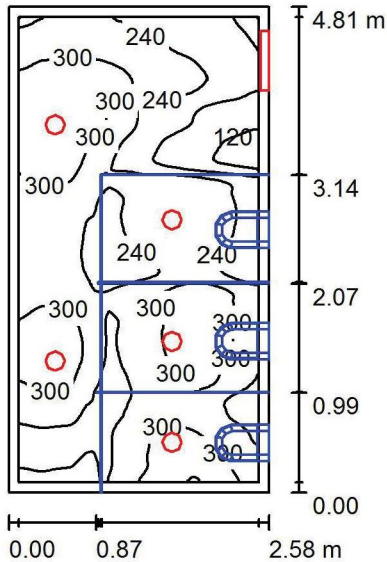
Luminaire Parts List

| No. | Pieces | Designation (Correction Factor) | Φ (Luminaire) [lm] | Φ (Lamps) [lm] | P [W] |
|-----|--------|-------------------------------------|-------------------------|---------------------|-------|
| 1 | 4 | DiLED DiLED-FK-TL06-NW18-M3 (1.000) | 2625 | 2626 | 18.5 |
| | | | Total: 10499 | Total: 10504 | 74.0 |

Specific connected load: $2.48 \text{ W/m}^2 = 1.01 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 29.81 m^2)

Operator
Telephone
Fax
e-Mail

WC x2 / Summary



Height of Room: 2.700 m, Light loss factor: 0.80

Values in Lux, Scale 1:75

| Surface | ρ [%] | E_{av} [lx] | E_{min} [lx] | E_{max} [lx] | u_0 |
|-----------|------------|---------------|----------------|----------------|-------|
| Workplane | / | 261 | 90 | 370 | 0.344 |
| Floor | 20 | 126 | 23 | 184 | 0.182 |
| Ceiling | 70 | 94 | 57 | 168 | 0.601 |
| Walls (4) | 50 | 169 | 13 | 882 | / |

Workplane:

Height: 1.000 m
Grid: 128 x 128 Points
Boundary Zone: 0.100 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.835, Ceiling / Working Plane: 0.362.

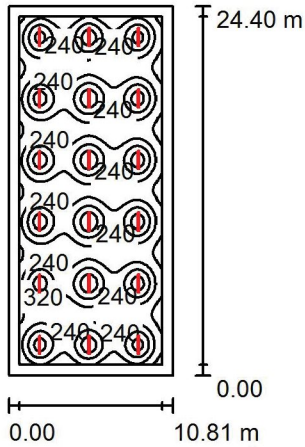
Luminaire Parts List

| No. | Pieces | Designation (Correction Factor) | Φ (Luminaire) [lm] | Φ (Lamps) [lm] | P [W] |
|--------|--------|--|-------------------------|---------------------|-------|
| 1 | 5 | DiLED DiLED FK-DL1700640 20W (1.000) | 2034 | 2035 | 20.3 |
| 2 | 1 | DiLED 70 070 000 502 Sabrina-9 LED 800 (1.000) | 659 | 800 | 9.0 |
| Total: | | | 10828 | 10975 | 110.5 |

Specific connected load: $8.92 \text{ W/m}^2 = 3.42 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 12.39 m^2)

Operator
Telephone
Fax
e-Mail

Lager1 / Summary



Height of Room: 2.700 m, Mounting Height: 2.700 m, Light loss factor: 0.80

Values in Lux, Scale 1:500

| Surface | ρ [%] | E_{av} [lx] | E_{min} [lx] | E_{max} [lx] | u0 |
|-----------|------------|---------------|----------------|----------------|-------|
| Workplane | / | 264 | 121 | 472 | 0.458 |
| Floor | 20 | 220 | 99 | 298 | 0.451 |
| Ceiling | 70 | 61 | 35 | 697 | 0.571 |
| Walls (4) | 50 | 122 | 53 | 168 | / |

Workplane:

Height: 1.000 m
Grid: 128 x 128 Points
Boundary Zone: 0.700 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.441, Ceiling / Working Plane: 0.229.

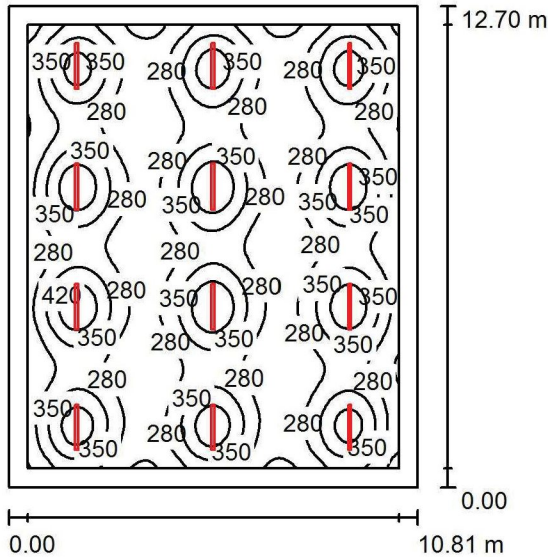
Luminaire Parts List

| No. | Pieces | Designation (Correction Factor) | Φ (Luminaire) [lm] | Φ (Lamps) [lm] | P [W] |
|-----|--------|-------------------------------------|-------------------------|---------------------|-------|
| 1 | 18 | DiLED DiLED FK-TL12-NW30-M3 (1.000) | 4428 | 4430 | 31.2 |
| | | | Total: 79704 | Total: 79740 | 561.6 |

Specific connected load: $2.13 \text{ W/m}^2 = 0.81 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 263.73 m^2)

Operator
Telephone
Fax
e-Mail

Lager / Summary



Height of Room: 2.700 m, Mounting Height: 2.700 m, Light loss factor: 0.80

Values in Lux, Scale 1:200

| Surface | ρ [%] | E_{av} [lx] | E_{min} [lx] | E_{max} [lx] | u_0 |
|-----------|------------|---------------|----------------|----------------|-------|
| Workplane | / | 312 | 180 | 490 | 0.578 |
| Floor | 20 | 259 | 139 | 327 | 0.535 |
| Ceiling | 70 | 76 | 46 | 708 | 0.602 |
| Walls (4) | 50 | 159 | 68 | 243 | / |

Workplane:

Height: 1.000 m
Grid: 128 x 128 Points
Boundary Zone: 0.500 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.508, Ceiling / Working Plane: 0.240.

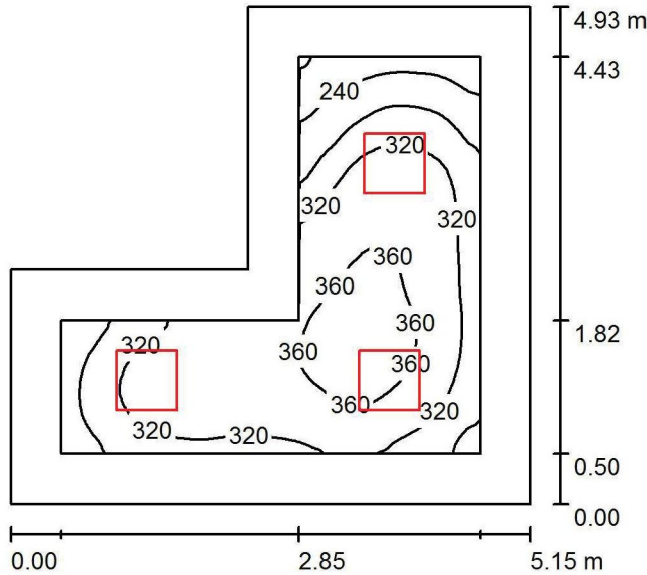
Luminaire Parts List

| No. | Pieces | Designation (Correction Factor) | Φ (Luminaire) [lm] | Φ (Lamps) [lm] | P [W] |
|-----|--------|-------------------------------------|-------------------------|---------------------|-------|
| 1 | 12 | DiLED DiLED FK-TL12-NW30-M3 (1.000) | 4428 | 4430 | 31.2 |
| | | | Total: 53136 | Total: 53160 | 374.4 |

Specific connected load: $2.73 \text{ W/m}^2 = 0.87 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 137.31 m^2)

Operator
Telephone
Fax
e-Mail

Garderob x4 / Summary



Height of Room: 2.700 m, Mounting Height: 2.700 m, Light loss factor: 0.80

Values in Lux, Scale 1:75

| Surface | ρ [%] | E_{av} [lx] | E_{min} [lx] | E_{max} [lx] | u0 |
|-----------|------------|---------------|----------------|----------------|-------|
| Workplane | / | 321 | 195 | 379 | 0.609 |
| Floor | 20 | 240 | 135 | 315 | 0.563 |
| Ceiling | 70 | 67 | 45 | 89 | 0.664 |
| Walls (6) | 50 | 164 | 59 | 322 | / |

Workplane:

Height: 0.500 m
Grid: 128 x 128 Points
Boundary Zone: 0.500 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.530, Ceiling / Working Plane: 0.209.

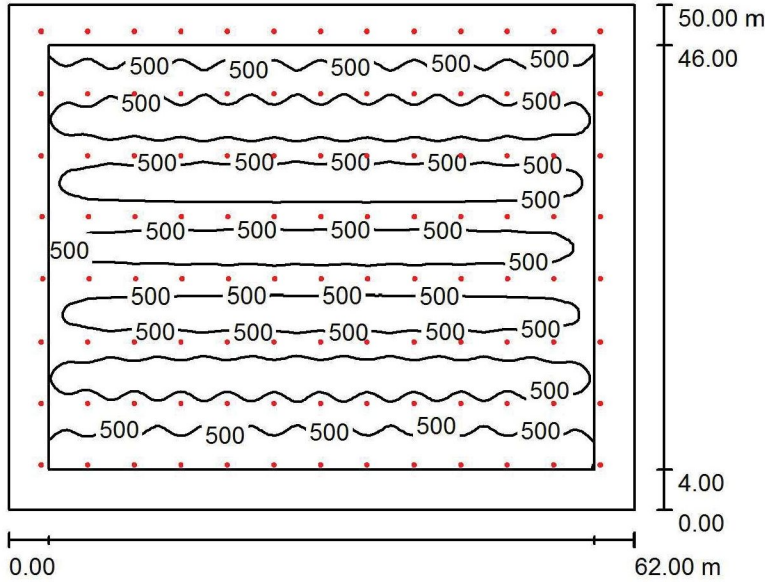
Luminaire Parts List

| No. | Pieces | Designation (Correction Factor) | Φ (Luminaire) [lm] | Φ (Lamps) [lm] | P [W] |
|-----|--------|-------------------------------------|-------------------------|---------------------|-------|
| 1 | 3 | DiLED BASIC/ECO-NW36W 4000K (1.000) | 3609 | 3611 | 36.0 |
| | | | Total: 10828 | Total: 10833 | 108.0 |

Specific connected load: $5.61 \text{ W/m}^2 = 1.75 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 19.24 m^2)

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Football hall / Summary



Height of Room: 11.200 m, Light loss factor: 0.70

Values in Lux, Scale 1:750

| Surface | ρ [%] | E_{av} [lx] | E_{min} [lx] | E_{max} [lx] | u_0 |
|-----------|------------|---------------|----------------|----------------|-------|
| Workplane | / | 507 | 377 | 650 | 0.745 |
| Floor | 5 | 474 | 73 | 637 | 0.155 |
| Ceiling | 70 | 24 | 17 | 36 | 0.688 |
| Walls (4) | 50 | 62 | 20 | 184 | / |

Workplane:

Height: 0.000 m
 Grid: 128 x 128 Points
 Boundary Zone: 4.000 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.122, Ceiling / Working Plane: 0.047.

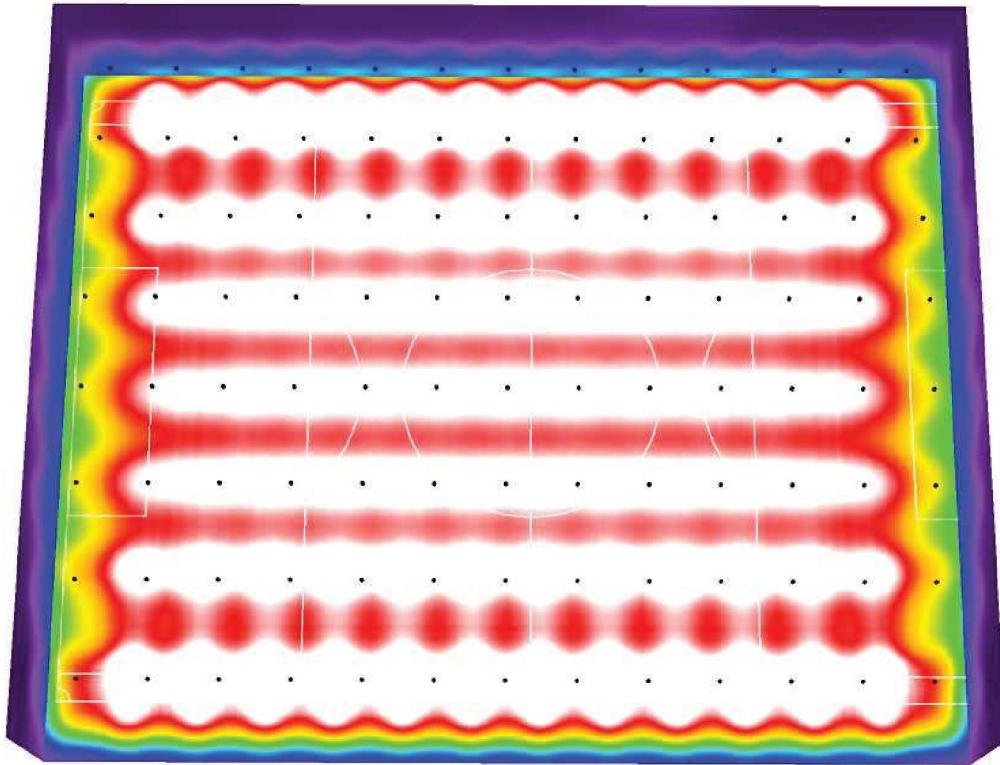
Luminaire Parts List

| No. | Pieces | Designation (Correction Factor) | Φ (Luminaire) [lm] | Φ (Lamps) [lm] | P [W] |
|-----|--------|--|-------------------------|---------------------|---------|
| 1 | 104 | DiLED FK-IL/D150W-60/90N-FU4 HB UFO G4 150W 60D (1.000) | 20607 | 21000 | 147.0 |
| | | | Total: 2143176 | Total: 2184000 | 15288.0 |

Specific connected load: $4.93 \text{ W/m}^2 = 0.97 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 3100.00 m^2)

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Football hall / False Color Rendering



lx