



**Motor\_Fuel\_Group-Turks\_Canopy\_Raise-JdB20220120-V1-  
External**

## Preliminary remarks

No rights can be derived from this lighting simulation or design. It is the clients and installers responsibility to ensure that all Bever products are installed and used in compliance with any local codes or regulations in the country of use including but not confined to any electrical, hazardous zone and environmental considerations.

Canopy lights only

Notes on planning:

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

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## Site 1

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Site 1

## Canopy area

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## Images

Site 1 (33)



Site 1 (38)

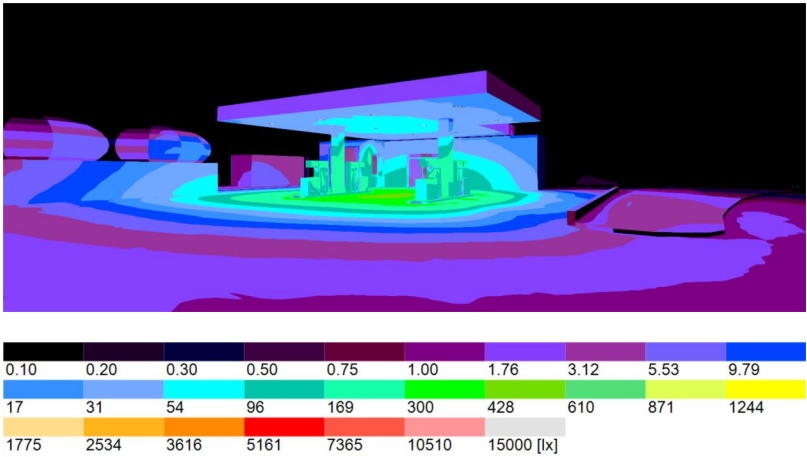


Site 1 (39)

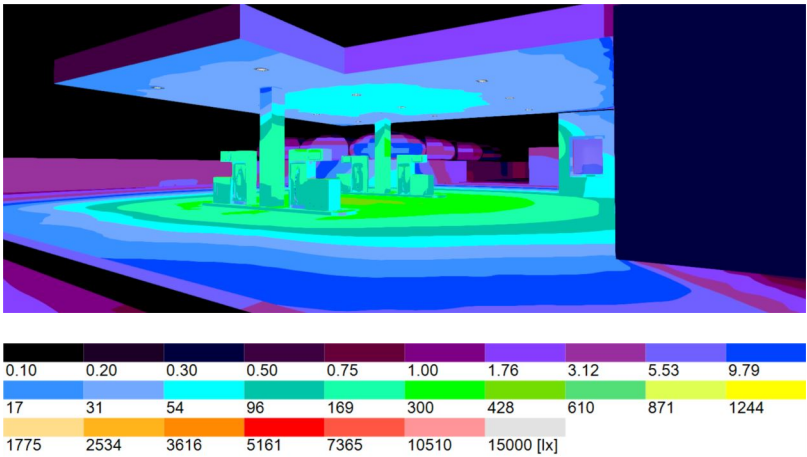


Images

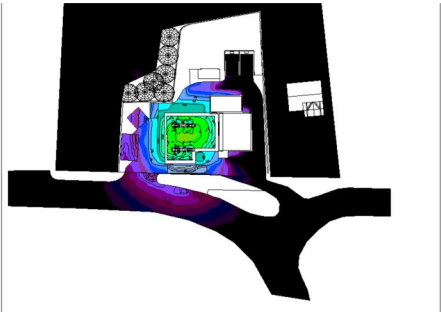
Site 1 (40)



Site 1 (41)



Site 1 (42)



## Luminaire list

|                                    |                               |                                 |
|------------------------------------|-------------------------------|---------------------------------|
| $\Phi_{\text{total}}$<br>113961 lm | $P_{\text{total}}$<br>995.0 W | Luminous efficacy<br>114.5 lm/W |
|------------------------------------|-------------------------------|---------------------------------|

| pcs. | Manufacturer            | Article No.                                                  | Article name                                                                                   | P       | $\Phi$   | Luminous efficacy |
|------|-------------------------|--------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------|----------|-------------------|
| 3    | Not yet a DIALux member | #16759<br>(Luci02-S-MB01-40LED-N0-93W<br>(EOS2,570 0K) Rev0) | 16759 - Luci Series V2. Symm. 75W default - 40LEDs. White. Medium Beam. N0 LEDs. 5700K. EOS2   | 75.0 W  | 8645 lm  | 115.3 lm/W        |
| 6    | Not yet a DIALux member | #16760<br>LUCI02-S-MB01-50LED-N0-125W<br>(EOS2,570 0K)       | 16760 - Luci Series V2. Symm. 102W default - 50LEDs. White. Medium Beam. N0 LEDs. 5700K. EOS2  | 102.0 W | 11552 lm | 113.3 lm/W        |
| 2    | Not yet a DIALux member | #16762<br>LUCI02-A-MB02-50LED-N0-125W<br>(EOS2,570 0K) Rev0  | 16762 - Luci Series V2. ASymm. 102W default - 50LEDs. White. Medium Beam. N0 LEDs. 5700K. EOS2 | 79.0 W  | 9357 lm  | 118.4 lm/W        |

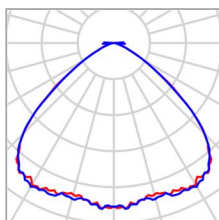
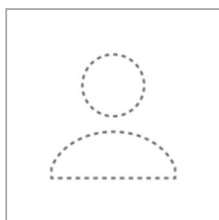
Site 1

## Luminaire layout plan



Site 1

## Luminaire layout plan



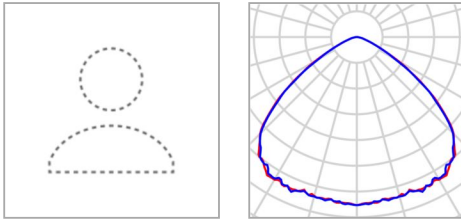
|              |                                                                                              |                           |         |
|--------------|----------------------------------------------------------------------------------------------|---------------------------|---------|
| Manufacturer | Not yet a DIALux member                                                                      | P                         | 75.0 W  |
| Article No.  | #16759 (Luci02-S-MB01-40LED-N0-93W (EOS2,5700K) Rev0)                                        | $\Phi_{\text{Luminaire}}$ | 8645 lm |
| Article name | 16759 - Luci Series V2. Symm. 75W default - 40LEDs. White. Medium Beam. N0 LEDs. 5700K. EOS2 |                           |         |
| Fitting      | 1x 80% (75W) - Default                                                                       |                           |         |

3 x Not yet a DIALux member 16759 - Luci Series V2. Symm. 75W default - 40LEDs. White. Medium Beam. N0 LEDs. 5700K. EOS2

| Type                  | Line arrangement                             | X        | Y        | Mounting height | Luminaire |
|-----------------------|----------------------------------------------|----------|----------|-----------------|-----------|
| 1st luminaire (X/Y/Z) | 12.723 m / 13.982 m / 4.400 m                | 12.723 m | 13.982 m | 4.400 m         | 9         |
| X-direction           | 3 pcs., Centre - centre, Distances not equal | 12.723 m | 10.224 m | 4.400 m         | 10        |
|                       |                                              | 12.723 m | 6.624 m  | 4.400 m         | 11        |
| Arrangement           | A3                                           |          |          |                 |           |

Site 1

## Luminaire layout plan



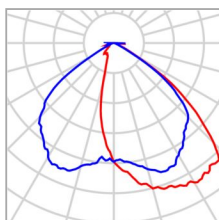
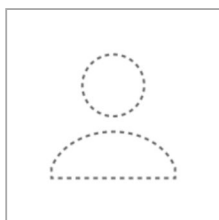
|              |                                                                                               |                           |          |
|--------------|-----------------------------------------------------------------------------------------------|---------------------------|----------|
| Manufacturer | Not yet a DIALux member                                                                       | P                         | 102.0 W  |
| Article No.  | #16760 LUCI02-S-MB01-50LED-N0-125W (EOS2,5700K)                                               | $\Phi_{\text{Luminaire}}$ | 11552 lm |
| Article name | 16760 - Luci Series V2. Symm. 102W default - 50LEDs. White. Medium Beam. N0 LEDs. 5700K. EOS2 |                           |          |
| Fitting      | 1x 80% (102W) - Default                                                                       |                           |          |

6 x Not yet a DIALux member 16760 - Luci Series V2. Symm. 102W default - 50LEDs. White. Medium Beam. N0 LEDs. 5700K. EOS2

| Type                  | Field Arrangement                            | X       | Y        | Mounting height | Luminaire |
|-----------------------|----------------------------------------------|---------|----------|-----------------|-----------|
| 1st luminaire (X/Y/Z) | 2.337 m / 6.624 m / 4.400 m                  | 2.337 m | 6.624 m  | 4.400 m         | 3         |
| X-direction           | 2 pcs., Centre - centre, Distances not equal | 7.657 m | 6.624 m  | 4.400 m         | 4         |
|                       |                                              | 2.337 m | 10.224 m | 4.400 m         | 5         |
| Y-direction           | 3 pcs., Centre - centre, Distances not equal | 7.657 m | 10.224 m | 4.400 m         | 6         |
|                       |                                              | 2.337 m | 13.982 m | 4.400 m         | 7         |
| Arrangement           | A2                                           | 7.657 m | 13.982 m | 4.400 m         | 8         |

Site 1

## Luminaire layout plan



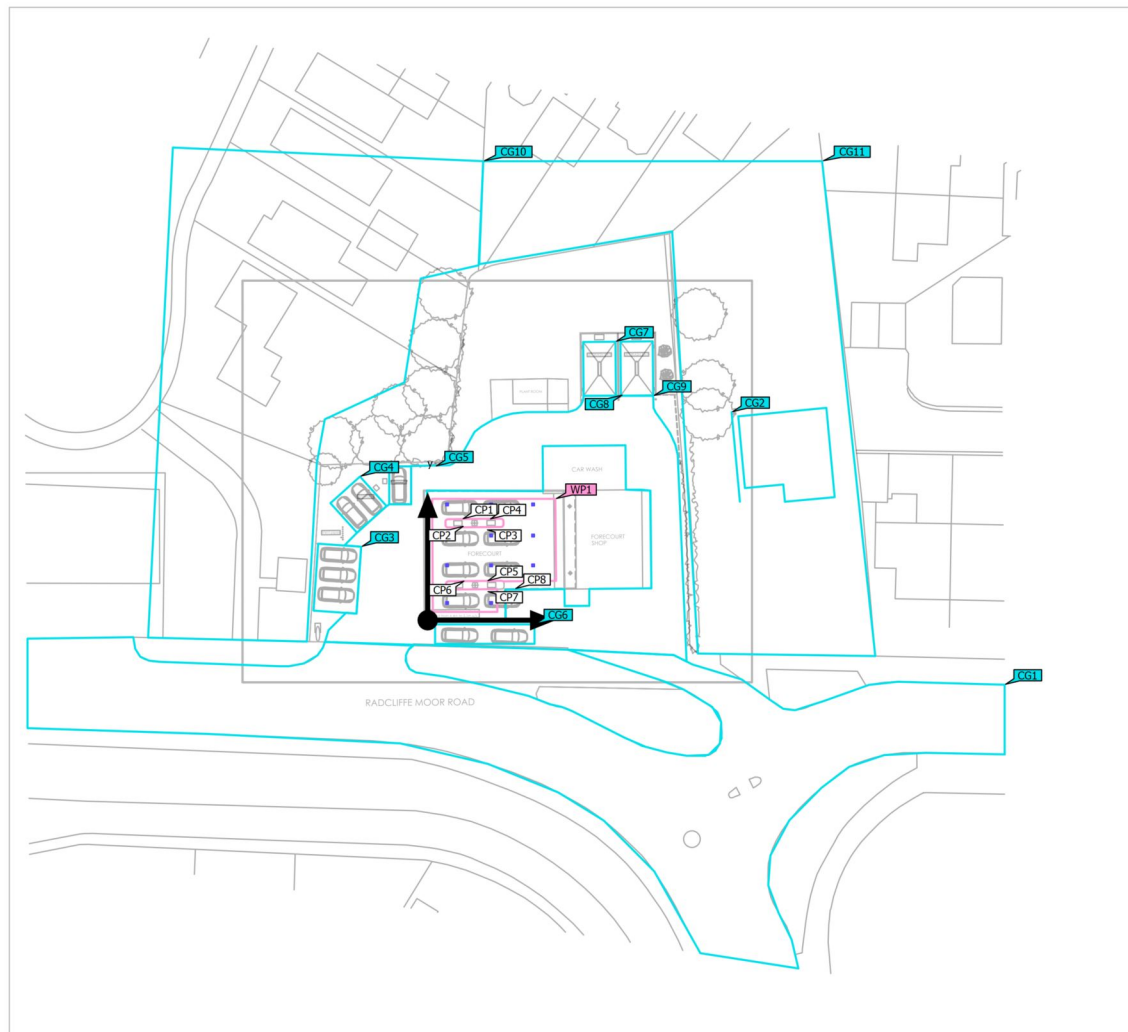
|              |                                                                                                |                           |         |
|--------------|------------------------------------------------------------------------------------------------|---------------------------|---------|
| Manufacturer | Not yet a DIALux member                                                                        | P                         | 79.0 W  |
| Article No.  | #16762 LUCI02-A-MB02-50LED-N0-125W (EOS2,5700K) Rev0                                           | $\Phi_{\text{Luminaire}}$ | 9357 lm |
| Article name | 16762 - Luci Series V2. ASymm. 102W default - 50LEDs. White. Medium Beam. N0 LEDs. 5700K. EOS2 |                           |         |
| Fitting      | 1x 60% (79W)                                                                                   |                           |         |

2 x Not yet a DIALux member 16762 - Luci Series V2. ASymm. 102W default - 50LEDs. White. Medium Beam. N0 LEDs. 5700K. EOS2

| Type                  | Line arrangement                             | X       | Y       | Mounting height | Luminaire |
|-----------------------|----------------------------------------------|---------|---------|-----------------|-----------|
| 1st luminaire (X/Y/Z) | 7.657 m / 2.082 m / 4.400 m                  | 7.657 m | 2.082 m | 4.400 m         | 1         |
| X-direction           | 2 pcs., Centre - centre, Distances not equal | 2.337 m | 2.082 m | 4.400 m         | 2         |
| Arrangement           | A1                                           |         |         |                 |           |

Site 1 (Light scene 1)

## Calculation objects



Site 1 (Light scene 1)

## Calculation objects

Working planes

| Properties                                                                                                 | $\bar{E}$<br>(Target)           | $E_{min}$ | $E_{max}$ | $g_1$ | $g_2$ | Index |
|------------------------------------------------------------------------------------------------------------|---------------------------------|-----------|-----------|-------|-------|-------|
| Working plane (Canopy area)<br>Perpendicular illuminance (adaptive)<br>Height: 0.000 m, Wall zone: 1.000 m | 319 lx<br>( $\geq 300$ lx)<br>✓ | 117 lx    | 462 lx    | 0.37  | 0.25  | WP1   |

Calculation surfaces

| Properties                                                                       | $\bar{E}$ | $E_{min}$ | $E_{max}$ | $g_1$ | $g_2$ | Index |
|----------------------------------------------------------------------------------|-----------|-----------|-----------|-------|-------|-------|
| Spill plot - Radcliffe Moor road<br>Perpendicular illuminance<br>Height: 0.000 m | 0.25 lx   | 0.000 lx  | 4.39 lx   | 0.00  | 0.00  | CG1   |
| Calculation surface 3<br>Perpendicular illuminance<br>Height: 3.300 m            | 0.049 lx  | 0.00 lx   | 0.20 lx   | 0.00  | 0.00  | CG2   |
| Parking area<br>Perpendicular illuminance<br>Height: 0.000 m                     | 2.58 lx   | 1.69 lx   | 5.03 lx   | 0.66  | 0.34  | CG3   |
| Parking area<br>Perpendicular illuminance<br>Height: 0.000 m                     | 5.38 lx   | 2.16 lx   | 16.0 lx   | 0.40  | 0.14  | CG4   |
| Parking area<br>Perpendicular illuminance<br>Height: 0.000 m                     | 37.0 lx   | 18.3 lx   | 78.0 lx   | 0.49  | 0.23  | CG5   |
| Parking area<br>Perpendicular illuminance<br>Height: 0.000 m                     | 23.0 lx   | 9.76 lx   | 41.7 lx   | 0.42  | 0.23  | CG6   |
| Jet wash<br>Perpendicular illuminance<br>Height: 0.000 m                         | 0.063 lx  | 0.012 lx  | 0.33 lx   | 0.19  | 0.036 | CG7   |
| Jet wash<br>Perpendicular illuminance<br>Height: 0.000 m                         | 0.006 lx  | 0.001 lx  | 0.043 lx  | -     | 0.023 | CG8   |
| Main area<br>Perpendicular illuminance<br>Height: 0.000 m                        | 33.8 lx   | 0.002 lx  | 245 lx    | 0.000 | 0.000 | CG9   |

## Site 1 (Light scene 1)

## Calculation objects

|                                                                    |          |         |          |   |      |      |
|--------------------------------------------------------------------|----------|---------|----------|---|------|------|
| Spill plot - left<br>Perpendicular illuminance<br>Height: 0.000 m  | 0.009 lx | 0.00 lx | 0.30 lx  | - | 0.00 | CG10 |
| Spill plot - right<br>Perpendicular illuminance<br>Height: 0.000 m | 0.000 lx | 0.00 lx | 0.003 lx | - | -    | CG11 |

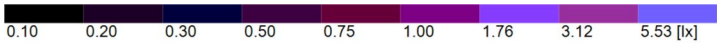
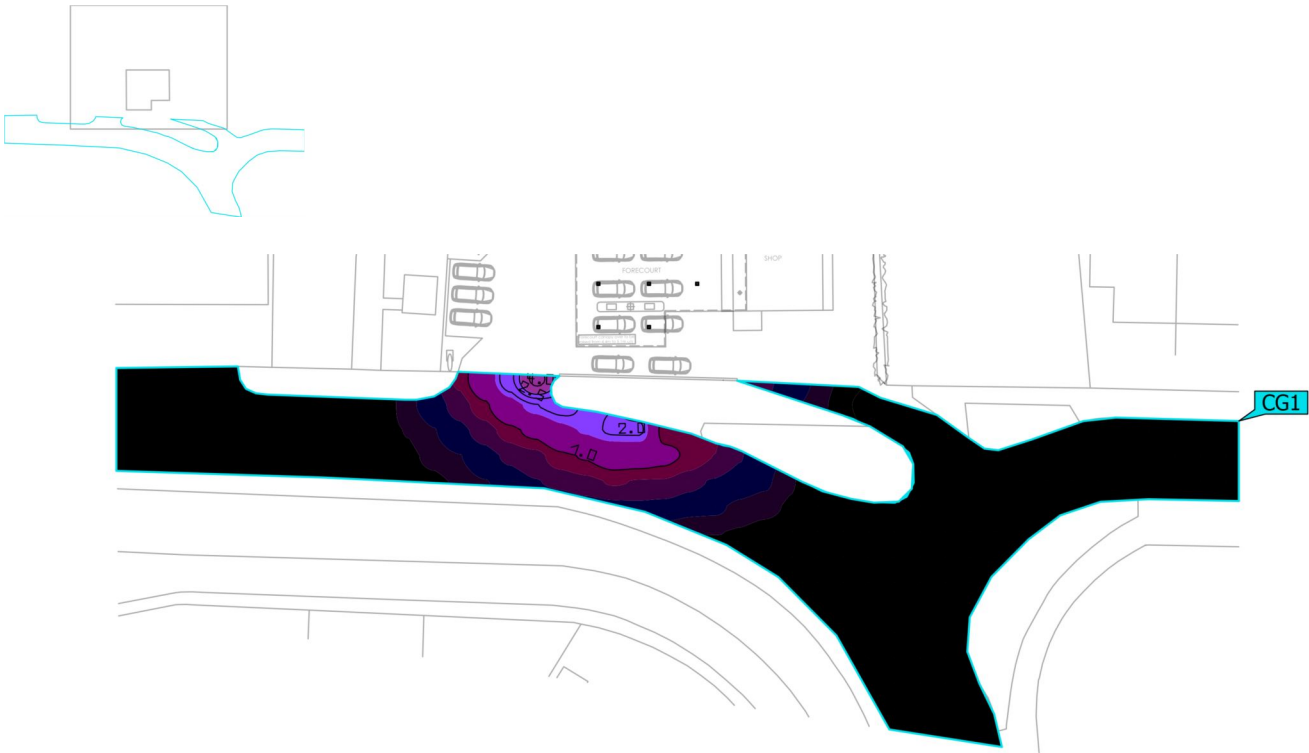
## Calculation points

| Properties                                                          | Calculated | Index |
|---------------------------------------------------------------------|------------|-------|
| Nozzle<br>Vertical illuminance<br>Rotation: 90.1°, Height: 1.500 m  | 161 lx     | CP1   |
| Nozzle<br>Vertical illuminance<br>Rotation: 269.7°, Height: 1.500 m | 194 lx     | CP2   |
| Nozzle<br>Vertical illuminance<br>Rotation: 269.7°, Height: 1.500 m | 213 lx     | CP3   |
| Nozzle<br>Vertical illuminance<br>Rotation: 90.1°, Height: 1.500 m  | 180 lx     | CP4   |
| Nozzle<br>Vertical illuminance<br>Rotation: 90.1°, Height: 1.500 m  | 233 lx     | CP5   |
| Nozzle<br>Vertical illuminance<br>Rotation: 90.1°, Height: 1.500 m  | 214 lx     | CP6   |
| Nozzle<br>Vertical illuminance<br>Rotation: 270.1°, Height: 1.500 m | 225 lx     | CP7   |
| Nozzle<br>Vertical illuminance<br>Rotation: 270.1°, Height: 1.500 m | 199 lx     | CP8   |

Utilisation profile: General circulation areas at outdoor workplaces, Pedestrian passages, vehicle turning, loading and unloading points

Site 1 (Light scene 1)

Spill plot - Radcliffe Moor road



| Properties                                                                       | $\bar{E}$ | $E_{min}$ | $E_{max}$ | $g_1$ | $g_2$ | Index |
|----------------------------------------------------------------------------------|-----------|-----------|-----------|-------|-------|-------|
| Spill plot - Radcliffe Moor road<br>Perpendicular illuminance<br>Height: 0.000 m | 0.25 lx   | 0.000 lx  | 4.39 lx   | 0.00  | 0.00  | CG1   |

Utilisation profile: General circulation areas at outdoor workplaces, Pedestrian passages, vehicle turning, loading and unloading points

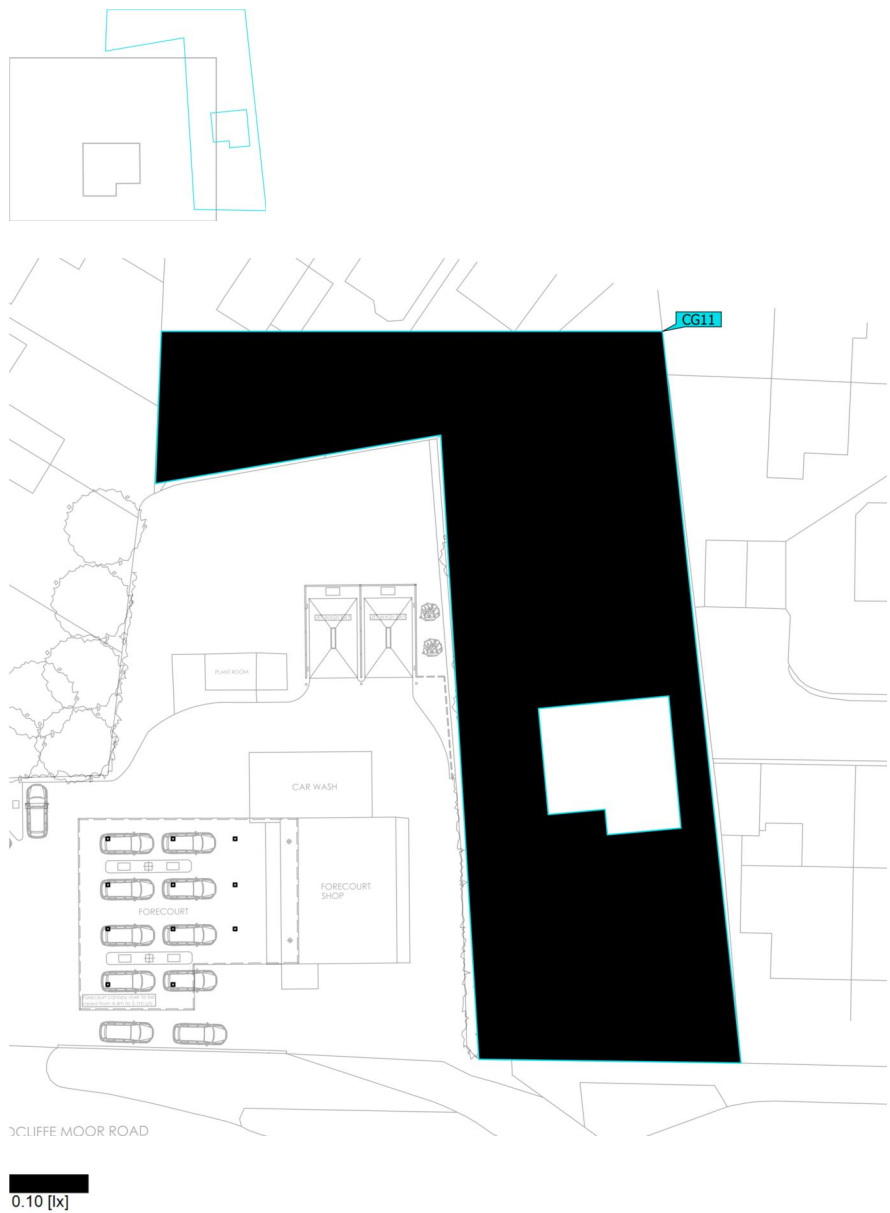
Site 1 (Light scene 1)  
**Spill plot - left**



| Properties                                                        | $\bar{E}$ | $E_{min}$ | $E_{max}$ | $g_1$ | $g_2$ | Index |
|-------------------------------------------------------------------|-----------|-----------|-----------|-------|-------|-------|
| Spill plot - left<br>Perpendicular illuminance<br>Height: 0.000 m | 0.009 lx  | 0.00 lx   | 0.30 lx   | -     | 0.00  | CG10  |

Utilisation profile: General circulation areas at outdoor workplaces, Pedestrian passages, vehicle turning, loading and unloading points

Site 1 (Light scene 1)  
**Spill plot - right**

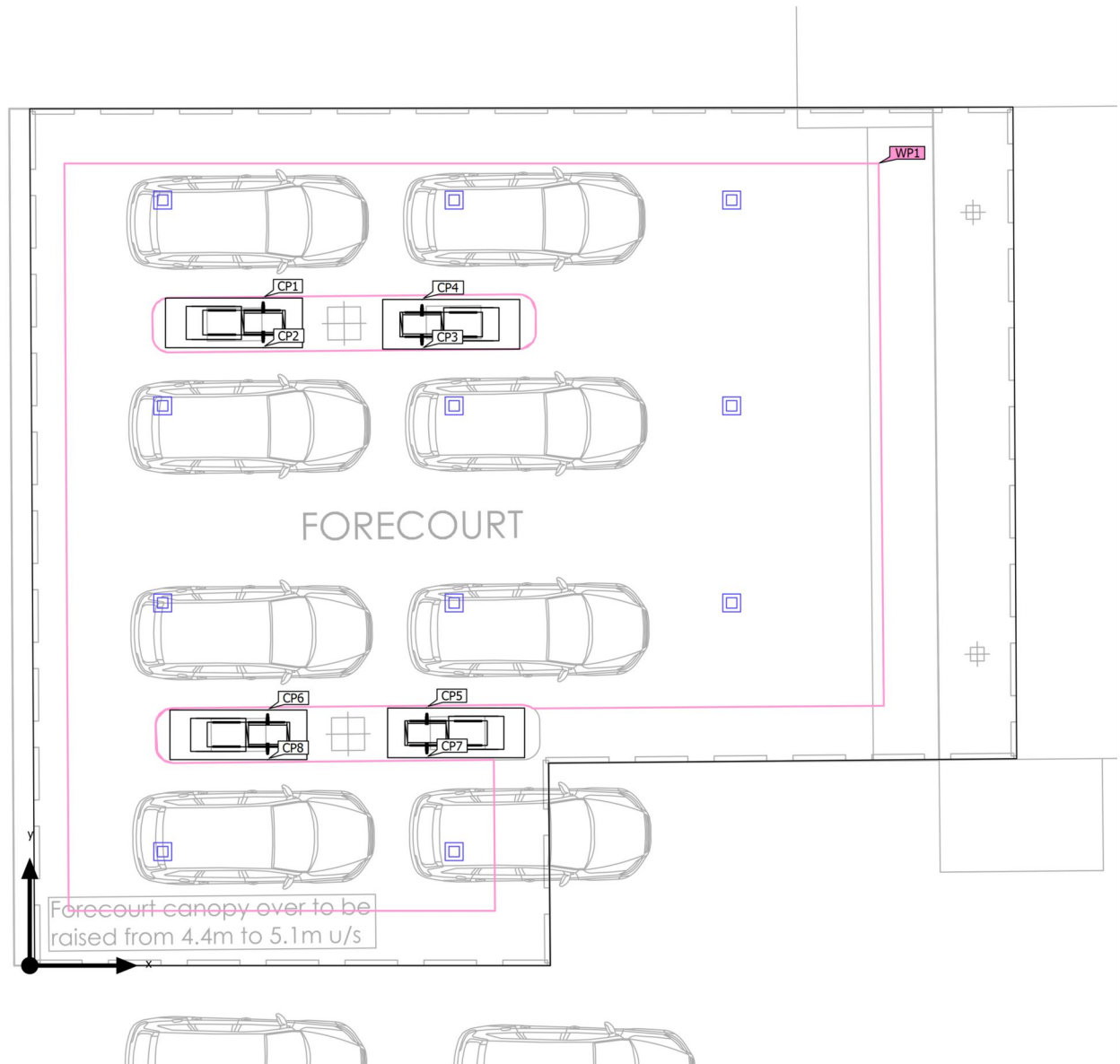


| Properties                                                         | $\bar{E}$ | $E_{min}$ | $E_{max}$ | $g_1$ | $g_2$ | Index |
|--------------------------------------------------------------------|-----------|-----------|-----------|-------|-------|-------|
| Spill plot - right<br>Perpendicular illuminance<br>Height: 0.000 m | 0.000 lx  | 0.00 lx   | 0.003 lx  | -     | -     | CG11  |

Utilisation profile: General circulation areas at outdoor workplaces, Pedestrian passages, vehicle turning, loading and unloading points

Canopy area (Light scene 1)

## Summary



Canopy area (Light scene 1)

## Summary

### Results

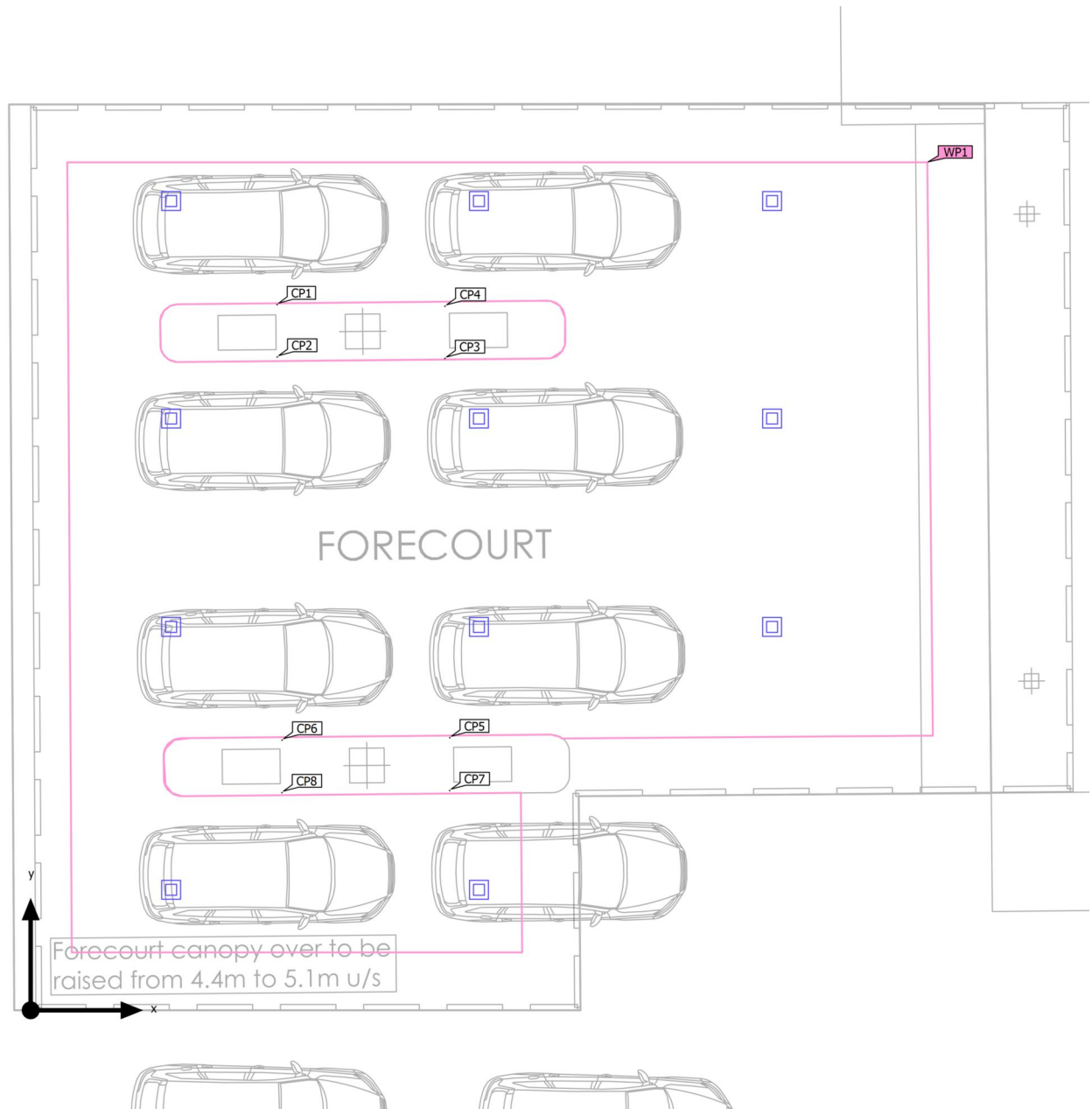
|                    | Symbol                     | Calculated                    | Target          | Check | Index |
|--------------------|----------------------------|-------------------------------|-----------------|-------|-------|
| Working plane      | $E_{\text{perpendicular}}$ | 319 lx                        | $\geq 300$ lx   | ✓     | WP1   |
|                    | $g_1$                      | 0.37                          | -               | -     | WP1   |
|                    | Lighting power density     | 6.08 W/m <sup>2</sup>         | -               | -     |       |
|                    |                            | 1.90 W/m <sup>2</sup> /100 lx | -               | -     |       |
| Consumption values | Consumption                | [8000 - 8700] kWh/a           | max. 8350 kWh/a | ✗     |       |
| Room               | Lighting power density     | 4.18 W/m <sup>2</sup>         | -               | -     |       |
|                    |                            | 1.31 W/m <sup>2</sup> /100 lx | -               | -     |       |

Utilisation profile: Fuel filling stations, Air pressure and water checking points and other service areas

### Luminaire list

| pcs. | Manufacturer            | Article No.                                               | Article name                                                                                   | P       | Φ        | Luminous efficacy |
|------|-------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------|---------|----------|-------------------|
| 3    | Not yet a DIALux member | #16759<br>(Luci02-S-MB01-40LED-N0-93W (EOS2,570 OK) Rev0) | 16759 - Luci Series V2. Symm. 75W default - 40LEDs. White. Medium Beam. N0 LEDs. 5700K. EOS2   | 75.0 W  | 8645 lm  | 115.3 lm/W        |
| 6    | Not yet a DIALux member | #16760<br>LUCI02-S-MB01-50LED-N0-125W (EOS2,570 OK)       | 16760 - Luci Series V2. Symm. 102W default - 50LEDs. White. Medium Beam. N0 LEDs. 5700K. EOS2  | 102.0 W | 11552 lm | 113.3 lm/W        |
| 2    | Not yet a DIALux member | #16762<br>LUCI02-A-MB02-50LED-N0-125W (EOS2,570 OK) Rev0  | 16762 - Luci Series V2. ASymm. 102W default - 50LEDs. White. Medium Beam. N0 LEDs. 5700K. EOS2 | 79.0 W  | 9357 lm  | 118.4 lm/W        |

Canopy area (Light scene 1)

**Calculation objects**

Canopy area (Light scene 1)

## Calculation objects

Working planes

| Properties                                                                                                 | $\bar{E}$<br>(Target)           | $E_{min}$ | $E_{max}$ | $g_1$ | $g_2$ | Index |
|------------------------------------------------------------------------------------------------------------|---------------------------------|-----------|-----------|-------|-------|-------|
| Working plane (Canopy area)<br>Perpendicular illuminance (adaptive)<br>Height: 0.000 m, Wall zone: 1.000 m | 319 lx<br>( $\geq 300$ lx)<br>✓ | 117 lx    | 462 lx    | 0.37  | 0.25  | WP1   |

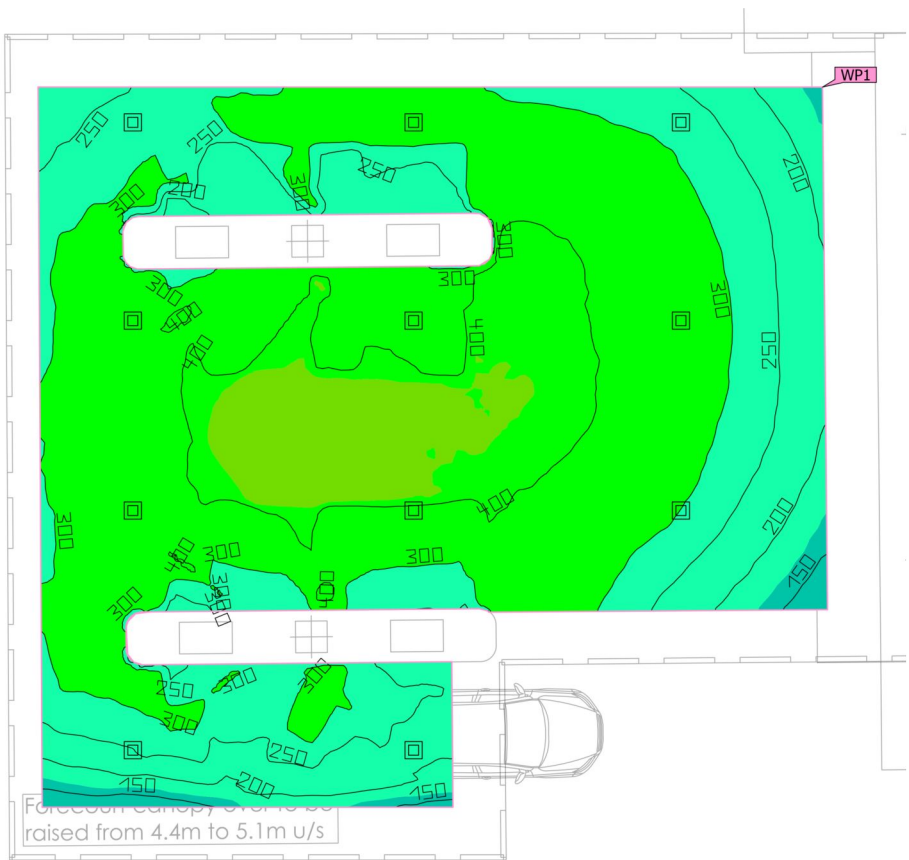
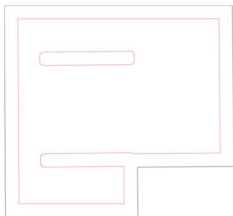
Calculation points

| Properties                                                          | Calculated | Index |
|---------------------------------------------------------------------|------------|-------|
| Nozzle<br>Vertical illuminance<br>Rotation: 90.1°, Height: 1.500 m  | 161 lx     | CP1   |
| Nozzle<br>Vertical illuminance<br>Rotation: 269.7°, Height: 1.500 m | 194 lx     | CP2   |
| Nozzle<br>Vertical illuminance<br>Rotation: 269.7°, Height: 1.500 m | 213 lx     | CP3   |
| Nozzle<br>Vertical illuminance<br>Rotation: 90.1°, Height: 1.500 m  | 180 lx     | CP4   |
| Nozzle<br>Vertical illuminance<br>Rotation: 90.1°, Height: 1.500 m  | 233 lx     | CP5   |
| Nozzle<br>Vertical illuminance<br>Rotation: 90.1°, Height: 1.500 m  | 214 lx     | CP6   |
| Nozzle<br>Vertical illuminance<br>Rotation: 270.1°, Height: 1.500 m | 225 lx     | CP7   |
| Nozzle<br>Vertical illuminance<br>Rotation: 270.1°, Height: 1.500 m | 199 lx     | CP8   |

Utilisation profile: Fuel filling stations, Air pressure and water checking points and other service areas

Canopy area (Light scene 1)

Working plane (Canopy area)



| Properties                                                                                                 | $\bar{E}$<br>(Target)           | $E_{min}$ | $E_{max}$ | $g_1$ | $g_2$ | Index |
|------------------------------------------------------------------------------------------------------------|---------------------------------|-----------|-----------|-------|-------|-------|
| Working plane (Canopy area)<br>Perpendicular illuminance (adaptive)<br>Height: 0.000 m, Wall zone: 1.000 m | 319 lx<br>( $\geq 300$ lx)<br>✓ | 117 lx    | 462 lx    | 0.37  | 0.25  | WP1   |

Utilisation profile: Fuel filling stations, Air pressure and water checking points and other service areas

## Glossary

### A

|   |                                              |
|---|----------------------------------------------|
| A | Formula symbol for a surface in the geometry |
|---|----------------------------------------------|

### 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. |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### C

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CCT | <p>(Engl. correlated colour temperature)</p> <p>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.</p> <p>Allocation of the light colours to the colour temperature ranges acc. to EN 12464-1:</p> <p>Light colour - colour temperature [K]<br/> warm white (ww) &lt; 3,300 K<br/> neutral white (nw) ≥ 3,300 – 5,300 K<br/> daylight white (dw) &gt; 5,300 K</p> |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                  |                                                                                                                                               |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 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). |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CRI | <p>(Engl. colour rendering index)</p> <p>Designation for the colour rendering index of a luminaire or a lamp acc. to DIN 6169: 1976 or CIE 13.3: 1995.</p> <p>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.</p> |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### D

|                 |                                                                                                                                                                                                                                         |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Daylight factor | <p>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.</p> <p>Formula symbol: D (Engl. daylight factor)<br/> Unit: %</p> |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Glossary

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Daylight quotient effective area | A calculation surface within which the daylight quotient is calculated.                                                                                                                                                                                                                                                                                                                                                             |
| <b>E</b>                         |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Eta ( $\eta$ )                   | <p>(light output ratio)</p> <p>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.</p> <p>Unit: %</p>                                                                                                                                                                                                                        |
| <b>G</b>                         |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| $g_1$                            | <p>Often also <math>U_o</math> (Engl. overall uniformity)</p> <p>Designates the overall uniformity of the illuminance on a surface. It is the quotient from <math>E_{min}</math> to <math>\bar{E}</math> and is required, for instance, in standards for illumination of workstations.</p>                                                                                                                                          |
| $g_2$                            | <p>Actually it designates the "non-uniformity" of the illuminance on a surface. It is the quotient of <math>E_{min}</math> to <math>E_{max}</math> and is generally only relevant for certifying the emergency lighting acc. to EN 1838.</p>                                                                                                                                                                                        |
| <b>I</b>                         |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Illuminance                      | <p>Describes the ratio of the luminous flux that strikes a certain surface to the size of this surface (<math>lm/m^2 = lx</math>). 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.</p> <p>Unit: Lux</p> <p>Abbreviation: lx</p> <p>Formula symbol: E</p> |
| 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.                                                                                                                                                        |

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|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Illuminance, vertical | <p>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 <math>E_v</math>.</p>                                                                                                                                                   |
| <hr/>                 |                                                                                                                                                                                                                                                                                                                                                                       |
| L                     |                                                                                                                                                                                                                                                                                                                                                                       |
| LENI                  | <p>(Engl. lighting energy numeric indicator)<br/>Lighting energy numeric indicator acc. to EN 15193</p> <p>Unit: kWh/m<sup>2</sup> year</p>                                                                                                                                                                                                                           |
| <hr/>                 |                                                                                                                                                                                                                                                                                                                                                                       |
| LLMF                  | <p>(Engl. lamp lumen maintenance factor)/acc. to CIE 97: 2005<br/>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).</p> |
| <hr/>                 |                                                                                                                                                                                                                                                                                                                                                                       |
| LMF                   | <p>(Engl. luminaire maintenance factor)/acc. to CIE 97: 2005<br/>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).</p>                                                 |
| <hr/>                 |                                                                                                                                                                                                                                                                                                                                                                       |
| LSF                   | <p>(Engl. lamp survival factor)/acc. to CIE 97: 2005<br/>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).</p>  |
| <hr/>                 |                                                                                                                                                                                                                                                                                                                                                                       |
| Luminance             | <p>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.</p> <p>Unit: Candela per square metre<br/>Abbreviation: cd/m<sup>2</sup><br/>Formula symbol: L</p>               |
| <hr/>                 |                                                                                                                                                                                                                                                                                                                                                                       |
| Luminous efficacy     | <p>Ratio of the emitted luminous flux <math>\Phi</math> [lm] to the absorbed electrical power P [W] Unit: lm/W.</p> <p>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).</p>                                         |
| <hr/>                 |                                                                                                                                                                                                                                                                                                                                                                       |

## Glossary

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| Luminous flux      | <p>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.</p> <p>Unit: Lumen<br/>Abbreviation: lm<br/>Formula symbol: <math>\Phi</math></p>                                                                                                                                                                        |
| Luminous intensity | <p>Describes the intensity of the light in a certain direction (emitter value). The luminous intensity is a matter of the luminous flux <math>\Phi</math> that is emitted in a certain spherical angle <math>\Omega</math>. The radiation characteristics of a light source are presented graphically in a light distribution curve (LDC). The luminous intensity is an SI base unit.</p> <p>Unit: Candela<br/>Abbreviation: cd<br/>Formula symbol: I</p>                                                                                                                                                         |
| M                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Maintenance factor | See MF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| MF                 | <p>(Engl. maintenance factor)/acc. to CIE 97: 2005</p> <p>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.</p> <p>The maintenance factor is taken into account either overall or determined in detail acc. to CIE 97: 2005 by the formula <math>RMF \times LMF \times LLMF \times LSF</math>.</p> |
| P                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| P                  | <p>(Engl. power)<br/>Electric power consumption</p> <p>Unit: watt<br/>Abbreviation: W</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| R                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Reflection factor  | <p>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.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## Glossary

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|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RMF              | (Engl. room maintenance factor)/acc. to CIE 97: 2005<br>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).                              |
| 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.                                                                                                                                      |
| U                |                                                                                                                                                                                                                                                                                                                                               |
| UGR (max)        | (unified glare rating)<br>Measure for the psychological glare effect in interiors.<br>In addition to luminaire luminance, the UGR 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 UGR values for various indoor workplaces. |
| UGR observer     | Calculation point in the room, for the DIALux the UGR 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).                                                                                                                          |
| 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.                                                                                                                                                                           |