MINI LED LINEAR LIGHT APPLICATION IN CORRIDOR CASE STUDY

VISUAL RESULTS OF CASE STUDY

Mini LED Linear light:
16W LED, 1550lm, 4000K, 1200x20x25mm

Corridor view with applying luminaires

Corridor view with light distribution curves

Corridor view with luminance isolines
MINI LED LINEAR LIGHT APPLICATION IN CORRIDOR CASE STUDY

TECHNICAL ANALYSIS OF CORRIDOR CASE STUDY

Mini LED Linear light:
16W LED, 1550lm, 4000K, 1200x20x25mm

Height of room: 2.500 m, Reflection factors: Ceiling 56.1%, Walls 56.1%, Floor 20.2%, Light loss factor: 0.80

Workplane

<table>
<thead>
<tr>
<th>Surface</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Workplane</td>
<td>Perpendicular illuminance [lx]</td>
</tr>
<tr>
<td>Height: 0.800 m, Wall zone: 0.000 m</td>
<td></td>
</tr>
<tr>
<td>Average (Target) Min</td>
<td>Max Min/average Min/max</td>
</tr>
<tr>
<td>264 (±100)</td>
<td>56.9 534 0.22 0.11</td>
</tr>
</tbody>
</table>

No. 1 Quantity 10

16W Mini LED Linear light
Light output ratio: 151.18%
Lamp luminous flux: 1550 lm
Luminaire luminous flux: 2343 lm
Power: 14.6 W
Luminous efficacy: 160.5 lm/W

Colorimetric data
16W Mini LED Linear light:
CCT 4000 K, CRI 80

Total lamp luminous flux: 15500 lm,
Total luminaire luminous flux: 23430 lm, Total Load: 146.0 W,
Luminous efficacy: 160.5 lm/W
Lighting power density: 3.29 W/m² = 1.25 W/m²/100 lx
(Ground area 40.00 m²)
Consumption: 140 kWh/a of maximum 1450 kWh/a
TECHNICAL ANALYSIS OF CORRIDOR CASE STUDY

Mini LED Linear light:
16W LED, 1550lm, 4000K, 1200x20x25mm

Workplane 1 / Perpendicular illuminance (adaptive)

Workplane 1: Perpendicular illuminance (adaptive) (Surface)
Light scenes: 1
Average: 264 lx (Target: ≥ 100 lx), Min: 56.9 lx, Max: 534 lx,
Min/average: 0.22, Min/max: 0.11 Height: 0.800 m, Wall zone: 0.000 m

Isolines [lx]

Scale: 1 : 200

False colors [lx]

Scale: 1 : 200
MINI LED LINEAR LIGHT APPLICATION IN CORRIDOR CASE STUDY

ENERGY CONSUMPTION AND COST ANALYSIS OF CORRIDOR CASE STUDY

**Mini LED Linear light:**
16W LED, 1550lm/W, 4000K, 1200x20x25mm
MINI LED LINEAR LIGHT APPLICATION IN CORRIDOR CASE STUDY

TABLE OF RESULTS FOR CORRIDOR CASE STUDY

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER</td>
<td>16.4 W</td>
</tr>
<tr>
<td>LAMP LUMINOUS FLUX</td>
<td>1550 lm</td>
</tr>
<tr>
<td>LUMINAIRE LUMINOUS FLUX</td>
<td>2343 lm</td>
</tr>
<tr>
<td>LUMINOUS EFFICACY</td>
<td>160.5 lm/W</td>
</tr>
<tr>
<td>LIGHT OUTPUT RATIO</td>
<td>151.18 %</td>
</tr>
<tr>
<td>TOTAL LAMP LUMINOUS FLUX</td>
<td>15500 lm</td>
</tr>
<tr>
<td>TOTAL LUMINAIRE LUMINOUS FLUX</td>
<td>23430 lm</td>
</tr>
<tr>
<td>TOTAL LOAD</td>
<td>146.0 W</td>
</tr>
<tr>
<td>ENERGY CONSUMPTION</td>
<td>140 kWh/a</td>
</tr>
<tr>
<td>COSTS</td>
<td>43 €/a</td>
</tr>
<tr>
<td>LUX MEAN VALUE (TARGET FOR OFFICE=100lx)</td>
<td>264 lx</td>
</tr>
</tbody>
</table>

STUDY CONCLUSION:

This case provides an efficient solution, which leads to low energy consumption and thus low cost at an annual basis.

The Lux requirement for corridor lighting application, is met by exceeding the desired limit of 100lx. In this case study, the light is evenly distributed in the corridor by hidden lighting application and shades and glare are avoided by keeping the lux limit over the 100lx at all points. In general, this requirement is set to ensure a better environment by providing psychological comfort to the occupants.

The LED technology ensures lower consumption in principle, but the technical analysis provided is the clear proof that this case study is leading to a sustainable solution for the investment's finance as well as the environmental impact.

The costs are calculated by considering the operating time to be 2453 hours per annum for daily use and 207 hours per annum for nightly use.