



## **The latest emergency lighting technologies provide significant benefits for facilities managers**

**As every competent building services engineer and facilities manager knows, UK fire safety legislation requires – subject to a risk assessment - reliable, good quality emergency lighting that is fit for purpose at all times. Here, Bernard Pratley, Technical Manager at ICEL, the emergency lighting arm of the Lighting Industry Federation (LIF), reports on the latest emergency lighting technologies that bring significant safety, cost and maintenance benefits.**

If an emergency occurs in a building, especially if that emergency is a fire, it is essential to make it as easy as possible for people inside to exit quickly through designated escape routes without panic. This is especially important because most people unfamiliar with a building tend to ignore shorter escape routes and leave it the same way they entered it. Therefore, emergency lighting and escape route illumination must make it easy for those evacuating non-domestic buildings (Figures 1 & 2) to see sufficiently clearly to safely and quickly make their way out to a place of safety.

Emergency lighting is likely to be needed by the required risk assessment in all premises where people are employed and artificial lighting is installed. Facilities managers now have real choice in its provision, especially when considering employing the latest technologies, which are automated testing and the use of LEDs in emergency luminaires and exit signs. These can bring significant benefits for building owners, facilities managers and maintenance staff, saving energy, time and money, while improving safety still further.

### **Automatic Test Systems for peace of mind**

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Looking first at automated testing, the Regulatory Reform (Fire Safety) Order 2005 makes the 'Responsible Person', who may be a facilities manager, responsible for fire safety, which includes emergency lighting and escape route illumination (Figures 3 & 4).

The emergency lighting Code of Practice BS5266: Part 10, and Fire Safety legislation under Section 7 (testing, maintenance and record keeping), requires that 'Responsible Persons' must test their emergency lighting systems regularly and record the results. Such manual testing can be lengthy, expensive and disruptive, especially in large buildings. Indeed, it can often be difficult to achieve whilst keeping the building concerned legal and fully working.

Unfortunately, not all building owners, facilities managers and employers will always be aware of the emergency lighting periodic testing and maintenance requirements laid down in BS 5266 and this, when combined with other risks such as time pressures on employees, can lead to manual emergency lighting checking not always being fully carried out. Where this is the case, legal requirements are not being fully complied with, which can result in prosecutions and, more importantly, there will be risks for the users in the buildings.

Automatic Test Systems (ATS) - see Figure 5 - overcome this problem by regularly checking, without human intervention, that emergency lighting batteries, lamps and luminaires are working correctly. ATS also provides early notification of failures or performance degradation. The test results still have to be recorded into a logbook, but even this can be automated. This brings peace of mind for those tasked with ensuring that their emergency lighting system is fully working and fit for purpose. There are two main types of ATS under BSEN 62034:

1. A self-test emergency luminaire performs tests and indicates the results.
2. A test system that performs tests automatically on one or more emergency luminaires, with a remote panel providing the results.

The Industry Committee for Emergency Lighting (ICEL) recommends that due consideration should be given to installing an ATS that conforms to BS EN 62034.

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Although ATS has a higher initial cost outlay, the payback period can be quite short when set against the cost of meeting subsequent responsibilities for manual testing. ICEL members can advise on choice of ATS and ensure that the system purchased is suited for the application and regulatory requirements – go to [www.icel.co.uk](http://www.icel.co.uk).

### **LEDs benefit emergency lighting**

White light LEDs were suitable for use in exit signs about three years ago, but the latest improved technology means that they are now suitable for most emergency lighting luminaires, and they can bring many benefits for lighting designers, facilities managers, maintenance staff and building occupants.

These benefits are now quite well known, but it would still be useful to reiterate them briefly:

- White LEDs efficiently produce a well-directed bright, uniform light.
- Compared with equivalent fluorescents, good LED emergency luminaires and exit signs often save 30% energy because of their better-directed light output.
- LEDs are virtually unbreakable and have a very long life.
- LEDs are unaffected by extremely low temperatures.
- Exceptionally sleek, modern, unobtrusive and sometimes unusual LED emergency lighting luminaires can be designed - even integrated into building structures, which would be difficult or impossible with conventional lighting (Figure 6).

Conventional emergency lighting lamps, until recently mainly T5 miniature fluorescent lamps that are still widely used, have a relatively limited lamp life. They therefore need to be replaced on a regular basis, which is a costly and disruptive process. LEDs' longer life can substantially reduce these maintenance costs and also reduce office disruption.

Correctly installed emergency lighting luminaires should easily achieve the required 1 lux at the floor, using just two 1W LEDs, plus LED control gear (driver), inverter and a three-

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hour non-maintained 3.6V battery. Figure 7 shows a P4 emergency luminaire. It has four LEDs for greater light source integrity.

According to application standard BS 5266 Part 7 (EN1838) and the luminaire construction standard EN60598-2-22, which define minimum luminance levels, exit signs must provide enough light to be clear even at maximum viewing distances.

### **Benchmarking emergency lighting**

It is not just new technologies that bring confidence in emergency lighting – benchmarking can too. The ‘Responsible Person’ has to risk assess premises by checking fire safety equipment. He or she must identify any upgrades required, and must also either obtain third party assurance for fire safety equipment (including emergency lighting), or must demonstrate - possibly in a court of law - that the fire safety equipment is of ‘suitable quality’. The benefits of benchmarking emergency lighting are, therefore, clear - the equipment has to be fit for purpose.

As a leading technical authority in emergency lighting, including standards development, ICEL provides such independent third party benchmarking (registration). Where an ICEL member company supplies an emergency lighting luminaire for benchmarking, it means that upon successful completion of the BS EN 60598-2-22 tests, the submitted emergency luminaire, its manufacturer and the manufacturer’s performance claims have been independently approved. It can then be demonstrated to inspecting fire authorities that the equipment is of the required quality. So, even though benchmarking is not a legal requirement, by specifying ICEL approved luminaires, clients can benefit from additional assurance about the performance of their emergency lighting. Like ATS, benchmarking helps provide peace of mind.

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**CAPTIONS:**

**CAPTION 1 (file - ORBIK\_Airport.jpg)**

Figure 1: Many people unfamiliar with a building tend to ignore shorter escape routes and leave it the same way they entered it. (photo Orbik).

**CAPTION 2 (file - ORBIK\_Escape\_Route.jpg)**

Figure 2: Emergency and escape route illumination must make it easy for people evacuating buildings to safely and quickly get out, using the nearest and shortest designated exit paths (photo Orbik).

**CAPTION 3 (file – ORBIK\_Dalby.jpg)**

Figure 3: A low-profile recessed emergency lighting luminaire.

**CAPTION 4 (file – ORBIK\_SLD\_Signalled.jpg)**

Figure 4: An LED-powered escape route sign by Orbik – wire-suspended.

**CAPTION 5 (file – ADVANCED\_ELEC\_Lx.jpg)**

Figure 5: An Advanced Electronics Lx system control panel that provides cost-effective automatic emergency lighting testing and monitoring.

**CAPTION 6 (file – P4\_StairwayLED.jpg)**

Figure 6: This photo of a P4 LED escape route fitting shows what is possible in terms of innovative design.

**CAPTION 7 (file - P4\_QuadLED.jpg)**

Figure 7: This very compact LED-powered recessed open area emergency luminaire by P4 displays innovative design.

**Notes for editors:****1) About ICEL**

ICEL ([www.icel.co.uk](http://www.icel.co.uk)) is the foremost UK authority on emergency lighting, and its members are manufacturers of components and products for emergency lighting fittings. ICEL's representatives serve on BSI and International Standards committees, developing harmonised product and application standards. Therefore, ICEL members are well placed to give advice on product selection and can be expected to provide good quality emergency lighting products.

**2) Emergency lighting and escape route illumination**

Emergency lighting and escape route illumination must make it easy for people evacuating a building to see clearly enough to safely and quickly make their way out, using the nearest and shortest designated exit paths. Most people unfamiliar with a building tend to leave it the same way they entered it, often ignoring shorter escape routes not clearly marked (Figure 1).

Compliance with BS EN 60598-2-22, the emergency lighting luminaires standard, and EN50172 (BS 5266 series), the emergency escape lighting application series of standards, together ensure that there will be sufficient illumination for people to see and be directed towards emergency exits, with exit or directional signs being in view at all points along the escape route (Figure 2).

### 3) Emergency lighting under BS EN 60598-2-22

**Self-contained luminaires** - These provide maintained or non-maintained emergency lighting in which all the elements (such as the battery, lamp, control unit, and test and monitoring facilities where provided) are contained within the luminaire or adjacent to it (within 1m cable length).

**Centrally supplied (slave fittings)** - In these fittings, the lamp and some of the control gear is located in the luminaire, but the charger and battery (and often the changeover device) is located remotely, providing the supply to a number of luminaires. Central power units may supply the luminaires with a range of DC voltages, or at 230V AC from an inverter. To operate on DC, some are specifically designed as emergency luminaires; others are converted mains luminaires.

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