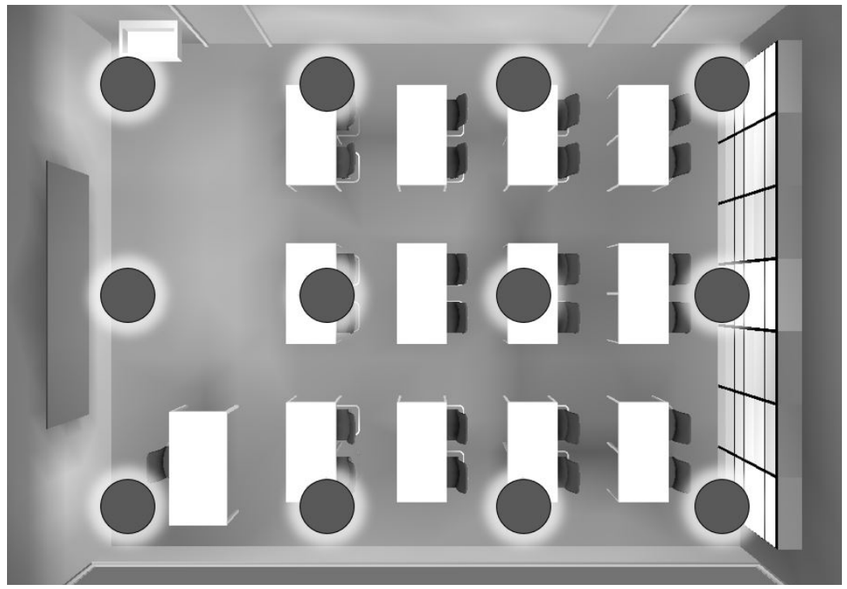
LED-Conversion

In this classroom, the VELA fluorescent lamps were replaced with VELA LED conversion kits. For this purpose, only the inner workings are replaced; the luminaire housing and thus the outer appearance of the lighting system remain unchanged. This results in energy savings of 58 percent.



Example classroom lighting - Room details
Room size: 9.35 × 7.5 m (70.1 m²)
Room height: 3 m

Comparison of lighting systems luminaires

	Old system	New system
		
Operating data	**VELA 650 fluorescent**	**VELA 650 LED conversion**
Luminous flux	5435 lm	5200 lm
Light colour (CRI)	4000 K (CRI 80)	4000 K (CRI 80)
UGR	19.1	18.9
Power consumption	92.4 W	39.1 W
Efficiency	58.8 lm/W	133 lm/W
Control	switchable or DALI	DIM DALI
Dimensions	D 650 mm / H 112 mm	D 650 mm / H 112 mm
Light distribution	direct	direct
Technology	fluorescent	LED
Number of units	12 units	12 units

Comparison of old vs. new lighting system

Operating data	**Old system (fluorescent)** switchable on/off	**New system (LED conversion)**
Average illuminance E_m	778 lx	744 lx
Uniformity U_o	0.82	0.82
Maintenance factor (MF)	0.8	0.8
Total output	**1108.8 W**	**469.2 W**
		58 % Energy savings 3,3 t CO_2 eq yearly*
Output per area		
Non DIM	15.77 W/m²	6.67 W/m²
DIM DALI	10.14 W/m² @ 500 lx	4.49 W/m² @ 500 lx

Advantages of lighting renovation

Low maintenance costs and high service lifespan L90 @ 50,000 h.

Up to 58 % energy/CO_2-savings compared to old systems.
*Assumption: usage period of the lighting installation of 2,000 hours per year.