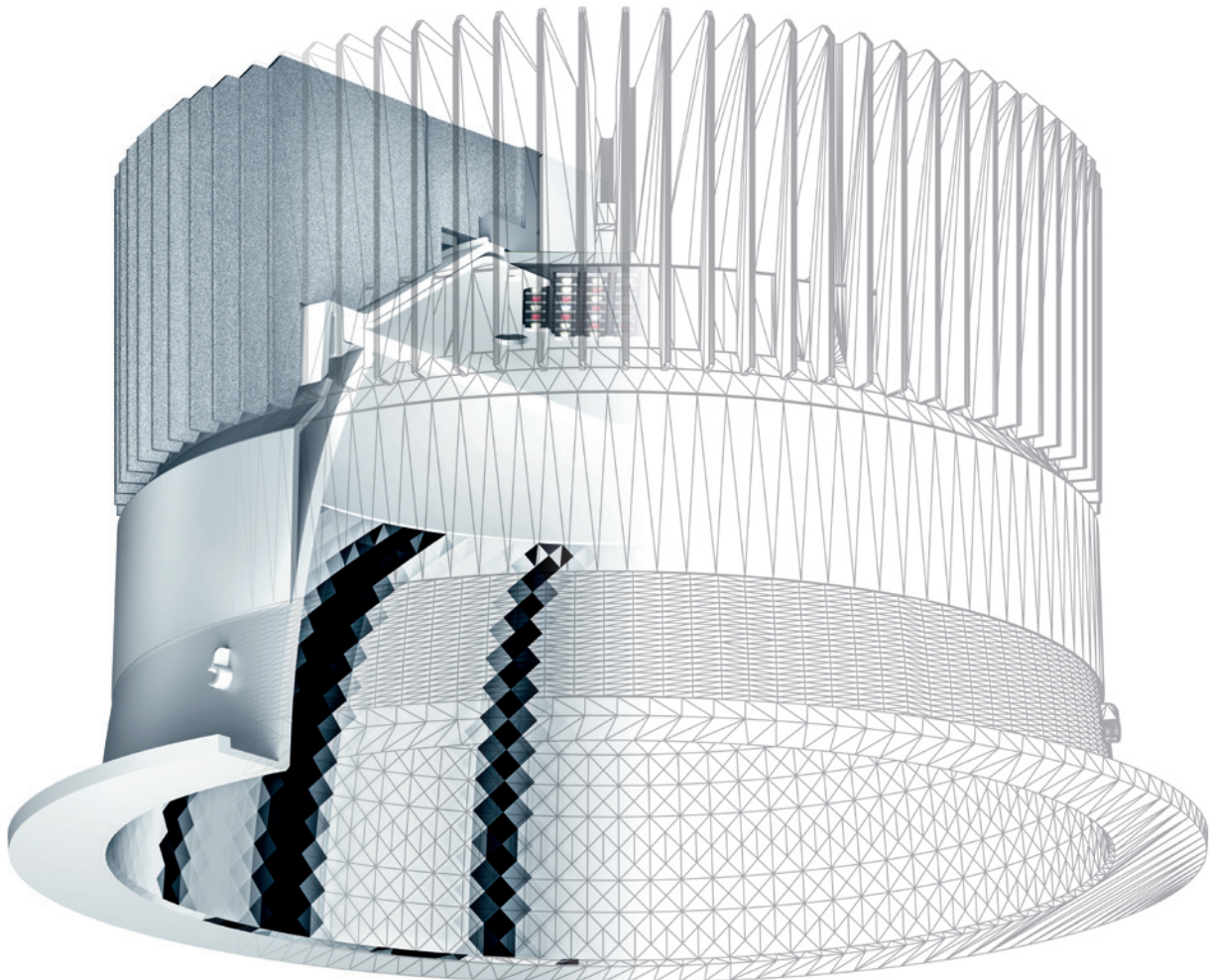
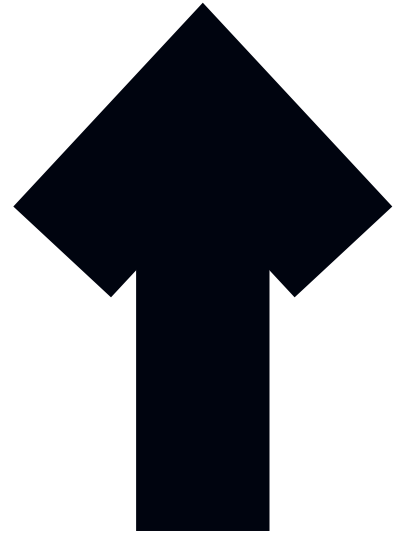


Refurbishment

Use less energy,
get better lighting
quality.

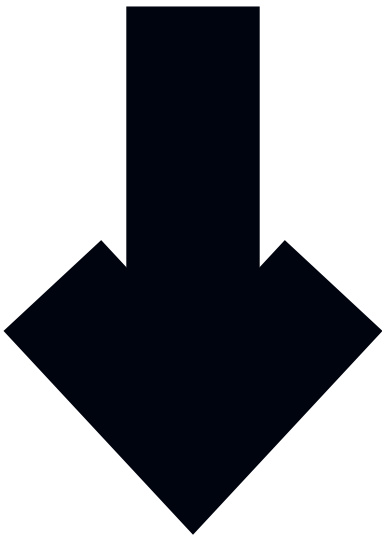


Why bother refurbishing your lighting?



Reduced energy consumption

Up-to-date lighting is a must in the fight to reduce energy consumption and combat the rise in harmful CO₂ emissions. Apart from the improved efficiency of modern light sources, luminaires and ballasts, the fact that luminaires are dimmable offers significant scope for making savings. When modern components are combined with an intelligent control system (e.g. presence detectors, daylight-based control or automatic time switch mechanism), **energy savings of up to 70 %** are possible.

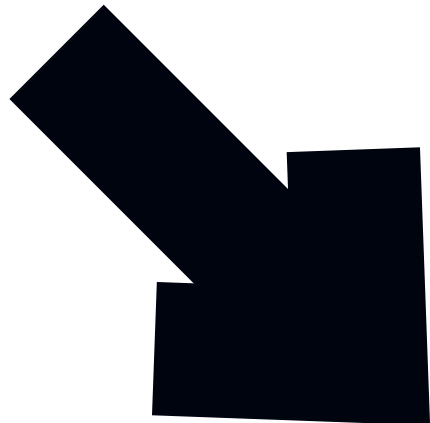


Enhancing lighting quality

Besides boosting efficiency and cutting the costs of a lighting solution, an improved room ambience and working atmosphere are also important decisive factors. Such improvement enables visual activities to be performed better and without distraction, room occupants feel more at ease in a light, friendly environment, and the appearance of the ceiling, and hence the room, becomes more attractive.

Cutting costs

Energy accounts for the bulk of the costs of a lighting installation. Saving energy makes savings where it really counts. Although initial investment costs may be slightly higher, efficient lighting usually has an attractive payback period.



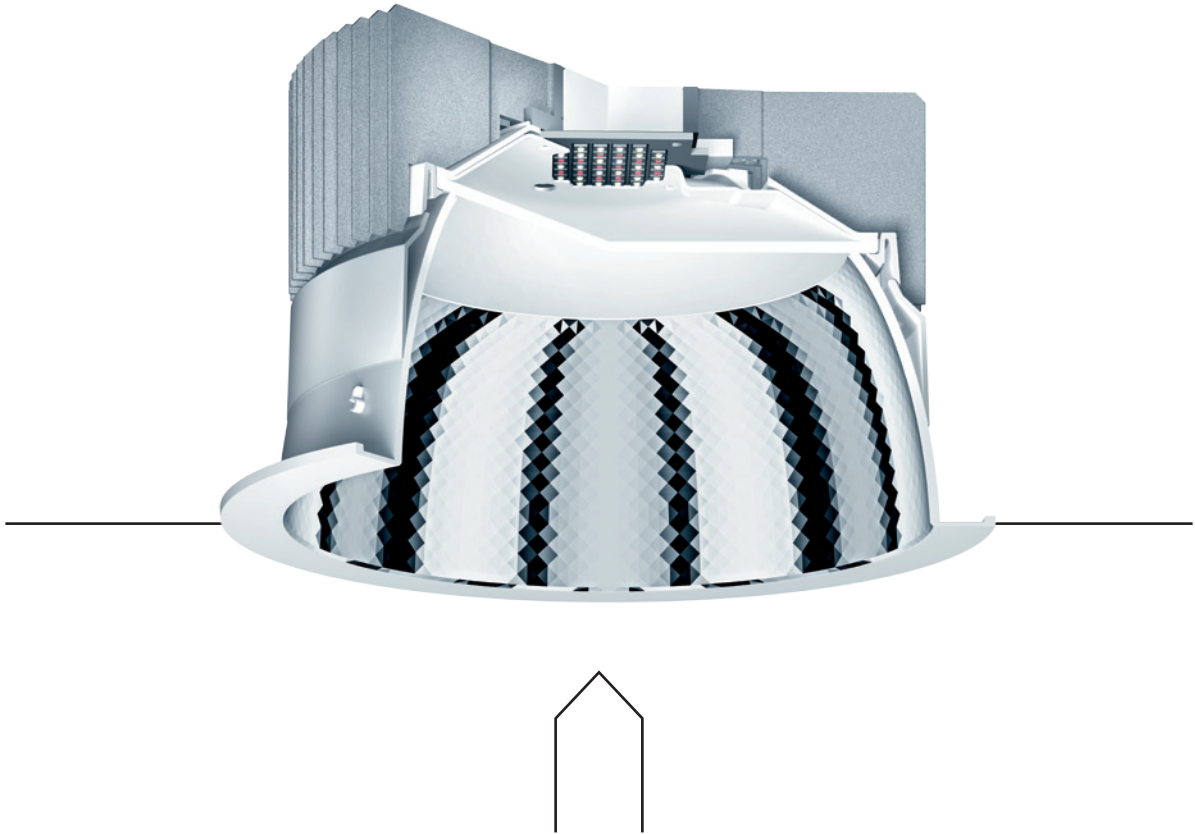
A real mismatch:

yesterday's technology and today's requirements



Ditching obsolete technology

A look at many offices and public buildings makes one thing obvious: many installed lighting solutions are clearly out of date. Buildings come across as dark, dirty and outmoded. Lighting solutions that were once efficient and state-of-the-art have become out of date and quickly turn into real energy-guzzlers. Energy costs soar and operating such an old system becomes barely viable. Obsolete technology eventually has to be replaced by a new, modern lighting solution.



Moving to modern technology

Modern lighting solutions are impressive in several respects: intelligent technology not only saves money, it also produces more light that can be generated and used more efficiently. Electronic ballasts or dimmable ballasts are used rather than conventional ballasts. The latest LED technology, which is energy-efficient and has a long service life, is used instead of halogen lamps. Lighting control cuts energy consumption and brings benefits that impact on both room ambience and users.

Application-oriented solutions:
the efficient way of fulfilling specific visual tasks



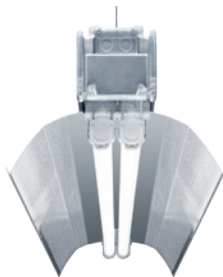
Office refurbishment package
MELLOW LIGHT V

MELLOW LIGHT V is primarily used to illuminate workstations and conference areas. MELLOW LIGHT V is characterised by pleasant light distribution in the room, on walls and ceilings. Optimised efficiency ensures lower energy consumption. MELLOW LIGHT V is the ideal replacement for conventional recessed louvre luminaires which are unable to meet the exacting requirements that are placed on today's task area lighting.



School refurbishment package
ELEEA

ELEEA is impressive in terms of operating efficiency, investment and usability. With its perfect light distribution and high light output ratio levels, ELEEA makes a significant contribution towards lighting quality, comfort, resource conservation and sustainability. This direct/indirect luminaire combines flexible functions and design options with decidedly plain and unpretentious styling, making it the ideal replacement for conventional direct/indirect pendant luminaires.



Shop refurbishment package
TECTON

TECTON is a versatile, economical continuous-row lighting system oriented towards future trends in technology. The use of appropriate optics makes sure that light is directed in a targeted manner, e.g. onto vertical shelf surfaces, without creating glare. TECTON is especially suitable as a replacement for conventional continuous-row systems with open light distribution.

VALUEA is the dimmable power package for industry and commerce: efficient, durable and robust. VALUEA uses modern fluorescent lamps and high-performance reflectors. Compared with metal halide lamps, VALUEA offers huge potential savings in industrial bays and trade fair halls, sports halls, multifunction halls, as well as in new buildings.



Industry refurbishment package
VALUEA

MICROS LED is the little helper in everyday life. Installing these LED downlights is simple and does not require the use of any tools. Whether in hotel rooms, in corridors or where used as accent lights, these downlights replace conventional QR-CBC lamps and save up to 75% of the energy required.



Hotel refurbishment package
MICROS LED

ARCOS LED is a compact spotlight that uses the latest LED technology and has been designed for use in museums. Four different sized ARCOS spotlight models that feature advanced lighting technology and come with a wide variety of accessories are available. The efficiency of this accent lighting LED technology makes it an appropriate alternative to low-voltage systems.



Museum refurbishment package
ARCOS LED

LED-Retrofit, no thanks!

It creates more problems than it solves

Why not simply replace light sources by retrofitting LEDs? Replacing all light sources quickly and easily by LED tubes on a one-for-one basis is a huge temptation. However, currently commercially available models are often unable to cope with the requisite photometric requirements. Not only that, the luminaire is not tested after a LED retrofit and the warranty is therefore void. This poses significant safety risks. Unqualified retrofitting of Zumtobel luminaires is therefore **strongly not recommended**.

Technical safety

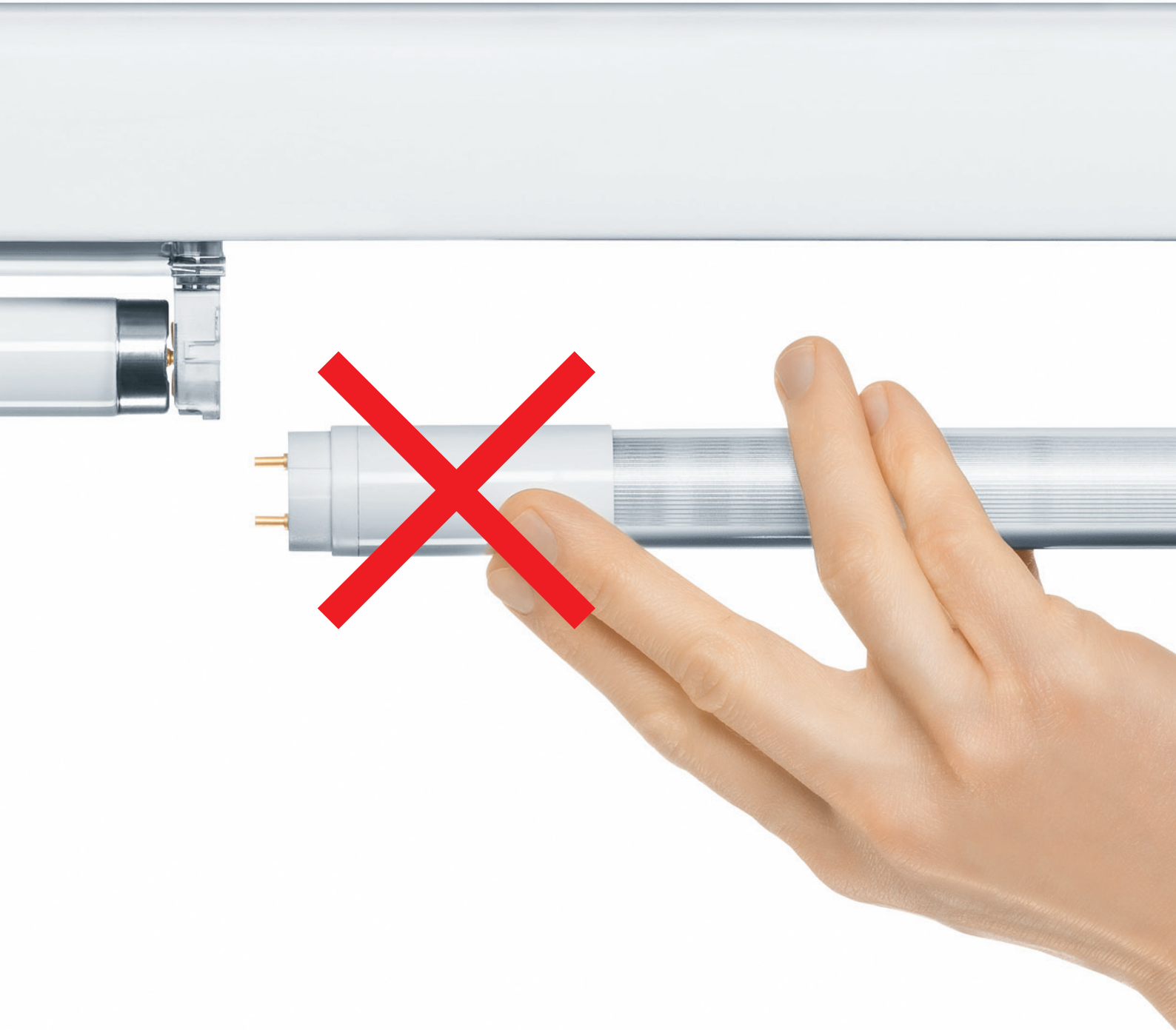
Electrical safety standards are not met. Because the lamp and luminaire are not tested in combination, marks of conformity are no longer valid and the warranty is void. High temperatures shorten the service life of the lamp in the luminaire.

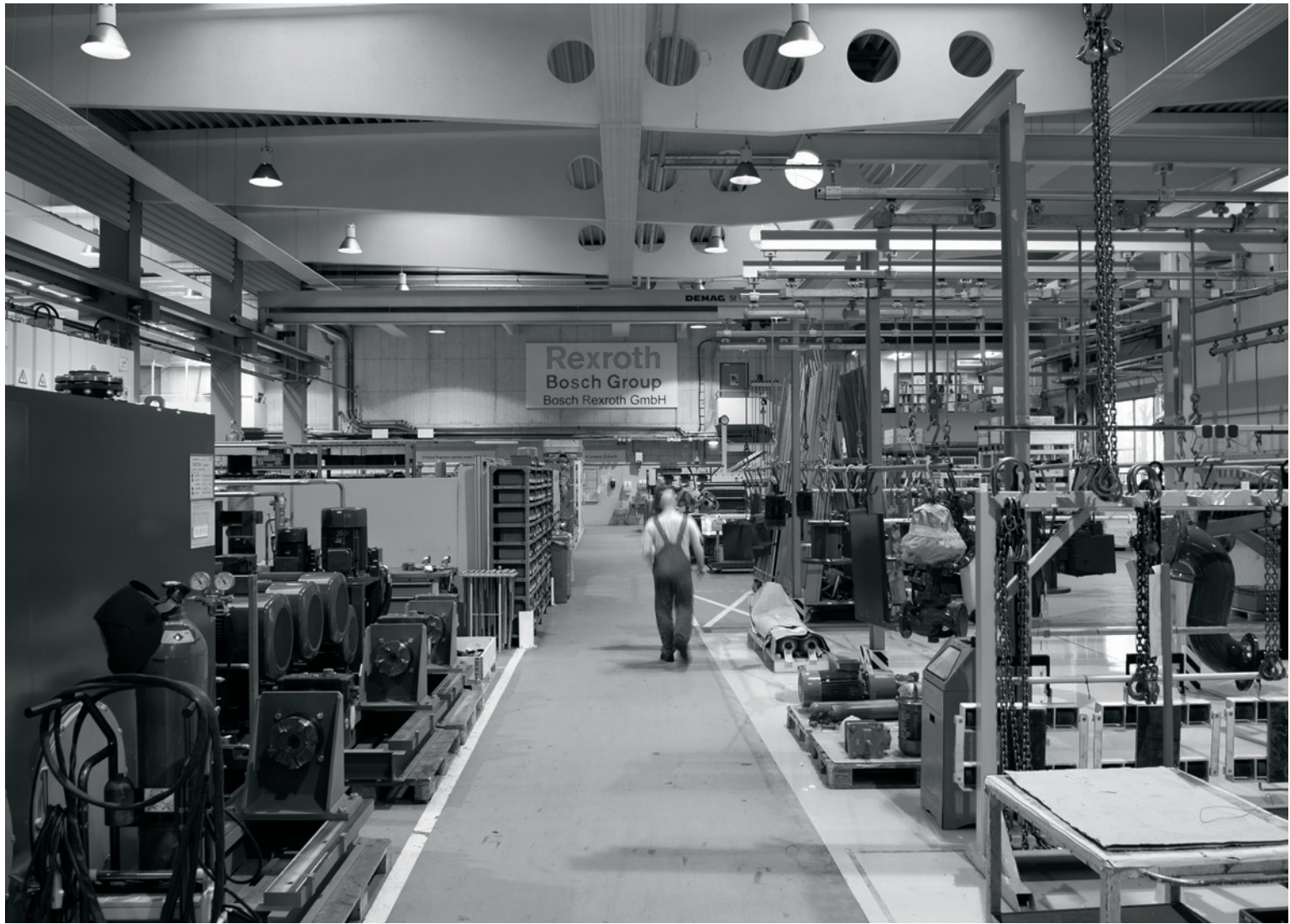
Photometric quality

Because of the different beam pattern, a retrofit LED does not use the reflectors and optics of luminaires properly. The originally intended light distribution is therefore altered. Colour rendering is not always in conformity with relevant standards.

Energy efficiency

Retrofit LEDs have a smaller installed load as well as a significantly lower luminous flux. Retrofit LEDs may even require higher energy consumption to achieve an equivalent lighting level.



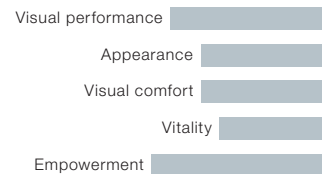


Bosch Rexroth/Linz (A)
 Manufacturing workshop

◀ **BEFORE** 22,27 kWh/m²a

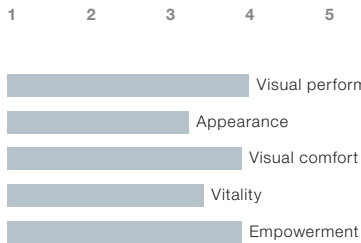
5 4 3 2 1

The objective of upgrading the lighting system in Bosch Rexroth's manufacturing workshop was to maximise energy savings by installing a top-class modern lighting solution capable of meeting today's requirements in terms of quality and controllability. Using the flexible TECTON trunking system for ambient lighting made it possible to improve lighting quality significantly and provide bright, comfortable working conditions. Lighting control makes it possible to use the daylight that shines in through skylights to judiciously supplement artificial light. This saves up to 22,240 kWh of electricity. www.zumtobel.com/tecton





AFTER 13,87 kWh/m²a ▷



Key project facts

Lighting solution: TECTON, LUXMATE LITENET, ONLITE

Specific installed load: 9.77 W/m²

Maintenance value: 500 lx

Initial illuminance: 801 lx

Glare (UGR): < 19

Maintenance cycles: lamp: 7 years

luminaire: 3 years

room: 6 years

Total cost after 20 years: € 282,143

(investment and operating costs)

Operating cost after 20 years: € 210,475

(energy and maintenance)

Energy-saving provided by daylight-based lighting control: 45 %



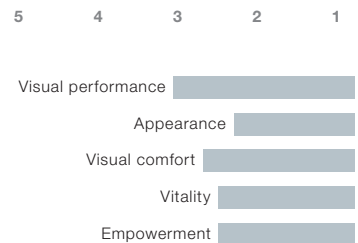
TGM/Vienna (A)

Classroom

◀ BEFORE 41,50 kWh/m²a

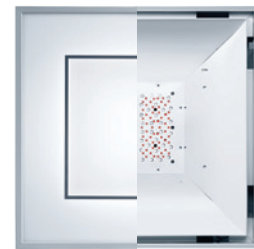
When upgrading the lighting in a teaching area, such as in the case of the TGM project in Vienna, apart from improved energy efficiency, the main priority is to create a pleasant room ambience that aids concentration and ensures undisturbed study. The wide-area CAREENA microprismatic LED luminaire was used to provide glare-free uniform illumination with a bright ceiling look that mimics natural light from above. The rows of luminaires are arranged parallel to the window frontage and can each be switched as a group. An additional look-out sensor installed in the room makes it possible to automatically control the luminaire groups depending on the amount of incident daylight. A CIRCLE control point at the entrance to the room is used to call up a daylight-based scene and other lighting scenes.

www.zumtobel.com/careena

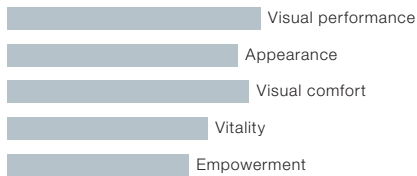




AFTER 9,76 kWh/m²a ▷



1 2 3 4 5



Key project facts

Lighting solution: CAREENA recessed 52 W,

LUXMATE DIMLITE

Specific installed load: 8.72 W/m²

Maintenance value: 500 lx

Initial illuminance: 757 lx

Glare (UGR): < 16

Maintenance cycles: lamp: 21 years

luminaire: 3 years

room: 6 years

Total cost after 15 years: € 8,376

(investment and operating costs)

Operating cost after 15 years: € 2,370

(energy and maintenance)

Energy-saving provided by daylight-based lighting control and LED lighting: 75 %



Caritas Socialis (A)

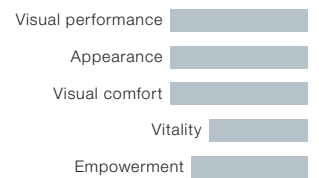
Geriatric care

◀ BEFORE 54,62 kWh/m²a

The overriding objective when renovating the lighting solution for the corridor in this care home was to improve lighting quality. The task of the new lighting was to illuminate the corridor uniformly, making it more friendly, so that residents could find their way around easily without falling and be more inclined to leave their rooms.

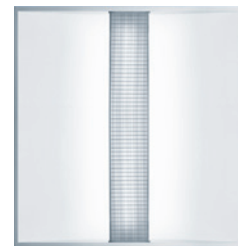
www.zumtobel.com/ml

5 4 3 2 1

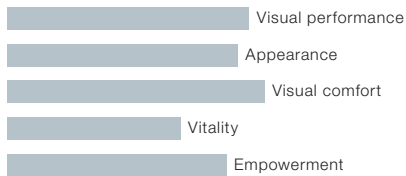




AFTER 49,08 kWh/m²a ▷



1 2 3 4 5



Key project facts

Lighting solution: MELLOW LIGHT IV, COMSIGN
Specific installed load: 14.16 W/m ²
Maintenance value: 300 lx
Initial illuminance: 313 lx
Glare (UGR): < 19
Maintenance cycles: lamp: 2 years luminaire: 1 year room: 5 years
Total cost after 15 years: € 12,636 (investment and operating costs)
Operating cost after 15 years: € 11,149 (energy and maintenance)
Energy saving provided by new lighting: 10 %



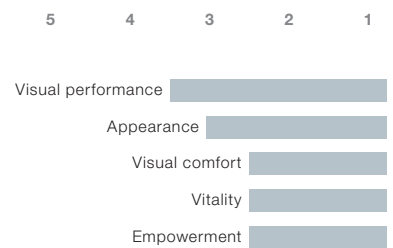
Multipurpose hall / Fehraltorf (CH)

Corridor

◀ BEFORE 46,13 kWh/m²a

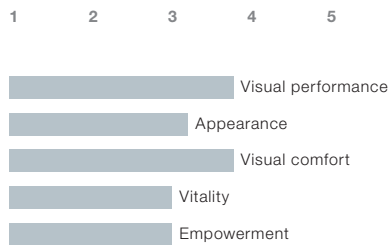
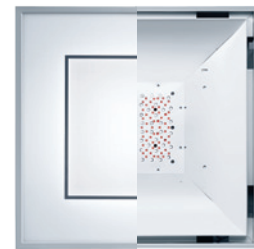
The new lighting for the corridors in the multipurpose hall in Fehraltorf was primarily designed to ensure improved lighting quality, lower energy consumption, less maintenance, integration into the ceiling structure and safety. Besides embodying the very latest LED technology, the new lighting solution, which uses CAREENA surface-mounted luminaires, produces an indirect component that brightens up the ceiling. This boosts efficiency considerably and also improves lighting quality.

www.zumtobel.com/careena





AFTER 27,46 kWh/m²a ▷



Key project facts

Lighting solution: CAREENA surface mounted 52 W LED, RESCLITE

Specific installed load: 5.33 W/m2

Maintenance value: 200 lx

Initial illuminance: 299 lx

Glare (UGR): < 16

Maintenance cycles: lamp: 16 years
 luminaire: 2 years
 room: 5 years

Total cost after 15 years: € 11,879
 (investment and operating costs)

Operating cost after 15 years: € 7,867
 (energy and maintenance)

Energy saving provided by new lighting: 40 %



Ramada Hotel (D)

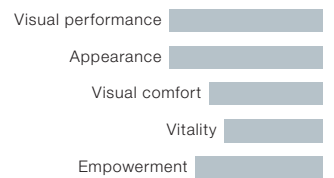
Corridor

◀ BEFORE 19,60 kWh/m²a

Corridor lighting in the Ramada hotel was not only made significantly more efficient, visual comfort and ease of orientation were also improved considerably. Micros downlights were used alongside the general lighting to make it easier to locate doors and keyholes. Significant energy savings were obtained in comparison with lighting using QR-CBC lamps thanks to the LED lighting's smaller installed load.

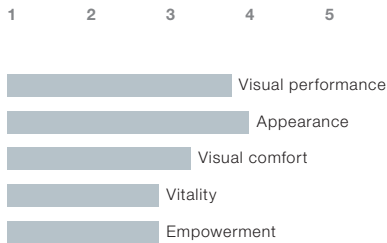
www.zumtobel.com/micros

5 4 3 2 1





AFTER 10,90 kWh/m²a ▷



Key project facts

Lighting solution: MICROS LED, PANOS INFINITY
Specific installed load: 3.23 W/m ²
Maintenance value: 100 lx
Initial illuminance: 115 lx
Glare (UGR): < 22
Maintenance cycles: lamp: 16 years luminaire: 2 years room: 5 years
Total cost after 15 years: € 4,995 (investment and operating costs)
Operating cost after 15 years: € 3,961 (energy and maintenance)
Energy saving provided by new lighting: 45 %



Vienna Museum of Technology (A)

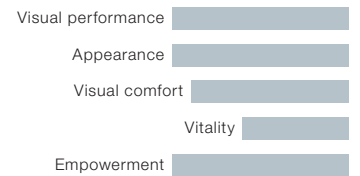
Exhibition

◀ BEFORE 24,78 kWh/m²a

The lighting system in the Museum of Technology was upgraded as part of a project called "Light & Climate". The museum's installed load has been reduced by 70 % due to renovation. Besides installing indirect lighting intended to produce a room ambience similar to daylight, the direct accent lighting was also upgraded. ARCOS 20 W or 30 W spotlights are now used instead of 100 W halogen spotlights to illuminate art objects selectively.

www.zumtobel.com/arcos

5 4 3 2 1

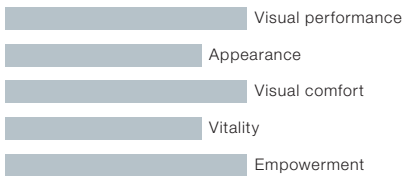




AFTER 7,57 kWh/m²a ▷



1 2 3 4 5



Key project facts

Lighting solution: ARCOS HIT, indirect lighting

Specific installed load: 2.24 W/m²

Maintenance value: 50 lx

Initial illuminance: 74 lx

Maintenance cycles: lamp: 3 years

luminaire: 2 years

room: 5 years

Total cost after 15 years: € 6,405

(investment and operating costs)

Operating cost after 15 years: € 4,531

(energy and maintenance)

Energy saving provided by new lighting: 70 %

QUICKCHECK



zumtobel.com/refurbishment

How big are the potential energy savings provided by your lighting system?

Make things clear by doing this Quick Check

Schnittkante

United Kingdom

Zumtobel Lighting Ltd.
Unit 4 - The Argent Centre,
Pump Lane
Hayes/Middlesex UB3 3BL
T +44/(0)20 8589 1800
F +44/(0)20 8756 4800
M uksales@zumtobel.com
www.zumtobel.co.uk

USA and Canada

Zumtobel Lighting Inc.
Location Highland
3300 Route 9W
Highland, New York 1258-2630
T +1/(0)845/691 62 62
F +1/(0)845/691 62 89
www.zumtobel.us
www.zumtobel.ca

Australia and New Zealand

Zumtobel Lighting Pty Ltd
333 Pacific Highway
North Sydney, NSW 2060
T +61/(2)8913 5000
F +61/(2)8913 5001
M info@zumtobel.com.au
www.zumtobel.com.au

China

Zumtobel Lighting China
Shanghai office
Room 101,
No 192 YIHONG Technology Park
Tianlin Road,
Xuhui District
Shanghai City, 200233,
P.R. China
T +86/(21) 6375 6262
F +86/(21) 6375 6285
M sales.cn@zumtobel.com

Hong Kong

Zumtobel Lighting Hong Kong
Unit 319, Level 43,
Tower 1, Metroplaza,
223 Hing Fong Road,
Kwai Chung, N.T.
T +852/(0)2503 0466
F +852/(0)2503 0177
M admin@zumtobel.com.hk

India

Zumtobel Lighting GmbH
Branch Office India
S-605, Manipal Centre
Dickenson Road
560042 Bangalore
M Enquiries.india@zumtobel.com

United Arab Emirates

Zumtobel Lighting GmbH (Branch)
Dubai Airport Free Zone,
Building 6W, B Block, 233
PO Box 54302
Dubai
T +971/(0)4 299 3530
F +971/(0)4 299 3531
M info@zumtobeluae.ae

Hungary

Zumtobel Lighting Kft
Lomb u. 15.
1139 Budapest
T +36/(1) 35 00 828
F +36/(1) 35 00 829
M office.hu@zumtobel.com
www.zumtobel.hu

Croatia, Serbia,

Bosnia and Herzegovina
Zumtobel Licht d.o.o.
Radnička cesta 80 – Zagrebtower
10000 Zagreb
T +385/(1) 64 04 080
F +385/(1) 64 04 090
M hrvatska@zumtobel.com
M srbija@zumtobel.com
www.zumtobel.hr

Czech Republic and Slovak Republic

Zumtobel Lighting s.r.o.
Jankovcova 2
Praha 7
170 00 Praha
T +420/(2) 66 782 200
F +420/(2) 66 782 201
M praha@zumtobel.com
www.zumtobel.cz

Poland

Zumtobel Licht GmbH Sp.z.o.o.
Przedstawicielstwo w Polsce
ul. Narbutta 46/48
02-541 Warszawa
T +48/(22) 856 7431
F +48/(22) 856 7432
www.zumtobel.pl

Slovenia

Zumtobel Licht d.o.o.
Štukljeva cesta 46
1000 Ljubljana
T +386/(1) 5609 820
F +386/(1) 5609 866
M slovenija@zumtobel.com
www.zumtobel.si

Russia

Zumtobel Lighting GmbH
Official Representative Office
Skakovaya Str. 17
Bld. No 1, Office 1104
125040 Moscow
T +7/(495) 945 36 33
F +7/(495) 945 16 94
www.zumtobel.ru

Norway

Zumtobel Belysning
Pilestredet 75 C
0354 Oslo
Postbox 5829 Majorstuen
0308 Oslo
T +47 22 46 85 00
F +47 22 46 85 02
M firmapost@zumtobel.com
www.zumtobel.com

Sweden

Zumtobel Belysning
Birger Jarlgatan 57
113 56 Stockholm
T +46 8 26 26 50
F +46 8 26 26 05
M info.se@zumtobel.com
www.zumtobel.se

Denmark

Light Makers AS
Indiavej 1
2100 København/Copenhagen
T +45 35 43 70 00
F +45 35 43 54 54
M lmsales@lightmakers.dk
www.lightmakers.dk

Headquarters

Zumtobel Lighting GmbH
Schweizer Strasse 30
Postfach 72
6851 Dornbirn, AUSTRIA
T +43/(0)5572/390-0
F +43/(0)5572/22 826

Zumtobel Licht GmbH
Grevenmarschstrasse 74-78
32657 Lemgo, GERMANY
T +49/(0)5261 212-0
F +49/(0)5261 212-7777
www.zumtobel.de

www.zumtobel.com



Top quality – with a five-year guarantee.

As a globally leading luminaire manufacturer, Zumtobel provides a five-year guarantee for its complete product range with effect from 1 April 2010.

zumtobel.com/guarantee

Art.-Nr. 04 924 193-UK 05/11

© Zumtobel Lighting GmbH

Technical data was correct at time of going to press. We reserve the right to make technical changes without notice. Please contact your local sales office for further information. For the sake of the environment: Luxo Light is chlorine-free paper from sustainably managed forests and certified sources.





ZUMTOBEL

Refurbishment

Use less energy,
get better lighting
quality.