

# LIGHTPOINT.

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*Złote Tarasy, 225,000 m<sup>2</sup> of shops, offices and catering outlets in Warsaw, Poland*

Wireless control for  
emergency lighting

Dynamic light now  
within everyone's reach



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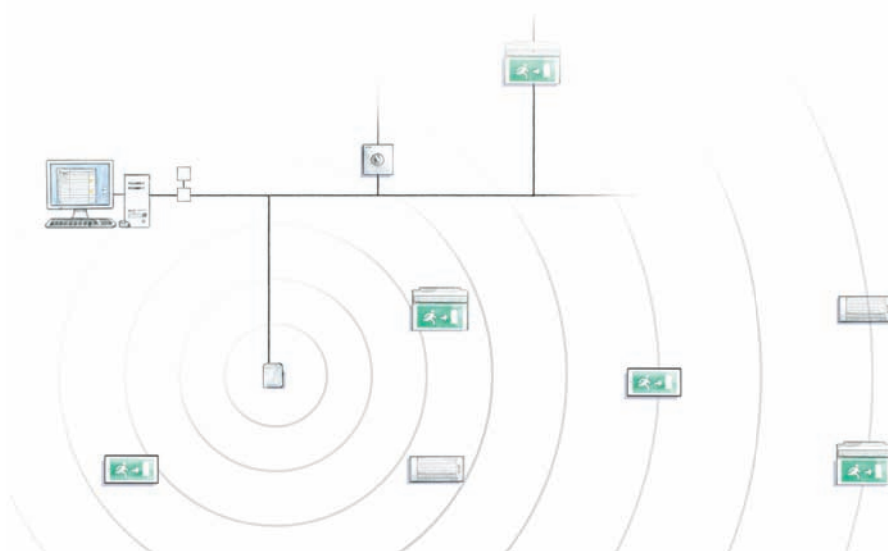
## Discreet, high-quality integration of light and air

ETAP supplied 8,000 special Thalia® recessed luminaires for the commercial complex 'Zlote Tarasy'. For the chilled beam installation, ETAP worked closely with the Finnish group 'Halton', which integrated the luminaires into its beam. Result: uniform lighting with low brightness and an illuminance and power that 100 % met the technical requirements. The lighting integrated into their cooling system is discreetly mounted in the ceiling, so that only the reflector of the luminaire remains visible.

## → NEW PRODUCTS



# Wireless control for emergency lighting



### ETAP Safety Manager

ETAP Safety Manager (ESM) connects all your emergency lighting luminaires to a central PC, from where you can monitor and manage the entire system.

### Increased safety

On the PC, you have a continuous and complete overview of the status of all emergency lighting luminaires. Any faults are reported immediately to enable quick repair of the system.

### Efficient management

European standard EN50172 prescribes that you must check your emergency lighting system at regular intervals and maintain a complete inspection log book. This time-consuming job is now taken over by the computer and ESM.

The differentiated fault messages and the structured information about the status of lamps and batteries further enable you to efficiently organise the maintenance of your system.

# EN50172

## Wireless control

ETAP now introduces a wireless version of ESM, whereby there is no cable connection between the emergency lighting luminaires and the control network. The wireless ESM network is based on the so-called ZigBee (IEEE 802.15.4) standard, which ensures a secure network environment. The system can be applied in virtually any environment, the 1 mW transmit power is hundred times less than that of your GSM phone.

### *Unparalleled flexibility*

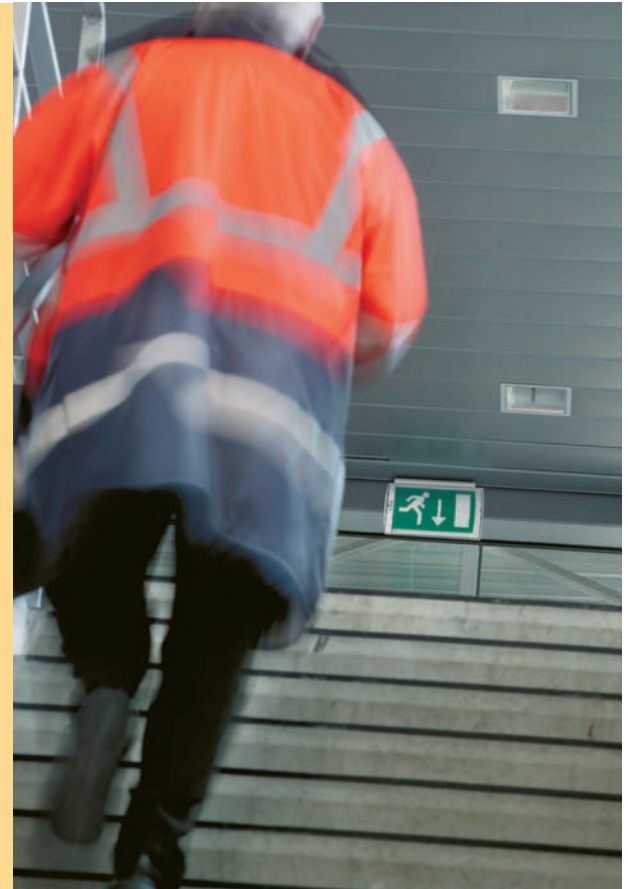
A wireless network gives you extreme flexibility. Do you want to extend or change your system? The presence of mains voltage is all you need to install an additional emergency lighting luminaire.

Wireless ESM is ideal for the renovation of installations and buildings, because you do not have to lay extra cabling for the control network.

### *Reliability*

Real-time control of a system that is essentially intended to ensure the safety of people is a serious matter. Obviously, you need to be sure of the reliability of the tests and the network communication. In the past 10 years, ESM has been installed in hundreds of buildings throughout Europe, to the full satisfaction of its users. The best possible guarantee for its reliability!

*Where drilling and channelling work is to be avoided, wireless provides the solution.*

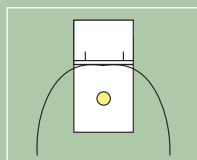


With the wireless version of ESM, you choose a reliable control system for your emergency lighting that is extremely easy to install and that gives you great freedom and flexibility for future modifications to the installation.

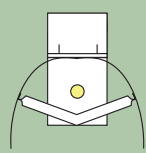
# E5 range is extended

## More options for the lighting of high spaces

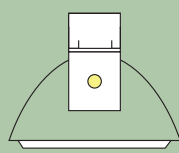
The ETAP E5 line (with T5 – ø16mm lamps) is ideal for the lighting of high spaces such as workshops, warehouses, supermarkets... Alongside the existing wide-angle and narrow-angle reflectors, ETAP now introduces four new E5 reflector types, allowing you to further optimise the lighting as a function of the specific needs in each space.



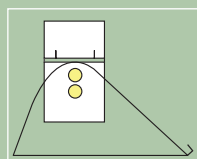
E520 wide-angle reflector (+T01)



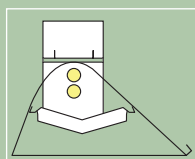
E522 wide-angle reflector with baffles



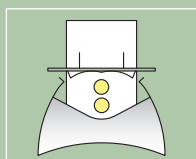
E530 narrow-angle reflector



E560 asymmetric reflector



E562 asymmetric reflector with baffles



E586 with EQUILUM® reflector

### EQUILUM® reflector for perfect photometrics (E586)

E586 with an EQUILUM® reflector is the ultimate solution from a photometric point of view. The EQUILUM® reflector offers the best combination of light distribution (wide-angle reflector), a shielding of 65° and an efficiency of 96 %. The excellent luminance control without peak luminances ensures optimum lighting comfort without any glare.

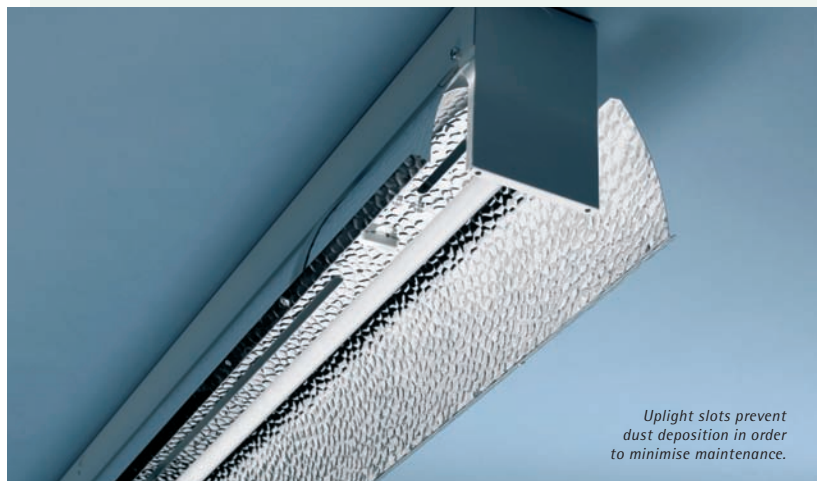


*EQUILUM® reflector for intricate visual tasks, combined with ELS or occupancy detection for extra energy saving.*



### Wide-angle reflector for dusty environments (E520xT01)

E52 is fitted with uplight sleeves positioned obliquely above the lamp. For heavy industry where the lighting system is exposed to extra dust, ETAP developed a special E52 version (xT01). The uplight slot is here positioned exactly in the middle at the top of the reflector. This ensures a directional air circulation which prevents harmful dust deposition on the lamp.



*Uplight slots prevent dust deposition in order to minimise maintenance.*

### Asymmetric reflectors (E560 and E562)

Where luminaires cannot be mounted above the work area or where you want to light large vertical areas the asymmetric E56 reflectors, which directs light from the side is ideal. These reflectors of high reflection aluminium achieve efficiencies of up to 100 %. The hammered material prevents abrupt luminance transitions. Where extra shielding in the longitudinal direction is required the E562 combines asymmetric light distribution with longitudinal shielding of 60° through the use of white baffles.

## E6, universal dust and waterproof lighting



In parking garages, basements, technical rooms and warehouses, the lighting system is often subject to dust ingress, moisture and physical abuse. E6 is the ideal solution for such applications.

E6 luminaires can be installed anywhere and are resistant to rough handling. They are rated IP65 and as such are dust and waterproof. They are made of impact-resistant polycarbonate with a temperature resistance of 850°C.

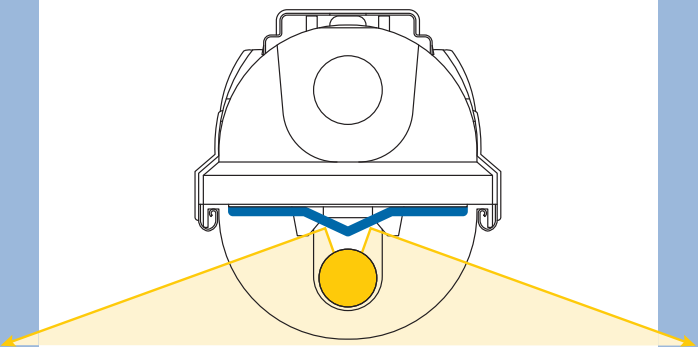
### Efficiency and low energy consumption

E6 is available for both T5 - ø16 mm lamps and T8 - ø26 lamps. With both single lamp and dual lamp versions, the wide-angle reflector ensures a high efficiency of up to 85 % and improved light distribution, so you need fewer luminaires to efficiently illuminate the space.

### Installation and maintenance-friendly

E6 is installed with separate mounting brackets. The luminaires simply snap into the brackets. For in-line mounting, installation-friendly luminaires with through wiring are available as an option. Maintenance is just as simple: stainless steel clamps are provided for smooth opening and closing of the protective cover. Moreover, the cover remains hinged to the base, which greatly facilitates lamp replacement.

In environments with very high temperatures or chemical exposure, special luminaires are necessitated. Our E1 luminaires with their glass fibre reinforced polyester base and rugged construction are the ideal solution for such applications.

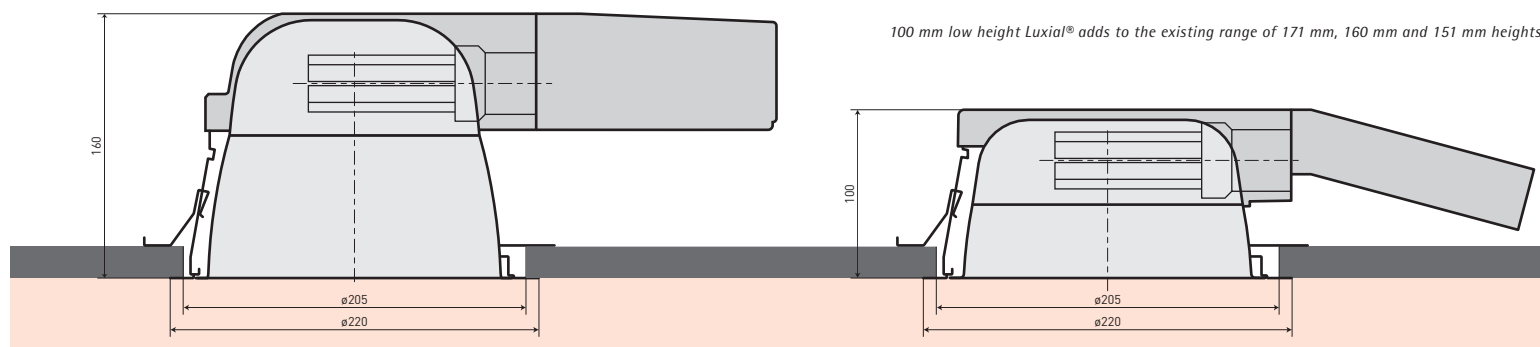


*Wide-angle reflector for optimum light distribution*



→ NEW PRODUCTS

## Lowered Luxial® for ceilings with limited mounting depth



ETAP has a wide range of round and square Luxial® downlights for surface and recessed mounting in ceilings. For ceilings with a limited mounting depth, ETAP designed a low height round Luxial® with a 100 mm mounting depth and a 220 mm diameter.

The low height downlight is designed for single compact fluorescent lamps (TCT) of 18, 26 or 32W or twin lamp versions of 26W. The lightlock housing and the high-quality reflector of specular aluminium with rhombic facets make optimum use of the light from the lamp. As a result, this downlight achieves an efficiency of up to 80 %.

The low height Luxial® is also easy to install with the "toothed" clips.

Where a downlight with more powerful photometric qualities is required, e.g. in office environments, the conventional Luxial® luminaires offer an even higher efficiency, a more ingenious light distribution and, above all, better luminance control.



The Luxial® accessories can be used to create interesting lighting effects.



## K9 LED emergency lighting also for night lighting



K9 emergency lighting has found a new application as night emergency lighting.

The LED light source is lit day and night at approx. 10% of its nominal power. This is sufficient for a guard to make his night round in all safety.

The continuous operation of the LED at reduced level will not affect its service life.

With this new K9 model, you not only have a reliable emergency lighting system, but also light at night, without ever having to replace a lamp.

# R4 now also in square design



R48



R4M



R45

R4 has a minimalist form complemented by a seamless construction. You can choose between surface mounted or suspended luminaires, in white (RAL 9003) or aluminium grey (RAL 9006), with single or dual lamp length, single or dual lamp version. Beside the linear R4, ETAP now has also square models. The new square design does not impose any direction upon the room, thereby giving you greater flexibility in its design or redesign.

## Outstanding photometrics

The square R4 luminaires are available in three different versions, each featuring ETAP's most advanced optics:

- R48 is available in a three or four lamp version. Both are equipped with EQUILUM® reflectors. The typical reflector shape prevents inconvenient peak luminances and ensures proper and uniform shielding in all directions, thereby minimising the risk of glare.
- R45 also uses the EQUILUM® technology. With its wider reflector opening and high, narrow baffles, the R45 achieves an efficiency

of no less than 90 %, i.e. 5 % higher than that of R48. Moreover, the wide-angle distribution ensures perfect contrast and 3D rendering. And you also need fewer luminaires.

- R4M is equipped with a diffuser that utilises the MesoOptics™ technology. Not only is its efficiency (85 %) up to 30 % higher than that of conventional diffusers, RM4 also evenly illuminates your room, without flashing or strong contrasts.

## Light control

Light control reduces energy consumption and increases comfort. You can easily integrate the ETAP multisensor for Dali (EMD) into all R4 luminaires: this enables you to control the light as a function of daylight, movement or infrared remote control.

## Emergency lighting

You can integrate emergency lighting into R4 in two ways:

- using conventional emergency units
- using LED-based K9 units; thanks to the optimised photometrics you need considerably fewer units to comply with the standard.

Whether you choose R4 with EQUILUM® reflectors or with MesoOptics™ technology, in either case you will have fewer luminaires, improved comfort and greater flexibility.



# Dynamic light now within everyone's reach

Extensive scientific research has shown that the introduction of dynamics into the intensity, colour and distribution of (artificial) light also has a significant biological impact. These insights are opening up new fields of application: in medical applications, in the work place through the creation of stimulating effects by changing the colour of light.

Until recently, such lighting systems were expensive and exclusive. With the mass production of light control components, dynamic light is now also available for these applications.

## Building blocks for dynamic light

ETAP offers a coherent set of building blocks for you to set up your dynamic light system.

### Luminaires for dynamic light

These luminaires can vary in light intensity, light colour and light distribution. They are fitted with different lamps, of different colours, each connected to a digital ballast (DALI) for dimming.

### Programmable light control system

A programmable lighting control system is required to change the light intensity, light distribution and light colour at specified times. You can choose a programmable touch screen or control software to be installed on your PC.

### Control programs for dynamic light

Depending on the application, you can change the intensity, distribution and colour of the light at chosen times, either fully manually or automatically. For automatic control, you can choose between ready-made control programs or programs tailored by ETAP to suit your specific needs.

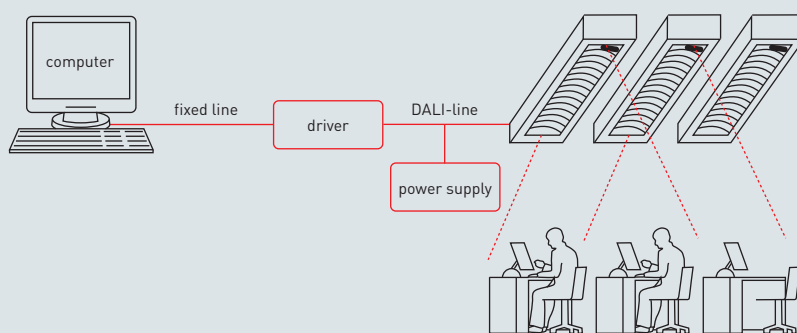
### Dynamic light: energy guzzler?

Dynamic light inevitably consumes more energy than conventional lighting solutions. ETAP applies high efficiency luminaires and special programs for dynamic lighting to keep energy consumption as low as possible. Finally, the ETAP multisensor allows you to save extra energy as the light automatically dims based on the presence or absence of occupants, and of incident daylight.

### Customised advice

ETAP will be glad to give you customised advice on dynamic lighting with maximum effect and minimum energy consumption.

Automatic control of light intensity, light distribution and light colour. The EMD multisensor dims the light based on the presence or absence of occupants, and day light levels, resulting in extra energy savings.



ETAP provides dynamic luminaires for any environment: linear or square recessed, surface mounted or suspended luminaires.

# Biological effects of light

In 2002 David Berson of Brown University in Providence (Rhode Island) discovered a new type of photoreceptor cell in the human eye. If these receptors in our retina pick up warm reddish light, we start producing melatonin, the sleep hormone, whereas cooler bluish light triggers the production of cortisol, the stress hormone that keeps us active and alert.

*A more pronounced portion of blue light makes you feel good and alert.*



Recent scientific studies show that not only the light intensity, but also the light colour is important for how we feel.

## Light colour

Elderly with dementia often lose their sense of time. A selective light therapy can adjust their biological clock. Mariana Figueiro of Rensselaer Polytechnic Institute's Lighting Research Center in New York did the test: in the early evening Alzheimer patients received extra blue light, and at night coloured light. Their disturbed sleep became deeper and uninterrupted.

## Light intensity

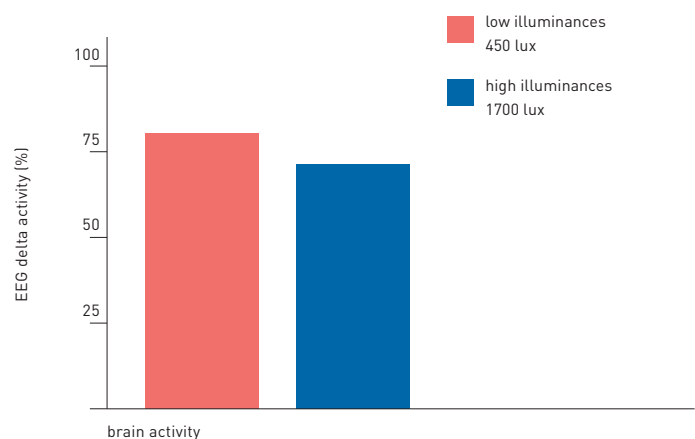
Küller and Wetterberg studied the brain activity (via EEG) of a group of test subjects in a simulated office environment with a high level of illumination (1700 lux) and one with a comparatively low level of illumination (450 lux). The delta activity of the EEG is an indication of sleepiness. The EEG of the higher illumination level was found to result in fewer delta waves, suggesting that bright light has an alerting effect on the central nervous system. (see Figure)

## Alert and perky

Steven Lockley of Harvard Medical School in Boston kept 32 volunteers for nine days in a room without daylight and without any notion of time. After several experiments with periods of more and less light, the sleepy volunteers received 6.5 hours of bright blue or bright green light. The test results of those exposed to blue light revealed extra alertness, extra brain activity and more hormones in the blood. The group exposed to blue light was more alert and less sleepy than the group receiving green light.

Every day we learn more about the biological effects of light. Today we know how and why we react to light days and dark nights. Healthy light and healthy darkness. We keep abreast of the latest research in this area to incorporate it into our innovative and new dynamic light solutions.

Figure: Delta activity in the EEG of employees at illuminances of 450 lux and 1700 lux (source: Küller and Wetterberg)



Sources:

Light impacts, Science News, May 2006

More info can be found on the site of the Lighting Research Center (LRC):

<http://www.lrc.rpi.edu/researchTopics/humanFactors/lightHealth.asp>

→ IN THE SPOTLIGHT

# Bishop's Square

Bishop's Square is a new office complex at Spitalfields Market which dates back to the 13th Century.

The architect's objective was to create an efficient office space full of light and colour. Bishop's Square was to meet the needs of modern users, whilst enhancing this vibrant area of the City of London.

It is one of the most ecologically advanced buildings in London with high efficiency energy systems including the most extensive office installation of photo solar cells in London.



## The Story

Throughout the design development process ETAP worked closely with consulting engineers Hilson Moran Partnership and the design team, under supervision of Allen & Overy, the international law firm, which rents the 70,000 m<sup>2</sup> office accommodation for its 2,500 London-based employees.

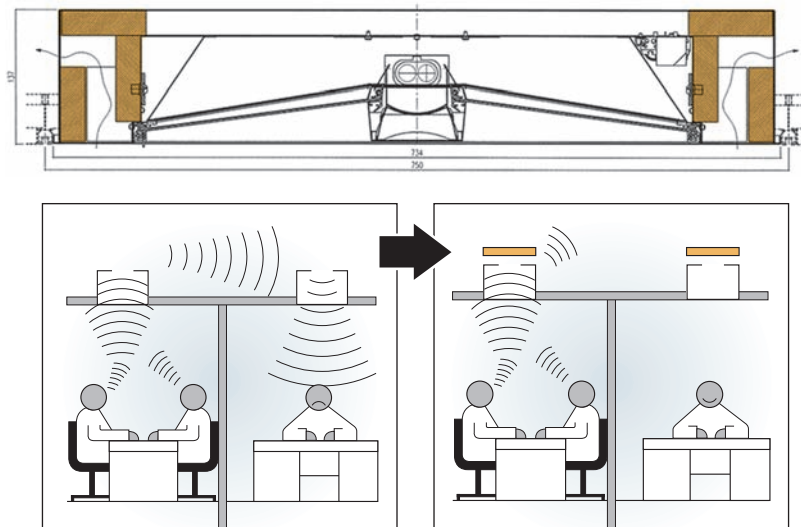
The objective was to achieve a balance between aesthetic quality lighting and energy efficiency and performance. One fitting had to be capable of lighting a cellular office of 3m x 3m to at least 400 lux. It also had to be flexible enough to provide the appropriate level of illumination for a large open plan office too.

The advantages of ETAP's award-winning UM1 luminaires with the MesoOptics™ technology meant that all of these criteria were achieved. The microstructures in the thin, diffusing MesoOptics™ foil ensure a highly controlled light distribution that is comparable to that of a reflector. This allows UM1 to achieve a thirty percent higher efficiency than luminaires using conventional diffuser techniques. The result is ▶



Noise attenuators minimise cross-talk between adjacent rooms.

- ▷ significant energy savings as fewer luminaires are required to obtain the desired level of illumination. In combination with an EQUILUM® reflector, the luminance is less than  $1000 \text{ cd/m}^2$  from  $65^\circ$  in all directions, which makes the luminaire suitable for VDU work. In the London office building, the UM1 luminaires are connected to the building management system, which sets the appropriate level of illumination both in individual offices and in open plan offices.



The project also required that the lighting solution comprised a complete ceiling tile of  $750 \times 750 \text{ mm}$ , with air extraction of 110 litres/second ( $400 \text{ m}^3/\text{h}$ ) and a noise attenuator to prevent cross-talk between cellular offices. Testing of the UM1 luminaires in a replicated ceiling by an independent laboratory demonstrated that the 80W UM1 luminaire amply met the specifications.

ETAP's engineers worked with the ceiling manufacturer to ensure perfect integration and alignment with the proposed ceiling system. The restricted lighting zone above the ceiling involved ETAP designing special bracketry to allow the luminaires to be drawn up from beneath the ceiling.

The tight project timescale required careful planning by ETAP logistics to ensure that the delivery schedule was achieved. With careful project management and communication between ETAP and the installing contractor, deliveries were correctly implemented.

The quantity of fittings ordered was for 6,700 luminaires which were supplied during 2006.



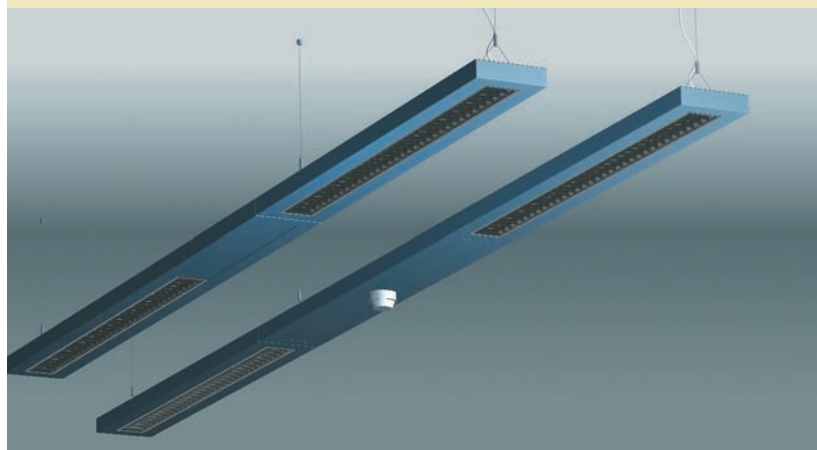
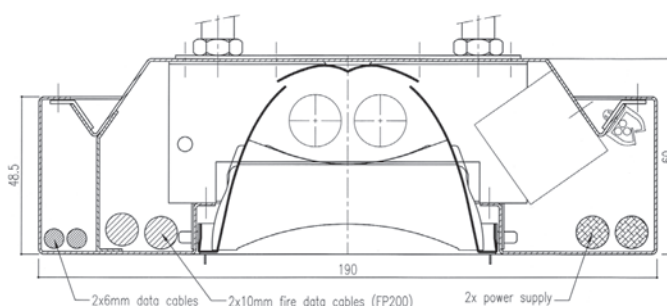
# R4 Service beam



## MINIMALIST IN STYLE MAXIMUM FLEXIBILITY

Today's classrooms need much more than good lighting. ETAP can incorporate many services into the lighting service beam:

- presence detection
- power supply and sockets
- fire detection
- speakers
- data transmission and outlets
- etc etc



- The need to separate and shield cables can easily be accommodated in separate containment.
- Rod suspension available as an option.
- Underside polycarbonate protection as an option.

The advantages are a clean uncluttered ceiling, flexibility in positioning and ease of installation with pre-installed pull through fishing line and of course ETAP's exceptionally efficient and comfortable lighting.



ETAP Lighting, U.K. Branch  
Unit A - Hamilton Close - Houndmills - Basingstoke  
Hampshire RG21 6YT  
Tel. +44 (0)1256-818818  
Fax +44 (0)1256-363358  
[enquiries@etaplighting.com](mailto:enquiries@etaplighting.com)  
[www.etaplighting.com](http://www.etaplighting.com)

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