

MINI LED LINEAR LIGHT APPLICATION IN CORRIDOR CASE STUDY

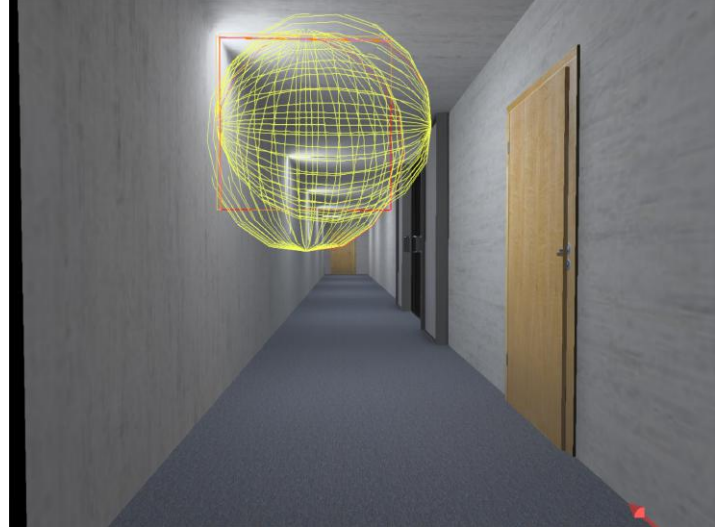
VISUAL RESULTS OF CASE STUDY

Mini LED Linear light:

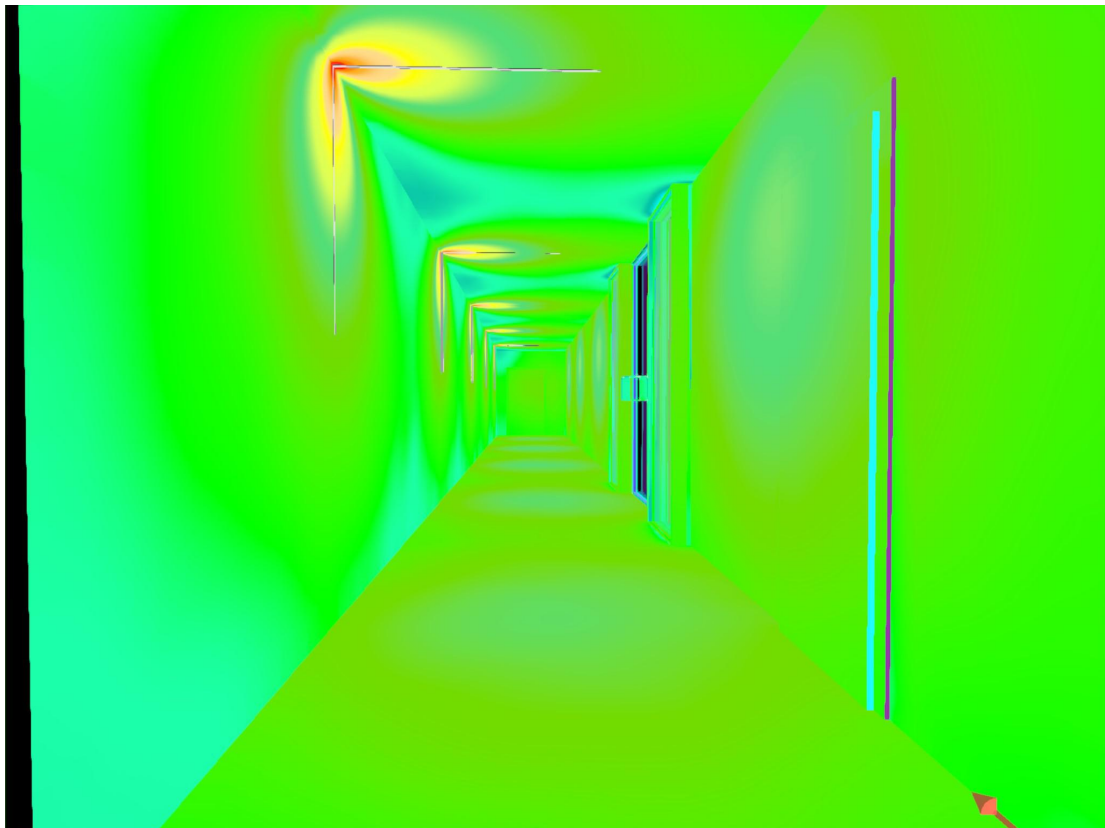
16W LED, 1550lm, 4000K, 1200x20x25mm



Corridor view with applying luminaires



Corridor view with light distribution curves



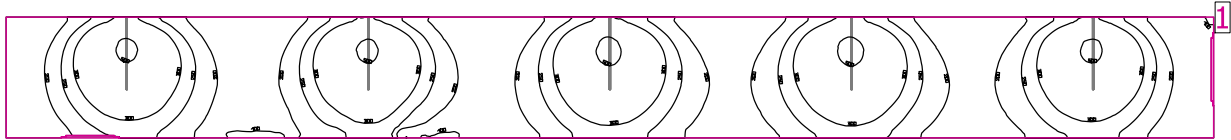
Corridor view with luminance isolines

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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

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

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,

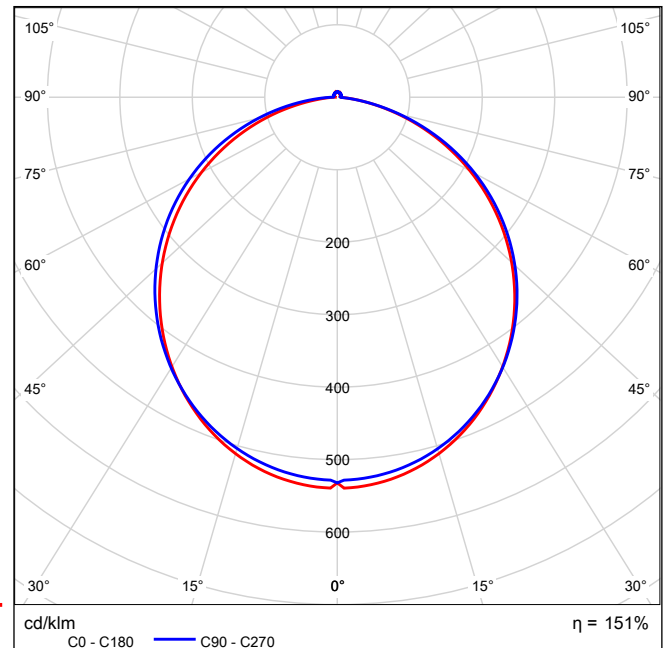
Luminous efficacy: 160.5 lm/W

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

Luminous emittance 1 / Polar LDC



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TECHNICAL ANALYSIS OF CORRIDOR CASE STUDY

Mini LED Linear light:

16W LED, 1550lm, 4000K, 1200x20x25mm

Workplane 1 / Perpendicular illuminance (adaptive)

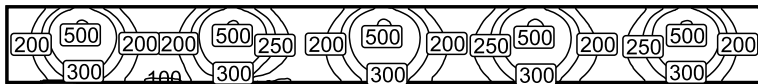


Workplane 1: Perpendicular illuminance (adaptive) (Surface)

Light scenes: 1

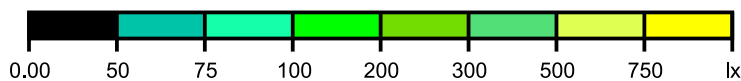
Average: 264 lx (Target: ≥ 100 lx), Min: 56.9 lx, Max: 534 lx,
Min/average: 0.22, Min/max: 0.11 Height: 0.800 m, Wall zone: 0.000 m

Isolines [lx]



Scale: 1 : 200

False colors [lx]



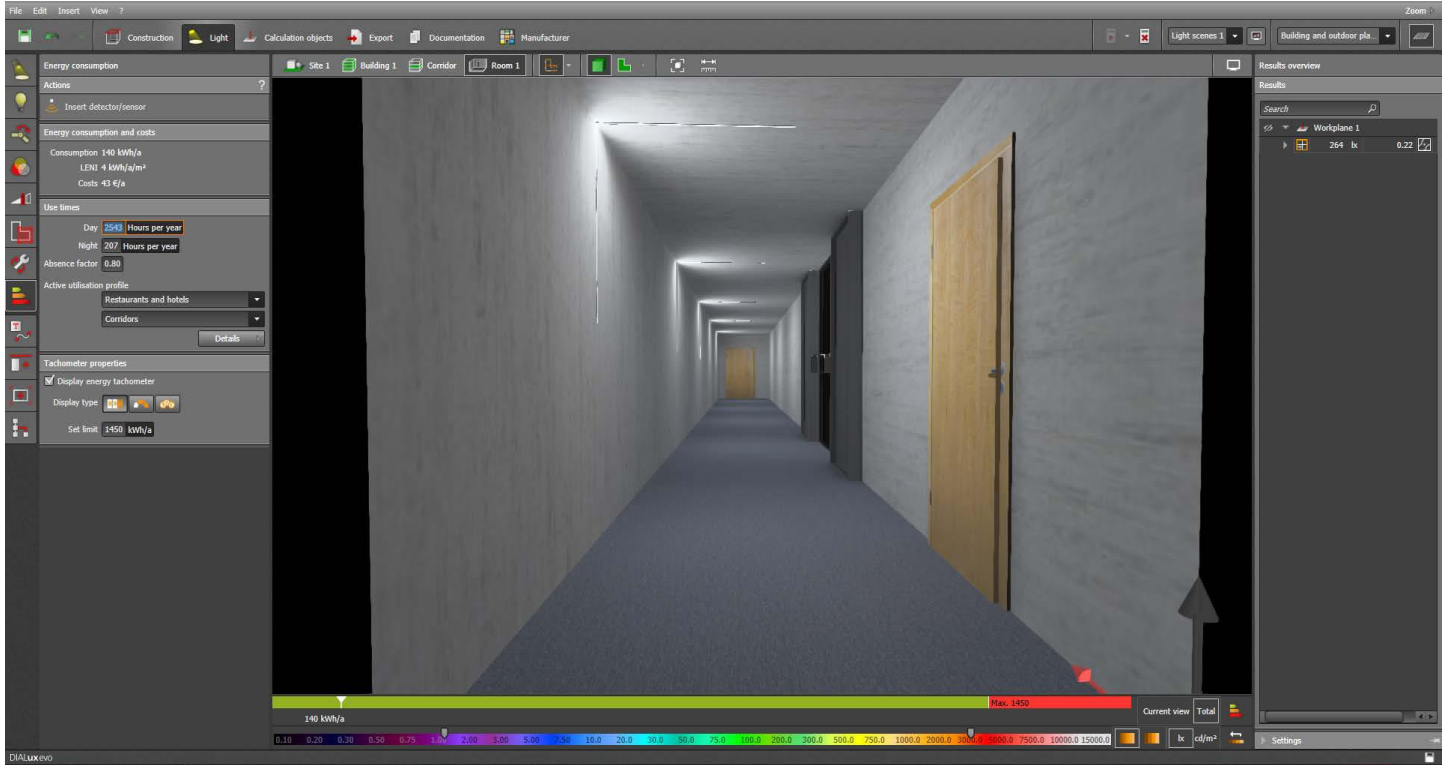
Scale: 1 : 200

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

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

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.