

LIGHTPOINT.

An ETAP publication | 2005-2



Ecole Im Gehr, Bascharage - Luxembourg

K1: emergency lighting
for any application

U5: fewer luminaires,
more comfort and
more flexibility

Dossier:
R4 in schools



ETAP
lighting

K1 – Elegant emergency lighting



New products

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Reynaers, Duffel – Belgium

Full range

K1 is a full range of luminaires with various light sources and extensive mounting options. The luminaires can be mounted on the wall or ceiling, square to the wall, suspended, with single or double-sided signage, as escape route or anti-panic lighting. The comprehensive line allows you to use the same style of emergency lighting throughout the entire building. K1 has optional decorative end pieces for adding an extra accent. All luminaires come with a new automatic self-test: European Safety Test EST, conforms to the installation regulations EN 50172. Non-maintained versions can be fitted with compact NiMH batteries.

for any application

Sophisticated photometry

The sophisticated optics allow K1 to meet safety standards in emergency situations with a minimum of luminaires.

Lighting: wide-angle distribution

Anti-panic and escape route lighting calls for wide-angle distribution. The Fresnel lens has been specially designed for this purpose. If you mount your luminaires at a height of 2.80 m, they can be spaced as far as 13 m apart: your escape route will still have an illuminance of 1 lux. For anti-panic lighting, you only need one luminaire to provide a 10 x 11 m area with 0.5 lux.

In smaller rooms or in the case of wall mounting, wide-angle distribution is not required. Here you can choose a luminaire with a diffuse lighting cover. The extra opal foil produces an even more solid appearance with no lamp outline.

Signage: perfect illumination

The K1 line includes luminaires for single- and double-sided signage, in maintained and non-maintained.

Single sided signage: easy-to-exchange foil with pictogram

The pictogram is printed on a rigid foil and located behind the uniformly textured cover. As such it can be easily installed and exchanged. The matte outer surface prevents reflections, so that the pictogram is well illuminated and most easily seen.

Double-sided signage: special Fresnel lens

The pictogram is screenprinted on a plexiglass plate suspended under the light cover. A special Fresnel lens ensures a uniformly and brightly illuminated pictogram. At a suspension height of 2.80 m an illuminance of 5 lux is still available on the floor.



K1, ideally suited for any application

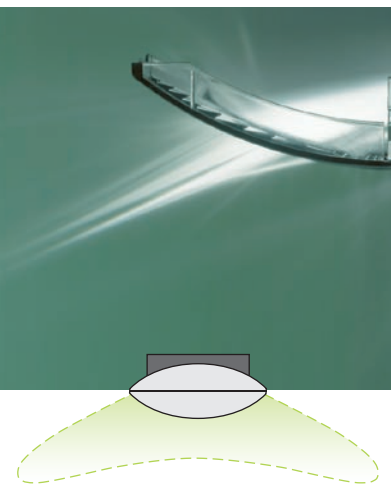
Installation friendly

The K1 has been designed to reduce installation costs. First you fit the mounting plate and then you snap the K1 onto it without using tools and without opening the luminaire. This saves up to 20 % of installation time. The unique adjustment system of K1 eliminates irregularities on the wall surface, resulting in a perfectly positioned luminaire.

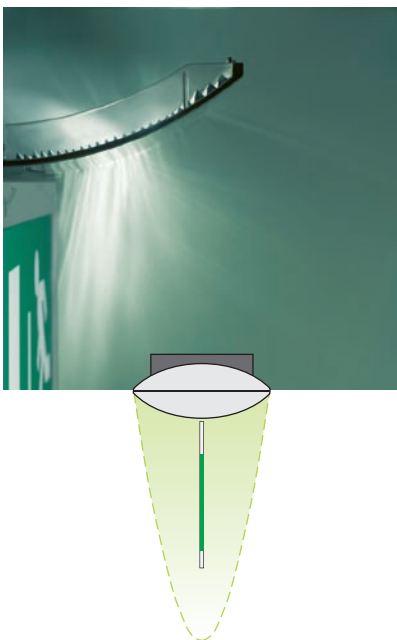
Strengths of K1

The comprehensive range of K1 combines security with all the strengths of ETAP's emergency lighting: reliable, elegant, durable and with exceptional optics. In addition, the extreme ease of installation will save you considerable time.

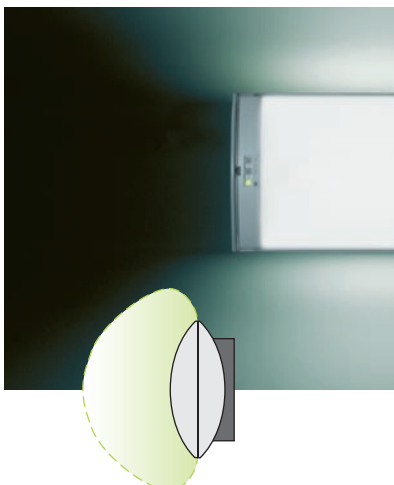
Wide-angle Fresnel lens



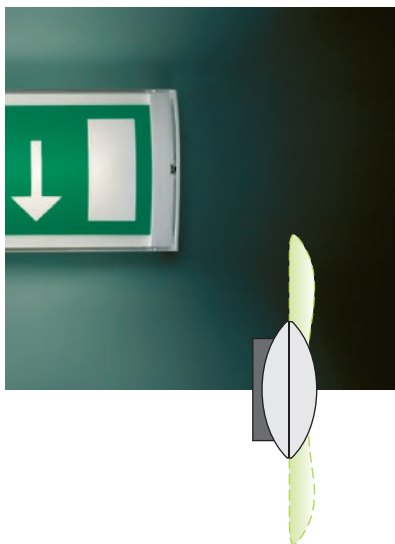
Narrow-angle Fresnel lens



Diffuse light distribution



Foil behind matte cover with light window





E1, IP 65

U5 – Fewer luminaires, more

Quick mounting of E1

Installing enclosed industrial luminaires must be carried out quickly, efficiently and without leaks. E1, ETAP's dust and waterproof solution for industrial areas, is now available on the market in an easy-to-mount package.

The luminaires, already fitted with a lamp, can now simply be snapped into place in quick mounting brackets. Electrical connection is by means of a waterproof Wieland connector on the outside. The housing remains closed during installation, so that leaks are excluded. This results in a significant time saving. By inserting a screwdriver into the special slots in the stainless steel brackets, the luminaire can quickly be opened for lamp replacement purposes.

The quick mounting of E1 lets you save time, gives you greater flexibility and guaranteed dust- and waterproof.



The latest range of ETAP recessed luminaires is named U5. The U5 is designed to set new standards in the fields of efficiency, comfort and flexibility.

Best reflector on the market

"Design the optimum reflector for T5 ø 16 mm lamps, optimised in relation to standard EN 12464 for the lighting of workplaces": such was the brief to the designers of the U5 series. With the U5 reflector ETAP again sets a standard in the market.

Most energy-friendly lighting designs

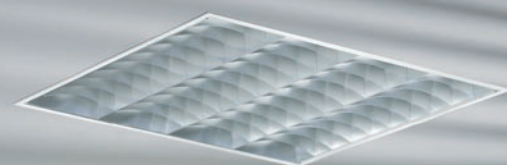
U5 provides maximum luminaire efficiency with the ingeniously designed reflector in High Reflection Aluminium and the luminaire design in which the operating temperature optimises the amount of light from the lamp. Result: wider spacings and so fewer luminaires and a lower installed power.

You can save even more energy by applying local light control or individual luminaire light control, be it in a DALI environment or not. Thus, you can switch or dim related to daylight or presence. The light can also be managed via an infrared remote control.

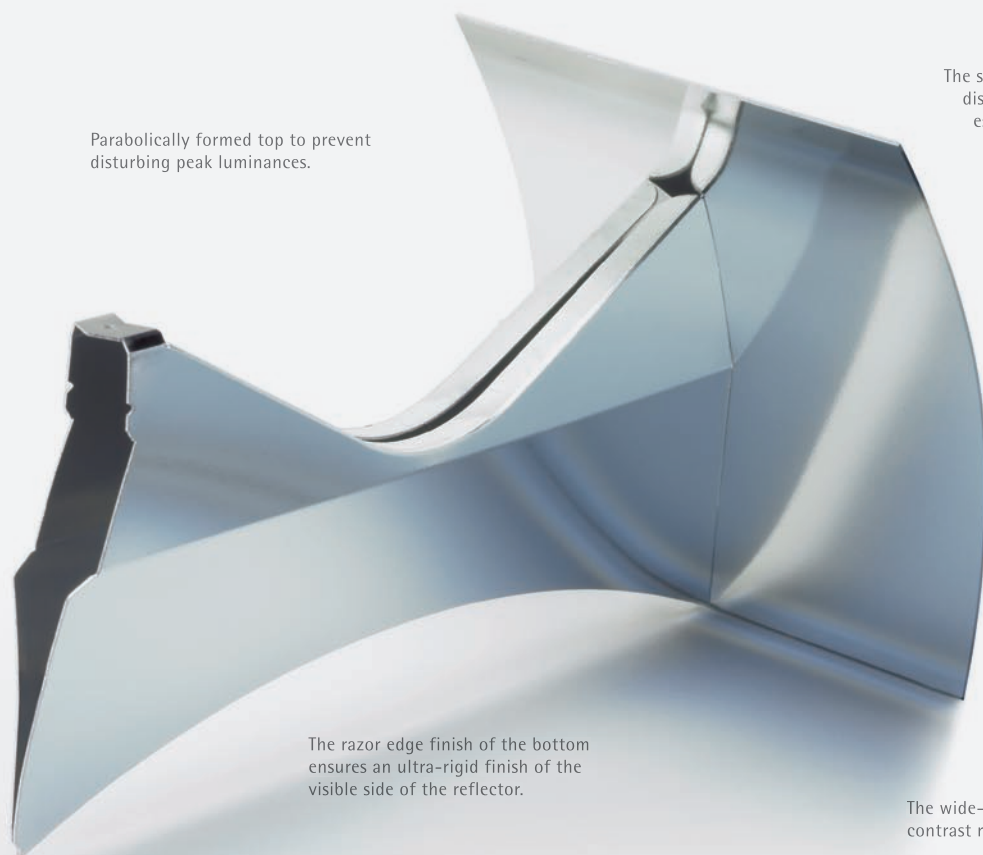
Flexible solutions for any task

The U5 range offers lighting solutions for any office task. The flexibility of the range becomes apparent during the design of the lighting system. U5 lets you choose from different reflectors: the standard reflector with a luminance limit of 1000 cd/m² at a luminance angle of 65°; the comfort reflector which limits the luminance to 200 cd/m² and the CAD reflector (200 cd/m² at 55°) for critical visual work. You can choose from a wide range of lamps and luminous fluxes. The nine lamp positions allow for wide-angle, narrow-angle and asymmetric-beam distributions.

U5 stands for efficiency, comfort and flexibility.



comfort and flexibility



Parabolically formed top to prevent disturbing peak luminances.

The satin-anodised aluminium avoids disturbing images in the reflector, especially with movements.

The optimised form of the reflector and the application of High Reflection Aluminium ensure a luminaire efficiency that exceeds the market values by more than 10 %.

The typical EQUILUM® shape ensures an equal luminance angle in all directions, thereby giving you maximum freedom in the design of a room.

The well-thought-out 3D design of baffles and side reflectors ensures uniform brightness.

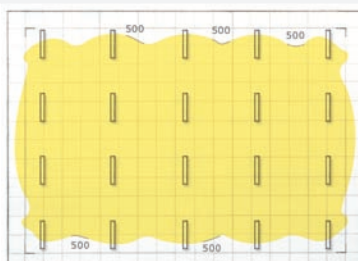
The razor edge finish of the bottom ensures an ultra-rigid finish of the visible side of the reflector.

The wide-angle distribution ensures a high contrast rendering factor and good modelling.

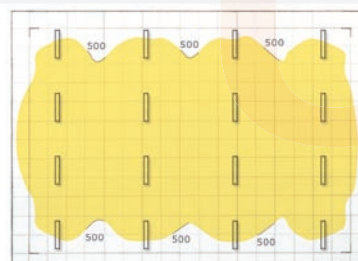
Also after installation, U5 retains its flexibility. The wide-angle distribution and the equal luminance angle in all directions gives you maximum freedom in the design of the room. To adjust the light distribution to suit a specific situation, you can change the lamp positions.

Convenient options

For non-standard ceilings, we can design a customised solution for you. With the Spatial 360™ (optional with the square U5), about 10 % of the light is reflected back to the ceiling, thereby producing a more ambient light which with inter-reflectances approximates 30 %. U5 is available with patented air extraction ducts, so that maximum light efficiency remains guaranteed. With the K9 module your emergency lighting can be integrated unobtrusively into U5.



Classical lighting solution:
20 luminaires (2x28W)
Em: 531 ave.lx
uniformity: 0,84
specific power: 1,90 W/m²/100lx



Lighting solution U5:
16 luminaires (2x28W)
Em: 523 ave.lx
uniformity: 0,81
specific power: 1,50 W/m²/100lx

UM1 with MesoOptics™ technology

UM1 with diffuser



ETAP introduces linear recessed luminaires utilising the MesoOptics™ technology. These UM1 luminaires are available in two standard versions: with complete diffuser or with a diffuser-reflector combination. The second version can be selected when a limit of 1000 cd/m^2 is essential at 65° all-round.

Traditional diffusers

The soft, white light of luminaires with diffusing shielding can be beneficially integrated into modern architectural designs. However, traditional diffusers have a very low efficiency, so that high power consumption is required to achieve the desired illumination level. Another drawback is the light distribution: a traditional diffuser diffuses its light in all directions, so that only a limited portion of the light reaches the work surface.

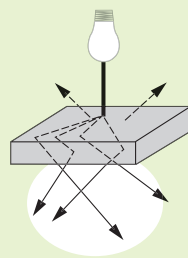
ETAP's MesoOptics™ luminaires

MesoOptics™ solves these problems. MesoOptics™ is an innovative technology that allows an accurate microstructure relief to be created in order to distribute the light in a controlled manner.

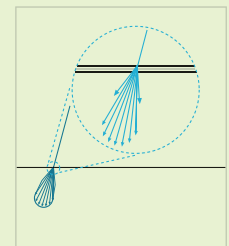
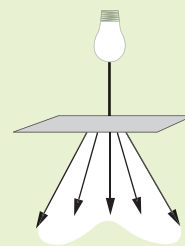
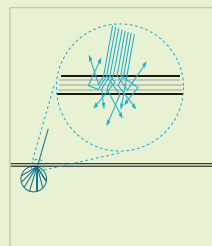
UM1 luminaires that utilise the MesoOptics™ technology offer an amazing efficiency of around 80 %. By comparison: a luminaire with a conventional diffuser has an efficiency of 50 %. The light distribution, which illuminates both the walls and the work surface, makes the room look bright and fresh. Moreover, the MesoOptics™ optics completely eliminate iridescence. The rectangular UM1 luminaires are 1196 mm long and 296 mm wide and fit perfectly into a module 300 system ceiling.



UM1 with reflector

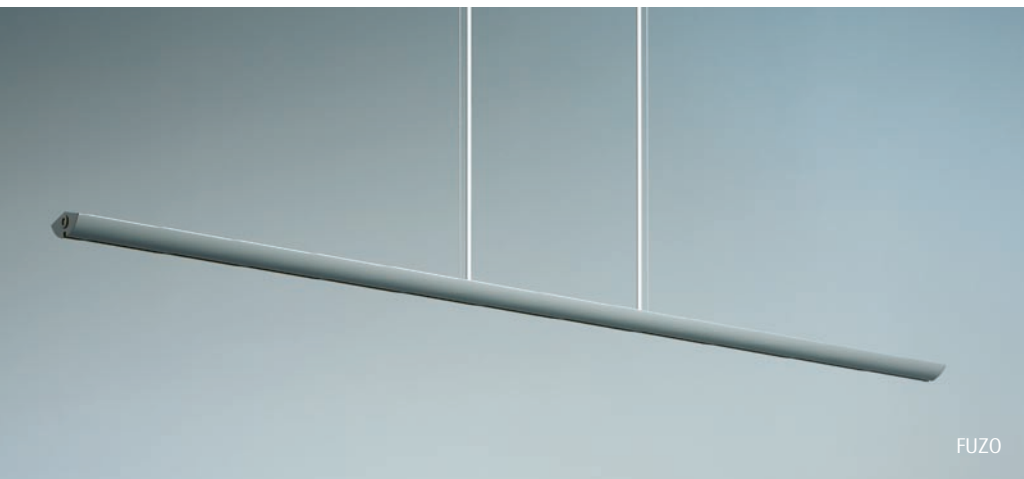


A traditional diffuser blocks and spreads light.



The MesoOptics™ diffuser gives an optimal efficiency of up to 92 %.

ALTER Softlight range is extended



FUZO



ATITA

ETAP's Softlight line is extended with four new, stylish ALTER luminaires.

FUZO

The FUZO is a stylish suspended luminaire. It is available in single or double lamp length, in a two or four lamp version, with standard finish in grey enamelled aluminium. The double lamp length gives a very slender impression and produces a rigid, modern alignment. FUZO illuminates the room only indirectly by reflecting the light via the ceiling.

ATITA

The ATITA wall luminaire complements the ETITA ceiling luminaire. The luminaire distributes the light through a matt, striped shielding of tempered glass.

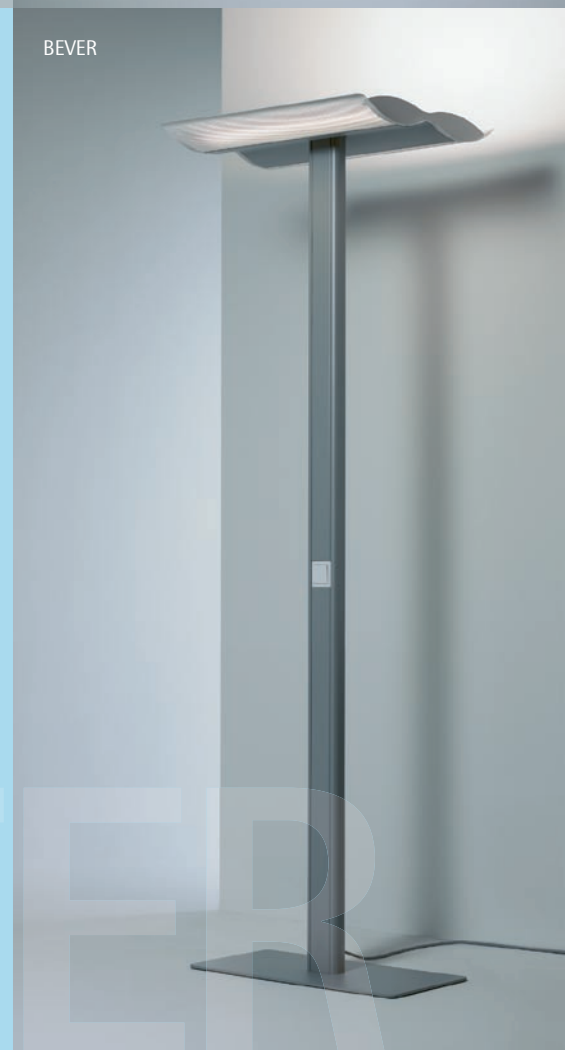
BEVER

BEVER is the ideal solution for predominantly indirect lighting provided by a floor standing luminaire. BEVER is 2 m high. The light from the 4 x 55 W lamps is distributed uniformly on the ceiling and partly directly on the work surface via a white enamelled, perforated steel sheet shielding. The luminaire emits a tranquil light into the room.

EVER

The EVER series is extended with a single-lamp version. The luminaire works with a 55 W PL lamp, allowing it to be provided with an integrated emergency unit. The white enamelled, perforated steel sheet shielding produces a diffuse and atmospheric light distribution. EVER is a beautifully stylish luminaire suited for any environment and can now also be used as emergency lighting.

All ALTER Softlight luminaires can be customised to your requirements. DIALux supports all new ALTER luminaires.



BEVER



EVER

R4 in schools

A good school lighting system takes into account the requirements of different users: pupils and teachers read and write in the classroom, they work at the board or on computer screens.

European standard EN 12464-1 'Lighting of Indoor Workplaces' gives a clear description of the minimum requirements to be met by a school lighting system: not only the lux values (300 lux in primary and secondary education and 500 lux for adult education and night schools), but also the glare limits and the correct uniformity are prescribed. R4 luminaires with EQUILUM® reflectors specially focus on all these issues and are therefore the perfect choice in schools.

R4 with K9 module



Ecole Im Gehr, Bascharage - Luxembourg

Low energy and comfort solution by EQUILUM® reflectors

A new school complex in Bascharage was looking for a low-energy and high-comfort lighting system that also had to meet the pupils' requirements: disturbing peak luminances not only distract but also cause loss of concentration and fatigue and must be avoided.

The classrooms are fitted with R4 suspended luminaires. EQUILUM® reflectors made of highly reflecting aluminium ensure a very high efficiency, so that only a minimum of power had to be installed.

To further keep down energy costs, the Ecole Im Gehr installed the ETAP Light control system ELS. This daylight dependent control sits unobtrusively on the lamp, it is flexible and individually adjustable.

The control system dims the light when there is sufficient daylight in the room. Classrooms often have large window sections, so that up to 70 % of energy can be saved with ELS.

The high-quality EQUILUM® reflector prevents peak luminances and ensures that the light is uniformly shielded in all directions, thereby guaranteeing the comfort of pupils and teacher alike.

R4 asymmetric reflectors are installed to achieve perfectly uniform illumination and excellent visibility of the board. The luminaires with asymmetric longitudinal



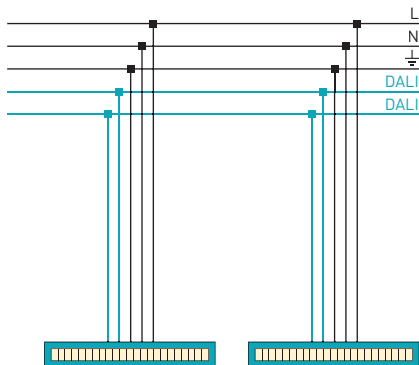


R4-luminaires integrated in a DALI-network ▶

Heinrich Heine Gymnasium,
Kaiserslautern – Germany

Maximum functionality with Dali

The Heinrich Heine Gymnasium specialises in education for gifted children. For the expansion of the school buildings they were looking for a high quality lighting system to be used in combination with a Digital Addressable Lighting Interface (DALI). DALI is a standard lighting bus that allows the digital addressing, control and dimming of the connected luminaires. The R4s fitted with DALI ballasts provided the school with a very comfortable lighting system, with advanced control features.



Westminster School, London – England

Playing with lines, decorating with light, unobtrusively and effectively

Westminster School is a listed building in the shadow of Westminster Abbey. The school was looking for a high quality lighting system that complemented the rigid interior design and possessed the same timeless elegance as the historic building. Because of the school's listed status allowance had to be made for the specific ceilings. Further key points for the school were low energy and brightness in the classrooms.

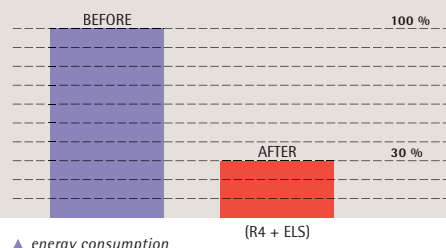
Westminster School chose our R4 luminaires. Their rigid, slender line blended perfectly with the interior. R4 suspended luminaires with through wiring and only 2 suspension points per luminaire fitted elegantly with the period ceilings. The use of ELS in each classroom further reduced energy consumption by up to 50 %.

Ecole Im Gehr, Bascharage – Luxembourg (cont'd)

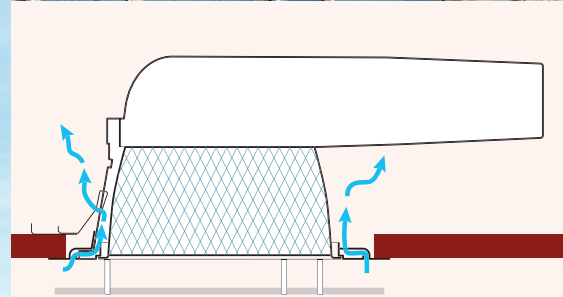
reflectors are mounted parallel to the blackboard to make sure the teacher no longer suffers any inconvenience from the board lighting.

Integrated emergency lighting with centralised control

An integrated solution with emergency units was chosen for the emergency lighting in the classrooms with R4 luminaires. The K9 module for anti-panic or escape route lighting is integrated unobtrusively. Due to the high power LEDs and the perfect photometry only a minimum of K9 modules had to be used. For added security in the school, the emergency lighting was integrated in the ETAP Safety Manager System (ESM), which allows centralised control and monitoring of the modules from a PC. In this way, the school is always absolutely certain that the entire system is working correctly.



ING Financial Plaza

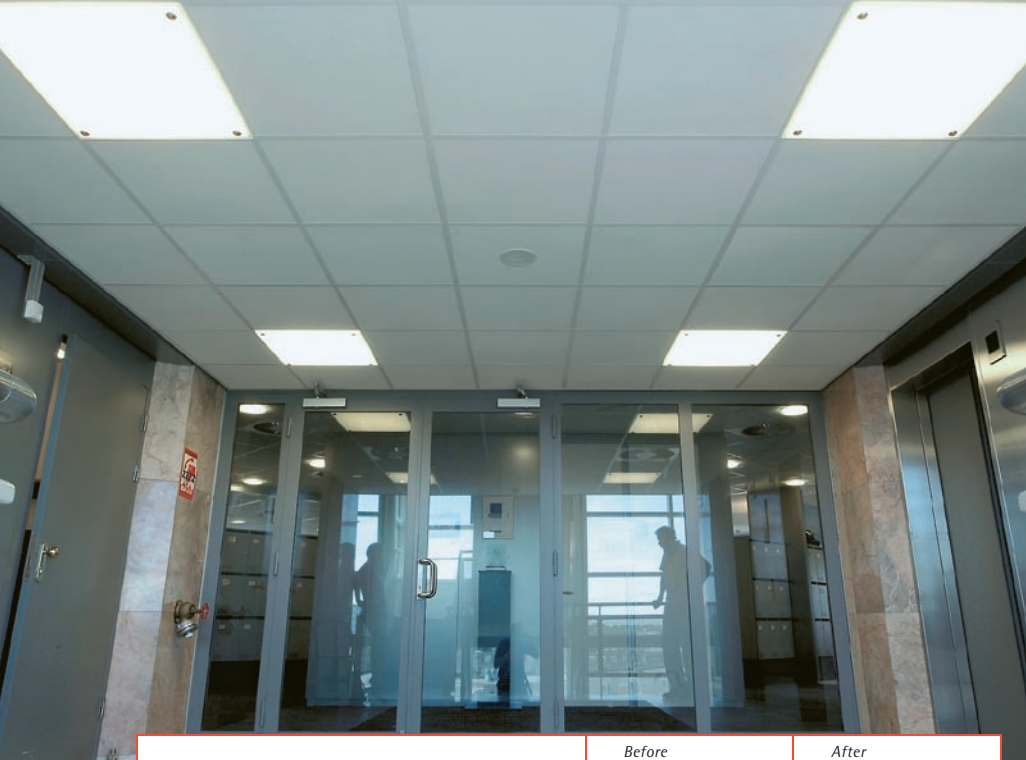


Air extraction via bypass



ING Financial Plaza is located in the Amsterdamse Poort, a residential, shopping and office area. It employs 750 people on a total office area of 7100 m². They are responsible for the administrative processing of the ING Bank's currency and securities transactions.

The 15-year old lighting system was experiencing all sorts of problems. For example, certain spare parts were no longer available. The existing mirror reflector luminaires still used copper iron ballasts. To save energy, almost half of the lamps had been removed, resulting in an inadequate lighting level. The challenge for ETAP consisted in upgrading the system to suit today's lighting requirements.



	Before	After
Number of luminaires	1,412 2x36W	1,412 1x35W
Installed power (kW)	129.9	55.1
Annual consumption hours (h)	4,080	4,080
Theoretical annual consumption (kWh)	530,008	224,677
Saving thanks to ELS		-30 %
Actual annual consumption (kWh)	530,008	157,274
Energy saving		-70 %

Need for contemporary lighting

The objective of ING Bank was to save energy, and at the same time obtain a high quality, ergonomic lighting system. The luminaires were to be based on the T5 - ø16 mm lamp with air extraction being possible via the luminaires, without loss of efficiency. Finally, the system was to be integrated into the existing bandraaster ceiling.

Energy-saving solution

For the offices, the ING Group chose U16 luminaires for bandraaster with a T5 - ø16 mm lamp and ISOLUM® reflectors made of highly reflecting aluminium. The ISOLUM® reflectors prevent peak luminances and disturbing reflections in visual display units. Air extraction is ensured via patented air extraction ducts outside the lamp compartment. With these temperature sensitive lamps, this method prevents loss of light due to cooling of the lamp. On the window sides, the luminaires are fitted with the ETAP Light control System (ELS) for dimming the artificial light as a function of the amount of daylight.

For the corridor areas, ETAP developed – at the request of the architect of the ING Group –

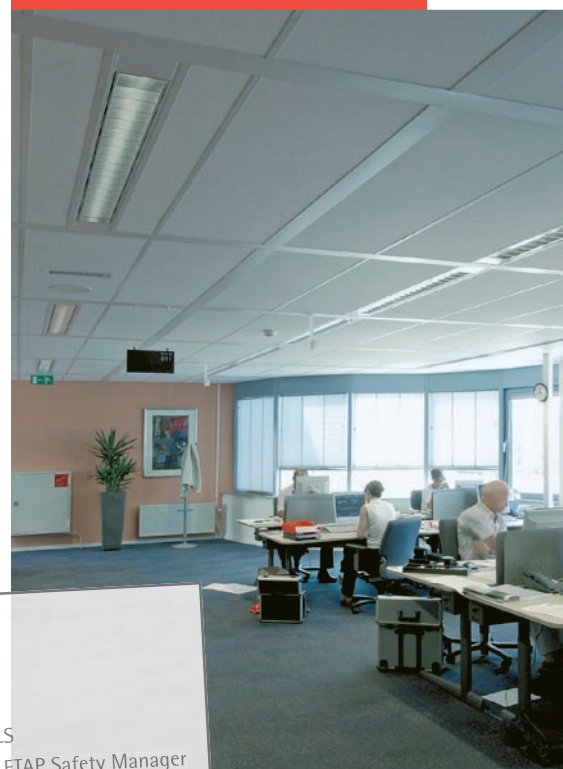
a special downlight, provided with a matt etched glass plate and air extraction. The matt etched plate was deliberately chosen to create an atmosphere different from that in the offices. In the corridors, the impression of dark lights was avoided. The same applied for the lift halls, where the choice fell on the ALTER Softlight luminaire "Dalle" fitted with an opal glass plate, which gives the impression of standing under a skylight.

For aesthetic, maintenance and total cost of ownership reasons, the ING chose the emergency lighting for the K9 LED luminaire with long lifetime. In standby state, patented ETAP electronics ensure precise control of the light source. This lengthens the useful lifetime of the LED light sources from 25,000 to 85,000 hours (approx. ten years).

The emergency lighting luminaires connect to the ETAP Safety Manager (ESM), the centralised control and monitoring system, which allows the emergency lighting to be monitored from a central point.

*Mr B. van Piggelen, project leader,
ING Facility Management*

'For many years, we at the ING Group (both Real Estate and Facility divisions) have had nothing but positive experiences with ETAP. I know ETAP as a trendsetter in photometry and energy savings. They always offer the possibility of customisation and always work out with the customer the best possible solution. Moreover, the ETAP adviser provides excellent information and documentation.'



ETAP supplied:

- 1412 U16 recessed luminaires
- 240 special Luxial® downlights
- daylight dependent light control ELS
- 122 K9, K5 and K4 luminaires with ETAP Safety Manager

Installer: Croon Elektrotechniek

ETAP K9 LED Module

The practice in the U.K of providing emergency lighting by converting standard luminaires is not ideal and the ETAP K9 LED module offers a really attractive alternative.

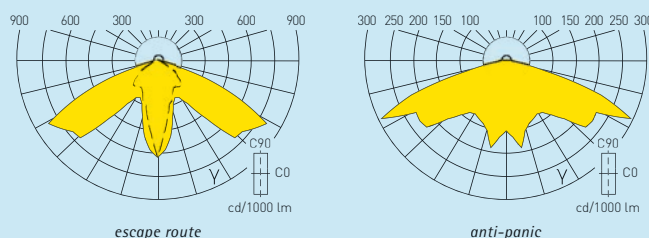
K9 avoids T5 fluorescent problems.

There is evidence that the low mercury content of T5 and TCT lamps in emergency conversions reduces life and contributes to blackened lamp ends early in life. This condition appears to be aggravated in cooler temperatures because the mercury pressure is low.

The spacings of conversion units is restricted by the optics of the luminaire which have been designed to manage luminance and glare rather than optimised for emergency lighting. The optics of K9 have been designed to maximise performance and spacings, the anti panic K9 achieves spacings of 9 metres and the escape route version achieves spacings of 11 metres.



Polar diagrams



LED offers long life, up to 100,000 hours when used in emergency and testing mode only. This compares with 7000 – 8000 hours for a fluorescent lamp in an emergency fitting.

K9 is integrated into the end cell of a luminaire so no additional wiring is required and the performance of the fitting has minimal reduction.

Automatic self test comes as standard and this of course can be monitored and managed by ETAP Safety Manager, ESM.

There are environmental advantages too, nickel metal hydride batteries are easier to dispose of and there is reduced power consumption.



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